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August 16, 2022

Mr. Joe Rogers
Michigan Department of Environment, Great Lakes and Energy
Technical Support Unit
Hazardous Waste Section
Materials Management Division
Lansing District Office
Constitution Hall
525 West Allegan Street
Lansing, MI 48909

Subject: Response to EGLE Comments and Addendum to the RCRA Interim Work Plan Investigation Report – Eastern Site Boundary; Former Hayes Lemmerz; Ferndale Michigan; MID 041 803 123; Waste Data System Number 395519
1600 West 8 Mile Road
Ferndale, Michigan

Dear Mr. Rogers,

TRC Environmental Corporation (TRC) is submitting this Response to EGLE Comments and Addendum to the RCRA Interim Work Plan Investigation Report – Eastern Site Boundary for the Former Hayes Lemmerz facility located at 1600 West Mile Road, Ferndale (Site) on behalf of Axle Holdings 1, LLC (Detroit Axle). As you are aware, TRC has since been retained by Detroit Axle to provide environmental consulting services for the subject Site moving forward.

The former consultant, Atlas Technical Consultants LLC (Atlas), submitted the RCRA Interim Work Plan Investigation Report (Interim Investigation Report) for the Eastern Site Boundary located at the Former Hayes Lemmerz Site to EGLE for approval on April 19, 2022. The EGLE replied to the submittal with comments in a letter dated June 23, 2022 (EGLE Comments). This Response to EGLE Comments and Addendum to the RCRA Interim Work Plan Investigation Report – Eastern Site Boundary (Response) has been a provided to address the EGLE Comments, and therefore serves as an Addendum to the originally submitted April 19, 2022, Report. The following discussion documents the EGLE comments in bold followed by TRC's responses to those comments.

1. **General Comment:** This Report, as well as all future reports, must provide the certification statement required pursuant to Title 40, Code of Federal Regulations, Part 270.11(b).

   TRC Response:

   This submittal includes the certification statement pursuant to Title 40, Code of Federal Regulations, Part 270.11(b) in a cover letter as requested. This statement will be included with future reports.

2. **Section 2, Recent Activities, Soil Gas Sampling:** The Report must be revised to clarify the second paragraph of this section that describes the helium shroud testing, which is one of the methods used for leak detection testing. As written, the procedure appears to be inconsistent with the actual procedure used, where helium was analyzed in the actual sample from the summa canister to determine if the sample point/sample train was leaking.

TRC Response:

According to an email communication from Atlas, the following quantitative and qualitative QA/QC test procedures were utilized during the soil vapor sampling:

I. A helium shroud test was completed using a large plastic hood to cover the sample train and connections between the vapor point and the Summa® canister. A tracer gas (high-grade helium) was then injected beneath the plastic hood (at a concentration of approximately 20% total hood volume); a grab sample of the air from the tubing located beneath the helium hood was then collected and checked for the presence of helium in the field using a helium detector, thus indicating whether or not a leak was present.

II. A shut-in test was then conducted. The shut-in test involves the extraction of air from the sample lines that creates a vacuum measured using a mercury (Hg) vacuum gauge to test the tightness of the compression fittings on the sample train. Valves to the vapor point and the Summa® canister were shut and air was extracted from the sampling lines, inducing a vacuum of approximately 10.0 inches of Hg. When all external valves were closed, the vacuum within the sample train was measured for two minutes and remained steady.

III. Additionally, quantitative testing was completed where the helium (tracer gas) was analyzed by the laboratory for each sample submitted to ensure there wasn't a leak of tracer gas into the sample.

TRC is uncertain why this methodology was used (use of summa canisters and a helium shroud) since it is inconsistent with methodology discussed in the February 17, 2022, Investigation Workplan. Contrary to the procedures specified above, the February 17, 2022, Investigation Workplan states that soil vapor samples will be sampled as specified in the Atlas SOP No 6 included in Appendix A. The Atlas SOP No 6 states: "Helium leak testing is not practical nor required for permanent soil gas installations."

This method is also inconsistent with the EGLE guidance referenced in the April 2022 Report).

EGLE's *Guidance Document for the Vapor Intrusion Pathway* includes several standard operating procedures (SOPs) for various tasks related to the evaluation of the vapor intrusion pathway. These SOPs are used by EGLE staff for investigations completed by EGLE and may (but are not required to) be used by others when completing vapor investigations. TRC notes that of the SOPs provided in the EGLE guidance, only one relates to sample collection, specifically "Sampling Using Bottle-Vac". Atlas collected samples in Summa canisters not Bottle-Vac containers. Moreover, the EGLE sampling procedures appear to be specific to sub-slab soil gas sampling locations, where the points sampled by Atlas are exterior points.

