MEMO

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Subject:
Summary of Proposed AOCs and Updated Lead Data
RACER, Buick City, Flint, Michigan

This memo summarizes the current understanding of lead impacts at Block 4 and requests approval of the Area of Contamination (AOC) locations proposed herein for Block 4 at the RACER Buick City Site (Site) located in Flint, Michigan (**Figure 1**). In addition, proposed standards/criteria for defining the AOCs is outlined for review and approval. Agreement on the essential criteria for defining the AOCs will allow development of proposed AOCs for the remaining areas on the site.

EXECUTIVE SUMMARY

The Block 4 data was evaluated to determine the proposed limits of the AOCs. The definition of these areas was based upon:

- Lead soil concentrations greater than 600 ppm. There are minor changes in the proposed limits if 400 ppm is used.
- An evaluation of Toxicity Characteristic Leaching Procedure (TCLP) concentrations compared with total lead concentrations in soil.
- An evaluation of groundwater concentrations in areas containing elevated lead concentrations in soil in Block 4 and other locations on Site where no hard surface cover is present. The TCLP vs. total soil lead concentration evaluation determined that at a 99% confidence level the concentration above which the soil would leach above the lead TCLP level of 5 mg/L is 950 ppm.

To provide a level of conservatism, a value of 600 ppm was selected as the limit of the AOC. As stated above, an alternate boundary using 400 ppm does not significantly change the AOC limits.

The justification for the definition of the AOCs is further supported by the lead groundwater data from the Site. Groundwater samples were collected and analyzed for lead in locations with no hard surface (concrete or asphalt) at the surface and that exhibited elevated soil lead concentrations (in Block 2 and the property south of Hamilton Avenue). At these locations all of the total (unfiltered) samples except one were less than the residential and non-residential drinking water (RDW and NDW) criterion of 0.004 mg/L. Dissolved (filtered) concentrations were either less than the reporting limit of 0.003 mg/L or below the RDW and NDW in all cases. Furthermore, all groundwater samples from Block 4 were less than the RDW and NDW, except one unfiltered sample, despite the highly elevated lead concentrations in soil.

Note that while the lead sample results are compared to the RDW and NDW, the drinking water pathway is not a relevant, since there is a prohibition on groundwater use at the Site. The GSI criterion for lead 55 ug/L (based on the Flint River hardness of 280 mg/L). There are no GSI exceedances in the samples collected from Block 4 and the above referenced samples from Block 2 and South of Hamilton Avenue. For the Site as a whole 348 groundwater samples were analyzed for total lead and 298 samples were analyzed for dissolved lead. There were five exceedances of the lead GSI criterion in monitoring well samples and no GSI exceedances for lead in the dissolved samples. Given the widespread presence of lead both above and below the water table, lead is not a concern in groundwater.

The soil and groundwater data demonstrates that after being in place for many decades lead impacted soil does not represent any environmental risk at this site. Consequently, while regulatory standards impose hazardous waste management requirements on these soils, they may be moved and/or relocated on site with no material effect on groundwater quality. Other than direct contact restrictions no other risk management control is required. Therefore, this site is well suited to adoption of AOCs to alleviate unnecessary and overly burdensome RCRA hazardous waste restrictions.

1. BASIS FOR AOC RECOMMENDATIONS

1.1 LEAD TCLP EVALUATION

In the memo entitled “Statistical Evaluation of Total versus TCLP Lead Concentrations in Soil” (dated November 15, 2022), 76 paired samples collected from the Site were evaluated to estimate the total lead concentration above which the TCLP concentrations may exceed the hazardous waste level of 5 mg/L of lead. At the 99% confidence level the total lead value above which the TCLP concentrations may exceed the hazardous waste level of 5 mg/L was 950 mg/kg. None of the sample points exhibiting concentrations less than the reporting limits were included in the statistical evaluation. Consequently, the use of a value of less than 950 ppm for lead (such as 600 ppm) can be confidently and conservatively used to define the AOC boundaries.

The TCLP samples were further broken down by soil type into four categories as shown on the attached **Table 1.** The three primary soil types (foundry sand, sand with metal debris, and sand) were plotted on a log-log scale (**Figure 2**). As indicated on **Figure 2**, these three soil types exhibit a similar correlation between total and TCLP lead. The fact that there is no material difference in the results suggests that the variability in soil types is not relevant in the data analysis. The fourth category of soil (silt and clay) was not included in this evaluation because the majority of points showed concentrations less than the reporting limit and none were above 5 mg/L lead.

1.1.1 Block 4 Lead TCLP Data

At Block 4 there are four lead impacted soil areas identified - Soil Impact Area #10 (SI #10), Soil Impact Area #11 (SI #11), Soil Impact Area #13 (SI #13), and Soil Impact Area # 33 (SI #33). As part of Site investigation activities, a total of 41 soil samples collected from these soil impact areas were submitted for TCLP analysis from 2020 to 2022. Twenty-eight of the 41 samples exceeded the TCLP level for lead of 5 mg/L (discussed in further detail below), indicating that the lead impacts in soil qualify as regulated hazardous waste at SI #10, SI #11, SI #13, and SI #33. As such, AOCs are proposed for each of these areas (**Figure 3**).

1.2 EXTENT OF PROPOSED AOCs

1.2.1 Basis for AOC Extent

As discussed above the statistical evaluation determined with a 99% confidence level, soils with a total lead concentration below 950 ppm would not leach as hazardous (greater than 5 mg/L). Therefore, a conservative value of 600 ppm was chosen as the criteria for the AOCs to increase confidence that potentially hazardous soils will be included within the AOC boundary. Soil within the AOC boundary would be managed as TCLP hazardous for lead unless further soil analysis demonstrated otherwise.

1.2.2 Rationale for Delineating the AOC Extent

Total lead sample results at the Site are generally either 900 ppm (Nonresidential Direct Contact [NDC] criteria) and higher, or below 100 ppm. Although there are sample results in the vicinity of 600 ppm, that data is limited making it a challenge to be precise in defining the AOC boundaries. Some of the challenges encountered include:

- The typical practice to define the boundaries of an impacted area is to step out to the next ‘clean’ location, which in many cases would be less than 100 ppm. While this is common for defining restricted areas for metals and VOCs, using that practice to define an AOC, would include large areas with soils that are not characteristically hazardous. Both EGLE and the buyer have found that result undesirable for differing reasons.
- A review of actual site data does not reveal generally dispersed concentrations, but rather discrete areas with elevated levels of lead. Consequently, it is not representative of site conditions to assume gradual decline in concentrations for delineation purposes., Using a gradation method between single sample points to define the limits of the AOC, is not necessarily accurate.

As such, there is a need to identify the AOC boundary by determining what is reasonable and practical, based on professional judgement. The proposed methodology to determine the extent of the AOC in general is:

- Locate all sample results at or about 600 ppm and then step out approximately an additional 40 feet. This practice accounts for the likelihood that the extent of contamination may extend some reasonable distance beyond the specific sample point.
- Use Site features such as basement walls to determine the extent.
- Adjust the boundaries as need to accommodate site specific local conditions – such as proximity of additional sample results. For example, if the lead concentration in one sample exceeded 600 ppm and an adjacent sample was less than 600 ppm and less than 40 feet away, the extent of the AOC would be placed at the latter sample point.

Any AOC specific deviations are discussed below in each impact area discussion in Section 3.

2. GROUNDWATER EVALUATION

Existing groundwater data for lead from Block 4 was supplemented by collecting additional samples at the Site. Groundwater samples were collected downgradient of the recently identified lead impacted soils at Block 2 and lead impacted soils on the former RACER property located south of Hamilton Ave (**Figure 4**). A summary of the groundwater sampling results is provided below.

2.1 BLOCK 4 GROUNDWATER DATA

A summary of the lead groundwater data from Block 4 is provided in **Table 2**. In 2020, a total of 15 groundwater samples were collected within or immediately downgradient of Block 4, where the highest soil lead concentrations (up to 384,000 ppm) are present on Site. Filtered and unfiltered sample groundwater samples were collected at each location. Lead concentrations in 14 of the 15 groundwater samples were less than the reporting limit (0.003 milligrams per liter [mg/L]). One sample had a total (unfiltered) lead concentration of 0.005 mg/L; however, the dissolved (filtered) concentration was less than the reporting limit of 0.003 mg/L (**Figure 5**). Therefore, the lead present in the groundwater can be attributed to particulate matter in the sample and is not leaching into the groundwater.

2.2 BLOCK 2 GROUNDWATER DATA

A summary of the lead groundwater data from Block 4 is provided in **Table 3.** During recent investigation activities, an area was identified at Block 2 where lead impacted soils are present and there is no surface concrete/asphalt (See **Figure 6** – the area without cover is about 1,700 square feet [sq ft]). At EGLE's request a temporary well (SB-10-131) was installed in the area without cover, which is located approximately 130 feet downgradient of SB-10-100, where lead impacted soils exceeding 42,000 ppm are present. Twelve soil samples were collected at SB-10-131 from 0 to 22 feet below ground surface (ft bgs) and analyzed for lead. The highest concentrations of lead in soil at SB-10-131 were detected from 4 to 8 ft bgs at concentrations ranging from 2,990 ppm to 6,140 ppm. Soils at this location were primarily foundry sand and saturated soils were encountered from 9 to 22 ft bgs.

Groundwater samples were then collected from the temporary well (SB-10-131) as well as three existing monitoring wells (20-FP11, MW-10-13, and RFI-03-04) in the general vicinity (downgradient and sidegradient) (**Figure 6**). Please note that the three existing monitoring wells were in areas covered with surface concrete/asphalt but were included in the analysis to get a better snapshot of groundwater in the area. Unfiltered (total) and filtered (dissolved) groundwater samples were collected from each location. Total and dissolved lead concentrations were below the reporting limit (0.003 mg/L) in 3 of the 4 samples, including well SB-10-131. One sample (MW-10-13) had a total lead concentration of 0.005 mg/L and a dissolved concentration at the reporting limit of 0.003 mg/L.

The boring logs for SB-10-131, 20-FP11, MW-10-13, and RFI-03-04 are included in **Attachment A**.

2.3 SOUTH OF HAMILTON AVENUE GROUNDWATER DATA

Another lead impacted soil area where no hard surface cover is present is located on the parcel formerly owned by RACER south of Hamilton Avenue (**Figure 7**). The area without surface cover is approximately 125,000 sq ft and has been without cover since at least 2005. A summary of the lead groundwater data from this area is provided in **Table 4.** A soil sample collected from RFI-09-56 in 2005 detected lead at a concentration 2,650 ppm from 2 to 4 ft bgs. In January 2023, groundwater sampling was attempted at RFI-09-56 and five downgradient monitoring wells. However, RFI-09-56 was damaged and three of the wells

(MW-09-77, RFI-09-49R, and RFI-09-57) were dry. Groundwater samples were collected from the monitoring wells RFI-09-04R (screened 14 to 19 ft bgs) and RFI-09-53 (screened 5 to 15 ft bgs). Total and dissolved lead concentrations were below the reporting limit (0.003 mg/L) in both samples.

The boring logs for RFI-09-04R, RFI-09-53, and RFI-09-56 are included in **Attachment A**.

2.4 GROUNDWATER EVALUATION CONCLUSION

For the Site as a whole 348 groundwater samples were analyzed for total lead and 298 samples were analyzed for dissolved lead. There were five exceedances of the lead GSI criterion in monitoring well samples and no GSI exceedances for lead in the dissolved samples. Given the widespread presence of lead both above and below the water table, lead is not a concern in groundwater. Groundwater data collected at the Site indicate lead in the soil is not leaching to groundwater, even at locations with very high concentrations in soil or areas with or without surface cover. Therefore, after decades of presence on site there is no evidence that lead in soils at this site presents any material threat to groundwater. Consequently, there is no evidence that allowing movement of lead impacted soils through establishment of AOCs has any material consequence environmentally – the ONLY issue is regulatory – which makes this site particularly suited to a flexible application of the AOC policy including transporting soils to different locations during construction activities via approved transportation routes (discussed further below in **Section 4**).

In addition to the lead groundwater data, other supporting information for development of AOCs includes the Documentation of Environmental Indicator Determination, completed as part of the Corrective Action process. These include the EPA CA 750 (Migration of Groundwater Under Control) and EPA CA 725 (Current Human Exposures Under Control). These documents are included in **Attachment B**. The CA 750 was approved by EPA on September 29, 2005, and the CA 725 was approved by EPA on August 17, 2004.

3. SOIL IMPACT AREA SUMMARIES AND PROPOSED AOCS

3.1 SOIL IMPACT AREA #10

Soil Impact Area # 10 was identified during the RFI investigation as an area where lead concentrations in soil exceeded the Nonresidential Direct Contact (NDC) criteria (900 parts per million [ppm]) and the Nonresidential Particulate Soil Inhalation Criteria (NPSIC) (44,000 ppm). Eleven soil borings contained soils with lead concentrations exceeding criteria, with a maximum detection of 74,500 ppm. Fifteen soil samples collected in this area were submitted for total lead and TCLP lead analysis to aid in determining the extent of potentially hazardous soils. A summary of the lead impacts is provided below.

- The boring logs indicated that lead impacts were primarily identified in foundry sand or sand with metallic debris. However, note the statistical analysis cited earlier – the soil type is not a distinguishing factor in defining site conditions or responses.
- The highest lead impacts were detected in the samples collected from 4 to 10 ft bgs; however, lead impacted soils at concentration greater than 900 ppm were also detected from 2 to 4 ft bgs at three locations (RFI-81-01, SB-81-60, and SB-81-103).
- Fifteen of the soil samples were submitted for TCLP analysis. Twelve of these samples detected lead at a concentration exceeding the TCLP level, indicating that soil at these locations should be considered hazardous and included within the AOC.
- Depth to groundwater in this area is ~11 ft bgs.

The table below provides a summary of the data from locations that detected lead at concentrations greater than 600 ppm at Soil Impact Area #10. As discussed above, 600 ppm was selected as the criteria for determining the extent of the AOC to increase confidence that potentially hazardous soils will be included within the AOC boundary. The locations are color coded to match the concentration circle colors shown on **Figure 8**. Please note that the sample intervals marked with an asterisk (*) were collected during RFI activities (2001-2005). Sample intervals not marked with an asterisk were collected from 2020-2022) In addition, sample concentrations noted with brackets indicate duplicate soil samples. Soil lithology is provided for samples where TCLP analysis was conducted.

LOCATION	LEAD CONC. (ppm)	SAMPLE INTERVAL (ft bgs)	TCLP LEAD (mg/L)	LITHOLOGY
RFI-81-35	120	0.8-2.8*	NA	
	1,000	8-10*	NA	
SB-81-69	1,400	10.5-12	NA	
SB-81-60	1,560	2-4	7.21	Sand with metallic frags 8 to 12 ft bgs
	6,480	4-6	2.28	
	9,080	6-8	335	
	3,830	8-10	13.3	
	7,680	10-12	15.3	
	9,520	8-10	NA	
RFI-81-01/01R	7.14	2-4	NA	
	5,500	2.5-4.5*	NA	
	18.9	4-6	NA	
	61,100	6-8	142	Foundry Sand
RFI-81-02/02R	85.4	2-4	NA	
	1,600	4-6*	NA	
	52.4	4-6	NA	
	120	6-8	NA	
	69,000	8-10*	NA	
	6,460	8-10	44	Foundry Sand
	9,070	10-12	83.1	Foundry Sand
	140	12-14*	NA	
RFI-81-36	12,000	8-10*	NA	
RFI-81-37/37R	639	2.5-4	5.86	Foundry Sand
	2,280	4-6	72.7	Foundry Sand
	20,700	6-8	0.57	Foundry Sand
	20,800	8-10	76.4	Foundry Sand
	5,000	8-10*	NA	
	5,910	10-12	ND	
SB-81-59	6.6	2-4	NA	
	25.8	4-6	NA	
	24,500	6-8	159	Foundry Sand
	74,500	8-10	24.5	Foundry Sand
	25.3	10-12	NA	
SB-81-103	9.88	0.5-2	NA	
	7,690	2-4	NA	
	2,740	4-6	NA	
	32,000	6-8	NA	
	16,100	8-10	NA	
	758	10-12	NA	
	15.1	12-14	NA	
SB-81-104	348	2-4	NA	
	14,055	4-6	NA	
	36,506	6-8	NA	
	3,584	8-10	NA	
	929	10-12	NA	
	41.8	12-14	NA	

3.1.1 Recently Completed Soil Borings

Following discussions with EGLE, six borings were recently completed in the vicinity of Soil Impact #10 Area (SB-81-89, SB-81-90, SB-81-91, SB-81-92, SB-81-103, and SB-81-104) (**Figure 8**). SB-81-89 and SB-81-91 were completed in the former Factory 81 basement. At each location 3 to 4 soil samples were

collected from the fill material placed in the former basement and one sample was collected from beneath the basement floor. The basement floor was encountered at 12 ft bgs and 14.5 ft bgs, respectively. All soil samples detected lead at a concentration < 60 parts per million (ppm).

SB-81-90 and SB-81-92 were completed west and south of the former basement, respectively. The borings were completed to a depth of 14 ft bgs and 20 ft bgs, respectively. At each location 5 samples were collected and submitted for lead analysis. All soil samples detected lead at a concentration <155 ppm.

SB-81-103 and SB-81-104 are located west of borings SB-81-58 and SB-81-19 and were completed to a depth of 14 ft bgs. Seven soil samples were collected at SB-81-103 and six soil samples were collected at SB-81-104 and submitted for lead analysis. Samples from both locations detected lead at concentrations greater than 10,000 ppm.

Boring logs are included in **Attachment A**.

3.1.2 Proposed Extent of AOC

Applying the basic criteria noted above and considering the results of the TCLP analysis and the concentrations of lead detected in Soil Impact Area #10, the proposed extent of the AOC to encompass the potentially hazardous soils is presented on **Figure 8**.

- The western and northwestern boundary of the AOC are defined by the former Factory 81 basement.
- The eastern AOC boundary is set to extend 40 feet past the lead impacts at SB-81-61, SB-81-69, and RFI-81-35. However, based on the concentration of lead impacts detected at SB-81-103 (max conc. of 32,000 ppm) and SB-81-104 (max conc. of 36,506 ppm) the eastern AOC boundary will be set to extended to SB-81-19 and SB-81-58, which both detected lead at a concentration below 100 and are located approximately 70 feet east.

3.2 SOIL IMPACT AREA #11

Soil Impact Area # 11 was identified during the RFI investigation as an area where lead concentrations in soil exceed the NDC criteria (900 ppm) and includes benzo(a)pyrene impacted soils that exceed the NDC criteria (8 ppm), and manganese impacted soils, whose concentrations exceed the NPSIC of 1,500 ppm (**Figure 9**). Twenty-one soil samples collected from 18 soil borings detected lead at concentrations exceeding the criteria, with a maximum detection of 15,600 ppm.

Based on the concentrations of the lead impacts it was likely that these soils would be considered hazardous; therefore, 18 soil samples collected in this area were submitted for total lead and TCLP lead analysis to aid in determining the extent of potentially hazardous soils. A summary of the lead impacts is provided below.

- The boring logs indicated that lead impacts were primarily identified in foundry sand or sand with metallic debris. However, note the statistical analysis cited earlier – the soil type is not a distinguishing factor in defining site conditions or responses.
- Fourteen of the soil samples with total lead detected at concentrations greater than 900 ppm were submitted for TCLP analysis. Nine of these samples detected lead at a concentration exceeding the TCLP level, indicating that soil at these locations should be considered hazardous and included within the AOC.

- One soil sample (SB-83/84-57[5-7]) detected lead at a concentration of 548 ppm and had a TCLP result of 2,200 mg/L. This result is has not included in any analysis because it is theoretically impossible based on the total lead concentration in this sample.

The table below provides a summary of the data from locations that detected lead at concentrations greater than 600 ppm at Soil Impact Area #11. As discussed above, 600 ppm was selected as the criteria for determining the extent of the AOC to increase confidence that potentially hazardous soils will be included within the AOC boundary. The locations are color coded to match the concentration circle colors shown on **Figure 9**. Please note that the sample intervals marked with an asterisk (*) were collected during RFI activities (2001-2005). Sample intervals not marked with an asterisk were collected from 2020-2022) In addition, sample concentrations noted with brackets indicate duplicate soil samples. Soil lithology is provided for samples where TCLP analysis was conducted.

LOCATION	LEAD CONC. (ppm)	SAMPLE INTERVAL (ft bgs)	TCLP LEAD (mg/L)	LITHOLOGY
RFI-83/84-10	857 7.62 17[11.4]	0-2* 8-10* 10-12*	NA NA NA	
RFI-83/84-13	78 640	1.1-3.1* 3.1-5.1*	NA NA	
SB-83/84-66	826 5.13	1-3 3-5	NA NA	
RFI-83/84-06	8.6 2,300 25	1-3* 7-9* 9-11*	NA NA NA	
RFI-83/84-12/12R	150 2,900 4,500	0.7-2.7* 2.7-4.7* 3-5	NA NA 10.4	Foundry Sand
RFI-83/84-14/14R	4,780 3,600	1-2 0.8-1*	1.2 NA	Foundry Sand
RFI-83/84-21/21R	220 2,900 590	0.7-2.7* 6.7-8.7* 7-9	NA NA 0.31	Foundry Sand
RFI-83/84-40/40R	3,000 1,360	1-2.5* 1-3	NA 4.76	Foundry Sand
RFI-83/84-49	65 1,200 13 [590]	0.9-2.9* 4.5-6.5* 8.5-10.5*	NA NA NA	
SB-83/84-50	2.58 27.7 1,150	3-5 5-7 7-9	NA NA 8.96	Foundry Sand
SB-83/84-51	1,400 1,730 4.69	1-3 3-5 5-7	37 20.9 NA	Foundry Sand Foundry Sand
SB-83/84-56	11.9 992 161	1-3 3-5 5-7	NA 48.2 0.1	Foundry Sand Sand
SB-83/84-57	585 1,000 548	1-2.8 3-5 5-7	3.74 158 **2,200**	Sand Foundry Sand Sand
SB-83/84-62	2.46 10.3 1,420 3,870	1-3 3-5 5-7 7-9	NA NA NA NA	
SB-83/84-65	3,310	2-4	NA	
SB-83/84-69	2.4 92.9 645 1,400	1-3 3-5 5-7 7-8	NA NA NA NA	
RFI-83/84-23/23R	10 [7.5] 6,500 9,450	1-3* 5-7* 5-7	NA NA 0.75	Foundry Sand
RFI-83/84-24/24R	5.3 [4.8] 3,200 7,270 600	0.8-2.8* 4.8-6.8* 5-7 6.8-8.8*	NA NA 2.22 NA	Foundry Sand

LOCATION	LEAD CONC. (ppm)	SAMPLE INTERVAL (ft bgs)	TCLP LEAD (mg/L)	LITHOLOGY
SB-83/84-49	3.44	1-3	NA	
	9,840	5-7	3.27	Foundry Sand
	9,590	7-9	86.4	Foundry Sand
SB-83/84-52	5,210	1-3	420	Foundry Sand
	49.6	3-5	NA	
	4.85	5-7	NA	
RFI-83/84-04R	1,570	0-2*	NA	
	15,600	1-2	244	Sand
	14.6	8-10*	NA	
	10.9	12-14*	NA	

3.2.1 Recently Completed Soil Borings

Following discussions with EGLE four borings were recently completed in the vicinity of Soil Impact Area #11. SB-83/84-87, SB-83/84-88, SB-83/84-89, and SB-83/84-95 were completed east, east, north, and south of Soil Impact Area #11 (**Figure 9**). Borings were completed to a minimum depth of 4 ft bgs (SB-83/84-89) and a maximum depth of 12 ft bgs (SB-83/84-95). At each location between 2 and 4 soil samples were collected and submitted for lead analysis. The soil samples collected from SB-83/84-87, -88, and -89 detected lead at a concentration < 30 ppm, while the samples collected from SB-83/84-95 detected lead at a maximum concentration of 421 ppm. Boring logs are included in **Attachment A**.

3.2.2 Proposed Extent of AOC

Based on the results of the TCLP analysis and the concentrations of lead detected in Soil Impact Area #11, the proposed extent of the AOC to encompass the potentially hazardous soils is presented on **Figure 9**. The AOC boundaries were set to extended 40 feet past the lead impacts identified at RFI-83/84-10, SB-83/84-62, RFI-83/84-21, SB-83/84-48, SB-83/84-69, RFI-83/84-49, SB-83/84-66, and SB-83/84-65.

3.3 SOIL IMPACT AREA #13

Soil Impact Area # 13 was identified during the RFI investigation as an area where lead concentrations in soil exceed the NDC (900 ppm) and the NPSIC criteria (44,000 ppm), respectively (**Figure 10**). Based on more recent samples the extent of NDC/NPSIC impacts will be refined to delete the eastern most portion and add the area to the west that includes lead at 859 ppm and in effect parallel the proposed AOC boundary.

Sixteen soil samples collected from 12 soil borings detected lead at concentrations exceeding the NDC criteria, with a maximum detection of 385,000 ppm. Based on the concentrations of the lead impacts it is likely that these soils would be considered hazardous; therefore, 5 soil samples collected in this area were submitted for total lead and TCLP lead analysis to aid in determining the extent of potentially hazardous soils. A summary of the lead impacts is provided below.

- The boring logs indicated that lead impacts were primarily identified in foundry sand, although the sample with the highest lead concentration was not described as foundry sand. However, note the statistical analysis cited earlier – the soil type is not a distinguishing factor in defining site conditions or responses.
- Four of the soil samples with total lead detected at concentrations greater than 900 ppm were submitted for TCLP analysis. All of these samples detected lead at a concentration exceeding the TCLP level, indicating that soil at these locations should be considered hazardous and included

within the AOC.

The table below provides a summary of the data from locations that detected lead at concentrations greater than 600 ppm at Soil Impact Area #13. As discussed above, 600 ppm was selected as the criteria for determining the extent of the AOC to increase confidence that potentially hazardous soils will be included within the AOC boundary. The locations are color coded to match the concentration circle colors shown on **Figure 10**. Please note that the sample intervals marked with an asterisk (*) were collected during RFI activities (2001-2005). Sample intervals not marked with an asterisk were collected from 2020-2022) In addition, sample concentrations noted with brackets indicate duplicate soil samples. Soil lithology is provided for samples where TCLP analysis was conducted.

