

RACER TRUST LANSING PLANTS 2, 3 & 6

Fourth Quarter 2019 Quarterly Progress Report
January 15, 2020

(Environmental reports are available for download from RACER's website –
<http://racertrust.org/Properties/Detail?Id=13001>)

Plant 2 1,4-Dioxane Conceptual Site Model (CSM) Update

Biosparge System

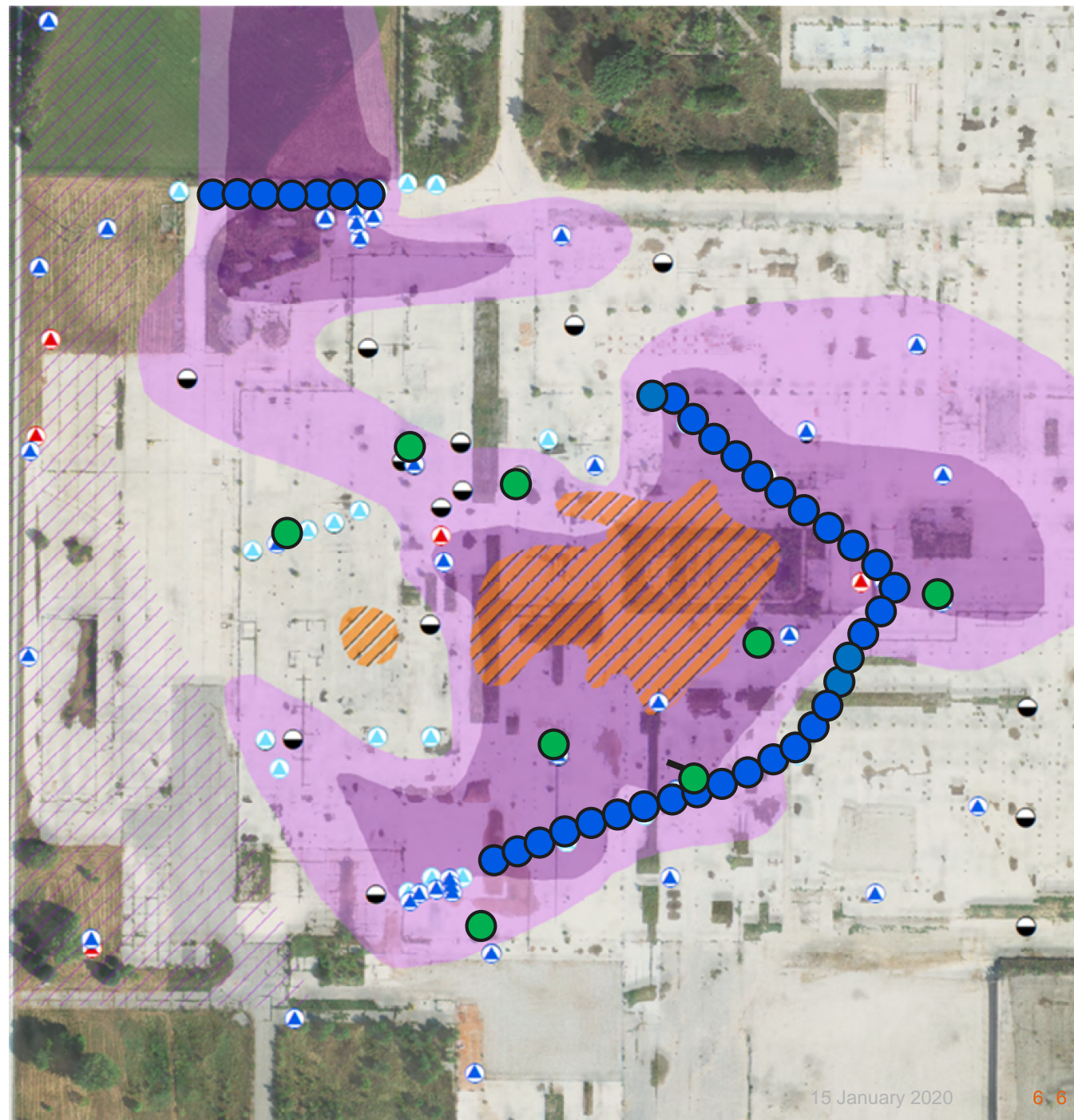
Plant 3 Operation Update

- Sparging 3-5 cubic feet per minutes (cfm) per well, three well zones, 1 hour sparging for each zone with 1 hour rest
- ~92% reduction in 1,4-dioxane observed in well TW-14-06, which is located in the radius of influence of the sparge wells, since June 2019
- Second round of performance sampling completed week of Dec 2



