



Transmitted Via Federal Express

July 11, 2003

Mr. Fred Rindhage, P.E.
General Motors Corporation
M/C 483-619-356
1996 Technology Drive
Troy, MI 48083

Re: Geophysical Investigation
NEC Ecorse Road and Michigan Avenue
Van Buren Township, Michigan
BBL Project #: 86805.004

Dear Mr. Rindhage:

This letter provides the findings of a geophysical investigation performed for General Motors Corporation (GM) by Blasland, Bouck, & Lee, Inc. (BBL) on vacant land (herein referred to as the Site) bounded to the south by Ecorse Road, to the west by Michigan Avenue, to the north by railroad tracks, and to the east by the GM Service Parts Organization (SPO) Warehouse building. The purpose of this investigation was to expand on the findings of a Phase I environmental site assessment (ESA) that identified evidence of the operation of a historic dump/landfill, as well as ongoing surface dumping, by performing a non-invasive geophysical survey to investigate the extent of the former landfill or other potential below grade disposal areas.

The geophysical investigation was performed by two BBL personnel during the week of April 14, 2003. The investigation consisted of an electromagnetic (EM) survey to identify areas of elevated measurements (anomalies) and define the location of the anomalies using a global positioning system (GPS). A discussion of the EM survey methodology is provided below, followed by a summary of the results.

EM Survey Methodology

Survey set up and equipment

The EM survey equipment consisted of a Trimble AG-114 GPS system, a Geonics digital EM-31 terrain conductivity meter, and a PRO 4000 data logger. Accessory equipment included a hand-held GPS unit (Garmin), a hand-held compass, and survey flagging. After the initial site review and orientation, the EM survey equipment was set up and operational functions were checked following the manufacturers' procedures. Once the equipment was determined to be operating properly, background measurements were taken in an offsite area to determine a mean apparent conductivity and in-phase values. These background measurements would be later used to compare to onsite measurements to identify areas significantly above or below background values (anomalies).

Background area

A bean field to the north of the site was selected as the background area. Two lines of background data, consisting of about 500 measurements per line, were collected and saved in the data logger. This data was later downloaded and evaluated to calculate mean values for comparison to the site data. The calculated mean apparent conductivity and in-phase values for the background area were determined to be 44.34 millisiemens/meter (ms/m), and -1.54 parts per thousand (ppt), respectively.

Data collection procedures and GPS tracking

Data collection procedures for the EM survey consisted of time linking the EM-31 and the Trimble GPS unit so that the EM data and the GPS positioning data were synchronized. The EM data was collected around the entire perimeter of the Site, and along interior survey lines that were oriented using a separate hand-held GPS unit to provide real-time tracking of survey line positions, and maintain a line spacing of approximately 50 to 100 feet. Due to heavy vegetation and the occasional loss of satellite reception, EM survey line spacing sometimes exceeded 100 feet and in a few cases intersected other EM lines due to the difficulty in orienteering without GPS tracking. This only affected the EM survey line positioning and not the EM data collection positioning since the Trimble GPS unit is a differential receiver and uses both satellite and radio frequency location to provide accurate positioning.

Data management

The EM survey of the site generated a significant amount of EM and GPS data to be managed and evaluated. Over 10,000 EM data measurements and corresponding GPS positioning measurements were collected and stored. Data were downloaded daily and reviewed to assess data consistency and position accuracy. Upon completion of the field survey, the data from each day were merged into a single file for preparation of contour maps.

Contour maps of the apparent conductivity and in-phase measurements were prepared to evaluate site conditions and delineate subsurface anomalies (i.e., historic disposal areas). These results are summarized in the following section.

EM Survey Results Summary

The EM Survey results are provided by the attached two maps, which consist of the Apparent Conductivity Contour Map (Figure 1) and the In-phase Contour Map (Figure 2). The apparent conductivity represents an averaged ground conductivity measured by the instrument over a depth of about 18 feet. The background conductivity as measured in the bean field north of the site had a mean value of 44.34 milliseimens/meter (ms/m). Based on this, the background interval 0 to 50 ms/m has been shaded light greenish blue. Areas of high positive apparent conductivity are shown in gradations increasing from dark gray to white. Areas of negative apparent conductivity are shown as black.

