



July 3, 2012

**Mr. James Innes**

Environmental Quality Analyst  
Michigan Department of Natural Resources and Environment  
Lansing District Office, 4th Floor North  
P.O. Box 30242  
Lansing, Michigan 48909-7742

RE: Off-Site Investigation Work Plan  
Hemphill Road Industrial Land, Burton, Michigan  
MIK 341572226  
FILE: 15388/ 48628

Dear Mr. Innes:

On behalf of Revitalizing Auto Communities Environmental Response Trust (RACER Trust), O'Brien & Gere is pleased to present this Work Plan for investigation activities related to the Hemphill Road Industrial Land (Figure 1) located in Burton, Michigan. This Work Plan describes the procedures to be followed during the installation of soil borings and monitoring wells east and south of the RACER Trust Hemphill Road Industrial Land Site (HRIL- formerly known as Burton Parcel). These activities are being conducted to assess the extent of light non-aqueous phase liquid (LNAPL) that has been observed in monitoring wells OBG MW-4S and MW-401 at the east and south portion of the HRIL.

**SITE DESCRIPTION**

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The RACER Trust HRIL (10 acre Burton Parcel previously owned by General Motors Corporation (GMC)) is located near the southeast corner of the South Saginaw Street and Hemphill Road intersection in Genesee County, Burton, Michigan. The HRIL is located within Section 29 and 30 of Township 7 North, Range 7 East. The HRIL is a portion of the larger Hemphill Landfill. A Site Location Map is included as Figure 1 and a figure depicting the HRIL relation to the Hemphill Landfill is included as Figure 2. The Hemphill Landfill is bounded to the north by Hemphill Road, on the west by HRIL and commercial businesses, on the east by an open field (privately owned), and on the south by Westgate Plaza (commercial property).

Prior to 1941, the Hemphill Landfill property was used for agricultural purposes. As part of the municipal Hemphill Landfill, the area was filled with industrial and municipal wastes from sometime after 1941 to approximately 1978. The Hemphill Landfill was historically operated by various entities. Operation of the landfill ceased and since that time has been covered with a soil cap and is vegetated. As shown on Figure 2, a storm water retention pond approximately 10 acres in size, is located southeast of the landfill Site. The storm water retention pond collects surface water from the nearby commercial and residential properties, and street catch basins. Flow from the basin is controlled and channeled into the Schram Drain which flows offsite to the north. The retention pond and Schram Drain are maintained by the Genesee County Drain Commission.

General Motors Corporation (GMC) purchased the HRIL in 1978. Prior to GMC purchasing the property it was owned by the City of Burton. Remediation & Liability Management Company, Inc. (REALM), a wholly owned subsidiary of GMC, managed the Site from 2001 until 2009 when MLC assumed management of the property as part of the GMC bankruptcy process. As of March 31, 2011, the HRIL Site is owned by RACER Properties LLC.

## INVESTIGATION BACKGROUND

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Phase I, II, III, and IV investigations were performed at the HRIL portion of the Hemphill Landfill by Goldberg, Zoino & Associates (GZA) from September 1987 through May 1988. The Phase I & II investigations were performed from September 1987 through November 1987 and the Phase III and IV investigations were performed from February 1988 through May 1988. The Phase I Investigation included sampling the vadose zone and installing a deep soil boring and monitoring well. Based on the results of the Phase I Investigation, Phase II activities consisting of additional vadose zone sampling and soil boring/monitoring well installations were performed in November 1987. The Phase III & IV investigations were performed at the HRIL to further assess the results of the Phase I & II Investigations.

A geophysical survey was completed at the HRIL by WW Engineering & Science (WWES) and documented in a report dated January 1991.

The Michigan Department of Natural Resources (MDNR) collected soil and groundwater samples from the Hemphill Landfill in 1992 as part of a larger investigation associated with the Windiate Park investigations.

In November 1994 a Work Plan was prepared and submitted to the Michigan Department of Environmental Quality (MDEQ). The Work Plan presented quarterly groundwater sampling results and methods for assessing whether conditions at the HRIL Site could impact the nearby drainage ditch.