LOCATION	LEAD CONC. (ppm)	SAMPLE INTERVAL (ft bgs)	TCLP LEAD (mg/L)	LITHOLOGY
RFI-83/84-36	200 767	0.7-2.7* 3-3.8	NA NA	
SB-83/84-02	3.69 7.08 651	0.9-2.9 3-5 6-8	NA NA NA	
SB-83/84-90	869 28.1 6.12	1-2 2-4 4-6	NA NA NA	
RFI-83/84-18	400 1,100 25.5	0.8-2.8* 2.8-4.8* 6-8	NA NA NA	
RFI-83/84-35	3,900 67.6 22.2	0.7-2.7* 1-3 2.7-4*	NA NA NA	
RFI-83/84-37	290 1,350	0.7-2.7* 2.4-4.8	NA NA	
SB-83/84-04	29.1 3.81 10.9 0.93 3,090	1-2 2-4 4-6 6-8 6-8	0.04 NA NA NA NA	Foundry Sand
SB-83/84-76	915 530 5.34	0-2 2-4 4-6	NA NA NA	
SB-83/84-77	12.6 2,340 559	0-2 2-4 4-6	NA NA NA	
SB-83/84-78	1,290 7.09	3-4.5 4.5-6	NA NA	
SB-83/84-79	5,230 2,150 10.9	0-2 2-4 4-6	NA NA NA	
RFI-83/84-05/05R	42,000 7.5 20,000 6.4	0.7-2.7* 1-3 3-5 6.7-8.7*	NA NA 11.3 NA	Foundry Sand

LOCATION	LEAD CONC. (ppm)	SAMPLE INTERVAL (ft bgs)	TCLP LEAD (mg/L)	LITHOLOGY
RFI-83/84-16/16R	670 [870] 12.3 2,500 12,200	0.8-2.8* 2.5-3.5* 2.8-4.8* 2.8-4.8	NA NA NA 27.4	Foundry Sand
RFI-83/84-17R/17R2	1,800 13,000 12	1-3* 1-3 3-5*	NA 75.3 NA	Foundry Sand
SB-83/84-53	385,000 32	2.5-4 4-6	987 NA	Sand

3.3.1 Recently Completed Soil Borings

Following discussions with EGLE 8 borings were recently completed in the vicinity of Soil Impact #13 Area (SB-83/84-90, -92, -93, -98, -99, -100, -101, and -102) (**Figure 10**).

Three borings (SB-83/84-92, -93, and -98) were completed north of Soil Impact Area #13 (**Figure 10**). Borings were completed to a depth of 10 ft bgs. At each location 3 to 4 soil samples were collected and submitted for lead analysis. The soil samples collected from SB-83/84-92, -93, and -98 detected lead at concentrations < 30 ppm. Boring logs are included in **Attachment A**.

Five borings (SB-83/84-90, -99, -100, -101 and -102) were completed west of Soil Impact Area #13 (Figure 4). Borings were completed to depths ranging from 6 to 10 ft bgs**.** At each location 3 to 4 soil samples were collected and submitted for lead analysis. Lead was detected at a concentration of 869 ppm at SB-83/84-90. The soil samples collected from SB-83/84-99, -100, -101, and -102 detected lead at concentrations < 130 ppm. Boring logs are included in **Attachment A**.

3.3.2 Proposed Extent of AOC

Based on the results of the TCLP analysis, and the concentrations of lead detected in Soil Impact Area #13, the proposed extent of the AOC to encompass the potentially hazardous soils is presented on **Figure 10**.

- The AOC boundaries were set to extended 40 feet past the lead impacts identified at SB-83/84-90, RFI-83/84-35, SB-83/84-02. SB-83/84-04, SB-83/84-77, SB-83/84-78, SB-83/84-79, and RFI-83/84-36.
- If an adjacent sample location <100 ppm is closer than 40 ft the boundary was adjusted to meet that point.
- As noted, the restricted area for the DRC will be modified to match the proposed AOC (**Figure 10**).

3.4 SOIL IMPACT AREA #33

Lead soil impacts above the NDC were recently defined near the railroad tracks at the east end of Block 4 during investigation activities completed based on an evaluation of the historic database. This is a new soil impact area, identified as SI #33.

In the historic database soil samples collected from two locations (SB-34A and SB-35A) detected lead at concentrations exceeding 900 ppm (**Figure 11**). In addition, sample collected from 86-100 (historic

database) and RFI-86-04 (current database) detected lead at concentrations exceeding 600 ppm. Fifty-four soil samples were collected from 18 soil borings during recent sampling activities to further investigate these impacts. Initially, locations 86-100, SB-34A, and SB-35A were resampled to characterize current conditions at these locations. While the total lead sample results did not exceed NDC criteria, two of the TCLP results detected lead at hazardous concentrations. Additional sampling detected lead above NDC criteria (900 ppm) at two more locations (SB-86-40 and SB-86-41).

Based on the concentrations of the lead impacts it was likely that these soils would be considered hazardous; therefore, two soil samples collected in this area were submitted for total lead and TCLP lead analysis to aid in determining the extent of potentially hazardous soils. A summary of the lead impacts is provided below.

- The boring logs indicated that lead impacts were primarily identified in or adjacent to foundry sand. However, note the statistical analysis cited earlier – the soil type is not a distinguishing factor in defining site conditions or responses.
- One of the historic sample locations (SB-35A) was reoccupied, and two soil samples were submitted for total lead and TCLP analysis. While neither of the total lead results exceeded the NDC criteria, both TCLP samples detected lead at concentrations exceeding the TCLP level, indicating that soil at these locations should be considered hazardous and included within the AOC.

The table below provides a summary of the data from locations that detected lead at concentrations greater than 600 ppm at Soil Impact Area #33. As discussed above, 600 ppm was selected as the criteria for determining the extent of the AOC to increase confidence that potentially hazardous soils will be included within the AOC boundary. The locations are color coded to match the concentration circle colors shown on **Figure 11**. Please note that the sample intervals marked with an asterisk (*) were collected during RFI activities (2001-2005) and those marked with a double asterisk (**) were collected during historic Site activities, prior to 2000. Sample intervals not marked with an asterisk were collected from 2020-2022). In addition, sample concentrations noted with brackets indicate duplicate soil samples. Soil lithology is provided for samples where TCLP analysis was conducted.

LOCATION	LEAD CONC. (ppm)	SAMPLE INTERVAL (ft bgs)	TCLP LEAD (mg/L)	LITHOLOGY
86-100/100R	607 (1995) 5.45 111 38.6 (1995) 9.7 (1995)	0.5-0.75** 1-2 4-6 8-10** 20-22**	NA NA NA NA NA	
RFI-86-04	630 460	1-3* 3-5*	NA NA	
SB-86-23	4.92 365 714 351 640	1-3 3-5 5-7 10-12 12-14	NA NA NA NA NA	
SB-86-45	51.9 13.3 424 600 85 539	1-3 3-4 5-7 8-10 10-12 12-14	NA NA NA NA NA NA	
SB-34A/34AR	71.5 260(1993) 940 (1993) 2.29 5.49	1-3 5-7** 10-12** 10-12 12-14	NA NA NA NA NA	
SB-35A/35AR	5.34 1,100 (1993) 369 387 27(1993)	1-3 5-7** 5-7 7-9 10-12**	NA NA 9.22 13.80 NA	 Foundry Sand Foundry Sand
SB-86-40	1,110 4.63	1-3 3-5	NA NA	
SB-86-41	10.8 7.91 5,160	0.5-3 5-7 10-12	NA NA NA	

3.4.1 Proposed Extent of AOC

Based on the results of the TCLP analysis, and the concentrations of lead detected at SI #33, the proposed extent of the AOC to encompass the hazardous soils is presented on **Figure 11**.

- The eastern side of the AOC is defined by the property boundary.
- The western and northern AOC boundaries were set to extended 40 feet past the lead impacts identified at RFI-86-04 (630 ppm), SB-86-45 (600 ppm), SB-34A (>900 ppm) and SB-86-34 (714 ppm).

3.5 TRANSPORTATION ROADWAY

Given the expectation that lead impacted soils will of necessity be relocated during construction, the proposed transportation roadways between the defined AOC boundaries are necessary. Moreover, given the demonstration that lead in soils does not present any environmental risk to groundwater, the soils can be relocated with no increase in environmental risk. To allow the relocation of these soils within and

among defined AOC zones, designated transportation roadways have been identified to ensure any such action avoids unnecessary regulatory burdens. To safely accommodate two-way equipment and truck traffic the proposed routes are 40 feet wide (**Figure 12**).

4. COMPARISON OF AOC LIMITS WITH SOIL RESTRICTED AREAS

Figure 12 presents the final delineation of SI #10, 11, 13, and 33 along with the proposed AOC extents. Also, as requested by EGLE, the original limits of the proposed RCs for NDC lead and BaP and NPSIC for manganese and lead in Block 4 have been compared to the proposed AOC limits. This is presented on **Attachment C**.

5. CONCLUSION

This data has been used to refine the proposed AOC boundaries. The following conclusions have been reached:

- To ensure that all potential lead hazardous waste is included within an AOC boundary, borders need to extend beyond any sample greater than 600 ppm (or 400 ppm if that is preferred) – we suggest 40 ft.
- Sitewide groundwater data reveals that despite elevated levels of lead in soil (over 10,000 ppm in some locations) there is no material impact on groundwater anywhere on site. 348 groundwater samples were analyzed for total lead and 298 samples were analyzed for dissolved lead. There were five exceedances of the lead GSI criterion in monitoring well samples and no GSI exceedances for lead in the dissolved samples. At locations where no surface cover is located there are no documented GSI impacts.
- The TCLP is a regulatory threshold only. Properly managed lead impacted soils do not present a threat to the public or the environment.
- The Part 201 criterion for lead of 700 ppm has been determined to be protective of drinking water quality in nonresidential locations, so defining an AOC using 600 ppm is conservatively protective.

Attachments:

Table 1 – Lead Total and TCLP Summary

Table 2 – Block 4 Lead Soil and Groundwater Data

Table 3 – Block 2 Lead Soil and Groundwater Data

Table 4 – Property South of Hamilton Lead Soil and Groundwater Data

Figure 1 – Site Location Map

Figure 2 – TCLP Lead vs. Total Lead

Figure 3 – Lead Impacted Soil SI #10, SI #11, SI #13, and SI #33 Proposed AOCs

Table 1 - Lead Total and TCLP Summary
RACER Buick City, Flint, Michigan

Location ID:		RFI-02-01R	RFI-02-01R	RFI-02-08R2	RFI-05-18R	RFI-05-21R2	RFI-10-01R	RFI-12-11-DR
Sample Depth(ft):		2-4	4-6	0.7-2	10 - 12	0 - 2	1 - 3	1-3
Date Collected:	Units	09/27/22	09/27/22	08/23/22	03/19/20	03/19/20	03/23/20	08/23/22
Lead	mg/kg	112	13.5	16.6	4.35	33.8	101	676
Lead - TCLP	mg/L	0.05	0.03 U	0.03 U	0.19	0.03 U	0.12	2.06
Sample Lithology		VF-F Sand/Clay	Clay	Silt	Foundry Sand	Foundry Sand	F-M Sand	Silt (metal)

Location ID:		RFI-12-11-DR	RFI-12-30R	RFI-12-33R	RFI-12-33R	RFI-40-09	RFI-81-01R	RFI-81-02R
Sample Depth(ft):		5-7	0.5-2.5	1-2	2.5-4.5	0.5-2.5	6 - 8	8 - 10
Date Collected:	Units	08/23/22	08/23/22	08/23/22	08/23/22	08/23/22	06/10/20	06/10/20
Lead	mg/kg	6.37	178	155	201	48.2	61,100	6,460
Lead - TCLP	mg/L	0.03 U	0.03 U	0.03 U	0.66	0.21	142	44
Sample Lithology		Silt (metal)	Foundry Sand	Sand	Silty Sand	Foundry Sand	Foundry Sand (metal)	Foundry Sand

Location ID:		RFI-81-02R	RFI-81-13R2	RFI-81-37R	RFI-81-37R	RFI-81-37R	RFI-81-37R	RFI-81-37R
Sample Depth(ft):		10 - 12	0 - 2	2.5 - 4	4 - 6	6 - 8	8 - 10	10 - 12
Date Collected:	Units	06/10/20	07/21/21	06/10/20	06/10/20	06/10/20	06/10/20	06/10/20
Lead	mg/kg	9,070	27	639	2,280	20,700	20,800	5,910
Lead - TCLP	mg/L	83.1	0.03 U	5.86	72.7	0.57	76.4	0.03 U
Sample Lithology		Foundry Sand	Silt	Foundry Sand (metal)	Foundry Sand (metal)	Foundry Sand (metal)	Foundry Sand (metal)	Foundry Sand (metal)

Location ID:		RFI-83/84-04R	RFI-83/84-05R	RFI-83/84-12R	RFI-83/84-14R	RFI-83/84-16R	RFI-83/84-17R2	RFI-83/84-21R
Sample Depth(ft):		1 - 2	3 - 5	3 - 5	1 - 2	2.8 - 4.8	1 - 3	7 - 9
Date Collected:	Units	06/17/20	06/16/20	06/17/20	06/17/20	06/16/20	06/16/20	06/18/20
Lead	mg/kg	15,600	20,000	4,500	4,780	12,200	13,000	590
Lead - TCLP	mg/L	244	11.3	10.4	1.2	27.4	75.3	0.31
Sample Lithology		Sand	Foundry Sand	Foundry Sand	Foundry Sand	Foundry Sand	Foundry Sand	Foundry Sand

Location ID:		RFI-83/84-23R	RFI-83/84-24R	RFI-83/84-40R	SB-02-07	SB-02-07	SB-02-07	SB-02-08
Sample Depth(ft):		5 - 7	5 - 7	1 - 3	0-2	2-4	4-6	0-2
Date Collected:	Units	06/17/20	06/17/20	06/17/20	09/27/22	09/27/22	09/27/22	09/27/22
Lead	mg/kg	9,450	7,270	1,360	73.9	85.2	68.7	8.43
Lead - TCLP	mg/L	0.75	2.22	4.76	0.04	1.67	0.16	0.04
Sample Lithology		Foundry Sand	Foundry Sand	Foundry Sand	Clay	Clay	Clay	Clay

Location ID:		SB-02-08	SB-02-08	SB-02-09	SB-02-09	SB-02-09	SB-02-10	SB-02-10
Sample Depth(ft):		2-4	4-6	0-2	2-4	4-6	2-4	2-4
Date Collected:	Units	09/27/22	09/27/22	09/27/22	09/27/22	09/27/22	09/27/22	09/27/22
Lead	mg/kg	3.63	5.44	10	27.9	13.1	13.3	13.3
Lead - TCLP	mg/L	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Sample Lithology		Clay	Clay	Clay	Clay	Clay	Clay	Clay

Table 1 - Lead Total and TCLP Summary
RACER Buick City, Flint, Michigan

Location ID:		SB-02-10	SB-003-18	SB-003-19	SB-003-20	SB-003-20	SB-003-21	SB-003-22
Sample Depth(ft):		4-6	1 - 3	1 - 3	3 - 5	5 - 7	3 - 5	1 - 3
Date Collected:	Units	09/27/22	08/05/19	08/05/19	08/06/19	08/06/19	08/06/19	08/06/19
Lead	mg/kg	24.1	105	55.5	117	102	195	24.7
Lead - TCLP	mg/L	0.03 U	0.00564	0.00885	0.08	0.68	0.21	0.00439
Sample Lithology		Clay/Foundry Sand	F-M Sand	M-C Sand	Foundry Sand	Silt	VF-F Sand	VF-F Sand (metal)

Location ID:		SB-003-25	SB-05-16R	SB-05-18R	SB-05-22R	SB-09-06	SB-09-08	SB-09-08
Sample Depth(ft):		1 - 3	2 - 4	2 - 4	2 - 4	1 - 2	1.5 - 2.5	2.5 - 3.5
Date Collected:	Units	08/06/19	03/19/20	03/19/20	03/19/20	08/16/10	08/19/10	08/16/10
Lead	mg/kg	75.3	478	488	10.7	513	4,870	2,010
Lead - TCLP	mg/L	0.03	1.37	0.71	0.03 U	1.29	91.4	2.07
Sample Lithology		Foundry Sand	Foundry Sand	Foundry Sand	Foundry Sand	Silty Sand	Foundry Sand (metal)	Silt

Location ID:		SB-09-09	SB-09-09	SB-09-39	SB-09-39	SB-09-53	SB-10-97	SB-10-99
Sample Depth(ft):		1 - 2	2 - 3	1 - 2	2 - 3	1 - 2	9-11	5-7
Date Collected:	Units	08/17/10	08/17/10	08/19/10	08/19/10	08/20/10	10/06/22	10/06/22
Lead	mg/kg	6,070	8,600	34,700	5,320	19,000	782	352
Lead - TCLP	mg/L	47.3	13.5	569	71.9	473	0.03 U	0.03 U
Sample Lithology		VF-F Sand	VF Sand	Foundry Sand	Sand Silt Debris	Foundry Sand	Foundry Sand (metal)	Foundry Sand (metal)

Location ID:		SB-10-99	SB-10-100	SB-10-105	SB-10-105	SB-10-105	SB-10-105	SB-10-106
Sample Depth(ft):		20-21	9-11	6-8	10-12	12-14	14-16	1-3
Date Collected:	Units	10/06/22	10/05/22	10/21/22	10/21/22	10/21/22	10/21/22	10/21/22
Lead	mg/kg	2,040	429	764	471	262	616	502
Lead - TCLP	mg/L	24.7	1.22	1.72	6.33	1.03	2.28	1.74
Sample Lithology		Foundry Sand (metal)	VF-F Sand	Foundry Sand	Foundry Sand	Foundry Sand	Foundry Sand	Foundry Sand

Location ID:		SB-35AR	SB-35AR	SB-40-26	SB-40-26	SB-40-26	SB-40-27	SB-40-27
Sample Depth(ft):		5-7	7-9	3-5	5-6	6-8	3-5	5-6
Date Collected:	Units	09/23/22	09/23/22	09/26/22	09/26/22	09/26/22	09/26/22	09/26/22
Lead	mg/kg	369	387	17.7	12.6	9.06	2.7	4
Lead - TCLP	mg/L	9.22	13.8	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Sample Lithology		Foundry Sand	Foundry Sand	Foundry Sand/Clay	Clay	Clay	VF- M Sand	VF- M Sand

Location ID:		SB-40-27	SB-40-29	SB-40-29	SB-40-29	SB-81-59	SB-81-59	SB-81-60
Sample Depth(ft):		6-8	3-5	5-6	6-8	6 - 8	8 - 10	2 - 4
Date Collected:	Units	09/26/22	09/26/22	09/26/22	09/26/22	06/10/20	06/10/20	06/10/20
Lead	mg/kg	2.17	9.64	15.7	8.12	24,500	74,500	1,560
Lead - TCLP	mg/L	0.03 U	0.03 U	0.03 U	0.03 U	159	24.5	7.21
Sample Lithology		VF- M Sand	Clay	Foundry Sand	Clay	Foundry Sand	Foundry Sand	F-M Sand

Table 1 - Lead Total and TCLP Summary
RACER Buick City, Flint, Michigan

Location ID: Sample Depth(ft): Date Collected:	Units	SB-81-60 4 - 6 06/10/20	SB-81-60 6 - 8 06/10/20	SB-81-60 8 - 10 06/10/20	SB-81-60 10 - 12 06/10/20	SB-83/84-04R 1 - 2 06/16/20	SB-83/84-49 5 - 7 06/17/20	SB-83/84-49 7 - 9 06/17/20
Lead	mg/kg	6,480	9,080	3,830	7,680	29.1	9,840	9,590
Lead - TCLP	mg/L	2.28	335	13.3	15.3	0.04	3.27	86.4
Sample Lithology		F-M Sand	F-M Sand	F-M Sand (metal)	F-M Sand (metal)	VF Sand	Foundry Sand	Foundry Sand

Location ID: Sample Depth(ft): Date Collected:	Units	SB-83/84-50 7 - 9 06/17/20	SB-83/84-51 1 - 3 06/16/20	SB-83/84-51 3 - 5 06/16/20	SB-83/84-52 1 - 3 06/17/20	SB-83/84-53 2.5 - 4 06/16/20	SB-83/84-56 3 - 5 06/17/20	SB-83/84-56 5 - 7 06/17/20
Lead	mg/kg	1,150	1,400	1,730	5,210	385,000	992	161
Lead - TCLP	mg/L	8.96	37	20.9	420	987	48.2	0.1
Sample Lithology		Foundry Sand	Foundry Sand	Foundry Sand	Foundry Sand	VF Sand	Foundry Sand	Foundry Sand

Location ID: Sample Depth(ft): Date Collected:	Units	SB-83/84-57 1 - 2.8 06/17/20	SB-83/84-57 3 - 5 06/17/20	SB-83/84-57 5 - 7 06/17/20	SB-FEP-12R2 2-4 01/12/23	SB-FEP-19R 1-2 01/12/23	SB-FEP-21R 1-2 01/12/23	SB-FEP-21R 2-4 01/12/23
Lead	mg/kg	585	1,000	548	168	158	136	163
Lead - TCLP	mg/L	3.74	158	2,200	0.06	0.1	0.1	0.03 U
Sample Lithology		VF-F Sand	Foundry Sand	VF- M Sand	F-M Sand	F-M Sand	F Sand	F-M Sand

Location ID: Sample Depth(ft): Date Collected:	Units	SB-FEP-35 0-2 01/17/23	SB-FEP-35 19.25-20.25 01/17/23
Lead	mg/kg	92	7.1
Lead - TCLP	mg/L	0.06	0.03 U
Sample Lithology		F-M Sand	F-M Sand

Table 2 - Block 4 Lead Soil and Groundwater Data
RACER Buick City, Flint, Michigan

Located in Soil Impact Area #13

Location ID:	MW-83/84-29	MW-83/84-29	MW-83/84-29	MW-83/84-29
Sample Depth():	NA	1 - 2	4 - 5	6 - 7
Units	mg/L	mg/kg	mg/kg	mg/kg
Date Collected:	08/27/20	10/15/13	10/15/13	10/15/13
Lead	0.003 U	2.31	2.74	2.95
Lead (dissolved)	0.003 U	NA	NA	NA

Located ~300 feet south of Soil Impact Area #13

Location ID:	RFI-12-33	RFI-12-33	RFI-12-33	RFI-12-33R	RFI-12-33R
Sample Depth():	NA	1 - 2	2.5 - 4.5	1 - 2	2.5 - 4.5
Units	mg/L	mg/kg	mg/kg	mg/kg	mg/kg
Date Collected:	08/25/20	08/28/03	08/28/03	08/23/22	08/23/22
Lead	0.003 U	850	260	155	201
Lead (dissolved)	0.003 U	NA	NA	NA	NA

Located ~150 feet southwest of Soil Impact Area #13

Location ID:	RFI-12-40
Sample Depth():	NA
Units	mg/L
Date Collected:	08/25/20
Lead	0.003 U
Lead (dissolved)	0.003 U

Located ~400 feet downgradient of Soil Impact Area #11

Location ID:	RFI-21-04	RFI-21-04	RFI-21-04	RFI-21-04
Sample Depth():	NA	0.7-2.7	6.7-8.7	10.7-12.7
Units	mg/L	mg/kg	mg/kg	mg/kg
Date Collected:	08/27/20	11/06/01	11/06/01	11/06/01
Lead	0.003 U	140	11	11
Lead (dissolved)	0.003 U	NA	NA	NA

Located ~275 feet Southeast of Soil Impact Area #13

Location ID:	RFI-23-01R	RFI-23-01	RFI-23-01
Sample Depth():	NA	0 - 2	2 - 4
Units	mg/L	mg/kg	mg/kg
Date Collected:	08/24/20	05/22/01	05/22/01
Lead	0.003 U	52	77
Lead (dissolved)	0.003 U	NA	NA

Located in Soil Impact Area #10

Table 2 - Block 4 Lead Soil and Groundwater Data
RACER Buick City, Flint, Michigan

Location ID:	RFI-81-02	RFI-81-02	RFI-81-02	RFI-81-02	RFI-81-02R	RFI-81-02R	RFI-81-02R	RFI-81-02R	RFI-81-02R
Sample Depth():	NA	4 - 6	8 - 10	12 - 14	2 - 4	4 - 6	6 - 8	8 - 10	10 - 12
Units	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Collected:	08/27/20	09/09/01	09/09/01	09/09/01	06/10/20	06/10/20	06/10/20	06/10/20	06/10/20
Lead	0.003 U	1,600	69,000 D	140	85.4	52.4	120	6,460	9,070
Lead (dissolved)	0.003 U	NA	NA	NA	NA	NA	NA	NA	NA

Located ~175 feet downgradient of Soil Impact Area #10

Location ID:	RFI-81-07	RFI-81-07	RFI-81-07
Sample Depth():	NA	0.3-2.3	4.3-6.3
Units	mg/L	mg/kg	mg/kg
Date Collected:	08/27/20	07/27/01	07/27/01
Lead	0.003 U	130	200
Lead (dissolved)	0.003 U	NA	NA

Located ~130 feet downgradient of Soil Impact Area #10

Location ID:	RFI-81-09	RFI-81-09	RFI-81-09	RFI-81-09
Sample Depth():	NA	0 - 2	8 - 10	10 - 12
Units	mg/L	mg/kg	mg/kg	mg/kg
Date Collected:	08/27/20	06/25/01	06/25/01	06/25/01
Lead	0.003 U	13	12	5.5
Lead (dissolved)	0.003 U	NA	NA	NA

Located ~315 feet downgradient of Soil Impact Area #13

Location ID:	RFI-83/84-01	RFI-83/84-01
Sample Depth():	NA	2-3.7
Units	mg/L	mg/kg
Date Collected:	08/25/20	06/18/01
Lead	0.003 U	50 J
Lead (dissolved)	0.003 U	NA

Located ~300 feet downgradient of Soil Impact Area #11

Location ID:	RFI-83/84-02	RFI-83/84-02	RFI-83/84-02
Sample Depth():	NA	2 - 4	4 - 6
Units	mg/L	mg/kg	mg/kg
Date Collected:	08/25/20	06/18/01	06/18/01
Lead	0.003 U	9.9 J	7.2 J
Lead (dissolved)	0.003 U	NA	NA

Located in Soil Impact Area #13

Location ID:	RFI-83/84-20
Sample Depth():	NA
Units	mg/L
Date Collected:	08/27/20
Lead	0.003
Lead (dissolved)	0.003 U

Table 2 - Block 4 Lead Soil and Groundwater Data
RACER Buick City, Flint, Michigan

Located ~60 feet downgradient of Soil Impact Area #11

Location ID:	RFI-83/84-29	RFI-83/84-29	RFI-83/84-29
Sample Depth():	NA	1 - 3	9 - 11
Units	mg/L	mg/kg	mg/kg
Date Collected:	08/27/20	01/17/02	01/17/02
Lead	0.005	95	6.4
Lead (dissolved)	0.003 U	NA	NA

Located in Soil Impact Area #11

Location ID:	RFI-83/84-49	RFI-83/84-49	RFI-83/84-49	RFI-83/84-49
Sample Depth():	NA	0.9-2.9	4.5 - 6.5	8.5 - 10.5
Units	mg/L	mg/kg	mg/kg	mg/kg
Date Collected:	08/27/20	04/09/03	04/09/03	04/09/03
Lead	0.003 U	65	1,200	13
Lead (dissolved)	0.003 U	NA	NA	NA

