PRELIMINARY ENVIRONMENTAL ASSESSMENT
FOR
PROPOSED AIRPORT DEVELOPMENT
AT

General Mitchell International Airport
Milwaukee, Wisconsin

Prepared by:
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One Systems Drive
Appleton, WI 54914-1654

APRIL 19, 2024

under contract with
MILWAUKEE COUNTY

The Proposed Action Includes the following:

- Decommissioning of Runway 13/31
- Removal of Taxiway G, Taxiway U, and Taxiway N connectors
- Removal of runway and taxiway pavement and electrical utilities

This Environmental Assessment has been prepared to assess the environmental impacts of the Proposed Action.

This environmental assessment becomes a federal document when evaluated and signed by the responsible Federal Aviation Administration (FAA) official.

Preliminary
April 19, 2024

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Responsible FAA Official Date

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LIST OF ACRONYMS AND ABBREVIATIONS

AAC	Aircraft Approach Category
ADG	Airplane Design Group
AEAs	Agricultural Enterprise Areas
AHI	Architecture History Inventory
Airport	General Mitchell International Airport
ALP	Airport Layout Plan
APE	Area of Potential Effects
ATC	Air Traffic Control
ATCT	Air Traffic Control Tower
BOA	Wisconsin Department of Transportation - Bureau of Aeronautics
BMP	Best Management Practices
BRRTS	Bureau for Remediation and Redevelopment Tracking System
CAA	Clean Air Act
CBRA	Coastal Barriers Resource Act
CBRS	Coastal Barriers Resource System
CEQ	Council of Environmental Quality
CLEAN	Contaminated Lands Environmental Action Network
County	Milwaukee County
CWA	Clean Water Act
CY	Calendar Year
DNL	Day-Night Average Sound Level
DOT	United States Department of Transportation
EA	Environmental Assessment
ECIP	Erosion Control Implementation Plan
ECOS	Environmental Conservation Online System
ECP	Erosion Control Plan
EIS	Environmental Impact Statement
EJScreen	Environmental Justice Screening and Mapping Tool
EPA	Environmental Protection Agency
ERIS	Environmental Risk Information Services
ERP	Environmental Repair Program
ESA	Environmental Site Assessment
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act

GHG	Greenhouse Gas
GIS	Geographic Information System
IPaC	Information for Planning and Consultation
LCA	Life-Cycle Assessment
LTA	Land Type Association
MIRLs	Medium Intensity Runway Lights
MPU	Master Plan Update
MSL	Mean Sea Level
MT	Metric Tons
NAAQS	National Ambient Air Quality Standards
NAVAIDs	Navigational Aids
NEPA	National Environmental Policy Act
NHI	Natural Heritage Inventory
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRHP	National Registry of Historic Places
NRI	Nationwide Rivers Inventory
PAPI	Precision Approach Path Indicator
PCI	Pavement Condition Index
PFAS	Per-and Polyfluoroalkyl Substances
R&R	Remediation and Redevelopment
REILs	Runway End Identifier Lights
SDWA	Safe Drinking Water Act
SEWRPC	Southeastern Wisconsin Regional Planning Commission
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SPA	Sponsor Proposed Action
Sponsor	Milwaukee County
SSA	Sole Source Aquifer
State	State of Wisconsin
TGCP	Transportation Construction General Permit
THPO	Tribal Historic Preservation Officer
U.S.	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	U.S. Fish & Wildlife Service
WCMP	Wisconsin Coastal Management Program
WDNR	Wisconsin Department of Natural Resources
WHS	Wisconsin Historical Society

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CHAPTER 1 – PURPOSE AND NEED

1.1 Introduction

The Milwaukee General Mitchell International Airport (Airport) is located in the City of Milwaukee, Milwaukee County, Wisconsin; approximately two miles west of Lake Michigan and approximately five miles south of downtown Milwaukee. Specifically, the Airport is located in Township 6 North, Range 22 East in Milwaukee County, Wisconsin[1]. The Airport primarily services southeastern Wisconsin including Milwaukee and surrounding counties. **Figure 1-1** provides a graphic representation of the Airport's location.

Presently, the Airport operates using a five-runway configuration, including two sets of parallel runways. The existing parallel runways are Runway 7L/25R and Runway 7R/25L orientated in an east/west direction and Runway 1L/19R and Runway 1R/19L orientated in a north/south direction. Runway 13/31 is orientated northwest/southeast. The Airport contains a vast taxiway network, numerous aprons, and vehicle service roads for airfield facility access. **Figure 1-2** provides a graphic representation of runway, taxiway, and apron layout.

The Airport is owned and operated by Milwaukee County (sponsor). The sponsor petitioned the Wisconsin Secretary of Transportation, under Wisconsin Statutes Chapter 114.33 for Federal and/or State aid for airport improvements[2]. Desired improvements were requested in a petition dated 3/28/2023 and included an Environmental Assessment to evaluate the decommissioning and removal of Runway 13/31.

The Airport is included in both the National Plan of Integrated Airport Systems[3] and in the Wisconsin State Airport System Plan[4], which allows for the possibility of both federal and state aid. Federal aid in a project requires environmental review pursuant to the National Environmental Policy Act (NEPA)[5]. NEPA requires that environmental information is made available to public officials and citizens before decisions are made and before actions are taken.

An Environmental Assessment (EA) is a concise public document, prepared in compliance with NEPA, that discusses the purpose and need for an action, alternatives to such action, and provides sufficient evidence and analysis of impacts to determine whether to prepare and Environmental Impact Statement (EIS) or Finding of No Significant Impact (FONSI). The intent of this EA is to

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[1] WDNR Open Data, PLSS Quarter Sections: https://data-wi-dnr.opendata.arcgis.com/maps/plss-quarter-sections

[2] Wisconsin Statutes Chapter 114: https://docs.legis.wisconsin.gov/statutes/statutes/114/i/33

[3] National Plan on Integrated Airport Systems: https://www.faa.gov/airports/planning_capacity/npias/current

[4] Wisconsin State Airport System Plan 2030: https://wisconsindot.gov/Pages/projects/multimodal/sasp/air2030-chap.aspx

[5] National Environmental Policy Act: https://ceq.doe.gov/

provide environmental documentation to assist local, state, federal officials, and the public in evaluating the proposed action.

This EA is broken down into 7 chapters. Chapter 2 provides discussion of alternatives, Chapter 3 discusses the affected environment, Chapter 4 addresses the environmental consequences, Chapter 5 describes other environmental considerations, Chapter 6 describes the public coordination and participation, and Chapter 7 provides a list of personnel involved with preparing this document.

1.2 Project Purpose and Need

The Airport is proposing to decommission and remove Runway 13/31 and modify the supporting taxiway network through the removal of Taxiway G, Taxiway U, and partial removal of Taxiway N. The goal of the proposed project is to meet the purpose and need defined in this section.

In September of 2022 the Airport completed a Master Plan Update (MPU)[6]. The MPU established needs and goals for the future of the Airport[7]. Through the MPU the opportunity to right size the airfield was analyzed. The MPU airfield analysis focused on balancing the runway configuration with forecast demand, protecting the ability to accommodate growth, improving airfield safety, and optimizing capacity benefits in the context of future Operation and Maintenance costs and capital expenses[8]. Currently, Runway 13/31 is 5,537 feet long and 150 feet wide with numerous connecting taxiways. Additionally, Runway 13/31 primarily services general aviation aircraft[9]. The purpose of the proposed project is to align the airfield configuration with the MPU development needs and the recently Federal Aviation Administration (FAA) approved Airport Layout Plan (ALP).

The need for the proposed project is based on addressing the rightsizing needs of the airport by removing underutilized and obsolete pavement. Currently, the Airport operates using a five-runway configuration. Through the most recent MPU, it was identified that by using a three-runway system the Airport would still be able to accommodate demand through the 2040 planning horizon. Utilizing a three-runway system the airfield taxiway network can be modified to fulfill the need to enhance aircraft circulation and increase efficiency. Additionally, the proposed action is needed to improve safety by removing a non-standard runway-taxiway intersections and reduce operation and maintenance costs associated with items such as deteriorating and underutilized pavement, lighting repairs, and snow plowing. The proposed action facilitates future development to meet the identified

[6] Master Plan Update Website: https://www.mkeupdate.com/

[7] Master Plan Update, Introduction (Section 1): https://www.mkeupdate.com/application/files/5216/6372/0039/MPU-Section1-Introduction-Final-2022-09-20.pdf

[8] Master Plan Update, Section 6.1 (Refined Airfield Development): https://www.mkeupdate.com/application/files/7316/6373/8358/MPU-Section6-AirportDevelopmentPlan-Final-2022-09-20.pdf

[9] Master Plan Update, Section 4.2.1 (Critical Aircraft): https://www.mkeupdate.com/application/files/9516/6372/8837/MPU-Section4/-Requirements-Final-2022-09-20.pdf

future needs of the aIrport without requiring the acquisition of additional property, while ensuring Airport resources are prudently deployed.

1.3 Requested Federal Action

NEPA requires that environmental information is available to public officials and citizens before decisions are made and before actions are taken. To fulfill the requirements of NEPA, FAA Order 5050.4B[10] and FAA Order 1050.1F[11], specify how the FAA will consider environmental impacts associated with a Federal Action. This EA was prepared in general accordance with FAA orders 5050.4B and 1050.1F for the proposed improvements at the Airport.

The FAA will evaluate the EA and either issue a FONSI or request that an EIS be completed.

If the preferred alternative is selected and a FONSI is issued, plan development could begin with construction to follow.

1.4 Other Actions

The Ten-Year Airport Improvement Program identifies several potential improvements to the Airport[12]. Potential and ongoing airfield improvements identified for design and construction in the near future include[13]:

- Decommission and Removal of Runway 13/31and Removal of Taxiway U and Taxiway G
- Rehabilitate Bullseye (Runway 1L-19R and Runway 7R-25L Intersection)
- Taxiway A Connector Rehabilitation and Removal
- North Apron Rehabilitation
- Taxiway C Rehabilitation
- Taxiway F Rehabilitation
- Taxiway Y Rehabilitation
- South Airfield Rehabilitation
- South Ramp Taxiway Strengthening

[10] FAA Order 505.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, U.S. Department of Transportation, Federal Aviation Administration, April 28, 2006: https://www.faa.gov/sites/faa.gov/files/2022-07/5050-4B_complete.pdf

[11] FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, U.S. Department of Transportation, Federal Aviation Administration, July 16, 2015: https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf

[12] The Ten-Year Airport Improvement Program listing is a snapshot of the Airport's 10-year program, based on assumptions about available revenue, legislative decisions, and local funding. Inclusion in this program is neither a guarantee of funding nor an indicator of final approval.

[13] The list includes airfield-only projects listed in the most recent Airport CIP for 2023-2034.

Locally, Milwaukee County is planning projects, two of which are near the airport, including[14]:

- W. Rawson Avenue (CTH BB) Reconstruction from S. 13th Street to S. Howell Avenue (2025)
- S 76th Street (CTH U) Bridge over Forest Home (STH 24) Rehabilitation (2025)

The Airport is located within the Wisconsin Southeast Transportation Region. The Wisconsin Department of Transportation (WisDOT) is planning several projects in the southeast region, two of which are relatively near the Airport[15].

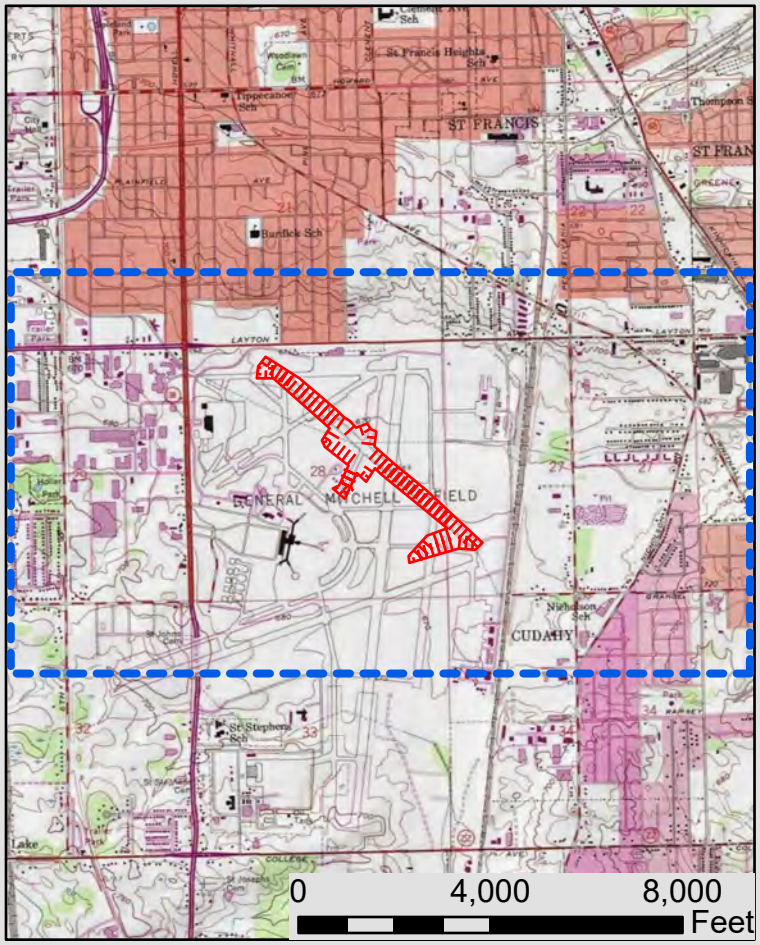
- WIS 241 Resurfacing (College Ave. to Layton Ave.)
  - The project will address deteriorating road conditions by resurfacing the original roadway with 4-inches of new asphalt.
- 1-41/1-94 Mitchell Interchange Resurfacing
  - The project will resurface the I-41/43/94/894 interstate highway between Rawson Ave, Howard Avenue, and 35th Street.

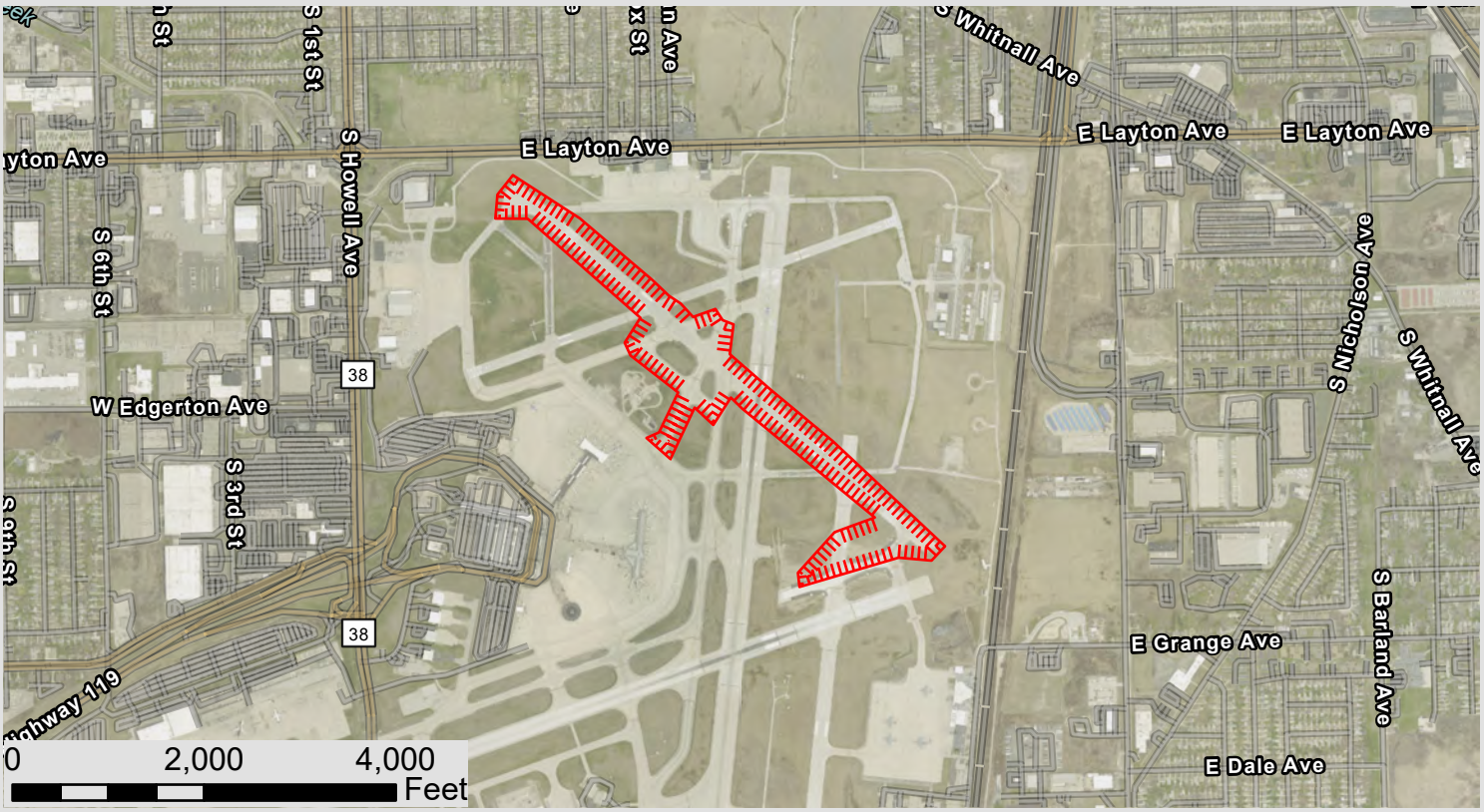
1.5 Anticipated Time Frame

The anticipated time frame for completion of the proposed action, assuming funding is available, is decommissioning and removal beginning in 2027 or 2028 with completion in 2029.

[14] Milwaukee County, Department of Transportation: https://county.milwaukee.gov/EN/Department-of-Transportation/Transportation-Services/Public-Involvement-Meetings

[15] Southeast Transportation Region: https://wisconsindot.gov/Pages/projects/by-region/se/default.aspx





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MKE RUNWAY 13-31 REMOVAL

LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in = 2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **1-1**

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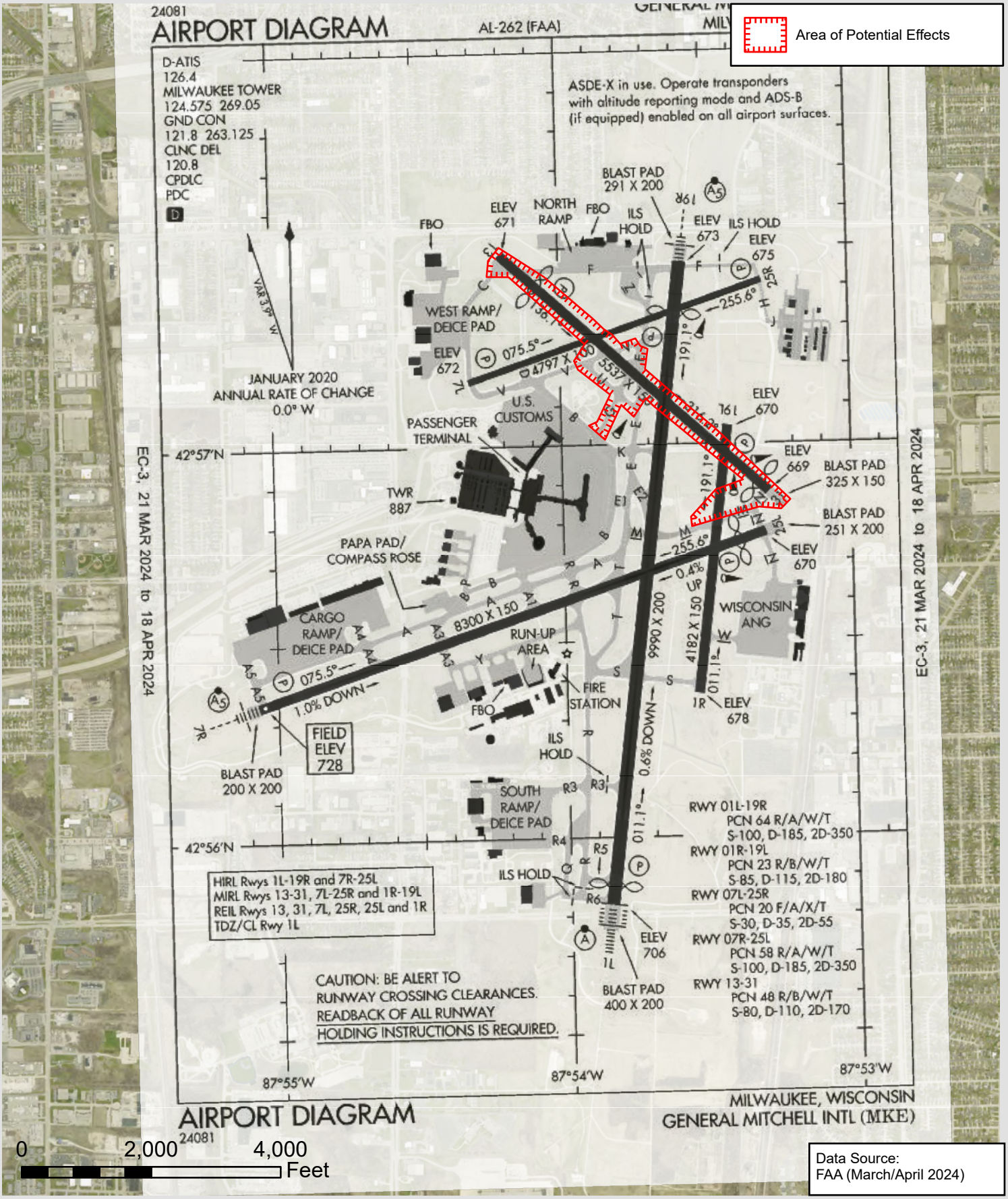

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MKE RUNWAY 13-31 REMOVAL

AIRPORT DIAGRAM MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **1-2**

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CHAPTER 2 – ALTERNATIVES

The objective of this chapter is to identify reasonable alternatives which accommodate the purpose and need identified in Chapter 1. The Council on Environmental Quality (CEQ) Regulations requires evaluation of alternatives (Sec. 1502.14) for projects to be compliant with NEPA[16]. FAA requirements of EAs for the analysis of alternatives are provided in FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions[17] and FAA Order 1050.1F, Environmental Impacts: Policies and Procedures[18]. In general, the greater degree of impacts the project would have the wider range of alternatives that should be evaluated. The objective of the alternatives analysis is to inform decision makers and the public on feasible alternatives, which accommodate the purpose and need, and avoid or minimize adverse impacts or enhance the quality of the human environment.

An alternative is considered not reasonable if it does not meet the identified purpose and need, or where the environmental impacts are excessive, particularly when compared to other alternatives. An alternative is also considered not feasible if it is neither reasonable nor practical to perform or where the cost of implementation would likely exceed the benefits.

2.1 Background

The Airport operates using a five-runway configuration, including two sets of parallel runways. The existing parallel runways are Runway 7L/25R and Runway 7R/25L orientated in an east/west direction and Runway 1L/19R and Runway 1R/19L orientated in a north/south direction. Runway 13/31 is orientated northwest/southeast. The Airport contains a vast taxiway network, numerous aprons, and vehicle service roads for airfield facility access.

The proposed action consists of decommissioning and removing Runway 13/31 and modification of the supporting taxiway network. Runway 13/31 primarily services general aviation traffic up to Aircraft Approach Category (AAC) B and Airplane Design Group (ADG) II designation[19]. Additionally, per the current Airport Master Record (FAA Form 5010-1) remarks, Runway 13/31 is closed to jet aircraft unless permission is granted from the airport manager or tower[20]. A pavement inspection was completed in 2023 and the Pavement Condition Index (PCI) values ranging from 33-89 were identified. The Runway 13/31 pavement near Taxiway E and Runway 1L/19R having the

[16] Council on Environmental Quality Regulations Section 1502.14: https://www.ecfr.gov/current/title-40/part-1502/section-1502.14#p-1502.14(a)

[17] FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, U.S. Department of Transportation, Federal Aviation Administration, April 28, 2006: https://www.faa.gov/sites/faa.gov/files/2022-07/5050-4B_complete.pdf

[18] FAA Order 105.1F, Environmental Impacts: Policies and Procedures, U.S. Department of Transportation, Federal Aviation Administration, July 16, 2015: https://www.faa.gov/documentlibrary/media/order/faa_order_1050_1f.pdf

[19] Master Plan Update, Section 4.2.1 (Critical Aircraft): https://www.mkeupdate.com/application/files/9516/6372/8837/MPU-Section4-Requirements-Final-2022-09-20.pdf

[20] FAA 5010 Document, dated 3/11/2024: https://adip.faa.gov/agis/public/#/simpleAirportMap/MKE

lowest ratings ranging from 34-45. Areas with PCI values of 0-40 are typically mitigated through reconstruction. **Figure 2-1** shows an overview of the PCI values and their location on the runway.

