Technical Memorandum

To: Michelle Mullin, USEPA

From: Stacy Metz, John Rice and Graham Crockford, TRC

Subject: Workplan Addendum to Install Additional PRB Performance Monitoring Wells at the Former Tecumseh Products Site in Tecumseh, Michigan

Date: July 8, 2011

cc: Jason Smith, Tecumseh Products Company
Roger Jackson, Tecumseh Products Company
Douglas McClure, Conlin, McKenney & Philbrick, PC

Project Objective

The Workplan to Install a Permeable Reactive Barrier (PRB) Downgradient of the Southern Source Area at the former Tecumseh Products Company (TPC) site located at 100 East Patterson Street, Tecumseh, Michigan was submitted to the United States Environmental Protection Agency (USEPA) for review and comment on March 30, 2011. A Revised Workplan to Install a Permeable Reactive Barrier (PRB) Downgradient of the Southern Source Area (Workplan) was submitted on May 2, 2011, to address preliminary comments made by USEPA during a conference call on April, 7, 2011. The PRB installation commenced on May 16, 2011 and was completed on May 27, 2011.

This Workplan Addendum to Install Additional PRB Performance Monitoring Wells at the Former Tecumseh Products Company Site in Tecumseh, Michigan (Addendum) was prepared in response to comments provided by USEPA during a conference call on May 24, 2011. This Addendum, which replaces the monitoring program included in the May 2, 2011 Workplan, describes how the performance monitoring program was modified to address USEPA comments, namely:

- Whether the PRB might cause groundwater to be diverted around and/or underneath the PRB, potentially reducing PRB effectiveness and potentially affecting groundwater conditions;
- The use of the proposed network to identify the location, if any, of "windows" within the PRB (*i.e.*, gaps in the PRB with insufficient treatment materials to affectively treat groundwater) through which insufficiently treated groundwater may flow; and
- Whether treated trichloroethene (TCE) will completely degrade.

Performance Monitoring Network

The approximate locations of wells to be included in the performance monitoring network are shown on Figure 1 and on two cross sections drawn along the length of the PRB. Cross section locations are shown on Figure 2 and Figures 3 and 4 are cross sections along the length of the PRB.

The PRB was designed and installed as an interim corrective measure to address the potential vapor intrusion pathway downgradient of the southern source area by treating shallow chlorinated volatile organic compound (CVOC)-affected groundwater along the eastern (downgradient) property line before it migrates off site. The purpose of the proposed performance monitoring network is to verify that the PRB is operating as designed. Specifically to verify proper installation and to identify any changes in the flow parameters that could affect treatment effectiveness, i.e. lower the permeability in the PRB relative to the adjacent aquifer resulting in short circuiting around the PRB, loss in reactivity over time, etc. The monitoring network will also allow an evaluation of the PRB's ability to remove contaminants from groundwater.

Summary of PRB Design

For the purpose of the performance monitoring network design, the PRB was subdivided into three major design sections:

— Section 1a – This section was constructed using soil blending technology. The PRB design investigation indicated that this area has comparably lower concentrations of CVOCs. The total CVOC concentration at each sample location in this area was less than 200 micrograms per liter (ug/L). Section 1a was designed as recommended by Adventus with a DARAMEND application rate of 7.5 percent by mass. (The DARAMEND used was composed of 40-percent zero valent iron by mass). Section 1a is 220 feet long, 4 feet wide and 11 feet tall with the PRB extending from the water table (approximately 7 feet below ground surface [ft bgs]) to 18 ft bgs.

  The performance monitoring network for Section 1a includes one shallow well located within the PRB, one shallow downgradient well, one deep downgradient well, and one side gradient well.

— Section 1b/c/d – This section was constructed using a combination of soil blending technology and PRB injection technology. The PRB design investigation indicated that this area has comparably higher concentrations of CVOCs at depths up to 22 ft bgs (Figure 3). The PRB was designed to treat shallow CVOC-affected groundwater throughout the off-site area downgradient of the southern source area. As illustrated on Figure 5, the saturated thickness of the aquifer decreases from approximately 30 feet at the site boundary to less than 5 feet in proximity to the River Raisin, effectively making the entire aquifer shallow, *i.e.*, near the water table, in the vicinity of monitoring wells MW-21 and MW-31 (Figures 2 and 5). The depth of the PRB was increased in Section 1b/c/d so that intermediate-affected

groundwater would not negate the effectiveness of the blended portion of the PRB further downgradient in proximity to the River Raisin.

- Section 1b, the blended portion of Section 1b/c/d was designed as recommended by Adventus with a DARAMEND application rate of 10-percent by mass. (The DARAMEND used was composed of 40-percent zero valent iron by mass). Section 1b is 490 feet long (510 feet, less a 20 break around an existing sewer line), 4 feet wide and 11 feet tall with the blended portion of the PRB extending from the water table (approximately 7 ft bgs) to 18 ft bgs.
- Section 1d, the injected portion of Section 1b/c/d was designed as recommended by Redox Tech with an ABC+ application rate of 0.36-percent by mass. (The ABC+ used was composed of 75-percent zero valent iron by mass). Section 1d is 510 feet long, 20 feet wide and 6 feet tall with the injected portion of the PRB extending from the bottom of the blended portion of the PRB (18 ft bgs) to 24 ft bgs. Note injections were also completed in the shallow aquifer (7 to 18 ft bgs) around the existing sewer (Section 1c). The ABC+ application rate in this 20-foot long area was 0.55-percent by mass.

The performance monitoring network for Section 1b/c/d includes one shallow well located within the PRB, one shallow upgradient well, two shallow downgradient wells, one deep downgradient well and one side gradient well.