Located ~550 feet downgradient of Soil Impact Area #11

Location ID:	RFI-85-03	RFI-85-03	RFI-85-03
Sample Depth():	NA	1 - 3	5 - 7
Units	mg/L	mg/kg	mg/kg
Date Collected:	08/27/20	06/20/01	06/20/01
Lead	0.003 U	25 J	85 J
Lead (dissolved)	0.003 U	NA	NA

Located ~650 feet downgradient of Soil Impact Area #11

Location ID:	RFI-85-04R	RFI-85-04	RFI-85-04
Sample Depth():	NA	0.5 - 2.5	8.5 - 10.5
Units	mg/L	mg/kg	mg/kg
Date Collected:	08/27/20	07/30/01	07/30/01
Lead	0.003 U	4.8	5.2
Lead (dissolved)	0.003 U	NA	NA

Table 3 - Block 2 Lead Soil and Groundwater Data
RACER Buick City, Flint, Michigan

Location ID:	20-FP11R
Units:	mg/L
Date Collected:	11/30/22
Lead	0.003 U
Lead (dissolved)	0.003 U

Location ID:	RFI-03-04	RFI-03-04
Sample Depth(ft BGS):	NA	0.5 - 2.5
Units:	mg/L	mg/kg
Date Collected:	11/30/22	07/23/01
Lead	0.003 U	290 J
Lead (dissolved)	0.003 U	NA

Location ID:	MW-10-13
Units:	mg/L
Date Collected:	11/30/22
Lead	0.005
Lead (dissolved)	0.003

Location ID:	SB-10-131	SB-10-131	SB-10-131	SB-10-131	SB-10-131	SB-10-131	SB-10-131	SB-10-131	SB-10-131	SB-10-131	SB-10-131	SB-10-131	SB-10-131
Sample Depth(ft BGS):	NA	0 - 2	2.5 - 4	4.5 - 6	4 - 4.5	6 - 8	8 - 10	10 - 12	12 - 14	14 - 16	16 - 18	18 - 20	20 - 22
Units:	mg/L	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Date Collected:	10/28/22	10/25/22	10/25/22	10/25/22	10/25/22	10/25/22	10/25/22	10/25/22	10/25/22	10/25/22	10/25/22	10/25/22	10/25/22
Lead	0.003 U	208	5.23	2,990	6,140	5,080	5.08	4.69	24	56	16.6	201	3.1
Lead (dissolved)	0.003 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 4 - Property South of Hamilton Lead Soil and Groundwater Data
RACER Buick City, Flint, Michigan

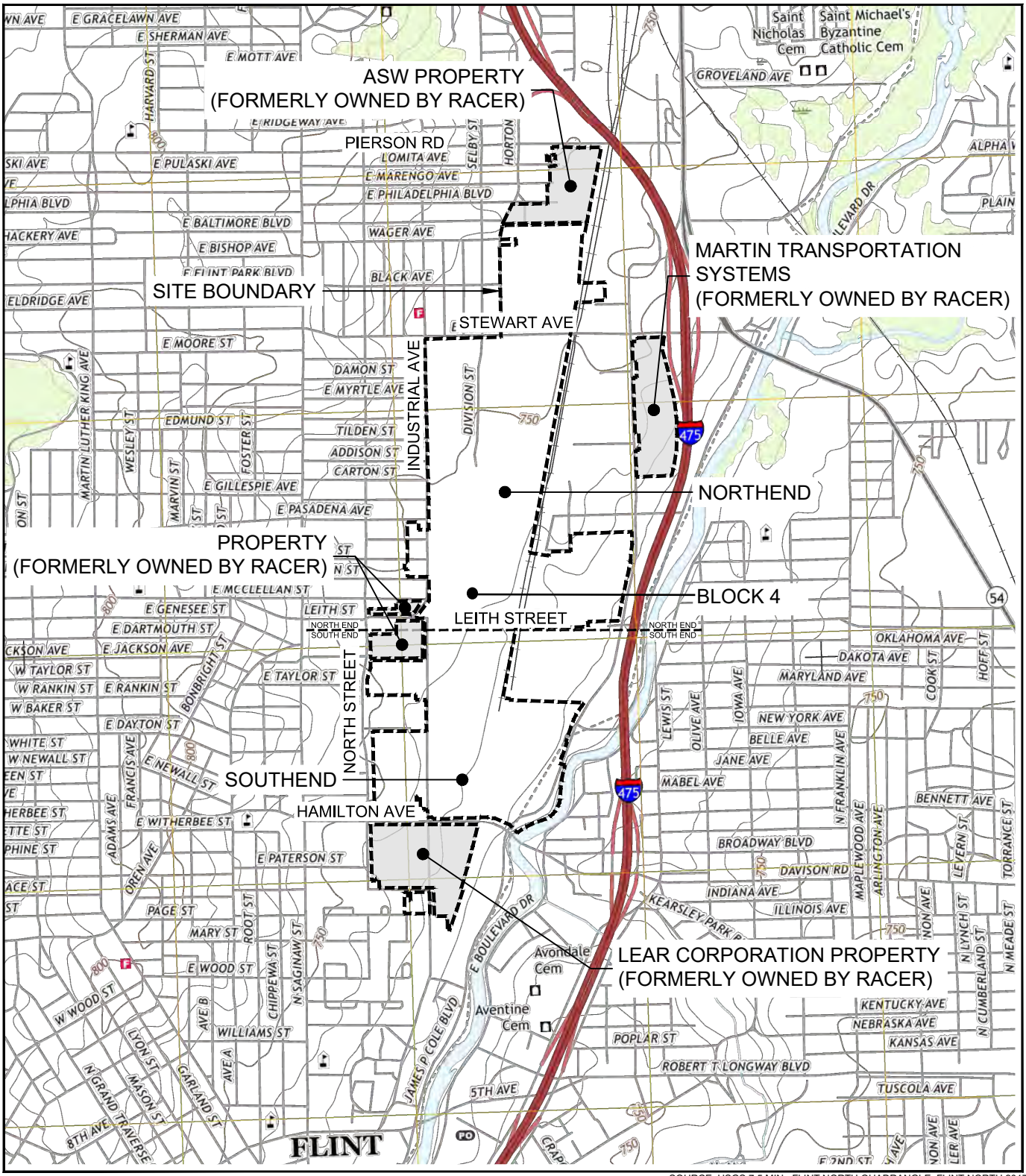
Location ID:	RFI-09-56	RFI-09-56
Sample Depth(ft):	0 - 2	2 - 4
Units:	mg/kg	mg/kg
Date Collected:	06/30/05	06/30/05
Lead	8.2	2,650

Located ~175 feet downgradient of RFI-09-56

Location ID:	RFI-09-04R	RFI-09-04	RFI-09-04
Sample Depth(ft):	NA	0 - 2	2 - 4
Units:	mg/L	mg/kg	mg/kg
Date Collected:	01/19/23	05/30/01	05/30/01
Lead	0.003 U	32	270
Lead (dissolved)	0.003 U	NA	NA

Located ~225 feet downgradient of RFI-09-56

Location ID:	RFI-09-53	RFI-09-53	RFI-09-53
Sample Depth(ft):	NA	0 - 2	8 - 10
Units:	mg/L	mg/kg	mg/kg
Date Collected:	01/19/23	03/04/05	03/04/05
Lead	0.003 U	274	4.38
Lead (dissolved)	0.003 U	NA	NA



SOURCE: USGS 7.5 MIN., FLINT NORTH QUADRANGLE, FLINT NORTH 2017

0 2000' 4000'

APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

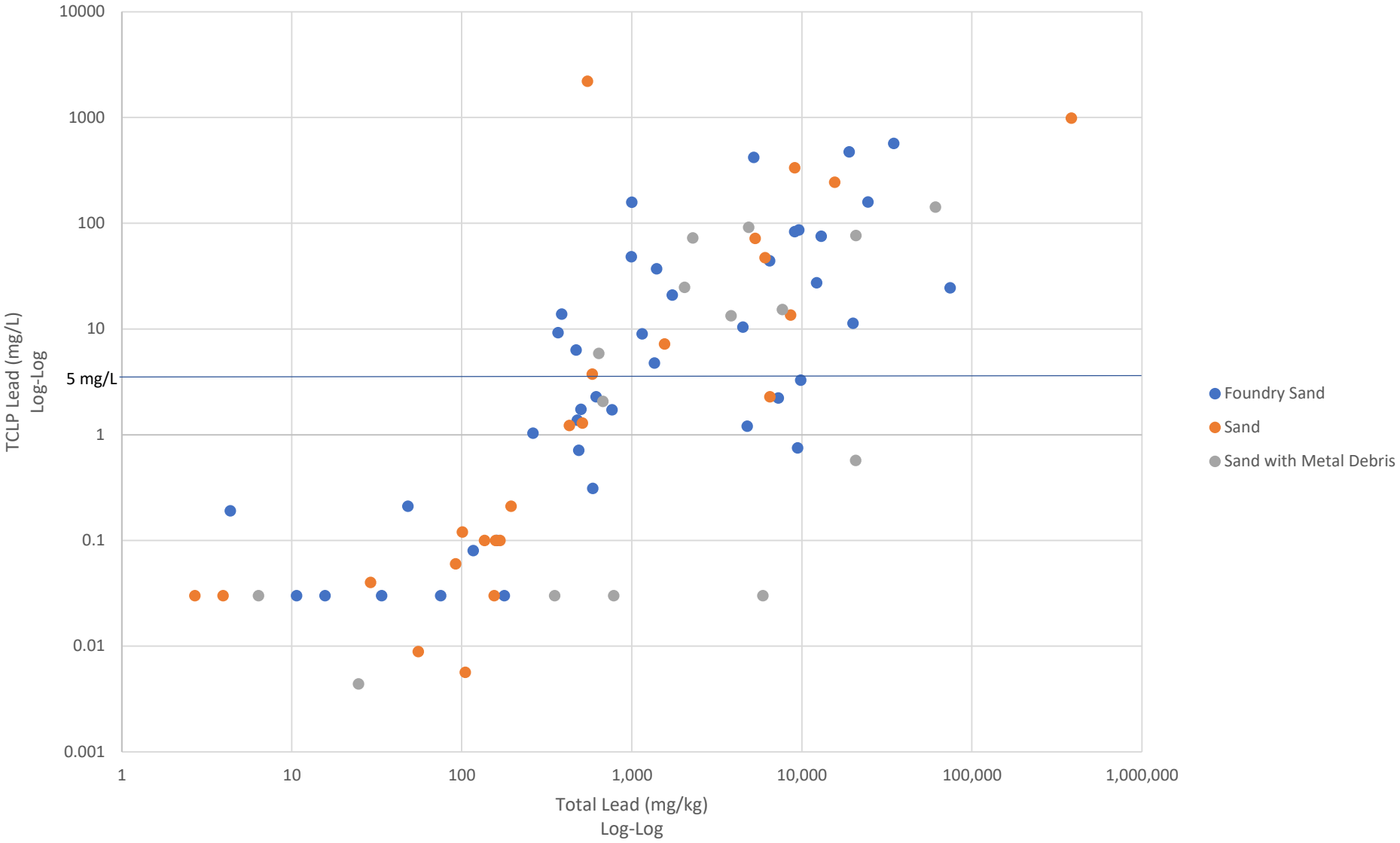
SITE LOCATION MAP

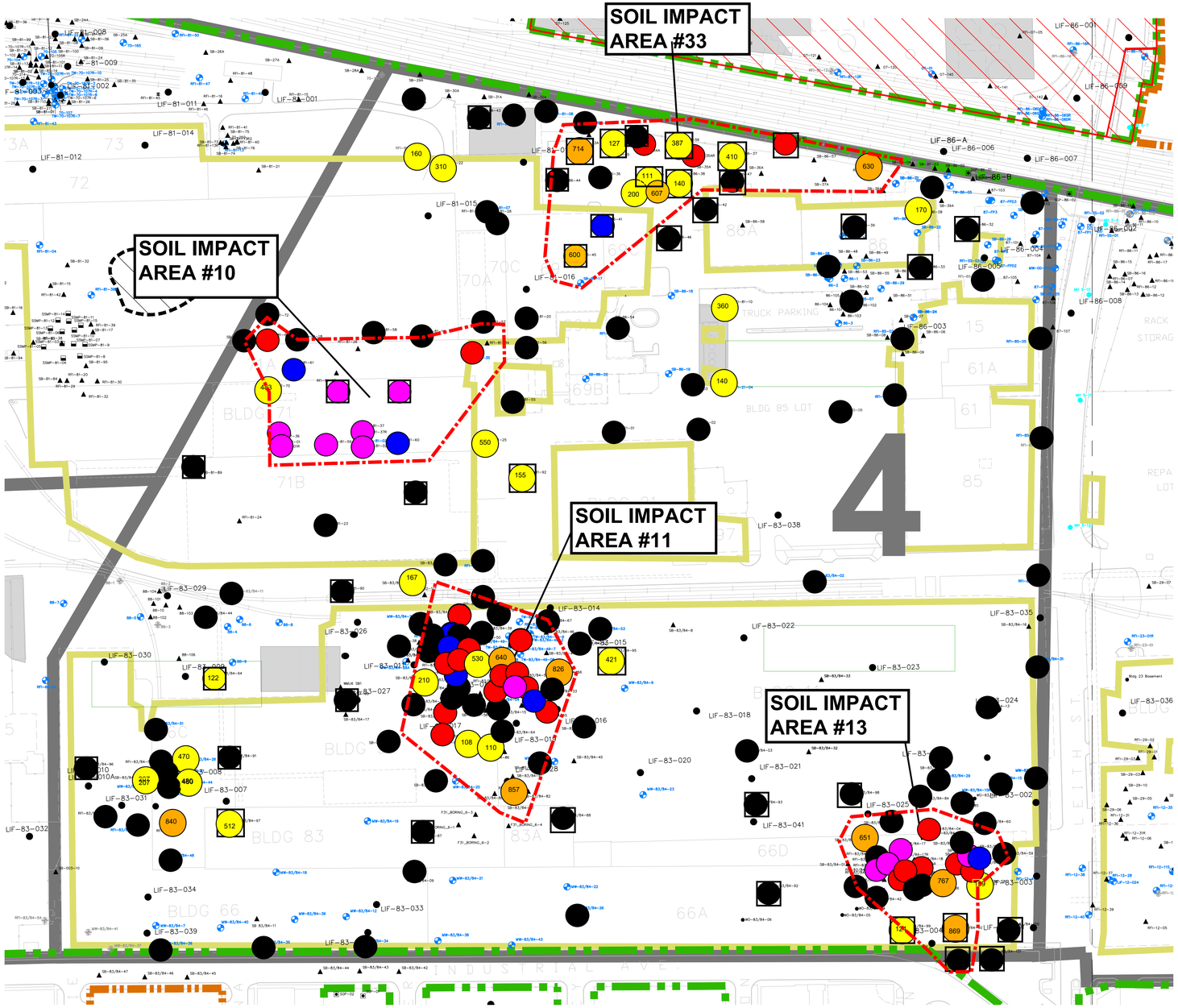
ARCADIS Design & Consultancy for natural and built assets

FIGURE 1

Figure 2

TCLP Lead vs Total Lead
Log Log





LEGEND:

- SOIL PILES
- RESERVED PROPERTIES
- PROPERTY LINE
- FORMERLY OWNED RACER PROPERTIES
- SOIL BORING
- ABANDONED MONITORING WELL
- MONITORING WELL (ACTIVE)
- CONCRETE SLAB
- PROPOSED AOC EXTENT

- LEAD PRESENT >10,000PPM
- LEAD PRESENT >5,000PPM, <10,000 PPM
- LEAD PRESENT >900PPM, <5,000PPM
- LEAD PRESENT >600PPM, <900 PPM
- LEAD PRESENT >100PPM, <600 PPM
- LEAD DETECTED <100 PPM
- BORING COMPLETED SINCE 9/1/22

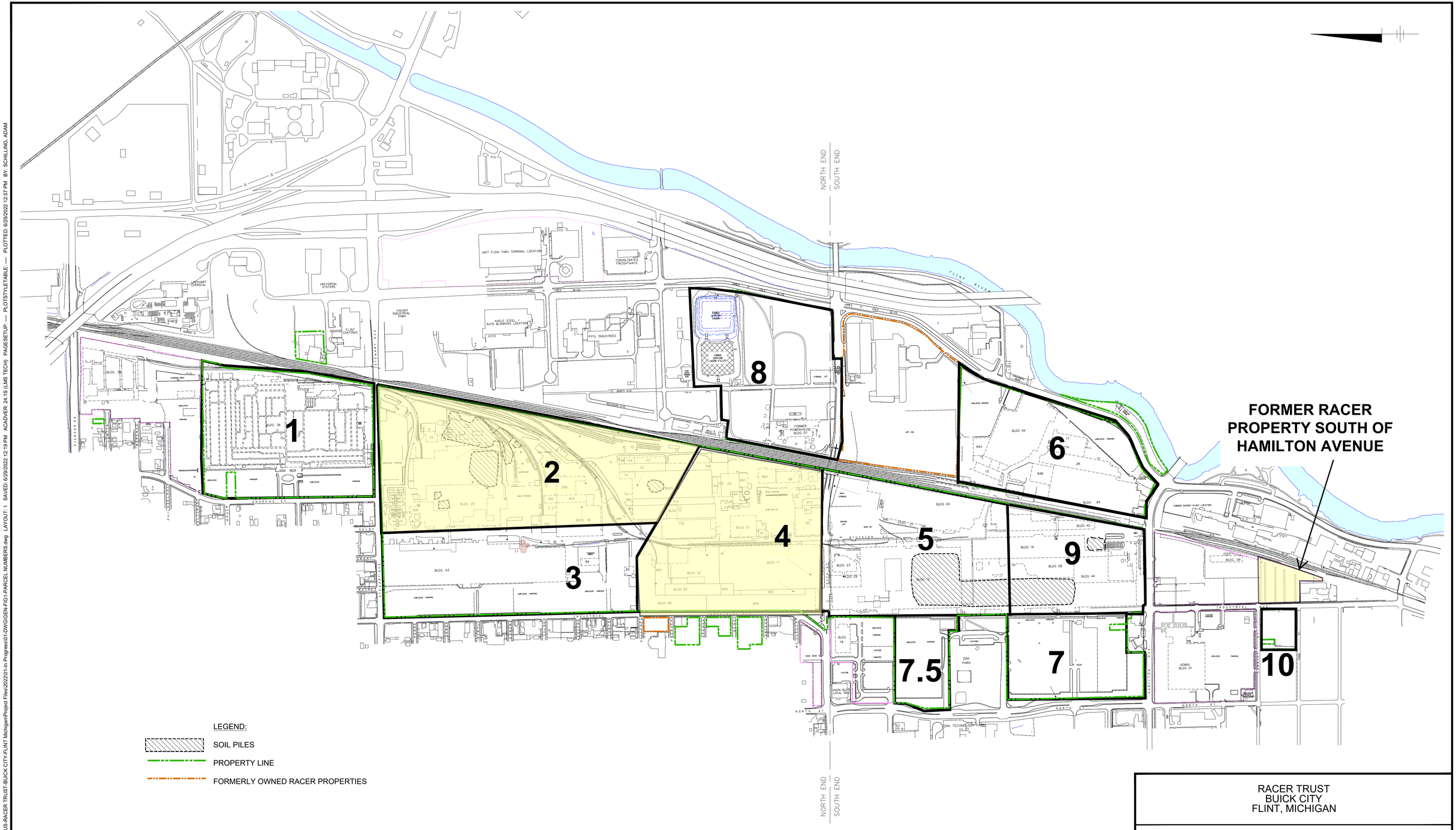
0 100' 200'
APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

LEAD IMPACTED SOIL SI #10, SI #11, SI #13, AND SI #33 PROPOSED AOCS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 3

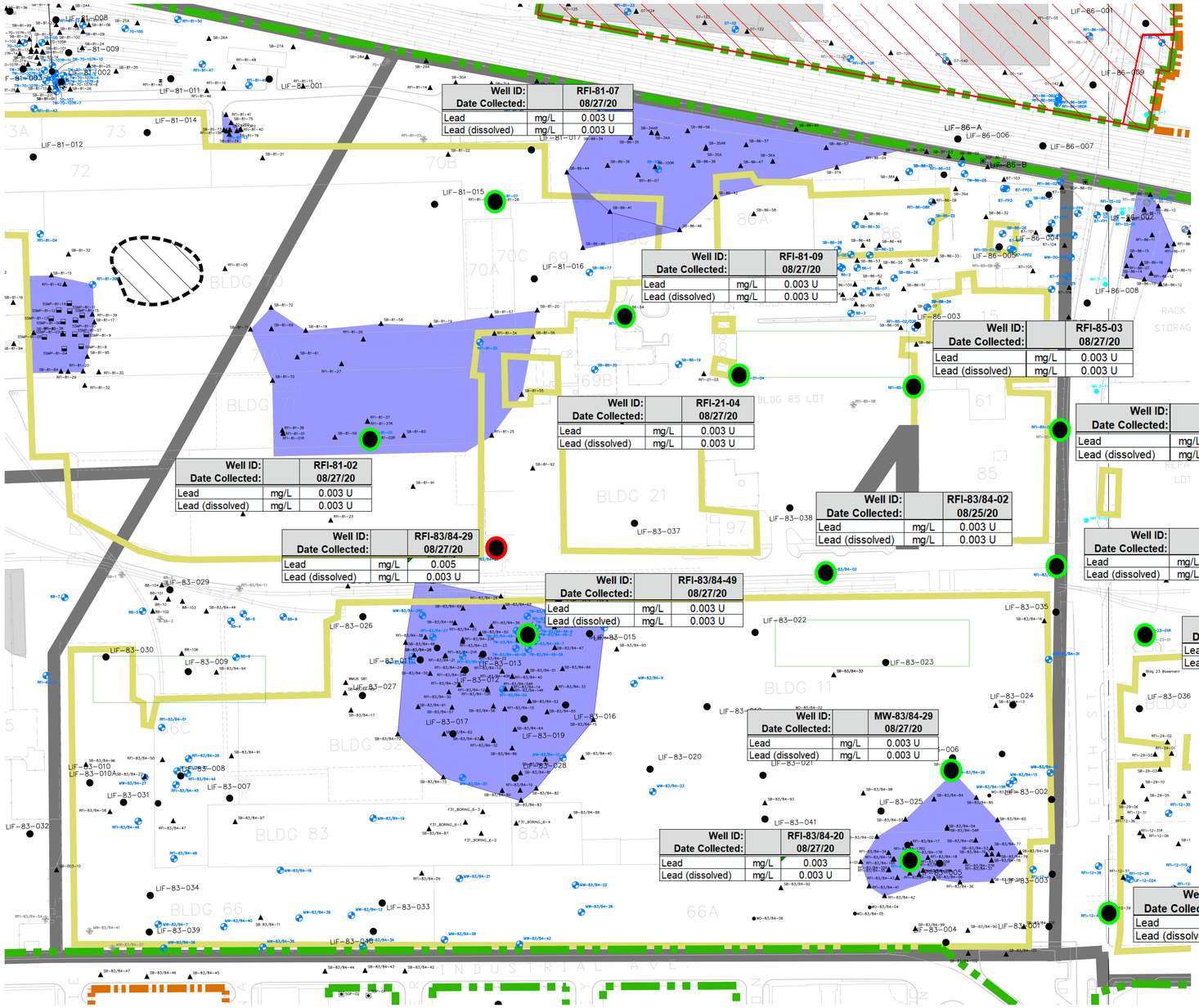


RACER TRUST
BUICK CITY
FLINT, MICHIGAN

GROUNDWATER SAMPLING FOR LEAD AREAS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4



Well ID: / Date Collected:		RFI-81-07 08/27/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-81-09 08/27/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-85-03 08/27/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-85-04R 08/27/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-21-04 08/27/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-81-02 08/27/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-83/84-02 08/25/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-83/84-01 08/25/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-83/84-29 08/27/20
Lead	mg/L	0.005
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-83/84-49 08/27/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-23-01R 08/24/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		MW-83/84-29 08/27/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-12-33 08/25/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-83/84-20 08/27/20
Lead	mg/L	0.003
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:		RFI-12-40 08/25/20
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

LEGEND:

- SOIL PILES
- RESERVED PROPERTIES
- PROPERTY LINE
- FORMERLY OWNED RACER PROPERTIES
- SOIL BORING
- ABANDONED MONITORING WELL
- MONITORING WELL (ACTIVE)
- WMU
- LNAPL
- PCB
- SOIL
- CONCRETE SLAB

- GROUNDWATER DOES NOT EXCEED DRINKING WATER CRITERIA
- GROUNDWATER EXCEEDS DRINKING WATER CRITERIA

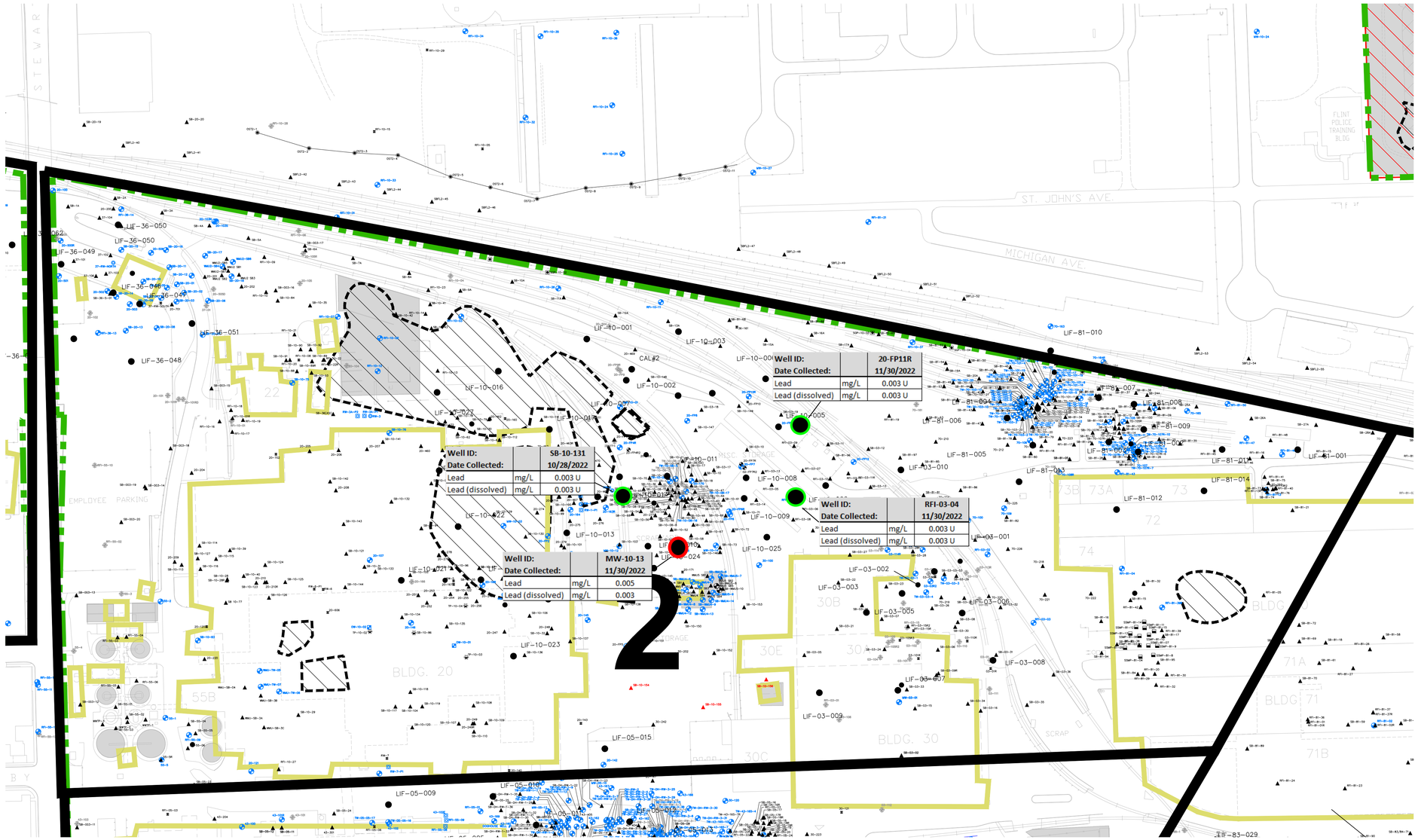
0 100' 200'
APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