The supporting taxiway network to Runway 13/31 is proposed to be modified to enhance aircraft circulation. The modifications include the removal of Taxiway G, Taxiway U, and Taxiway N between Runway 13/31 and Taxiway M. Currently the intersection of Taxiway G and Taxiway E (to remain) can be classified as non-standard. Per FAA design standards multiple intersecting taxiways with acute angles has a greater potential for pilot confusion[21]. Additionally, Taxiway G enters Runway 13/31 at other than right angle, which increases the risk of runway incursion[22]. Both runway incursions and pilot confusion on taxiways pose safety risks and enhancing airfield geometry has the potential to improve safety.

The proposed action of decommissioning Runway 13/31 was evaluated through the recently completed MPU. Through the MPU process, public information workshops were held. The public information workshops included presentations of the MPU conclusions and opportunities for input and feedback[23].

The proposed action of decommissioning Runway 13/31 would change flight paths for the Airport. A noise analysis was completed to quantify the noise impacts associated with the decommissioning of Runway 13/31 as operations would shift to other runways. This EA will evaluate the impacts of the decommissioning and removal of Runway 13/31, Taxiway removals, and alternative for a holding bay. **Table 2-1** provides a summary of the alternatives evaluated. **Figure 2-2** provides a graphic representation of the location of the proposed action on airport property.

Table 2-1. Proposed Project Alternative Summary

Alternative	Remove and Decommission Runway 13/31	Taxiway G, Taxiway U, and Taxiway N Removal	Holding Bay Construction
No Action Alternative	No	No	No
Sponsor Proposed Action	Yes	Yes	No
Alternative B	Yes	Yes	Yes

[21] FAA Advisory Circular 150/5300-13B (Chapter 4.8.1.3): https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-13B-Airport-Design.pdf

[22] FAA Advisory Circular 150/5300-13B (Appendix J5.5): https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5300-13B-Airport-Design.pdf

[23] Master Plan Update, Section 11 (Community and Stakeholder Engagement): https://www.mkeupdate.com/application/files/1416/6373/1756/MPU-Section11-CommunityStakeholderEngagement-Final-2022-09-20.pdf

2.2 No Action Alternative

Runway 13/31 would remain in its current condition. None of the improvements proposed as part of the project would occur. The land, which currently consists of a paved runway and taxiways, would remain unchanged.

The No Action alternative was determined not to be a viable option since the existing pavement would require increased future operation and maintenance costs and does not provide for safety improvements relating to the removal of a non-standard runway-taxiway intersection.

While the No Action alternative does not meet the purpose and need for the proposed project, it does serve as a baseline for a comparison of impacts related to the sponsor proposed action and is retained for analysis.

2.3 Sponsor Proposed Action (SPA) - Decommission and Remove Runway 13/31, Taxiway G, Taxiway U, and Taxiway N

The Sponsor Proposed Action (SPA) would decommission and remove Runway 13/31. Additionally, Taxiway G, Taxiway U, and a portion of Taxiway N would be removed. **Figure 2-3** provides a graphic representation of the SPA.

The proposed runway and taxiway removals would be designed based on the guidance provided in the appropriate FAA's Advisory Circulars. Design for the removal of runway and taxiway pavement may include the following components:

- Pavement Removal – The existing pavement consists of concrete and asphalt pavements varying in depths up to 19" below the existing surface[24]. Preliminary planning estimates 93,500 SY of Runway 13/31 concrete and asphalt pavement would be removed. An additional 33,400 SY of Taxiway G, Taxiway U, and Taxiway N connector asphalt or concrete pavement would be removed. Pavement removal may consist of removing concrete and/or asphalt pavement, placement of on-site or off-site fill (as required), topsoil placement, and restoration to turf. Concrete pavement removed from the project may be crushed onsite to be recycled as base course. Recycled base course may be used for any pavement adjustments associated with the project or other projects on the airfield. It is anticipated that any excess concrete pavement or recycled base course would be transported offsite. Asphalt pavement may be pulverized or milled and transported offsite or recycled for use for other projects on the airfield. It is anticipated that any recycled materials transported offsite would become property of the contractor performing the work.
- Intersection Adjustments – Runway 13/31, Taxiway G, Taxiway U, and Taxiway N intersect various taxiways and runways. Depending on funding considerations, any adjacent concrete

[24] Wisconsin 2021 IDEA Airport Pavement Management System: https://idea.appliedpavement.com/hosting/wisconsin/airport-details/airport-details.html

pavement at intersections may remain in place as a concrete shoulder or removed and replaced to align with the standard asphalt paved shoulders.

- Navigational Aids (NAVAIDs) and Airfield Lighting Removal – Runway 13/31 has Medium Intensity Runway Lights (MIRLs), guidance signage, and Runway End Identifier Lights (REILs) for Runway 13 and Runway 31. Additionally, Runway 13 and Runway 31 both have Precision Approach Path Indicators (PAPIs). Taxiway G, Taxiway U, and Taxiway N all have taxiway edge lighting. Runway lights, taxiway lights, guidance signs, REILs, PAPIs, and other associated electrical infrastructure would be removed. The associated wiring, handholes, bases, and duct banks may be removed or abandoned.
- Airfield Lighting Replacement and Adjustments - Guidance signs associated with Runway 13/31 and taxiways along adjoining runways and taxiways would be removed or adjusted. Additionally, adjoining taxiway and runway lighting may need to be adjusted to comply with FAA standards.
- Airfield Pavement Markings - Due to the Runway 13/31 decommissioning and taxiway removals pavement markings would need to be removed and repainted to meet FAA standards including hold lines, centerlines, and lead-in lines.
- Drainage Removals and Realignments – The proposed action is not anticipated to alter existing drainage on the airfield as the proposed project intends to remove pavement, topsoil, and restore to turf.
- Temporary Construction Impacts

  Construction Haul Roads and Staging Areas – Construction haul roads are expected to be kept to a minimum. Preliminary planning anticipates the use of existing pavement or gravel access roads as haul roads. All staging area are anticipated to be located on the airport and within the limits of previous staging areas or existing airfield pavement. **Figure 2-4** shows the anticipated location of construction haul roads and staging areas.

  - Construction Excess Material Sites – Construction excess material sites are anticipated to be located off-Airport property as determined by the awarded contractor. However, recycled base course materials may be used on other Airport projects occurring during pavement removal.

After the completion of the proposed Runway 13/31 removal, the Airport would operate using the remaining runways and taxiways. In the future, the Airport may optimize the taxiway network by crossing or utilizing portions of the removed runway and taxiways. The Airport intends to maintain the removed areas similar to other non-paved/grass areas on the airfield through mowing and other miscellaneous maintenance activities.

The decommissioning and removal of Runway 13/31 allows for on-Airport expansion without the need for land acquisition while maintaining existing airfield capacity. Additionally, modifying the existing taxiway network would increase efficiency, improve airfield safety, and standardize

pavement geometry that aligns with the ALP. [25]. Decommission and Remove Runway 13/31, Taxiway G, Taxiway U, and Taxiway N is the SPA.

2.4 Alternate B – Decommission and Remove Runway 13/31, Taxiway G, Taxiway U, and Taxiway N with construction of holding bay adjacent to Taxiway M.

Similar to the SPA, Alternative B incudes the decommissioning and removal of Runway 13/31. Additionally, Taxiway G, Taxiway U, and a portion of Taxiway N would be removed. In addition to the pavement removals, a holding bay adjacent to Taxiway M would be constructed. **Figure 2-5** provides a graphic representation of the Alternate B action detail map.

The proposed holding bay would facilitate aircraft sequencing for Runway 25L. Currently, air traffic control (ATC) is able to re-sequence aircraft on Taxiway M by utilizing Taxiway N, Runway 13/31, and Runway 1R/19L. Following the proposed action, Runway 13/31 and Taxiway N connector would be removed. Additionally, studies are being completed to decommission and remove Runway 1R/19L. The removals of Runway 13/31, Taxiway N connector, and Runway 1R/19L would eliminate any possibility to re-sequence aircraft on Taxiway M east of Runway 1L/19R and the end of Runway 25L. The proposed holding bay would allow for aircraft to be positioned off Taxiway M to facilitate re-sequencing.

The proposed runway and taxiway removals would be designed based on the guidance provided in the appropriate FAA's Advisory Circulars. Design for the Runway 13/31 and taxiway removals is anticipated to be the same as described in Section 2.3. Additionally, the temporary construction haul roads and staging areas described in Section 2.3 are anticipated to be the same. Design components of the proposed holding bay adjacent to Taxiway M may include:

- Holding Bay Construction - The proposed holding bay would be constructed to meet the critical aircraft design requirements for layout and pavement design. The preliminary design was established through coordination with the FAA Control Tower. The design focuses on optimizing the footprint of the pavement area to just include a parallel circulation taxiway and no holding positions. Excess soil from excavation associated with the construction will most likely be used as fill for the pavement removal areas.
- Airfield Lighting and Pavement Markings – The construction of a holding bay adjacent to Taxiway M would require the adjustment of the existing taxiway lights and guidance signs along Taxiway M. Additionally, it is likely that the proposed holding bay would include taxiway lights and pavement markings delineating aircraft movement boundaries.
- Drainage Removals and Realignments – The proposed holding bay is not anticipated to significantly alter existing drainage on the airfield. Underdrain is anticipated to be installed

[25] Master Plan Update, Section 5.6 (Evaluation Criteria and Methodology): https://www.mkeupdate.com/application/files/6316/6374/4686/MPU-Section5-AlternativesAnalysis-4of4-Final-2022-09-20.pdf

with the holding bay construction. Other minor underdrain and culvert adjustments or additions may be needed to facilitate the holding bay construction.

After the completion of the proposed Runway 13/31 removal and holding bay construction, the airport would operate using the remaining runways. In the future, the airport may optimize the taxiway network crossing or utilizing portions of the removed runway. The airport intends to maintain the removed pavement areas similar to other non-paved/grass areas on the airfield through mowing and other miscellaneous maintenance activities. The proposed holding bay would be used to facilitate ATC sequencing of aircraft.

Similar to the SPA, the decommissioning and removal of Runway 13/31 allows for on-airport expansion without the need for land acquisition while maintaining existing airfield capacity and removing underutilized and obsolete pavement. Additionally, modifying the existing taxiway network would increase efficiency, improve airfield safety, and standardize pavement geometry that aligns with the ALP. As included in Alternate B, the potential addition a holding bay would enhance aircraft circulation by maintaining the ability for aircraft sequencing.

Through preliminary planning meetings with the FAA, officials expressed the desire to construct a holding bay with queuing and crossover taxiways at standard offsets. Due to the increased cost of new construction, this alternative is not preferred by the sponsor. However, Alternative B is retained for analysis as future airfield expansion may include the construction of a holding bay within the footprint of the study area.

MKE RUNWAY 13-31 REMOVAL
2023 PAVEMENT CONDITION INDEX (PCI) MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Area of Potential Effects

Source:
2023 General Mitchell International Airport PCI Map

LEGEND

BRANCH IDENTIFIER
SECTION IDENTIFIER
PCI VALUE
RW1533AP-10 (67)
SECTION BREAK LINE

PAVEMENT CONDITION INDEX

PCI	REPAIR
100	
85	PREVENTIVE MAINTENANCE
70	
55	MAJOR REHABILITATION
40	
25	RECONSTRUCTION
0	

applied pavement TECHNOLOGY
115 W. Main Street, Suite 400, Urbana, IL 61801
Tel: (217) 398-3977 Fax: (217) 398-4027

AGENCY: WISCONSIN DEPARTMENT OF TRANSPORTATION
BUREAU OF AERONAUTICS

LOCATION: GENERAL MITCHELL INT'L AIRPORT
MILWAUKEE, WI

PAGE TITLE: 2023 PAVEMENT CONDITION INDEX MAP

PROJECT DATE:	CREATION DATE:	PROJECT MANAGER:	JOB NUMBER:
JUN. 2023	DEC. 2023	KMP	2022-002-AM01
DRAWING SCALE: 1"=400'	LAST MODIFIED DATE: FEB. 2024	REVISED BY: BHS	DRAWN BY: DMS
FILENAME: MILWAUKEE-MKE.DWG		LAYOUT NAME/NUMBER: PCI	FIGURE: 7

Westwood
1 Systems Drive Appleton, WI 54914
(920) 735-6900
www.westwoodps.com

Project Manager:	
Project Engineer:	KMW
Drawn By:	
Checked By:	
Date:	4/16/2024

SCALE: N/A

PROJECT NO. R3001844.01

FIGURE NO. 2-1

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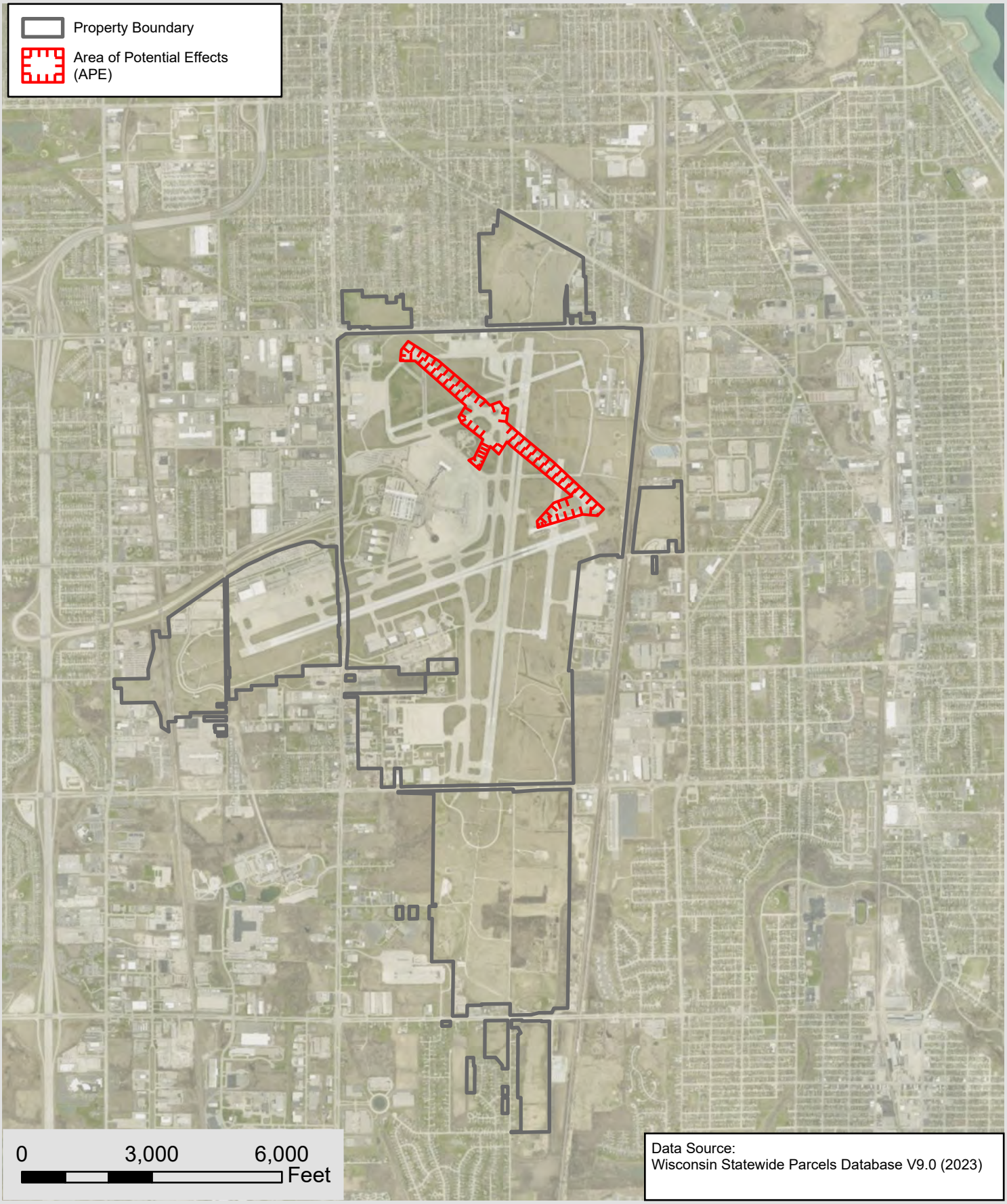

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MKE RUNWAY 13-31 REMOVAL

AIRPORT PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =3,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **2-2**

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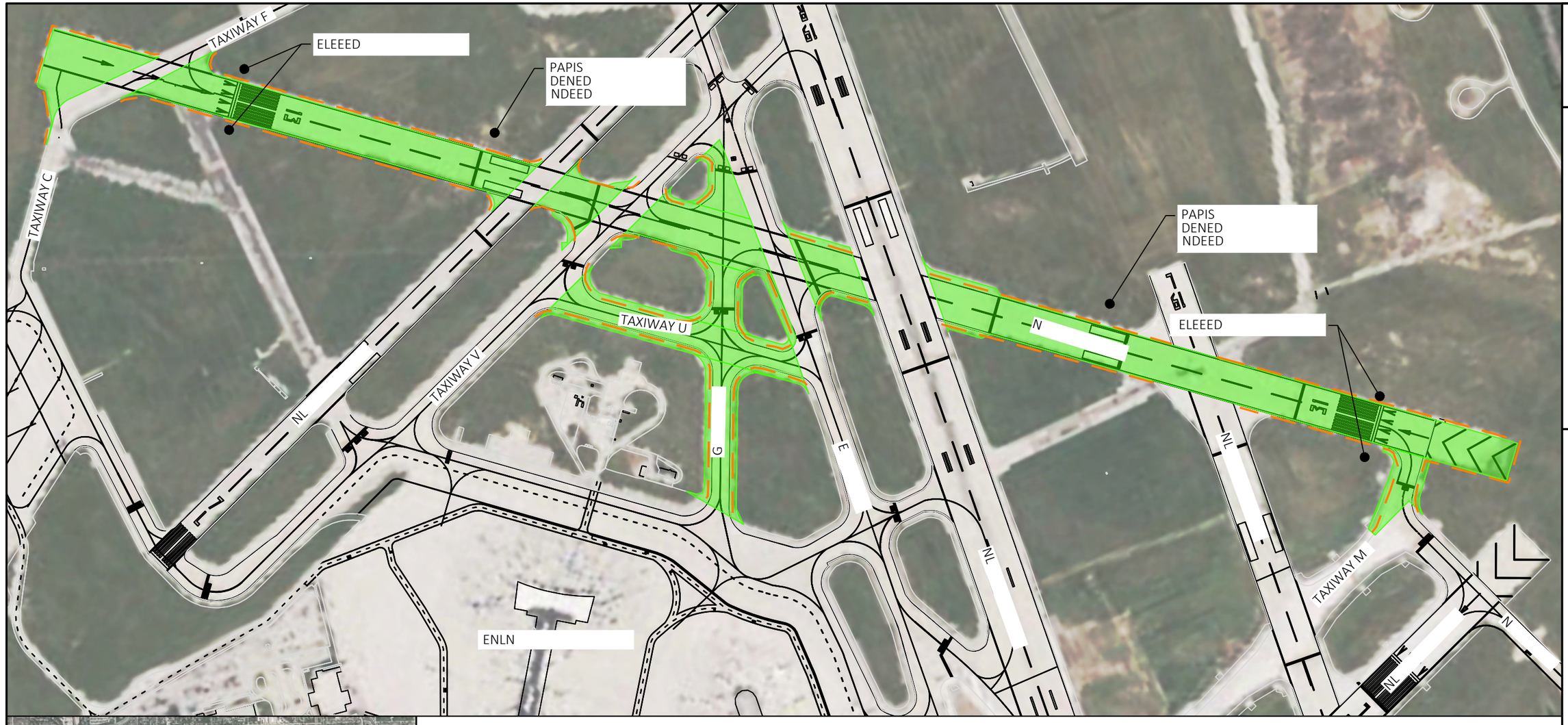

LEGEND

	ANTICIPATED PAVEMENT REMOVAL
	AIRFIELD LIGHTING REMOVALS OR ADJUSTMENTS

NOTE:

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2. NNNDL
   2.1. GDNGNDGNDDNELNN
   2.2. ELDGNGEELDENNDNENLLN
   2.3. EENNGDENNN

Westwood
ONE SYSTEMS DRIVE
APPLETON, WI 54914
PHONE: (920) 735-6900
FAX: (920) 830-6100

PLOT DATE : 3/15/2024 12:43 PM PLOT BY : KAITLYN WEHNER

MKE RUNWAY 13-31 REMOVAL

SPONSOR - PROPOSED ACTION DETAIL MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

PROJECT NO: R3001844.01
DRAWN BY: KMW
DATE: 03/01/2024
FIGURE 2-3

FILE NAME : N:\3001844.00\EAS\2. RWY 13_31\CAD\RWY 13-31_PERFERRED ALTERNATIVE FIGURES.DWG

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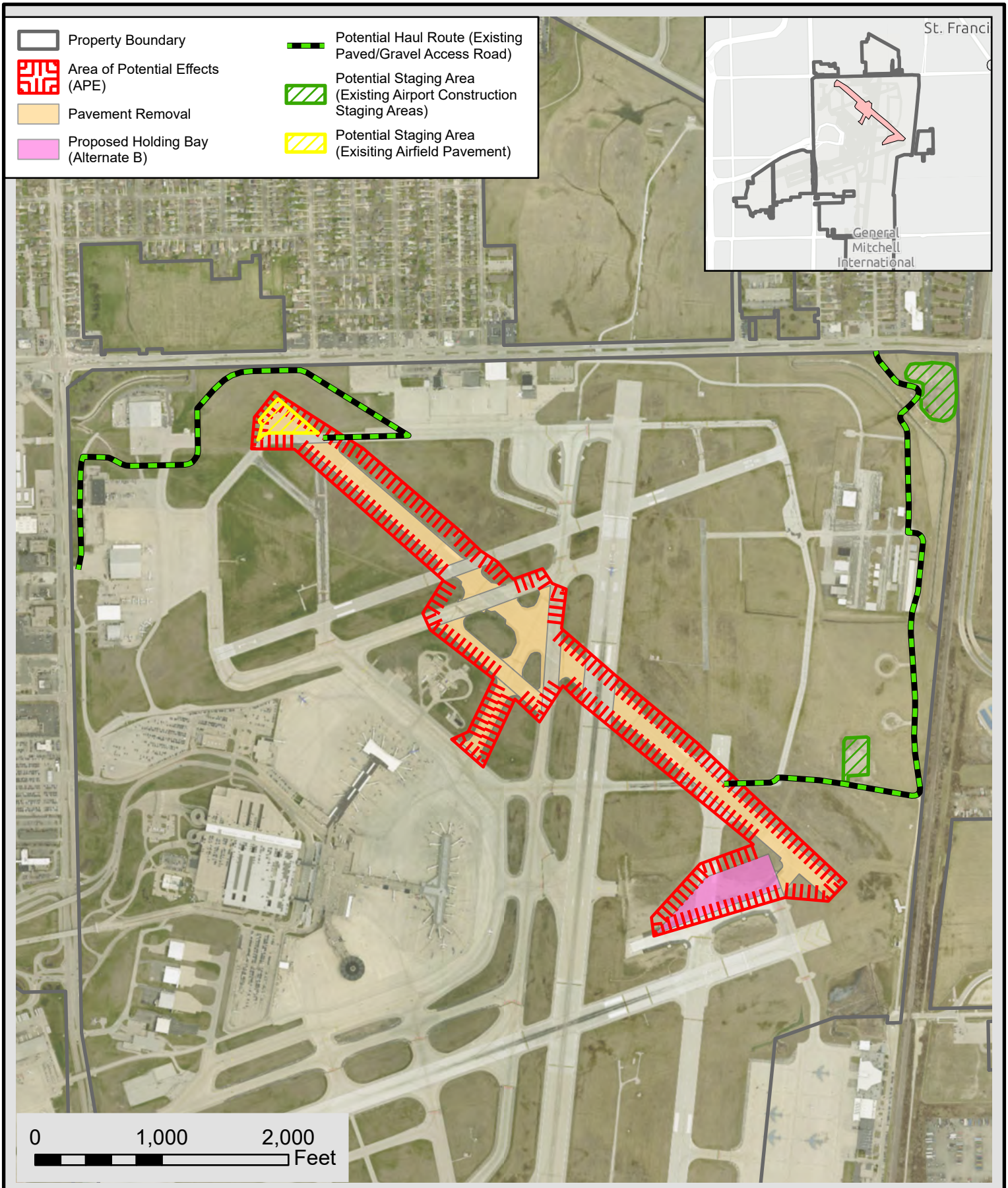

