

Our ref: 12602792-LTR 23

November 21, 2025

Ms. Ashley Lesser
Michigan Department of Environment Great Lakes and Energy (EGLE)
Remediation and Redevelopment Division – Jackson District Office
301 East Louis Glick Highway
Jackson, Michigan 49201-1556

Proposed Long Term Monitoring Plan
Former Willow Run Powertrain Site
Ypsilanti, Michigan

Dear Ms. Lesser:

GHD Services Inc (GHD) has prepared this letter on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust to outline a proposed long term groundwater monitoring program as was discussed at our July 15, 2025 meeting at the facility. This monitoring program is proposed consistent with the Resource Conservation and Recovery Act (RCRA) Corrective Action (CA) at the former Willow Run Powertrain property (Site) in Ypsilanti, Michigan. This proposed plan includes the scope of work for long term sampling and groundwater level monitoring that would be implemented at the Site for the period of 2026 through 2036.

1. Introduction

1.1 Background

Numerous groundwater sampling and water level monitoring events have been completed at the Site since at least 1984. Most monitoring events were limited to specific areas of investigation. After several years of post-redevelopment monitoring, RACER submitted to EGLE the Comprehensive Groundwater Quality Update (GHD, 2021) in May 2021. This report reviewed all historical and recent groundwater quality investigations at the Site, with an emphasis on results after 2013. The Report also proposed a three-year annual groundwater monitoring program at the Site to assess the stability of groundwater compounds of concern (COCs) at the downgradient perimeter areas of the Site.

Following submission of the Comprehensive Groundwater Quality Update to EGLE, RACER implemented the proposed three-year annual groundwater monitoring program beginning in 2021 and concluded in 2023. A detailed description and discussion of groundwater analytical results for the three-year monitoring program was provided to EGLE in the 2023 Groundwater Sampling Event (GHD, December 2023) report. Groundwater level monitoring results from the three-year annual monitoring program were provided to EGLE in the 2023 Groundwater Level Monitoring Update (GHD, September 2023).

The three-year annual groundwater monitoring program between 2021 and 2023 provided the basis for reducing monitoring activities at the Site. The reduced monitoring program that is proposed going forward is described below.

1.2 Purpose of Long Term Monitoring Plan

The purpose of the proposed long term monitoring plan is to establish long term trends in the Site groundwater conditions and evaluate the data for potential substantive changes to groundwater conditions. Based on previous groundwater monitoring results, no additional water level monitoring or groundwater sampling was proposed. However, based on recent discussion and feedback from EGLE, a long term monitoring plan is desired to allow for ongoing evaluation of groundwater conditions at the Site. The long term monitoring will also provide additional data and support any decisions on abandonment of any portion of the monitoring well network at the Site. Any abandonment of portions of the monitoring well network will preserve limited funds that are available and allow for more efficient monitoring well maintenance and will also allow for current and future Site owners to maintain fewer monitoring wells overall while still monitoring the Site groundwater for potential changes.

2. Sitewide Water Level Monitoring

The following sections outline hydraulic trends at the Site since 2013 which is the basis for the proposed scope for the long term water level monitoring at the Site.

2.1 Historical Groundwater Elevation Trends

The groundwater underlying the Site consists of three zones – shallow, intermediate, and deep. Each zone is separated by a clay layer. The groundwater zones are as follows:

- Shallow Zone – Consists of fill and native soils, predominantly poorly graded “clean” sand and silty sand. Is typically 8 to 12 feet (ft) thick across the Site; thicker beneath the eastern portion of the former building footprint (up to 16 ft) and thinner to the south of the former building footprint (as little as 5 ft).
- Intermediate Zone – Consists predominantly of silty sand. Is thickest in the southwestern areas of the Site (up to 8 ft) and gradually thins to the north and east. Interpreted to be absent beneath the northeastern and eastern area of the Site.
- The shallow and intermediate zones are often hydraulically connected on Site since the clay unit between them is thin (typically 2 to 5 ft) and it is often penetrated by historical anthropogenic features associated with the Powertrain Plant such as pits, steam tunnels and storm sewers.
- Deep Zone – Consists of layered silt and silty clay with silt typically comprising 40 to 80 percent of the unit. At the Site, the unit is discontinuous with a thickness ranging from 0 to 12.5 ft. The deep zone occurs at a depth of about 70 ft and where present on Site and is overlain by 47 to 62 ft of a regionally extensive clay unit. It is therefore not hydraulically connected to the shallow or intermediate zones within the Site boundaries.