Plant 2 Biosparge System Update

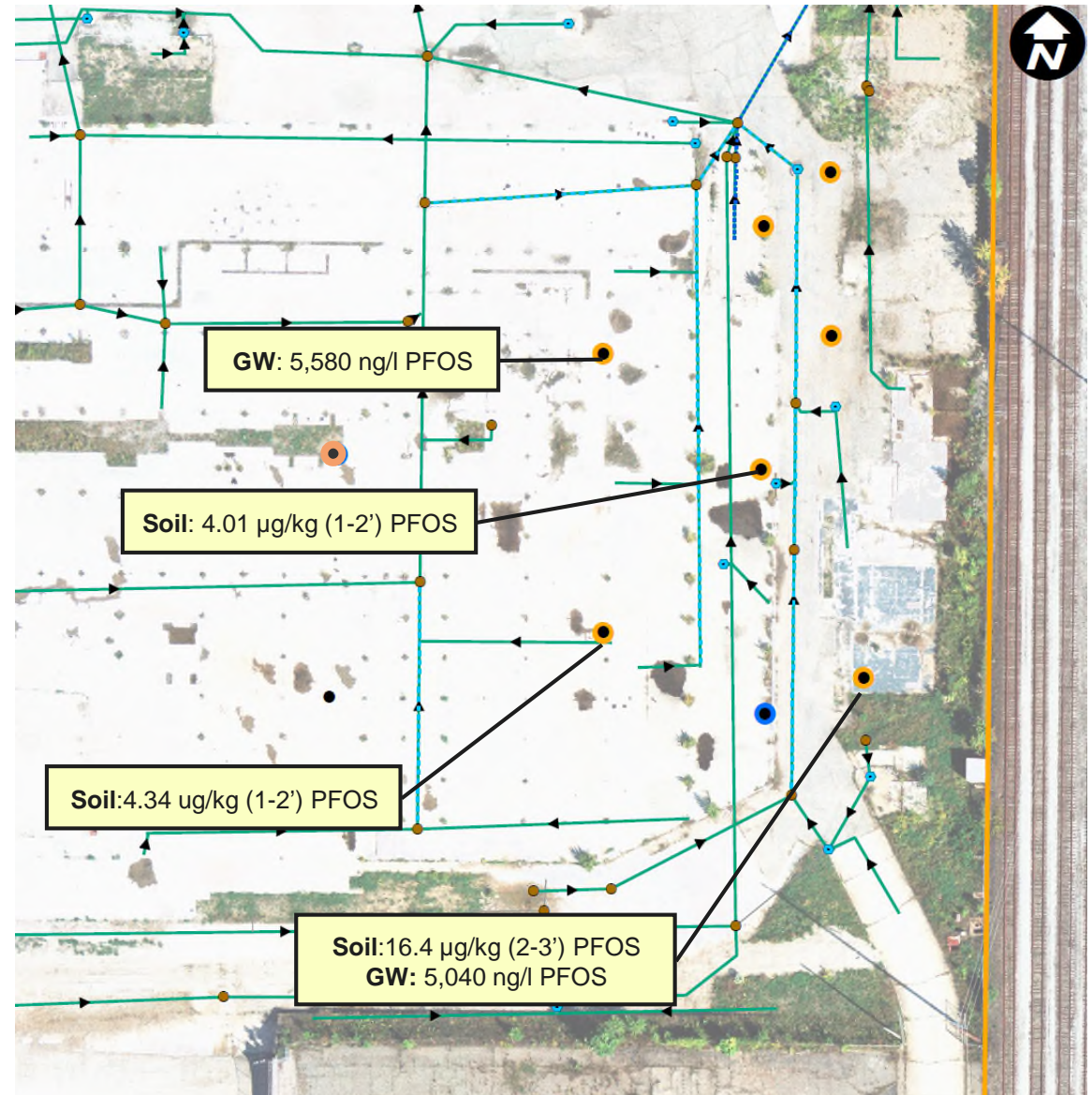
- Biosparge well installation completed in October
 - System equipment has been ordered
 - Finalizing request for proposal to install conveyance lines and expect it to go out for proposals during first quarter of 2020
 - On schedule for start up Summer 2020
- Sand lens and biosparge well complete
- New performance monitoring well



Investigation Updates

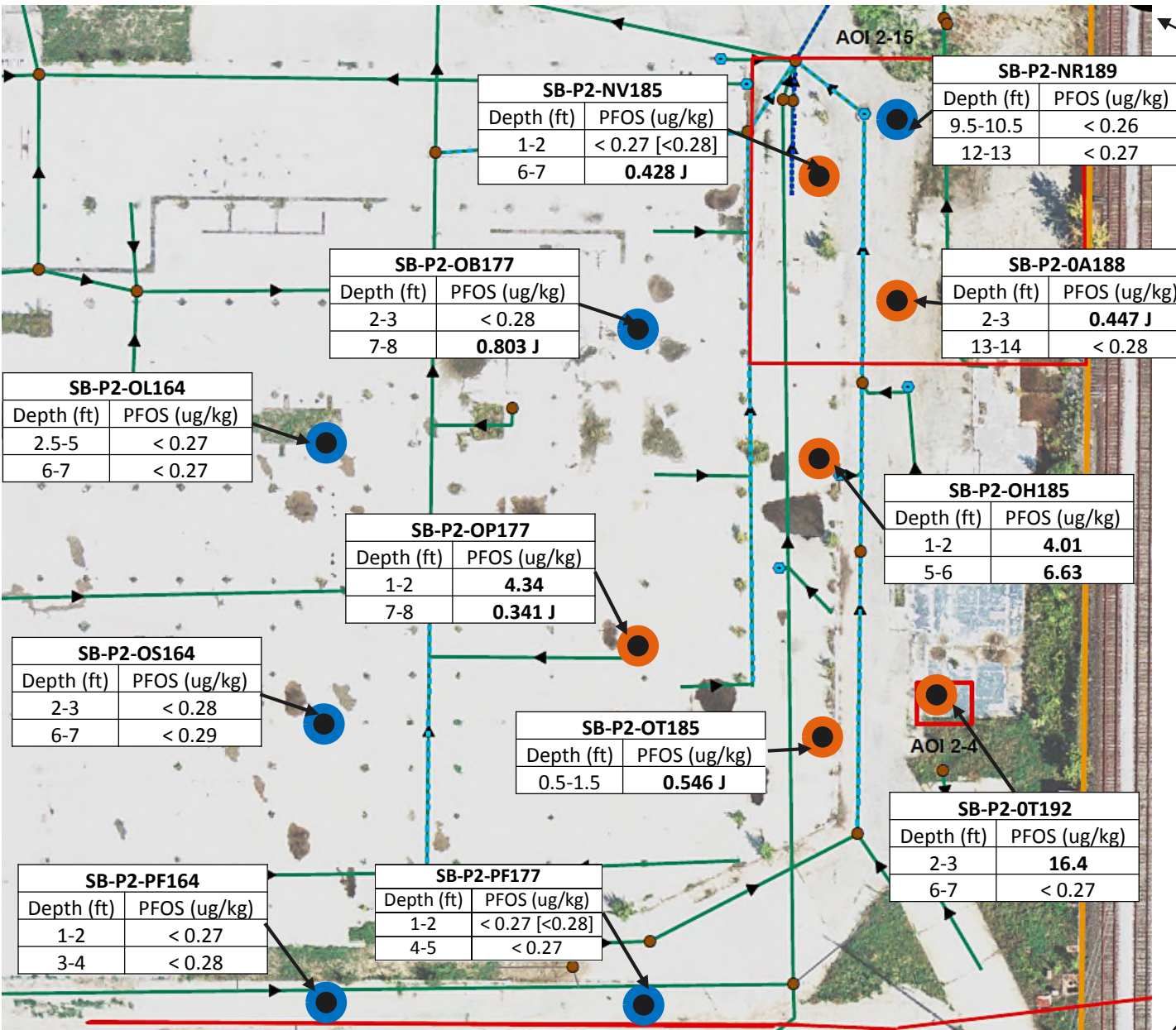
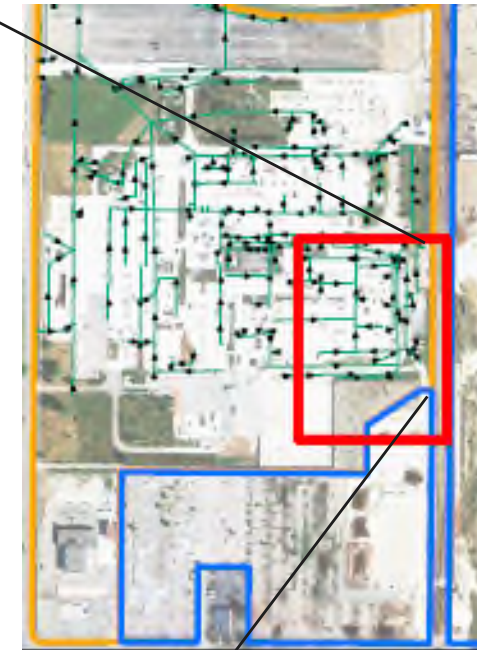
Plant 2 Southeast PFAS Investigation Summary