In November 1997, the results of an investigation at the HRIL were documented and submitted to the MDEQ. The report summarized the investigation to assess the presence of subsurface waste fill at the HRIL.

Based upon the results of the waste fill investigation, an additional investigation was performed to assess the extent of subsurface waste fill and assess potential reuse of the HRIL property. The results of this investigation were reported in March 2001 and indicated the extent of waste fill materials were assessed on the HRIL property.

Insight Environmental Services, Inc. (Insight) was retained by Genesee County to perform Phase I and Phase II Environmental Site Assessments (ESAs) to assess a smaller portion of the HRIL property for the potential construction of a medical facility. The MDEQ issued a letter dated December 19, 2000 indicating a portion of the HRIL was not a "facility" as defined under Part 201 of the NREPA, 1994 PA 451, as amended.

A meeting was held with the MDEQ on February 9, 2006. At this meeting the MDEQ indicated they believed GMC filled in their property (HRIL) and further east offsite. The MDEQ also indicated that based on the filing of the Notice of Offsite Migration Form (submitted April 30, 2003) indicating the possibility that contamination was migrating from the HRIL onto adjoining properties and groundwater flow conditions must be assessed on the HRIL. MDEQ also requested GMC send a letter documenting/identifying any potentially responsible parties (PRPs) which may have filled the Hemphill Landfill, and to prepare a Work Plan to investigate groundwater flow conditions. REALM responded with a letter dated August 16, 2006 to the MDEQ, identifying the City of Burton as a PRP based on historical documentation including Proceedings of the Board of Supervisors of Genesee County (1940-1944). This letter also informed the MDEQ of REALM's intent to submit a Work Plan for the investigation of groundwater flow at the HRIL. The MDEQ responded with a letter dated September 18, 2006 citing Section 29 Part 201 of the NREPA, 1994 PA 451, as amended, "it is the responsibility of the party asserting a division of harm to prove it is divisible."

A Work Plan to assess the HRIL groundwater flow conditions was submitted to the MDEQ in September 2010. The MDEQ approved the Work Plan in a letter dated October 18, 2010. The Work Plan fieldwork was implemented in November 2010 and a report summarizing the results of the investigation was submitted to the MDEQ in June 2011.

The results of Groundwater Investigation Report indicated the following:

- Site geology consists of overburden materials of intermixed soils and waste fill material, which are located primarily on the east side of the Site.
- Groundwater analytical results indicate no detections of VOCs above method detection limits except in wells OBG MW-5S and OBG MW-6S where the detections are slightly above method detection limits. Concentrations of metals were detected in the wells with total arsenic concentrations detected in wells OBG MW-2S, OBG MW-2D, OBG MW-6D and OBG MW-7D above MDEQ Nonresidential Drinking Water Protection criteria. Concentrations of barium, lead and zinc were either below method detection limits or below the MDEQ Nonresidential Drinking Water criteria
- Based on the Site geology and distance between well locations, groundwater flow could not be reliably determined and it was recommended that additional nested wells be installed to better assess groundwater flow conditions at the HRIL Site. (Note that per further discussion with MDEQ, this recommendation was determined to not be a productive line of additional investigation.)
- Light Non-Aqueous Phase Liquid (LNAPL) was discovered in well OBG MW-4S. Monthly LNAPL removal was performed for 4 consecutive months (May through September 2011) with an approximate volume of 6-7 gallons of LNAPL removed.

## SITE GEOLOGY

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The HRIL is situated in an area characterized by regional unconsolidated geology consisting of primarily lacustrine clay and silt deposits with interbedded sandy lenses. . The uppermost 53 ft of unconsolidated material observed during soil boring installation at the HRIL consists of overburden materials (asphalt, concrete or gravel, intermixed soils and waste fill material). Subsurface materials encountered during drilling activities include silt, sand, clay, and waste fill material in various amounts across the HRIL. Fill material observed at the HRIL consisted of glass, fabric, concrete, carpet, rubber, vinyl, degraded asphalt, wood block, fencing, and cardboard and was intermixed with soil material.

