

December 15, 2022

John T. Hunt  
Remediation and Redevelopment Program  
Wisconsin Department of Natural Resources  
101 N Ogden Road Suite A  
Peshtigo, WI 54157

**Subject: Well Installation Work Plan**

Former Amoco Oil Terminal  
2904 Winter Street  
Superior, WI 54880  
BRRTS # 02-16-000331

Dear Mr. Hunt:

Antea®Group, on behalf of BP Products North America Inc. (BP), received the Wisconsin Department of Natural Resources' (WDNR) Monitoring Well Replacement letter on November 9, 2022, for the parking lot expansion on the HCI Limited Property Partnership property operated by FedEx. The site is associated with the former Amoco Oil Terminal site BRRTS #02-16-000331. The letter requested the installation of two monitoring wells as replacements for the wells abandoned during the 2021 property development. The below work plan addresses the scope and schedule for installation of these replacement wells.

**Well Installation**

Two replacement well installation locations were requested in the November 9, 2022 WDNR letter, the first requested installation location was near former wells RW-06 and MW-23 and within the footprint of light non-aqueous phase liquid (LNAPL) Area of Concern (AOC) 5, and the second requested installation location was near former well EW-10 to monitor groundwater impact from LNAPL AOC 5. As-built property development information provided by BBJ Group in the Revised Cover or Barrier Maintenance Plan submitted on September 13, 2022 was reviewed to determine accessible areas suitable for well installation locations. Access to the FedEx property within the perimeter security fence will be coordinated with the property owner and FedEx manager. Wells will be installed using a hollow-stem auger drill rig, and the licensed driller will be chosen based on availability to complete the work.

RW-06/MW-23 Replacement

For the replacement well within LNAPL AOC 5, the former monitoring well MW-23 is located within the existing lined detention basin and a 3-ft slope surrounds the basin for surface water flow management. The basin is also lined with 30 MIL PVC Geomembrane, which serves as a barrier to prevent direct human contact with residual soil contamination. In order to maintain the integrity of this direct contact barrier, replacement wells cannot be installed on the eastern side of the parking lot within AOC 5. The suggested location for the replacement LNAPL monitoring well will be within the parking lot between the former locations of MW-23 and RW-06 as shown in **Figure 1**. The installation location will be subject to field location acceptability based on observed conditions and topography once onsite and after field consultation with the property owner/operator. Since the well will be

installed in an area of known LNAPL, the well will be installed with 4" diameter PVC and installed to bisect the water table elevation of 621 to 616 feet AMSL. The well will be installed with a 15-ft section of 0.01-inch slot screen from an elevation of 626 to 611 feet AMSL for a total depth of 26 feet below the ground surface. The completion of the well will be at-grade with a metal well box and concrete pad surrounding the well.

#### EW-10 Replacement

A replacement monitoring well within the vicinity of the former well EW-10 was requested to monitor the dissolved-phase groundwater impact from LNAPL AOC 5. Shallow groundwater in the vicinity of the site has historically been gauged to flow to the north/northwest through the Terminal property as shown in **Figure 2**. Installation directly to the north is not possible due to the location of the PVC-lined berm between AOC 5 and the property fence, beyond which AOC 4 is defined. The replacement is proposed to be installed to the south of former EW-10 in the location shown in **Figure 1** to monitor the groundwater conditions northwest (downgradient) from AOC 5. The installation location will be subject to change based on observed conditions and topography once onsite and after field consultation with the property owner/operator.

The well will be installed with 2" diameter PVC and installed to bisect the water table elevation of 621 to 616 feet AMSL. The well will be installed with a 15-ft section of 0.01-inch slot screen from an elevation of 626 to 611 feet AMSL for a total depth of 25 feet below the ground surface. The completion of the well will be above-grade with a metal protective casing installed in concrete.

#### **Well Development/Sampling**

Following well installation, both wells will be developed by purging at least 10 well volumes from the well via a disposable bailer. All purge water will be staged onsite prior to proper disposal. Following well development and after a minimum of 24 hours, groundwater samples will be collected from the monitoring wells, which do not have measurable LNAPL, and will be sent to Pace Analytical of Green Bay, WI for the analysis of PVOCs and Naphthalene by EPA method 8260. Well installation details and groundwater sampling results will be included in the 2023 Annual Monitoring Report for the Terminal site.

#### **Installation Schedule**

Contractor schedule estimates have been obtained from multiple drilling companies, and drilling will not be able to be scheduled before the end of the year. Due to expected adverse weather and soil frost conditions, well installation will be completed in Spring 2023.