Westwood

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Appleton, WI 54914

(920) 735-6900
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W E
S

MKE RUNWAY 13-31 REMOVAL

PROPOSED ACTION LOCATION

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =1,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **2-4**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Area of Potential Effects Map]
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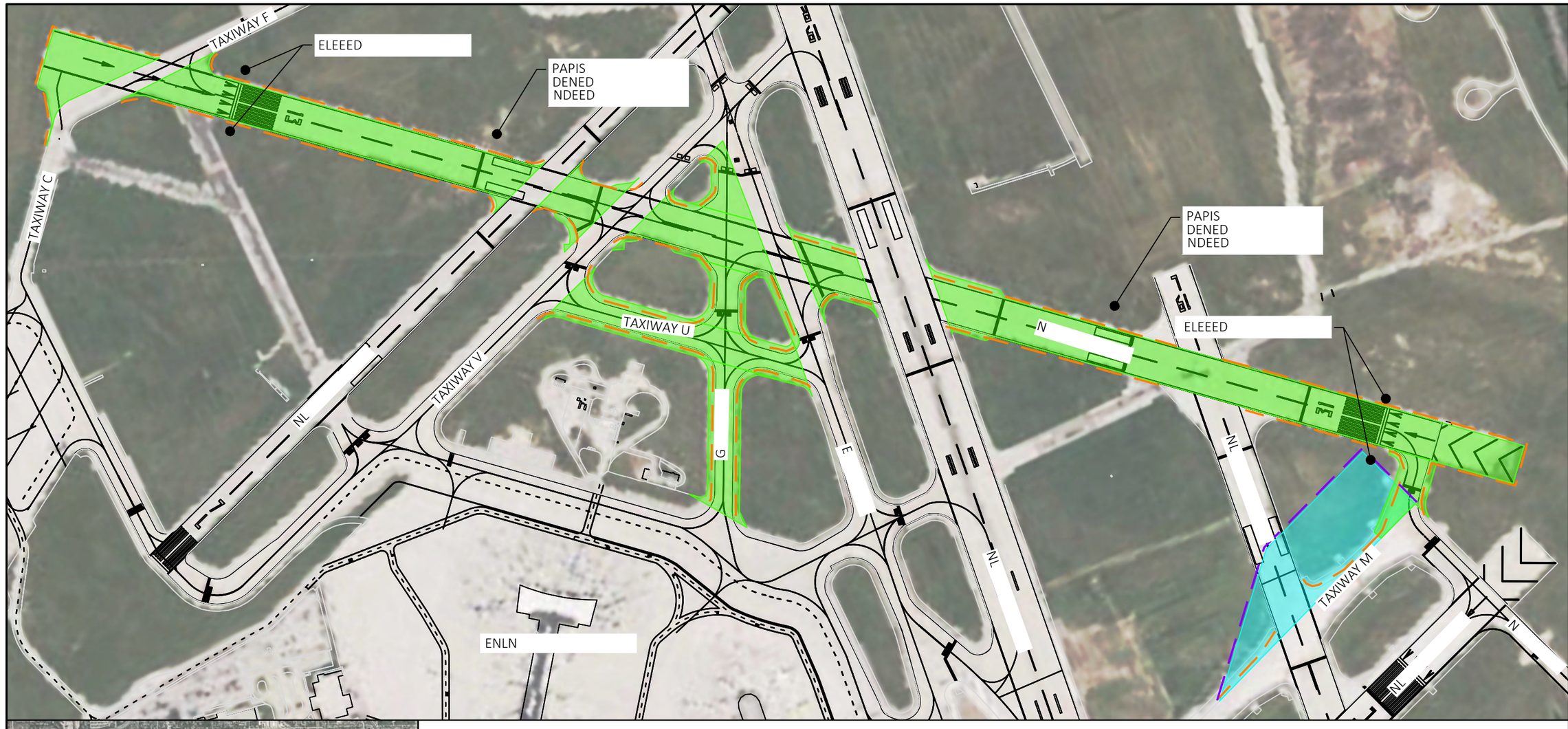

LEGEND

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NOTE:

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2.1. GDNGNDGNDDNELNN
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2.3. EENNGDENNN

MKE RUNWAY 13-31 REMOVAL

ALTERNATIVE B ACTION DETAIL MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Westwood
ONE SYSTEMS DRIVE
APPLETON, WI 54914
PHONE: (920) 735-6900
FAX: (920) 830-6100

PLOT DATE : 3/15/2024 12:43 PM PLOT BY : KAITLYN WEHNER

PROJECT NO: R3001844.01
DRAWN BY: KMW
DATE: 03/01/2024
FIGURE 2-5

FILE NAME : N:\3001844.00\EAS\2. RWY 13_31\CAD\RWY 13-31_PERFERRED ALTERNATIVE FIGURES.DWG

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CHAPTER 3 – AFFECTED ENVIRONMENT

This chapter provides a background of the existing affected environment of the proposed project area. The potential environmental impacts of the proposed project are evaluated in Chapter 4, Environmental Consequences.

3.1 Airport Location and History

The Airport is located in the City of Milwaukee, Milwaukee County, Wisconsin; approximately two miles west of Lake Michigan and approximately five miles south of downtown Milwaukee. The Airport is located approximately 75 miles north of downtown Chicago. The Airport coordinates are latitude N42º 56' 48.955" and longitude W87º 53' 49.432"[26]. Specifically, the proposed project is located in Sections 27 & 28 of Township 6 North, Range 22 East, City of Milwaukee, Milwaukee County, Wisconsin[27]. **Figure 3-1** provides a graphic representation of the Airport's location.

The current Airport site was established in 1926 when land was purchased by Milwaukee County, who continues to own and operate the Airport[28]. The Airport is named in honor of Brigadier General William "Billy" Mitchell who was a Milwaukee native and military aviation pioneer[29].

3.2 Proposed Project Location

The proposed project site would be located on approximately 63 acres of Airport land. The proposed project site would be located around and on pavement and in grassy areas around Runway 13/31 and Taxiways G, U, M, and N.

Figure 3-2 shows the Airport property boundary in relation to the proposed project areas on the Airport and surrounding properties. **Figure 3-3** shows the location of the SPA and alternative, potential staging area, and potential haul routes.

3.3 Airport Facilities

Presently, the Airport operates five runways, including two sets of parallel runways. The existing parallel runways are Runway 7L/25R and Runway 7R/25L orientated in an east/west direction and Runway 1L/19R and Runway 1R/19L orientated in a north/south direction. Runway 13/31 is orientated northwest/southeast. **Table 3-1** lists runway characteristics, including length, width, lighting, and NAVAIDs.

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[26] FAA Airport Data and Information Portal: https://adip.faa.gov/agis/public/#/simpleAirportMap/MKE

[27] WDNR Open Data, PLSS Quarter Sections: https://data-wi-dnr.opendata.arcgis.com/maps/plss-quarter-sections

[28] MKE Airport History: https://www.mitchellairport.com/airport-information/history#Aviation-History

[29] MKE Airport History: https://www.mitchellairport.com/airport-information/history#General-Mitchell

Table 3-1. Runway Characteristics[30]

Characteristics	Runway									
	1L	19R	1R	19L	7L	25R	7R	25L	13	31
Length (ft)	9990		4182		4797		8300		5537	
Width (ft)	200		150		100		150		150	
Navigational Aids	ALSF-2, TDZ/CL LIGHTS, GS, LOC, RVR,DME	MALSR, GS, LOC, RVR, DME	REIL	-	REIL	REIL	GS, LOC, DME	REIL, LOC, DME	REIL	REIL
Visual Aids	PAPI	PAPI	-	-	PAPI	PAPI	PAPI	PAPI	PAPI	PAPI
Lighting	HIRL		MIRL		MIRL		HIRL		MIRL	
Approach Minimums	1/2 mile	1/2 mile	1 mile	1 mile	1 mile	1 mile	1/2 mile	1 mile	1 mile	1 mile
Critical Aircraft	D/V/600		C/IV/5000		B/II/5000		D/V/5000		B/II/5000	
Approach RPZ Area (Acres)	78.9	78.9	29.5	29.5	13.8	13.8	78.9	29.5	13.8	13.8

ALSF-2: Approach Lighting System with Sequence Flashing Lights
TDZ: Touchdown Zone
CL: Centerline
GS: Glide Slope
RVR: Runway Visual Range
DME: Distance Measuring Equipment
MALSR: Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
LOC: Localizer
HIRL: High Intensity Runway Lighting
MIRL: Medium Intensity Runway Lighting
REIL: Runway End Identifier Lights
PAPI: Precision Approach Path Indicator

As a result of the proposed project, Runway 13/31 will be changed from the existing state. No other runway is anticipated to be impacted as a result of the proposed project[31]. **Table 3-2** lists runway characteristics, including length, width, lighting, and NAVAIDs after the SPA.

[30] MKE Airport Layout Plan: https://www.mkeupdate.com/application/files/5016/6374/0496/MPU-AppendixF-AirportLayoutPlan-1of5-Final-2022-09-20.pdf

[31] Studies for the proposed decommissioning and removal of Runway 1R/19L are currently ongoing. Runway 1R/19L may be decommissioned prior to the proposed decommissioning of Runway 13/31.

Table 3-2. Runway Characteristics After Proposed Action

Characteristics	Runway									
	1L	19R	1R	19L	7L	25R	7R	25L	13	31
Length (ft)	9990		4182		4797		8300		Decommissioned	
Width (ft)	200		150		100		150			
Pavement Strength (PCN)	64/R/A/W/T		23/R/B/W/T		20/F/A/X/T		58/R/A/W/T			
Navigational Aids	ALSF-2, TDZ/CL LIGHTS, GS, LOC, RVR,DME	MALSR, GS, LOC, RVR, DME	REIL	-	REIL	REIL	GS, LOC, DME	REIL, LOC, DME		
Visual Aids	PAPI	PAPI	-	-	PAPI	PAPI	PAPI	PAPI		
Lighting	HIRL		MIRL		MIRL		HIRL			
Approach Minimums	1/2 mile	1/2 mile	1 mile	1 mile	1 mile	1 mile	1/2 mile	1 mile		
Critical Aircraft	D/V/600		C/IV/5000		B/II/5000		D/V/5000			
Approach RPZ Area (Acres)	78.9	78.9	0.0	0.0	13.8	13.8	78.9	29.5		

The Airport operates a vast taxiway network, numerous aprons, and vehicle service roads for airfield facility access. **Table 3-3** lists the taxiways designations and functions located near or within the proposed project area. **Figure 3-4** provides a graphic representation of runway, taxiway, and apron layout.

As a result of the proposed project, the airport taxiway configuration may be altered. **Table 3-4** compares the current operating function of taxiways near or within the proposed project area to that of after the proposed action.

The airport is served by an FAA operated air traffic control tower (ATCT). The ATCT is located west of the terminal building.

Table 3-3. Project Area Taxiway Characteristics

Taxiway Designation	Taxiway Design Group	Taxiway Width (ft)	Taxiway Shoulder (ft)
C	5	75	N/A
E	5	82	30
F	5	75	N/A
G	3	75	20
M	5	75	30
N	5	75	30
U	5	75	30
V	5	75	30

Table 3-4. Taxiway Characteristics After Proposed Action[32]

Taxiway Designation	Taxiway Design Group	Taxiway Width (ft)	Taxiway Shoulder (ft)
C	5	75	20
E	5	75	30
F	5	75	20
G	Removed		
M	5	75	30
N	5	75	30
U	Removed		
V	5	75	30

3.4 Air Quality

Milwaukee County is designated as in a non-attainment zone for 8-hour ozone (moderate) and maintenance area for $PM_{2.5}$ per the Clean Air Act's National Ambient Air Quality Standards (NAAQS)[33]. The NAAQS are health standards for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), 8-hour ozone(O_3), particulate matter ($PM_{2.5}$, $PM_{10,}$ and $PM_{10-2.5}$), and sulfur dioxide (SO_2). **Figure 3-5** shows the NAAQS nonattainment areas in relationship to the proposed project location.

[32] Taxiway N would remain south of Runway 25L and connecting Taxiway M to Runway 25L.
[33] County-Level Multi-Pollutant Information: https://www.epa.gov/green-book/green-book-national-area-and-county-level-multi-pollutant-information.

The Wisconsin Department of Natural Resources (WDNR) operates four air quality monitoring stations in Milwaukee County. **Table 3-5** displays the location of each monitoring station and NAAQS pollutants[34].

Table 3-5. Air Quality Monitoring Stations, Milwaukee County

Site Name	AQS Site ID	City	Address	NAAQS Pollutants Monitored
Bayside	55-079-0085	Bayside	601 E. Ellsworth Ln.	O_3
Milwaukee - College Ave. NR	55-079-0056	Milwaukee	1550 W. College Ave.	$PM_{2.5,}$ $PM_{10,}$ $PM_{10\text{-}2.5,}$ $NO_{2,}$ CO
Milwaukee Sixteenth St. Health Center	55-079-0010	Milwaukee	1377 S. 16th St.	O_3, $PM_{2.5}$, PM_{10}
Milwaukee UWM U Park	55-079-0068	Milwaukee	4372 N. Humboldt Blvd.	O_3, $SO_{2,}$ NO_2

3.5 Biological Resources

Biotic communities consist of all organisms (flora and fauna) living on and contributing to a specific region. Flora is the plant life characteristic of a particular geographic area. Fauna is the grouping of animals present in a particular geographic area.

The proposed project is located in the Milwaukee Forested Moraines Land Type Association (LTA) [35] of the Southern Lake Michigan Coastal ecological landscape[36]. The Milwaukee Forested Moraines land type association includes characteristic landform pattern is a rolling hummocky moraine with stream terraces, floodplains, and wetlands. Soils are predominantly well drained silt and clay over calcareous silty clay loam till[37]. **Figure 3-6** displays the ecological landscapes and land type association in relation to the proposed project area.

The Southern Lake Michigan Coastal ecological landscape is the most urbanized ecological landscape in Wisconsin. Previous landcover estimates indicate primarily agricultural (39%) and urban (24%) land uses with others being grassland (16%) and upland and lowland forest (12%).[38]

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[34] Wisconsin WDNR 2024 Air Monitoring Network Plan: https://dnr.wisconsin.gov/sites/default/files/topic/AirQuality/FInal2024AnnualNetworkPlan.pdf

[35] WDNR Open Data, Land Type Associations: https://data-wi-dnr.opendata.arcgis.com/datasets/wi-dnr::land-type-associations/about

[36] WDNR Southern Lake Michigan Coastal: https://dnr.wisconsin.gov/topic/lands/EcologicalLandscapes/SouthernLakeMichigan

[37] WDNR Open Data, Land Type Associations: https://data-wi-dnr.opendata.arcgis.com/datasets/wi-dnr::land-type-associations/about

[38] Wisconsin Department of Natural Resources. 2015. The ecological landscapes of Wisconsin: An assessment of ecological resources and a guide to planning sustainable management. Chapter 19,

Most areas on the Airport are mowed to control trees and shrub species from colonizing. Trees are normally not allowed to grow to substantial heights on airport property in order to keep aircraft approach surfaces and safety zones clear. Additionally, the maintenance practices of limiting tree growth and mowing grass areas prevent concentrations of wildlife that would be hazardous to aircraft operations.

Primarily for security purposes, the perimeter fence surrounding the airport also limits wildlife from entering the air operations area. **Figure 3-7** shows that there are no critical habitats within Milwaukee County based on the U.S. Fish & Wildlife Service (USFWS) species active critical habitat Geographical Information System (GIS) mapping. **Figure 3-8** shows that there are no critical habitats or sensitive area designations in Milwaukee County based on the WDNR Wetland Plans and Habitat GIS mapping.

The USFWS Information for Planning and Consultation (IPaC) tool was accessed. The project area was input and a list of threatened and endangered species that may occur in the proposed project location or may be affected by the proposed project was generated. [39] The federal list for endangered, threatened, or candidate species includes the following: Northern Long-eared Bat, Tricolored Bat, and Monarch Butterfly. For all these species, there are no critical habitats found in or near the project area.

A Natural Heritage Inventory (NHI) review conducted by the WDNR was completed for the project area. The review identified no known state listed threatened or endangered species or suitable habitats that could be impacted by the project. The results of the NHI review were included in the WDNR Initial Review Letter included in **Appendix 2**.

Both the USFWS IPaC tool and WDNR NHI review did not indicate there are any federally or state listed endangered species in the project area.

3.6 Climate

The climate at the Airport is typical of Wisconsin. Winters can be long, cold, and snowy; summers are warm and occasionally humid, and spring and fall are transitional seasons with varying weather conditions. Temperature extremes vary from a July average high of 82 ℉ to a January average low of 17 ℉. The average annual rainfall is 34.6 inches, and the average annual snowfall is 48.7 inches[40].

Climate change can have local impacts such as warmer air temperatures, sea level rise, increase storm activity, and increased intensity during precipitation events[41]. The majority of the project area

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Southern Lake Michigan Coastal Ecological Landscape. Wisconsin Department of Natural Resources, PUB-SS-1131U 2015, Madison: https://dnr.wisconsin.gov/topic/Lands/Book.html

[39] U.S. Fish and Wildlife Service, IPaC tool: https://ipac.ecosphere.fws.gov

[40] National Weather Service: https://www.weather.gov/wrh/Climate?wfo=mkx

[41] FAA 1050.1F, Chapter 3: https://www.faa.gov/sites/faa.gov/files/about/office_org/headquarters_offices/apl/3-climate.pdf

is airfield pavement and mowed grass fields with no structures and is not located directly on the Lake Michigan shoreline.

Greenhouse Gases (GHGs) are defined as "gases that trap heat in the atmosphere". GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3)). Carbon dioxide (CO_2) is the primary GHG and accounted for 79% of all GHGs in 2021. Carbon dioxide is produced through the burning of fossil fuels, biological materials, chemical reactions, or solid waste[42]. Transportation accounts for 35% and electricity counts for 31% of the total United States (U.S.) carbon dioxide emissions[43].

In 2018, the Airport published a Sustainability Management Plan[44]. The sustainability baseline quantified scope 1 and scope 2 emissions. Scope 1 emissions are direct emissions from owned or controlled sources and scope 2 emissions are indirect emissions from generation of purchased energy, scope 3 emissions associated with airport operations but generated by tenants (airlines) were not included in the baseline. The baseline inventory estimated 33,921 metric tons of carbon dioxide were generated in 2015. It was also identified that electricity accounts for close to 80% of the overall GHG emissions. Currently, Runway 13/31 contains runway lights that consume electricity when illuminated.

The Environmental Protection Agency (EPA) has identified that infrastructure such as buildings and roads absorb and re-emit the suns heat more than natural landscapes. Urban areas often have limited natural landscapes and vegetation and become "islands" of higher temperatures known as "heat islands." In 2022, the WDNR in partnership with Groundwork Milwaukee and the Milwaukee Metropolitan Sewerage District completed a mapping campaign to map heat across the City of Milwaukee. The campaign identified the hottest temperatures were recorded in dense urban areas[45]. Within the proposed project area, the existing runway pavement consists of asphalt and concrete which both can contribute to higher temperatures. **Figure 3-9** shows the results of the WDNR study for evening temperatures. The airfield pavements are visible as obtaining a higher temperature as opposed to the surrounding natural (grass) vegetation.

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[42] Environmental Protection Agency (EPA), Overview of Green House Gases: https://www.epa.gov/ghgemissions/overview-greenhouse-gases

[43] Environmental Protection Agency (EPA), Carbon Dioxide Emissions: https://www.epa.gov/ghgemissions/overview-greenhouse-gases#carbon-dioxide

[44] Milwaukee County's General Mitchell International Airport Sustainability Management Plan: https://www.mitchellairport.com/application/files/1815/2909/4575/MKE_SMP_Final_Report.pdf

[45]"DNR Shares Results from Summer 2022 Milwaukee Heat Mapping Campaign": https://dnr.wisconsin.gov/newsroom/release/66256

3.7 Coastal Resources

Milwaukee County is listed as a coastal county because it borders Lake Michigan and is subject to the Wisconsin Coastal Management Program (WCMP)[46]. **Figure 3-10** shows Wisconsin's coastal counties that border either Lake Superior or Lake Michigan.

The Coastal Barriers Resources Act (CBRA) conserves and protects land units designated as the Coastal Barrier Resources System (CBRS)[47]. The proposed project area is not located within or adjacent to a CBRS[48].

3.8 Department of Transportation Act, Section 4(f)

The proposed project is located entirely within the Airport property. No public parks, national lands, state lands, or historic sites were identified within the project area. **Figure 3-11** displays the location of public parks in relation to the proposed project area.

3.9 Farmlands

The proposed project area is currently pavement and mowed grass fields with no structures. Proposed project site photographs illustrating current land use are included in **Appendix 1.**

The Wisconsin Department of Agriculture, Trade and Consumer Protection, Farmland Preservation Planning Program Map was analyzed. There were no identified Agricultural Enterprise Areas (AEAs) located in or near the proposed project area. Additionally, the proposed project is not located within a Farmland Preservation Plan Area[49].

3.10 Hazardous Materials, Solid Waste, and Pollution Prevention

A Phase I Environmental Site Assessment[50] (ESA) was conducted for the proposed project area. The Phase I ESA included a visual reconnaissance survey of the proposed project area that was completed on September 11, 2023. Environmentally significant conditions such as hazardous substances, storage tanks, odors, wastewater, wells, solid waste, etc. were not observed in the project area during the visual reconnaissance survey.

Due to the nature of airport operations, pipelines, petroleum products, storage tanks, and other hazardous materials are present near the project area.

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[46] Wisconsin Department of Administration, Wisconsin Coastal Management Program: https://doa.wi.gov/DIR/Coastal_County-Map.pdf

[47] USFWS Coastal Barrier Resource Act: https://www.fws.gov/program/coastal-barrier-resources-act

[48] USFWS Coastal Barrier Resources System Mapper: https://fwsprimary.wim.usgs.gov/CBRSMapper-v2/

[49] Wisconsin Department of Agriculture, Trade, and Consumer Protection: https://datcpgis.wi.gov/maps/?viewer=fpp

[50] Phase I Environmental Site Assessment, Milwaukee Mitchell International Airport – Runway 13-31, prepared by Westwood Professional Services, Inc., dated March 26, 2024.

Through the Phase I ESA an environmental records review was conducted. The environmental records review accessed the Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the Web. BRRTS on the Web is a searchable database containing information on the investigation and cleanup of potential and confirmed contamination to soil and groundwater in Wisconsin. The Remediation and Redevelopment Sites Map is a GIS web-based mapping system that provides information about contaminated properties and other activities related to the investigation and cleanup of contaminated soil or groundwater in Wisconsin. Both databases are inter-linked through the WDNR's Contaminated Lands Environmental Action Network (CLEAN), which provides informational access to contaminated properties in Wisconsin. Additionally, an independent environmental records search was provided by Environmental Risk Information Services (ERIS) which gathered information from multiple environmental databases.

The ERIS report called out multiple database listings for the project area; however, after further review, most of the listings appeared to be related to releases across the airport property and not the proposed project area. Reviewed listings include, underground storage tanks, hazardous material (petroleum products) spills, leaking underground storage tanks, environmental repair sites and more.