- Section 2 – The depth to groundwater in this section is approximately 16 ft bgs. Section 2 was constructed using PRB injection technology, because the target treatment depth could not be cost-effectively reached using soil blending techniques.
  - The northern portion of Section 2 has comparably higher concentrations of CVOCs, and was designed as recommended by Redox Tech with an ABC+ application rate of 0.36-percent by mass. (The ABC+ used was composed of 75-percent zero valent iron by mass). The northern portion of Section 2 is 280 feet long, 20 feet wide and 12 feet tall with the northern portion of the PRB extending from the water table (16 ft bgs) to 28 ft bgs.
  - The southern portion of Section 2 has comparably lower concentrations of CVOCs, and was designed as recommended by Redox Tech with an ABC+ application rate of 0.18 percent by mass. (The ABC+ used was composed of 75-percent zero valent iron by mass). The southern portion of Section 2 is 100 feet long, 20 feet wide and 6 feet tall with the southern portion of the PRB extending from the water table (16 ft bgs) to 22 ft bgs.

The performance monitoring network for Section 2 includes one shallow well located within the PRB, one shallow upgradient well, two shallow downgradient wells, one deep downgradient well and one side gradient well.

Performance Monitoring Network Additions

The approximate locations of the monitoring wells previously proposed are shown on Figure 4 of the Workplan. Four additional monitoring wells, as shown on Figure 1, were added to the proposed performance monitoring network to address USEPA comments. (Note previously proposed wells were renamed so that the final well designations are more logical relative to well locations.)

- One new deep monitoring well (PRB-8D) was added to the proposed network to assess the potential for vertical migration beneath Section 1a of the PRB.
- Three monitoring wells (PRB-06S, PRB-09S, and PRB-14S) located within the PRB were added to the proposed network to assess the performance of the PRB and to directly measure the hydraulic conductivity of the PRB.

Monitoring Well Functionality

As described in the Workplan, the general purpose of each type of monitoring well is described below.

- Upgradient wells will be used to monitor PRB influent VOC concentrations in the most affected areas.
- Wells located within the PRB will be used for the following:
  - To evaluate the hydraulic performance of the PRB *i.e.,* to measure the hydraulic conductivity of the PRB directly;
  - To evaluate proper PRB installation; and
  - To monitor VOC concentrations within the PRB over time *i.e.,* to evaluate changes in reactivity/performance.
- Downgradient wells will be used to monitor PRB effluent VOC concentrations and to evaluate proper PRB installation.
- Deep wells will be used to evaluate the hydraulic performance of the PRB *i.e.,* to monitor whether the PRB has changed groundwater flow patterns such that affected groundwater is routed under the PRB rather than through the PRB. Note: The proposed PRB is designed to expeditiously reduce the highest concentrations of CVOCs migrating off-site, not to treat all groundwater migrating off-site above MDEQ Part 201 criteria. As such the concentrations of CVOCs below the proposed PRB are not expected to be below MDEQ Part 201 criteria. Therefore evaluation of vertical hydraulic gradient downgradient of the PRB and/or CVOC concentrations trend data will be used to evaluate the hydraulic performance of the PRB.
- Side gradient wells will be used to evaluate the hydraulic performance of the PRB *i.e.,* to monitor whether the PRB has changed groundwater flow patterns such that affected

groundwater is routed around the PRB rather than through the PRB. Note: The proposed PRB is designed to expeditiously reduce the highest concentrations of CVOCs migrating off-site, not to treat all groundwater migrating off-site above MDEQ Part 201 criteria. As such the concentrations of CVOCs side gradient (north and south) of the proposed PRB are not expected to be below MDEQ Part 201 criteria. Therefore evaluation of hydraulic gradient around the PRB and/or CVOC concentrations trend data will be used to evaluate the hydraulic performance of the PRB.

The functionality of specific wells relative to specific USEPA concerns is described in more detail below.

Performance Monitoring Well Construction

Sixteen new piezometers/wells will be installed. The monitoring wells will be installed without a gravel pack, using the natural collapse of the formation so that hydraulic conductivity may be measured without the confounding effects of the gravel pack. Otherwise, new wells will be installed in accordance with the shallow well installation procedures outlined in the Quality Assurance Project Plan (QAPP), submitted to USEPA for review in August 2010. Wells will be constructed of 2-inch PVC pipe to facilitate hydraulic conductivity testing. The wells will be installed using a direct push rig with a 3.5-inch drive casing or equivalent technique.

Wells installed for the specific purpose of assessing PRB performance will be designated as follows: PRB-xxy. The variable xx will be filled with the number of the PRB monitoring points. The y variable will designate whether the well is shallow (S) or deep (D).

Performance Monitoring Program

TRC (formerly RMT) will initiate a groundwater performance monitoring plan for each section of the PRB following installation. The performance monitoring plan has been designed to evaluate PRB performance. Specifically downgradient wells will be installed and monitored to evaluate the effectiveness of PRB treatment. Wells located side gradient of the PRB will be used to confirm that the PRB has not affected groundwater flow patterns such that affected groundwater is not redirected around the PRB. Similarly, wells installed at depths below the bottom of the PRB will be used to confirm that affected groundwater is not redirected under the PRB.

Hydraulic Conductivity Testing

Single well response tests (slug tests) will be performed on each of the new monitoring wells, as follows:

— Collect static water level;

— Lower a transducer connected to a data logger to the bottom of the well in shallow wells or to approximately 10 feet below the static water level in deep wells;

— Insert solid slug or bailer and allow the groundwater level to recover to the static level; and

— Rapidly remove the slug or bailer while recording the water levels on the data logger.

The slug test data will be analyzed using the Bower and Rice method for slug test analysis. The hydraulic conductivity at each of the in-barrier wells will be compared to the range and average hydraulic conductivity of the wells located adjacent to the PRB.

Groundwater Sampling Program

PRB performance monitoring will include one initial sample event to be completed as soon as feasible following PRB performance monitoring well installation. Additional sample events will be conducted quarterly, in conjunction with the regular groundwater monitoring program for one year following PRB installation. After the first year the sampling frequency will be evaluated and adjusted as appropriate.