Probable fill areas and/or conductive soils and possible conductive groundwater are apparent as dark gray to light gray shaded areas. The main features (anomalies) to note are the four trench cells located in the northeast quadrant of the site. Three of the cells extend north-south and the fourth trends east-west along the southern edges of the north-south cells. Another area in the center of the site, just west of these four cells may also be another trench or fill area. A fifth possible cell that was described in the FOIA information and provided in the Phase I ESA appears to be located in the northwest corner, along the bank and south of the railroad crossing on Michigan Ave.

The In-phase contour map represents the instruments response to metal, or the secondary magnetic field generated by metallic objects from electromagnetic induction. The background mean in-phase value is -1.54 ppt. Based on this value the interval from 0 to -2 is shaded light greenish blue and represents background, with the light green and dark green shading representing slightly elevated areas. Areas shown as light gray to white have elevated positive in-phase values, while dark gray to black have elevated negative in-phase values.

Historic disposal areas containing metal debris or metallic waste (i.e., incinerator ash with metal, as described in the FOIA information on the former landfill) are likely the same four cells identified by the apparent conductivity contours. The delineation of these trench cells is well defined and correlates very well with the apparent conductivity map. Smaller anomaly areas, consisting of both scattered surface debris and more widespread buried debris, extend from the center of the site west to Michigan Avenue. The areas of scattered surface debris, documented during the Phase I ESA, likely represent more recent dumping that has occurred since the closure of the Van Buren Development Company Landfill.

Another anomaly, noted on Figure 2, is the possible fifth landfill cell located in the northwest corner of the site (south of the railroad tracks across Michigan Ave.). In this area, elevated in-phase readings extend southwest along the length of the slope along the east side of Michigan Avenue. These elevated readings could be associated with the historic disposal areas, or another possibility is that a metal mesh was used for slope stability and could be contributing to these elevated readings. Also, the anomaly along the south side of the site next to Ecorse Road is due to the two gas lines (30-inch and 36-inch) that run along the south side of the Site.

The southeastern quarter of the Site has apparent conductivity and in-phase values that are at or close to background values. This data indicates that historic landfill activities did not occur at the southwest quarter of the Site.

Recommendations

The geophysical survey has been successful in delineating areas on the Site that were used as disposal areas during the operation of the Van Buren Development Company Landfill. The location of the five trench cells that were constructed and used for disposal operations are shown on the attached contour maps. Other historic disposal areas appear to be located in the central and western portions of the Site.

Based on the Phase I ESA information and the findings of the geophysical investigation, BBL presents the following preliminary recommendations for additional Phase II investigation activities for the Site:

1. Perform surface water sampling along the north and west perimeter of the Site where seeps and drainage swales may be located, and at the one small pond/wetland area observed in the south central area of the Site.
2. Install groundwater monitoring wells at select locations within the Site and around the perimeter of the Site. Survey the wells to provide a preliminary evaluation of the direction of groundwater flow, and sample the wells to evaluate potential impact to groundwater quality from historic disposal activities at the Site. The positioning of the wells will be based on the results of the topographic and geophysical surveys, our understanding of subsurface conditions identified in information obtained through FOIA file search, and the regional hydrogeology.

Additional recommendations will be made based on the results of surface water and groundwater quality analysis. Please contact us if you have any questions.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