- Area of impact located in the middle of the Site
- Significant drop in concentration with depth
- Elevated concentrations present in vadose soils
- Currently considering objectives and need for additional characterization
- More details in the following two slides



Plant 2 Southeast PFAS – Soil

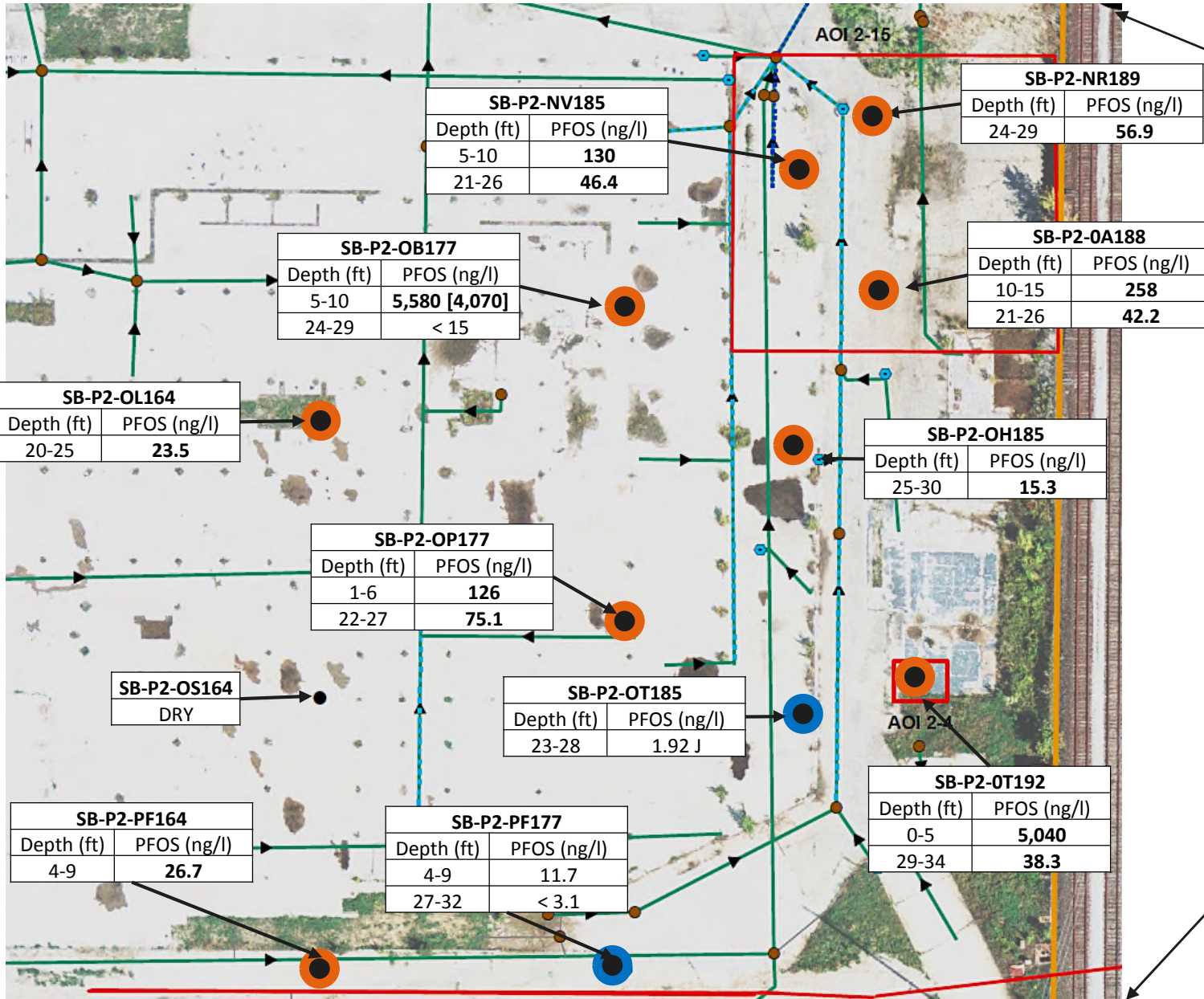
Plant 2



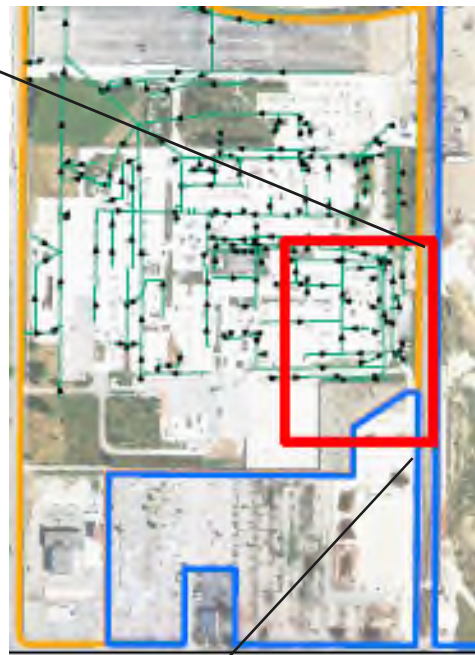
- PFOS < GSIP CRITERIA (0.24 ug/Kg)
- PFOS > GSIP CRITERIA (0.24 ug/Kg)
- VAP SOIL BORINGS
- CATCH BASIN TO REMAIN OPEN
- AREA OF INTREST
- MANHOLE