Groundwater sampling will be conducted in general accordance with the QAPP. Each sample event will include the following:

— Collection of static water level at each of the 16 monitoring points;

— Collection of groundwater samples at each of the 16 monitoring points. The following field parameters will be monitored to assess groundwater stability prior to sampling: pH, conductivity, turbidity and temperature. Low-flow (*i.e.* bladder pump) sampling techniques are not required.

— Analysis of each groundwater sample for VOCs by USEPA Method 8260B.

— Groundwater samples may also be collected and analyzed for critical PRB design parameters (dissolved oxygen, redox potential, chloride, sulfate, nitrate, calcium, iron, magnesium, manganese, and total organic carbon). At a minimum, samples will be analyzed for these parameters during the initial sample event and during the quarterly sample event conducted approximately 1 year after PRB installation.

PRB performance will be evaluated and described in a technical memorandum following the fourth quarterly sample event. A schedule for future monitoring and reporting events, as well as any proposed modifications to the performance monitoring program will be included in that technical memorandum.

Data Quality Objectives

Data collected will be used for engineering and design purposes. The data reviewer will ensure that data meet Level 3 data quality objectives, as described in the QAPP.

USEPA Comments

This section specifically describes how the performance monitoring program addresses USEPA comments, namely:

- Whether the PRB might cause groundwater to be diverted around and/or underneath the PRB, potentially reducing PRB effectiveness and potentially affecting groundwater conditions;
- The use of the proposed network to identify the location, if any, of "windows" within the PRB (i.e. gaps in the PRB with insufficient treatment materials to affectively treat groundwater) through which insufficiently treated groundwater may flow; and
- Whether treated TCE will completely degrade.

Hydraulic Performance

The proposed performance monitoring well network includes sixteen monitoring wells, all of which will be used to assess the hydraulic performance of the PRB. This network includes at least one in-barrier well, one deep well, and one side gradient well in each of the design sections. The hydraulic performance will be evaluated through multiple lines of evidence:

- Single well response tests will be collected at each of the proposed wells. As described above, the hydraulic conductivity each of the in-barrier wells will be compared to the range and average hydraulic conductivity of the wells located adjacent to the PRB.
- Water levels will be collected quarterly at all performance monitoring locations.
    - The vertical gradient of paired downgradient shallow and deep wells will be evaluated for each design section.
    - Water levels in shallow wells will be used to calculate horizontal gradient and to determine whether groundwater is routed around the PRB.
- If single well response tests and water level data suggest that the hydraulic conductivity of the PRB is less than the surrounding formation, deep monitoring wells and side gradient monitoring wells will be used to assess the potential diversion of CVOCs around the PRB. CVOC concentrations trend data will be used to evaluate the hydraulic performance of the PRB. Specifically, Mann-Kendall trend test will be used to determine whether total CVOC concentrations at these locations are stable, increasing or decreasing over time. Note: The proposed PRB is designed to expeditiously reduce the highest concentrations of CVOCs migrating off-site, not to treat all groundwater migrating off-site above MDEQ Part 201 criteria. As such the concentrations of CVOCs side gradient and below to the proposed PRB are not expected to be below MDEQ Part 201 criteria.

Windows

The proposed monitoring well network includes three monitoring wells in the PRB and five shallow downgradient wells to verify proper installation and performance of the PRB.

The PRB was installed in a manner designed to minimize the potential for significant windows in the PRB. The blended portion of the PRB has the following features to minimize the potential for gaps or windows:

— The PRB was installed as a continuous trench, assuring the continuity of the blended chemicals; and

— The chemical application was overlapped from cell to cell, assuring that there were no gaps between cells.

The injected portion of the PRB has the following features to minimize the potential for gaps or windows:

— Injections were spaced with a 10-foot horizontal spacing with a conservatively assumed 5-foot radius of influence (in similar geologic conditions subcontractor experience indicates that a radius of 10 feet is expected);

— The injections were completed in two off-set rows; and

— At each injection location, injections were performed with a maximum 3-foot vertical spacing.

The proposed downgradient monitoring well spacing is approximately 200 feet. This spacing gives a good representative sampling of the PRB's performance.

In addition, because this PRB is a combination of a ZVI and carbon substrate, rather than just ZVI, the fermenting carbon substrate will migrate downgradient and disperse across the groundwater flow cross section. This effect will tend to compensate for potential gaps or holes on the PRB. Furthermore, the treatment plume combined with natural mixing within the aquifer will the result in and overall decrease in concentration downgradient.