O'Brien & Gere has attempted to identify those areas of the Hemphill Landfill which may have been filled to assist with a general understanding of the area. A 1920's topographic map of the area was compared to a 1960's topographic map. The comparison consisted of a computer generated map which shows the difference between the two maps in the form of historic topographic change. The historic topographic change contours are included in Figure 3.

Review of this figure indicates the area with the greatest topographic change is located at the southeast portion of the HRIL and southwest portion of the Hemphill Landfill Site. This is supported by documentation from historical proceedings of the Genesee County Board of Supervisors which indicated that the southwest corner of the Hemphill Landfill (aka Old County Farm) was rapidly being filled in to eliminate a depression.

Previous investigations performed at the HRIL indicate shallow groundwater was observed at depths ranging from approximately 10 to 15 fbg at the northern and western portions of the property in shallow sand seams. Deeper groundwater was observed at an approximate depth of 25 fbg in the two deep soil borings (OBG SB-1D and OBG SB-2D) installed at the HRIL Site.

## MONITORING WELL AND SOIL BORING INSTALLATION

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Soil borings will be installed using a Rotosonic® drill rig in accordance with the MDEQ-approved September 2010 Work Plan. A Rotosonic® drill rig operates similar to a conventional top-drive rotary or auger rig. This drilling system employs simultaneous high frequency vibration and low speed rotational motion along with down pressure to advance the cutting shoes of the drill string. This technique provides a continuous soil core and generates minimal cuttings. The soil core will start from the ground surface and continue to the bottom of the boring.

Drilling operations take place from the drill platform, which is about four feet above ground. Steel drill casing and core barrel are connected to the head from the work platform/support truck and are then hoisted to vertical in the derrick. Tool joints are connected and disconnected by a hydraulic vise/wrench that is in the base of the derrick. The Rotosonic® head is able to pivot 90 degrees making connection of the rods easier and safer.

The Rotosonic® drilling system uses an override core barrel system. A 4-in or 6-in diameter, 10-ft long core barrel is first advanced 10 ft into the ground. This is followed by the override casing drilled to the same depth as the core barrel cutting shoe. The core barrel is then removed and two 5 ft soil samples are extruded into plastic sleeves. The core barrel is sent back down the hole where it is advanced another 10 ft followed again by the override casing. The outer casing minimizes cross contamination and formation mixing and allows for a controlled placement of wells.

O'Brien & Gere will install a minimum of four soil borings to evaluate the extent of LNAPL observed in monitoring wells OBG MW-4S and MW-401. These borings will also confirm whether or not waste fill materials are located adjacent to the HRIL Site as shown on Figure 3. The locations of the proposed soil borings are shown on Figure 3. Groundwater monitoring wells that have previously been installed at the HRIL are also depicted on Figure 3.

An O'Brien & Gere geologist will be on-site during boring advancement to describe soil samples. Additionally, soils will be screened using a photoionization detector (PID). The geologist will place one representative sample from each soil core section for PID headspace screening. Due to the true continuous sampling of the system, accurate depictions of the stratigraphy and lithology of the overburden are obtained (minimal sloughing). For the purposes of this investigation, waste fill will be defined as non-native materials such as glass, asphalt, concrete, metal, rubber, and plastic observed in a continuous layer of 6 inches in thickness or more. Field screening will also be performed for the presence of LNAPL using an ultraviolet light and/or Sudan® dye test. If field screening indicates the presence of LNAPL, the boring location(s) will be abandoned and a new boring will be installed outward from the original boring location approximately 20 ft.