The Phase I ESA identified one listing to be within the project area. This listing is a closed Environmental Report Program (ERP) site titled BRRTS#02-41-558334 Shell Pipeline at Gen Mitchell Intl. Airport and was identified to have continuing obligations. The site is located within the intersection of Taxiway E and Taxiway U. The proposed project is anticipated to remove pavement within and around the footprint of the site. **Figure 3-12** details the footprint of the closed BRRTS site in relation to the proposed project area. The continuing obligations and required actions identified include:

1. Residual Groundwater Contamination: If a well were to be installed, WDNR coordination needs to occur.
2. Residual Soil Contamination: Soil contamination remains in the east end of the remediation excavation if soils in the area are excavated in the future sampling and analysis should be conducted.
3. Structural Impediments: If the structural impediment is removed, additional investigation may need to be conducted. Through analysis of the continuing obligation letter, the structural impediment was identified as Runway 1L/19R and safety area.

The results of the Phase I ESA did not identify any other sites within the proposed project area that had been directly contaminated with hazardous materials from either on-site activities or off-site operations. Further information regarding the environmental records review is included in Phase I ESA *(found on the project webpage)*.

3.11 Historical, Architectural, Archeological, and Cultural Resources

An architecture history survey site visit was completed on September 12, 2023. An initial literature review was conducted to identify whether historic resources within one mile of the Area of Potential Effects (APE) have been recorded in the Wisconsin Historical Society's (WHS) Architecture History

Inventory (AHI). Twenty-nine historic resources within one mile of the APE. No historic-age National Register of Historic Places (NRHP) listed or eligible resources are present in the APE.

A Phase I Archeological Reconnaissance Survey was conducted on September 12, 2023, at the Airport. The survey was conducted to determine if significant cultural resources are located within the APE. The APE for Archeological Reconnaissance Survey was defined to encompass the areas of proposed ground disturbance. There are no known cultural resources present in the APE and no new cultural resources were identified.

Preliminary tribal notification email was sent to Tribal Historic Preservation Officers (THPOs)/Tribal leaders to familiarize them with the proposed project and to solicit their interest and concerns regarding historical, archeological, and cultural resources. The tribal notification email is included in **Appendix 2.**

A Preliminary coordination letter was sent to the Milwaukee County Historical Society to familiarize them with the proposed project and to solicit their interest and concerns regarding historical, archeological, and cultural resources. Milwaukee County Historical Society coordination letters are included in **Appendix 2.**

The architecture history and archeological investigations were submitted to the State Historic Preservation Officer (SHPO). The SHPO concurred that there are no properties listed in or eligible for the NRHP within the APE for the proposed project.

3.12 Land Use

Airport property encompasses approximately 2,270 acres located in the east-central portion of Milwaukee County. **Figure 3-13** shows the existing land uses surrounding the airport. 2020 General Land Use data was obtained from the Southeastern Wisconsin Regional Planning Commission Interactive Mapping Application.[51]

The majority of the area within Airport property is listed as the transportation land use. South of College Avenue, some areas of airport property are listed as agricultural, recreational, and open lands. Residential land use, mostly densely populated single and multi-family developments, are present north of airport. Residential areas are also located east of the airport in Cudahy and South Milwaukee, in Greenfield and Greendale west of Interstate 41, and south of the airport in Oak Creek.

Future land use identified the proposed project area to remain transportation. According to the 2020 update of "VISION 2050" adopted by the Southeastern Wisconsin Regional Planning Commission (SWRPC)[52], the airport is listed as to be retained and potentially expanded.

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[51] Southeastern Wisconsin Regional Planning Commission Interactive Web Mapping Application: https://www.sewrpc.org/SEWRPC/DataResources/Regional-Land-Information/Regional-Mapping.htm

[52] Southeastern Wisconsin Regional Planning Commission VISION 2050: https://www.sewrpc.org/SEWRPC/VISION_2050/2050RegLandUseTranspPlan.htm

3.13 Natural Resources and Energy Supply

Existing known public utility providers that currently serve the airport is listed in **Table 3-6**.

Table 3-6. Known Utility Providers[53]

Utility	Supplied By
Electric	We Energies
Natural Gas	We Energies
Water	City of Milwaukee
Sanitary Sewer	City of Milwaukee, Milwaukee Metropolitan Sewerage District, and Milwaukee County

The proposed project is anticipated to recycle the existing asphalt and concrete pavement as millings or aggregate. Additional recycled pavements would be hauled offsite by the contractor and may be stockpiled or recycled for other infrastructure projects. Other resources that may be required may include water, asphalt, or virgin aggregate. The use of mineral sources such as sand, aggregate, bentonite, and cement are expected to be limited and new pits are not anticipated.

3.14 Noise

A Noise Technical Report was prepared for this EA to assess potential noise impacts[54]. The noise assessment evaluated impacts associated with the proposed action of decommissioning and removing Runway 13/31 (SPA and Alternate B) compared to the No Action alternative. Studies for the proposed decommissioning and removal of Runway 1R/19L are currently ongoing and Runway 1R/19L may be decommissioned prior to the proposed decommissioning of Runway 13/31. The noise assessment assumed that Runway 1R/19L would be decommissioned or no longer operational and was not included in the future analysis. Aircraft operation data was obtained from the Airport's NOMS database for November 2022 through October 2023 and was scaled to the FAA-reported tower counts for calendar year (CY) 2023. CY2023 operations (96,755) were used as the existing condition for the noise analysis. The noise assessment evaluated noise changes for two periods, CY2029 and CY2034. The CY2023 existing condition data was scaled for the CY2029 and CY2034 analysis. It was assumed that the distribution of day/night split would remain the same from the existing conditions. The noise technical report is included in **Appendix 4** and includes the regulatory setting, existing conditions, methodology, assumptions, and analysis.

[53] Master Plan Update, Section 2.8 (Utilities): https://www.mkeupdate.com/application/files/8116/6372/6841/MPU-Section2-Inventory-Final-2022-09-20.pdf

[54] Noise Technical Report prepared by Harris Miller Miller & Hansen, Inc. See Appendix 4.

3.15 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

The Airport is located within the City of Milwaukee and is surrounded by the neighboring political jurisdictions of St. Francis, Cudahy, and Oak Creek. Additionally, the City of South Milwaukee is located within 1 mile of the eastern airport property boundary. The U.S. Census Bureau provides the results of the decennial census, when compared to the 2010 census data, the 2020 population of the City of Milwaukee decreased by 2.18% while the 2020 population of Milwaukee County (county) decreased by 0.87%[55]. **Table 3-7** shows the population change from 2000 to 2020 for the City of Milwaukee, neighboring political jurisdictions, county, and State of Wisconsin (state).

Table 3-7. Population Change, 2000 - 2020

Location	2000[56]	2010[57]	2020[58]
State of Wisconsin	5,363,675	5,686,986	5,893,718
Milwaukee County	940,164	947,735	939,489
City of Milwaukee	596,956	594,833	577,222
City of St. Francis	8,663	9,365	9,161
City of Cudahy	18,429	18,267	18,204
City of South Milwaukee	21,195	21,156	20,795
City of Oak Creek	28,456	34,451	36,497

The distribution of people by demographic background for the neighboring political jurisdictions of St. Francis, Cudahy, South Milwaukee, and Oak Creek is similar to that of the state. When the demographic background of the City of Milwaukee and Milwaukee County compared to the state, there is a significant difference. **Table 3-8** shows the demographic background for the City of Milwaukee, neighboring political jurisdictions, county, and state.

The EPA's Environmental Justice Screening and Mapping Tool (EJScreen) was used to produce a community report for a three-mile radius around the project area. There is a population of 126,808 people within the three-mile radius. **Table 3-9** shows the demographic background for the three-mile radius around the project area. The EJScreen Community Report can be found in **Appendix 3.**

[55] Calculated by Westwood with population data obtained from the U.S. Census Bureau as shown in Table 3-7.

[56] U.S. Census Bureau, 2000 Census of Population and Housing, Summary Social, Economic, and Housing Characteristics, PHC-2-51, Wisconsin Washington, DC, 2003

[57] U.S. Census Bureau, 2010 P1 Data Table: https://data.census.gov/profile

[58] U.S. Census Bureau, 2020 P1 Data Table : https://data.census.gov/profile

Table 3-8. 2020 U.S. Census Data – Demographic Background[59]

Demographic Composition	State of Wisconsin	Milwaukee County	City of Milwaukee	City of St. Francis	City of Cudahy	City of South Milwaukee	Oak Creek
White	80.4%	52.0%	36.1%	80.40%	77.1%	81.2%	78.7%
Black or African American	6.4%	26.2%	38.6%	3.7%	4.6%	3.6%	3.6%
Native American and Alaska Native	1.0%	0.8%	0.9%	0.9%	0.9%	0.9%	0.5%
Asian	3.0%	4.9%	5.2%	1.9%	1.6%	1.6%	6.9%
Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Some Other Race	3.1%	6.8%	9.0%	4.3%	5.4%	3.8%	2.7%
Two or More Races	6.1%	9.3%	10.1%	8.7%	10.5%	8.8%	7.6%

Table 3-9. 3-Mile Project Radius – Demographic Background[60]

White	65%
Black or African American	4%
Native American and Alaska Native	0%
Asian	4%
Native Hawaiian and Other Pacific Islander	0%
Some Other Race	0%
Two or More Races	3%
Hispanic	24%

The distribution of people by ethnicity for the City of Milwaukee and neighboring political jurisdictions is similar to that of Milwaukee County. When compared to the state, Milwaukee County has a higher percentage of Hispanic of Latino Americans. The state population of Hispanic of Latino Americans is 7.6%; Milwaukee County is 16.3%. **Table 3-10** shows the ethnicity

[59] U.S. Census Bureau, Demographic Profile (DP1) Data Table, Vintage 2020 : https://data.census.gov/profile

[60] EPA Environmental Justice Screening and Mapping Tool: https://www.epa.gov/ejscreen

population composition for the City of Milwaukee, neighboring political jurisdictions, county, and state.

Table 3-10 Ethnicity Composition, 2020[61]

Ethnicity Composition	State of Wisconsin	Milwaukee County	City of Milwaukee	City of St. Francis	City of Cudahy	City of South Milwaukee	City of Oak Creek
Hispanic of Latino	7.6%	16.3%	20.1%	12.5%	15.4%	13.0%	9.4%
Non-Hispanic or Latino	92.4%	83.7%	79.9%	87.5%	84.6%	87.0%	90.6%

Housing Tenure for Milwaukee County is 47.9% owner-occupied housing and 52.1% renter-occupied housing. The City of Milwaukee has a greater percentage of renter-occupied housing at 60.5%. Both the City of Milwaukee and Milwaukee County have a greater percentage of renter-occupied housing units than the state. **Table 3-11** shows the housing tenure for the City of Milwaukee, neighboring political jurisdictions, county, and state. The EJScreen community report **(Appendix 3)** identified 58% of housing is owner-occupied for a three-mile radius around the project area.

Table 3-11 Housing Tenure, 2020[62]

Housing Tenure	State of Wisconsin	Milwaukee County	City of Milwaukee	City of St. Francis	City of Cudahy	City of South Milwaukee	City of Oak Creek
Owner-occupied housing units	66.3%	47.9%	39.5%	50.1%	57.3%	58.5%	58.4%
Renter-occupied housing units	33.7%	52.1%	60.5%	49.9%	42.7%	41.5%	41.6%

The ongoing American Community Survey assists local officials and leaders in identifying community changes on an annual basis[63]. The 2022 American Community Survey provides estimates of the population in the labor force (16 years and over) for communities. **Table 3-12**

[61] U.S. Census Bureau, Demographic Profile (DP1) Data Table, Vintage 2020: https://data.census.gov/profile

[62] U.S. Census Bureau, Demographic Profile (DP1) Data Table, Vintage 2020: https://data.census.gov/profile

[63] U.S. Census Bureau, American Community Survey: https://www.census.gov/programs-surveys/acs

shows the estimated population in the labor force for the City of Milwaukee, neighboring political jurisdictions, county, and state. The EJScreen community report **(Appendix 3)** identified an unemployment rate of 4% for a three-mile radius around the project area.

Table 3-12 Population in Labor Force, 2022[64]

	Population 16 years and over	Percent in Labor Force	Percent not in Labor Force	Unemployment Rate
State of Wisconsin	4,802,830	65.1%	34.9%	2.8%
Milwaukee County	726,918	65.4%	34.6%	3.9%
City of Milwaukee	442,909	65.1%	34.9%	5.0%
City of St. Francis	8,337	55.0%	45.0%	1.0%
City of Cudahy	15,319	65.9%	34.1%	2.3%
City of South Milwaukee	16,749	64.7%	35.3%	3.5%
City of Oak Creek	29,574	72.2%	27.8%	1.4%

The 2022 American Community Survey estimates the educational attainment. **Table 3-13** shows the education attainment for the City of Milwaukee, neighboring political jurisdictions, county, and state. The EJScreen community report **(Appendix 3)** identified approximately 11% of the population has less than a high school education for a three-mile radius around the project area.

Table 3-13 Education Attainment, 2022

	State of Wisconsin	Milwaukee County	City of Milwaukee	City of St. Francis	City of Cudahy	City of South Milwaukee	City of Oak Creek
High School or Higher	93.5%	90.1%	86.3%	93.7%	93.4%	92.4%	95.3%
Bachelor's Degree or Higher	33.2%	34.4%	27.7%	27.2%	26.4%	25.9%	38.4%

[64] U.S. Census Bureau, American Community Survey (DP03) Data Table, Vintage 2022: https://data.census.gov/profile

The American Community Survey also estimates the per capita income. **Table 3-14** shows the per capita change from 2010 to 2022 for the City of Milwaukee, neighboring political jurisdictions, county, and state. The EJScreen community report **(Appendix 3)** identified a per capita income of $33,665 for a three-mile radius around the project area.

Table 3-14 Per Capita Income Change[65]

	2010	2015	2022
State of Wisconsin	$25,458	$29,563	$40,188
Milwaukee County	$22,420	$26,128	$35,219
City of Milwaukee	$17,912	$21,089	$29,250
City of St. Francis	$26,409	$27,159	$39,278
City of Cudahy	$23,587	$24,085	$37,232
City of South Milwaukee	$26,265	$25,369	$35,100
City of Oak Creek	$30,325	$32,123	$44,994

The EJScreen Community Report **(Appendix 3)** identified approximately 21% of the project 3-mile radius population is from ages 1 to 18, equivalent to an estimated 26,630 children[66]. 36 schools are located within the three-mile radius of the project area[67]. **Figure 3-14** shows the location of schools relative to the project area.

3.16 Visual Effects

The existing Runway 13/31, Taxiway G, Taxiway U, and Taxiway N includes runway and taxiway lighting. Runway 13/31 also includes the NAVAIDs of REILs and PAPIs. A REIL systems consists of two synchronized, unidirectional flashing lights positioned at the end of a runway. The REIL is effective in identifying a runway during reduced visibility. Depending on the type of equipment, a REIL has an approximate range of three miles in daylight and twenty miles at night[68]. A PAPI

[65] U.S. Census Bureau, American Community Survey (DP03) Data Table, Vintage 2010, 2015, & 2022: https://data.census.gov/profile

[66] Calculated by Westwood using the population estimate of 126,808 from the EPA EJScreen Community Report.

[67] The EJScreen Community Report only incudes public elementary and secondary schools.

[68] FAA, Runway End Identifier Lights: https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/lsg/reil

system consists of four light boxes arranged perpendicular to the runway and provide visual approach slope information to landing aircraft.[69]

3.17 Water Resources

3.17.1 Wetlands

A wetland delineation was performed on September 11, 2023 at the proposed project location[70]. The delineation did not identify any wetlands in the proposed project area. **Figure 3-15** shows the wetland delineation boundary for the proposed project.

3.17.2 Topography and Drainage

Topography at the Airport generally slopes uphill from northeast to southwest. Elevations vary from approximately 730 feet to 670 feet above mean sea level (MSL). The established airport elevation is 728 MSL and is defined by the FAA as the highest point on any paved landing surface. This elevation occurs near the approach end of Runway 7R. **Figure 3-16** is an aerial view of the proposed project area with a topographic map overlay.

Stormwater is controlled by topography, storm sewer structures and pipes, channels, and ditches. Depending on the location on the Airport, stormwater will drain to one of three primary basis and release points. The proposed project area lies within the northern drainage basin. The northern drainage basin flows southeast to northwest by overland flow, a series of storm sewer pipes, and concrete lined channels. Stormwater from the northern drainage basin exits the airport at a box culvert under Howell Avenue near the intersection with Layton Avenue. The outfall is at Wilson Park Creek which drains to the Kinnikinic River that drains to Lake Michigan[71]. **Figure 3-17** shows the storm sewer and airport drainage utilities.

3.17.3 Floodplains

Flood insurance rate maps prepared by the Federal Emergency Management Agency (FEMA) determine the limits of base floodplains (100-year flood areas). Flood insurance rate maps prepared by FEMA were reviewed to determine the limits of base floodplains associated with the proposed project area. No floodplains were identified in the proposed project area. The closest floodplain zone is located south-east of the proposed project area[72]. **Figure 3-18** graphically represents Flood Hazard Zones from FEMA's Web Map Services overlaid onto an aerial view of the proposed project area.

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[69] FAA, Precision Approach Path Indicator, https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/lsg/papi

[70] A Wetland Delineation Report was prepared by Quest Civil Engineers, LLC, dated September 11, 2023.

[71] Master Plan Update, Section 2.8.6 (Storm Sewer Utilities and Airport Drainage): https://www.mkeupdate.com/application/files/8116/6372/6841/MPU-Section2-Inventory-Final-2022-09-20.pdf

[72] FEMA Flood Mapping Center: https://msc.fema.gov/portal/home

3.17.4 Surface Water

The WDNR surface water viewer shows the Wilson Park Creek crossing Runway 13/31. The WDNR initial concurrence letter indicated that Wilson Park Creek is located in an enclosed underground culvert pipe that runs along Runway 13/31[73]. **Figure 3-19** shows an aerial view of the proposed project areas with the 24K Hydro Waterbodies (lakes)/Flowline (rivers, streams) map overlaid. The Wilson Park Creek and associated tributaries are considered navigable waterways. The WDNR initial concurrence letter further indicated that Wilson Park Creek is classified as a cool warm headway stream and an impacted waterway for acute aquatic toxicity[74].

The Airport is located in both the Milwaukee River Basin and Southeast (Root-Pike) Basins. The basin boundary is located south of the proposed project area and runs east/west through the airport property[75]. Specifically, the proposed project area is located within Kinnickinnic River Watershed (MI01)[76] which flows to Lake Michigan. **Figure 3-20** shows watershed boundaries.

3.17.5 Groundwater

Monitoring wells were recently installed at various locations around airport property apart of a site investigation to evaluate source areas at the Airport for potential releases of per-and polyfluoroalkyl substances (PFAS). Wells were installed near the cargo ramp, west ramp area, burn pit and former fire training areas, and the Airport fire department and maintenance area. Ground water elevations associated with all sites were recorded between 2.07 ft and 11.79 ft below ground surface.

The closest evaluation site to the proposed project is the burn pit and former fire training areas located approximately 0.25 miles northeast of the proposed project area. In this area, groundwater elevates were recorded between 3.32 ft and 10.44ft below ground surface. Groundwater flow direction in this area was determined to be northeast.

Localized groundwater flow direction can be influenced by underground utilities, underground structures, fill materials, and soil conditions. Regionally, groundwater flow direction is expected to be in an easterly direction towards Lake Michigan.

The EPA monitors Sole Source Aquifers (SSA) in the United States. A SSA is an aquifer that "supplies at least 50 percent of the drinking water for its service area" and "no reasonable available alternative drinking water sources should the aquifer become contaminated"[77]. The EPA's

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[73] WDNR Surface Water Data Viewer: https://dnrmaps.wi.gov/H5/?Viewer=SWDV

[74] WDNR Initial Review Letter (1/10/2024), See Attachment 2.

[75] WDNR Wisconsin Basins and Watersheds: https://dnr.wisconsin.gov/topic/Watersheds/basins

[76] WDNR Watershed Details, Kinnickinnic River: https://apps.dnr.wi.gov/Water/watershedDetail.aspx?code=MI01&Name=Kinnickinnic%20River

[77] EPA Sole Source Aquifer Program Overview: https://www.epa.gov/dwssa/overview-drinking-water-sole-source-aquifer-program#What_Is_SSA

interactive mapping tool of SSAs was accessed, there are no identified SSAs in the State of Wisconsin and Northern Illinois[78].

3.17.6 Wild and Scenic Rivers

The State of Wisconsin is home to two rivers in the National Wild and Scenic Rivers System[79]. The St. Croix River and the Wolf River are both located in northern Wisconsin. No rivers located in Southeastern Wisconsin are included in the National Wild and Scenic Rivers System.

3.18 Geology, Bedrock, and Soils

The proposed site overlies bedrock formed during the Silurian Period and bedrock in the area is comprised of Racine Formation[80]. Bedrock is expected to be greater than 100 feet from the land surface[81].

The United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Web Soil Survey was accessed on November 3, 2023[82]. Soils at the Airport are primarily classified as Clayey Land. The proposed project area is located in soils primarily classified as Clayey Land. **Figure 3-21** is an aerial view of the proposed project area with a soil map overlay.

A geotechnical investigation for the proposed project has not been completed.