In TRC's opinion, a helium shroud should not be used for leak-testing soil gas points (i.e., those installed outside the building footprint on surfaces other than concrete). Sampling of exterior soil vapor points using a shroud on surfaces such as bare soil or grass (such as the points installed at the Site), prevents the shroud from obtaining the proper seal to surface. Therefore, it is difficult to maintain a constant known concentration in the shroud. The most practical mechanism to maintain a "constant" helium concentration within the shroud is to "pressurize" the shroud with a constant stream of helium (as is the case when using a helium tracer at sub-slab sampling locations). However, on more permeable surfaces (gravel, grass, etc.) this process can push helium through the porous surface materials and into the soil gas, creating a "leak" that would not otherwise exist. Previous laboratory analysis included helium, which was not detected, therefore this condition did not previously occur.

Moving forward, TRC will be utilizing an alternative QA/QC test procedure to the helium shroud method. First a shut-in test will be conducted on the sample train to verify no leakage by closing the sample port and opening the valve on the sample cannister and verifying no loss in vacuum. The shut-in leak test effectively tests for leaks through the sampling apparatus. To verify the integrity of the sample collection point itself, TRC will then complete a semi-quantitative surface leak test at each location using 1,1-difluoroethane (electronic dusting spray) as a tracer gas. A rag soaked with the dusting spray will be placed on the ground near the soil vapor point, sample collection point and the collection train including the summa canister to test for any leaks prior to sampling. Tubing lengths shall be minimized so that the soil vapor point, collection train and the canister are in one area for purposes of the tracer gas application. The summa canisters will be shipped to Eurofins Laboratory under proper chain of custody for analysis of volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method TO-15 plus 1,1- difluoroethane (tracer gas).

This method has been proven to be more user friendly and reduces human error caused by using the more complicated helium shroud method (i.e., reduces leaks due to over pressurization of the shroud). In our experience, nearly all leaks are in the sample collection apparatus and can be corrected prior to sample collection, therefore the use of the shut-in test will determine the presence of the majority of leaks. Resampling due to detections of the semi-quantitative tracer are less common. TRC has successfully used this method at a variety of RCRA sites, including sites managed by the USEPA and the Indiana Department of Environmental Management (IDEM). We request that EGLE concur with this method for the project.

3. **Section 3, Results, Soil Gas Field Screening Results:** The Report must be modified to provide additional description of how the field screening data was collected, and additional discussion regarding the results of each of the specific soil gas compounds monitored; the "average concentration" provided without any discussion is not useful. It was also noted that most of the oxygen readings collected resembled atmospheric oxygen concentrations; it would be expected that lower oxygen concentrations would be present at depth.

TRC Response:

TRC agrees that Atlas's presentation of the procedure used for collection of the field screening data was not provided. According to Atlas, the field screening data for barometric pressure, oxygen, carbon dioxide, and methane were collected using a calibrated GEM landfill gas meter; photoionization detector (PID) readings were collected with a, PID and a Jerome J505 Mercury Analyzer was used to measure mercury concentrations during soil gas sampling. The specific readings collected at each soil vapor point can be found in Appendix C of the April Interim Investigation Report. The average of these concentrations were listed in the report when the individual readings should have been reported along with a discussion of the results indicting that concentrations are in accordance with background readings for shallow soil gas points within sand in an unpaved area.

In order to provide additional evaluation regarding the results of each of the specific soil gas compounds monitored beyond providing an average reading across all samples, TRC has provided the following discussion:

- Barometric pressure: Barometric pressure is commonly included on soil gas sampling field note forms. However, the barometric pressure from a single sampling event provides little utility in understanding soil gas sampling data. These measurements are more useful when collecting paired sub-slab soil gas and indoor air data – relatively high barometric pressure tends to limit vapor intrusion whereas relatively low barometric pressure would tend to induce greater vapor intrusion. However, in TRC's experience **changes** in barometric pressure provide greater insight into potential vapor intrusion trends than the actual barometric pressure itself.
- PID readings: PID readings are commonly included on soil gas sampling field note forms. These data provide a qualitative assessment of the overall VOC concentration at the sampling location. These data can be useful to support field decision making during site delineation, but they have very limited in set soil gas sampling program. PID data are superseded by laboratory analytical results.
- Oxygen, carbon dioxide and methane: According the Atlas field notes provided in Appendix C of the April Interim Investigation Report, these measurements were collected immediately before and after soil gas sample collection. In TRC's experience these data are typically used to help evaluate whether or not biodegradation is occurring at petroleum vapor intrusion (PVI) sites and to evaluate how biodegradation at PVI sites varies with depth. As noted above, oxygen content is expected to decrease with depth (whereas carbon dioxide and methane would increase) in areas of active aerobic biodegradation. However, this is not a PVI site nor were nested soil gas sampling locations installed, so it is unclear why Atlas opted to collect these measurements. As EGLE notes above, concentrations of oxygen are similar to ambient atmospheric conditions as is expected in relatively shallow (~5 feet) soil gas outside of a know source (high concentration) area. If subsurface concentrations were significantly different than atmospheric conditions, the before and after readings could be compared to qualitatively assess atmospheric influence during sample collection, but that is not the case for this Site. TRC does not recommend collecting these measurements during future sampling events.
- Mercury: As documented in the February 17, 2022 Investigation Workplan, total mercury has been detected above background concentrations and VIAP screening levels in some