BLOCK 4
GROUNDWATER LEAD RESULTS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5



Well ID:		SB-10-131
Date Collected:		10/28/2022
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID:		20-FP11R
Date Collected:		11/30/2022
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID:		RFI-03-04
Date Collected:		11/30/2022
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID:		MW-10-13
Date Collected:		11/30/2022
Lead	mg/L	0.005
Lead (dissolved)	mg/L	0.003

LEGEND:

- SOIL PILES
- RESERVED PROPERTIES
- PROPERTY LINE
- FORMERLY OWNED RACER PROPERTIES
- SOIL BORING
- ABANDONED MONITORING WELL
- MONITORING WELL (ACTIVE)
- CONCRETE SLAB
- LEAD (TOTAL) DOES NOT EXCEED DRINKING WATER CRITERIA
- LEAD (TOTAL) EXCEEDS DRINKING WATER CRITERIA

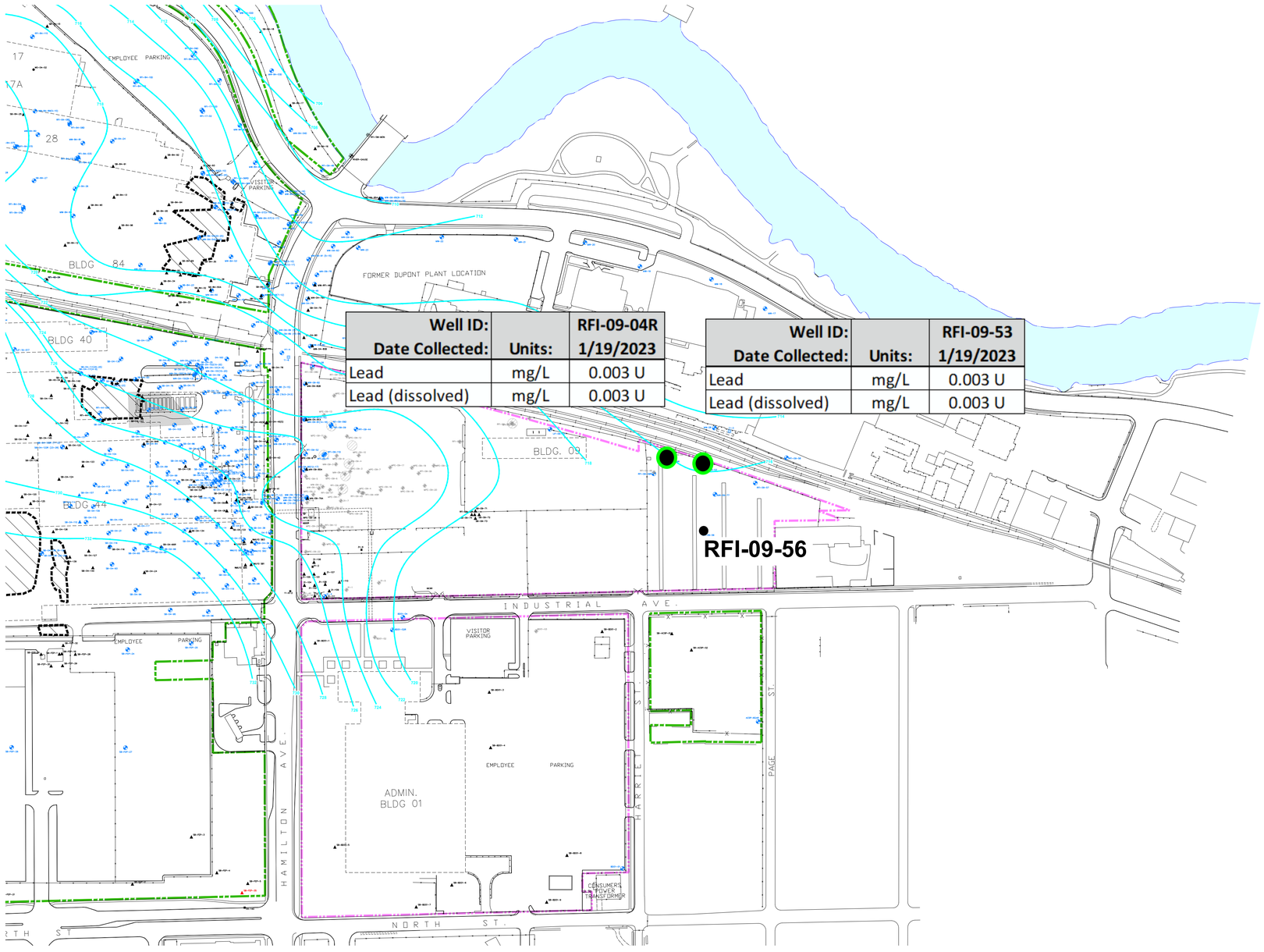
0 120' 240'
APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

BLOCK 2
LEAD GROUNDWATER RESULTS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
6



Well ID: / Date Collected:	Units:	RFI-09-04R 1/19/2023
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

Well ID: / Date Collected:	Units:	RFI-09-53 1/19/2023
Lead	mg/L	0.003 U
Lead (dissolved)	mg/L	0.003 U

LEGEND:

- SOIL BORING
- ABANDONED MONITORING WELL
- MONITORING WELL (ACTIVE)
- TEST PIT
- UNABLE TO LOCATE
- GROUNDWATER DOES NOT EXCEED DRINKING WATER CRITERIA

0 80' 160'

APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

FORMER RACER PROPERTY SOUTH OF HAMILTON AVE GROUNDWATER LEAD RESULTS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 7

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\aschilling\ACCDocs\Arcadis\AUS-RACER TRUST-BUICK CITY-FLINT Michigan\Project Files\2022\01-In Progress\01-DWG\BLOCK4-IMPACTS.dwg LAYOUT: 1L SAVED: 11/14/2022 1:50 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 12/6/2022 3:19 PM BY: SCHILLING, ADAM

XREFS: IMAGES: PROJECTNAME: ----
X-SITE BASEFLINT SKETCH 3.65 MSF (002).jpg
X-BDR-RC-LA
X-SAMPLE NETWORK

I-81-05

SB-81-72
SB-81-69
SB-81-18
SB-81-58
SB-81-57
SB-81-2
SB-81-56
RFI-81-26
RFI-81-34
RFI-81-35
SB-81-61
RFI-81-27
483
SB-81-70
SB-81-103
SB-81-104
SB-81-55
RFI-81-37
RFI-81-37R
RFI-81-36
RFI-81-01
RFI-81-01R
SB-81-59
RFI-81-02
RFI-81-02R
SB-81-60
550
RFI-81-25
SB-81-92
155
SB-81-91
SB-81-89
Located 110
feet north of
basement
corner
FORMER FACTORY 81
BASEMENT WALLS
RFI-81-24
RFI-81-23
SB-83/84-7
RFI-83/84-29
SB-81-90
SB-83/84-
167

LEGEND:

- LEAD PRESENT .10,00 PPM
- LEAD PRESENT .>5,000 PPM, <10,000 PPM
- LEAD PRESENT >900PPM,<5,000 PPM
- LEAD PRESENT >600 PPM, < 900 PPM
- LEAD PRESENT >100 PPM, <600 PPM
- LEAD PRESENT <100 PPM
- BORING COMPLETED SINCE 9/1/22
- PROPOSED AOC BOUNDARY

0 80' 160'
APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

SOIL IMPACT AREA #10
PROPOSED AOC EXTENT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
8

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
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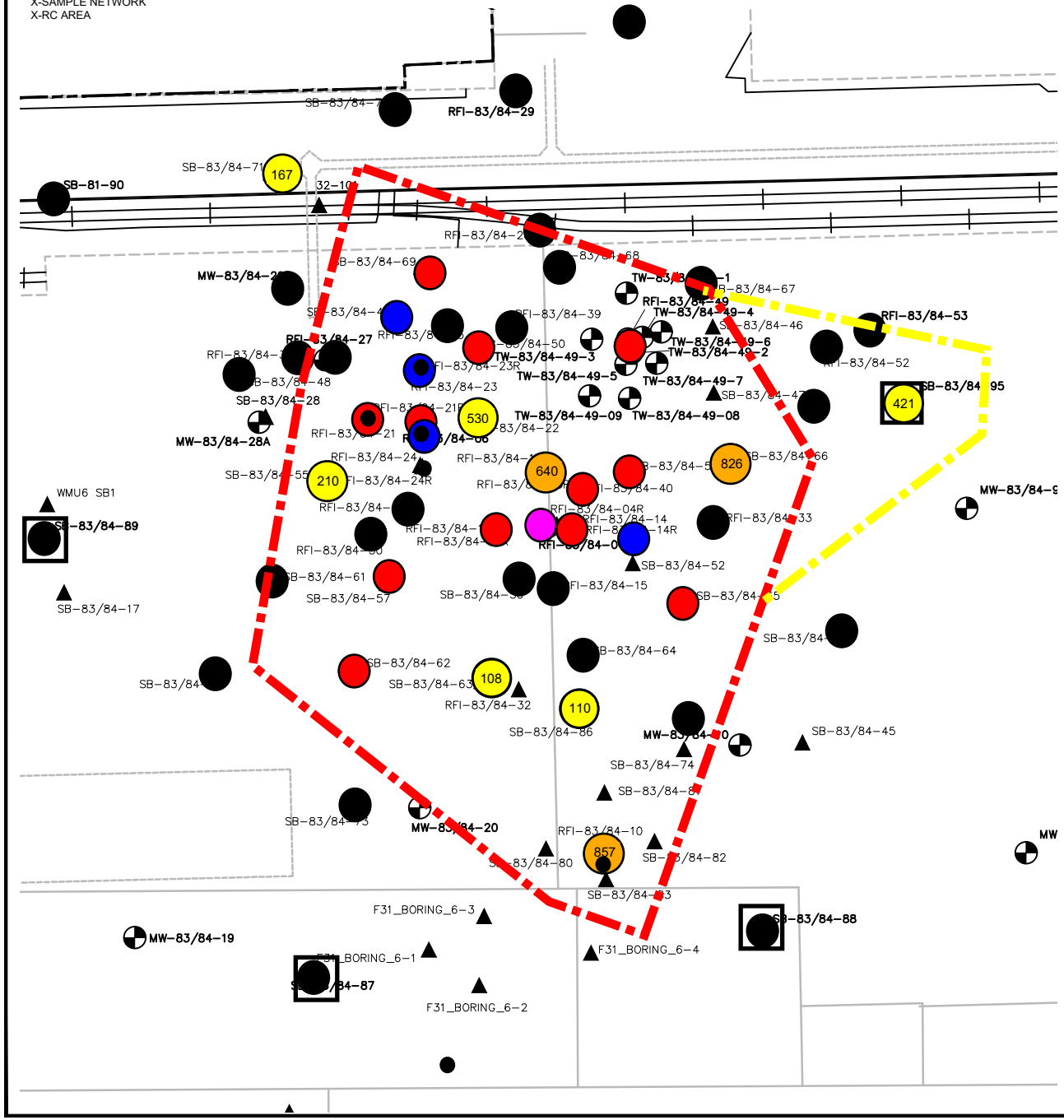
XREFS: IMAGES: PROJECTNAME: ----
X-SITE BASE 2023.01.09 Proposed Boring Locations.jpg
X-BDR-RC-LA
X-SAMPLE NETWORK
X-RC AREA



LEGEND:

- LEAD PRESENT >10,000 PPM
- LEAD PRESENT >5,000 PPM, <10,000 PPM
- LEAD PRESENT >900PPM, >5,000 PPM
- LEAD PRESENT >600 PPM, < 900 PPM
- LEAD PRESENT >100 PPM, <600 PPM
- LEAD PRESENT <100 PPM
- BORING COMPLETED SINCE 9/1/22
- PROPOSED AOC BOUNDARY
- MANGANESE OR BENZO(A)PYRENE DETECTED ABOVE NPSIC OR NDC, RESPECTIVELY

0 80' 160'

APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

SOIL IMPACT AREA #11
PROPOSED AOC EXTENT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
9

CITY:SYRACUSE-NY DIV/GROUP:ENV DB:A.SANCHEZ LD:ALS PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
C:\Users\aschilling\ACCDocs\Arcadis\AUS-RACER TRUST-BUICK CITY-FLINT Michigan\Project Files\2022\01-In Progress\01-DWG\BLOCK4-IMPACTS.dwg LAYOUT: 1N SAVED: 11/14/2022 1:50 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 12/6/2022 3:20 PM BY: SCHILLING, ADAM

XREFS: IMAGES: PROJECTNAME: ----
X-SITE BASEFLINT SKETCH 3.65 MSF (002).jpg
X-BDR-RC-LA
X-SAMPLE NETWORK

33/84-32

SB-83/84-14
MW-83/84-29
MW-83/84-30
MW-83/84-15
MW-83/84-15R
WO-83/84-01
SB-83/84-98
SB-83/84-84
SB-83/84-85
SB-83/94-93
Located ~150
feet north of
SB-83/84-98
SB-83/84-0
SB-83/84-60
SB-83/84-04
SB-83/84-04R
SB-83/84-02
651
RFI-83/84-17
SB-83/84-0
SB-83/84-77
SB-83/84-53
SB-83/84-59
RFI-83/84-3
RFI-83/84-17R2
RFI-83/84-17R
RFI-83/84-18
RFI-83/84-05R
SB-83/84-01
RFI-83/84-20
RFI-83/84-05
RFI-83/84-37R
RFI-83/84-37
RFI-83/84-35R
RFI-83/84-35
83/84-36R
RFI-83/84-43
SB-83/84-06
767
159
SB-83/84-58
RFI-12-41
FORMER BUILDING 11
FOUNDATION
RFI-83/84-41
RFI-83/84-42
SB-83/84-
the last
Located 110
feet north of
basement
corner
WO-83/84-04
WO-83/84-05
124
SB-83/84-99
859
SB-83/84-100
SB-83/84-102
SB-83/84-101

LEGEND:

- LEAD PRESENT >10,000 PPM
- LEAD PRESENT >5,000 PPM, <10,000 PPM
- LEAD PRESENT >900PPM, >5,000 PPM
- LEAD PRESENT >600 PPM, < 900 PPM
- LEAD PRESENT >100 PPM, <600 PPM
- LEAD PRESENT <100 PPM
- BORING COMPLETED SINCE 9/1/22
- PROPOSED AOC BOUNDARY

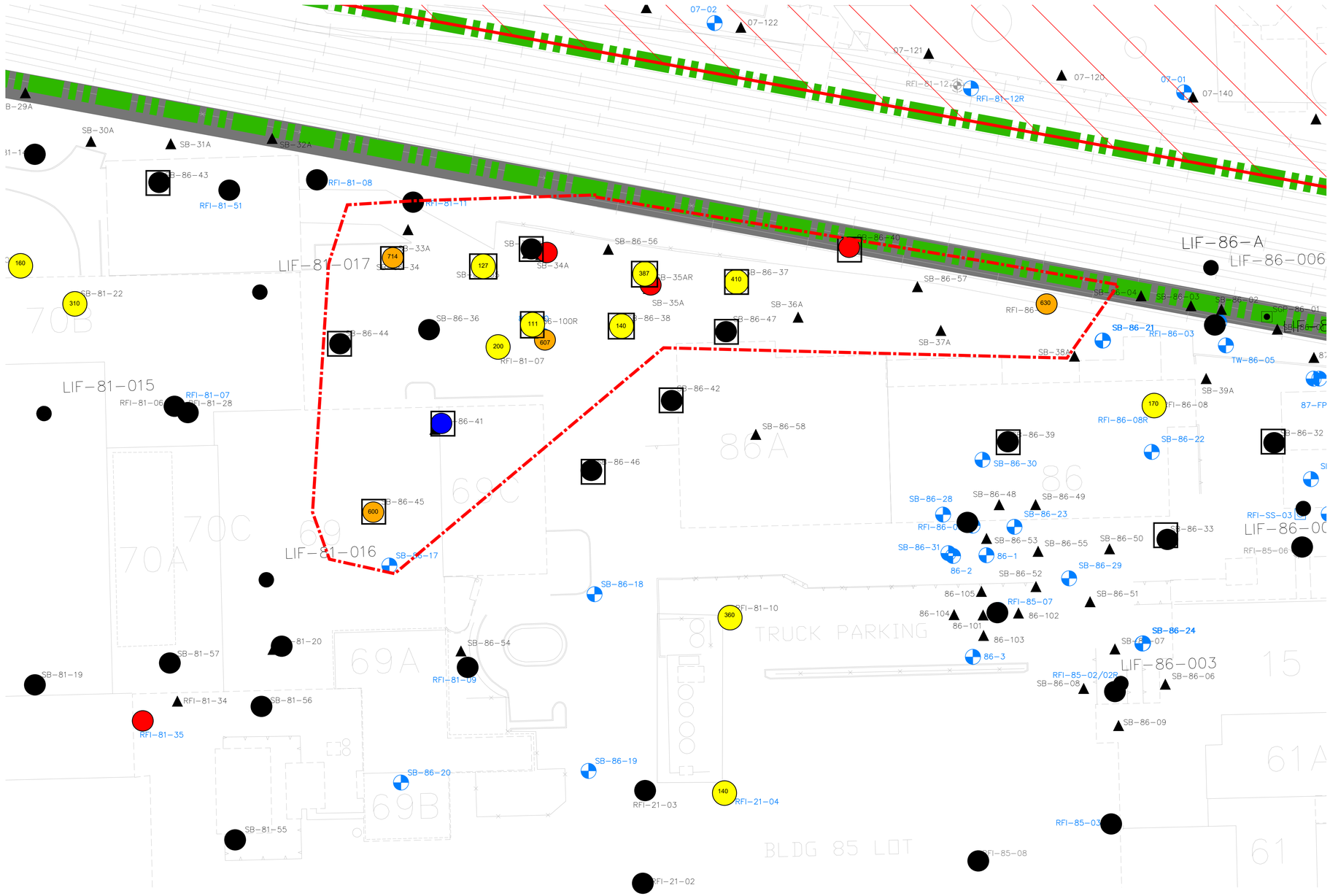
0 60' 120'
APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

SOIL IMPACT AREA #13
PROPOSED AOC EXTENT

ARCADIS Design & Consultancy for natural and built assets

FIGURE
10

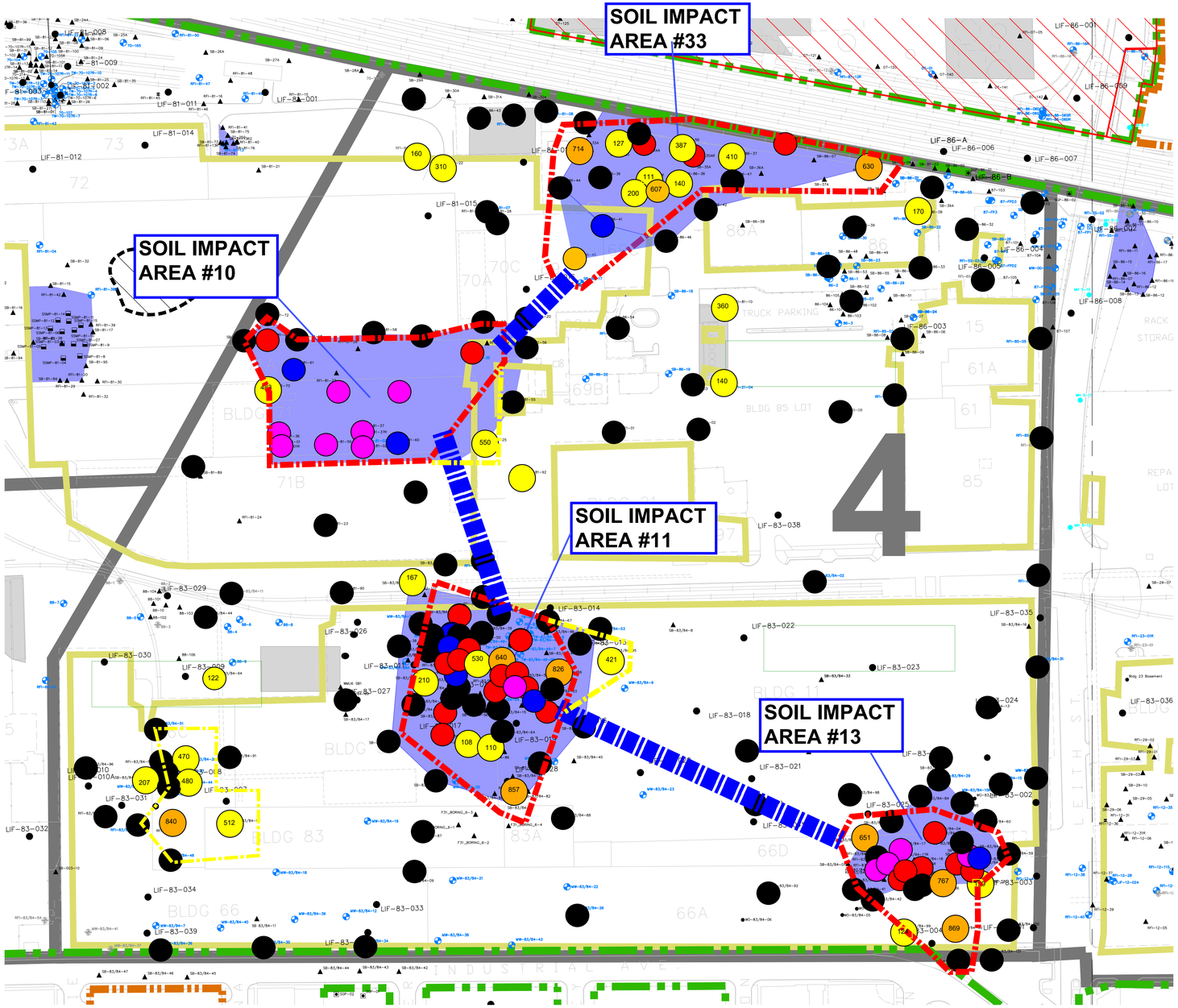


RACER TRUST
BUICK CITY
FLINT, MICHIGAN

SOIL IMPACT AREA #33
PROPOSED AOC EXTENTS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
11



LEGEND:

- SOIL PILES
- RESERVED PROPERTIES
- PROPERTY LINE
- FORMERLY OWNED RACER PROPERTIES
- SOIL BORING
- ABANDONED MONITORING WELL
- MONITORING WELL (ACTIVE)
- SOIL IMPACT AREA
- CONCRETE SLAB
- PROPOSED AOC EXTENT - 600 PPM
- PROPOSED AOC EXTENT - 400 PPM
- LEAD PRESENT >10,000PPM
- LEAD PRESENT >5,000PPM, <10,000 PPM
- LEAD PRESENT >900PPM, <5,000PPM
- LEAD PRESENT >600PPM, <900 PPM
- LEAD PRESENT >100PPM, <600 PPM
- LEAD DETECTED <100 PPM
- TRANSPORATION ROADWAY

0 100' 200'
APPROXIMATE SCALE IN FEET

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

SI #10, SI #11, SI #13, AND SI #33 SOIL IMPACT EXTENTS AND PROPOSED AOCS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 12

Attachment A

Boring Logs

Date Start-Finish: 5/4/99 - 5/4/99
Drilling Company: RAU Drilling
Driller's Name: Greg Compeau
Drilling Method: Hollow Stem Auger
Auger Size: ID 4.25-in.
Rig Type: CME 75
Spoon Size: 2-in.
Hammer Weight: 140-lb
Height of Fall: 30-in.

Northing:
Easting:
Well Casing Elev.: ft.
Surface Elev.: ft.
Borehole Depth: 11 ft.
Geologist: Tamara Hauptfleisch

Well No. 20-FP11
Client: General Motors Corporation
Site: GM NAO Flint Site
Building 20-Scrap Yard

DEPTH ELEVATION	Sample Run Number	Sample/Int/Type	Blows/6 In.	N	Recovery (ft.)	PID (ppm) Headspace	USCS Code	Geologic Column	Stratigraphic Description	Well Construction
gs elevation ft									**GROUND SURFACE**	9" diameter steel flush-mount cover. Cement pad, ground surface to 0.5' BGS.
	(0-1')		NA	NA	NA	NA			Auger through cement from 0 to 1' BGS.	
	(1-3')		4 5 5 6	10	1.8	7.5			Orange brown fine SAND, dry.	2" diameter Sch. 40 PVC well casing, 0.3 to 3' BGS.
									Black CINDERS.	Bentonite seal, 0.5 to 2.5' BGS.
	(3-5')		4 6 6 3	12	2.0	7.6			Orange Brown fine SAND, trace Silt, moist to wet.	Grade #5 silica sand pack, 2.5 to 11' BGS.
5									Same as above.	
	(5-7')		2 4 6 3	10	1.6	3.1			Fine to coarse SAND, some Silt and Clay, saturated, trace organics at 5' BGS.	0.010" screened 2" diameter Sch. 40 PVC, 3 to 9.8' BGS.
	(7-9')		2 3 4 4	7	2.0	1.5			Brown fine to medium SAND, organic seam at 8.8' BGS, saturated.	
10	(9-11')		2 3 4 5	7	2.0	0.4			Gray brown fine to medium SAND, trace coarse Sand, saturated.	2" diameter PVC slip cap, 9.8 to 10' BGS.
									End of boring at 11' BGS.	
15										

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Remarks:
BGS - Below Ground Surface.
NA- Not Available.
Sample from 3 to 5' BGS taken for analysis.