[78] EPA Interactive Map of Sole Source Aquifers: https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b

[79] National Wild and Scenic Rivers System: https://www.rivers.gov/

[80] Wisconsin Geological and Natural History Society, Preliminary Bedrock Geologic Map of Milwaukee County: https://wgnhs.wisc.edu/catalog/publication/000847/resource/wofr200414a

[81] WDNR Ecological Landscapes of Wisconsin, Depth to Bedrock Map: https://p.widencdn.net/fsronj/Map_S14_Bedrock_Depth

[82] USDA Natural Resources Conservation Service, Web Soil Survey: https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

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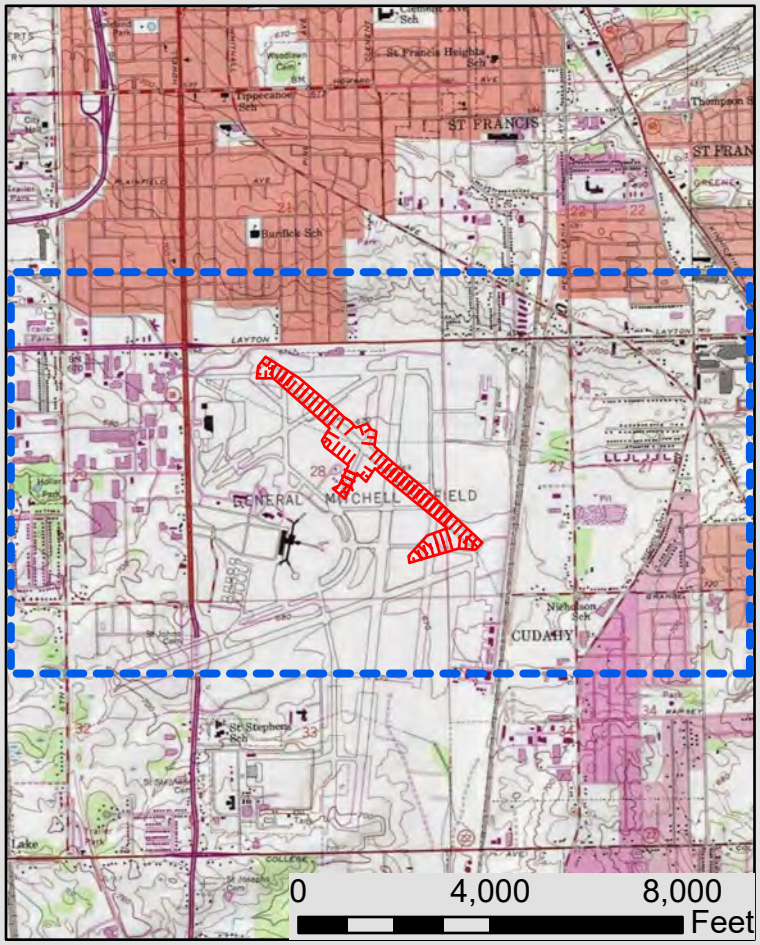

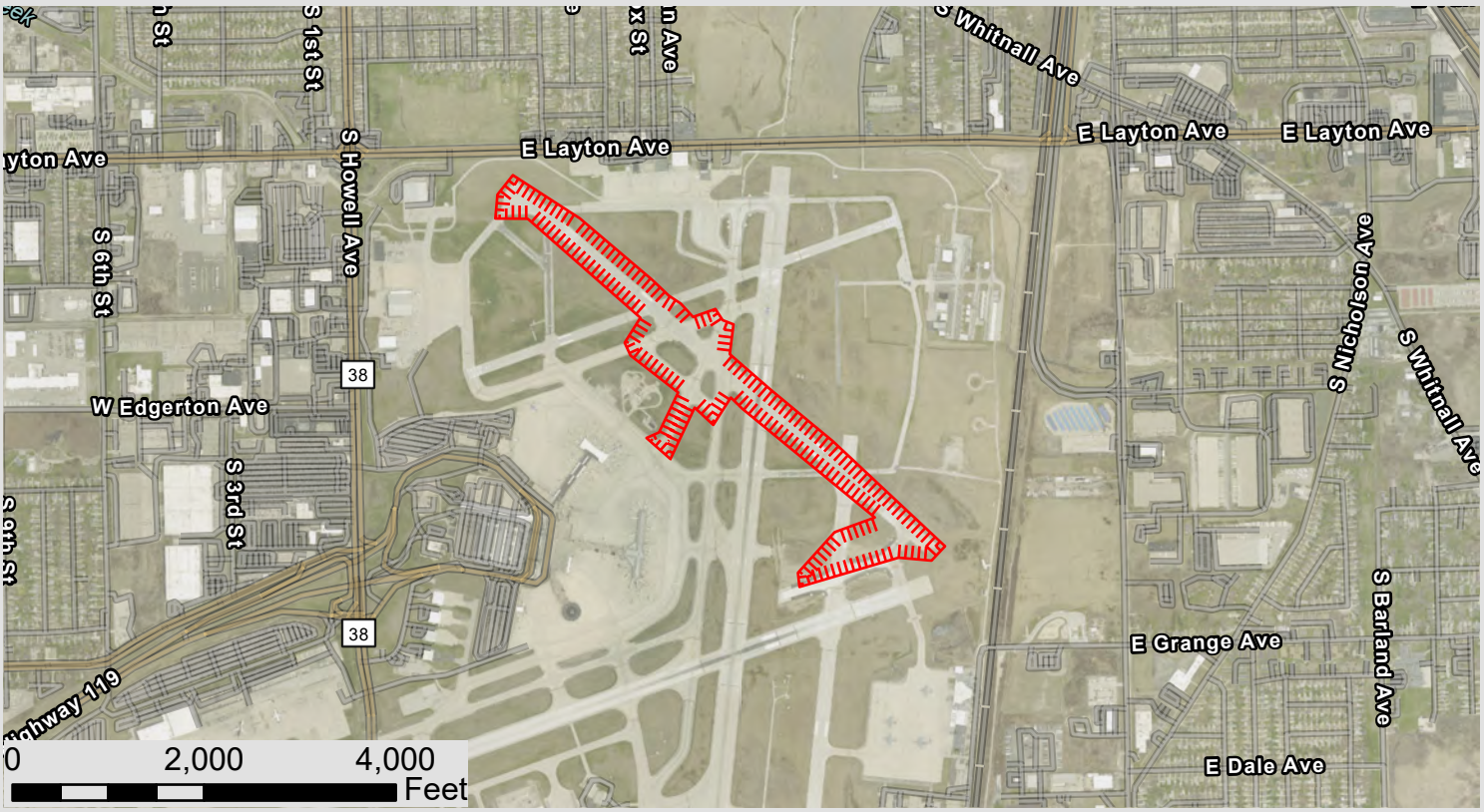

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MKE RUNWAY 13-31 REMOVAL

LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in = 2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. R3001844.01
Checked By:	
Date: 4/16/2024	FIGURE NO. 3-1

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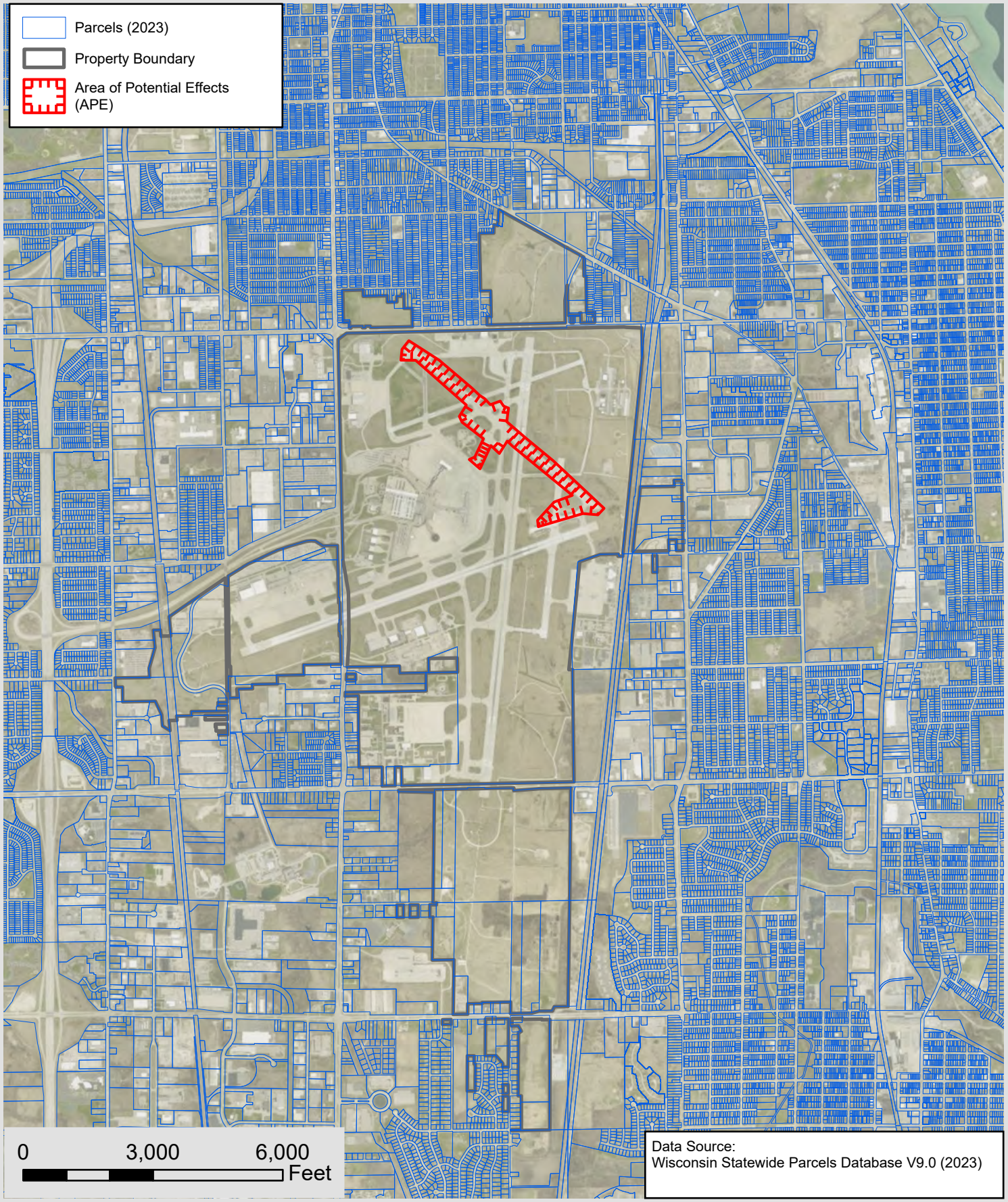

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AIRPORT AND SURROUNDING PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =3,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-2**

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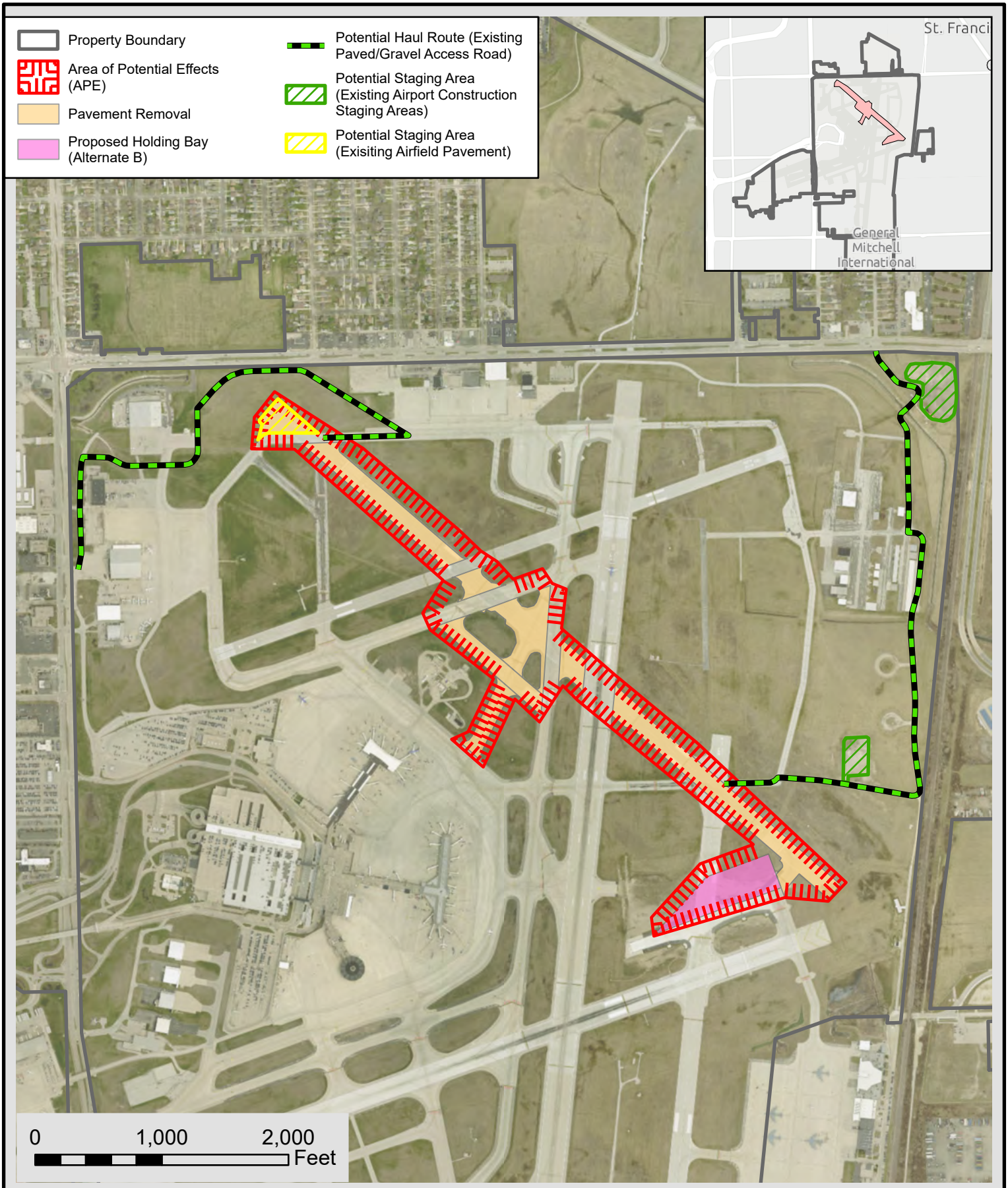

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PROPOSED ACTION LOCATION

GENERAL MITCHELL INTERNATIONAL AIRPORT
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Project Manager:	SCALE: 1 in =1,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-3**

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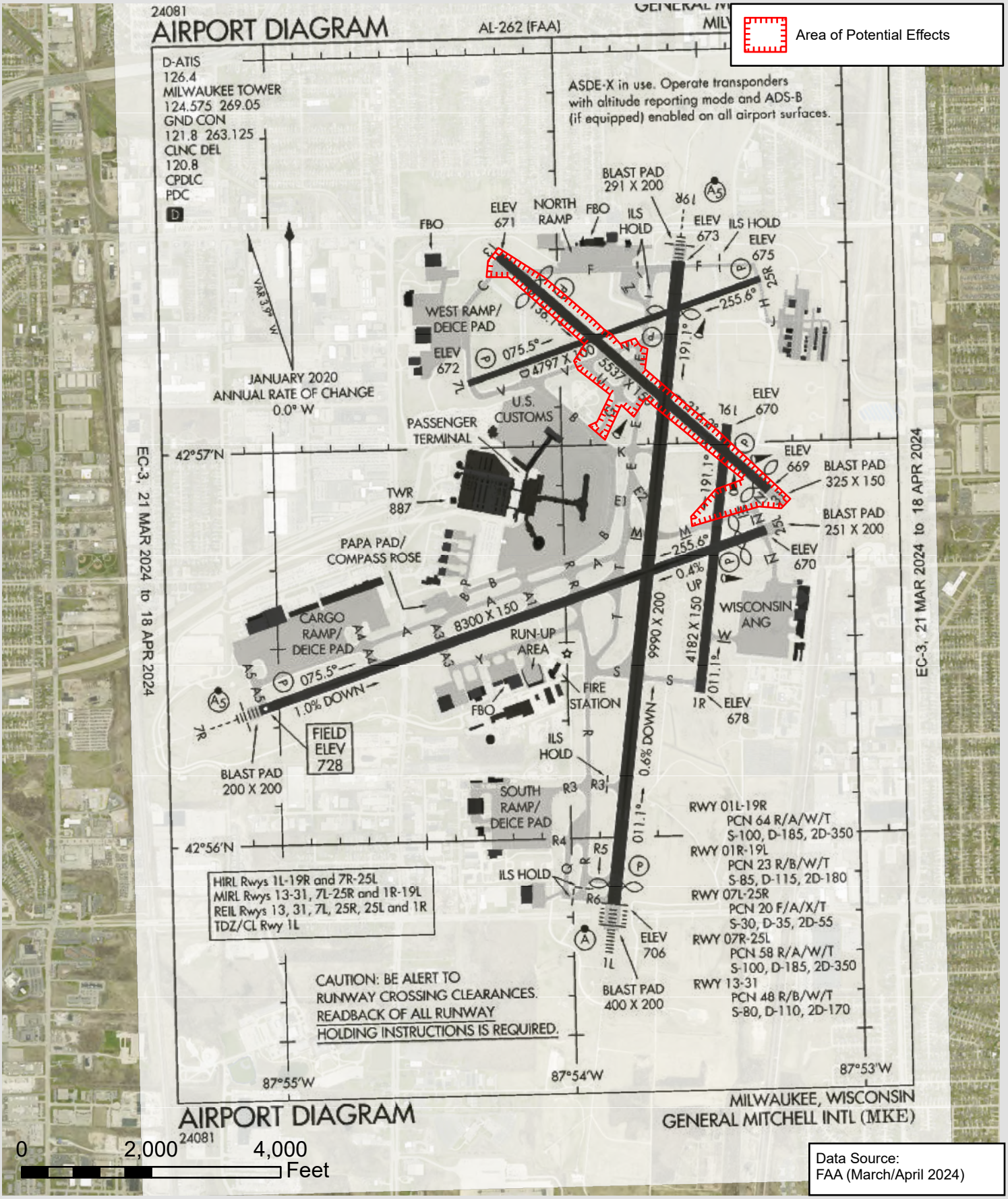

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AIRPORT DIAGRAM MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. R3001844.01
Checked By:	
Date: 4/16/2024	FIGURE NO. 3-4

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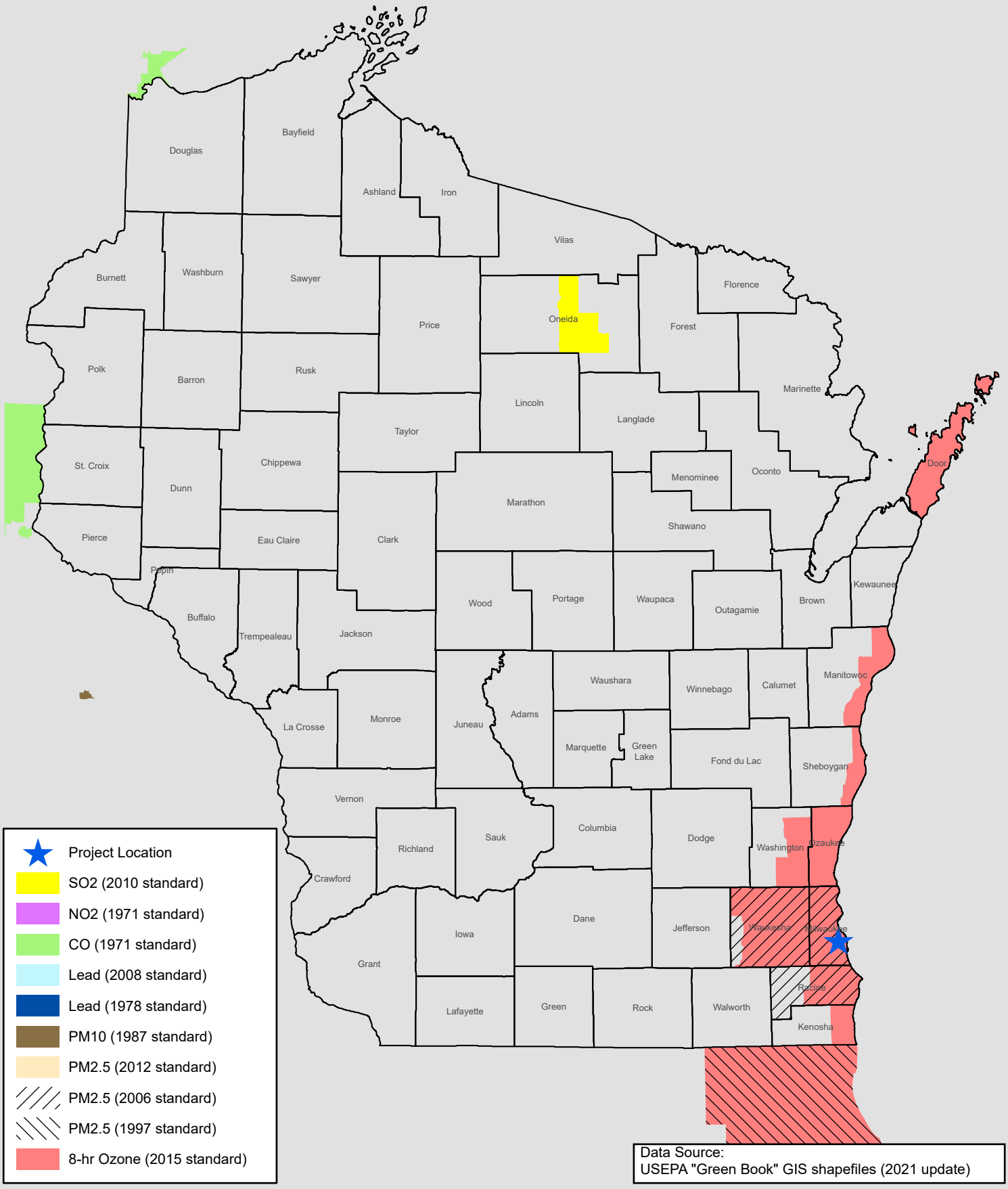

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NAAQS NONATTAINMENT AREAS

GENERAL MITCHELL INTERNATIONAL AIRPORT
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Project Manager:	SCALE: 1 in =208,333 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-5**

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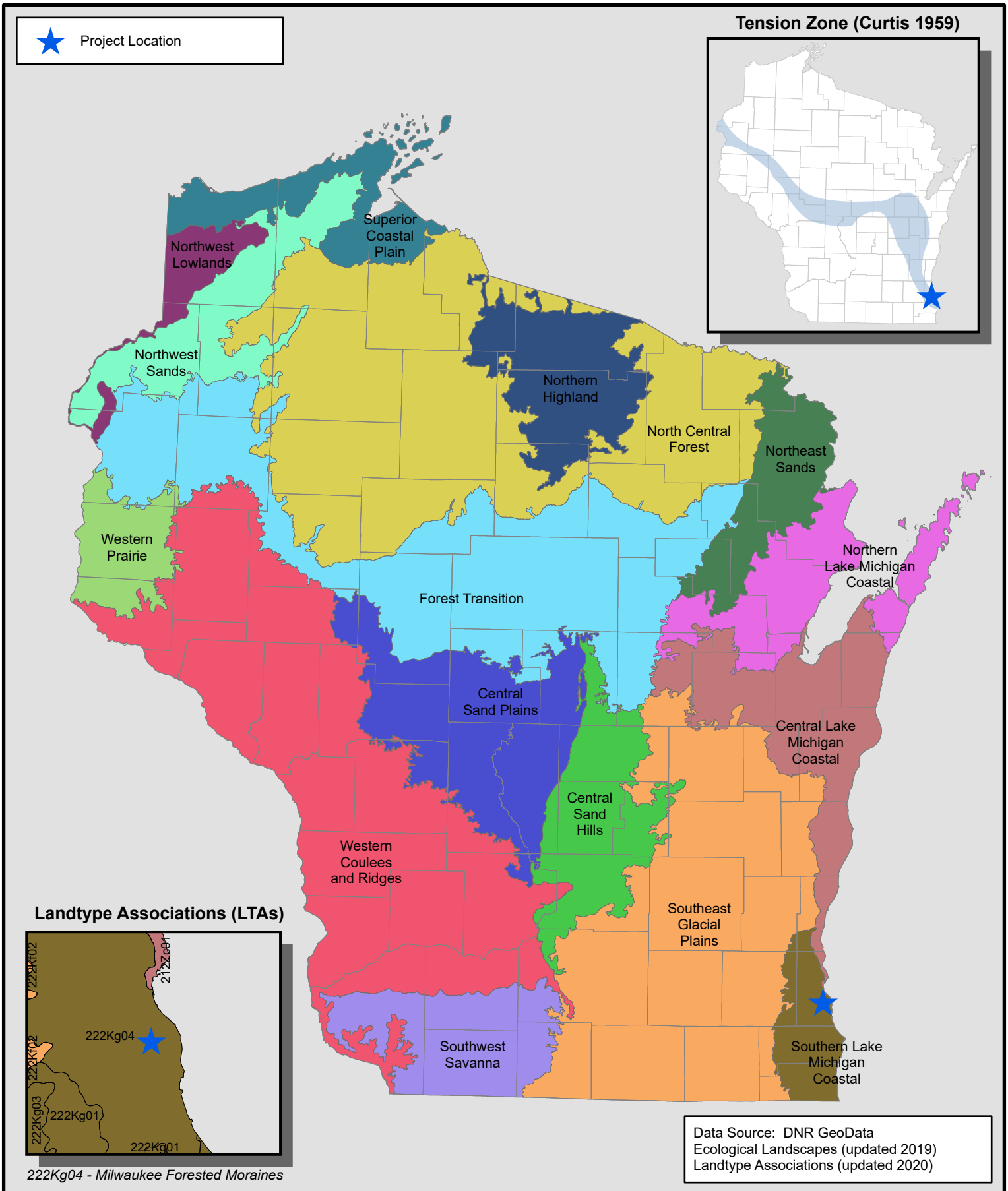

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ECOLOGICAL LANDSCAPES

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Project Manager:	SCALE: 1 in =215,401 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. R3001844.01
Checked By:	
Date: 4/16/2024	FIGURE NO. 3-6