Since the initial sitewide water level monitoring event in April 2013, redevelopment activities at the Site have caused significant changes to groundwater level and/or flow direction. Completed redevelopment activities include:

- Willow Run Powertrain Main Plant and on-Site wastewater Treatment Plant (WWTP) Decommissioning and Demolition (September 2014 – January 2015)
- Tyler Pond Lowering (March 2017 – April 2017)
- French Drain Construction and Operation (May 2017 – November 2022)
- First Flush Basin C (FFB-C) Construction (June 2017 – November 2017) and subsequent use
- Michigan Flight Museum (MFM) East Side Storm Drain and Other Utilities Construction along French Drain Alignment (July 2017 – September 2018)

- Legacy Stormwater System Closure (bulkheading of main lines, manhole closures and other surface penetration closures) (October 2017 – July 2020)
- The American Center for Mobility (ACM)/ MFM Stormwater Swale Construction (August 2017 – November 2018)
- Plant Engineering Building 19 / PCE Area A Soil Removal (September 2018)
- Construction of ACM Autonomous Vehicle Test Track, Access Roads and Buildings (April 2017 – June 2020)

The following sections describe changes to groundwater level and/or flow caused by Site redevelopment and discuss recent trends in groundwater elevation and flow.

2.1.1 Shallow Groundwater

The most significant change occurred in the shallow groundwater in the vicinity of the Main Plant Building footprint. Prior to decommissioning of the Main Plant Building, the shallow groundwater was influenced by dewatered subsurface structures (i.e. storm sewers, utility tunnels and basements). As a result, groundwater generally flowed inward from all directions toward the Main Plant building footprint. Following the decommissioning of the Main Plant building in 2015, shallow groundwater no longer flowed inward toward the building footprint. At this time, groundwater generally flows east and southeast toward Willow Run Airport and Tyler Ditch. This condition has been consistently observed in the most recent annual groundwater monitoring events between 2021 and 2023. The most recent annual groundwater monitoring event was conducted in 2023.

2.1.2 Intermediate Groundwater

The intermediate groundwater flow changed as a result of redevelopment activities similarly to the shallow zone, although it was less pronounced due to the lower number of monitoring wells. Since redevelopment, the intermediate groundwater in the central portion of the Site generally flows east toward Willow Run Airport, whereas in the north, west, and southwest areas of the Site the intermediate groundwater generally flows south toward Tyler Ditch. Trends in the intermediate groundwater have been consistent throughout the annual groundwater monitoring events between 2021 and 2023. The most recent annual groundwater monitoring event was conducted in 2023.

2.1.3 Deep Groundwater

The deep groundwater zone is not hydraulically connected to the intermediate or shallow groundwater zones and there are no deep groundwater quality concerns, as documented in the Comprehensive Groundwater Quality Update (GHD, 2021). Therefore, deep groundwater monitoring wells were not included in the most recent annual groundwater monitoring program (2021-2023).

2.2 Proposed Groundwater Level Monitoring

The proposed long term groundwater elevation monitoring includes collecting water levels from shallow and intermediate groundwater monitoring wells, presented in Table 1 and on Figure 1. The proposed list of monitoring wells has been reduced from the most recent annual groundwater monitoring program described in the Comprehensive Groundwater Quality Update (GHD, 2021).