Water Levels

Date / Time	Elevation	Depth

Date Start: 1/30/2014
Date Finish: 1/30/2014
Drilling Company: Cascade
Driller's Name: John Roberts, Randy O'Hearn
Drilling Method: Sonic
Sampling Method: 4.0" five foot core barrel
Rig Type: Sonic
Water Level Start (ft. bgs.): 10.0'
Water Level Finish (ft. btoc.): NA

Northing: NA
Easting: NA
Casing Elevation: NA

Borehole Depth (ft. bgs.): 15.0'
Surface Elevation: NA

Descriptions By: A. DeGrandis

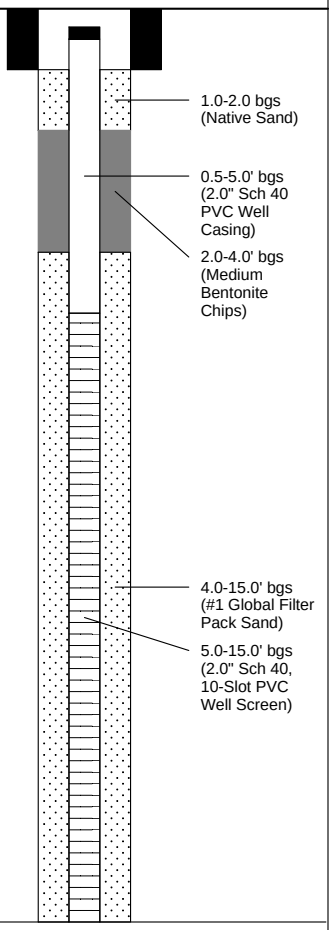
Well/Boring ID: **MW-10-13**

Client: RACER Trust

Location: Buick City
Flint, MI

Weather Conditions: Overcast, 26 F

DEPTH (feet bgs.) / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Water Level (ft. bgs.)
0 / 0				NA			(0.0 - 1.0') CONCRETE.	
	1	0.0-6.0	6.0	5.2 0.0 0.0 0.1 0.8			(1.0 - 10.0') SAND, medium, subrounded to subangular; some small to medium pebbles, subrounded; poorly sorted; dry; black (10YR 2/1). NOTE: Moist at 3.5' bgs.	
5 / -5								
	2	6.0-10.0	3.2	0.0 0.0 0.0 0.0				
10 / -10								▼
	3	10.0-15.0	5.0	0.0 0.0 0.0 0.0 0.0			(10.0 - 13.0') CLAY and SILT, medium plasticity, slow dilatancy; soft; wet; dark gray (10YR 4/1). NOTE: Wet from 10.0 to 12.5' bgs. (13.0 - 14.0') SAND and SILT, fine; well sorted; moist; black (10YR 2/1). (14.0 - 15.0') SAND, medium, some coarse, subrounded to subangular; trace medium pebbles, subangular; well sorted; moist; gray (2.5Y 4/1).	
15 / -15							End of boring at 15.0' bgs.	



Well/Boring Construction

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Infrastructure · Water · Environment · Buildings

Remarks: bgs = below ground surface
btoc = below top of casing

Hand Auger to 6.0' bgs. Approximately 20 gallons of drilling water used.

MW-10-13 (1-3) collected at 1420
MW-10-13 (8-10) collected at 1425

Date Start/Finish: 7/23/01
Drilling Company: Rau Drilling
Driller's Name: Greg Compeau
Drilling Method: HSA/SS
Sampler Size: 2'x2" ID
Auger Size: 3 1/4" ID
Rig Type: CME 55

Northing: 565487.54
Easting: 13306291.14
Casing Elevation: 746.67

Borehole Depth: 16' bgs
Surface Elevation: 746.85

Descriptions By: SM Duly

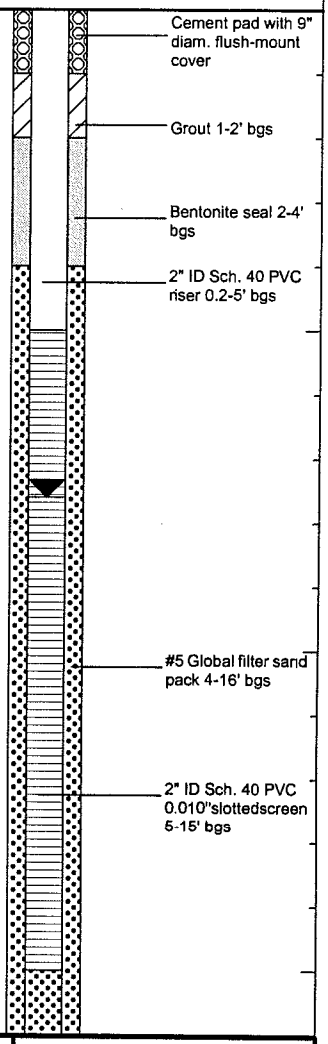
Boring ID: RFI-03-04

Client: General Motors

Location: GM Flint
Flint, Michigan

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Blows / 6 Inches	N - Value	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	USCS Code	Geologic Column	Stratigraphic Description	Hydrostratigraphy
0												
		1	0-2	27 32 51/ 4"	83	1.1	>10,00	-	FILL		Asphalt.	
	745										Very dark gray-brown (10 YR 3/2) SILT, some fine to coarse subrounded to subangular Sand, few Clay, aplastic, dense to very dense, no odor, dry. Wood, metallic debris, slag, and broken glass. Fill.	SILT
		2	2-4	4 5 6 5	11	0.2	>10,00	+			Damp.	
5		3	4-6	4 6 6 4	12	0.3	8118	+	ML		Wood debris, reddish-orange Silt, moderate odor.	
	740	4	6-8	4 4 4 4	8	0.7	>10,00	+			Moist.	
											Saturated, loose, lightweight silvery metallic angular silt to medium gravel-sized fragments. What appears to be ball bearings were identified.	
		5	8-10	2 5 4 5	9	1.1	1496	-			Gray-brown (10 YR 5/2) Silty SAND, fine to medium subangular to subrounded Sand, trace Clay, aplastic, moderately loose to loose, no odor, saturated.	SILTY SAND
10		6	10-12	6 6 9 12	15	1.5	4736	NA	SM			
	735	7	12-14	4 6 6 6	12	1.8	>10,00	NA			Gray-brown (10 YR 5/2) SILT, little to some Clay, aplastic, dense, no odor, moist to wet.	SILT
15		8	14-16	4 5 5 6	10	0.5	0.0	NA	ML		Moist, some Clay.	

Boring Construction



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engineers & scientists

Remarks: bgs = below ground surface;
NA = Not Applicable/Not Available
Samples collected 0.5-2.5' and 4.5-6.5' bgs.

Water Level Data

Date	Depth	Elev.

Date Start/Finish: **Drilling Company:** Rau Drilling **Driller's Name:** Greg Compeau **Drilling Method:** HSA/SS **Sampler Size:** 2' x 2" ID **Auger Size:** 2 1/4" ID **Rig Type:** CME 55	**Northing:** 559227.43 **Easting:** 13305409.17 **Casing Elevation:** 725.95 **Borehole Depth:** 19' bgs **Surface Elevation:** 725.92 **Descriptions By:** SM Duly	**Boring ID:** RFI-09-04R **Client:** General Motors **Location:** GM Flint Flint, Michigan

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Blows / 6 Inches	N - Value	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	USCS Code	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Boring Construction
0 725	1	0-2	- 39 25 15	64	1.4	14.7	+	ML		Light brown-gray SILT, some fine to medium Sand, little fine to coarse Gravel, trace organic matter, damp, dense [Fill/Topsoil].	SILT	Cement pad with 9" diam. flush-mount cover.
	2	2-4	12 15 10 8	25	1.5	5.9	-			Black SILT, some fine to coarse SAND, little fine to medium Gravel and Clay, dry, dense.		2" ID Sch. 40 PVC riser 0-14' bgs.
5 720	3	4-6	2 4 5 6	9	1.8	10.2	-			Gray-brown SILT, little fine to medium Sand, trace Clay, saturated, dense.		
	4	6-8	3 4 7 7	11	1.9	4.3	-					
	5	8-10	3 4 4 11	8	2.0	1.0	-					Grout 1-11' bgs.
10 715	6	10-12	4 12 13 15	25	1.5	1.5	-	SP		Yellow-brown fine to coarse SAND, little Silt and fine to medium Gravel, saturated, loose.	SAND	
	7	12-14	19 17 17 12	34	1.3	3.4	-					Bentoniteseal 11-13' bgs.
15 710												#5 Global filter sandpack 13-19' bgs. 2" ID Sch. 40 PVC 0.010"slottedscreen 14-19' bgs.

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Remarks: bgs = below ground surface;
NA = Not Applicable/Not Available
Stratigraphic Descriptions are from RFI-09-04.

Water Level Data

Date	Depth	Elev.

Client:
General Motors

Site Location:
GM Flint
Flint, Michigan

Boring ID: RFI-09-04R

Borehole Depth: 19' bgs

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Blows / 6 Inches	N - Value	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	USCS Code	Geologic Column	Stratigraphic Description	Hydrostratigraphy	Boring Construction
20 / 705												2" ID Sch. 40 PVC 0.010"slottedscreen 14-19' bgs.
25 / 700												#5 Global filter sandpack 13-19' bgs.
30 / 695												
35 / 690												

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Remarks: bgs = below ground surface;
NA = Not Applicable/Not Available
Stratigraphic Descriptions are from RFI-09-04.

Water Level Data

Date	Depth	Elev.

Date Start/Finish: 03/3/05
Drilling Company: Altech
Driller's Name: D. Wells
Drilling Method: HSA/SS
Sampler Size: 2'x2" ID SS
Auger Size: 4 - 1/4" ID
Rig Type: CME 55 ATV

Northing: 559134.15
Easting: 13305386.28
Casing Elevation: 725.48'AMSL

Borehole Depth: 15' bgs
Surface Elevation: NA

Descriptions By: J. Kralik

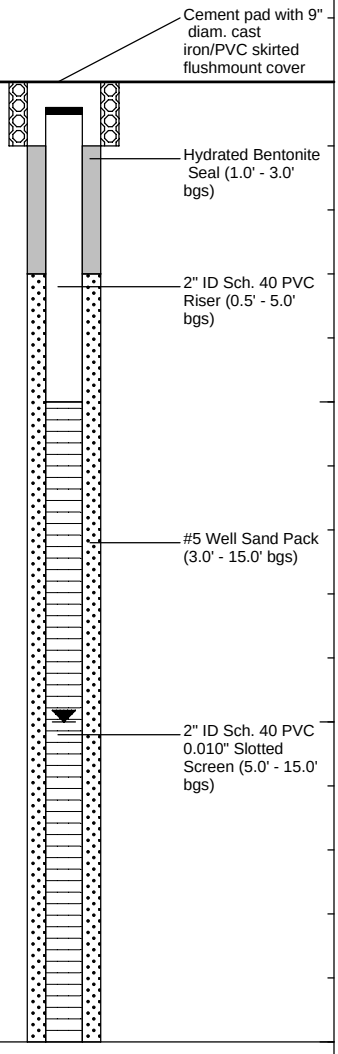
Well/Boring ID: RFI-09-53

Client: General Motors

Location: GM Flint
Hamilton Ave.
Flint, Michigan

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Blows / 6 Inches	N - Value	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	USCS Code	Geologic Column	Stratigraphic Description
0 0	1	0-2	4 3 5 3	8	1.0	0.0 0.0		FL		Light brown to dark brown fine to coarse SAND, some fine subangular Gravel, trace Silt, trace Brick, and Concrete debris, Slag, yellow and reddish-brown coarse Sand, a few Cobbles, no odor, loose, damp (frozen). [FILL]
	2	2-4	4 4 6 7	10	1.0	0.0 0.2				
5 -5	3	4-6	2 2 4 4	6	2.0	0.0		SP		Yellow to yellow-brown fine to coarse CLAYEY SAND, little coarse Sand and fine Gravel, no odor, loose, damp.
	4	6-8	3 3 3 5	6	2.0	0.0				
	5	8-10	2 2 3 6	5	2.0	0.0 2.8		ML		Brown-gray SILT, little fine to medium Sand, trace Clay and fine Gravel, medium stiff, damp to moist.
10 -10	6	10-12	2 4 4 6	8	1.5	0.0				Wet with some thin (<1") saturated zones from 10.0' -12.0' bgs.
	7	12-14	5 10 10 9	20	2.0	0.0				Some fine to medium Sand, very stiff, damp to moist below 12' bgs.
15 -15	8	14-15	25 50	NA	0.0	0.0				Granite Cobble in tip of spoon.

Well/Boring Construction



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Remarks:
a/bgs = above/below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable; +/- = Positive/negative test results.
Soil samples collected from 0.0' - 2.0' and 8.0' - 10.0' bgs for VOCs, SVOCs, PVCs and metals.

Water Level Data

Date	Depth	Elev.

Date Start/Finish: 6/30/2005
Drilling Company: Altech Inc.
Driller's Name: Daniel Wells
Drilling Method: HSA/SS
Sampler Size: 2' x 2" ID
Auger Size: 4 1/4"
Rig Type: CME-75 Truck-Mount

Northing: 559131.15
Easting: 13305211.90
Casing Elevation: 726.93' AMSL

Borehole Depth: 8' below grade
Surface Elevation: NA

Descriptions By: Wayne Patterson

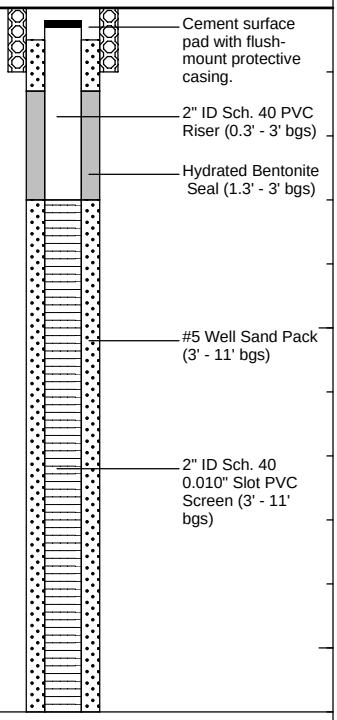
Well/Boring ID: RFI-09-56

Client: General Motors

Location: General Motors NAO Flint
Flint, Michigan

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Blows / 6 Inches	N - Value	Recovery (feet)	PID Headspace (ppm)	Oil/Water Shake Test	USCS Code	Geologic Column	Stratigraphic Description
0 / 0	1	0-2	9, 11, 8, 5	19	1.25	212		FL		Brown TOPSOIL, some Organics (Roots) and Gravel aggregate, dry. [FILL]
										GRAVEL aggregate, dry. [FILL]
										Black fine POORLY GRADED SAND (SP), lose, dry. [FILL]
	2	2-4	2, 3, 4, 5	7	1.75	600		SP		Becoming tannish-brown at 2' bgs.
5 / -5	3	4-6	5, 13, 5, 5	18	0.5	197		CL		Brown SILTY LEAN CLAY (CL), little Brick, Concrete, and Wood debris, soft, moist, slight odor. [FILL]
	4	6-7	3, 7	NA	0.25	310				Moderate odor, black staining, sheen, at 6' bgs.
										CONCRETE. Spoon refusal at 7' bgs. Auger to 11' bgs.
10 / -10										End of boring at 11' bgs.
15 / -15										

Well/Boring Construction



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Remarks:
bgs = below ground surface; AMSL = Above Mean Sea Level; NA = Not Available/Not Applicable.

Soil samples RFI-09-56(0-2) and RFI-09-56(2-4) collected for PAL analysis.

Water Level Data

Date	Depth	Elev.

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Soil Boring Log

DRAFT

Boring No.: SB-10-100

Sheet: 1 of 2

Project Name: RACER Trust - Buick City
Project Number: 30121887
Project Location: Flint, MI

Date Started: 10/05/2022
Date Completed: 10/05/2022

Logger: P. Labadie
Editor: M. Humphrey
Weather Conditions: 74°F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
			6				(0.0-0.5') CONCRETE.		
1				SB-10-100(0.5-2)_100522 @ 1615	0.3		(0.5-7.0') SAND, very fine to medium; trace small to large pebbles, subangular to subrounded; trace silt; trace clay; dry; poorly sorted; black (10YR 2/1). FILL. Note: Metal scraps observed throughout interval.		
2					3.5				
3			54	SB-10-100(2-4)_100522 @ 1620	15.1				
4					81.9				
5					43.1				
6				SB-10-100(5-7)_100522 @ 1625	11.3				
7					3.5		(7.0-12.0') SAND, very fine to fine; and SILT; trace small pebbles; poorly sorted; wet; very dark gray (10YR 3/1).		
8			60	SB-10-100(7-9)_100522 @ 1630	1.4				
9					1.2				
10					1.3			(0.0-25.0' bgs) Backfilled with bentonite	
11				SB-10-100(9-11)_100522 @ 1635	3.7				
12					4.2				
13			60		5.2		(12.0-14.0') CLAY; some silt, low plasticity, rapid dilatancy; trace very fine to fine sand; moist; medium stiff; black (10YR 2/1).		
14					6.8				
15				SB-10-100(14-15)_100521 @ 1640	7.7		(14.0-21.0') SAND, very fine to medium; moist; poorly sorted; trace silt; trace clay; black (10YR 2/1).		
16					1.3				
17					0.9				
18			60		0.7				
19					0.9				
20									

Drilling Co.: Cascade
Driller: C. Bond
Drilling Method: Sonic Drilling
Drilling Fluid: None
Remarks: bgs = below ground surface; NA = not applicable; btoc = below top of casing; ft = feet; NM= not measured.

Sampling Method: Core Barrel
Sampling Interval: Continuous
Water Level Start (ft. bgs.): 7.0
Water Level Finish (ft. btoc.): NA
Converted to Well: ☐ Yes ☒ No
Surface Elev.: 751.40
North Coor: 565953.54
East Coor: 13306273.63

SOIL BORING LOG_2013 C:\USERS\MHUMPHREY\DESKTOP\NEW BUICK CITY LOGS\BUICK CITY ALL 2022_011223 LOGS.GPJ ARCADIS_2013.GDT 1/19/23

ARCADIS Design & Consultancy for natural and built assets

DRAFT

Soil Boring Log

Boring No.: SB-10-100

Sheet: 2 of 2

Project Name: RACER Trust - Buick City
Project Number: 30121887
Project Location: Flint, MI

Date Started: 10/05/2022
Date Completed: 10/05/2022

Logger: P. Labadie
Editor: M. Humphrey
Weather Conditions: 74°F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
21					0.8		(14.0-21.0') SAND, very fine to medium; moist; poorly sorted; trace silt; trace clay; black (10YR 2/1).		
22			60	SB-10-100(21-22) _100522 @ 1650	0.5		(21.0-25.0') CLAY; trace silt, high plasticity, no dilatancy; moist; soft; gray (10YR 6/1).	(0.0-25.0' bgs) Backfilled with bentonite	
23					0.0				
24					0.0				
25					0.0				
26							End of boring at 25.0' bgs.		
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									

Remarks:

ARCADIS

Soil Boring Log

Boring No.: SB-10-131

Sheet: 1 of 2

Project Name: RACER Trust - Buick City
Project Number: 30121887
Project Location: Flint, MI

Date Started: 10/25/2022
Date Completed: 10/25/2022

Logger: M. Olender
Editor: M. Humphrey
Weather Conditions: 57°F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
1			60	SB-10-131(0-2) _102522 @ 0950	0.0		(0.0-2.5') SAND, fine to coarse, subangular to subrounded; and PEBBLES, small to large, subangular to subrounded; poorly sorted; moist; grayish brown (10YR 5/2).		
2					0.0				
3				SB-10-131(2.5-4) _102522 @ 0955	0.0		(2.5-4.0') PEBBLES, small to large, subangular to subrounded; little medium to coarse sand, subangular to subrounded; poorly sorted; dry; gray (10YR 5/1).		
4				SB-10-131(4.0-4.5) _102522 @ 1000	1.5			(0.0-10.0' bgs) Bentonite	
5					0.0		(4.0-4.5') SAND, fine to coarse, subangular to subrounded; and PEBBLES, small to large, subangular to subrounded; poorly sorted; moist; grayish brown (10YR 5/2).		
6				SB-10-131(4.5-6) _102522 @ 1005	0.0		(4.5-6.0') PEBBLES, small to large, subangular to subrounded; little medium to coarse sand, subangular to subrounded; poorly sorted; dry; gray (10YR 5/1).		
7			60	SB-10-131(6-8) _102522 @ 1010	0.0		(6.0-8.0') SAND, fine to coarse, subangular to subrounded; some very coarse sand to granules, subangular to subrounded; some clay (as nodules); little small to large pebbles, subangular to subrounded; poorly sorted; moist; very dark brown (10YR 2/2).	(0.0-12.0' bgs) 1" Sch 40 PVC Well Casing	
8					0.0				
9				SB-10-131(8-10) _102522 @ 1015	0.0		(8.0-10.0') CLAY; some silt, medium to high plasticity, no dilatancy; very fine to coarse sand, subangular to subrounded; little granules to large pebbles, subangular to subrounded; moist to wet; stiff; black (10YR 2/1). Note: Wet from 9.0-22.0' bgs.		
10					0.0				
11				SB-10-131(10-12) _102522 @ 1100	0.8		(10.0-12.0') SAND, fine to medium; little coarse sand, subrounded; poorly sorted; wet; grayish brown (10YR 5/2).		
12					0.7				
13			60	SB-10-131(12-14) _102522 @ 1105	160.3		(12.0-22.0') SAND, very fine to medium; some silt; little coarse sand to small pebbles, subangular to subrounded; poorly sorted; wet; black (10YR 2/1).	(12.0-22.0' bgs) 1" PVC 10-Slot Well Screen	
14					59.6				
15					20.4				
16				SB-10-131(14-16) _102522 @ 1110	9.6			(10.0-24.0' bgs) Filter Pack Sand	
17				SB-10-131(16-18) _102522 @ 1115	7.2				
18					7.0				
19				SB-10-131(18-20) _102522 @ 1120	6.7				
20					5.6				

Drilling Co.: Cascade
Driller: K. Schultz
Drilling Method: Sonic Drilling
Drilling Fluid: Water
Remarks: bgs = below ground surface; NA = not applicable; btoc = below top of casing; ft = feet; NM= not measured.
Unable to hand auger.

Sampling Method: Core Barrel
Sampling Interval: Continuous
Water Level Start (ft. bgs.): 9.0
Water Level Finish (ft. btoc.): NA
Converted to Well: ☒ Yes ☐ No
Surface Elev.: 751.6
North Coor: 565851.8
East Coor: 13306287.1

SOIL BORING LOG_2013 C:\USERS\MHUMPHREY\DESKTOP\NEW BUICK CITY LOGS\BUICK CITY ALL 2022_011223 LOGS.GPJ ARCADIS_2013.GDT 1/13/23

ARCADIS Design & Delivery for natural and built assets

Boring No.: SB-10-131

Soil Boring Log

Sheet: 2 of 2

Project Name: RACER Trust - Buick City
Project Number: 30121887
Project Location: Flint, MI

Date Started: 10/25/2022
Date Completed: 10/25/2022

Logger: M. Olender
Editor: M. Humphrey
Weather Conditions: 57°F, Sunny

Depth (feet)	Sample Interval	Blow Counts	Recovery (in.)	Sample ID	PID (ppm)	USCS Class	Description	Construction Details	Well
21				SB-10-131(20-22) _102522 @ 1125	0.0		(12.0-22.0') SAND, very fine to medium; some silt; little coarse sand to small pebbles, subangular to subrounded; poorly sorted; wet; black (10YR 2/1).		
22					0.0				
23			60		0.0		(22.0-30.0') CLAY; little silt, high plasticity, no dilatancy; trace very fine to medium sand; moist; stiff to very stiff; gray (10YR 5/1).		
24					0.0				
25					0.0				
26					0.0				
27					0.0			(24.0-30.0' bgs) Bentonite	
28			60		0.0				
29					0.0				
30					0.0				
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									

Remarks:

Attachment B

CA 725 and CA750 Determinations

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name:	General Motors North American Operations (NAO), Flint Operations Site
Facility Address:	902 East Leith Street, Flint, Michigan
Facility EPA ID #:	MID 005 356 712

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   X If yes - check here and continue with #2 below.

   _____ If no - re-evaluate existing data, or

   _____ if data are not available skip to #6 and enter"IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			Manganese, Trichloroethene, Vinyl Chloride, Trichloroethene, Vinyl Chloride, Beryllium, Selenium, Arsenic, Nickel, cis-1,2-Dichloroethene, Antimony, Benzene, PCBs(total), Ethyl Benzene, Lead, Methylene Chloride, 1,1-Dichloroethene, 1,1,1-Trichloroethane, Barium, Chlorcethane, Cadmium, 1,2-Dichloroethane, Chromium (total), Thallium, Vanadium, Benzo(a)pyrene, Cyanide (total), Bis(2-Chloroethyl) ether, 1,2-Dichloropropane, Zinc, Tetrachloroethene,
Air (indoors)[2]		X		Contaminants do not exceed OSHA PELs
Surface Soil (e.g., <2 ft)	X			Lead, Chromium(total), Manganese, Trichloroethene, Copper, Benzo(a)pyrene, Dibenz(a)anthracene, Antimony, Pentachlorophenol, 1,1,1-Trichloroethane, 1,1-Dichloroethene, 1,1,2-Trichloro-1,2,2-trifluouroethane.
Surface Water		X		
Sediment		X		
Subsurf. Soil (e.g., >2 ft)	X			Trichloroethene, N-Nitroso-di-n-propylamine, Chromium(total), Manganese, Lead, Benzo(a)pyrene, Copper, Antimony, Benzene, Ethyl Benzene, Toluene, Xylenes(total), Arsenic, Pentachlorophenol, Barium, Cadmium, 1,1-Dichloroethene, 1,1,1-Trichloroethane, 1,1,2-Trichloro-1,2,2-trifluouroethane, Carbazole, Dibenz(a,h)anthracene, Tetrachloroethene. LNAPL (Benzo(a)pyrene, PCBs(total), Benzene, Toluene, Xylenes(total), Ethyl Benzene, Napthalene, and Phenanthrene.
Air (outdoors)		X		

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

___ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

X If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

___ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

A Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) was conducted at the General Motors North American Operations (NAO) Flint Operations Site in response to the findings presented in the *Description of Current Conditions for Areas South of Leith Street* (BBL, May 30, 2000) and the *Description of Current Conditions for Areas North of Leith Street* (BBL, November 26, 2000). The Current Conditions Report summarized the areas of interest (AOIs) at the site that had a potential for a release to the environment, thus requiring further investigation in the RFI.

During the RFI, samples of soil and groundwater were analyzed, and a screening-level risk evaluation was performed at each area of potential contamination, to evaluate possible risk to human health and the environment.

The screening criteria used to identify contamination in soil are the Michigan Part 201 generic industrial direct contact criteria, industrial soil volatilization to ambient air criteria, industrial particulate inhalation criteria, and industrial volatilization to indoor air criteria (MDEQ 2002). The vapor intrusion pathway is also evaluated using site-specific criteria based on soil properties representative of typical site conditions and occupational exposure limits.

Light non-aqueous phase liquids (LNAPLs) are present at a number of AOIs and at certain storm sewers and storm water discharge outfalls. Theoretical upper-bound concentrations of LNAPL constituents in the smear zone soil were estimated using the chemical characterization data for the LNAPLs, and are compared with the screening criteria for soil.