At the four locations (depicted on Figure 3) the soil borings are proposed to be completed as monitoring wells to assess the potential presence of LNAPL. The monitoring wells will be installed in accordance with the following methods: monitoring wells will be installed through the override casing that extends to the bottom of the boring. The monitoring wells will be constructed of 2-in diameter flush-joint PVC casing and a 10-ft length of 0.010-in slot PVC well screen. The well screen and riser assembly will be placed into the casing to the desired depth and a washed graded silica sand pack will be placed around the well screen and shall extend a minimum of one ft above the top of the screen. Coarse granular bentonite will then be added to the annular space to approximately two ft above the sand pack. The override casing will be retracted as appropriate during sand pack and bentonite placement. A cement/bentonite grout will then be added during the extraction of the remaining override casings to just below grade where the monitoring wells will be completed. Either a standup protective casing or flushmount roadbox will be installed over the monitoring wells. A weep hole will be drilled in the bottom of the standup protective casing to allow accumulated water to drain. The monitoring well identification will be clearly marked on the inside and the outside of the protective casing cap. Soil cuttings will be contained in 55-gal Department of Transportation (DOT)-approved drums and staged at the HRIL pending final disposal.

Newly installed monitoring wells will be developed to remove fine-grained materials that may have entered the well or sand pack during construction. The monitoring well will be pumped until the water is relatively silt-free or no further change is noted; and the temperature, pH, turbidity, and specific electrical conductance readings have stabilized to within 10 percent or until the well produces relatively clear, sediment-free water, to the extent practical. Groundwater will be collected in a glass jar to evaluate relative turbidity and to measure and record temperature, pH, turbidity, and specific electrical conductance.

Prior to well development, the equipment that will enter the monitoring well will be cleaned using a laboratory grade detergent and tap water rinse, or steam cleaned. Well development water will be contained in 55-gal DOT-approved drums and staged at the HRIL pending final disposal.

Subsequent to monitoring well installation, a location and elevation survey will be performed to establish top-of-casing and grade elevations for the newly installed wells and soil borings.

### **LNAPL CHARACTERIZATION**

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The LNAPL observed in monitoring wells at the HRIL will be characterized. Currently passive remediation (absorbent sock) of LNAPL at monitoring well OBG MW-4S is being performed. In order to collect a sufficient volume of LNAPL for laboratory analysis; the absorbent sock will be removed to allow for recharge of LNAPL. The LNAPL thickness in well OBG MW-4S will be monitored and as soon as an adequate volume of LNAPL in the well is observed, a sample will be collected. The LNAPL sample will be submitted to a laboratory for the following analysis: density and specific gravity by American Society for Testing and Materials (ASTM) D-4052, viscosity by ASTM D-445, surface tension by ASTM D-1331 and interfacial tension by ASTM D-971.

The results of the investigation will be presented in a Response Activity Plan which, depending on the information obtained during this phase of investigation, may propose a closure strategy for the HRIL site.

Note that RACER must obtain approval from two property owners to complete the proposed work (with the exception of the LNAPL characterization). The process of obtaining access has been started. The LNAPL characterization will be scheduled after receipt of MDEQ approval and the remaining work will be scheduled after receipt of approval to access the adjacent properties or after MDEQ approval, whichever occurs later. Please call David Favero with RACER Trust at 217-741-6235 or me at 248-477-5701 if you have any questions.