soil samples at the site. However only elemental mercury has the potential to volatilize. Atlas used a Jerome J505 Mercury Analyzer to determine whether the mercury detected in soil was likely to result in a vapor intrusion concern. The reported concentrations range from 0 to 0.000004 ug/m^3, compared to an EGLE VIAP screening level of 10 ug/m^3 (for residential) and 15 ug/m^3 for nonresidential (as shown on Table 3 of the April Interim Investigation Report). These data indicate that the mercury does not pose a vapor intrusion concern at the Site. Given that there is no known history of significant elemental mercury use at the Site (for example the manufacture of mercury thermometers) or detections of mercury in prior soil vapor readings, TRC does not intend to continue these mercury field measurements in the Eastern boundary area.

4. **Section 3, Results, Laboratory Analytical Results:** The Report compares the laboratory analytical data against the current EGLE non-residential screening criteria as specified in approved Work Plan. However, moving forward, applicable, and enforceable site-specific volatilization to indoor air criteria (SSVIAC) must be developed and approved for the site in order to define exceedances of soil and groundwater criteria and define the vapor source(s) in soil and groundwater. EGLE has previously developed SSVIAC for the facility and were transmitted to previous owners of the facility, Pinecrest Holdings in an October 22, 2019, letter. These criteria are attached to this letter and can become the SSVIAC for the facility if the facility agrees to accept them. Alternatively, pursuant to Section 20120(a)(2) of Part 201, Environmental Remediation (Part 201), of the NREPA, the facility also has the option to develop their own criteria; however, these require EGLE review and approval prior to implementation. The facility needs to consider the alternatives available to them regarding the development of applicable and enforceable SSVIAC and let EGLE know how they plan to proceed.

TRC Response:

TRC appreciates EGLE sharing the previously calculated residential SSVIAC for off-site use. While not necessary for the off-site properties and this Eastern Boundary investigation, TRC may request revised SSVIAC at a later time, that is reflective of current on-site-specific conditions for use in the on-site investigations for the following: 1) **non-residential** land use and 2) a slab-on-grade foundation that is **not in contact with groundwater**.

5. **Section 3, Results, Laboratory Analytical Results, Groundwater:** The Report must be revised to clarify whether the metals in groundwater analyses were for total or dissolved metals. Table 2 specifies dissolved metals, but the text, field sheets (Appendix B), and the Chain-of-Custody (Appendix D) do not indicate whether the samples were filtered prior to analysis. Filtration for dissolved metals analysis was not specified in the approved work plan. All Part 201 groundwater criteria are based on total metals concentration, and total metals analysis is required for appropriate comparison to Part 201 criteria.

TRC Response:

TRC has confirmed with Atlas that the groundwater samples collected in December 2021 were filtered by Pace Analytical prior to analysis and were analyzed for dissolved metals. TRC is aware that total metals analysis is required and therefore will sample for total metals moving forward. However, in cases where there is visibly high turbidity in the water being sampled,

recommends a field filtered/dissolved aliquot sample will be collected in addition to the totals sample.

6. **Section 4, Summary and Conclusions, Groundwater Results:** It should be noted that although the drinking water and groundwater to surface water interface pathways are not currently complete due to local institutional controls that are in place as recognized by the Report, off-site delineation of site related exceedances of these pathways is still required to document the areas with exceedances and to ensure reliable restrictions are in place in the event of future changes in the current institutional controls and/or land use.

   TRC Response:

   TRC is in agreement that off-site delineation to the drinking water and groundwater surface water interface pathways is required and is included in the work plan of which this letter is an addendum.