The screening criteria used to identify contamination in groundwater are the Michigan Part 201 generic industrial drinking water criteria, industrial volatilization to indoor air criteria, and groundwater contact criteria (MDEQ 2002). Groundwater data are also evaluated using site specific volatilization to indoor air criteria and site-specific construction worker groundwater contact criteria. Although some constituents have groundwater concentrations higher than the drinking water criteria, there is no known active drinking water or industrial production well at or near the Site, and all potable water is supplied by the City of Flint. The screening criteria for water from tunnels, storm sewers, and basements are the Part 201 generic groundwater contact criteria and site-specific construction worker groundwater contact criteria. Groundwater data near the Flint River are also evaluated using generic MDEQ groundwater surface water interface criteria (GSI).

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	No	Yes	No	Yes	No	No	No
~~Air (indoors)~~	___	___	___				
Soil (surface, e.g., <2 ft)	No	Yes	No	Yes	Yes	No	No
Surface Water	___	___			___	Yes	___
~~Sediment~~	___	___			___	___	___
Soil (subsurface e.g., >2 ft)	No	No	No	Yes	No	No	No

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

__X__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

Soil

Contaminated soil identified at AOIs 05-1, 05-6, 12-A, 29-A, 36-2, 81-1, 83/84-2, and 83/84-3 is covered by building floors, heavy machinery, and/or pavement, which prevent current direct contact exposure of workers engaged in routine activities or exposure of trespassers. Additionally, potential exposure of workers engaged in subsurface construction activities at these AOIs is possible.

Contaminated soil at AOIs 02-C, 03-1, 09-A, 09-B, 10-1, 10-3, 36-1, 40-A, 44-A, 81-2, and 86-1 is not covered or not entirely covered, so potential exposure of workers engaged in routine activities and subsurface construction activities, and exposure of trespassers are possible in these areas.

Exposure to constituents that might volatilize and potentially migrate into indoor air is possible at AOIs 05-1, 05-6, 10-1, 10-3, 36-1, 36-2, 81-1, 81-2, 83/84-2, 83/84-3, and 86-1 which are partially or completely covered by occupied buildings. This list of occupied buildings is current as of June 2004 and takes into account demolition activities that have occurred subsequent to the RFI Phase II Report.

LNAPL and Smear Zone Soil

Potential exposure of workers via direct contact with LNAPL during subsurface construction or maintenance activities is possible at AOIs 03-1, 05-5, 09-A, 09-B, 10-1, 10-4, 12-A, 12-B, 16-C, 23-A, 36-1, 36-2, 36-5, 81-2, 83/84-2, 83/84-4, 85-1, and 86-1, as well as at certain storm sewers and storm water discharge outfalls.

The upper-bound concentrations of several constituents in smear zone soil meet the definition of contamination at AOIs 03-1, 05-5, 09-B, 16-C, and 36-1. Potential exposure of workers via direct contact with contaminated smear zone soil containing LNAPL during subsurface construction activities is possible at these AOIs. In addition, routine workers could be exposed to constituents in LNAPLs and smear zone soils that are beneath buildings via inhalation of contaminants that volatilize and migrate through cracks in building foundations into indoor air at AOIs 05-5, 10-1, 36-1, 36-2, 36-5, 81-2, 83/84-2, and 83/84-4 where occupied buildings are over the LNAPL and smear zone soil.

Groundwater

The hydrogeolgy of the Site is characterized by a shallow groundwater zone with depth to the water table typically ranging from approximately 6 to 16 feet below ground surface (bgs).

The underlying glacial till unit, a depth of approximately 5 to 30 feet, has been characterized as an aquitard.

The Saginaw Formation of bedrock, which underlies the unconsolidated glacial drift in the area of the Site at depths reported to be 60 to 80 ft bgs, was historically the primary source of groundwater in the Flint area. Several production wells in the formation were previously used for industrial and public water supply. As alternative sources of drinking water became available, these wells were taken out of service due to the poor quality of the groundwater (high hardness and dissolved solids values). There are no known active production wells in the City that use the shallow or bedrock formations as a source of groundwater.

Currently, the City of Flint Department of Public Works supplies drinking water to the City of Flint, and Flint Township. The City of Flint Department of Public Works purchases potable water form the City of Detroit, which routes water from a Lake Huron intake to the City of Flint. Therefore, exposure of workers and others at and around the Site via potable or nonpotable groundwater use is not expected.

Exposure to constituents that might volatilize and potentially migrate into indoor air is possible at areas

where buildings are present. Additionally, potential exposure of subsurface construction workers to groundwater is possible at AOIs 36-3 and 40-A, where the depths to water are about 9 and 14 feet, respectively.

Recreational users could be exposed to contaminated groundwater via contact with nearby down gradient surface water in the Flint River where groundwater could enter directly and discharge via on-site storm water sewers that intercept groundwater.

There is no other complete exposure pathway between contaminated soil, groundwater, or LNAPLs and human receptors at the Site that can be reasonably expected under current conditions.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

X If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

Soil
The bounding estimates of cumulative cancer and noncancer risks based on the maximum detected concentration and the conservative exposure factors for evaluation of routine workers in generic commercial/industrial settings are within USEPA's acceptable cancer risk limit of 10^{-4} or HI limit of 1, respectively, for all AOIs identified as having soil contamination except AOIs 09-A, 36-1, 40-A, 81-2, and 83/84-2(See Table 1). In addition, the cumulative cancer and noncancer risks based on receptor-specific maximum concentrations are within USEPA's risk limits for construction workers at all five of these areas and for routine workers at AOIs 36-1 and 83/84-2. High-end routine worker risk estimates using 95% UCLs for the constituents that contributed greatest to the bounding estimates are below USEPA's risk limits for AOI 40-A, but are higher than USEPA's risk limits for AOIs 09-A and 81-2. However, in the latter case, post-remedy risk estimate are below USEPA's risk limits after removing the highest concentrations for the constituents that contributed greatest to the high-end estimates at AOIs 09-A and 81-2. Personal Protective Equipment (PPE) will be used by workers in these areas until soil contamination is addressed.

Potential volatilization and vapor intrusion from soil to indoor air is insignificant in all areas per the Occupational Safety and Health Administrations (OSHA) regulations at 29 CFR 1910.1000(d)(2)(i) *except* AOIs 36-1 and 81-2. Indoor air sampling was conducted by the facility's industrial hygiene staff in these two areas, and found that vapor intrusion is not occurring to a measurable degree.

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[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

Mean site-related lead concentrations are below the industrial screening criterion except for AOIs 09-A, 81-1, and 83/84-3. Interim measures plans are being prepared to remove contaminated soil from certain locations at AOI 09-A. In the meantime, the locations with lead concentrations higher than the screening criterion, PPE will be used by workers to prevent unacceptable exposure in these areas. Therefore, the concentrations of constituents at these AOIs do not present a significant exposure.

Bounding estimates of cumulative cancer risk and HI for workers encountering LNAPLs and smear zone soils during subsurface construction activities are within USEPAs acceptable risk limits at all of the AOIs except for exposures to LNAPL AOIs 09-B, 10-4, 16-C, and 36-1. These risk estimates assume that workers who are potentially exposed to the LNAPLs and smear zone soils do not wear any PPE during excavations. All AOIs where recoverable LNAPL is present are being addressed as part of the IMs discussed in the RFI Phase II Report (BBL 2004). PPE will be used by workers in these areas to prevent unacceptable exposures. Potential volatilization and vapor intrusion from LNAPL to indoor air is insignificant per the OSHA regulations in all LNAPL areas. Therefore, the concentrations of constituents at these AOIs do not present a significant exposure.

Groundwater

The bounding risk estimates for construction worker contact with groundwater are less than USEPA's risk limits at all contaminated groundwater areas. Potential volatilization and vapor intrusion from groundwater to indoor air is insignificant per the OSHA regulations in all on-site areas. Additionally, the bounding risk estimates for potential volatilization and vapor intrusion from groundwater to off-site indoor air are less than USEPA's risk limits.

Recreational users could be exposed to contaminated groundwater via contact with surface water in the Flint River where groundwater could enter directly and discharge via on-site storm water sewers that intercept groundwater. Surface water concentrations are estimated using the mass balance approach, which is discussed in Section 6.3.4 of the RFI Phase II Report, for constituents that exceed the MDEQ GSI criteria in groundwater and/or are detected in the storm sewer water samples. The highest detected constituent concentrations in groundwater at monitoring wells selected for GSI criteria comparison (as discussed in Section 4 of the RFI Phase II Report) are conservatively used as the concentrations in groundwater in the mass loading calculation for the receiving water. The mass loading from the storm sewer outfalls are estimated using data collected for the facility's NPDES permits and at various locations along the sewer networks during the RFI. A discussion of this evaluation is provided in Section 6.5.2 and Appendix G of the RFI Phase II Report.

The estimated surface water concentrations are compared against Michigan Water Quality Standards and federal Ambient Water Quality Criteria (AWQC) for surface water used as human drinking water and fish sources, and MDEQ Part 201 generic residential drinking water criteria for groundwater for chemicals without state and federal surface water criteria. Table 2 presents the bounding estimates of surface water concentrations resulting from groundwater discharging to the Flint River directly and via storm sewers. As shown in Table 2, none of the estimated concentrations in surface water exceed the criteria except PCBs. However, the MDEQ and federal surface water quality criteria for PCBs are at least three orders of magnitude lower than the target detection limit of 2×10^{-4} mg/L, and the PCB concentrations in the discharge are lower than the MDEQ residential drinking water criteria. In addition, there is a State fish advisory on limited consumption for children and women of child bearing age in the Flint River.

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

X YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the General Motors North American Car Group (NACG) Lordstown Assembly Plant and Lordstown Metal Fabricating Division (MFD) Metal Fabricating Plant , EPA ID #OHD 020 632 998, OHD 083 321 091 , located in Lordstown, Ohio under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by (signature) Tammy Moore Date 8/12/04
(print) Tammy Moore
(title) Environmental Scientist

Supervisor (signature) George Hamper Date 8-17-04
(print) George Hamper
(title) Section Chief
(EPA Region or State) EPA Region 5

Locations where References may be found:

U.S. EPA Records Room
7th floor
77 West Jackson Boulevard
Chicago, IL 60604

All material referenced in this document can be found in the following reports:

1. RCRA Environmental Indicator CA725 Report, Determination of Current Human Exposures Under Control (Environ 2004).

Contact telephone and e-mail numbers

(name) Tammy Moore
(phone #) (312) 886-6181
(e-mail) moore.tammy@epa.gov

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

TABLE 1
Bounding Estimates of Cumulative Cancer Risk and Hazard Index by AOI for Soil

AOI	Matrix	Industrial Cumulative Risk	Industrial Hazard Index
02-C	Soil	8×10^{-7}	2×10^{-1}
03-1	Soil	9×10^{-5}	4×10^{-1}
05-1	Soil	2×10^{-5}	8×10^{-1}
05-6	Soil	1×10^{-5}	7×10^{-2}
09-A	Soil	**4×10^{-4}**	**2**
09-B	Soil	1×10^{-4}	1
10-1	Soil	2×10^{-5}	6×10^{-1}
10-3	Soil	2×10^{-5}	2×10^{-1}
12-A	Soil	2×10^{-5}	1
29-A	Soil	2×10^{-6}	1×10^{-1}
36-1	Soil	**3×10^{-4}**	**20**
36-2	Soil	1×10^{-6}	2×10^{-1}
40-A	Soil	**2×10^{-4}**	3×10^{-1}
44-A	Soil	1×10^{-5}	4×10^{-1}
81-1	Soil	3×10^{-5}	6×10^{-1}
81-2	Soil	6×10^{-5}	**10**
83/84-2	Soil	**5×10^{-4}**	**2**
83/84-3	Soil	2×10^{-5}	4×10^{-1}
86-1	Soil	1×10^{-4}	1
Background	Soil	1×10^{-6}	1×10^{-1}

Table 2

Estimated Surface Water Concentrations form Outfall Discharge

Chemical	Sum of Groundwater Discharge Concentrations (mg/L)	Sum of Sewer Outfall Discharge Concentrations (mg/L)	Sum of Outfall and Groundwater Discharge Concentrations (mg/L)	MDEQ Cancer-Based Drinking Water Quality Standard (mg/L)	Ratio of Discharge Conc to MDEQ Cancer-Based Drinking WQS	MDEQ Non-Cancer-Based Drinking Water Quality Standard (mg/L)	Ratio of Discharge Conc to MDEQ Non-Cancer-Based Drinking WQS	Federal AWQC: Water + Organism (mg/L)	Ratio of Discharge Conc to Federal AWQC: Water + Organism	MDEQ Part 201 Residential Drinking Water Criteria (mg/L)	Ratio of Discharge Conc to Part 201 DW Criteria
Benzene	2.8E-04		2.8E-04	1.2E-02	2.3E-02	1.9E-02	1.5E-02	2.2E-03	1.3E-01	5.0E-03	5.6E-02
Chloroethane	8.5E-07	3.2E-07	1.2E-06		0.0E+00		0.0E+00		0.0E+00	4.3E-01	2.7E-06
1,1-Dichloroethane	1.8E-06	4.8E-06	6.6E-06		0.0E+00		0.0E+00		0.0E+00	8.8E-01	7.5E-06
cis-1,2-Dichloroethene	2.1E-06	1.1E-05	1.3E-05		0.0E+00		0.0E+00		0.0E+00	7.0E-02	1.9E-04
trans-1,2-Dichloroethene	7.7E-08	1.0E-06	1.1E-06		0.0E+00		0.0E+00	1.4E-01	7.9E-06	1.0E-01	1.1E-05
1,1,1-Trichloroethane	1.6E-05	2.3E-07	1.6E-05		0.0E+00		0.0E+00		0.0E+00	2.0E-01	8.0E-05
Trichloroethene	2.3E-04	9.5E-06	2.4E-04	2.9E-02	8.1E-03		0.0E+00	2.5E-03	9.4E-02	5.0E-03	4.7E-02
Vinyl Chloride	1.6E-07	1.3E-05	1.4E-05		0.0E+00		0.0E+00	2.5E-05	5.4E-01	2.0E-03	6.8E-03
Xylenes (total)	2.1E-05	3.1E-08	2.1E-05		0.0E+00		0.0E+00		0.0E+00	1.0E+01	2.1E-06
PCBs	4.5E-08	2.5E-05	2.5E-05	2.6E-08	**9.8E+02**		0.0E+00	6.4E-08	**4.0E+02**	5.0E-04	5.1E-02
Cyanide (total)	2.9E-05	0.0E+00	2.9E-05		0.0E+00	6.0E-01	4.8E-05	1.4E-01	2.1E-04	2.0E-01	1.4E-04
Mercury	4.9E-08	0.0E+00	4.9E-08		0.0E+00	1.8E+00	2.7E-08		0.0E+00	2.0E-03	2.4E-05
Selenium	3.0E-06	0.0E+00	3.0E-06		0.0E+00		0.0E+00	1.7E-01	1.7E-05	5.0E-02	5.9E-05
Silver	1.8E-07	0.0E+00	1.8E-07		0.0E+00		0.0E+00		0.0E+00	3.4E-02	5.4E-06

Notes:

1. Ratios greater than 1.0 are highlighted in bold.
2. The sum of groundwater discharge concentrations and the sum of sewer outfall discharge concentrations are calculated in Appendix G and discussed in Section 6.5.2.6.
3. The Michigan Water Quality Standard and Federal AWQC for PCBs are below the analytical Target Detection Limit (TDL) of 0.2 ug/L.
4. The groundwater concentration used in the calculations for cyanide (total) is a dissolved (filtered) result. The groundwater concentrations for all other chemicals used in the calculations are total (unfiltered) results.
5. Groundwater concentrations are based on the maximum detected concentrations or the maximum limit, if the chemical was not detected, for GSI monitoring well locations.
6. Sewer Outfall concentrations are shown for chemicals detected in the 2002 sewer sampling.

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name:	**North American Operations (NAO), Flint Operations Site**
Facility Address:	**902 East Leith Street, Flint, Michigan**
Facility EPA ID #:	**MID 005 356 712**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

__X__ If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

__X__ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

_____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The identification of contamination is based on comparison of the groundwater characterization data with the MDEQ generic risk-based screening criteria. The specific Part 201 criteria used here for identifying groundwater contamination are the generic industrial drinking water criteria. In addition, the data was screened against generic industrial groundwater volatilization to indoor air criteria, and the generic groundwater contact criteria, as discussed in the RFI Work Plan. It should be noted that there are no active drinking water or industrial production wells at or near the Site, and all potable water is supplied by the City of Flint.

Groundwater contamination is identified in Attachment 1, by comparing the concentrations of each chemical in groundwater to the industrial drinking water screening criteria. Ratios higher than 1 are considered to meet the definition of "contamination".

The predominant constituents in groundwater with concentrations higher than the generic industrial drinking water criteria were certain chlorinated and petroleum volatile organic compounds (VOCs) and certain metals. Several semi-volatile organic compounds (SVOCs) at certain localized areas of the Site also had concentrations higher than the generic industrial drinking water criteria. The lateral extent of these constituent concentrations was characterized during the RFI field investigations. The monitoring wells along the Site's downgradient boundaries do not show the presence of contaminated groundwater, except near AOIs 36-2 and 09-B, and into the CSX railroad which runs between portions of the Site (Figure 18 and

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

19 of the CA750 E.I. Report).

No constituent in groundwater had a concentration higher than the MDEQ generic groundwater contact or industrial groundwater volatilization to indoor air criteria.

Groundwater data from monitoring wells near the Flint River (within 500 ft of the Flint River) were compared to the Groundwater-Surface Water Interface (GSI) criteria. As shown in Attachment 1, certain VOCs and inorganic concentrations in groundwater exceed the generic GSI criteria. Each of these locations are within an area on contamination that is defined by downgradient monitoring wells with concentrations that do not exceed screening criteria.

Light Non-aqueous Phase Liquids (LNAPLs) are present at the water table at AOIs 02-D, 03-1, 05-5, 09-B,10-1,10-4, 12-A,12-B,16-C, 23-A, 36-1, 36-2, 36-5, 81-2, 83/84-2, 83/84-4, 85-1, and 86-1.

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

__X__ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The groundwater flow directions (shown on Figures 18 and 19 of the CA750 Report) show that the direction of groundwater flow across the Site is generally from the west to the east, toward the Flint River, with some localized exceptions. Groundwater at the northern edge of the Site flows northeast and groundwater at the southern edge of the Site flows southeast, as influenced by the Flint River. Groundwater near AOIs 81-3 and AOI 09-A is controlled by the Site storm sewer system and groundwater in each of these areas flows toward the sewers which discharge via outfalls into the Flint River, as discussed in Section 6.3.3 of the RFI Phase II Report (BBL 2004). Groundwater flow near Leith Street is influenced by the Leith Street underpass that cuts into the ground and passes beneath the railroad tracks.

The predominant groundwater contaminants found in monitoring wells are chlorinated VOCs (i.e, trichloroethene, cis-1,2-dichloroethene, 1,1,1-trichloroethane, vinyl chloride, and tetrachloroethene), as shown in Attachment 1 and Figures 20 and 21 of the CA750 E.I.Report. Benzene, toluene, and ethylbenzene are found in monitoring wells at the northend and southend of the Site, as shown in Attachment 1, and Figures 22 and 23 of the CA750 E.I.Report. Metals were found at certain localized areas of the Site and were often co-located with VOCs, as shown on Figures 18 and 19 of the CA750 E.I.Report. Several other VOCs and some SVOCs were found in the dissolved phase in groundwater; however, these contaminants are limited to localized areas within the interior of the Site.

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[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

Figures 18 to 23 of the CA750 E.I. Report show that the lateral extent of contaminated groundwater, including areas containing LNAPL, has been bounded by monitoring wells where groundwater is not contaminated with two exceptions. Vinyl chloride concentrations at RFI-36-48 (0.004 mg/L) and RFI-17-02D (0.004 mg/L) slightly exceeded the MCL (0.002 mg/L). Further characterization of the extent of vinyl chloride at RFI-36-48 is constrained by groundwater that has been affected by an off-site source. Well RFI-17-02D is located within approximately 250 feet of the Flint River and groundwater at this location discharges to the Flint River, which means that the extent of vinyl chloride has been determined for practical purposes. In both cases, monitoring will be conducted to confirm the temporal stability of vinyl chloride.

The flow of contaminated groundwater near AOIs 81-3 and 09-A is controlled by the storm sewer in the area. The potential significance of contaminated groundwater discharge via the sewer system into the Flint River is discussed in Question 5. Groundwater elevations in these areas will continue to be monitored to confirm that the storm sewers continue to capture contaminated groundwater in these areas.

The clay till unit beneath the surficial saturated zone defines the vertical extent of the existing area of groundwater contamination.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

__X__ If yes - continue after identifying potentially affected surface water bodies.

_____ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The only surface water body at the Site is the East Lagoon at the former aeration lagoons. Contaminated groundwater does not extend to this surface water body. There are no other surface water bodies at the Site.

The Flint River is the prominent hydrologic feature in the vicinity of the Site and is adjacent to portions of the Site in the downgradient direction. As discussed in the RFI Stage II Report groundwater could enter directly into the Flint River and it could discharge into the river via on-site storm water sewers that intercept groundwater. The potential significance of contaminated groundwater discharge to the Flint River (including via storm sewers) is discussed in Question 5.

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

X If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

As shown in GSI section of Attachment 1, benzene, trichloroethene, xylenes, total cyanide, and silver are the only chemicals that exceed the GSI criteria in groundwater within 500 ft of the Flint River. There are four locations, monitoring wells RFI-09-13, RFI-09-46, RFI-84-06R, and RFI-94-02R, where one or more of these chemicals were detected at concentrations higher than the GSI criteria. Each of these locations is within a known area of contamination and monitoring wells that are downgradient of each of these locations did not have constituent concentrations exceeding either of these criteria, as shown on Figure 19 of the CA750 E.I. Report. Therefore, constituents in the groundwater which could discharge to the Flint River are insignificant.

Furthermore, cis-1,2-DCE and vinyl chloride at monitoring well RFI-81-51 and TCE at RFI-09-04R are the only chemicals with concentrations in groundwater adjacent to storm sewers that exceed the generic drinking water criteria. The concentrations of cis-1,2-DCE and TCE in groundwater adjacent to the sewers are less than three times the drinking water criteria. The vinyl chloride concentration at RFI-81-51, which is

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

adjacent to the storm sewer leading to Outfall 003, exceeds the drinking water criteria by a factor of approximately 30. Therefore, cis-1,2-DCE and TCE in the groundwater which could discharge via storm sewers to the Flint River are insignificant. Vinyl chloride in groundwater which could discharge via storm sewers to the Flint River could be potentially significant.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

__X__ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

_____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

_____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

The potential discharge of vinyl chloride concentrations via the storm sewers near AOI 81-3 to the Flint River is expected to be acceptable when the flow rate of contaminated groundwater from this area is compared to the flow rate of surface water in the Flint River. The flow rate for base-flow in the sewers that discharge to Outfall 003 (according to data presented in Appendix I of the Phase II RFI Report) is only approximately 0.1% of the harmonic mean surface water flow rate of about 300 cubic feet per second in the Flint River (from Appendix G of the Phase II RFI Report). Even if one conservatively assumes that the entire base-flow in the sewers consists of groundwater contaminated with vinyl chloride, the concentration in the Flint River resulting from groundwater discharge still would be well below the drinking water criteria

[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

(and below quantitation limits). Therefore, the vinyl chloride concentration in groundwater that could discharge through the storm sewers to the Flint River is currently acceptable.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

__X__ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

The vinyl chloride concentration in groundwater at RFI-36-48 (0.004 mg/L) slightly exceeds the maximum contaminant level (MCL) of 0.002 mg/L in the last two sampling events. Attempts to further characterize the downgradient extent of vinyl chloride at this off-site location have been constrained by the presence of affected groundwater associated with an off-site source. Specifically, a sheen on the groundwater was encountered at monitoring well RFI-36-54 which was installed in an attempt to characterize the downgradient extent of vinyl chloride. The sheen detected in well RFI-36-54 is not believed to be related to any current or former activities at the Site, based on the absence of any observations of a sheen or LNAPL in the network of monitoring wells between the Site and well RFI-36-54. Also, historical information indicates that another party has investigated potential issues near this area under a separate program, led by the MDEQ. Given this constraint on further spatial characterization of vinyl chloride in this area, well RFI-36-48 will be monitored quarterly to confirm temporal stability of vinyl chloride, as part of the future site wide groundwater monitoring program.

Data collected during the supplemental groundwater investigation downgradient of AOI 10-1 (Figures 18 and 20) indicate that contaminated groundwater may not be migrating off-Site, as previously believed (BBL 2005). Groundwater samples from the new monitoring well RFI-10-33 indicated that chlorinated VOCs were below the MDEQ generic drinking water criteria. This location, and locations which bound the off-Site portion of the plume, will be monitored as part of future groundwater monitoring to confirm whether that the chlorinated VOCs in off-Site groundwater are likely not a result of activities at the Site.

The flow of contaminated groundwater near AOI 81-3 is controlled by the storm sewer system in the area, as shown on Figure 18. Cis-1,2-dichloroethene (DCE) and vinyl chloride are the only two constituents with concentrations in groundwater that exceed the generic drinking water criteria at the monitoring well (RFI-

81-51) nearest the sewer. The potential significance of groundwater discharge of these constituents via the sewer system into the Flint River is discussed in Section 2.5 of the CA750 E.I. Report. Groundwater elevations in this area will continue to be monitored to confirm that the storm sewers continue to capture contaminated groundwater in this area.

A groundwater monitoring network will be in place to ensure that no significant concentrations of constituents migrate off-site, and to verify that current concentrations of constituents remain stable. Details of the groundwater monitoring program will be developed during the Corrective Measures Study phase of the project.