Very truly yours,

**O'BRIEN & GERE ENGINEERS, INC.**



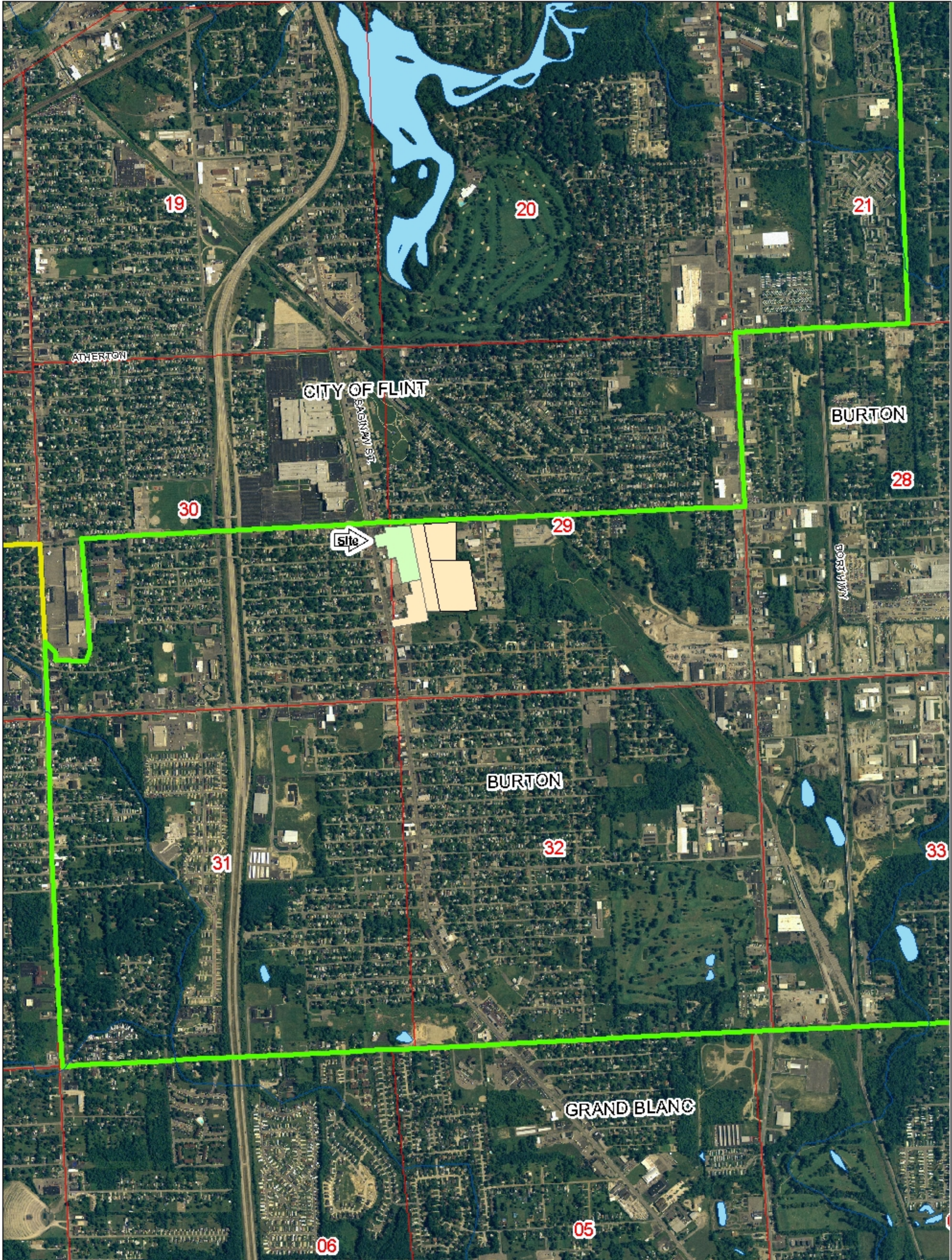
Anthony J. Finch, CPG  
Senior Project Geologist

Enclosures

cc: Mr. David Favero – RACER Trust


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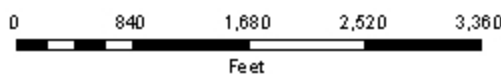
**LEGEND**