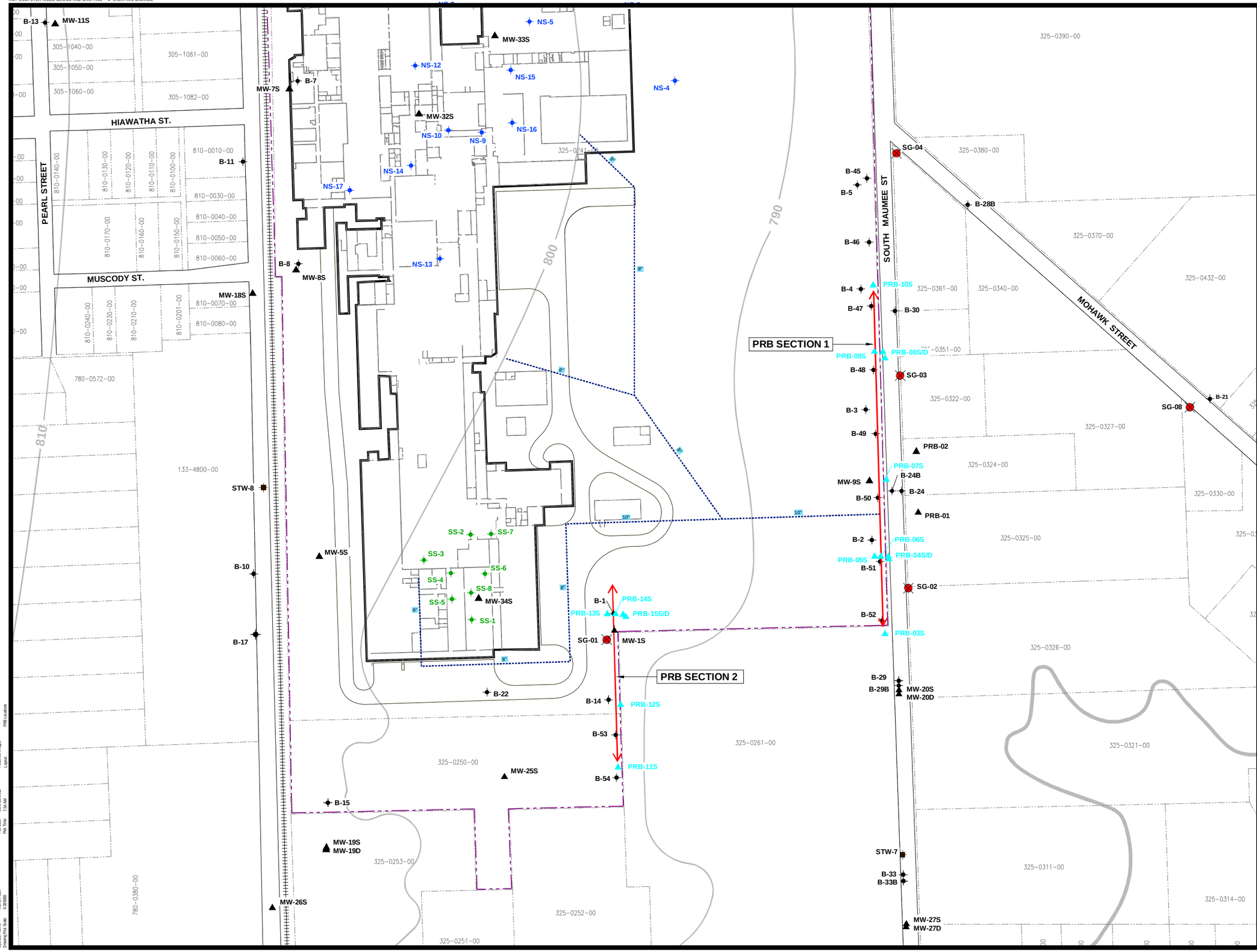
As noted above, the PRB was designed as an interim measure to treat shallow CVOC-affected groundwater throughout the off-site area downgradient property of the southern source area. The saturated thickness of the aquifer decreases from approximately 30 feet to less than 5 feet in proximity to the River Raisin, effectively making the entire aquifer shallow, *i.e*. near the water table (Figure 5), in the vicinity of monitoring wells MW-21 and MW-31. The depth of the PRB was increased in Section 1b/c/d so that intermediate-affected groundwater would not negate the effectiveness of the blended portion of the PRB further downgradient in the vicinity of the River Raisin.

Complete Degradation

The PRB has been designed to completely dechlorinate PCE and TCE in groundwater. The proposed monitoring well network includes 5 monitoring wells located immediately downgradient of the PRB to assess the performance of the PRB and the potential generation and/or accumulation of breakdown products. The locations of these wells include areas downgradient of the highest known influent concentrations of TCE, where any incomplete degradation is most likely to be observed.

Groundwater will be monitored to assess the generation of breakdown products and their persistence in the aquifer, especially as it may relate to potential vapor intrusion. Groundwater will also continue to be monitored in existing monitoring wells located at a distance downgradient from the PRB to assess the persistence and fate of potential breakdown products.

Figures



LEGEND

- FORMER TECUMSEH PRODUCTS SITE BOUNDARY
- PARCEL BOUNDARY
- RAILROAD TRACKS (APPROXIMATE LOCATION)
- 800 — APPROXIMATE GROUND TOPOGRAPHY BASED OFF 7.5 MINUTE U.S.G.S. TOPOGRAPHIC QUADRANGLE MAP
- B-2 — PERIMETER / OFF-SITE INVESTIGATION SOIL BORING LOCATION AND NUMBER
- MW-4S — MONITORING WELL LOCATION AND NUMBER
- NS-6 — NORTHERN SOURCE AREA INVESTIGATION BORING LOCATION AND NUMBER
- SS-2 — SOUTHERN SOURCE AREA INVESTIGATION BORING LOCATION AND NUMBER
- STW-2 — STORM WATER SEWER SAMPLE LOCATION AND NUMBER
- WL-01 — WETLAND SURFACE WATER SAMPLE LOCATION
- SG-02 — SOIL GAS SAMPLE LOCATION AND NUMBER
- 8" — PIPE DIAMETER AND APPROXIMATE LOCATION OF ON-SITE STORM SEWER
- PRB LOCATION
- PRB-04S — PROPOSED PRB MONITORING WELL LOCATION AND NUMBER

NOTES

1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY THE CITY OF TECUMSEH, DRAWING NO. CITY.DWG, MARCH 2009.
2. GROUND TOPOGRAPHY BASED OFF 7.5 MINUTE U.S.G.S TOPOGRAPHIC QUADRANGLE MAP AND GROUND SURVEY DATA.

N

0 100' 200' 300' 400'
SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D.
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4.				
3.				
2.				
1.				