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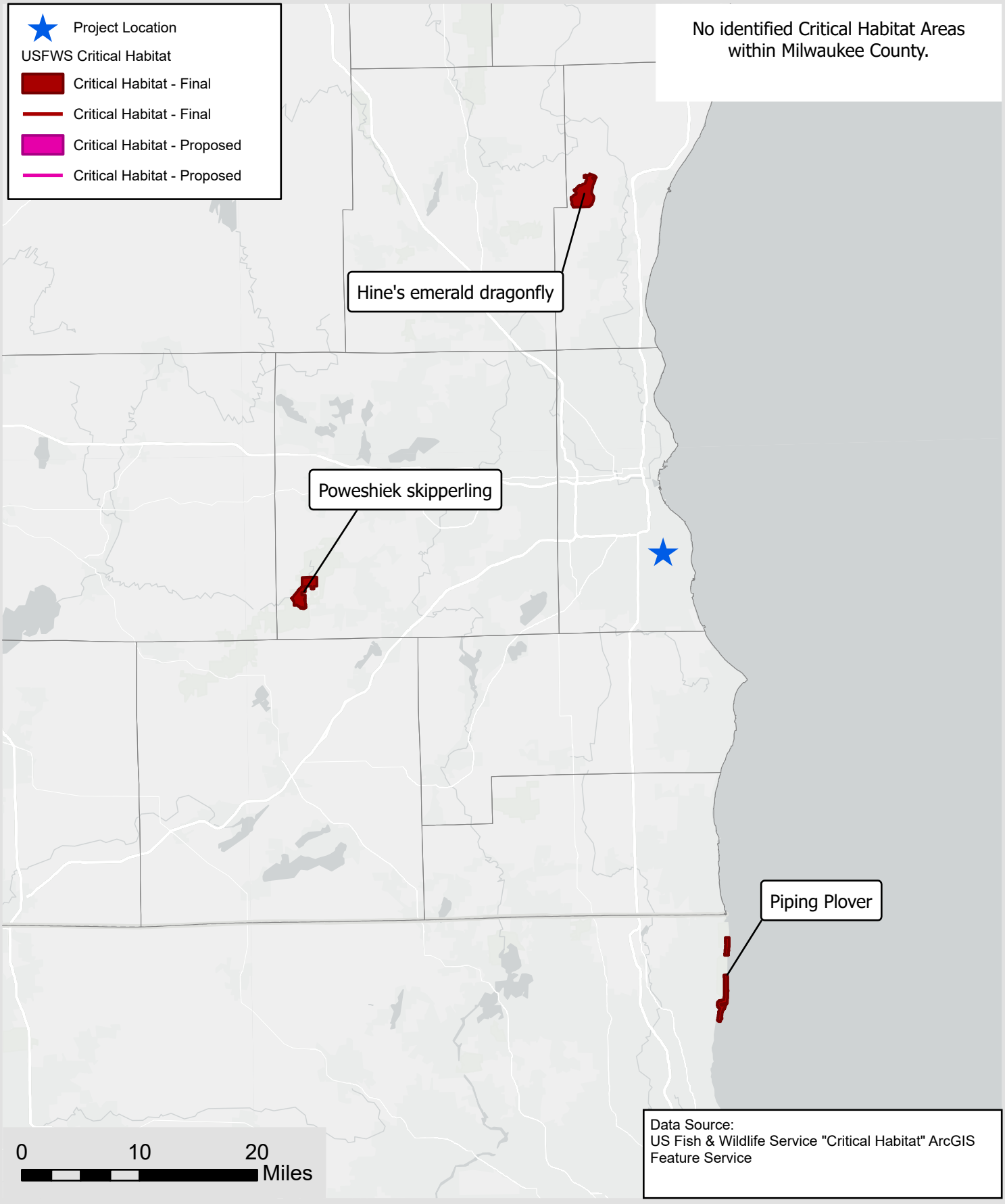

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USFWS CRITICAL HABITAT AREAS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =58,208 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
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Date: 4/16/2024	FIGURE NO. **3-7**

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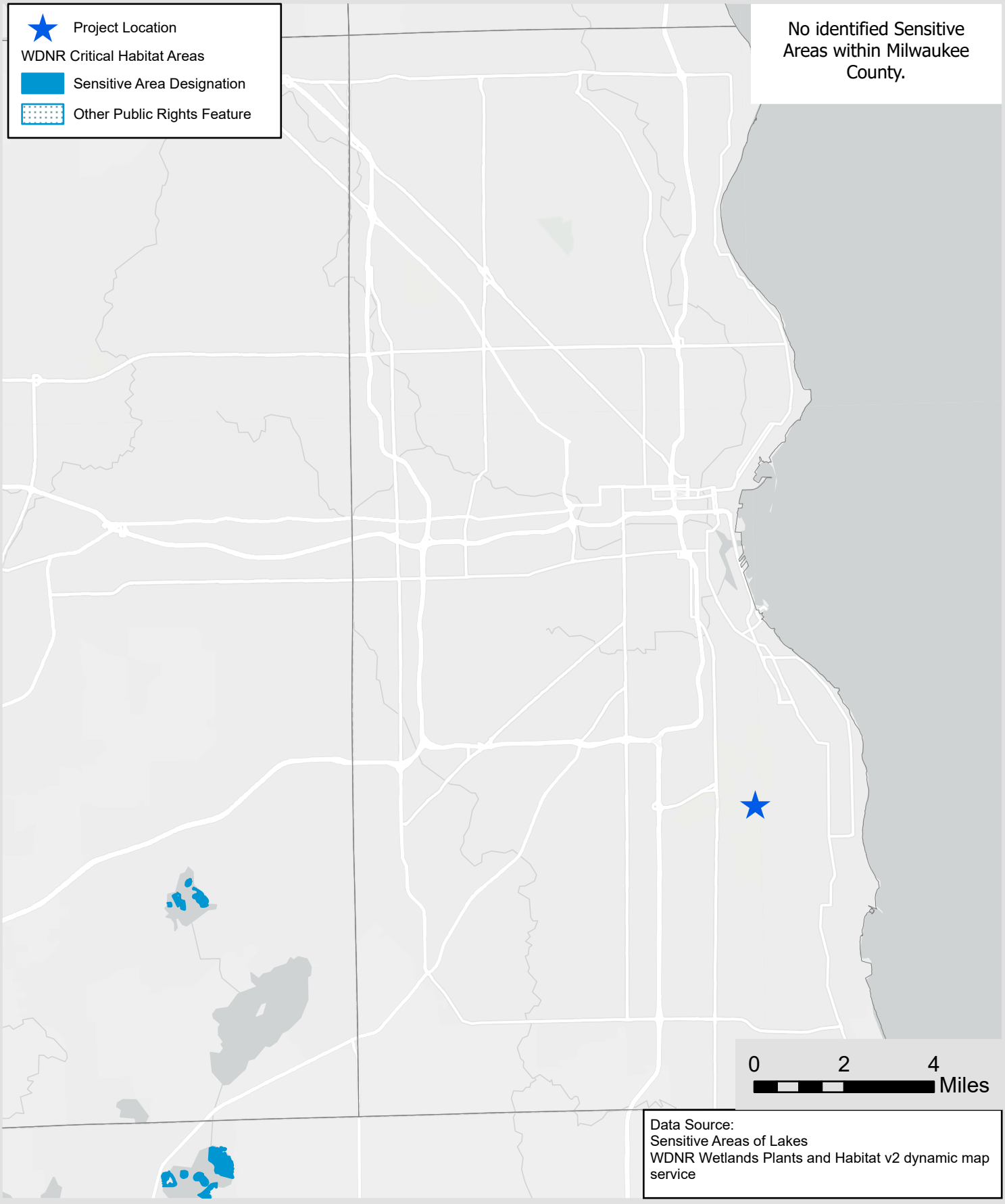

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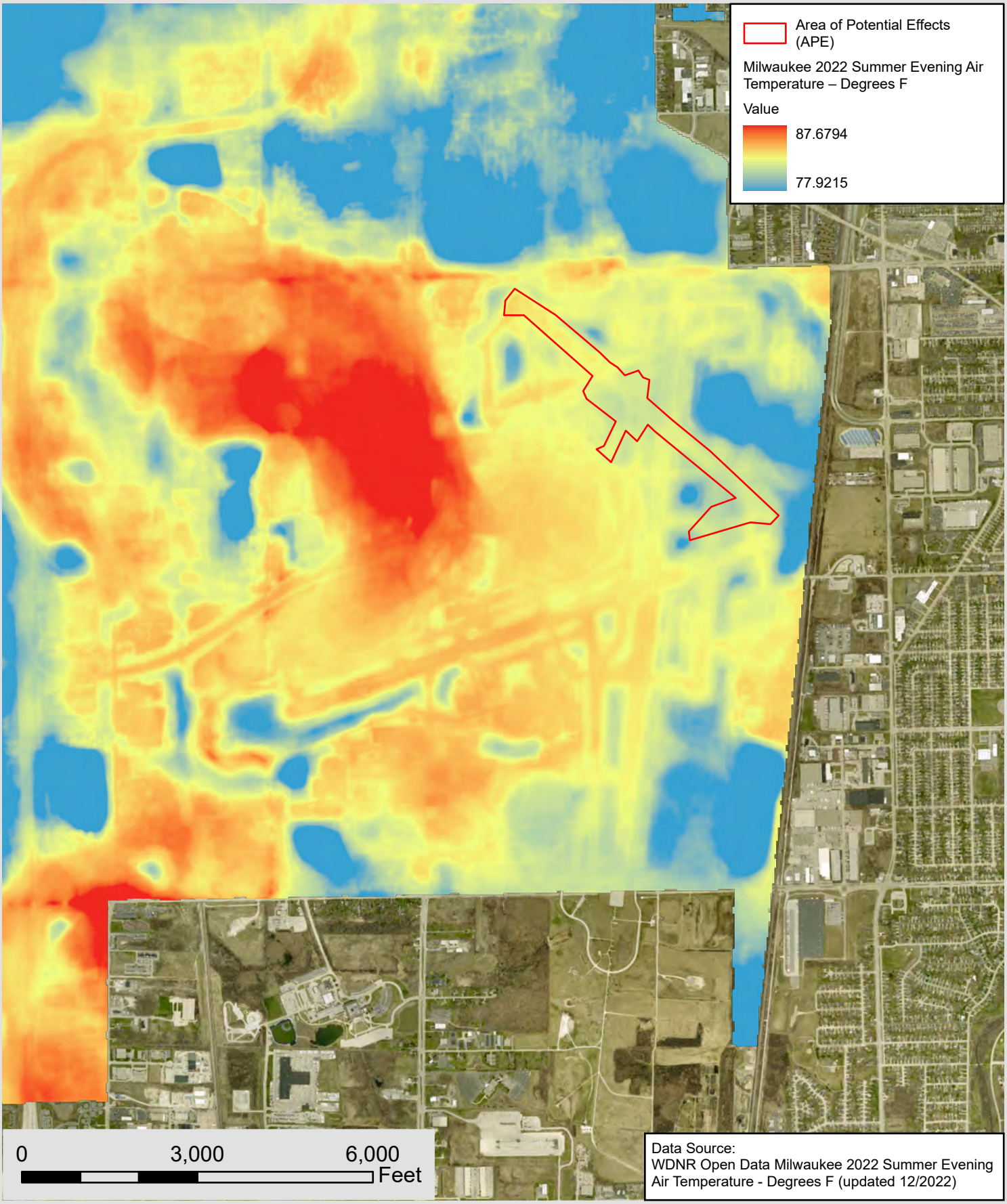
WDNR CRITICAL HABITAT AREAS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =15,259 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-8**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Critical Habitat Map DNR]
Printed: kmwehner 4/17/2024 9:00 AM



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MKE RUNWAY 13-31 REMOVAL

SUMMER EVENING TEMPERATURE DISTRIBUTION

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =2,223 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-9**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Urban Heat Island]
Printed: kmwehner 4/17/2024 9:03 AM

Data Source:
WI Department of Administration - Wisconsin Coastal Management Program

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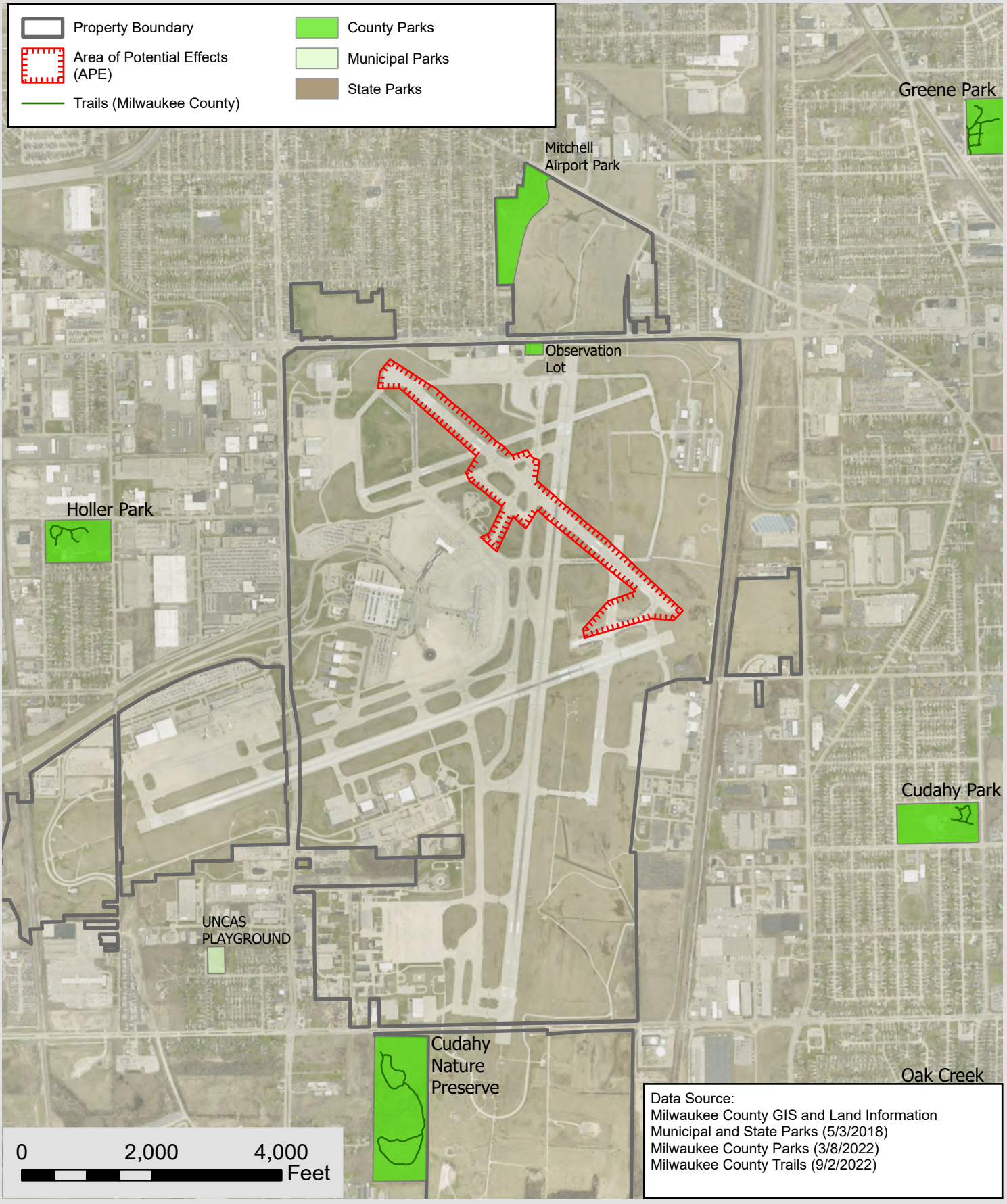
WISCONSIN COASTAL COUNTIES

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:		SCALE:	N/A
Project Engineer:			
Drawn By:	KMW	PROJECT NO.	R3001844.01
Checked By:			
Date:	4/16/2024	FIGURE NO.	3-10

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Coastal Counties Map]
Printed: kmwehner 4/17/2024 9:04 AM



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PARKS AND TRAILS MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-11**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Parks and Trails Map]
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LEGEND

AREA OF POTENTIAL EFFECTS (APE)

POTENTIAL PAVEMENT REMVOAL

TAXIWAY U

TAXIWAY E

RUNWAY 13-31

RUNWAY 1L-19R

TAXIWAY G

UNIFORM

ECHO

RSA

259

260

398

6" UNDERDRAIN

18" STORM SEWER

DISCOLORED SOIL

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-7 MW-8 MW-9 MW-10 MW-11

SB-1

GMIA 1 GMIA 1A GMIA 1B GMIA 1C GMIA 2 GMIA 2A GMIA 2B GMIA 2C GMIA 3 GMIA 3A GMIA 3B GMIA 3BM GMIA 3C GMIA 4 GMIA 4A GMIA 4B GMIA 4C GMIA 5 GMIA 5A GMIA 5B GMIA 5C GMIA 6A GMIA 6B GMIA 6C GMIA 7B GMIA 7C GMIA 8B GMIA 8C GMIA 9B GMIA 9C GMIA 10B GMIA 10C GMIA DT1 GMIA HA-1 GMIA HA-2

BRRTS# 02-41-558334
SITE LOCATION

250'
RUNWAY
OFFSET

RUNWAY 1L-19R
RUNWAY SAFETY AREA (RSA)
250FT OFFSET FROM CENTERLINE

LEGEND

EXPOSED SURVEYED PIPELINE (FEB 2012)

MONITORING WELL LOCATION

SOIL BORING LOCATION

BOUNDARY EXCAVATION

SURFACE SOIL REMOVAL

SCALE IN FEET
0 30 60

Apr. 29, 2014
AECOM NO.: 42233474
DRAWN BY: DF | APP'D BY: KDM
SCALE: AS SHOWN

URS
312 NORTH MAYFAIR STREET
MILWAUKEE, WI 53226-3333
(414) 581-4100 FAX (414) 581-4101

PREPARED FOR: SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.1.b
SITE MAP

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ONE SYSTEMS DRIVE
APPLETON, WI 54914
PHONE: (920) 735-6900
FAX: (920) 830-6100

PLOT BY : KAITLYN WEHNER
PLOTTED: 3/21/2024 9:45 AM
LAST SAVED BY: DW

MKE RUNWAY 13-31 REMOVAL

BRRTS#02-41-558334 SITE LOCATION

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

PROJECT NO: R3001844.01
DRAWN BY: KMW
DATE: 03/01/2024
FIGURE 3-12

FILE NAME : N:\3001844.00\EAS\2. RWY 13-31\CAD\RWY 13-31_FIG 3-12 CONTINUING OBLIGATION PERFERRED ALTERNATIVE REMOVAL.DWG

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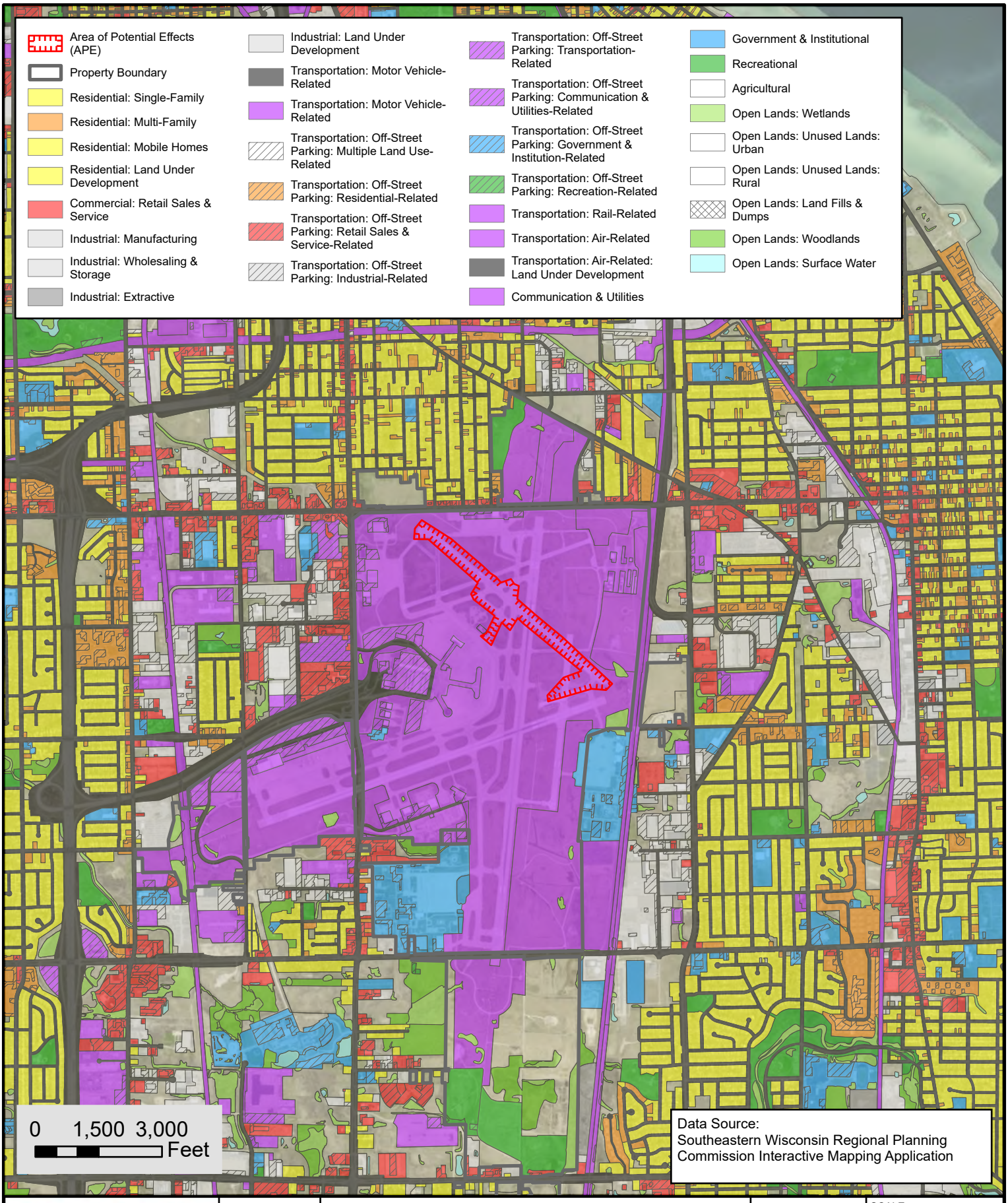

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EXISTING LAND USE MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =3,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. R3001844.01
Checked By:	
Date: 4/16/2024	FIGURE NO. 3-13

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Land Use Existing Map]
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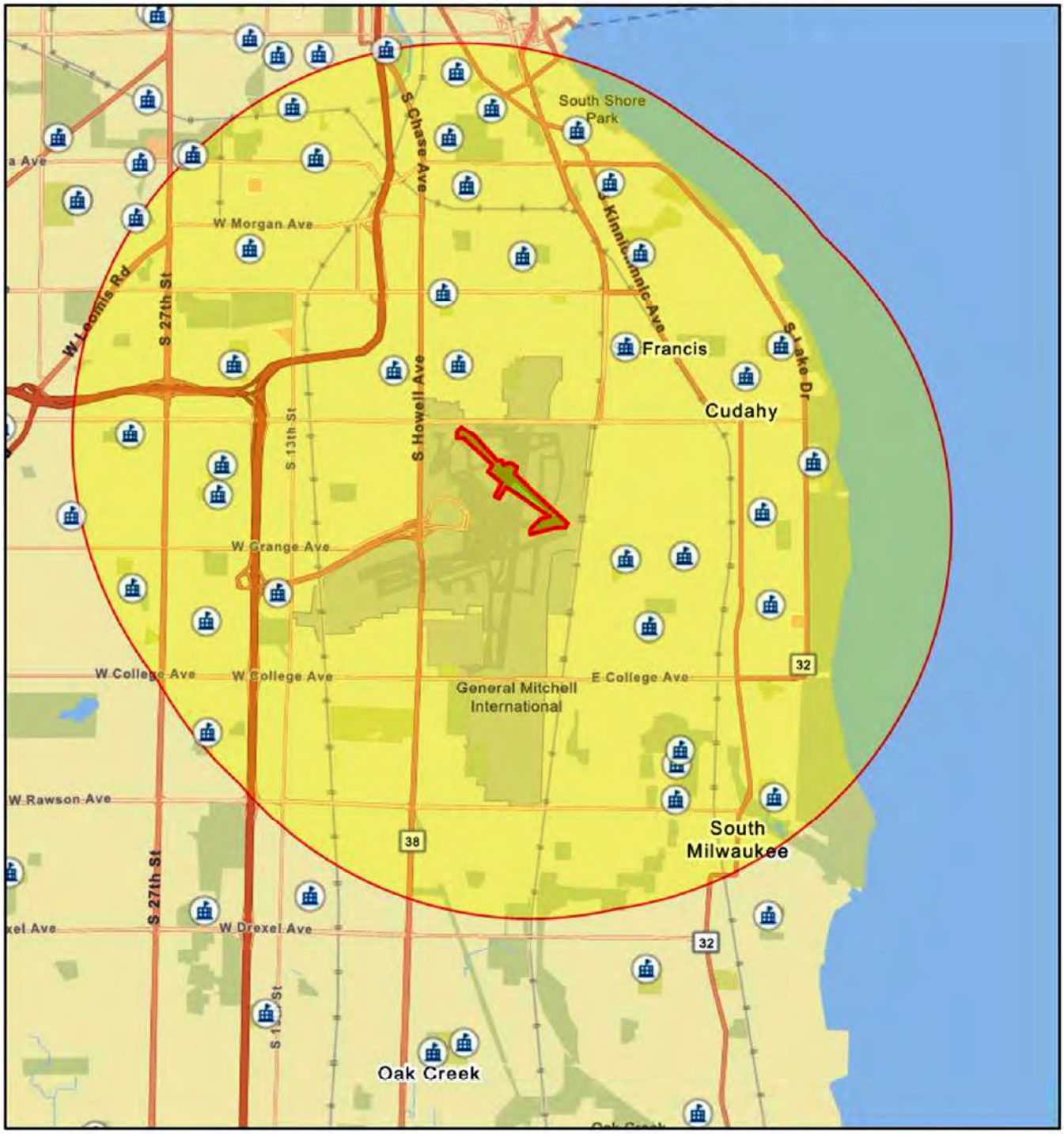
RWY 13/31 - Schools in 3-Mile Buffer