The proposed well list includes 66 shallow groundwater zone monitoring wells within the interior of the Site and along the north, west, south, and east perimeter of the Site. The greatest density of monitoring wells to be monitored occurs at east and southeast perimeter of the Site along the MFM and Willow Run Airport property boundary.

The proposed list also includes 19 intermediate groundwater monitoring wells along the north, west, south, and east perimeter of the Site. The proposed list of intermediate monitoring wells is smaller compared to the shallow well network because the intermediate groundwater monitoring well network is smaller than the shallow groundwater network.

The reduced list of wells proposed here adequately covers the perimeter and interior of the Site to monitor Sitewide shallow groundwater and intermediate groundwater trends. Groundwater elevation monitoring will be conducted annually for four years (2026-2029) and then every other year until 2035 to confirm that groundwater trends remain consistent with historical observations. A brief summary letter will be provided after each groundwater level monitoring event is completed to document the results. Although overall groundwater flow direction does not vary by season as indicated by previous events, each year the groundwater elevation monitoring event may be conducted at a different times of the year to account for potential seasonal variation in groundwater elevations.

Based on review of the results of the annual groundwater level monitoring events, the list of wells to be monitored may be altered or reduced.

3. Groundwater Quality Sampling

3.1 Historical Groundwater Sampling

As described above, since 1984, numerous groundwater sampling programs have been completed at the Site with many of the sampling events being limited to specific areas of investigation in response to specific areas of interest (AOI). Specific AOIs and the overall Site sampling strategy are discussed in detail in the Comprehensive Groundwater Quality Update Report (GHD, 2021). In general, the Site strategy shifted to an overall sitewide focus as opposed to an individual AOI basis due to the overall distribution of the AOIs, the presence and location of light non-aqueous phase liquid (LNAPL) impacts, and largely inward gradients for the Site groundwater. Between 2013 and 2018 major redevelopment related activities at the Site were completed that resulted in changes to groundwater levels and localized flow directions.

The perimeter groundwater sampling completed during the aforementioned three year monitoring program showed generally consistent results with no major groundwater impact trends. Several isolated areas did have exceedances of groundwater surface water interface (GSI) criteria for vinyl chloride and select metals (arsenic, chromium, and vanadium). The GSI pathway is the only pathway applicable to the Site as documented in the 2023 Groundwater Sampling Summary & Update (GHD, December 2023).

In addition to the sitewide perimeter groundwater sampling program, groundwater sampling associated with the PCE Area was completed. The PCE Area is an area of interest within the Site with historical VOC impacts in soil and groundwater. In October 2024, RACER submitted the PCE Area Interim Measures Report (GHD, 2024) to document the analytical results of the groundwater sampling conducted in the PCE Area. This report also presents and discusses a plume stability assessment for the PCE Area. The plume stability assessment included GSI pathway evaluation, 3-dimensional modeling and statistical analysis of VOC concentrations and plume characteristics, and a discussion of natural attenuation conditions within the PCE Area. Based on the results of the groundwater sampling, plume stability assessment, and natural attenuation evaluation, continued long term monitoring of the PCE Area was recommended for 10 years.

3.2 Proposed Long Term Groundwater Sampling

Based on the results of the three-year groundwater sampling program and the PCE Area monitoring and evaluation, the proposed long term groundwater sampling program is presented below. In general, the groundwater monitoring well locations and sampling parameters selected for long term sampling are at locations where GSI exceedances were observed during the three years of sampling under the Comprehensive

Groundwater Monitoring Program. Wells downgradient of the PCE Area plume were also selected for the proposed long term groundwater sampling program.

The following describes the proposed areas of long term groundwater sampling.

Sitewide Perimeter Groundwater Sampling:

- Five wells downgradient of the PCE Area plume to be sampled for the PCE Area COCs which include PCE, TCE, cDCE, and VC.
- Two perimeter wells in the southeast and southwest areas of the Site to be sampled for VC.
- Ten perimeter wells in the south, southeast, and southwest areas of the Site to be sampled for arsenic and/or chromium, copper and vanadium.
- The perimeter groundwater sampling events will be conducted every other year, beginning in 2026 and ending in 2036.