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

YE YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the *North American Operations (NAO), Flint Operations Site*, EPA ID # *MID 005 356 712*, located at *902 East Leith Street, Flint, Michigan*. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

____ IN - More information is needed to make a determination.

Completed by (signature) [signature] Date 9/29/05
(print) TAMMY MOORE
(title) Environmental Scientist

Supervisor (signature) George J Hamper Date 9-29-05
(print) George J Hamper
(title) Chief, CA Section ECAB
(EPA Region or State) R5

Locations where References may be found:
USEPA Region 5 has the following documents, which support the CA750 documentation. Section 3 of the CA750 Report provides the full citation for each of these documents:

- *Description of Current Conditions for Areas South of Leith Street (BBL 2000a)*
- *Description of Current Conditions for Areas North of Leith Street (BBL 2000b)*
- *RFI Work Plan (BBL 2001)*
- *RFI Phase I Report (BBL 2002)*
- *RFI Phase II Report (BBL 2004)*
- *Groundwater Sampling Data Report (BBL 2005b)*

Contact telephone and e-mail numbers

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Attachment 1: Maximum Groundwater Concentrations Exceeding Screening Criteria
GMC: NAO Flint Operations Site, Flint, Michigan

Area	Property	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Max Detected (mg/L)	Location of Max Detected	Sample Date of Max Detected	Industrial Drinking Water Criteria (mg/L)	Ratio of Max Detected to Industrial Drinking Water Criteria	Industrial Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Industrial Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
02-B	GM-South	VOC	Acetone	67-64-1	T	ID	4.70E+01	RFI-02-12	2/24/2005	2.10E+00	2.2E+01	1.00E+06	4.7E-05	3.10E+04	1.5E-03
02-F	GM-South	INORG	Manganese	7439-96-5	T	D	3.70E+00	RFI-02-07	9/18/2001	2.50E+00	1.5E+00			9.10E+03	4.1E-04
03-1	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	6.40E-02	03-101	9/27/2001	5.00E-03	1.3E+01	9.70E+01	6.6E-04	2.20E+01	2.9E-03
03-1	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	9.10E-03	03-101	9/27/2001	2.00E-03	4.6E+00	1.30E+01	7.0E-04	1.00E+00	9.1E-03
03-1	GM-North	INORG	Arsenic	7440-38-2	D	A	9.00E-02	RFI-03-04	9/21/2001	5.00E-02	1.8E+00			4.30E+00	2.1E-02
03-1	GM-North	INORG	Beryllium	7440-41-7	D	B1	4.30E-02	RFI-03-02	2/26/2002	4.00E-03	1.1E+01			2.90E+02	1.5E-04
03-1	GM-North	INORG	Selenium	7782-49-2	D	D	1.90E-01	RFI-03-02	2/26/2002	5.00E-02	3.8E+00			9.70E+02	2.0E-04
05-2	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	9.50E-02	20-140	2/22/2002	5.00E-03	1.9E+01	9.70E+01	9.8E-04	2.20E+01	4.3E-03
05-2	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	1.90E-02	20-140	3/31/2003	2.00E-03	9.5E+00	1.30E+01	1.5E-03	1.00E+00	1.9E-02
05-2	GM-North	INORG	Beryllium	7440-41-7	D	B1	5.60E-03	20-140	2/22/2002	4.00E-03	1.4E+00			2.90E+02	1.9E-05
05-2	GM-North	INORG	Nickel	7440-02-0	T	A	2.10E-01	RFI-05-02	4/3/2003	1.00E-01	2.1E+00			7.40E+04	2.8E-06
05-3	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	2.90E-02	RFI-05-04	9/19/2001	5.00E-03	5.8E+00	9.70E+01	3.0E-04	2.20E+01	1.3E-03
05-3	GM-North	INORG	Arsenic	7440-38-2	T	A	6.70E-02	43-101R	11/15/2001	5.00E-02	1.3E+00			4.30E+00	1.6E-02
05-3	GM-North	INORG	Arsenic	7440-38-2	D	A	8.40E-02	43-101R	11/15/2001	5.00E-02	1.7E+00			4.30E+00	2.0E-02
05-5	GM-North	INORG	Arsenic	7440-38-2	D	A	7.00E-02	RFI-05-12	9/20/2001	5.00E-02	1.4E+00			4.30E+00	1.6E-02
05-5	GM-North	INORG	Nickel	7440-02-0	T	A	2.20E-01	RFI-05-10	4/2/2003	1.00E-01	2.2E+00			7.40E+04	3.0E-06
05-6	GM-North	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	8.10E-02	RFI-05-19S	9/25/2001	7.00E-02	1.2E+00	2.10E+02	3.9E-04	2.00E+02	4.1E-04
05-6	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	2.50E-01	43-140	10/12/2004	5.00E-03	5.0E+01	9.70E+01	2.6E-03	2.20E+01	1.1E-02
05-6	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	1.90E-02	RFI-05-19S	9/25/2001	2.00E-03	9.5E+00	1.30E+01	1.5E-03	1.00E+00	1.9E-02
05-6	GM-North	INORG	Manganese	7439-96-5	T	D	3.10E+00	30-140	6/13/2002	2.50E+00	1.2E+00			9.10E+03	3.4E-04
07-1	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	3.30E-03	07-02	9/20/2001	2.00E-03	1.7E+00	1.30E+01	2.5E-04	1.00E+00	3.3E-03
09-A	GM-South	VOC	1,1,1-Trichloroethane	71-55-6	T	D	2.58E-01	RFI-09-53	6/8/2005	2.00E-01	1.3E+00	1.30E+03	2.0E-04	1.30E+03	2.0E-04
09-A	GM-South	VOC	Trichloroethene	79-01-6	T	C-B2	1.84E-01	RFI-09-53	6/8/2005	5.00E-03	3.7E+01	9.70E+01	1.9E-03	2.20E+01	8.4E-03
09-A	GM-South	VOC	Vinyl Chloride	75-01-4	T	A	3.80E-03	RFI-09-01	9/14/2001	2.00E-03	1.9E+00	1.30E+01	2.9E-04	1.00E+00	3.8E-03
09-A	GM-South	INORG	Antimony	7440-36-0	T		1.60E-02	RFI-09-49	2/25/2003	6.00E-03	2.7E+00			6.80E+01	2.4E-04
09-A	GM-South	INORG	Antimony	7440-36-0	T		1.60E-02	RFI-09-32	3/6/2002	6.00E-03	2.7E+00			6.80E+01	2.4E-04
09-B	GM-South	VOC	Benzene	71-43-2	T	A	1.21E+00	RFI-09-13	10/4/2004	5.00E-03	2.4E+02	3.50E+01	3.5E-02	1.10E+01	1.1E-01
09-B	GM-South	VOC	Ethyl Benzene	100-41-4	T	D	1.00E+00	RFI-09-08	5/29/2001	7.00E-01	1.4E+00	1.70E+02	5.9E-03	1.70E+02	5.9E-03
09-B	GM-South	VOC	Ethyl Benzene	100-41-4	T	D	1.00E+00	31-8	6/24/2002	7.00E-01	1.4E+00	1.70E+02	5.9E-03	1.70E+02	5.9E-03
09-B	GM-South	VOC	Methylene Chloride	75-09-2	T	B2	7.40E-03	RFI-09-08	3/21/2003	5.00E-03	1.5E+00	1.40E+03	5.3E-06	2.20E+02	3.4E-05
09-B	GM-South	PCB	PCBs (total)	1336-36-3	D	B2	1.69E-03	31-5	9/17/2001	5.00E-04	3.4E+00	4.50E-02	3.8E-02	3.30E-03	5.1E-01
09-B	GM-South	INORG	Antimony	7440-36-0	D		6.80E-03	RFI-09-10	9/13/2001	6.00E-03	1.1E+00			6.80E+01	1.0E-04
09-B	GM-South	INORG	Arsenic	7440-38-2	T	A	6.10E-02	RFI-09-12	12/13/2001	5.00E-02	1.2E+00			4.30E+00	1.4E-02
09-B	GM-South	INORG	Lead	7439-92-1	D	B2	5.80E-03	31-8	9/17/2001	4.00E-03	1.5E+00				
10-1	GM-North	VOC	1,1-Dichloroethene	75-35-4	T	C	1.30E-02	20-121	9/21/2001	7.00E-03	1.9E+00	1.30E+00	1.0E-02	1.10E+01	1.2E-03
10-1	GM-North	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	2.50E-01	20-121	9/21/2001	7.00E-02	3.6E+00	2.10E+02	1.2E-03	2.00E+02	1.3E-03
10-1	GM-North	VOC	1,1,1-Trichloroethane	71-55-6	T	D	2.10E-01	20-121	9/21/2001	2.00E-01	1.1E+00	1.30E+03	1.6E-04	1.30E+03	1.6E-04
10-1	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	3.20E-03	20-145	9/25/2001	2.00E-03	1.6E+00	1.30E+01	2.5E-04	1.00E+00	3.2E-03
10-1	GM-North	INORG	Barium	7440-39-3	T	D	3.30E+01	RFI-10-01	6/18/2002	2.00E+00	1.7E+01			1.40E+04	2.4E-03
10-1	GM-North	INORG	Barium	7440-39-3	D	D	2.80E+01	RFI-10-01	9/24/2001	2.00E+00	1.4E+01			1.40E+04	2.0E-03
10-1	GM-North	INORG	Lead	7439-92-1	T	B2	8.80E-03	RFI-10-01	6/18/2002	4.00E-03	2.2E+00				
10-2	GM-North	VOC	Benzene	71-43-2	T	A	1.70E-02	RFI-10-02	9/24/2001	5.00E-03	3.4E+00	3.50E+01	4.9E-04	1.10E+01	1.5E-03
10-2	GM-North	VOC	Chloroethane	75-00-3	T		3.30E+00	RFI-10-02	6/18/2002	1.70E+00	1.9E+00	5.70E+03	5.8E-04	4.40E+02	7.5E-03
10-2	GM-North	VOC	1,1-Dichloroethene	75-35-4	T	C	1.10E-01	RFI-10-05	9/24/2001	7.00E-03	1.6E+01	1.30E+00	8.5E-02	1.10E+01	1.0E-02
10-2	GM-North	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	1.50E-01	RFI-10-03	9/26/2001	7.00E-02	2.1E+00	2.10E+02	7.1E-04	2.00E+02	7.5E-04
10-2	GM-North	VOC	Methylene Chloride	75-09-2	T	B2	2.90E-02	RFI-10-05	3/26/2003	5.00E-03	5.8E+00	1.40E+03	2.1E-05	2.20E+02	1.3E-04
10-2	GM-North	VOC	1,1,1-Trichloroethane	71-55-6	T	D	5.80E-01	RFI-10-05	9/24/2001	2.00E-01	2.9E+00	1.30E+03	4.5E-04	1.30E+03	4.5E-04
10-2	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	1.60E-01	RFI-10-03	3/25/2003	5.00E-03	3.2E+01	9.70E+01	1.6E-03	2.20E+01	7.3E-03
10-2	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	6.00E-02	RFI-10-03	9/26/2001	2.00E-03	3.0E+01	1.30E+01	4.6E-03	1.00E+00	6.0E-02
10-2	GM-North	INORG	Arsenic	7440-38-2	D	A	6.80E-02	RFI-10-12	9/26/2001	5.00E-02	1.4E+00			4.30E+00	1.6E-02
10-2	GM-North	INORG	Lead	7439-92-1	T	B2	6.80E-03	RFI-10-12	12/18/2002	4.00E-03	1.7E+00				
10-2	GM-North	INORG	Manganese	7439-96-5	T	D	7.60E+00	RFI-10-02	6/18/2002	2.50E+00	3.0E+00			9.10E+03	8.4E-04

Attachment 1: Maximum Groundwater Concentrations Exceeding Screening Criteria
GMC: NAO Flint Operations Site, Flint, Michigan

Area	Property	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Max Detected (mg/L)	Location of Max Detected	Sample Date of Max Detected	Industrial Drinking Water Criteria (mg/L)	Ratio of Max Detected to Industrial Drinking Water Criteria	Industrial Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Industrial Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
10-2	GM-North	INORG	Manganese	7439-96-5	D	D	3.40E+00	RFI-10-03	9/26/2001	2.50E+00	1.4E+00			9.10E+03	3.7E-04
10-3	GM-North	VOC	Chloroethane	75-00-3	T		7.40E+00	20-101RD	10/11/2004	1.70E+00	4.4E+00	5.70E+03	1.3E-03	4.40E+02	1.7E-02
10-3	GM-North	VOC	1,1-Dichloroethane	75-34-3	T	C	1.20E+01	20-101R	6/19/2002	2.50E+00	4.8E+00	2.30E+03	5.2E-03	2.40E+03	5.0E-03
10-3	GM-North	VOC	1,2-Dichloroethane	107-06-2	T	B2	1.70E-02	20-101RD	3/27/2003	5.00E-03	3.4E+00	5.90E+01	2.9E-04	1.90E+01	8.9E-04
10-3	GM-North	VOC	1,1-Dichloroethene	75-35-4	T	C	1.30E-01	RFI-10-06	3/26/2003	7.00E-03	1.9E+01	1.30E+00	1.0E-01	1.10E+01	1.2E-02
10-3	GM-North	VOC	1,1,1-Trichloroethane	71-55-6	T	D	2.40E+00	20-101R	6/19/2002	2.00E-01	1.2E+01	1.30E+03	1.8E-03	1.30E+03	1.8E-03
10-3	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	5.20E-01	20-101R	6/19/2002	2.00E-03	2.6E+02	1.30E+01	4.0E-02	1.00E+00	5.2E-01
10-3	GM-North	INORG	Beryllium	7440-41-7	D	B1	4.20E-03	20-105R	12/6/2001	4.00E-03	1.1E+00			2.90E+02	1.4E-05
10-3	GM-North	INORG	Lead	7439-92-1	T	B2	4.90E-03	20-105R	6/19/2002	4.00E-03	1.2E+00				
10-4	GM-North	VOC	Benzene	71-43-2	T	A	6.10E-03	20-FP10	9/25/2001	5.00E-03	1.2E+00	3.50E+01	1.7E-04	1.10E+01	5.5E-04
10-4	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	2.30E-03	20-FP6	9/25/2001	2.00E-03	1.2E+00	1.30E+01	1.8E-04	1.00E+00	2.3E-03
12-A	GM-South	INORG	Arsenic	7440-38-2	T	A	6.00E-02	RFI-12-35	9/17/2003	5.00E-02	1.2E+00			4.30E+00	1.4E-02
12-A	GM-South	INORG	Beryllium	7440-41-7	T	B1	2.70E-01	RFI-12-01	5/15/2001	4.00E-03	6.8E+01			2.90E+02	9.3E-04
12-A	GM-South	INORG	Beryllium	7440-41-7	T	B1	2.70E-01	RFI-12-35	9/17/2003	4.00E-03	6.8E+01			2.90E+02	9.3E-04
12-A	GM-South	INORG	Beryllium	7440-41-7	D	B1	3.00E-02	RFI-12-35	9/17/2003	4.00E-03	7.5E+00			2.90E+02	1.0E-04
12-A	GM-South	INORG	Cadmium	7440-43-9	T	B1	6.70E-03	RFI-12-35	9/17/2003	5.00E-03	1.3E+00			1.90E+02	3.5E-05
12-A	GM-South	INORG	Chromium (total)	7440-47-3	T		1.20E-01	RFI-12-35	9/17/2003	1.00E-01	1.2E+00			4.60E+02	2.6E-04
12-A	GM-South	INORG	Lead	7439-92-1	T	B2	5.90E-02	RFI-12-35	9/17/2003	4.00E-03	1.5E+01				
12-A	GM-South	INORG	Nickel	7440-02-0	T	A	1.20E-01	RFI-12-35	9/17/2003	1.00E-01	1.2E+00			7.40E+04	1.6E-06
12-A	GM-South	INORG	Thallium	7440-28-0	T		3.60E-03	RFI-12-35	9/17/2003	2.00E-03	1.8E+00			1.30E+01	2.8E-04
12-A	GM-South	INORG	Vanadium	7440-62-2	T		1.40E-01	RFI-12-35	9/17/2003	6.20E-02	2.3E+00			9.70E+02	1.4E-04
16-C	GM-South	VOC	Benzene	71-43-2	T	A	2.10E-01	RFI-16-11	6/26/2002	5.00E-03	4.2E+01	3.50E+01	6.0E-03	1.10E+01	1.9E-02
16-C	GM-South	INORG	Beryllium	7440-41-7	D	B1	4.40E-02	RFI-16-12	2/28/2002	4.00E-03	1.1E+01			2.90E+02	1.5E-04
16-C	GM-South	INORG	Selenium	7782-49-2	D	D	1.80E-01	RFI-16-12	2/28/2002	5.00E-02	3.6E+00			9.70E+02	1.9E-04
21-1	GM-North	INORG	Manganese	7439-96-5	T	D	1.64E+01	RFI-21-04	10/7/2004	2.50E+00	6.6E+00			9.10E+03	1.8E-03
21-1	GM-North	INORG	Manganese	7439-96-5	D	D	9.20E+00	RFI-21-04	11/19/2001	2.50E+00	3.7E+00			9.10E+03	1.0E-03
23-A	GM-South	SVOC	Pentachlorophenol	87-86-5	T	B2	3.00E-03	RFI-23-02R	10/4/2004	1.00E-03	3.0E+00			2.00E-01	1.5E-02
36-1	GM-North	VOC	Benzene	71-43-2	T	A	3.60E-01	RFI-36-29R	4/3/2003	5.00E-03	7.2E+01	3.50E+01	1.0E-02	1.10E+01	3.3E-02
36-1	GM-North	VOC	1,2-Dichloroethane	107-06-2	T	B2	9.30E-03	RFI-36-35	6/18/2002	5.00E-03	1.9E+00	5.90E+01	1.6E-04	1.90E+01	4.9E-04
36-1	GM-North	VOC	1,1-Dichloroethene	75-35-4	T	C	1.20E-01	36-100	9/27/2001	7.00E-03	1.7E+01	1.30E+00	9.2E-02	1.10E+01	1.1E-02
36-1	GM-North	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	1.50E-01	RFI-36-24	10/5/2001	7.00E-02	2.1E+00	2.10E+02	7.1E-04	2.00E+02	7.5E-04
36-1	GM-North	VOC	1,1,1-Trichloroethane	71-55-6	T	D	9.50E-01	36-100	9/27/2001	2.00E-01	4.8E+00	1.30E+03	7.3E-04	1.30E+03	7.3E-04
36-1	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	9.90E-02	RFI-36-24	10/5/2001	5.00E-03	2.0E+01	9.70E+01	1.0E-03	2.20E+01	4.5E-03
36-1	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	1.98E-01	RFI-36-17	2/28/2005	2.00E-03	9.9E+01	1.30E+01	1.5E-02	1.00E+00	2.0E-01
36-1	GM-North	INORG	Arsenic	7440-38-2	T	A	1.40E-01	RFI-36-29R	4/3/2003	5.00E-02	2.8E+00			4.30E+00	3.3E-02
36-1	GM-North	INORG	Arsenic	7440-38-2	D	A	8.10E-02	RFI-36-04	9/28/2001	5.00E-02	1.6E+00			4.30E+00	1.9E-02
36-1	GM-North	INORG	Beryllium	7440-41-7	D	B1	3.00E-02	RFI-36-27	2/20/2002	4.00E-03	7.5E+00			2.90E+02	1.0E-04
36-1	GM-North	INORG	Cadmium	7440-43-9	T	B1	2.10E-02	RFI-36-03	3/25/2003	5.00E-03	4.2E+00			1.90E+02	1.1E-04
36-1	GM-North	INORG	Chromium (total)	7440-47-3	T		2.20E-01	RFI-36-35	9/27/2001	1.00E-01	2.2E+00			4.60E+02	4.8E-04
36-1	GM-North	INORG	Lead	7439-92-1	T	B2	2.20E-02	RFI-36-32	12/19/2002	4.00E-03	5.5E+00				
36-1	GM-North	INORG	Nickel	7440-02-0	T	A	1.30E-01	RFI-36-02	10/4/2001	1.00E-01	1.3E+00			7.40E+04	1.8E-06
36-1	GM-North	INORG	Vanadium	7440-62-2	T		2.10E-01	RFI-36-35	9/27/2001	6.20E-02	3.4E+00			9.70E+02	2.2E-04
36-2	GM-North	VOC	Benzene	71-43-2	T	A	4.50E+00	36-FP2	3/25/2003	5.00E-03	9.0E+02	3.50E+01	1.3E-01	1.10E+01	4.1E-01
36-2	GM-North	VOC	1,2-Dichloroethane	107-06-2	T	B2	1.30E-02	36-FP2	3/25/2003	5.00E-03	2.6E+00	5.90E+01	2.2E-04	1.90E+01	6.8E-04
36-2	GM-North	VOC	1,1,1-Trichloroethane	71-55-6	T	D	2.40E-01	36-FP1	3/27/2003	2.00E-01	1.2E+00	1.30E+03	1.8E-04	1.30E+03	1.8E-04
36-2	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	3.50E-02	36-FP1	9/27/2001	5.00E-03	7.0E+00	9.70E+01	3.6E-04	2.20E+01	1.6E-03
36-2	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	8.10E-03	36-FP1	3/27/2003	2.00E-03	4.1E+00	1.30E+01	6.2E-04	1.00E+00	8.1E-03
36-2	GM-North	INORG	Arsenic	7440-38-2	T	A	1.70E-01	36-FP2	9/28/2001	5.00E-02	3.4E+00			4.30E+00	4.0E-02
36-2	GM-North	INORG	Arsenic	7440-38-2	D	A	1.20E-01	36-FP2	9/28/2001	5.00E-02	2.4E+00			4.30E+00	2.8E-02
36-2	GM-North	INORG	Arsenic	7440-38-2	D	A	1.20E-01	36-FP2	6/14/2002	5.00E-02	2.4E+00			4.30E+00	2.8E-02
36-3	GM-North	VOC	Benzene	71-43-2	T	A	6.00E+00	RFI-36-43	2/26/2002	5.00E-03	1.2E+03	3.50E+01	1.7E-01	1.10E+01	5.5E-01
36-3	GM-North	VOC	Ethyl Benzene	100-41-4	T	D	1.30E+00	RFI-36-43	2/26/2002	7.00E-01	1.9E+00	1.70E+02	7.6E-03	1.70E+02	7.6E-03

Attachment 1: Maximum Groundwater Concentrations Exceeding Screening Criteria
GMC: NAO Flint Operations Site, Flint, Michigan

Area	Property	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Max Detected (mg/L)	Location of Max Detected	Sample Date of Max Detected	Industrial Drinking Water Criteria (mg/L)	Ratio of Max Detected to Industrial Drinking Water Criteria	Industrial Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Industrial Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
36-3	GM-North	VOC	Methylene Chloride	75-09-2	T	B2	1.00E-02	RFI-36-08	10/8/2004	5.00E-03	2.0E+00	1.40E+03	7.1E-06	2.20E+02	4.5E-05
36-3	GM-North	VOC	Toluene	108-88-3	T	D	2.00E+01	RFI-36-43	2/26/2002	1.00E+00	2.0E+01	5.30E+02	3.8E-02	5.30E+02	3.8E-02
36-3	GM-North	INORG	Beryllium	7440-41-7	T	B1	8.10E-03	RFI-36-09	9/27/2001	4.00E-03	2.0E+00			2.90E+02	2.8E-05
36-3	GM-North	INORG	Chromium (total)	7440-47-3	T		1.90E-01	RFI-36-09	9/27/2001	1.00E-01	1.9E+00			4.60E+02	4.1E-04
36-3	GM-North	INORG	Vanadium	7440-62-2	T		3.80E-01	RFI-36-09	9/27/2001	6.20E-02	6.1E+00			9.70E+02	3.9E-04
36-5	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	4.40E-02	20-102	9/25/2001	5.00E-03	8.8E+00	9.70E+01	4.5E-04	2.20E+01	2.0E-03
36-5	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	1.40E-02	RFI-36-13	6/24/2002	2.00E-03	7.0E+00	1.30E+01	1.1E-03	1.00E+00	1.4E-02
36-5	GM-North	INORG	Manganese	7439-96-5	T	D	3.70E+00	RFI-36-14-UL	10/2/2001	2.50E+00	1.5E+00			9.10E+03	4.1E-04
38-1	GM-North	INORG	Lead	7439-92-1	D	B2	6.50E-03	RFI-38-04	6/13/2002	4.00E-03	1.6E+00				
38-1	GM-North	INORG	Thallium	7440-28-0	T		3.80E-03	RFI-38-06	9/28/2001	2.00E-03	1.9E+00			1.30E+01	2.9E-04
38-1	GM-North	INORG	Thallium	7440-28-0	D		3.40E-03	RFI-38-06	2/21/2002	2.00E-03	1.7E+00			1.30E+01	2.6E-04
40-A	GM-South	VOC	Benzene	71-43-2	T	A	5.50E+00	RFI-40-15	4/22/2003	5.00E-03	1.1E+03	3.50E+01	1.6E-01	1.10E+01	5.0E-01
40-A	GM-South	VOC	Ethyl Benzene	100-41-4	T	D	8.00E-01	40-4R	11/21/2001	7.00E-01	1.1E+00	1.70E+02	4.7E-03	1.70E+02	4.7E-03
40-A	GM-South	INORG	Arsenic	7440-38-2	T	A	4.40E-01	40-3	12/17/2002	5.00E-02	8.8E+00			4.30E+00	1.0E-01
40-A	GM-South	INORG	Arsenic	7440-38-2	D	A	4.10E-01	40-3	9/18/2001	5.00E-02	8.2E+00			4.30E+00	9.5E-02
40-A	GM-South	INORG	Beryllium	7440-41-7	T	B1	1.70E-01	RFI-40-13	3/25/2003	4.00E-03	4.3E+01			2.90E+02	5.9E-04
40-A	GM-South	INORG	Beryllium	7440-41-7	T	B1	1.70E-01	RFI-40-13	9/16/2003	4.00E-03	4.3E+01			2.90E+02	5.9E-04
40-A	GM-South	INORG	Beryllium	7440-41-7	D	B1	1.90E-02	RFI-40-09	2/26/2002	4.00E-03	4.8E+00			2.90E+02	6.6E-05
40-A	GM-South	INORG	Cyanide (total)	57-12-5	T	D	4.30E-01	40-6	9/18/2001	2.00E-01	2.2E+00			5.70E+01	7.5E-03
40-A	GM-South	INORG	Cyanide (total)	57-12-5	D	D	4.40E-01	40-6	9/18/2001	2.00E-01	2.2E+00			5.70E+01	7.7E-03
40-A	GM-South	INORG	Lead	7439-92-1	T	B2	6.40E-03	40-4R	6/24/2002	4.00E-03	1.6E+00				
40-B	GM-South	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	9.30E-02	RFI-40-10R	4/24/2003	7.00E-02	1.3E+00	2.10E+02	4.4E-04	2.00E+02	4.7E-04
40-B	GM-South	VOC	Trichloroethene	79-01-6	T	C-B2	1.00E-01	RFI-40-10R	4/24/2003	5.00E-03	2.0E+01	9.70E+01	1.0E-03	2.20E+01	4.5E-03
40-B	GM-South	VOC	Vinyl Chloride	75-01-4	T	A	7.80E-03	RFI-40-10R	4/24/2003	2.00E-03	3.9E+00	1.30E+01	6.0E-04	1.00E+00	7.8E-03
40-C	GM-South	VOC	Trichloroethene	79-01-6	T	C-B2	1.20E-01	RFI-40-03	3/27/2003	5.00E-03	2.4E+01	9.70E+01	1.2E-03	2.20E+01	5.5E-03
40-C	GM-South	VOC	Vinyl Chloride	75-01-4	T	A	3.00E-03	RFI-40-03	3/27/2003	2.00E-03	1.5E+00	1.30E+01	2.3E-04	1.00E+00	3.0E-03
40-C	GM-South	INORG	Beryllium	7440-41-7	D	B1	5.20E-03	RFI-40-03	2/25/2002	4.00E-03	1.3E+00			2.90E+02	1.8E-05
40-D	GM-South	VOC	Vinyl Chloride	75-01-4	T	A	5.80E-03	40-305	9/17/2001	2.00E-03	2.9E+00	1.30E+01	4.5E-04	1.00E+00	5.8E-03
40-D	GM-South	INORG	Lead	7439-92-1	T	B2	9.20E-03	40-305	3/25/2003	4.00E-03	2.3E+00				
44-A	GM-South	PCB	PCBs (total)	1336-36-3	D	B2	1.09E-03	RFI-44-05	9/14/2001	5.00E-04	2.2E+00	4.50E-02	2.4E-02	3.30E-03	3.3E-01
44-A	GM-South	INORG	Antimony	7440-36-0	T		4.20E-02	RFI-44-05	12/20/2002	6.00E-03	7.0E+00			6.80E+01	6.2E-04
44-A	GM-South	INORG	Antimony	7440-36-0	D		2.90E-02	RFI-44-05	12/20/2002	6.00E-03	4.8E+00			6.80E+01	4.3E-04
44-A	GM-South	INORG	Chromium (total)	7440-47-3	T		3.80E-01	RFI-44-05	12/20/2002	1.00E-01	3.8E+00			4.60E+02	8.3E-04
44-A	GM-South	INORG	Chromium (total)	7440-47-3	D		2.20E-01	RFI-44-05	12/20/2002	1.00E-01	2.2E+00			4.60E+02	4.8E-04
44-A	GM-South	INORG	Lead	7439-92-1	T	B2	7.50E-02	RFI-44-05	12/20/2002	4.00E-03	1.9E+01				
44-A	GM-South	INORG	Lead	7439-92-1	D	B2	1.80E-02	RFI-44-05	12/20/2002	4.00E-03	4.5E+00				
44-A	GM-South	INORG	Nickel	7440-02-0	T	A	5.10E-01	RFI-44-05	12/20/2002	1.00E-01	5.1E+00			7.40E+04	6.9E-06
44-A	GM-South	INORG	Nickel	7440-02-0	D	A	3.60E-01	RFI-44-05	12/20/2002	1.00E-01	3.6E+00			7.40E+04	4.9E-06
55-1	GM-North	VOC	Benzene	71-43-2	T	A	1.80E-02	55-1	6/12/2002	5.00E-03	3.6E+00	3.50E+01	5.1E-04	1.10E+01	1.6E-03
55-1	GM-North	VOC	1,2-Dichloropropane	78-87-5	T	B2	1.40E-01	55-4	10/8/2004	5.00E-03	2.8E+01	3.60E+01	3.9E-03	1.60E+01	8.8E-03
55-1	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	1.07E-01	RFI-55-12	10/8/2004	5.00E-03	2.1E+01	9.70E+01	1.1E-03	2.20E+01	4.9E-03
55-1	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	2.80E-02	55-1	9/26/2001	2.00E-03	1.4E+01	1.30E+01	2.2E-03	1.00E+00	2.8E-02
55-1	GM-North	SVOC	bis(2-Chloroethyl) ether	111-44-4	T	B2	2.60E-02	55-4	10/8/2004	8.30E-03	3.1E+00	2.10E+02	1.2E-04	5.70E+00	4.6E-03
55-1	GM-North	INORG	Antimony	7440-36-0	T		1.30E-02	RFI-55-12	9/26/2003	6.00E-03	2.2E+00			6.80E+01	1.9E-04
55-1	GM-North	INORG	Arsenic	7440-38-2	T	A	8.60E-02	55-3	10/8/2004	5.00E-02	1.7E+00			4.30E+00	2.0E-02
55-1	GM-North	INORG	Arsenic	7440-38-2	D	A	5.80E-02	55-3	9/26/2001	5.00E-02	1.2E+00			4.30E+00	1.3E-02
55-1	GM-North	INORG	Beryllium	7440-41-7	T	B1	6.10E-01	RFI-55-12	9/26/2003	4.00E-03	1.5E+02			2.90E+02	2.1E-03
55-1	GM-North	INORG	Beryllium	7440-41-7	D	B1	3.00E-02	RFI-55-11	9/26/2003	4.00E-03	7.5E+00			2.90E+02	1.0E-04
55-1	GM-North	INORG	Cadmium	7440-43-9	T	B1	1.60E-02	RFI-55-12	9/26/2003	5.00E-03	3.2E+00			1.90E+02	8.4E-05
55-1	GM-North	INORG	Chromium (total)	7440-47-3	T		2.55E+01	RFI-55-11	10/8/2004	1.00E-01	2.6E+02			4.60E+02	5.5E-02
55-1	GM-North	INORG	Chromium (total)	7440-47-3	D		8.00E+00	RFI-55-11	9/26/2003	1.00E-01	8.0E+01			4.60E+02	1.7E-02
55-1	GM-North	INORG	Cyanide (total)	57-12-5	T	D	1.10E+00	RFI-55-12	9/12/2003	2.00E-01	5.5E+00			5.70E+01	1.9E-02