2/14/2024

Schools

RWY 13-31 EA

rwy 13-31 - ape area

Data Source:
EPA EJScreen Mapping Tool
https://ejscreen.epa.gov/mapper/

Milwaukee County Land Info, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS

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MKE RUNWAY 13-31 REMOVAL

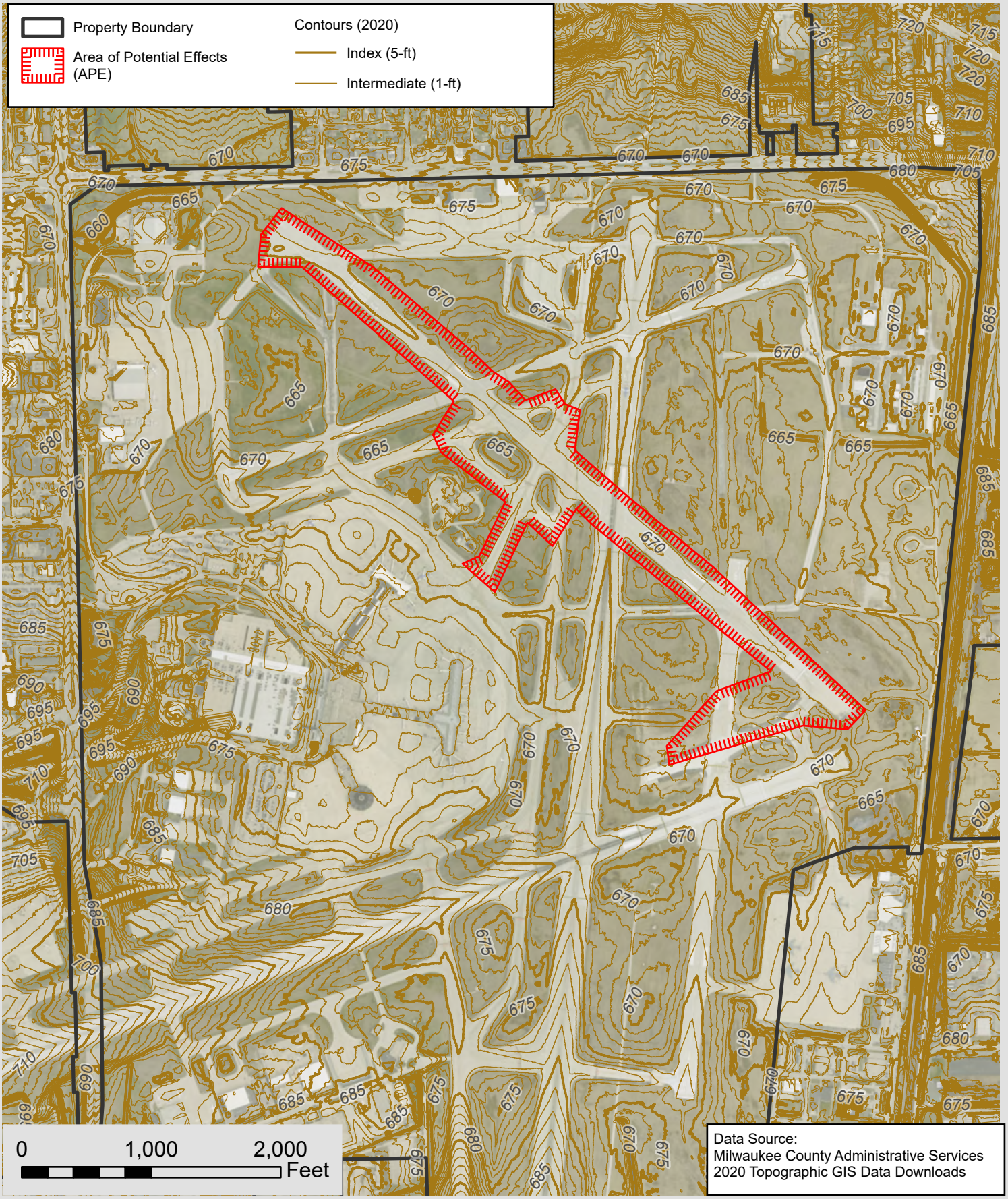
3-MILE PROJECT RADIUS SCHOOL LOCATIONS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:		SCALE:	N/A
Project Engineer:			
Drawn By:	KMW	PROJECT NO.	R3001844.01
Checked By:			
Date:	4/16/2024	FIGURE NO.	3-14

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [3 Mile Schools]
Printed: kmwehner 4/17/2024 9:24 AM

Wetland Map		City of Milwaukee Milwaukee County, WI	Figure **3-15**
MKE Airport Runways 1R-19L & 13-31	By: BWK Date: 9/12/2023	QUEST Civil Engineers, LLC	320 W Grand Ave.,Suite 302 Wisconsin Rapids, WI 54495 715-423-3525



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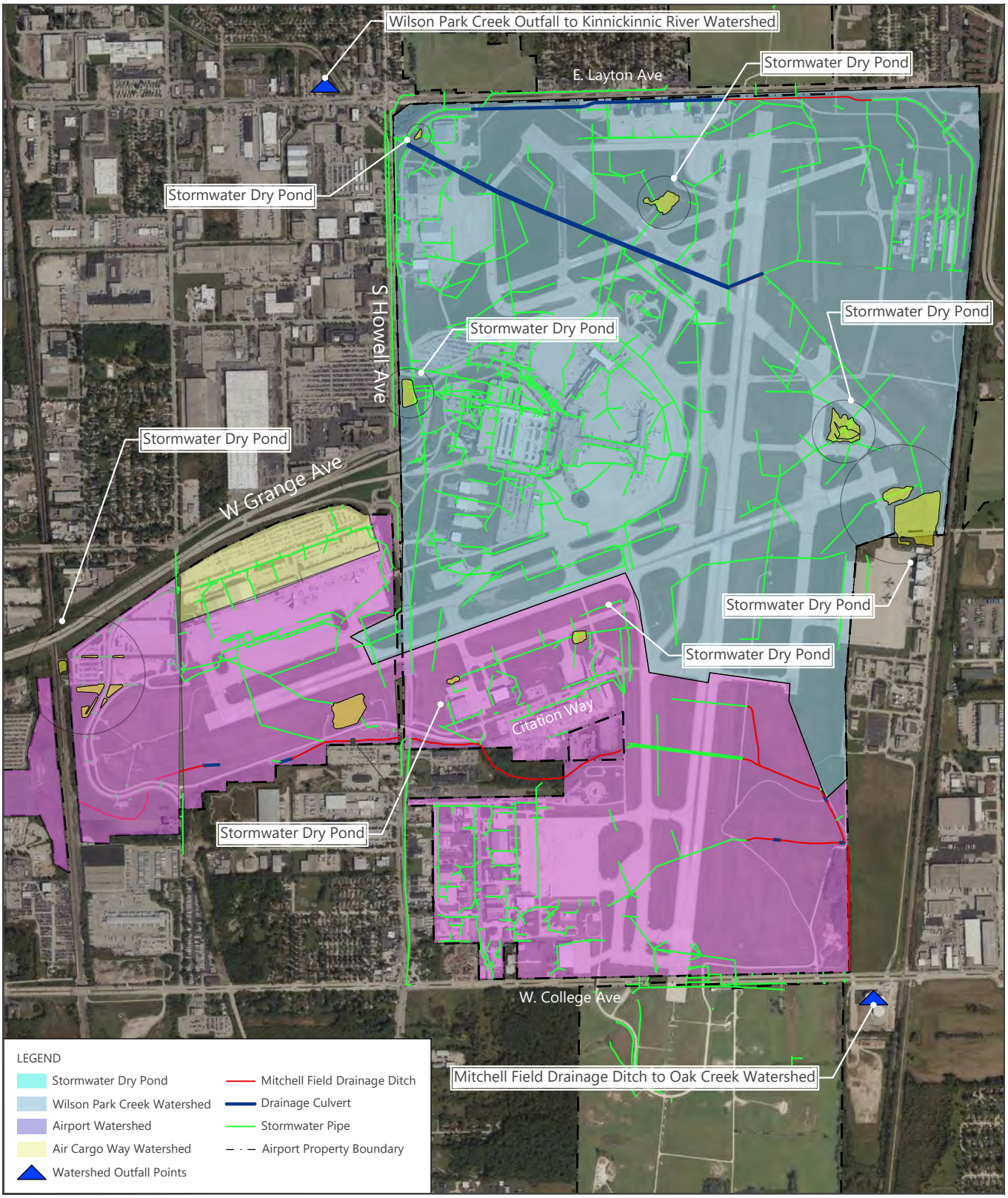
MKE RUNWAY 13-31 REMOVAL

TOPOGRAPHIC MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =1,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-16**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Topographic Map]
Printed: kmwehner 4/17/2024 9:27 AM



SOURCES: Quantum Spatial, September 2018 (aerial imagery); Milwaukee Mitchell International Airport Geographic Information System (data provided November 2018).

EXHIBIT 2-45

NORTH 0 1,700 ft

STORM SEWER AND AIRPORT DRAINAGE UTILITIES

Drawing: P:\Project-Chicago\MKE\MKE Master Plan Update\Master Plan Project 2018\03 - Inventory of Existing Conditions\3.23 - Working Exhibit 2-45 Plotted: Sep 23, 2019, 01:52PM

FIGURE 3-17
Storm Sewer and Airport Drainage Utilities
Map Source: https://www.mkeupdate.com/application/files/8116/6372/6841/MPU-Section2-Inventory-Final-2022-09-20.pdf

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FLOODPLAIN MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =1,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/17/2024	FIGURE NO. **3-18**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Floodplain Map]
Printed: kmwehner 4/17/2024 9:47 AM

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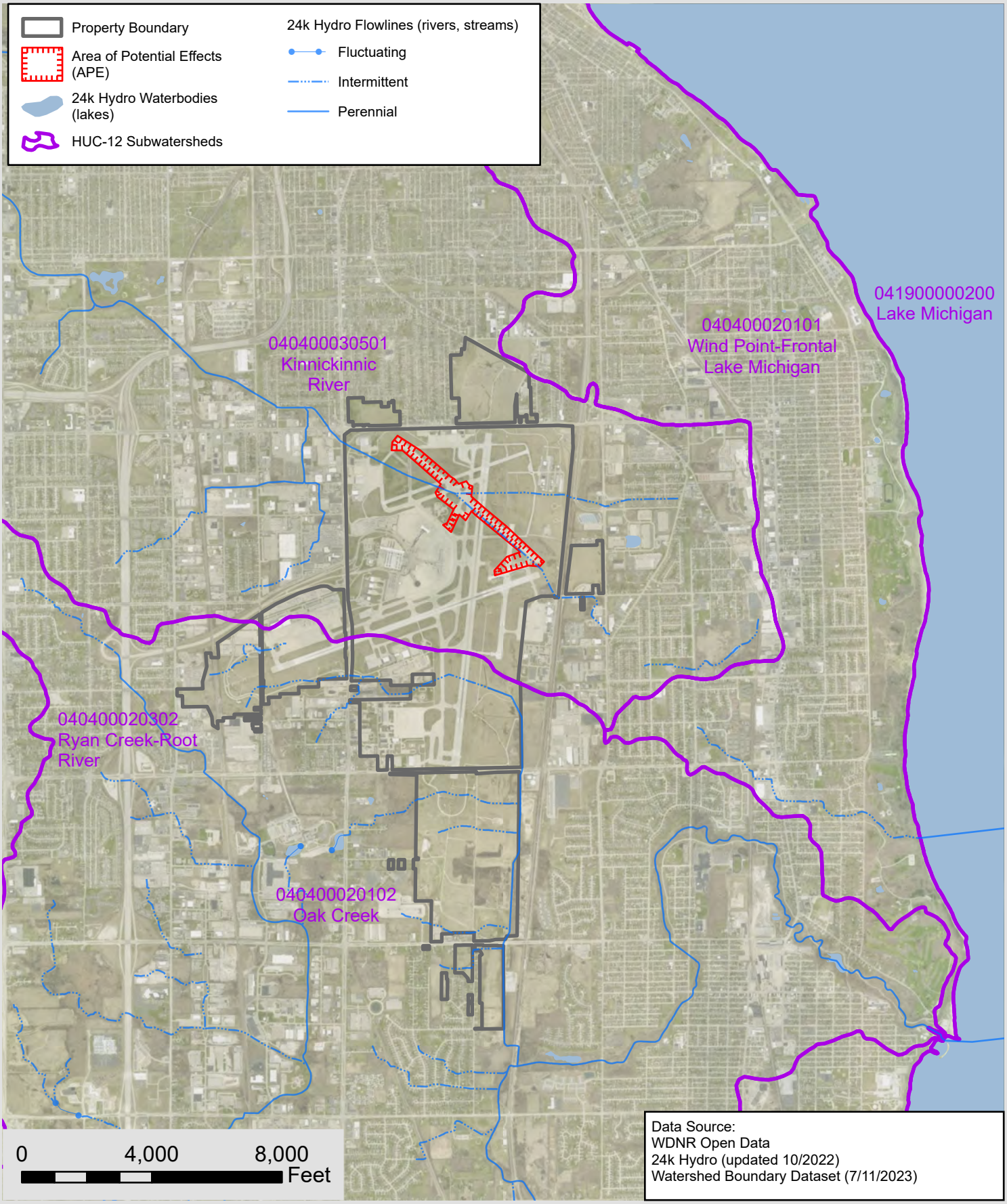
WATERWAY MAP (24K HYDRO)

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-19**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Waterway Map]
Printed: kmwehner 4/17/2024 9:32 AM



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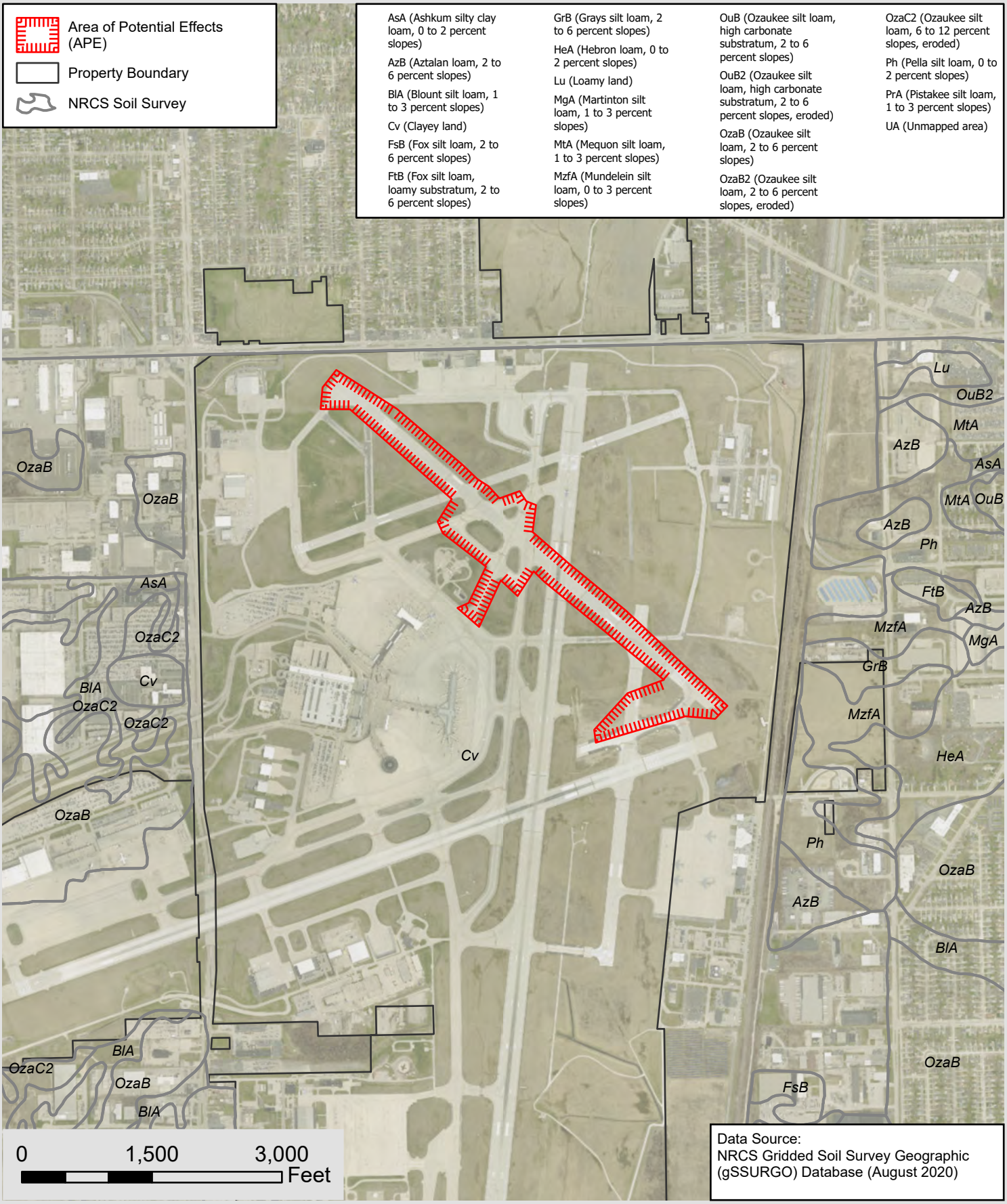
WATERSHED MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =4,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-20**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Watershed Map]
Printed: kmwehner 4/17/2024 9:33 AM



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MKE RUNWAY 13-31 REMOVAL

SOILS MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =1,500 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **3-21**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Soils Map]
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CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES

The Airport is proposing to decommission and remove Runway 13/31 and modify the supporting taxiway network. The proposed project is to align the airfield configuration with the ALP and remove underutilized and obsolete pavements. This Chapter describes the environmental consequences of the SPA of removal of Runway 13/31 and the removal of Taxiway G, Taxiway U, and Taxiway N.

In accordance with the technical guidelines set forth in FAA Orders 1050.1F and 5050.4B and the CEQ Regulations, this chapter describes the environmental consequences of the alternatives that were outlined in Chapter 2 and the affected environment in Chapter 3. Impact is determined by combining the anticipated environmental conditions after development to the environmental conditions should no development take place.

For the purposes of this EA, the environmental consequences were determined for the No Action Alternative, the SPA, and Alternative B.

4.1 Air Quality

The Clean Air Act (CAA) is the federal law that regulates air emissions from area, stationary, and mobile sources. The first CAA, passed in 1967, required that air quality criteria necessary to protect the public health and welfare be developed. There have been several revisions to the CAA since 1967. The CAA Amendment of 1990 represents the fifth major effort to address clean air legislation. The CAA authorizes the EPA to establish NAAQS to protect public health and the environment. The State Implementation Plan (SIP) is used by a state to control air pollution so that NAAQS will be met.

The EPA Office of Air Quality Planning and Standards has set NAAQS for six principal pollutants, which are called "criteria" pollutants: carbon monoxide, lead, nitrogen dioxide, particulate matter less than 2.5 micrometers in diameter, ozone, and sulfur oxides[83]. Under the General Conformity Rule[84], federal agencies must work with state and local governments in a non-attainment or maintenance area (for air quality) to ensure that federal actions conform to the initiatives established in the SIP. Milwaukee County is designated as a non-attainment zone for 8-hour ozone (moderate) and maintenance area for $PM_{2.5.}$

The EPA has defined categories of federal actions that are exempt from the General Conformity Rule[85] that result in no emissions increase or low emission increases. Actions that fall under the exemptions are not subject to further analysis under the General Conformity Rule. Further, the FAA

[83] National Ambient Air Quality Standards: https://www.epa.gov/criteria-air-pollutants/naaqs-table.

[84] General Conformity Rule: https://www.epa.gov/general-conformity/basic-information-about-general-conformity-rule.

[85] 40 CFR 93.153(c)(2): https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-93/subpart-B/section-93.153

has provided clarification on airport-related actions and activities that may qualify for exemption[86]. The proposed project action of decommissioning and removing Runway 13/31 is not anticipated to increase the capacity of the airport or significantly change the operational environment due to the minimal existing aircraft operations that utilize Runway 13/31. Additionally, the decommissioning of Runway 13/31 and removal of Taxiway U, Taxiway G, and Taxiway N consists of pavement removal which is presumed to conform under the FAA's identified exempted actions under 40 CFR 93.153(c)(2). Alternate B includes the construction of a holding bay adjacent to Taxiway M. Non-runway pavement work, including taxiway construction, are included in the FAA's Presumed to Conform Actions under General Conformity issued July 30, 2007[87]. The addition of the proposed holding bay is not anticipated to affect runway use or increase capacity. The proposed holding bay would be positioned on Taxiway M to facilitate re-sequencing of aircraft that previously would have re-sequenced using Runway 13/31, Taxiway N, and Runway 1R/19L. Ultimately, the addition of the proposed holding bay would decrease taxiway movements associated with re-sequencing.

Air quality could be impacted during construction activities of the SPA or Alternative B. Impacts may cause temporary impacts as a result of construction activities, exclusively during the construction period. Estimated construction GHG emissions are evaluated for each alternate in Section 4.3**,** Climate.

To reduce the potential for air quality impacts during construction, the special provisions for this project would require that motorized equipment shall be operated in compliance with all applicable local, state, and federal laws and regulations.

The SPA and Alternative B would not substantially impact air quality and are exempt from conformity or presumed to conform actions. The No Action alternative would not have an impact on air quality.

4.2 Biological Resources

4.2.1 Federally Listed Endangered and Threatened Species

Section 7 of the Endangered Species Act of 1973[88], as amended, requires each federal agency to ensure that "…any action authorized, funded, or carried out by such agency…is not likely to jeopardize the continued existence of any endangered species or threatened species or results in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee…" Section 7a(3) further requires that "each

[86] FAA Federal Presumed to Conform Actions Under General Conformity: https://www.federalregister.gov/documents/2007/02/12/E7-2241/federal-presumed-to-conform-actions-under-general-conformity

[87] FAA Federal Presumed to Conform Actions Under General Conformity: https://www.federalregister.gov/documents/2007/02/12/E7-2241/federal-presumed-to-conform-actions-under-general-conformity

[88] Endangered Species Act of 1973: https://www.fws.gov/sites/default/files/documents/endangered-species-act-accessible_7.pdf

Federal agency shall confer with the Secretary on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under Section 4 or results in the destruction or adverse modification of critical habitat proposed to be designated for such species."

The USFWS Threatened & Endangered Species Active Critical Habitat Report was reviewed. There were no areas identified within the mapped extents. **Figure 4-1** shows the Airport property boundary, the proposed project locations on the Airport, and critical habitat areas, if present.