Sincerely,



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Layne Kortbein

Project Manager

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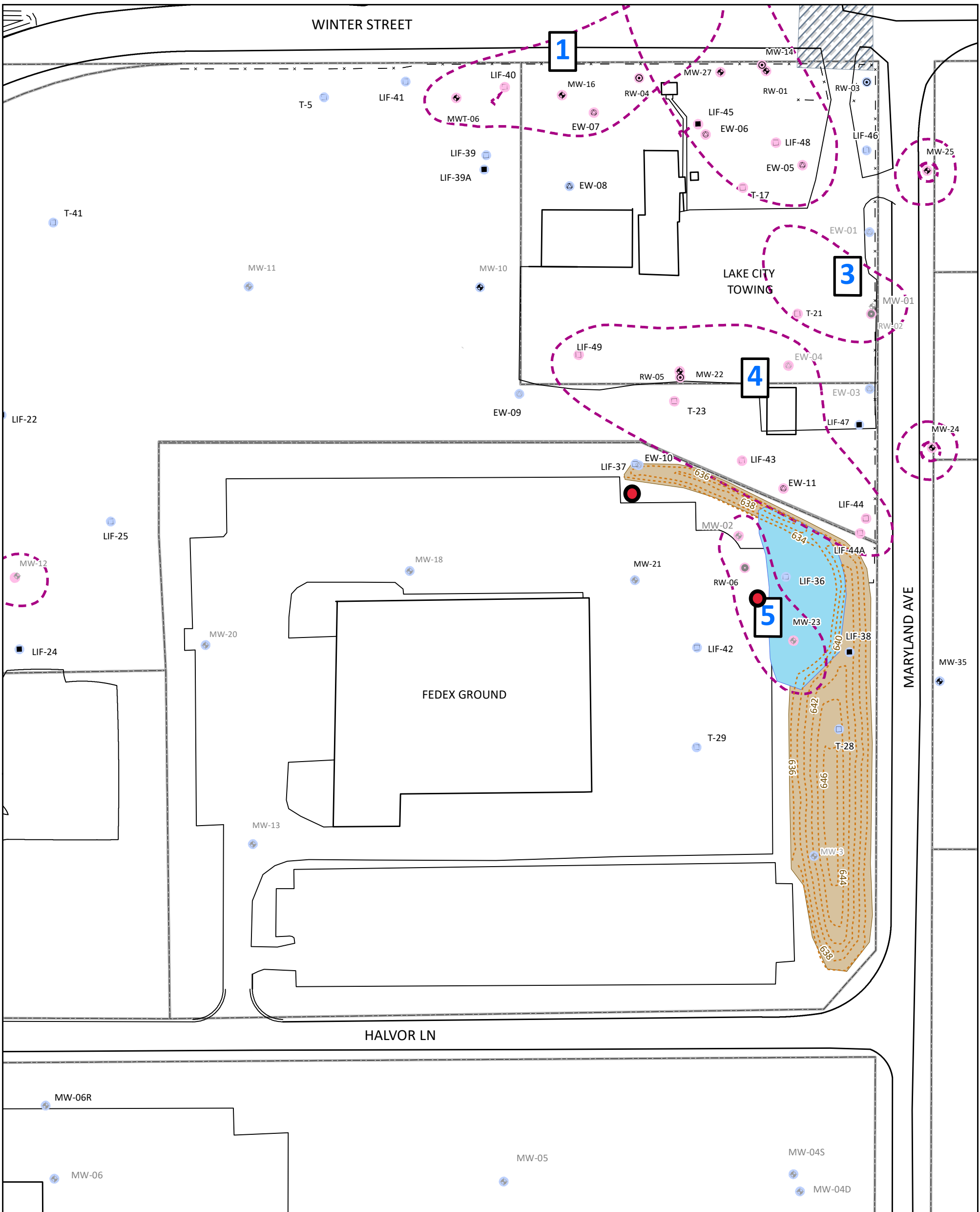
[layne.kortbein@anteagroup.us](mailto:layne.kortbein@anteagroup.us)

Antea Group

Attached:

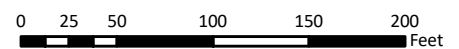
Figure 1 – FedEx Redevelopment As-Built

Figure 2 – Proposed Well Installation Locations



**Legend**

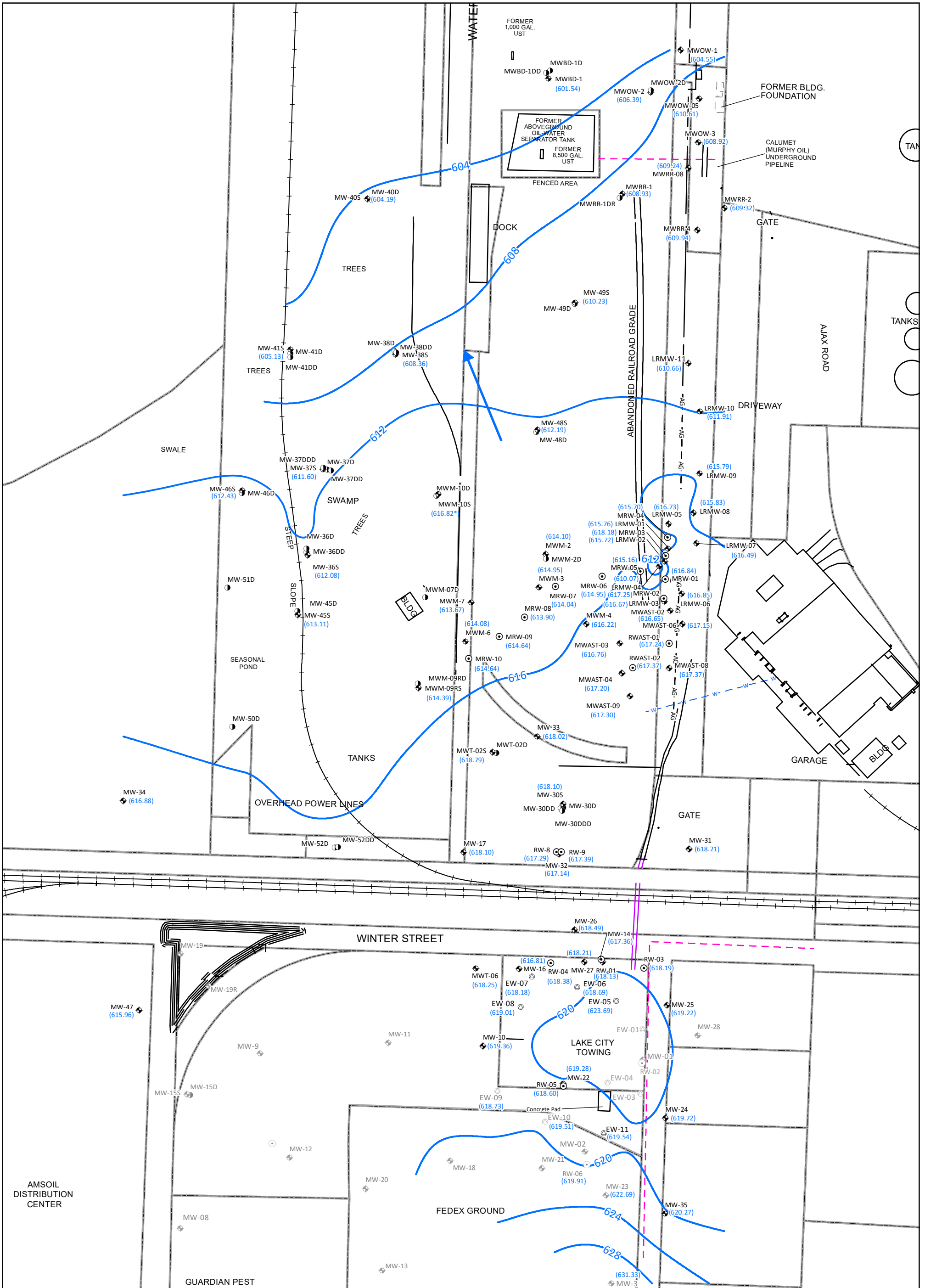
- ◆ Monitoring Well Location
- ◆ Abandoned Monitoring Well Location
- ⊙ Recovery Well Location
- ⊙ Abandoned Recovery Well Location
- ⊙ Extraction Well
- ⊙ Abandoned Extraction Well Location
- CPT-LIF Boring Location
- Points with LNAPL
- No LNAPL
- Berm Contour
- LNAPL Extent
- Lined Detention Basin
- Soil Berm
- Fence
- ▨ Location of Pipelines Abandoned in Place
- ▭ Property Boundary
- Proposed Well Installation Locations



**FIGURE 1**  
 PROPOSED FEDEX DEVELOPMENT REPLACEMENT WELLS  
 TERMINAL DETAIL  
 FORMER AMOCO TERMINAL  
 SUPERIOR, WISCONSIN

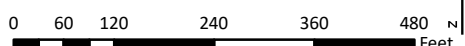
PROJECT NO. WISUP191	PREPARED BY SAA/MB	REF SCALE 1:1,200
DATE 11/17/2022	REVIEWED BY JZ	MAP SCALE 1 INCH = 100 FEET





**Legend**

- ◆ Monitoring Well Location
- ◆ Abandoned Monitoring Well Location
- Deep Monitoring Well Location
- Abandoned Deep Monitoring Well Location
- ⊙ Recovery Well Location
- ⊙ Abandoned Recovery Well Location
- ⊙ Extraction Well
- ⊙ Abandoned Extraction Well Location
- Groundwater Elevation Contour
- ➔ Inferred Direction of Groundwater Flow
- Former Site Feature
- Murphy Oil Pipeline
- Pipeline
- Railroad
- Property Boundary



**FIGURE 4**

GROUNDWATER CONTOUR MAP- MAY 24, 2021  
SHALLOW WELLS  
FORMER AMOCO TERMINAL  
SUPERIOR, WISCONSIN

PROJECT NO. WISUP191	PREPARED BY SAA/MB	REF SCALE 1:2,760
DATE 2/2/2022	REVIEWED BY JZ	MAP SCALE 1 INCH = 230 FEET