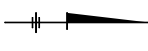
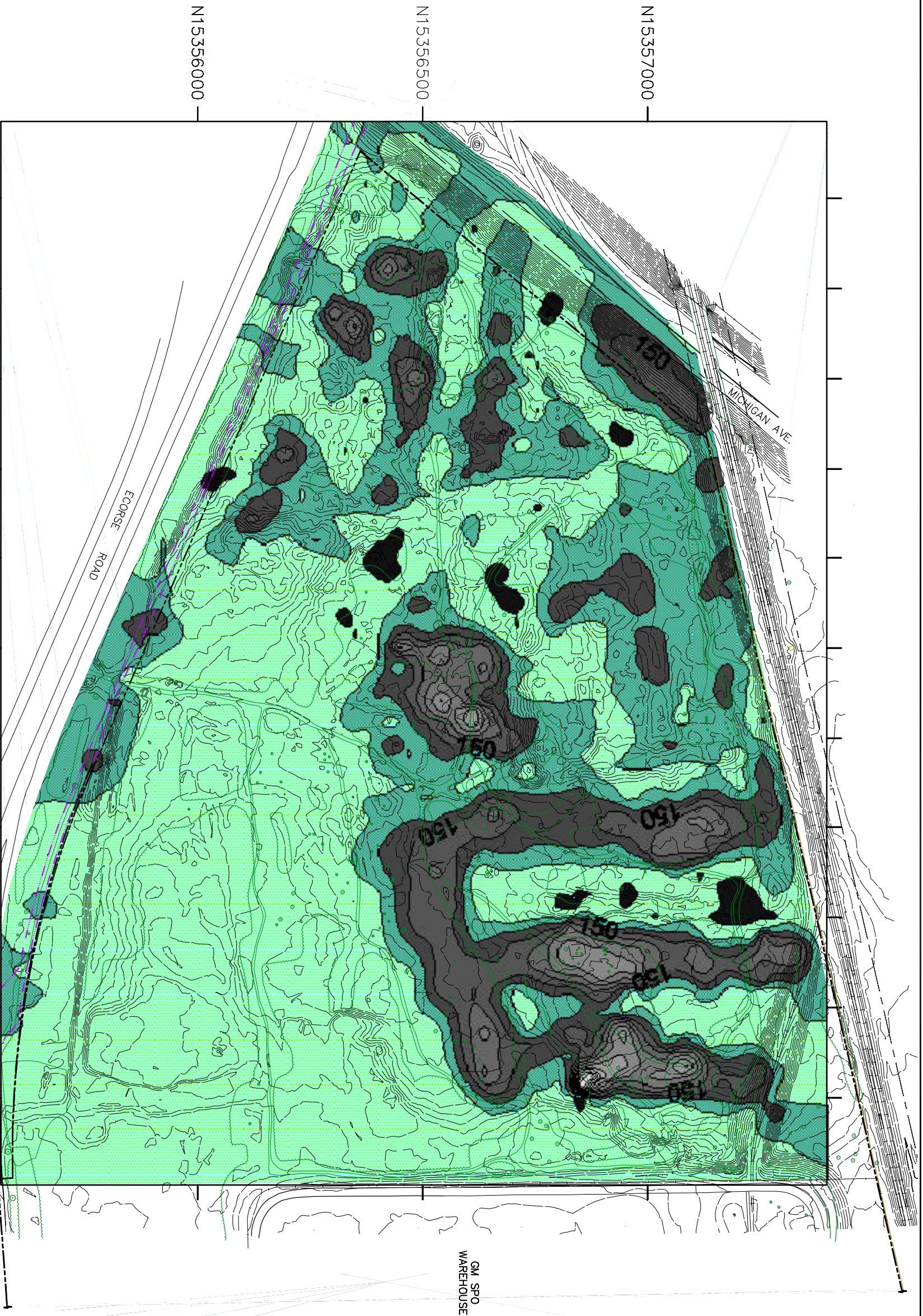


Bradley A. Saunders, P.E.
Project Manager

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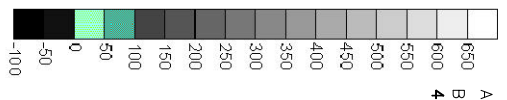
Enclosures: Figure 1: Apparent Conductivity Map
Figure 2 In-Phase Contour Map

cc: Amy Hoeksema, BBL, Inc.
Jim Kralik, BBL, Inc.
Lowell McBurney, BBL, Inc.



- LEGEND:**
- PROPERTY LINE
 - - - FENCE LINE
 - GAS LINE
 - VEGETATION

KEY:
 APPARENT CONDUCTIVITY INTERVAL (us/m)
 BACKGROUND APPARENT CONDUCTIVITY MEAN
44.34 ms/m



NOTES:
 DRAWING PREPARED FROM ELECTRONIC SURVEY FILE PROVIDED BY ATWELL HICKS SURVEY, APRIL, 2003, UTM COORDINATES, ZONE 17N.