Attachment 1: Maximum Groundwater Concentrations Exceeding Screening Criteria
GMC: NAO Flint Operations Site, Flint, Michigan

Area	Property	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Max Detected (mg/L)	Location of Max Detected	Sample Date of Max Detected	Industrial Drinking Water Criteria (mg/L)	Ratio of Max Detected to Industrial Drinking Water Criteria	Industrial Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Industrial Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
55-1	GM-North	INORG	Cyanide (total)	57-12-5	T	D	1.10E+00	RFI-55-11	9/26/2003	2.00E-01	5.5E+00			5.70E+01	1.9E-02
55-1	GM-North	INORG	Cyanide (total)	57-12-5	D	D	1.10E+00	RFI-55-11	9/26/2003	2.00E-01	5.5E+00			5.70E+01	1.9E-02
55-1	GM-North	INORG	Lead	7439-92-1	T	B2	2.50E-02	RFI-55-11	9/26/2003	4.00E-03	6.3E+00				
55-1	GM-North	INORG	Manganese	7439-96-5	T	D	2.90E+00	55-4	6/12/2002	2.50E+00	1.2E+00			9.10E+03	3.2E-04
55-1	GM-North	INORG	Nickel	7440-02-0	T	A	1.30E-01	RFI-55-11	9/26/2003	1.00E-01	1.3E+00			7.40E+04	1.8E-06
55-1	GM-North	INORG	Thallium	7440-28-0	T		4.10E-03	RFI-55-12	9/26/2003	2.00E-03	2.1E+00			1.30E+01	3.2E-04
65-1	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	4.60E-02	RFI-65-01	6/13/2002	5.00E-03	9.2E+00	9.70E+01	4.7E-04	2.20E+01	2.1E-03
81-1	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	1.20E-02	RFI-81-02	10/13/2001	2.00E-03	6.0E+00	1.30E+01	9.2E-04	1.00E+00	1.2E-02
81-1	GM-North	INORG	Arsenic	7440-38-2	T	A	9.10E-02	RFI-81-02	4/2/2003	5.00E-02	1.8E+00			4.30E+00	2.1E-02
81-1	GM-North	INORG	Arsenic	7440-38-2	D	A	8.30E-02	RFI-81-02	10/13/2001	5.00E-02	1.7E+00			4.30E+00	1.9E-02
81-1	GM-North	INORG	Lead	7439-92-1	T	B2	1.00E-02	RFI-81-02	4/2/2003	4.00E-03	2.5E+00				
81-2	GM-North	INORG	Lead	7439-92-1	T	B2	5.50E-02	70-165	10/7/2004	4.00E-03	1.4E+01				
81-2	GM-North	INORG	Lead	7439-92-1	D	B2	1.90E-02	70-165	9/26/2001	4.00E-03	4.8E+00				
81-2	GM-North	INORG	Manganese	7439-96-5	T	D	3.20E+00	70-163	9/28/2001	2.50E+00	1.3E+00			9.10E+03	3.5E-04
81-3	GM-North	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	1.62E-01	RFI-81-51	4/4/2005	7.00E-02	2.3E+00	2.10E+02	7.7E-04	2.00E+02	8.1E-04
81-3	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	3.20E-02	86-100	6/18/2002	5.00E-03	6.4E+00	9.70E+01	3.3E-04	2.20E+01	1.5E-03
81-3	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	6.40E-02	RFI-81-51	4/4/2005	2.00E-03	3.2E+01	1.30E+01	4.9E-03	1.00E+00	6.4E-02
81-3	GM-North	INORG	Barium	7440-39-3	D	D	2.50E+00	86-100	9/24/2001	2.00E+00	1.3E+00			1.40E+04	1.8E-04
81-3	GM-North	INORG	Cadmium	7440-43-9	T	B1	9.80E-03	86-100	4/1/2003	5.00E-03	2.0E+00			1.90E+02	5.2E-05
81-3	GM-North	INORG	Lead	7439-92-1	T	B2	4.70E-02	RFI-81-11	6/19/2002	4.00E-03	1.2E+01				
81-3	GM-North	INORG	Manganese	7439-96-5	T	D	3.30E+00	RFI-81-08	4/1/2003	2.50E+00	1.3E+00			9.10E+03	3.6E-04
81-3	GM-North	INORG	Nickel	7440-02-0	T	A	2.40E-01	86-100	4/1/2003	1.00E-01	2.4E+00			7.40E+04	3.2E-06
81-3	GM-North	INORG	Zinc	7440-66-6	T	D	6.00E+00	86-100	4/1/2003	5.00E+00	1.2E+00			1.10E+05	5.5E-05
81-4	GM-North	VOC	Tetrachloroethene	127-18-4	T	C-B2	1.10E-02	RFI-81-09	2/22/2002	5.00E-03	2.2E+00	1.70E+02	6.5E-05	1.20E+01	9.2E-04
83/84-2	GM-North	INORG	Beryllium	7440-41-7	D	B1	2.30E-02	RFI-83/84-29	2/21/2002	4.00E-03	5.8E+00			2.90E+02	7.9E-05
83/84-3	GM-North	INORG	Beryllium	7440-41-7	D	B1	1.10E-02	RFI-83/84-20	2/22/2002	4.00E-03	2.8E+00			2.90E+02	3.8E-05
83/84-3	GM-North	INORG	Lead	7439-92-1	T	B2	1.70E-02	RFI-83/84-20	6/20/2002	4.00E-03	4.3E+00				
83/84-4	GM-North	INORG	Arsenic	7440-38-2	T	A	1.10E-01	RFI-83/84-51	9/19/2003	5.00E-02	2.2E+00			4.30E+00	2.6E-02
83/84-4	GM-North	INORG	Arsenic	7440-38-2	D	A	9.70E-02	RFI-83/84-51	9/19/2003	5.00E-02	1.9E+00			4.30E+00	2.3E-02
83/84-4	GM-North	INORG	Beryllium	7440-41-7	T	B1	1.40E-01	RFI-83/84-51	9/19/2003	4.00E-03	3.5E+01			2.90E+02	4.8E-04
83/84-4	GM-North	INORG	Beryllium	7440-41-7	T	B1	1.40E-01	RFI-83/84-50	4/10/2003	4.00E-03	3.5E+01			2.90E+02	4.8E-04
83/84-4	GM-North	INORG	Beryllium	7440-41-7	D	B1	2.70E-02	RFI-83/84-51	9/19/2003	4.00E-03	6.8E+00			2.90E+02	9.3E-05
83/84-4	GM-North	INORG	Lead	7439-92-1	T	B2	8.10E-03	RFI-83/84-51	9/19/2003	4.00E-03	2.0E+00				
83/84-7	GM-North	VOC	Benzene	71-43-2	T	A	1.60E-01	RFI-83/84-11	6/19/2002	5.00E-03	3.2E+01	3.50E+01	4.6E-03	1.10E+01	1.5E-02
83/84-7	GM-North	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	8.80E-02	88-9	9/20/2001	7.00E-02	1.3E+00	2.10E+02	4.2E-04	2.00E+02	4.4E-04
83/84-7	GM-North	VOC	Methylene Chloride	75-09-2	T	B2	1.00E-02	RFI-83/84-11	10/7/2004	5.00E-03	2.0E+00	1.40E+03	7.1E-06	2.20E+02	4.5E-05
83/84-7	GM-North	VOC	Toluene	108-88-3	T	D	2.30E+00	RFI-83/84-11	6/19/2002	1.00E+00	2.3E+00	5.30E+02	4.3E-03	5.30E+02	4.3E-03
83/84-7	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	3.50E-02	RFI-83/84-11	9/24/2001	5.00E-03	7.0E+00	9.70E+01	3.6E-04	2.20E+01	1.6E-03
83/84-7	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	1.50E-01	88-9	9/20/2001	2.00E-03	7.5E+01	1.30E+01	1.2E-02	1.00E+00	1.5E-01
84-A	GM-South	VOC	Benzene	71-43-2	T	A	6.00E-03	84-07	4/5/2005	5.00E-03	1.2E+00	3.50E+01	1.7E-04	1.10E+01	5.5E-04
84-A	GM-South	VOC	1,1-Dichloroethene	75-35-4	T	C	8.00E-03	84-07	6/8/2005	7.00E-03	1.1E+00	1.30E+00	6.2E-03	1.10E+01	7.3E-04
84-A	GM-South	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	3.22E-01	84-07	6/8/2005	7.00E-02	4.6E+00	2.10E+02	1.5E-03	2.00E+02	1.6E-03
84-A	GM-South	VOC	Trichloroethene	79-01-6	T	C-B2	2.58E-01	84-07	6/8/2005	5.00E-03	5.2E+01	9.70E+01	2.7E-03	2.20E+01	1.2E-02
84-A	GM-South	VOC	Vinyl Chloride	75-01-4	T	A	1.05E-01	84-07	6/8/2005	2.00E-03	5.3E+01	1.30E+01	8.1E-03	1.00E+00	1.1E-01
84-D	GM-South	VOC	Benzene	71-43-2	T	A	1.44E+00	RFI-84-07d	7/28/2005	5.00E-03	2.9E+02	3.50E+01	4.1E-02	1.10E+01	1.3E-01
84-D	GM-South	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	7.80E-02	RFI-84-08	7/6/2005	7.00E-02	1.1E+00	2.10E+02	3.7E-04	2.00E+02	3.9E-04
84-D	GM-South	VOC	Trichloroethene	79-01-6	T	C-B2	1.30E-02	RFI-84-05	6/8/2005	5.00E-03	2.6E+00	9.70E+01	1.3E-04	2.20E+01	5.9E-04
84-D	GM-South	VOC	Vinyl Chloride	75-01-4	T	A	1.14E-01	RFI-84-08	7/6/2005	2.00E-03	5.7E+01	1.30E+01	8.8E-03	1.00E+00	1.1E-01
84-D	GM-South	INORG	Beryllium	7440-41-7	T	B1	2.10E-01	84-6R2	9/15/2003	4.00E-03	5.3E+01			2.90E+02	7.2E-04
84-D	GM-South	INORG	Beryllium	7440-41-7	D	B1	2.60E-01	84-6R2	9/15/2003	4.00E-03	6.5E+01			2.90E+02	9.0E-04
84-D	GM-South	INORG	Chromium (total)	7440-47-3	D		4.50E-01	84-6	10/17/2001	1.00E-01	4.5E+00			4.60E+02	9.8E-04
84-D	GM-South	INORG	Nickel	7440-02-0	D	A	9.10E-01	84-6	10/17/2001	1.00E-01	9.1E+00			7.40E+04	1.2E-05

Attachment 1: Maximum Groundwater Concentrations Exceeding Screening Criteria
GMC: NAO Flint Operations Site, Flint, Michigan

Area	Property	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Max Detected (mg/L)	Location of Max Detected	Sample Date of Max Detected	Industrial Drinking Water Criteria (mg/L)	Ratio of Max Detected to Industrial Drinking Water Criteria	Industrial Groundwater Volatilization to Indoor Air Criteria (mg/L)	Ratio of Max Detected to Industrial Groundwater Volatilization to Indoor Air Criteria	Groundwater Contact Criteria (mg/L)	Ratio of Max Detected to Groundwater Contact Criteria
85-1	GM-North	VOC	Tetrachloroethene	127-18-4	T	C-B2	2.20E-02	RFI-85-07	11/19/2001	5.00E-03	4.4E+00	1.70E+02	1.3E-04	1.20E+01	1.8E-03
85-1	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	9.30E-02	RFI-85-06	6/12/2002	5.00E-03	1.9E+01	9.70E+01	9.6E-04	2.20E+01	4.2E-03
85-1	GM-North	INORG	Beryllium	7440-41-7	D	B1	7.00E-03	RFI-85-04R	2/28/2002	4.00E-03	1.8E+00			2.90E+02	2.4E-05
85-1	GM-North	INORG	Selenium	7782-49-2	D	D	8.00E-02	RFI-85-03	9/26/2001	5.00E-02	1.6E+00			9.70E+02	8.2E-05
85-1	GM-North	INORG	Vanadium	7440-62-2	D		1.30E-01	RFI-85-02R	12/13/2001	6.20E-02	2.1E+00			9.70E+02	1.3E-04
86-1	GM-North	VOC	Benzene	71-43-2	T	A	7.90E-03	RFI-86-08R	2/21/2002	5.00E-03	1.6E+00	3.50E+01	2.3E-04	1.10E+01	7.2E-04
86-1	GM-North	VOC	Chloroethane	75-00-3	T		1.40E+01	RFI-86-08R	6/20/2002	1.70E+00	8.2E+00	5.70E+03	2.5E-03	4.40E+02	3.2E-02
86-1	GM-North	VOC	Chloroethane	75-00-3	T		1.40E+01	RFI-86-08	7/20/2001	1.70E+00	8.2E+00	5.70E+03	2.5E-03	4.40E+02	3.2E-02
86-1	GM-North	VOC	1,1-Dichloroethene	75-35-4	T	C	2.70E-02	87-FP3	9/27/2001	7.00E-03	3.9E+00	1.30E+00	2.1E-02	1.10E+01	2.5E-03
86-1	GM-North	VOC	cis-1,2-Dichloroethene	156-59-2	T	D	4.50E-01	87-FP3	9/27/2001	7.00E-02	6.4E+00	2.10E+02	2.1E-03	2.00E+02	2.3E-03
86-1	GM-North	VOC	Tetrachloroethene	127-18-4	T	C-B2	4.10E-02	87-FP3	9/27/2001	5.00E-03	8.2E+00	1.70E+02	2.4E-04	1.20E+01	3.4E-03
86-1	GM-North	VOC	Trichloroethene	79-01-6	T	C-B2	2.00E+00	87-FP3	9/27/2001	5.00E-03	4.0E+02	9.70E+01	2.1E-02	2.20E+01	9.1E-02
86-1	GM-North	VOC	Vinyl Chloride	75-01-4	T	A	4.30E-01	87-FP3	6/18/2002	2.00E-03	2.2E+02	1.30E+01	3.3E-02	1.00E+00	4.3E-01
86-1	GM-North	INORG	Beryllium	7440-41-7	D	B1	9.80E-03	RFI-86-08R	2/21/2002	4.00E-03	2.5E+00			2.90E+02	3.4E-05
86-1	GM-North	INORG	Lead	7439-92-1	T	B2	1.00E-02	RFI-86-01	9/20/2001	4.00E-03	2.5E+00				
94-B	GM-South	VOC	1,1-Dichloroethene	75-35-4	T	C	7.50E-03	RFI-94-02R	4/4/2003	7.00E-03	1.1E+00	1.30E+00	5.8E-03	1.10E+01	6.8E-04
94-B	GM-South	VOC	Trichloroethene	79-01-6	T	C-B2	9.50E-01	RFI-94-02R	10/6/2004	5.00E-03	1.9E+02	9.70E+01	9.8E-03	2.20E+01	4.3E-02
BD01	GM-South	VOC	Benzene	71-43-2	T	A	8.70E-02	BD01-02R	12/13/2002	5.00E-03	1.7E+01	3.50E+01	2.5E-03	1.10E+01	7.9E-03
Harriet Street	GM-South	VOC	Benzene	71-43-2	T	A	4.40E-02	ACSP-B2A	7/16/2001	5.00E-03	8.8E+00	3.50E+01	1.3E-03	1.10E+01	4.0E-03

Notes:

Shaded cells represent ratios greater than 1.0

The Screening Criteria for Chromium VI was used as a surrogate for Chromium (total).

The concentrations for all PCB isomers were summed before comparing to Polychlorinated biphenyls (PCBs).

Chem Group - Chemical Group

Meas Basis - Measured Basis; T = Total, D = Dissolved

Carc Class - EPA Weight-of-Evidence Cancer Classification

Attachment 1: Maximum Groundwater Concentrations Exceeding Screening Criteria at GSI Locations
GMC: NAO Flint Operations Site, Flint, Michigan

Area	Property	Chem Group	Chemical	CASRN	Meas Basis	Carc Class	Analyzed	Detected	Max Detected (mg/L)	Location of Max Detected	Sample Date of Max Detected	Groundwater Surface water Interface Criteria (mg/L)	Ratio of Max Detected to Groundwater Surface water Interface Criteria
09-B	GM-South	VOC	Benzene	71-43-2	T	A	19	7	1.21E+00	RFI-09-13	10/4/2004	2.00E-01	6.1E+00
09-B	GM-South	VOC	Xylenes (total)	1330-20-7	T	ID	19	7	5.80E-02	RFI-09-13	10/4/2004	3.50E-02	1.7E+00
84-A	GM-South	INORG	Cyanide (total)	57-12-5	T	D	2	2	6.20E-02	RFI-84-06	5/21/2001	5.20E-03	1.2E+01
84-A	GM-South	INORG	Cyanide (total)	57-12-5	T	D	2	2	6.20E-02	RFI-84-06R	2/25/2005	5.20E-03	1.2E+01
84-A	GM-South	INORG	Cyanide (total)	57-12-5	D	D	2	2	7.10E-02	RFI-84-06R	4/2/2003	5.20E-03	1.4E+01
84-A	GM-South	INORG	Silver	7440-22-4	D	D	1	1	2.40E-04	RFI-84-06R	4/2/2003	2.00E-04	1.2E+00
94-B	GM-South	VOC	Trichloroethene	79-01-6	T	C-B2	6	3	9.50E-01	RFI-94-02R	10/6/2004	2.00E-01	4.8E+00

Notes:

Shaded cells represent ratios greater than 1.0

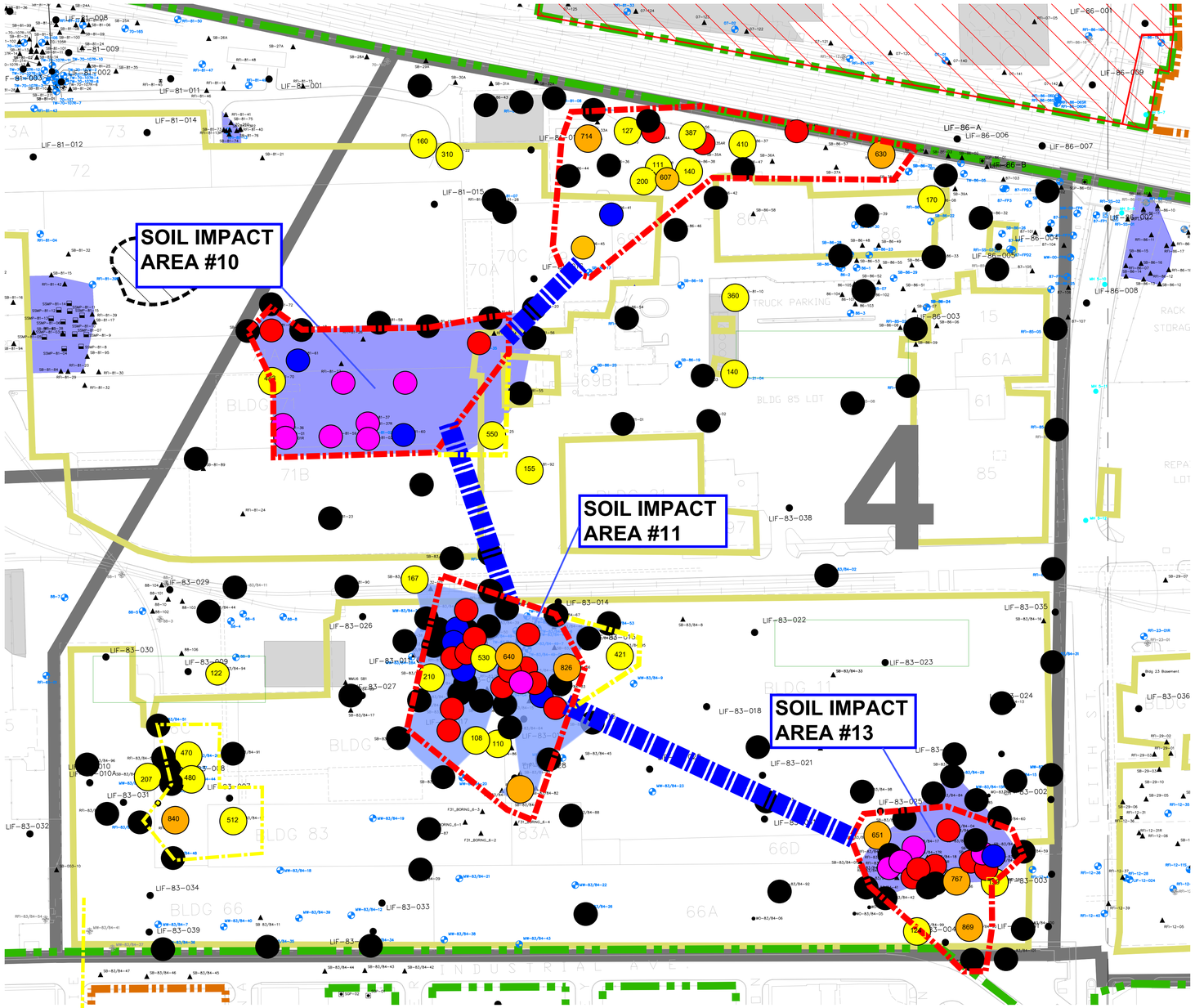
Chem Group - Chemical Group

Meas Basis - Measured Basis; T = Total, D = Dissolved

Carc Class - EPA Weight-of-Evidence Cancer Classification

Attachment C

Original Restrictive Covenant Extents and Proposed AOCs



LEGEND:

- SOIL PILES
- RESERVED PROPERTIES
- PROPERTY LINE
- FORMERLY OWNED RACER PROPERTIES SOIL
- BORING
- ABANDONED MONITORING WELL MONITORING
- WELL (ACTIVE)
- ORIGINAL RESTRICTIVE COVENANT EXTENT
- CONCRETE SLAB
- PROPOSED AOC EXTENT - 600 PPM
- PROPOSED AOC EXTENT - 400 PPM
- LEAD PRESENT >10,000PPM
- LEAD PRESENT >5,000PPM, <10,000 PPM
- LEAD PRESENT >900PPM, <5,000PPM
- LEAD PRESENT >600PPM, <900 PPM
- LEAD PRESENT >100PPM, <600 PPM
- LEAD DETECTED <100 PPM
- TRANSPORATION ROADWAY

RACER TRUST
BUICK CITY
FLINT, MICHIGAN

SI #10, SI #11, AND SI #13 ORIGINAL RC EXTENTS AND PROPOSED AOCS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
Att C