7. **Section 4, Summary and Conclusions, Soil Gas Results:** EGLE is not in agreement with the conclusion that "If we do not have exceedances in soil gas following the additional sampling event, additional soil gas sampling in this location will not be recommended". It should be noted that if the recommended off-site groundwater investigation to be implemented detects exceedances of volatilization to indoor air pathway screening levels, then the potential for soil gas impacts related to this groundwater source of vapors will need to be investigated. In addition, site related constituents of concern (COC) have already been documented off-site in soil gas as part of the referenced EGLE investigation conducted in 2018.

   TRC Response:

   TRC agrees that if the recommended off-site groundwater investigation to be implemented detects exceedances of VIAP screening levels, then the potential for soil gas impacts related to this groundwater source of vapors will need to be investigated and is included in the work plan of which this letter is an addendum.

8. **Section 5, Proposed Future Activities:**

   a. **The Report must be revised to provide a detailed schedule for the proposed future work.**

      TRC Response:

      TRC proposes the following schedule for the proposed Eastern Boundary Work:

Task	Proposed Schedule
Drilling Work (Monitoring Well Installation)	Initiated within 30 days of EGLE approval of the Eastern Property Boundary Work Plan
Groundwater Sampling Soil Vapor Sampling	Initiated within 45 days of EGLE approval of the Eastern Property Boundary Work Plan

Task	Proposed Schedule
Reporting	Within 60 days of completion of all field work included in the Work Plan and receipt of the analytical results

b. Detroit Axle should consider revising the Report to add another new monitoring well, north of the northernmost proposed monitoring well, and between monitoring wells (MW) MW-113, and MW-119. This well is necessary in order to completely delineate off-site exceedances in groundwater.

TRC Response:

An additional well north of the northernmost proposed monitoring well, between MW-113 and MW-119 will be installed approximately as shown on **Figure 1** (exact location is subject to change based on field conditions).

c. Detroit Axle should consider revising the Report to provide for soil gas sampling of the previously installed EGLE soil gas wells. Additional information regarding the location of the EGLE installed soil gas wells is attached.

TRC Response:

If these soil vapor points are still accessible and the condition of the soil vapor points are suitable for sampling, TRC will complete soil vapor sampling at the eight EGLE soil vapor points installed in 2018 (18VP-1-5', 18VP-2-5', 18VP-3-5', 18VP-4-7', 18VP-5-5', 18VP-5-9', 18VP-6-5' and 18VP-6-10').

d. The Report must be revised to provide for analysis and reporting of the full list of volatile organic compounds and per- and polyfluoroalkyl substances regulated by Part 201. This is needed to confirm site COC and evaluate potential variability in these classes of compounds. In addition, if dissolved metals were analyzed in the December 2021 sampling event, then the full list of Part 201 regulated total metals must be analyzed for (see Comment 5 above).

TRC Response:

TRC agrees for this Eastern Boundary investigation, the analysis shall include the full Part 201 VOC list, the list of 31 polyfluoroalkyl substances (PFAS) and the full Part 201 metals list. The full part 201 metals list includes the following: total aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium, cobalt, iron, lead, magnesium, manganese, molybdenum, mercury, nickel, potassium, selenium, silver, sodium, strontium, thallium, titanium, vanadium, and zinc.

9. **Appendix C, Low-Flow Groundwater Sampling Data Sheets:** Based on EGLE review of the low-flow sampling logs in Appendix C, it appears that the stabilization criteria were not documented prior to initiating sampling at MW-106 (oxidation-reduction potential [ORP] and specific conductivity) and MW-108 (ORP and dissolved oxygen), and the results at these

locations are recognized as potentially non-representative samples. Future sampling events must document stabilization prior to sampling or re-sampling will be required.

TRC Response:

TRC will complete proper documentation of the stabilization criteria during future groundwater sampling events. Stabilization guidelines as recommended by the EPA Low-Flow Ground-Water Sampling Procedures guidance document will be followed and will consist of the following to the extent practical (depending on the field conditions):

- pH ± 0.1 standard unit (SU)
- conductivity ± 3%
- turbidity within ±10% for values greater than 5 NTUs. If three turbidity readings are less than 5 NTUs, the values are considered stabilized.
- dissolved oxygen (DO) within ±10% saturation

If you have any questions or concerns regarding this Report, please contact me at 734.585.7829 or kcratsenburg@trccompanies.com.