FORMER TECUMSEH PRODUCTS SITE
TECUMSEH, MICHIGAN

PROPOSED PRB PERFORMANCE MONITORING NETWORK

DRAWN BY:	METZA	DRAWING SCALE:	PROJECT NO: J:\02751\16
CHECKED BY:	SEM	AS INDICATED	FILE NO: 02751.16.29.dwg
APPROVED BY:	GC	DATE PRINTED:	FIGURE 1
DATE:	June 2011		

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3754 Ranchero Drive
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PLOT DATA:
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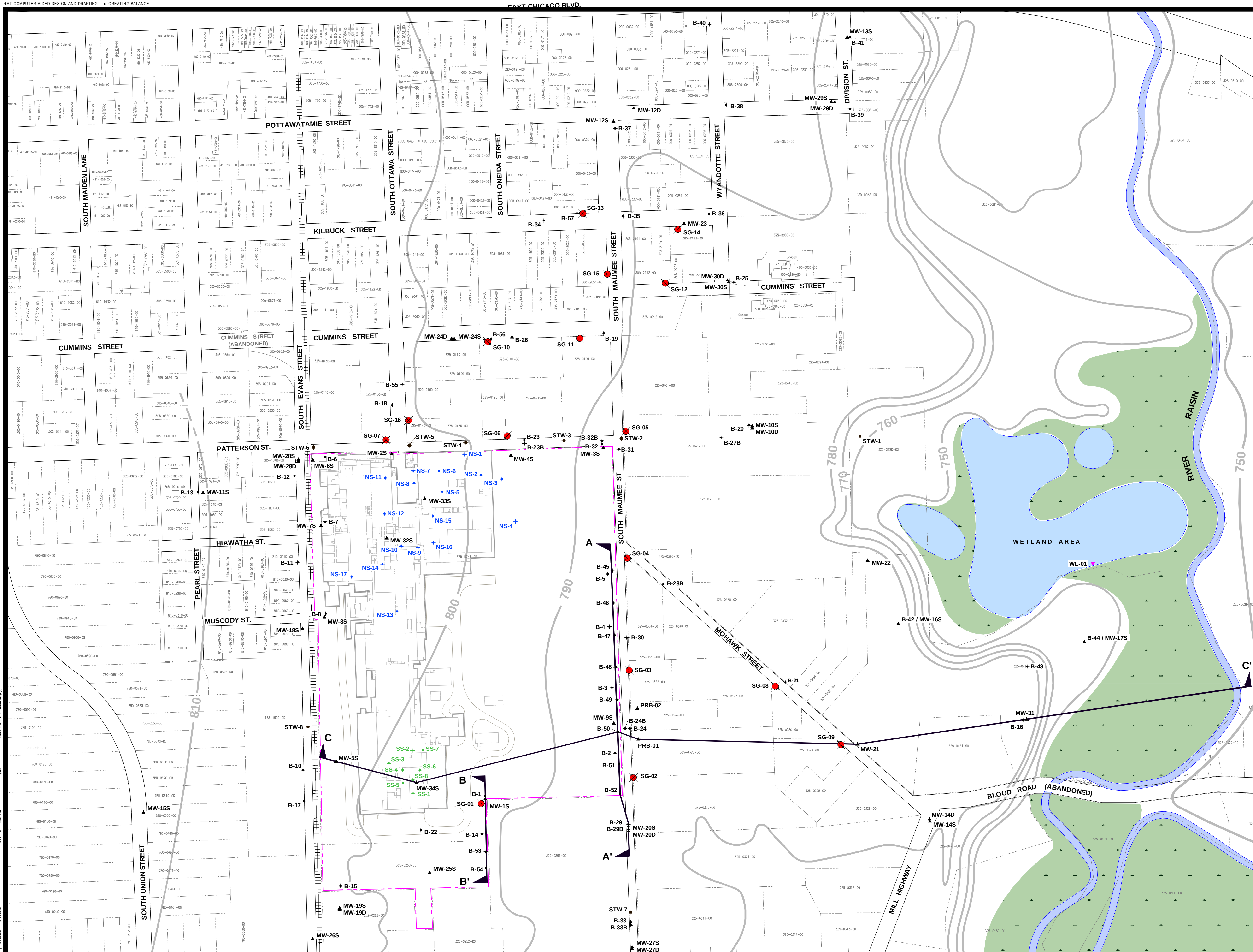

LEGEND

- FORMER TECUMSEH PRODUCTS SITE BOUNDARY
- PARCEL BOUNDARY
- RAILROAD TRACKS (APPROXIMATE LOCATION)
- 750 APPROXIMATE GROUND TOPOGRAPHY BASED OFF 7.5 MINUTE U.S.G.S. TOPOGRAPHIC QUADRANGLE MAP
- FLOODPLAIN / WOODED WETLAND AREA
- B-2 PERIMETER / OFF-SITE INVESTIGATION SOIL BORING LOCATION AND NUMBER
- MW-4S MONITORING WELL LOCATION AND NUMBER
- NS-6 NORTHERN SOURCE AREA INVESTIGATION BORING LOCATION AND NUMBER
- SS-2 SOUTHERN SOURCE AREA INVESTIGATION BORING LOCATION AND NUMBER
- STW-2 STORM WATER SEWER SAMPLE LOCATION AND NUMBER
- WL-01 WETLAND SURFACE WATER SAMPLE LOCATION
- SG-02 SOIL GAS SAMPLE LOCATION AND NUMBER
- A CROSS SECTION LOCATOR LINE

NOTES

1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY THE CITY OF TECUMSEH, DRAWING NO. CITY.DWG, MARCH 2009.
2. GROUND TOPOGRAPHY BASED OFF 7.5 MINUTE U.S.G.S TOPOGRAPHIC QUADRANGLE MAP AND GROUND SURVEY DATA.

