# Preliminary Close Out Report
# MIDCO II Superfund Site, Gary, Indiana

## I. INTRODUCTION

This Preliminary Close Out Report documents that construction activities have been completed at the MIDCO II Superfund Site (known herein as "MIDCO II Site," "MIDCO II," and/or "Site") in accordance with *Close Out Procedures for National Priorities List Sites* (OSWER Directive 9320.2-22). The U.S. Environmental Protection Agency (EPA) identification number for the Site is IND980679559. Remedial activities are led by a group of potentially responsible parties (PRPs) known as the MIDCO Remedial Corporation. EPA and the Indiana Department of Environmental Management (IDEM) conducted a pre-final inspection on July 16, 2020 and determined that the PRPs have implemented the remedy in accordance with remedial design plans and specifications and no additional remedial construction is anticipated at the Site.

## II. SUMMARY OF SITE CONDITIONS

### Background

The MIDCO II Site is located on approximately 9 acres located at 5900 Industrial Highway in the City of Gary, Lake County, Indiana, as shown on Figure 1, with Site features presented on Figure 2. The Site is surrounded by industrial and commercial properties. MIDCO II is bordered on the northwest by a former auto salvage yard, on the north and northeast by a drainage ditch and railroad, on the east and southeast by vacant filled-in land owned by the Gary-Chicago Airport Development Zone, and by Industrial Highway to the south and southwest, beyond which is the Gary-Chicago Municipal Airport. The area further north of the Site towards Lake Michigan is occupied by steel-related industry. Much of the land between the Site and Lake Michigan has been in-filled with iron-ore slag material, with areas along the lake having up to 40 feet of buried slag. Residential properties are located approximately 1 mile southeast of the Site. Prior to MIDCO II operations, up to 10 feet of aluminum smelting waste was buried across much of the northern part of the Site and adjoining properties.

MIDCO II began waste operations in 1976 after operations were moved from the MIDCO I facility following a fire that destroyed MIDCO I. MIDCO II was used for temporary bulk liquid and drum storage of waste materials, neutralization of acids and caustics, and onsite disposal of liquids into pits, including an unlined filter bed with an overflow pipe discharging directly into the northern ditch. In 1977, a large fire destroyed equipment, buildings, and an estimated 50,000 to 60,000 drums containing chemical wastes, resulting in additional spillage. Releases of waste materials from these activities resulted in soil and groundwater contamination.

The following constituents were identified at the Site: volatile organic compounds (VOCs), semi-volatile organic compounds such as polyaromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), and inorganic constituents.

The Remedial Investigation (RI) at the Site included an evaluation of Site hydrogeology, along with extensive sampling of groundwater, source area subsurface soil, and surface sediments in surrounding wetlands. The RI demonstrated that the source area soils and the groundwater near the Site were highly contaminated. The groundwater results exceeded the Safe Drinking Water Act maximum contaminant levels for the following contaminants:

| | | |
|---|---|---|
| benzene | chromium | 4-methyl-2-pentanone |
| 1,1-dichloroethylene | cyanide | 1,1,2-trichloroethane |
| 1,2-dichloropropane | lead | 1,2-dichlorobenzene |
| ethyl benzene | mercury | butylbenzyl |
| methylene chloride | silver | phthalate |
| tetrachloroethylene | selenium | aluminum |
| toluene | thallium | antimony |
| 1,1,1-trichloroethane | copper | iron |
| trichloroethylene | bis(2-ethylhexyl)phthalate | nickel |
| vinyl chloride | trans-1,2-dichloroethylene | zinc |
| xylene | acetone | vanadium |
| arsenic | bis(2-chloroethyl)ether | manganese |
| barium | 2-butanone | PCBs |
| beryllium | chloroform | phenol |
| cadmium | 1,1-dichloroethane | |

Other constituents detected included:

| | | |
|---|---|---|
| chlordane | 2,4-dimethylphenol | isophorone |
| cresol | di-n-butylphthalate n- | PAHs |
| 1,4-dichlorophenol | nitrosodiphenylamine | pentachlorophenol |

The risk assessment conducted during the RI demonstrated that the Site posed unacceptable cancer risks and/or non-cancer hazards for the following exposure scenarios: consumption of contaminated groundwater and direct contact exposure to soils.