- PLANT 2 DRAINAGE NETWORKS**
- CENTRAL
 - ABANDONED
- PLANT 1**
- -

Plant 2 Southeast PFAS – Groundwater



Plant 2

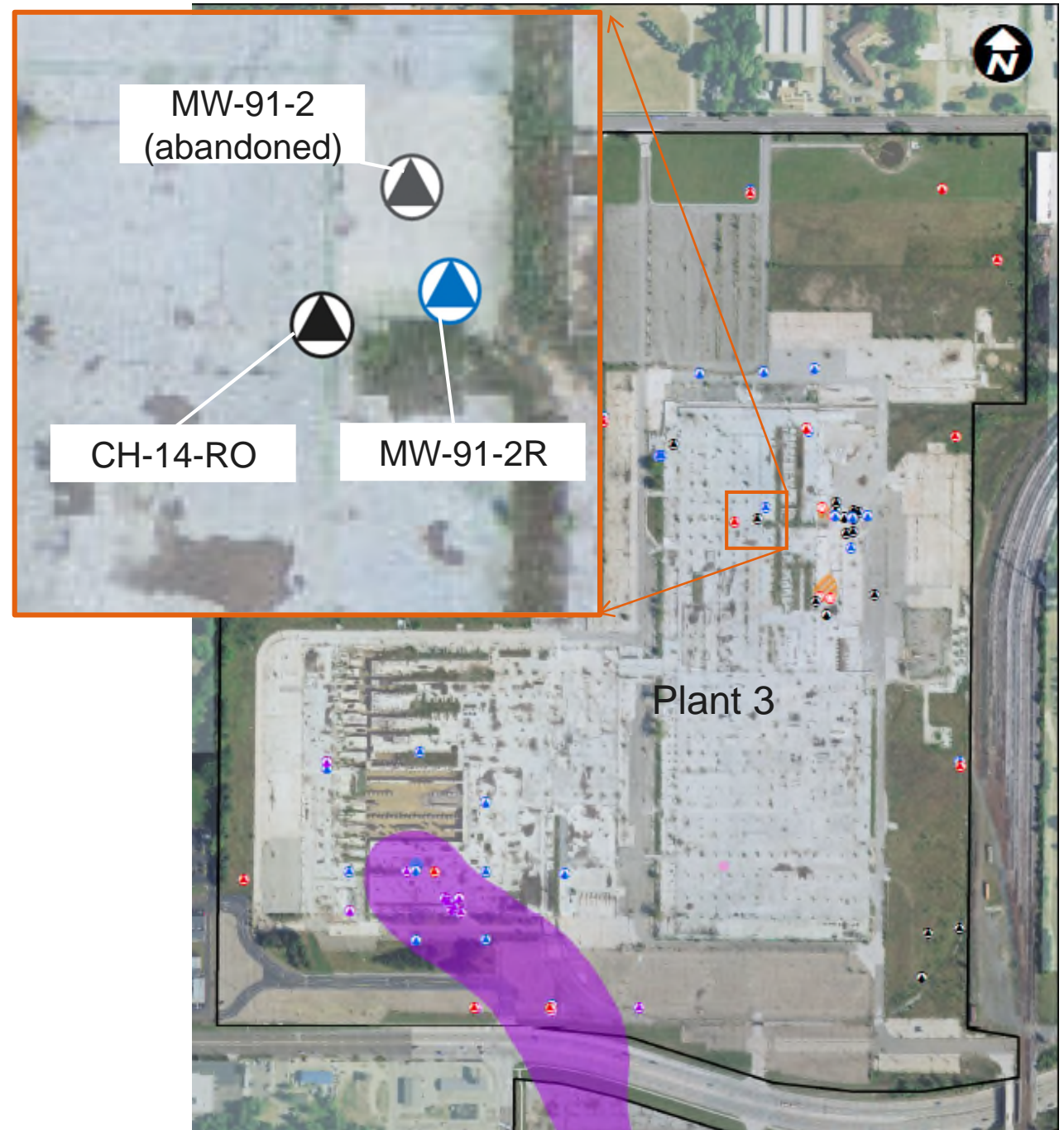


- WAF SOIL BORINGS
- PFOS < GSI CRITERIA (12 ng/L)
- PFOS > GSI CRITERIA (12 ng/L)
- CATCH BASIN TO REMAIN
- MANHOLE
- AREA OF INTEREST
- TRICKLE
- LITTLE
- PLANT 2 DRAINAGE
- CENTRAL
- ABANDONED
- PLANT 2
- PLANT 6

Plant 3

Abandoned deep overburden well MW-91-2 and replaced it with MW-91-2R.

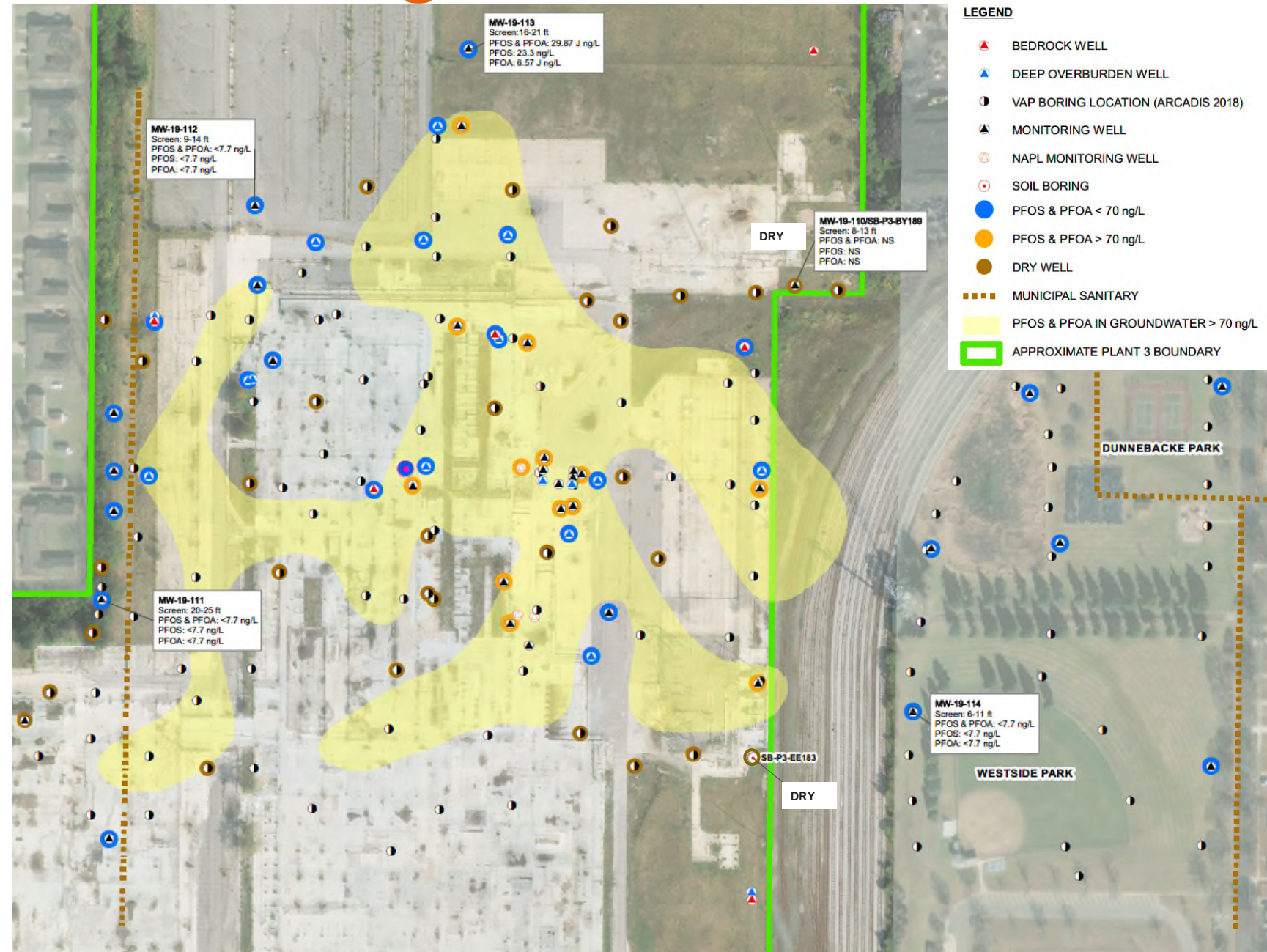
- Deep overburden well near the Plant 3 Per and Polyfluoroalkyl substances (PFAS) source area
- Suspected it was a defective monitoring well that may have been allowing vertical migration of perflourooctane sulfonate (PFOS) into the lower unit.
- Original well was abandoned and a new well installed using measures/techniques to ensure no vertical migration.