0 200' 400' 600' 800'
SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D.
5.				
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FORMER TECUMSEH PRODUCTS SITE TECUMSEH, MICHIGAN

CROSS SECTION LOCATION MAP

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CHECKED BY: SEM	AS INDICATED	FILE NO:	02751.16.28.dwg
APPROVED BY: GC	DATE PRINTED:	FIGURE 2	
DATE: June 2011			

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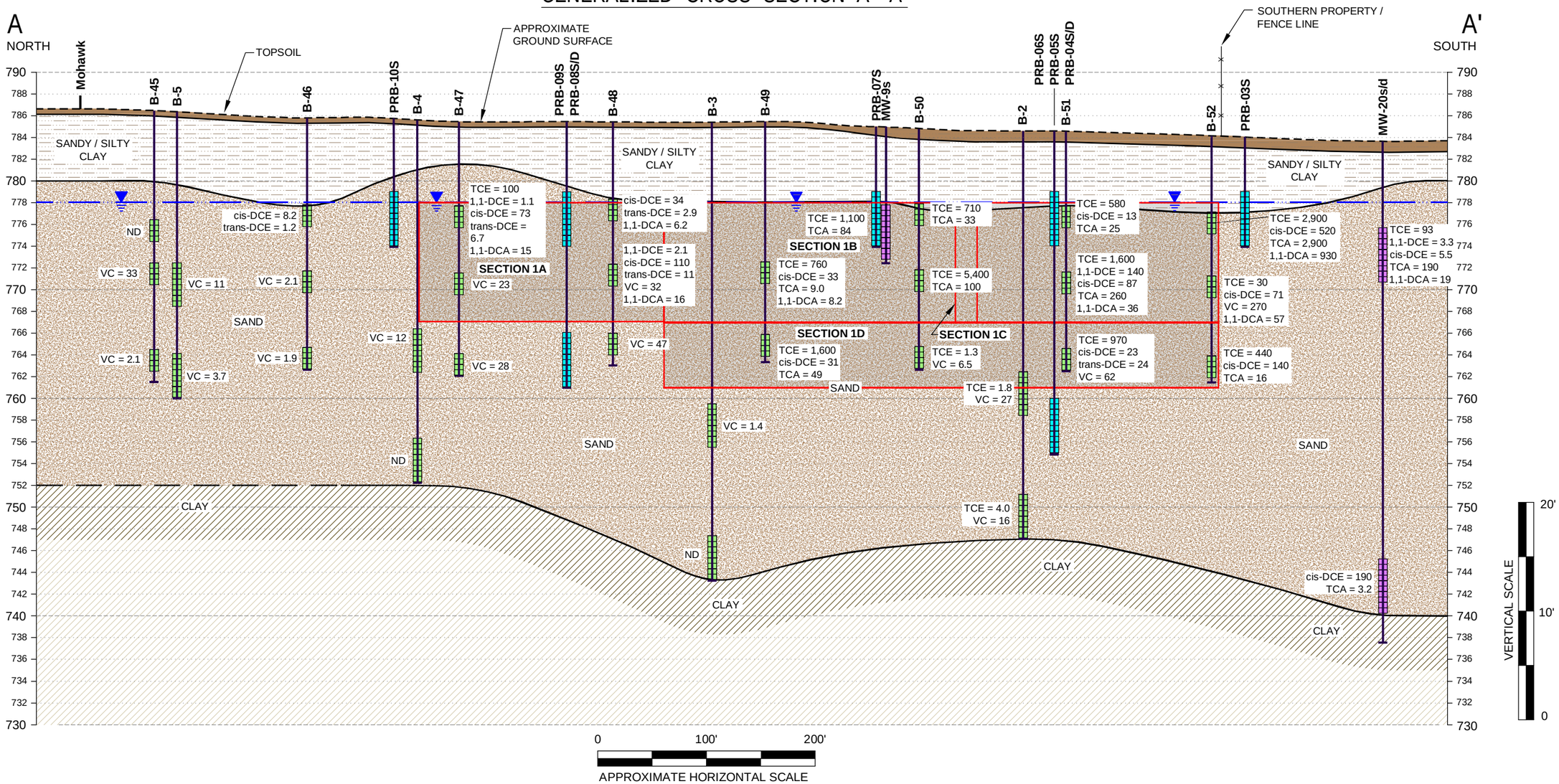
GENERALIZED CROSS SECTION A - A'



LEGEND

- TOPSOIL
- SAND
- CLAY
- SANDY / SILTY CLAY
- SANDY CLAY
- APPROXIMATE GROUND SURFACE
- STRATIGRAPHIC BOUNDARY BASED ON NEAREST SOIL BORING OR MONITORING WELL
- APPROXIMATE GROUNDWATER ELEVATION
- TEMPORARY WELL SCREEN
- WELL SCREEN
- PROPOSED WELL SCREEN

TCE	=	TRICHLOROETHENE
TCA	=	1,1,1-TRICHLOROETHANE
1,1-DCE	=	1,1-DICHLOROETHENE
1,1-DCA	=	1,1-DICHLOROETHANE
cis-DCE	=	1,2-cis-DICHLOROETHENE
trans-DCE	=	1,2-trans-DICHLOROETHENE
VC	=	VINYL CHLORIDE
ND	=	NO DETECTIONS

NOTES

1. GROUND SURFACE AND STRATIGRAPHIC CONTACTS ARE APPROXIMATE AND EXTRAPOLATED FROM NEAREST SOIL BORING DATA.
2. SEE FIGURE 2 FOR LOCATION / ORIENTATION OF THIS GEOLOGIC CROSS SECTION.
3. GROUNDWATER ANALYTICAL DATA REFLECTS MOST RECENT SAMPLE EVENT AS OF MARCH 2011.
4. DETECTED GROUNDWATER CONCENTRATIONS FOR CONSTITUENTS OF HIGHEST CONCERN ARE PROVIDED IN MICROGRAMS PER LITER.