In 1981, EPA installed a fence around the initial source area. In 1984 and 1985, EPA removed drums, tanks, and surficial wastes from the Site. In 1985, contaminated soil and sludge material impacted by PCBs and cyanide was excavated from the sludge pit and filter bed and temporarily staged on the Site. EPA placed the Site on the National Priorities List in 1986. From 1985 to 1989, a group of Settling Defendants completed an RI and a Feasibility Study. EPA selected a remedial action for the Site in a 1989 Record of Decision (ROD). EPA, the State of Indiana, and several Settling Defendants (a group of PRPs) entered into a Consent Decree (CD) in January 1992 for the design and implementation of the selected remedy at the Site. The CD included a Statement of Work that described the work to be completed, and which considered EPA's proposed changes to the remedy. The proposed changes to the remedy were finalized when EPA issued a ROD Amendment in April 1992. EPA later issued four Explanations of Significant Differences (ESDs) to document other significant changes to the remedy: ESD #1 (1996), ESD #2 (1999), ESD #3 (2004), and ESD #4 (2015).

## Selected Remedy

Remedial Action Objectives

The remedial action objectives used to select the remedial action in the 1989 ROD, as revised by the 1992 ROD Amendment and four ESDs, are:

- Eliminate direct contract threat from contaminated source area soil and sediments.
- Treat the principal threat in soil to substantially reduce the threat of groundwater contamination and the direct contact threat.
- Prevent offsite migration of contamination in groundwater.
- Assure that contaminants do not adversely affect biota.
- Clean up groundwater to groundwater cleanup action levels (GWCALs).

Selected Remedy

The Selected Remedy for the Site, as specified in the 1989 ROD as amended by the 1992 ROD Amendment and further revised by four subsequent ESDs, includes the following remedy components:

- Excavation of contaminated sediments and underlying soils in defined wetland areas to achieve soil/sediment cleanup action levels (CALs), and consolidation of the excavated materials onsite.
- Construction, operation and maintenance (O&M) and monitoring of a groundwater pump-and-treat (P&T) system to contain contaminated groundwater, and to achieve GWCALs.
- Construction, O&M and monitoring of a deep injection well ("Deep Well") for disposal of the contaminated groundwater following treatment.
- Treatment of contaminated soil by soil vapor extraction/air sparging (SVE/AS) to achieve at least a 97% reduction in VOCs.
- Excavation or solidification/stabilization of the soil most highly contaminated by metals and cyanide.
- Construction of a final cover, with access restrictions, deed restrictions, and monitoring.
- Temporary shutdown of the groundwater P&T system in 2010 to allow an evaluation of the feasibility of monitored natural attenuation (MNA) to achieve GWCALs.
- Construction of an appropriate cover over contaminated soil/sediments.

## Remedial Construction Activities

The Selected Remedy at the Site was implemented in three separate operable units (OUs).

Groundwater remedy – OU1

The P&T system and the Deep Well was designed, constructed, and tested from 1992-1996. The P&T system was initiated in January 1997 and was operated continuously until 2010. Treated water was pumped via underground pipeline to the Deep Well located on property owned by the Indiana Department of Transportation adjacent to the MIDCO I Superfund

Site located approximately 2.5 miles southwest of the Site. In September 2010, EPA allowed the PRPs to temporarily shut down the P&T system to evaluate the potential for MNA to address the remaining groundwater contamination at the Site.

An updated list of site-specific background constituents was finalized in a statistical analysis completed in 2012. The purpose of this analysis was to identify background-related inorganic constituents detected in Site groundwater during five annual monitoring events (2005 to 2011). Based on this document and ESD #4, the following constituents were excluded from well-by-well cumulative risk calculations at the MIDCO II Site: arsenic, barium, cadmium, chromium, manganese, mercury, thallium, vanadium, and iron. ESD #4 also added 1,4-dioxane as a contaminant of concern at the Site.

Soil and sediment remedy – OU2

Contaminated sediments and soils in the ditch north of the Site were partially excavated in 1993-1994. The excavated materials were consolidated onsite and covered by a plastic liner. Some unexcavated soils/sediments remained in the ditch area above the soil/sediment CALs. As an interim measure, the unexcavated soils/sediments left in place were enclosed within a fence. Also, stormwater was diverted around the contaminated soils/sediments until design and implementation of the final cover.

An SVE/AS system was installed and operated from March 2006 until May 2013. Vapor monitoring indicated that this system had achieved the required 97% reduction in soil gas VOC concentrations, including results from July 2010. The PRP, however, continued to operate the SVE/AS system until May 2013 in an effort to achieve additional reductions in contaminant concentrations to protect groundwater. During the construction of the SVE/AS system, affected soils/sediments above the CAL were redistributed and covered by a vapor barrier and clean fill. These excavated materials were ultimately contained beneath the final cover (OU3).