Additional Plant 3 Monitoring Well Installation and Sampling Results

Six borings completed:

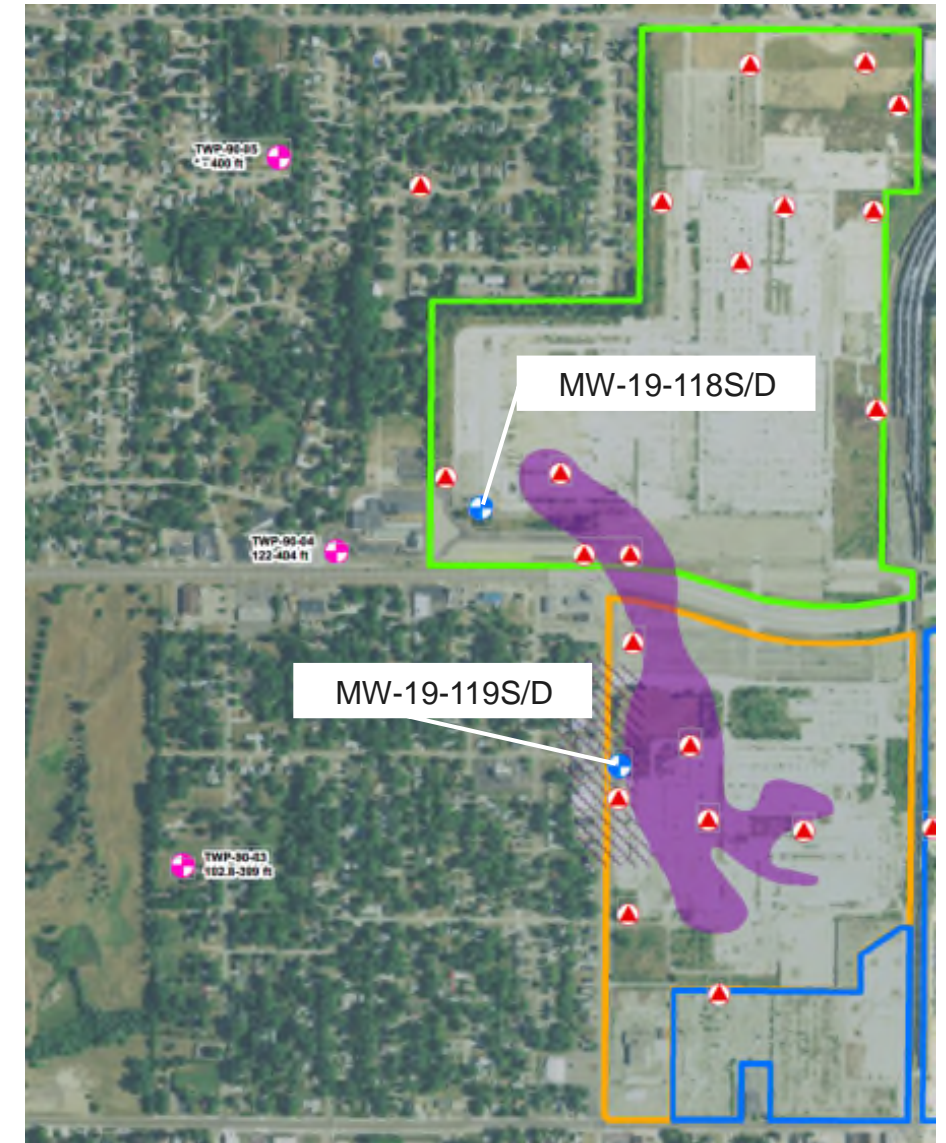
- 5 wells installed
- Boring EE183 Dry
- MW-19-110 Dry
- MW-19-113 above groundwater surface water interface (GSI) for PFOS, will continue to monitor
- Delineation of PFOS appears to be complete