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TECUMSEH, MICHIGAN

GEOLOGIC CROSS SECTION A - A'

DRAWN BY:	METZA	PROJECT NUMBER:	J:\02751\16
CHECKED BY:	SEM	FILE NUMBER:	02751.16.30-31.dwg
APPROVED BY:	GC	DATE:	June 2011

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FIGURE 3

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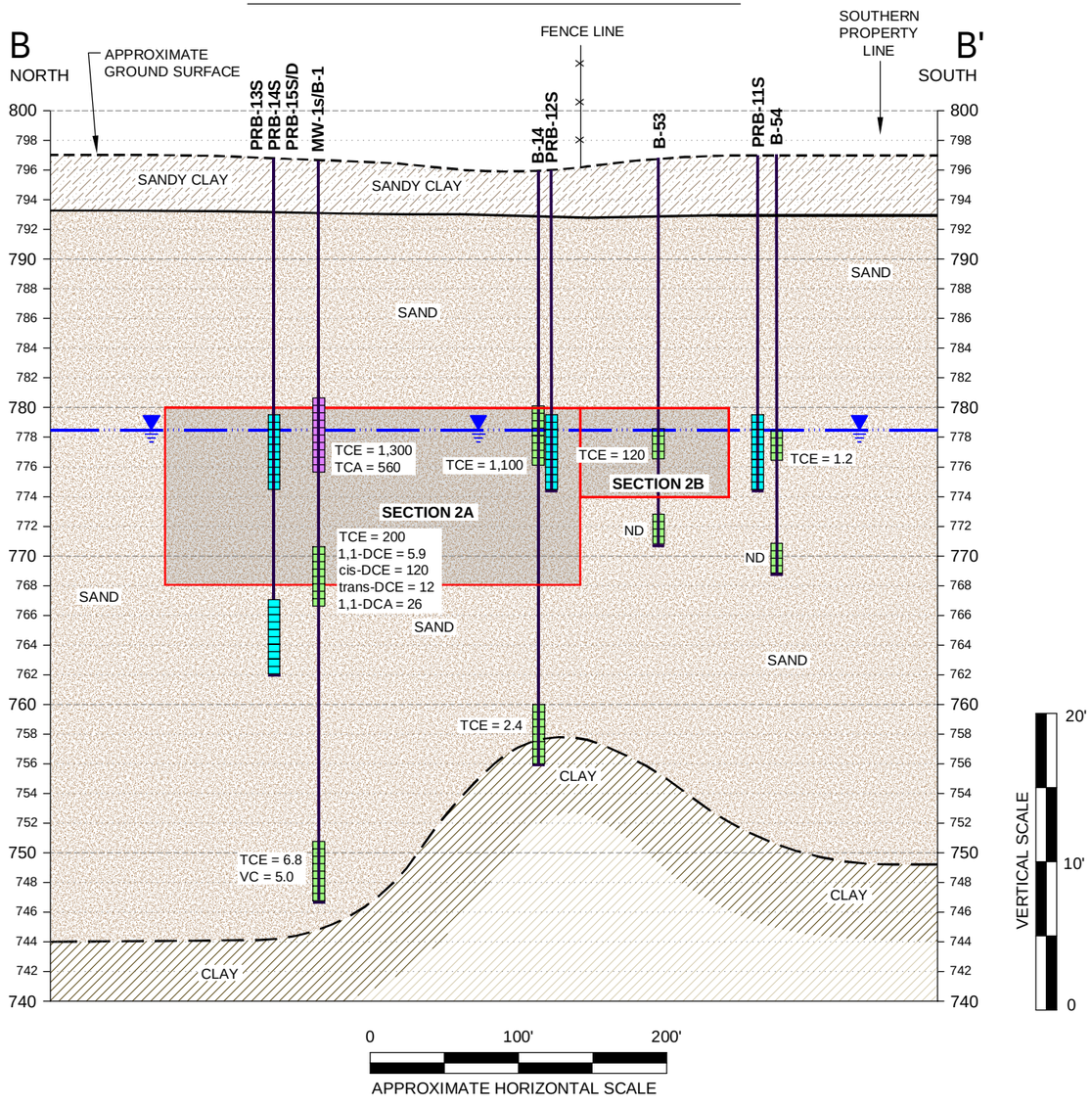
GENERALIZED CROSS SECTION B - B'



LEGEND

- TOPSOIL
- SAND
- CLAY
- SANDY / SILTY CLAY
- SANDY CLAY
- APPROXIMATE GROUND SURFACE
- STRATIGRAPHIC BOUNDARY BASED ON NEAREST SOIL BORING OR MONITORING WELL
- APPROXIMATE GROUNDWATER ELEVATION
- TEMPORARY WELL SCREEN
- WELL SCREEN
- PROPOSED WELL SCREEN

TCE	=	TRICHLOROETHENE
TCA	=	1,1,1-TRICHLOROETHANE
1,1-DCE	=	1,1-DICHLOROETHENE
1,1-DCA	=	1,1-DICHLOROETHANE
cis-DCE	=	1,2-cis-DICHLOROETHENE
trans-DCE	=	1,2-trans-DICHLOROETHENE
VC	=	VINYL CHLORIDE
ND	=	NO DETECTIONS

NOTES

1. GROUND SURFACE AND STRATIGRAPHIC CONTACTS ARE APPROXIMATE AND EXTRAPOLATED FROM NEAREST SOIL BORING DATA.
2. SEE FIGURE 2 FOR LOCATION / ORIENTATION OF THIS GEOLOGIC CROSS SECTION.
3. GROUNDWATER ANALYTICAL DATA REFLECTS MOST RECENT SAMPLE EVENT AS OF MARCH 2011.
4. CLAY INTERFACE PROJECTED FROM BORINGS EAST OF THIS CROSS SECTION.
5. DETECTED GROUNDWATER CONCENTRATIONS FOR CONSTITUENTS OF HIGHEST CONCERN ARE PROVIDED IN MICROGRAMS PER LITER.