In-situ chemical oxidation (ISCO) was implemented to treat one area of cyanide-contaminated soils that exceeded CALs in the south-central portion of the Site (just north of Industrial Highway in the vicinity of monitoring well MW-1) in order to prevent cyanide migration to groundwater. ISCO was implemented within the upper 10 feet of saturated thickness (5 to 15 feet below ground surface) of the uppermost aquifer through gravity injection of an uncatalyzed hydrogen peroxide solution via injection wells followed by soil mixing. That work was completed in 2014.

Final Cover – OU3

The final cover was completed in November 2015 and encompasses an area of 12 acres, including the sediment area that was partially excavated in 1993-94. The final cover minimizes the infiltration of precipitation through the soil and serves as a barrier to human and animal direct contact exposure. The final cover consists of the following layers, descending from the ground surface:

- 24-inch (minimum) soil protective layer comprised of topsoil to promote vegetation growth.
- 18-inch (minimum) compacted clay protective layer.

- Double-sided geo-composite drainage layer.
- 40-mil high-density polyethylene geomembrane directly over the covered soil/sediments.

Visibly impacted debris was discovered in the proposed stormwater management area during site preparation activities in May 2015. The debris was excavated and transported off-site for disposal in December 2016. Cover vegetation was fully established by November 2016. Stormwater management structures were completed in February 2017.

## III. DEMOSTRATION OF CONSTRUCTION QUALITY ASSURANCE/QUALITY CONTROL

Sampling and analysis throughout the investigation and cleanup process was conducted according to the relevant quality control and quality assurance procedures in place at the time. Quality assurance project plans were developed by the PRP and reviewed and approved by EPA and IDEM to ensure appropriate quality control and quality assurance procedures for sampling and laboratory analysis of cleanup confirmatory sampling. In addition, EPA's oversight contractor provided field oversight of remedial action activities. This oversight has included review of written plans, procedures, and reports, review of sampling activities and sampling results, and Site visits to oversee remedial activities and construction. Once construction activities were initiated, biweekly conference calls were held to assess the progress of the remedial action activities and to assure adherence to the approved plans and specifications.

## IV. SCHEDULE OF ACTIVITIES FOR SITE COMPLETION

All preliminary completion requirements for the Site have been met as specified in OSWER Directive 9320.2-22. Specifically, EPA conducted a pre-final inspection on July 16, 2020, which verified that construction activities planned as part of the remedial action had been completed.

Activities scheduled for the Site include continued groundwater monitoring on a yearly basis, O&M of remedy components, and the implementation of additional institutional controls (ICs). ICs are required at this Site to ensure the protectiveness of the remedy and are called for in the ROD, ROD Amendment, ESDs, and in the Consent Decree for the Site. ICs are required to prohibit excavation in areas where contaminated sediment and soil remain in place under a soil cover and to protect the final soil cover. ICs are also required to prohibit the use of groundwater as a drinking water source, prohibit installation of wells, and to prohibit drilling of new wells to be used as a source of potable water. Long-term stewardship (LTS) of the ICs, once fully implemented, will be performed by the PRPs. Some ICs are already in place, including:

- City of Gary ordinance prohibiting groundwater use.
- Environmental restrictive covenants for some properties to protect remedy components.

Ongoing remedy components requiring inspection and maintenance are addressed in the October 2011 Site Closure Plan, prepared by the PRPs' consultant, AECOM. These

components include:

- Site security and roads.
- Final cover, including vegetative cover.
- Stormwater management system.
- Monitoring wells.

Remaining activities at the Site are shown in the table below.

**Remaining Activities for MIDCO II Site**

| Activity | Schedule | Responsible for Implementation |
|---|---|---|
| Groundwater Monitoring | Ongoing annual monitoring | PRPs |
| O&M | Ongoing per the October 2011 Site Closure Plan | PRPs |
| Five-Year Reviews | Ongoing | EPA |
| Implement ICs as needed, including LTS for implemented ICs | Ongoing | PRPs |

## V. Five-Year Reviews

All remedial action construction activities at the Site have been completed, and hazardous substances, pollutants or contaminants will remain on Site above levels that allow for unlimited use and unrestricted exposure. Pursuant to Section 121(c) of CERCLA and as provided in EPA's 2001 *Comprehensive Five-Year Review Guidance*, EPA has so far conducted five statutory five-year reviews at the Site to evaluate the performance of the Selected Remedy and determine if it continues to be protective of human health and the environment. The next five-year review will be completed no later than January 14, 2025.