Table 2 lists the sampling locations and analysis and the sampling locations are shown on Figure 2.

PCE Area Monitoring:

The PCE Area monitoring program is described in an internal workplan memorandum between GHD and Racer titled PCE Sampling Workplan Spring 2025 (GHD, April 2025) and was submitted to EGLE as an attachment in the PCE Area Monitoring Results Letter (GHD, November 2025). The PCE Area monitoring program is summarized below.

- 16 monitoring wells in and around the PCE area will be sampled for PCE, TCE, cDCE, VC and monitored natural attenuation (MNA) parameters
- An additional 18 monitoring wells will be gauged for water level elevations to monitor the localized groundwater elevation trends in the PCE Area. Some of these locations will also be part of the annual groundwater level monitoring program
- The PCE Area monitoring events will be conducted every three years beginning in 2025 (completed in April 2025) and ending in 2034

Table 3 lists the PCE area monitoring locations and analysis and the monitoring locations are shown on Figure 3.

A brief summary letter will be provided after the completion of each perimeter sampling event and PCE Area monitoring event to document the results. After the completion of the long term sampling program in 2036, the status of the program will be reviewed with EGLE to determine if additional monitoring is needed and with what scope and frequency. Groundwater sampling may be conducted at different times of the year for each event to account for potential seasonal variation in Site conditions.

4. Summary

The perimeter and PCE Area groundwater sampling will monitor previously detected concentrations of select VOCs and select metals. Groundwater level monitoring will allow for the continued evaluation of Site conditions and groundwater level trends. The long term monitoring plan as proposed will provide groundwater level and groundwater quality data that will allow RACER to confirm the current low risk profile at the Site remains in place. Below is a table that lays out the proposed long term monitoring schedule per the above discussion.

Year	PCE Area Monitoring	Sitewide Groundwater Levels	Perimeter Groundwater Sampling (Select VOCs, Select Metals)
2025	X		
2026		X	X
2027		X	
2028	X	X	X
2029		X	
2030			X
2031	X	X	
2032			X
2033		X	
2034	X		X
2035		X	
2036			X

5. References

GHD, May 2021. Comprehensive Groundwater Quality Update, Former Willow Run Powertrain Plant, Ypsilanti, MI.

GHD, December 2023. 2023 Groundwater Sampling Summary & Update, Former Willow Run Powertrain Plant, Ypsilanti, MI.

GHD, October 2024. PCE Area Interim Measures Report 2024, Former Willow Run Powertrain Plant, Ypsilanti, MI.

GHD, April 2025. PCE Sampling Workplan Spring 2025, Former Willow Run Powertrain Plant, Ypsilanti, MI.

GHD, November 2025. PCE Area Monitoring Results 2025, Former Willow Run Powertrain Plant, Ypsilanti, MI.

Regards,



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BB/lg/23/S4



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Encl.: Table 1 – GWE-List
Table 2 – Perimeter Sampling
Table 3 – PCE Area Monitoring
Figure 1 – Long Term Groundwater Elevation Monitoring: Shallow and Intermediate Well Locations
Figure 2 – Long Term Groundwater Sampling Proposed Locations
Figure 3 – PCE Area Sampling and Level-Gauging Locations