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TECUMSEH, MICHIGAN

GEOLOGIC CROSS SECTION B - B'

DRAWN BY:	METZA	PROJECT NUMBER:	J:\02751\16
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APPROVED BY:	GC	DATE:	June 2011

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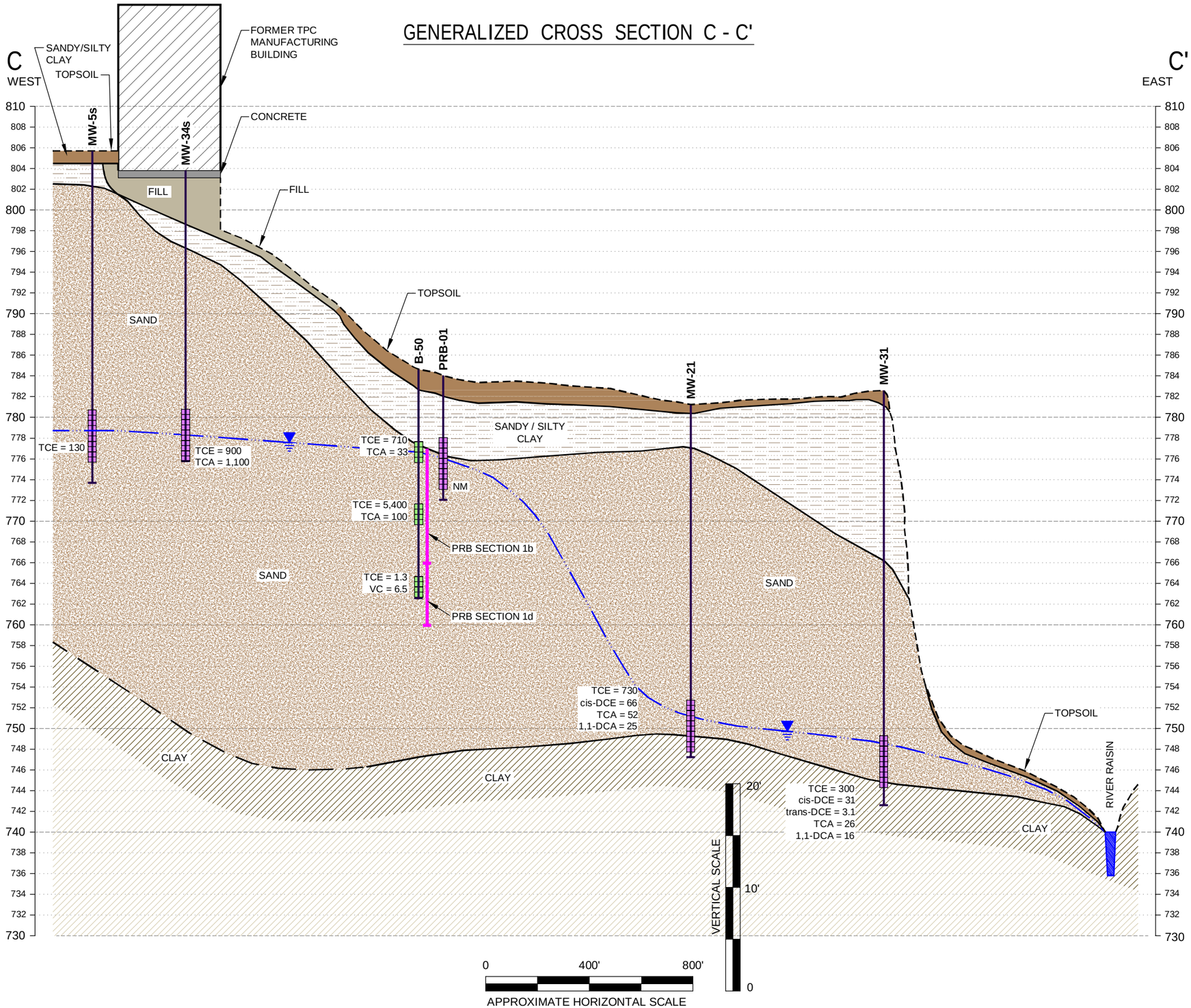
Fax: 734-971-9022

FIGURE 4

GENERALIZED CROSS SECTION C - C'



LEGEND

- TOPSOIL
- SAND
- CLAY
- SANDY / SILTY CLAY
- CONCRETE
- FILL
- APPROXIMATE GROUND SURFACE
- STRATIGRAPHIC BOUNDARY BASED ON NEAREST SOIL BORING OR MONITORING WELL
- APPROXIMATE GROUNDWATER ELEVATION
- TEMPORARY WELL SCREEN
- WELL SCREEN

TCE	=	TRICHLOROETHENE
TCA	=	1,1,1-TRICHLOROETHANE
1,1-DCE	=	1,1-DICHLOROETHENE
1,1-DCA	=	1,1-DICHLOROETHANE
cis-DCE	=	1,2-cis-DICHLOROETHENE
trans-DCE	=	1,2-trans-DICHLOROETHENE
VC	=	VINYL CHLORIDE
NM	=	NOT MEASURED

NOTES

1. GROUND SURFACE AND STRATIGRAPHIC CONTACTS ARE APPROXIMATE AND EXTRAPOLATED FROM NEAREST SOIL BORING DATA.
2. SEE FIGURE 2 FOR LOCATION / ORIENTATION OF THIS GEOLOGIC CROSS SECTION.
3. GROUNDWATER ANALYTICAL DATA REFLECTS MOST RECENT SAMPLE EVENT AS OF MARCH 2011.
4. DETECTED GROUNDWATER CONCENTRATIONS FOR CONSTITUENTS OF HIGHEST CONCERN ARE PROVIDED IN MICROGRAMS PER LITER.

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GEOLOGIC CROSS SECTION C - C'

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FIGURE 5

Drawing Name: J:\02751\16\02751.16.27.dwg
Operator Name: METZ, ALEX
Drawing Plot Scale: 0.386863
Dwg Size: 0.52 Mb
Plot Date: June 23, 2011
Plot Time: 7:42 AM
Layout: Section C - C' (5)