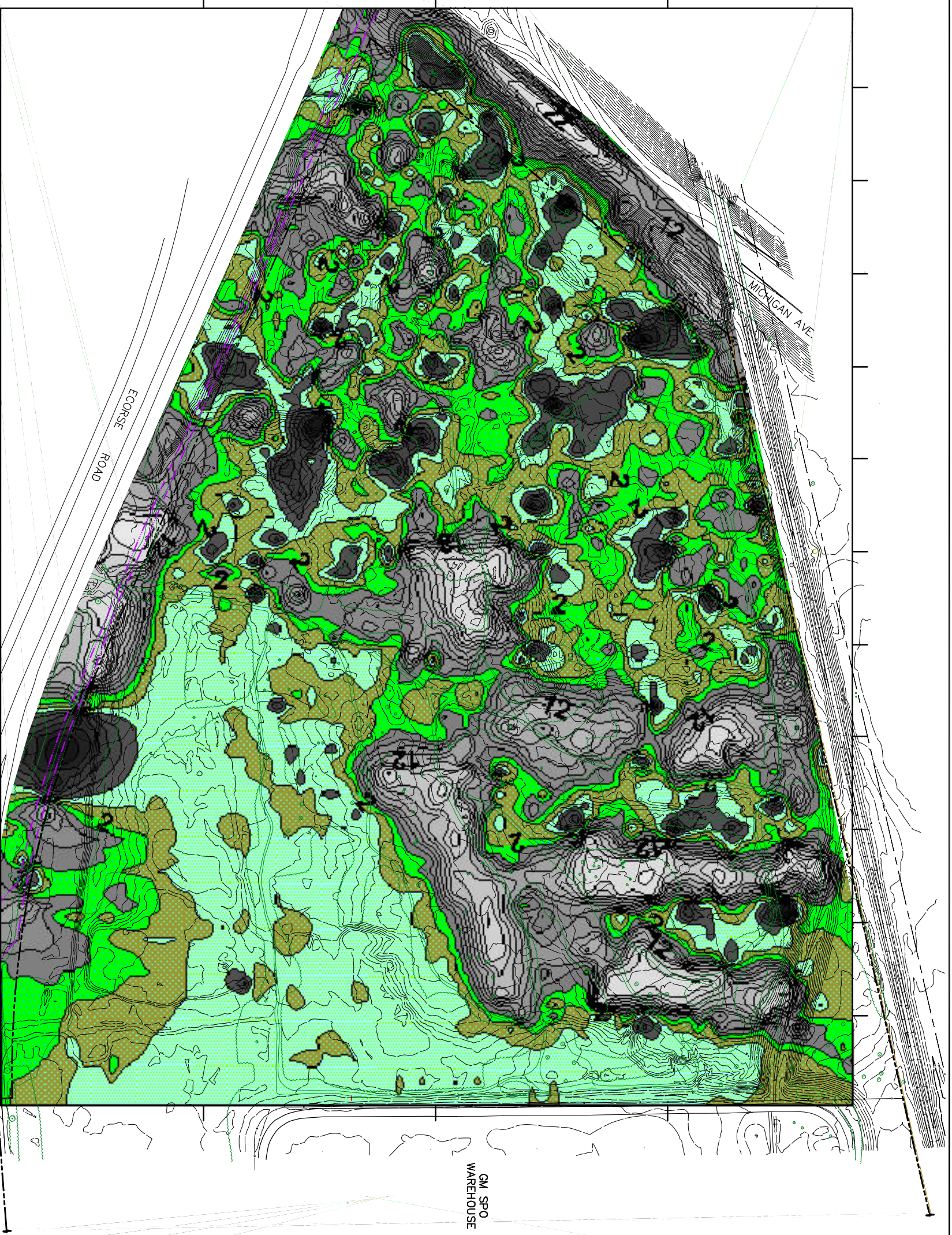


GENERAL MOTORS CORPORATION
 VACANT SITE BOUNDED BY MICHIGAN AVENUE, ECORSE ROAD,
 RAILROAD TRACKS AND THE SPO WAREHOUSE PROPERTY
 VAN BUREN TOWNSHIP, MICHIGAN

**EM-31 APPARENT CONDUCTIVITY
 CONTOUR MAP, JULY 2003**

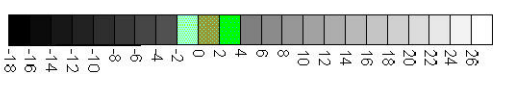
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- LEGEND:**
- PROPERTY LINE
 - - - FENCE LINE
 - GAS LINE
 - VEGETATION

KEY:
 IN-PHASE CONTOUR INTERVAL (ppt)
 BACKGROUND IN-PHASE MEAN = -1.54 ppt



NOTES:
 DRAWING PREPARED FROM ELECTRONIC SURVEY FILE PROVIDED BY ATWELL HICKS SURVEY, APRIL, 2003, UTM COORDINATES, ZONE 17N.



GENERAL MOTORS CORPORATION
 VACANT SITE BOUNDED BY MICHIGAN AVENUE, ECORSE ROAD,
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EM-31 IN-PHASE CONTOUR MAP
JULY 2003

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