Deep Bedrock Well Installation

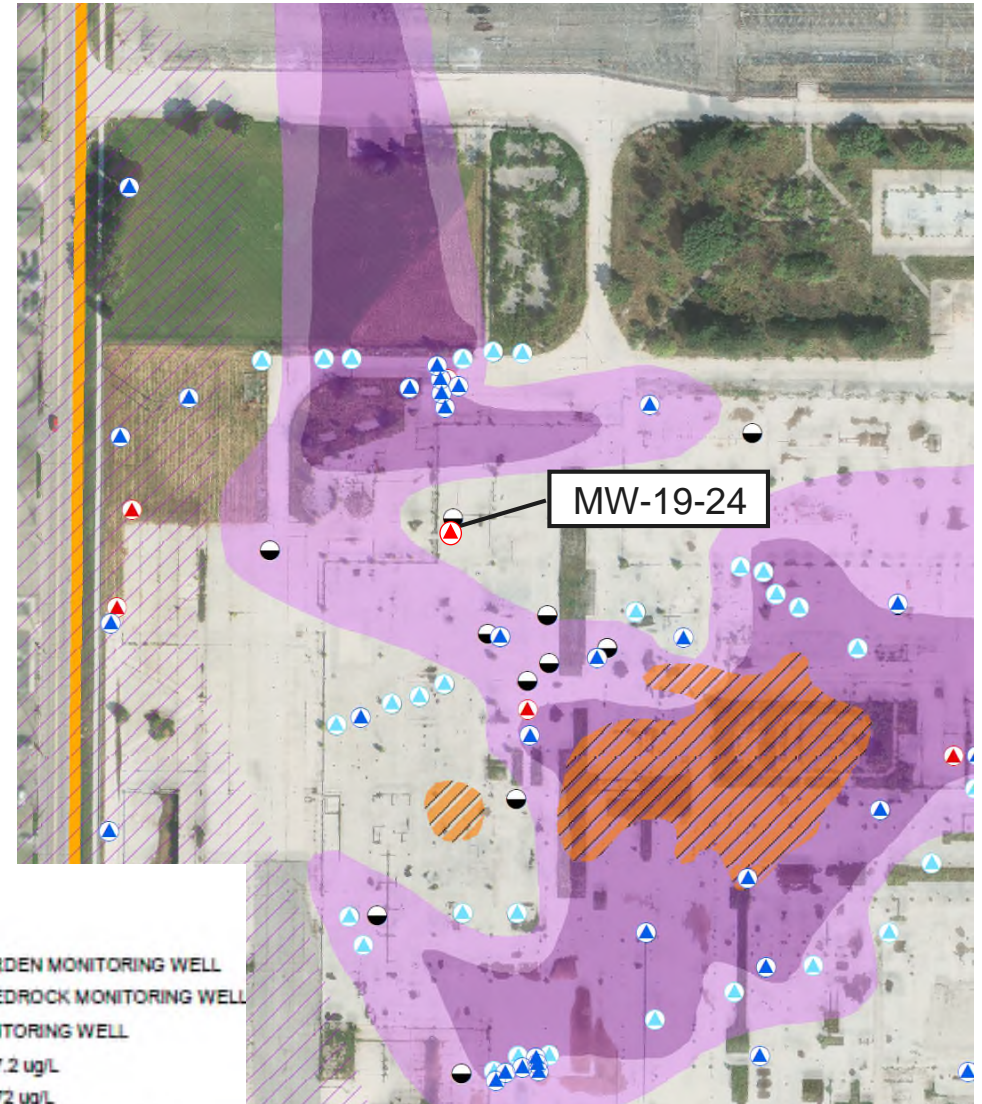
Nested bedrock wells installed to monitor deeper intervals of bedrock aquifer

- Boreholes advanced to 125 feet below ground surface (bgs) using rotary-sonic and air-rotary drilling. Steel casing installed to 125 feet bgs (similar to municipal wells).
- Air rotary drilling used to complete 6" diameter open boreholes from 125 feet to 200 feet bgs
- Geophysics suite used to determine screen intervals.
- Two 2" diameter wells with 15 feet screens installed in each borehole. Screen depths 145 feet to 160 feet bgs and 175 feet to 190 feet bgs.
- Wells will be sampled during first quarter 2020.











Additional Plant 2 Bedrock Monitoring Well Installation MW-19-124

- Weathered Sandstone at 72 feet bgs, competent at 74 feet bgs, interbedded shale (Saginaw Formation)
- Casing set at 100 feet bgs, total depth to 115 feet bgs
- Sampled in December 2019 during 4th quarter sampling event



LEGEND

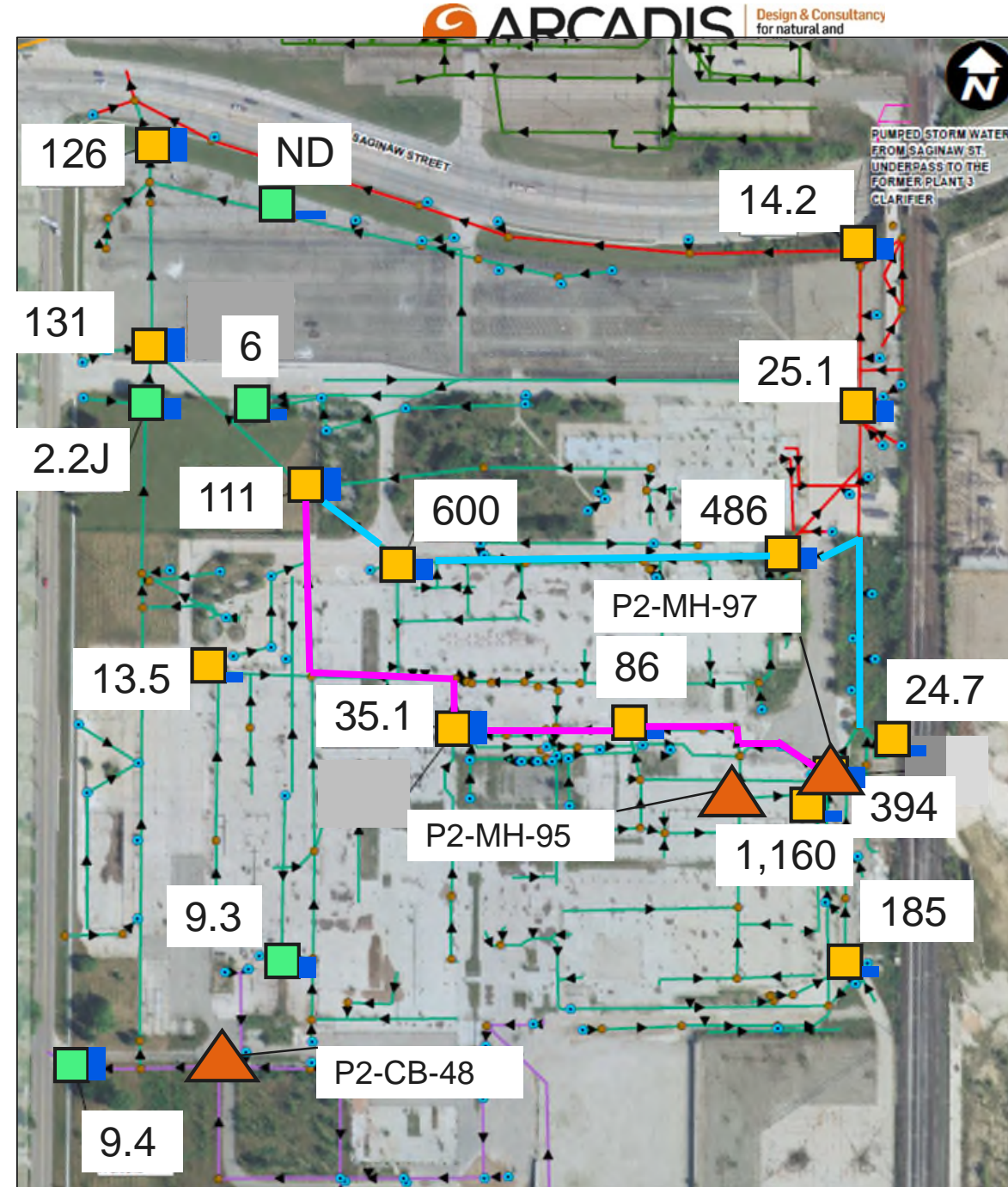
-  BIOSPARGE
-  DEEP OVERBURDEN MONITORING WELL
-  WEATHERED BEDROCK MONITORING WELL
-  BEDROCK MONITORING WELL
-  1,4-DIOXANE > 7.2 ug/L
-  1,4-DIOXANE > 72 ug/L
-  1,4-DIOXANE > 7.2 ug/L FROM APC
-  PLANT 2