Copy to: Bob Hare, RACER
Beth Landale, GHD

**Long Term Monitoring Plan
Annual Groundwater Elevation Gauging List
Former Willow Run Powertrain Plant
Ypsilanti, MI**

Well ID	Groundwater Zone	Property
CRA-027R	Shallow	MFM
CRA-050M		ACM
CRA-106M		MFM
CRA-137M		ACM
CRA-140M		ACM
CRA-217M		ACM
CRA-222M		ACM
CRA-223M		ACM
CRA-267M		ACM
CRA-315M		MFM
CRA-321M		WCAA
CRA-322M		ACM
CRA-342M		WCAA
CRA-343M		ACM
CRA-602M		ACM
CRA-604M		ACM
CRA-605M		ACM
CRA-609M		ACM
CRA-616M		MFM
CRA-623M		ACM
CRA-701M		ACM
CRA-703M		ACM
CRA-713M		ACM
CRA-722M		ACM
CRA-725M		ACM
CRA-729M		ACM
CRA-756M		MFM
CRA-799M		ACM
CRA-806M		MFM
CRA-807M		ACM
CRA-884M		ACM
CRA-887M		ACM
CRA-889M		ACM
CRA-970M		MFM
CRA-971M		MFM
CRA-977M		MFM
GHD-984M		ACM
GHD-986M		MFM
GHD-1009M		MFM
GHD-1016M		ACM
GHD-1120M		ACM
GHD-1121M		ACM
GHD-1122M		ACM
GHD-1123M		ACM
GHD-1125M		ACM
GHD-1196M		ACM
GHD-1197M		ACM
GHD-1198M		ACM
GHD-1209M		MFM

**Long Term Monitoring Plan
Annual Groundwater Elevation Gauging List
Former Willow Run Powertrain Plant
Ypsilanti, MI**

Well ID	Groundwater Zone	Property
GHD-1211M	Shallow	MFM
GHD-1212M		MFM
GHD-1213M		MFM
GHD-1214M		MFM
GHD-1220M		ACM
GHD-1223M		ACM
GHD-1236M		WCAA
GHD-1237M		WCAA
GHD-1238M		WCAA
GHD-1239M		WCAA
GHD-1240M		WCAA
GHD-1241M		WCAA
GHD-1242M		WCAA
GHD-1243M		WCAA
GHD-1244M		WCAA
MW-6		WCAA
MW-9		WCAA
CRA-315I	Intermediate	MFM
CRA-317I		ACM
CRA-343I		WCAA
CRA-703I		ACM
CRA-704I		ACM
CRA-711I		ACM
CRA-720I		ACM
CRA-725I		ACM
CRA-736I		ACM
CRA-740I		ACM
CRA-887I		ACM
CRA-889I		ACM
CRA-890I(S)		ACM
CRA-972I		MFM
GHD-1120I		ACM
GHD-1121I(18)		ACM
GHD-1123I		ACM
GHD-1196I		ACM
GHD-604I		ACM

Notes:

ACM - American Center for Mobility
MFM - Michigan Flight Museum
WCAA - Wayne County Airport Authority

**Long Term Monitoring Plan
Proposed Perimeter Sampling Locations
Former Willow Run Powertrain Plant
Ypsilanti, MI**

Well Location	Groundwater Zone	Groundwater Analysis
CRA-140M	Shallow	Select VOCs
CRA-756M	Shallow	Select VOCs
GHD-1210M	Shallow	Select VOCs
GHD-1226M	Shallow	Select VOCs
IG-2	Shallow	Select VOCs
CRA-974	Shallow	Vinyl Chloride
CRA-729I	Intermediate	Vinyl Chloride
CRA-106M	Shallow	Arsenic
CRA-729M	Shallow	Arsenic, Vanadium, and Chromium
CRA-740M	Shallow	Arsenic, Vanadium, and Copper
CRA-740I	Intermediate	Arsenic
CRA-827ML	Shallow	Arsenic
CRA-837ML	Shallow	Arsenic
CRA-889M	Shallow	Arsenic
CRA-890I(D)	Intermediate	Arsenic
GHD-1005M	Shallow	Arsenic
GHD-1196I	Intermediate	Arsenic

Notes:

Select VOCs include: tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, vinyl chloride

Standard QA/QC will be completed as follows – duplicate samples and MS/MSD samples every 1 in 20.