Sincerely,

TRC

Kelly C. Cratsenburg, CPG
Project Manager

Andrew D. Stuart
National Market Director

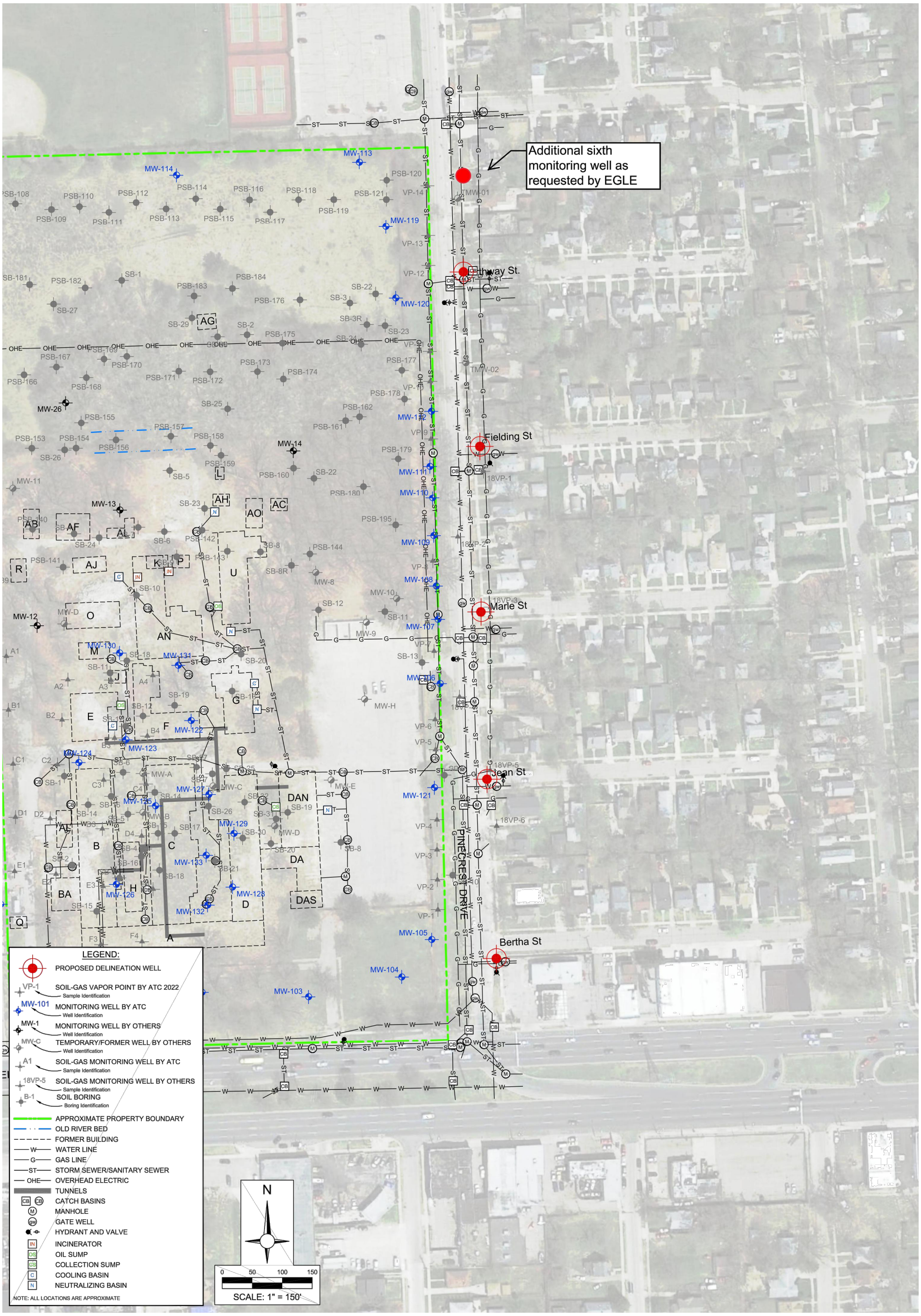
cc: Vincent Buening, CPG, TRC Client Service Manager

Attachments:

Figure 1 Site Map

Figure

11x17 --- USER: ABleecker --- ATTACHED XREF'S: --- ATTACHED IMAGES:
DRAWING NAME: J:_TRC\Detroit Axle Ferndale\495430\0000\ 495530-PR_Wells.dwg --- PLOT DATE: August 10, 2022 - 4:27PM --- LAYOUT: 11X17P
Version: 2017-10-21



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PROJECT:
DETROIT AXLE FERNDALE
FORMER HAYES LEMMERZ SITE
WEST EIGHT MILE ROAD
FERNDALE, MI

TITLE:
PROPOSED DELINEATION WELLS

DRAWN BY:	A. BLEECKER
CHECKED BY:	K. CRATSENBURG
APPROVED BY:	---
DATE:	AUGUST 2022
PROJ. NO.:	495430.0000.0000
FILE:	495530-PR_Wells.dwg

FIGURE 1