Plants 2, 3, and 6 Storm Sewer Modifications to Eliminate Discharge of Storm Water Containing PFOS

Plant 2 PFOS Storm Water Results and Modifications

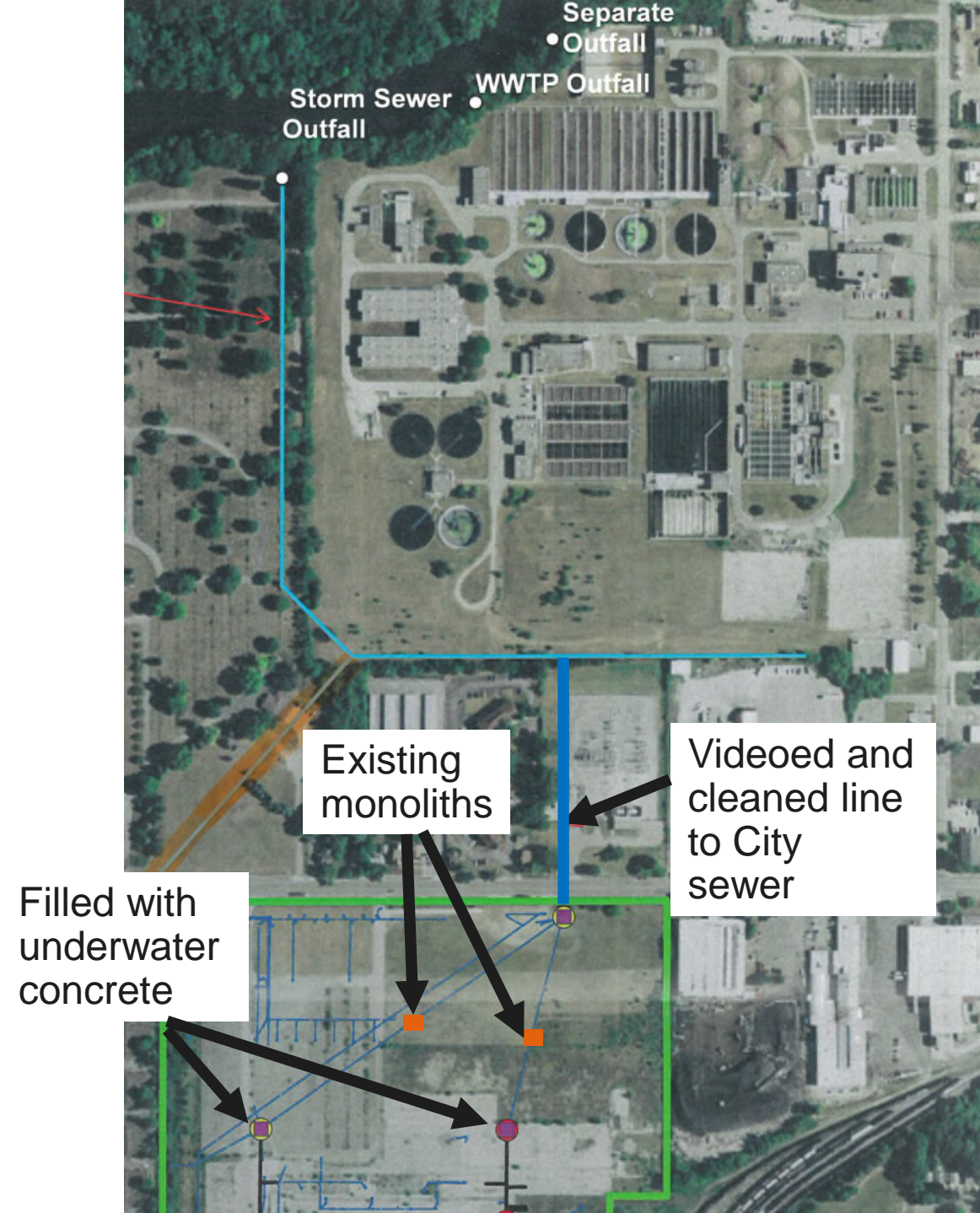
- Filled manholes P2-MH-97 and P2-CB-48 with underwater concrete to isolate and stop storm water flow from upstream portions of the Site storm sewer network
- Filled manhole P2-MH-95 with underwater concrete to mitigate the risk of a backup and bypass
- Cap catch basins in drainage area
- PFOS reductions will be assessed during 2020 in sewer network and at outfall to evaluate if additional modifications are necessary