**Long Term Monitoring Plan
Proposed PCE Area Monitoring Locations
Former Willow Run Powertrain Plant
Ypsilanti, MI**

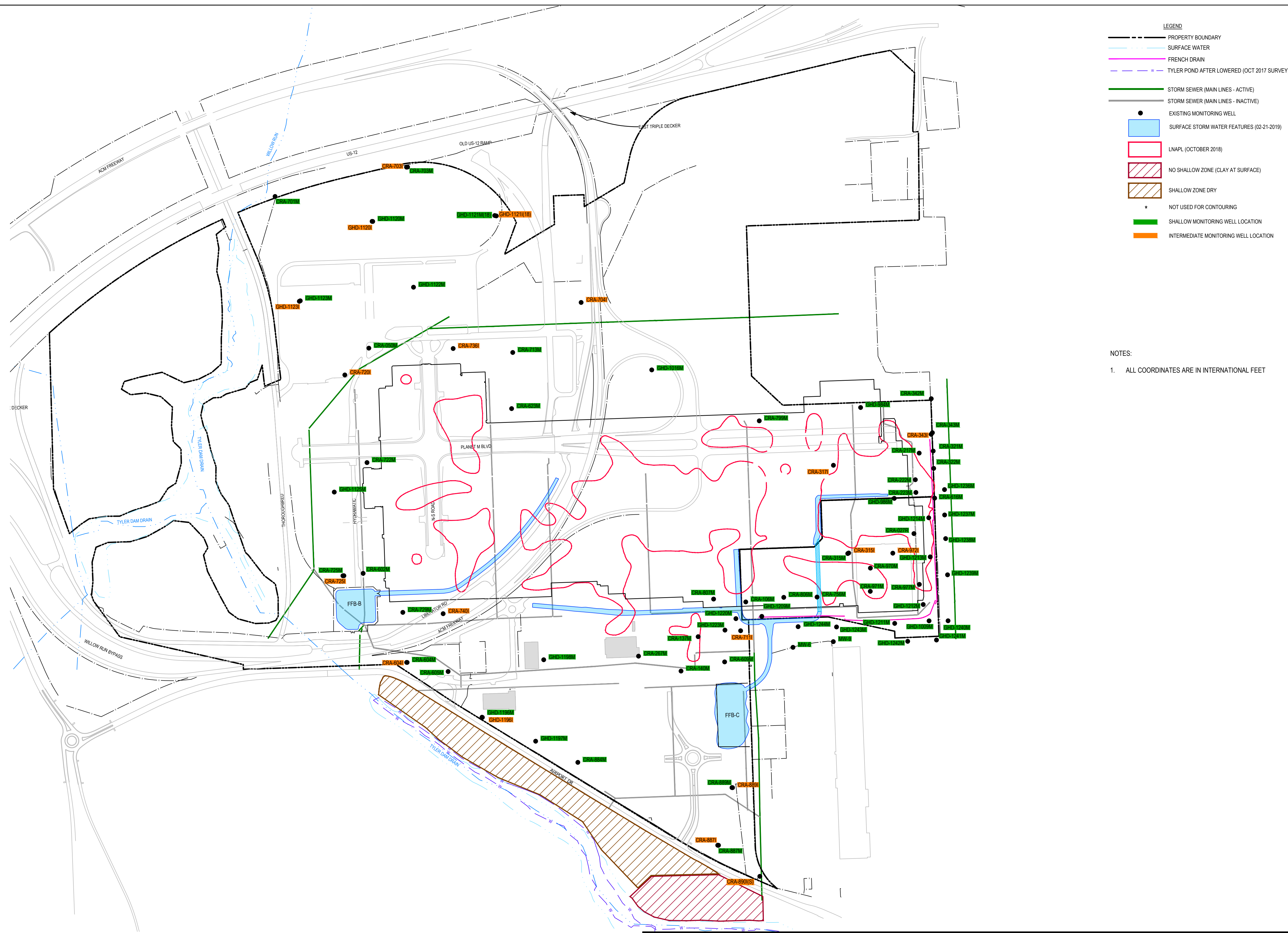
Well Locations	Groundwater Zone	Groundwater Analysis	Ground Water Levels	NAPL
CRA-104M	Shallow	N/A	Yes	No
CRA-105M	Shallow	N/A	Yes	No
CRA-107M	Shallow	N/A	Yes	No
CRA-140M	Shallow	N/A	Yes	No
CRA-267M	Shallow	N/A	Yes	No
CRA-310M	Shallow	N/A	Yes	No
CRA-756M	Shallow	N/A	Yes	No
CRA-757M	Shallow	N/A	Yes	No
GHD-1210M	Shallow	N/A	Yes	No
GHD-1232M	Shallow	N/A	Yes	No
GHD-1233M	Shallow	N/A	Yes	No
GHD-1234M	Shallow	N/A	Yes	No
GHD-1243M	Shallow	N/A	Yes	No
GHD-1244M	Shallow	N/A	Yes	No
IG-2	Shallow	N/A	Yes	No
MW-6	Shallow	N/A	Yes	No
MW-9	Shallow	N/A	Yes	No
WCAA-MW14-2017	Shallow	N/A	Yes	No
CRA-061M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-106M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-137M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-609M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-806M	Shallow	Select VOCs, MNA Parameters	Yes	No
CRA-807M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1134M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1145M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1151M	Shallow	Select VOCs, MNA Parameters	Yes	DNAPL
GHD-1209M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1220M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1223M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1226M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-1229M	Shallow	Select VOCs, MNA Parameters	Yes	No
GHD-859M	Shallow	Select VOCs, MNA Parameters	Yes	No
IG-1	Shallow	Select VOCs, MNA Parameters	Yes	No