9/4/2020

X

Douglas Ballotti, Director
Superfund & Emergency Management Division
Signed by: DOUGLAS BALLOTTI

# FIGURES


Source:
Highland, Indiana (2001)
USGS 7.5 Minute Series
Quadrangle Map

AECOM

| | | | |
|---|---|---|---|
| MIDCO SITE II<br>GARY, INDIANA<br>PROJECT NO. | | | SITE LOCATION MAP |
| DATE: 7/2018 | DRWN: | | FIGURE 1 |

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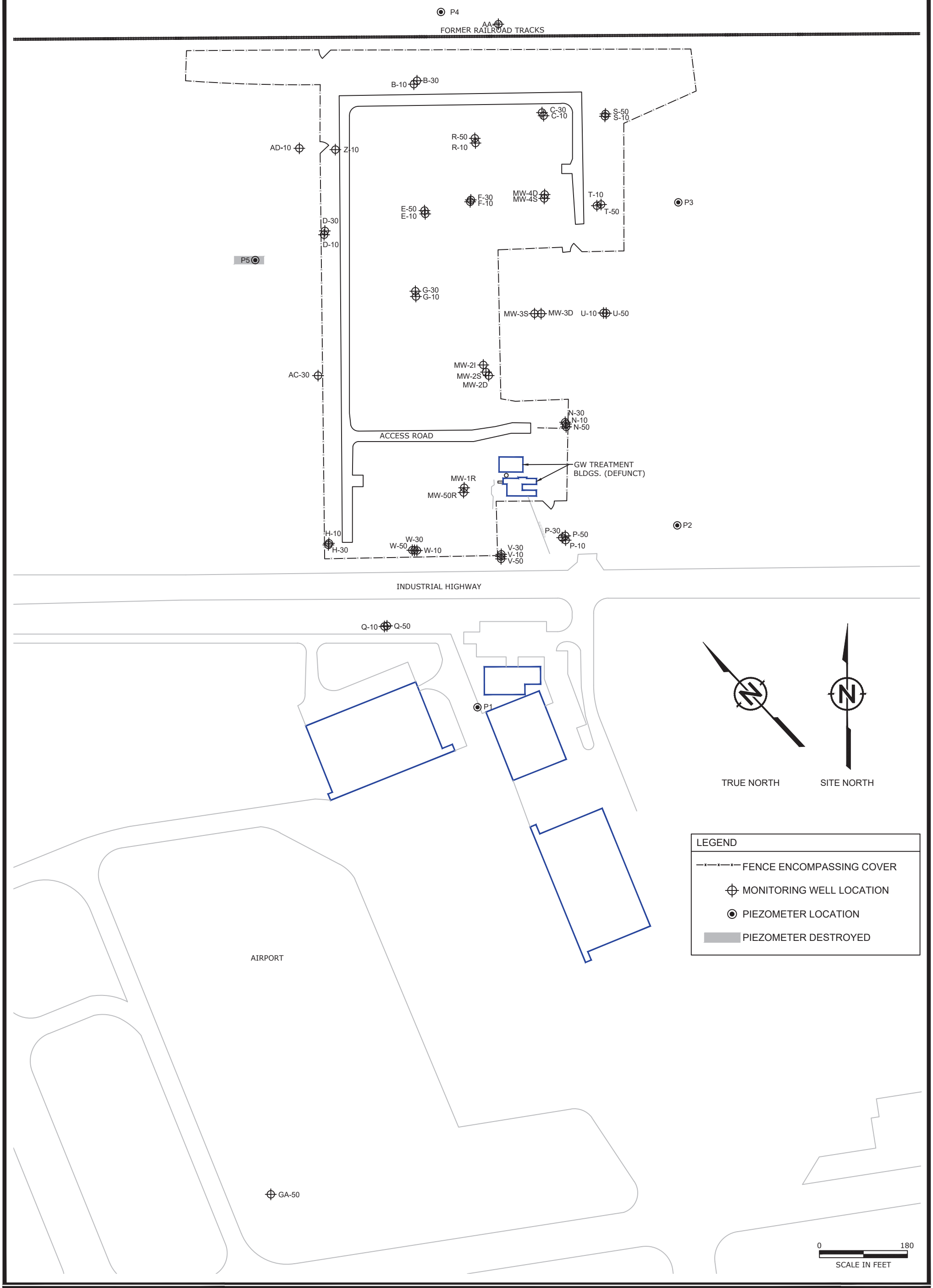


RAMBOLL

DRAFTED BY: CKL | DATE: 2/28/20

# SITE FEATURES MAP

MIDCO II
GARY, INDIANA

FIGURE
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