9.3 Concentration of PFOS in storm water samples in parts per trillion (ppt)



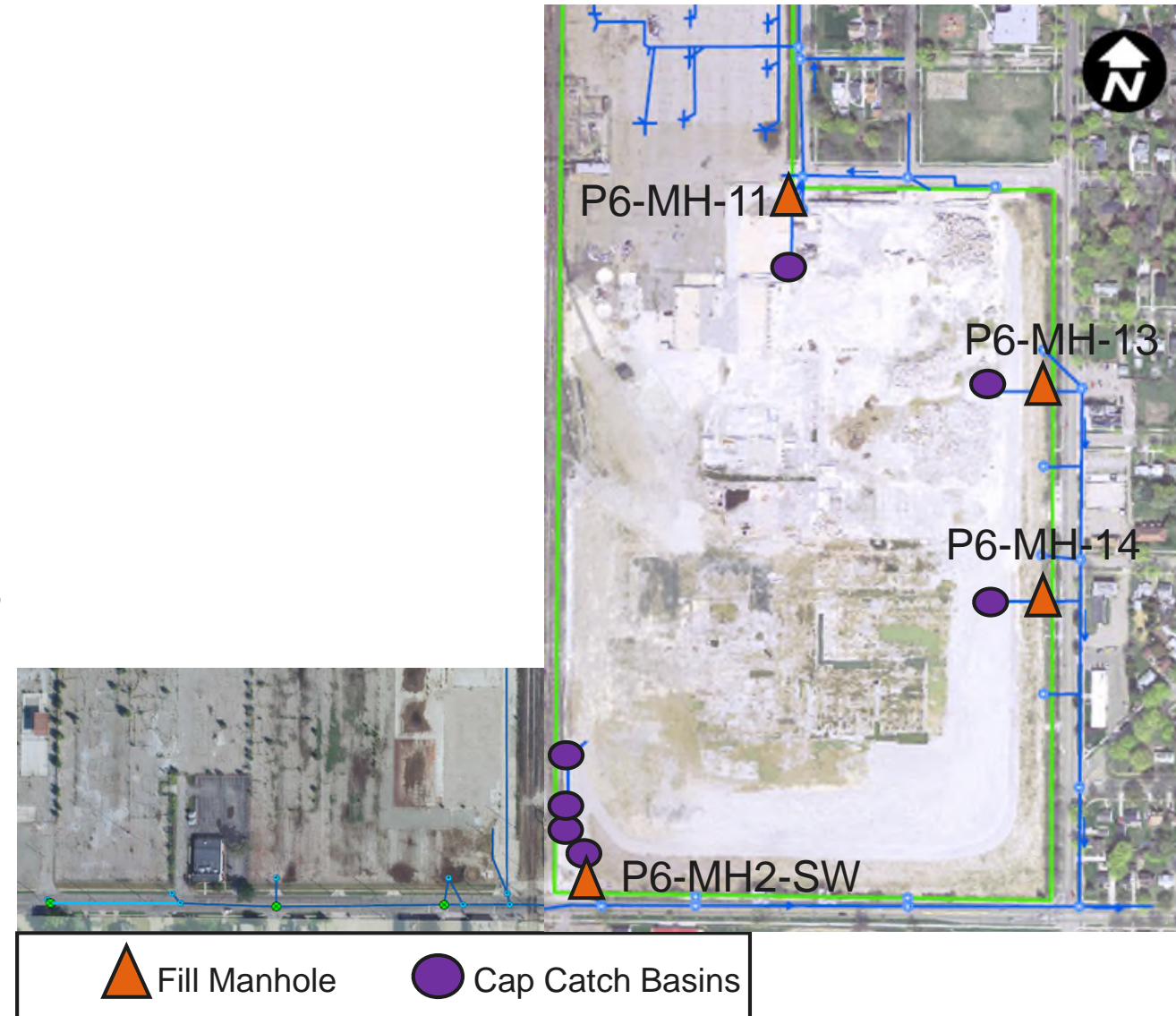
Plant 3 Modifications

- Videoed and cleaned the storm sewer lateral heading north to the north of Plant 3 Outfall
- Filled manholes upstream of the monoliths (i.e., plugs in the storm sewer construction trench and pipe) with underwater concrete
- Partially filled Plant 3 outfall structure with underwater concrete to eliminate discharge offsite and allow for observing/sampling any remaining discharge.
- PFOS reductions will be assessed during 2020 to evaluate if further modifications are necessary.



Plant 6 Modifications

- Filled manholes P6-MH-11, P6-MH-13, P6-MH-14, and P6-MH2-SW with underwater concrete to isolate and stop water flow from the upstream portions of the Site storm sewer network
- Capped catch basins upstream of all plugged manholes
- PFOS reductions in sewer network along Verlinden Street will be assessed in 2020 to evaluate if further modification are necessary.



Work Plans, Reports, Data Submitted, and Meetings

- 10/01/19 - Submitted MW-91-02 Well Abandonment Work Plan
- 10/03/19 - Submitted Vapor Intrusion Evaluation Work Plan
- 10/14/19 - Submitted 2019 Semi-Annual Groundwater Sampling Report
- 10/15/19 - Submitted Third Quarter 2019 Quarterly Progress Report
- 10/21/19 - Submitted Plant 6 Interim Measures Workplan - Storm Sewer Modifications
- 10/28/19 - Submitted Revised Interim Groundwater Monitoring Program Work Plan
- 12/05/19 - EGLE Update meeting in Lansing
- 12/12/19 - Submitted RACER Lansing - Southeast Plant 2 PFAS Investigation Summary Report
- 12/13/19 - Submitted RACER Lansing Plant 3 PFAS Monitoring Well Installation Report

Work in Progress and Anticipated Near-Term Milestones

Activity	Schedule
Biosparge	
Complete the Request for Proposal for Installation of the Plant 2 Biosparge System Conveyance Lines	First Quarter 2020
Begin Installation of Conveyance Lines and Other Above Grade Equipment for the Plant 2 Biosparge System	Second Quarter 2020
Continue operation and performance monitoring of the Plant 3 Biosparge System	Ongoing
Storm Sewer Corrective Actions	
Complete the Plant 2, 3 & 6 PFAS Remedy Storm Sewer Modifications Sampling and Follow Up Observations	First Quarter 2020
Implement the Plant 2 & 6 PFAS in Soil and Groundwater Additional Investigation Activities	Second Quarter 2020
Investigations and Sampling	
Implement the Plant 2 Vapor Intrusion Investigation Work Plan	February 2020
Complete the Sampling associated with the Plant 2 & 3 Soils Corrective Measures Work Plan	Second Quarter 2020
Complete the First Quarter 2020 Interim Groundwater Monitoring Plan	First Quarter 2020
Work Plans, Reports and Data Submitted, and Meetings	
Submit the Plant 2 Light Non-Aqueous Phase Liquid (LNAPL) Conceptual Site Model (CSM) to EGLE	First Quarter 2020
Submit the Plant 2 & 3 Soils Corrective Measures Work Plan	First Quarter 2020