Notes:

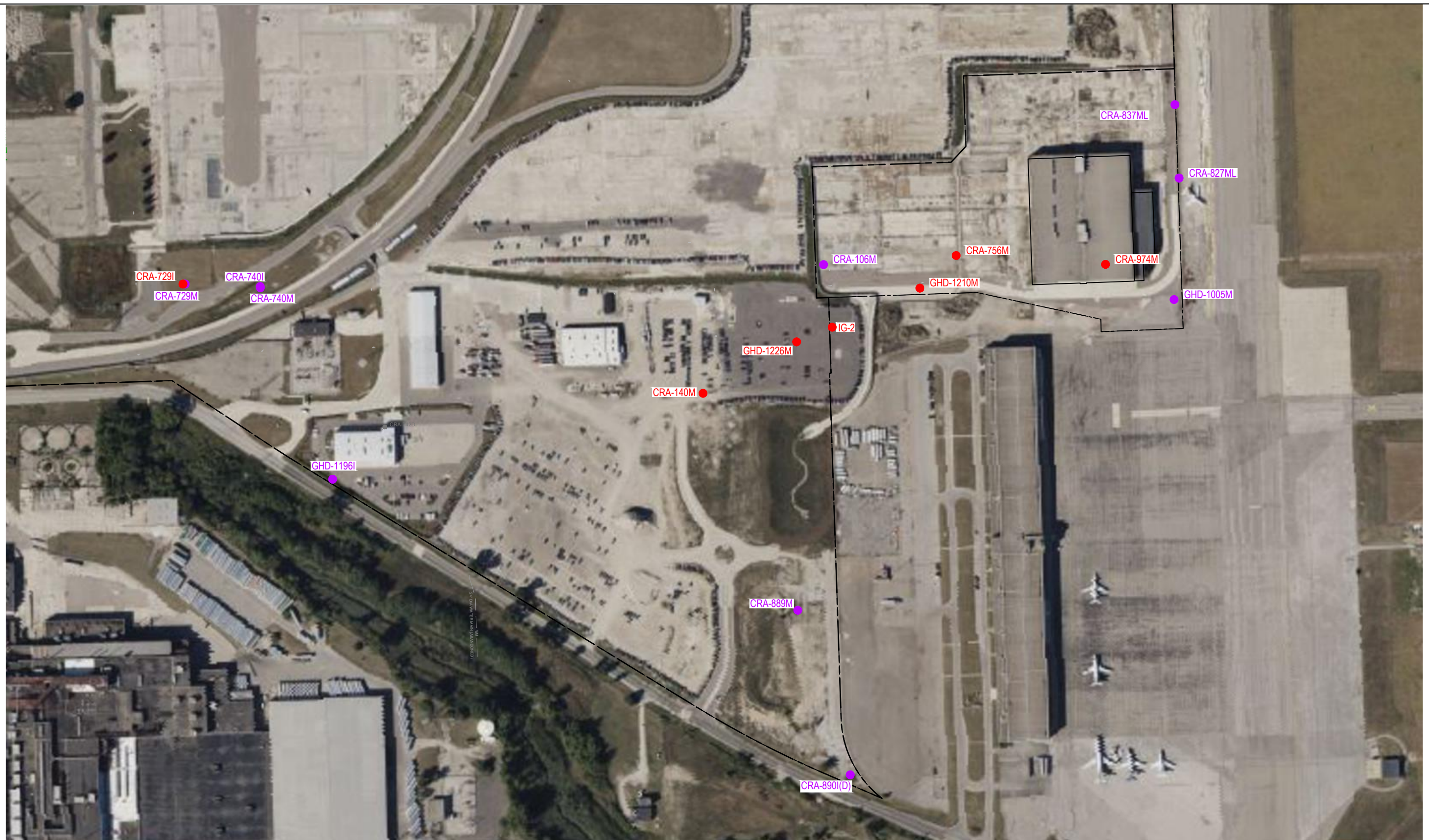
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MNA Parameters include: ethene, ethane, methane, nitrate, sulfate, and alkalinity