 HEMPHILL LANDFILL  
 POTENTIALLY AFFECTED PARCELS

 SECTION LINE & NUMBER

RACER TRUST  
 HEMPHILL ROAD INDUSTRIAL LAND  
 BURTON, MICHIGAN

**SITE LOCATION MAP**



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PLOT DATE: 07-2-2012 AJF

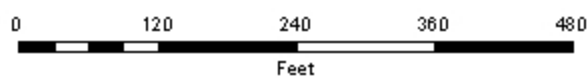
**KEY**

HEMPHILL ROAD INDUSTRIAL LAND

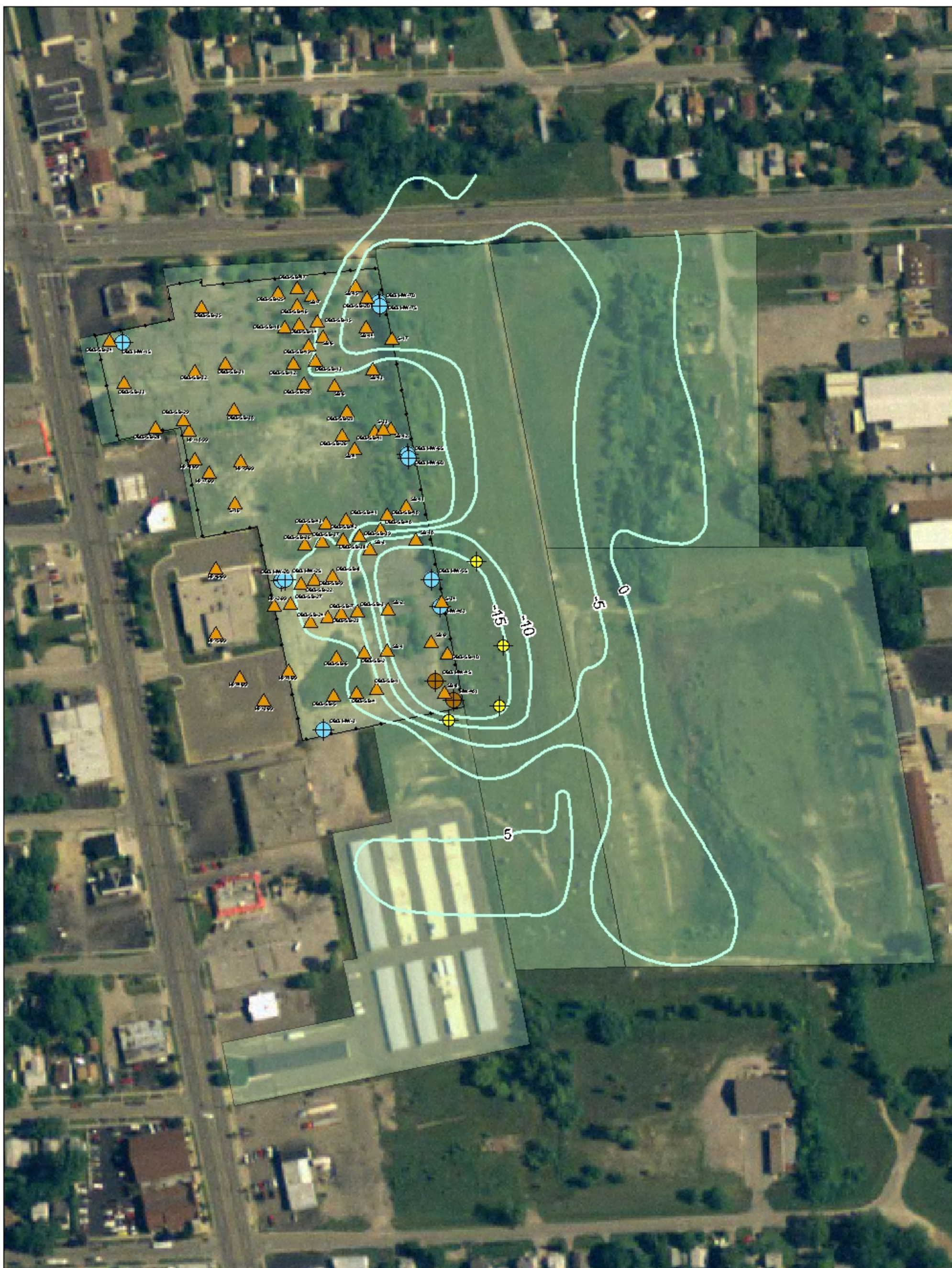
FENCE LINE

RACER TRUST  
HEMPHILL ROAD INDUSTRIAL LAND  
BURTON, MICHIGAN

**SITE LAYOUT**









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**KEY**

-  EXISTING SOIL BORING LOCATION
-  EXISTING MONITORING WELL LOCATION
-  PROPOSED MONITORING WELL LOCATION
-  LNAPL OBSERVED IN WELL
-  ESTIMATED EXTENT AND THICKNESS OF FILL
-  FENCE LINE

**RACER TRUST  
HEMPHILL ROAD INDUSTRIAL LAND  
BURTON, MICHIGAN**

**PROPOSED MONITORING WELL  
LOCATIONS**