Standard QA/QC will be completed as follows – duplicate samples and MS/MSD samples every 1 in 20.



NOTES:
1. ALL COORDINATES ARE IN INTERNATIONAL FEET

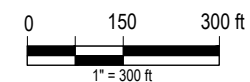


LEGEND

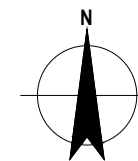
----- PROPERTY BOUNDARY

● SELECT VOC MONITORING LOCATION

● SELECT METALS MONITORING LOCATION



Coordinate System:
MICHIGAN SOUTH
INTERNATIONAL FEET NAD83

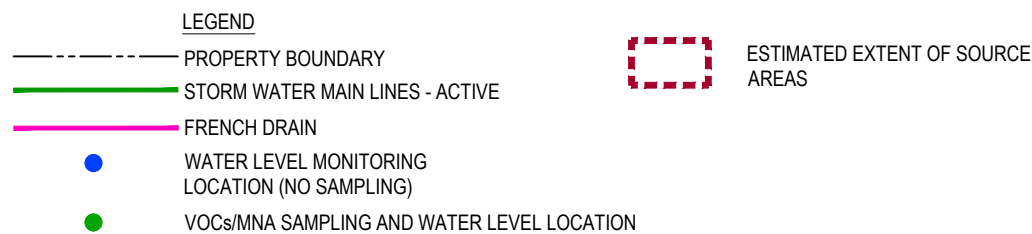


FORMER WILLOW RUN POWERTRAIN SITE
YPSILANTI, MICHIGAN

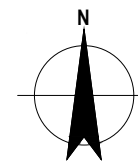
LONG TERM GROUNDWATER SAMPLING
PROPOSED LOCATIONS

Project No. 12602792
Date November 2025

FIGURE 2



Coordinate System:
MICHIGAN SOUTH
INTERNATIONAL FEET NAD83



FORMER WILLOW RUN POWERTRAIN SITE
YPSILANTI, MICHIGAN

PCE AREA SAMPLING AND
LEVEL-GAUGING LOCATIONS

Project No. 12602792
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FIGURE 3