The USFWS IPaC online planning tool was used to obtain a list of species and habitat that could potentially be impacted[89]. The federal list for endangered, threatened, or candidate species includes the following: Northern Long-eared Bat, Tricolored Bat, and Monarch Butterfly. For all these species, there are no critical habitats found in or near the project area. There were no critical habitats identified within the proposed project area.

The U.S. Fish & Wildlife Service's, Environmental Conservation Online System (ECOS) was referenced for the listed species[90]. Information pages on the listed species were reviewed. **Table 4-1** is a summary of the federally listed species evaluation.

USFWS coordination under the Endangered Species Act is not required for this project because the project will not result in impacts to federally listed species, proposed species, or designated or proposed critical habitat.

Based on information reviewed and consultation with the agencies, the SPA and Alternative B would not have a substantial effect on federally listed, proposed, or candidate species or federally designated or proposed critical habitat, or otherwise sensitive species, natural plant communities, or natural features. The No Action alternative would not have a substantial effect on federally listed, proposed, or candidate species or federally designated or proposed critical habitat, or otherwise sensitive species, natural plant communities, or natural features.

[89] U.S. Fish & Wildlife Service, Information for Planning: https://ipac.ecosphere.fws.gov

[90] U.S. Fish & Wildlife Service, Environmental Conservation Online System: https://ecos.fws.gov/ecp/

Table 4-1. IPaC Effect Determination Summary

SPECIES (COMMON NAME)	SCIENTIFIC NAME	LISTING STATUS	HABITAT	PRESENT IN PROJECT AREA	EFFECT DETERMINATION	JUSTIFICATION
Northern Long-eared Bat	*Myotis septentrionalis*	Endangered	Hibernates in caves and mines-swarming in surrounding wooded areas in autumn. During summer, roosts and forages in upland forests.	No	No effect	There is no suitable habitat in the project area. NLEB Range wide Determination Key Completed, Consistency Letter Obtained 01/23/2024.
Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered	Hibernates in caves and mines. During spring, summer, and fall; found in forested areas.	No	No effect	There is no suitable habitat in the project area. Minnesota-Wisconsin Endangered Species Determination Key, Consistency Letter Obtained 01/23/2024.
Monarch Butterfly	*Danaus plexippus*	Candidate	Wherever found	No	No effect	There is no critical habitat in the project area. Minnesota-Wisconsin Endangered Species Determination Key, Consistency Letter Obtained 01/23/2024.
Date of Official Species List: January 23, 2024						

4.2.2 State Listed Fish, Wildlife, and Plants

The proposed project area was entered into the WDNR's NHI Public Portal. No endangered resources have been recorded for the proposed development areas. No further actions were required/recommended.

The WDNR through the Wisconsin NHI Program, is working to locate and document occurrences of rare species and natural communities, including state and federal endangered and threatened species. Occurrences are mapped in general terms to protect the species from destruction[91]. Based on a WDNR review of the NHI Portal on December 1, 2023, for the proposed project areas, they concluded that "there are no known state listed threatened or endangered species or suitable habitat that could be impacted by this project." Resource information from the NHI report is being redacted

[91] WDNR Natural Heritage Inventory Program: https://dnr.wisconsin.gov/topic/NHI/Methods

from this document due to the sensitive and confidential nature of its content (s. 23.27(3)(b) Wis. Stats.). The WDNR correspondence is included in **Appendix 2.**

Visual observations of the proposed project areas noted mowed grass and disturbed land. Active streams[92], critical habitats, or trees were not observed. Current Airport operating procedures actively discourages migratory bird concentrations because of safety concerns. Proposed project area photographs are included in **Appendix 1.**

The SPA or Alternative B would take place in previously disturbed areas. No state listed threatened or endangered species have been identified on the proposed project location. The SPA and Alternative B would not have an effect on state listed threatened or endangered species. The No Action alternative would not have an effect on state listed threatened or endangered species.

4.3 Climate

The CEQ[93] developed guidance in response to Executive Order 13990[94]. The CEQ guidance instructs federal agencies to evaluate impacts from GHG emissions during environmental reviews to ensure the consideration of climate impacts in federal decision making[95].

The SPA and Alternative B were identified through the MPU. The MPU identified that the airfield capacity can remain the same with the removal of the runways[96].

The SPA is not anticipated to increase consumption of fuel by aircraft due to changes in ground movements or run-up times; by aircraft due to changes in flight patterns; or by ground vehicles due to changes in movement patterns for Airport service or other vehicles. Through an analysis of 2022-2023 radar flight track data, Runway 13/31 is used for 0.4% of daytime arrivals, 0.2% of nighttime arrivals, 0.9% of daytime departures, and 0.3% of nighttime departures[97]. The Runway 13/31 use is minimal in scale compared to other Airport runways, thus the impacts of increased taxi times are assumed to be negligible.

Alternate B includes the construction of a proposed holding bay that would be positioned on Taxiway M to facilitate re-sequencing of aircraft that previously would have re-sequenced using Runway 13/31, Taxiway N, and Runway 1R/19L. Ultimately, the addition of the proposed holding

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[92] The Wilson Park Creek does cross the project area underground in a storm sewer pipe.

[93] The CEQ was established by NEPA in 1969: https://www.whitehouse.gov/ceq/

[94] Executive Order 13990: https://www.federalregister.gov/documents/2021/01/25/2021-01765/protecting-public-health-and-the-environment-and-restoring-science-to-tackle-the-climate-crisis

[95] Biden-Harris Administration Releases New Guidance to Disclose Climate Impacts in Environmental Reviews: https://www.whitehouse.gov/ceq/news-updates/2023/01/06/biden-harris-administration-releases-new-guidance-to-disclose-climate-impacts-in-environmental-reviews/

[96] Master Plan Update, Section 5.3.1 (Airfield Facilities Component Alternatives): https://www.mkeupdate.com/application/files/4316/6373/1754/MPU-Section5-AlternativesAnalysis-1of4-Final-2022-09-20.pdf

[97] Data obtained from Noise Technical Report, Table 8 - See Appendix 4

bay would decrease taxiway movements associated with re-sequencing. Alternate B is not anticipated to increase consumption of fuel by aircraft due to changes in ground movements.

Runway 13/31 and taxiways currently have edge lighting that would be removed with the proposed project. Airfield lighting may need to be reconfigured due to the proposed removals. The SPA is not anticipated to increase the number of airfield lights. For the construction of the Alternative B holding bay, taxiway lighting would be installed to delineate pavement limits. It is anticipated that the amount of taxiway lights added for the proposed holding bay would not be greater than the existing number of airfield lights. Both the SPA and Alternative B are anticipated to remove edge lights, resulting in a net decrease in energy consumption due to airfield lighting.

Infrastructure such as buildings and roads absorb and re-emit the sun's heat more than natural landscapes. Due to the increased density of infrastructure in urban areas, they become "islands" of higher temperatures, often referred to as "heat islands."[98] The proposed project is anticipated to remove approximately 126,900 SY of pavement and restore to turf, increasing the natural landscape. The EPA identifies increasing vegetation cover as a strategy for heat island cooling with the added benefit of reducing stormwater runoff[99].

The SPA or Alternative B would not increase airport capacity or significantly change aircraft surface movements. There is no anticipated GHG emission increase when compared to the No Action alternative[100]. The No Action Alternative would not result in a change in GHG emissions from the existing conditions. The existing emissions associated with maintenance and repairs of pavement, lighting, and NAVAIDs would remain with the No Action Alternative.

Although there is no anticipated GHG emission increase as a result of the SPA or Alternative B, construction operations such as the hauling materials, equipment operation, and production of construction materials would temporarily increase GHG emissions. Construction GHG emissions would likely be carbon dioxide (CO_2) emissions from heavy equipment such as dozers, excavators, pavers, and dump trucks. An engineers estimate for total diesel fuel needed for construction of both the SPA and Alternative B was produced and converted to metric-tons (MT) of CO_2 equivalent, MT of methane (CH_4) equivalent, and MT of nitrous oxide (N_2O) equivalent. Estimates of GHG emissions are shown in **Table 4-2**. Additionally, the production of construction materials would likely increase CO_2 emissions. The Federal Highway Administration (FHWA) LCA Pave Tool was used to calculate estimated CO_2 emissions associated with the production of concrete and asphalt materials for the Alternative B proposed holding bay. Results of estimated CO_2 emissions are shown in **Table 4-2. Appendix 6** shows the calculations and assumptions for the construction equipment emission estimates and LCA Pave Tool. The No Action alternative would not result in additional

[98] EPA, Heat Islands: https://www.epa.gov/heatislands/learn-about-heat-islands

[99] EPA, Heat Island Cooling Strategies: https://www.epa.gov/heatislands/heat-island-cooling-strategies

[100] FAA Order 1050.1F indicates that if "The proposed action or alternative(s) would not result in a net increase in GHG emissions, a brief statement describing the factual basis for this conclusion is sufficient."

construction emissions in the near term. The No Action alternative would not realize the benefits of decreased future construction emissions associated pavement repairs and eventual pavement rehabilitation or reconstruction.

Table 4-2. Temporary Construction Emissions

		Sponsor Proposed Action	Alternate B	No Action Alternative
Equipment Emissions	Diesel Fuel Consumption (gal)	7,7960 gal	116,360 gal	0 gal
	Carbon Dioxide, CO_2 Equivalent (metric tons)	794 MT-CO_2e	1185 MT-CO_2e	0 MT-CO_2e
	Methane, CH_4 Equivalent (metric tons)	0.079 MT-CH_4e	0.118 MT-CH_4e	0 MT-CH_4e
	Nitrous Oxide, N_2O Equivalent (metric tons)	0.073 MT-N_2Oe	0.109 MT-N_2Oe	0 MT-N_2Oe
Construction Material (Concrete and Asphalt) Production Emissions	Carbon Dioxide, CO2 Equivalent (metric tons)	0 MT -CO_2e	3090 MT -CO_2e	0 MT -CO_2e

Note: The No Action Alternative does not account for future emissions associated with continued maintenance, repairs, and rehabilitation of Runway 13/31 pavement and utilities.

4.4 Coastal Resources

4.4.1 Coastal Management Program

The Wisconsin Coastal Management Program (WCMP) was established in 1978 under the Federal Coastal Zone Management Act to protect and achieve a balance between natural resources preservation and economic development along Lake Michigan and Lake Superior. [101] The fifteen counties in Wisconsin that are adjacent to Lake Michigan and Lake Superior fall under the WCMP. Milwaukee County is listed as a coastal county because it borders Lake Michigan. The Wisconsin

[101] Wisconsin Coastal Management Program: https://doa.wi.gov/Pages/LocalGovtsGrants/CoastalManagement.aspx.

Department of Administration oversees the WCMP and was notified of the proposed project, correspondence is included in **Appendix 2.**

The SPA and Alternative B would not result in any foreseeable effects to coastal resources and would not be constructed along the Lake Michigan coastline. Additionally, the SPA and Alternative B are anticipated to remain consistent with existing regional drainage patterns. The No Action alternative would not have an impact on coastal resources under the WCMP.

4.4.2 Coastal Barriers

Coastal barriers occur on the coastlines of the United States and are protected by the Coastal Barriers Resources Act[102]. The Airport is not located within or adjacent to the Coastal Barrier Resource System. Therefore, the provisions of the Coastal Barriers Resources Act do not apply. There are no coastal barriers impacts with either the SPA, Alternative B, or the No Action alternative.

4.5 Department of Transportation Act, Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966, as amended, provides that the Secretary of Transportation shall not approve any program or project which requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land of a historic site of national, state or local significance as determined by the officials having jurisdiction thereof unless there is no feasible and prudent alternative to the use of such land and such program or project includes all possible planning to minimize harm resulting from the use[103].

The federal government established the Land and Water Conservation Fund Program in 1965 to increase the net quantity of public, outdoor recreational space. Section 6(f) of this Act provides matching funds to states or municipalities for planning, improvements, or acquisition of outdoor recreational lands. Section 6(f) provides protection to ensure that lands acquired or developed with Land and Water Conservation Funds remain available for public outdoor recreation unless there are compelling reasons and appropriate processes for conversion to other uses.

The proposed project would be located on Airport property. No public parks, recreational areas, national lands, state lands, or historic sites were identified immediately adjacent to the project area outside the Airport. **Figure 4-2** shows the Airport property boundary, the proposed project locations on the Airport, and surrounding parks and trails.

No Section 4(f) lands or Section 6(f) lands would be acquired for permanent or temporary occupancy for construction related activities with the SPA, Alternative B, or the No Action alternative.

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[102] Coastal Barriers Resources: https://www.fws.gov/program/coastal-barrier-resources-act.

[103] Department of Transportation Act of 196: https://www.govinfo.gov/content/pkg/STATUTE-80/pdf/STATUTE-80-Pg931.pdf

4.6 Farmlands

The Farmland Protection Policy Act[104] (FPPA) authorizes the Department of Agriculture to develop criteria for identifying the effects of Federal programs on the conversion of farmland to nonagricultural uses. Federal agencies are directed to use the guidelines established by the Department of Agriculture to: 1) identify and take into account the adverse effects of Federal programs on the preservation of farmland, 2) consider appropriate alternative actions which could lessen adverse effects, and 3) assure that such Federal programs, to the extent practicable, are compatible with state, local government, and private programs and policies to protect farmland.

A project that involves the acquisition of farmland, which will be converted to nonagricultural use, must determine whether any of that land is protected by the FPPA. Farmland protected by the FPPA is classified as either prime farmland (which is not already committed to urban development or water storage), unique farmland, or farmland, which is of state or local importance (as determined by appropriate state or local government agency with the concurrence of the Secretary of Agriculture).

The land is currently a mowed grass field and disturbed areas with no structures on them. Proposed project site photographs, illustrating current land use, are included in **Appendix 1**.

The Airport already owns the land where the SPA and Alternative B would be located. There would be no acquisition of farmland for the SPA or Alternative B. There are no farmland impacts associated with the No Action alternative.

4.7 Hazardous Materials, Solid Waste, and Pollution Prevention

A Phase I ESA[105] was conducted on the proposed project areas.

The Phase I ESA included an environmental records review. Additionally, an independent environmental records search was provided by ERIS, which gathered information from multiple environmental databases. The ERIS report called out multiple database listings for the project area; however, after further review, the listings appeared to be related to releases across the airport property and not the proposed project area. Reviewed listings include, underground storage tanks, hazardous material (petroleum products) spills, leaking underground storage tanks, environmental repair sites and more.

The Phase I ESA identified one listing to be within the project area listed as the Shell Pipeline. This listing is a closed ERP site titled BRRTS#02-41-558334 Shell Pipeline at Gen Mitchell Intl. Airport and was identified to have continuing obligations. Through evaluation of the continuing obligations, it was concluded that the project is not anticipated to conflict with the continuing obligations of the closed BRRTS site. The conclusions in regard to each continuing obligation is listed below:

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[104] Farmland Protection Policy Act: https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/

[105] Phase I Environmental Site Assessment, Milwaukee Mitchell International Airport – Runway 13-31, prepared by Westwood Professional Services, Inc., dated March 26, 2024.

1. Residual Groundwater Contamination: The proposed Project does not include the construction or modification of a well.
2. Residual Soil Contamination: Anticipated construction activities include pavement removal, minor grading, and topsoil placement restored to turf near the closed BRRTS site.
3. Structural Impediment: The structural impediment was identified to have been located east of Taxiway E. The proposed project removals are located west of Taxiway E and north of the pipeline excavation area.

To verify the conclusions regarding the continuing obligations, a meeting was requested of the WDNR Remediation and Redevelopment (R&R) program. A meeting was held on March 5, 2024 with WDNR R&R staff. At the meeting, Airport staff and Westwood gave a background of the proposed project, timeline, and detail on where the identified structural impediment was located in proximity to the proposed project. The WDNR R&R staff inquired about the disposal of materials. It is anticipated that concrete and asphalt pavement would be crushed and recycled, and some may be removed from the project area to allow for placement of topsoil for turf restoration. Additionally, soil excavation and removal below the existing pavement is not anticipated. Assuming that the proposed project is not disturbing soil, the WDNR R&R staff had no further concerns about the proposed project and no formal notification was needed at the time of the meeting. Once formal plans are finalized, the WDNR R&R staff should be notified for proper review.

WDNR R&R staff recommended that a contingency plan be added in the event soil would require removal from site or if contaminated soil is encountered. Additionally, due to magnitude of historical environmental records associated with the Airport, there is the potential for a gap in adequate hazardous material data. Project plans and specifications would include guidance if evidence of soil contamination is detected during removal and construction activities. Project specifications may include a special provision describing notification procedures, excavation, loading, hauling, and disposing of contaminated soil.

Concrete pavement removed from the project may be crushed onsite to be recycled as base course. Recycled base course may be used for pavement rehabilitation or reconstruction associated with the project or other projects on the airfield. It is anticipated that any excess concrete pavement or recycled base course would be transported offsite. Asphalt pavement may be pulverized or milled and transported offsite or recycled for use for other projects on the airfield. It is anticipated that any recycled materials transported offsite would become property of the contractor performing the work.

It is anticipated that any soil materials excavated for the rehabilitation or construction of the holding bay for Alternative B would be recycled as soil fill material for the pavement removal areas that would be restored to turf.

The proposed project is not anticipated to include any direct relationship to pollution prevention or solid waste collection, control, or disposal other than that associated with the construction itself. The proposed project is not anticipated to change current solid waste handling.

There are no substantial hazardous materials, pollution prevention or solid waste impacts anticipated with the Proposed Action Alternative or Alternative B. There are no hazardous materials, pollution prevention or solid waste impacts with the No Action alternative.

4.8 Historical, Architectural, Archeological, and Cultural Resources

Determination of an environmental impact of what a project might have to historic, architectural, archeological, or cultural resources is made under the guidance contained in the National Historic Preservation Act of 1966, as amended[106], and the Archaeological and Historic Preservation Act of 1974[107].

The National Historic Preservation Act established the Advisory Council on Historic Preservation to advise the President and the Congress on historic preservation matters, to recommend measures to coordinate federal historic preservation activities, and to comment on federal actions affecting properties included or eligible for inclusion in the NRHP. Section 106 requires federal agencies to consider the effects of their undertakings on properties on or eligible for inclusion in the NRPH. Compliance with Section 106 requires consultation with the SHPO and/or the THPOs.

The Archaeological and Historic Preservation Act provides for the survey, recovery, and preservation of important scientific, pre-historical, historical, archeological, or paleontological data when such data may be destroyed or irreparably lost due to a federal, federally licensed, or federally funded project.

An APE is defined by 36 CFR 800.16(d)[108] as being "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." An undertaking has an effect on a historic property when the undertaking may alter characteristics that may qualify the property for inclusion in the NRHP. Adverse effects include, but are not limited to:

- Physical destruction, damage, or alteration of all or part of the property.
- Alterations of a property that is not consistent with the standards for treatment of historic properties.
- Removal of the property from its historic location.
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance.
- Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's important historic features.

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[106] National Historic Preservation Act of 1966, as amended: https://www.achp.gov/digital-library-section-106-landing/national-historic-preservation-act

[107] Archaeological and Historic Preservation Act: https://dahp.wa.gov/sites/default/files/Moss_Bennett_Act_ArchHistPres.pdf

[108] 36 CFR 800.16(d): https://www.ecfr.gov/current/title-36/part-800#p-800.16(d)

- Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of the property; and
- Transfer lease, or sale of the property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic importance.

The definition of the APE for the proposed project involved the construction areas and adjacent project areas. Delineation of the APE involved the following considerations:

- The physical construction of the proposed project would be located within the existing Airport boundaries.
- Terrain, vegetation, and intervening buildings around the Airport would remain.

The determination of the proposed project's APE and the evaluation of listed or eligible properties are subject to review and evaluation by the SHPO.

For this EA, literature and records reviews were completed to determine if any properties in or eligible for inclusion in the NRHP were within the APE. Additionally, a Phase I Archaeological Reconnaissance Survey and Architecture/History site visit and was conducted on September 12, 2023. The Phase I Archaeological Reconnaissance Survey involved a pedestrian inventory within the proposed project APE. The objective of the inventory was to identify unrecorded cultural resources. No cultural resources were identified during the pedestrian survey.[109] The Architecture/History site visit observed no historic-age resources that would be considered eligible for the NRHP within the proposed project APE.

Preliminary tribal notification email was sent to THPOs/Tribal leaders to familiarize them with the proposed project and to solicit their interest and concerns regarding historical, archeological, and cultural resources. The tribal notification email is included in **Appendix 2.**

A Preliminary coordination letter was sent to the Milwaukee County Historical Society to familiarize them with the proposed project and to solicit their interest and concerns regarding historical, archeological, and cultural resources. The Historical Society preliminary coordination letter is included in **Appendix 2.**

The architecture history and archeological investigations were submitted to the SHPO. The SHPO concurred that there are no properties and/or archeological sites listed in or eligible for the NRHP within the APE for the proposed project. A copy of the SHPO concurrence is included in **Appendix 5.**

Since no architecture/history and archeology resources were identified, there are no anticipated impacts with either the SPA, Alternative B, or the No Action Alternative for historical, architectural, archeological, and cultural resources.

[109] Archaeological Reports Inventory - WHS Project #23-1601

4.9 Compatible Land Use

The compatibility of existing and planned land uses surrounding an airport is usually associated with the extent of noise impacts and effect on safe aircraft operations. Land uses such as landfills, wetland mitigation, and wildlife refuges may attract wildlife species that are hazard to aircraft operation.

Preliminary planning for the SPA and Alternative B includes the removal of pavement, placement of fill, topsoil, and restoration to turf. Following completion of the proposed project the Airport would maintain the project area similar to other non-paved/grass areas on the airfield through mowing to minimize the potential for wildlife hazards. Additionally, the drainage of the proposed project area is anticipated to not significantly alter existing drainage on the airfield. Alternative B consists of the construction of holding bay adjacent to Taxiway M. The construction of the proposed holding bay would be located solely on Airport property.

The SPA and Alternative B construction activities are located solely on Airport property thus, would not substantially impact land uses surrounding the Airport. The No Action Alternative would not have an impact on compatible land use.

A noise study has been conducted for the proposed project, compatible land use regarding noise impacts is discussed in Section 4.11.

4.10 Natural Resources and Energy Supply

The Energy Independence and Security Act of 2007, was established "to move the United States toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy greenhouse gas capture and storage options, and to improve the energy performance of the Federal Government, and for other purposes."[110]

The SPA or Alternative B is not anticipated to increase consumption of fuel by aircraft due to changes in ground movements or run-up times; by aircraft due to changes in flight patterns; or by ground vehicles due to changes in movement patterns for Airport service or other vehicles. Through an analysis of 2022-2023 radar flight track data, Runway 13/31 is used for 0.4% of daytime arrivals, 0.2% of nighttime arrivals, 0.9% of daytime departures, and 0.3% of nighttime departures[111]. The Runway 13/31 use is minimal in scale compared to other Airport runways, thus the impacts of increased taxi times are assumed to be negligible.

Alternate B includes the construction of a proposed holding bay that would be positioned on Taxiway M to facilitate re-sequencing of aircraft that previously would have re-sequenced using

[110] Energy Independence and Security Act of 2007: https://www.govinfo.gov/content/pkg/BILLS-110hr6enr/pdf/BILLS-110hr6enr.pdf

[111] Data obtained from noise assessment, See Appendix 4 – Noise Technical Report

Runway 13/31, Taxiway N, and Runway 1R/19L. Ultimately, the addition of the proposed holding bay would decrease taxiway movements associated with re-sequencing.

There would be additional energy consumption during removal of Runway 13/31, taxiways, and construction operations associated with the Alternative B holding bay. The additional energy consumption would primarily be the fuel required for construction equipment. This energy consumption is not anticipated to be substantial or have measurable effects on local supplies. Section 4.3 discusses the estimated construction equipment fuel consumption.

Material sources, such as sand, aggregate, bentonite, and cement, used for the construction of the proposed taxiway are not anticipated to require new pits or put a limit on existing resources. The removal of Runway 13/31 and taxiways is anticipated to produce recycled aggregate, pulverized asphalt, or millings. The SPA or Alternative B does not require the use of unusual materials or those in short supply.

The SPA or Alternative B would not have a substantial impact on the production or consumption of energy. Construction materials required are readily available. The No Action alternative would not impact natural resources or energy supplies.

4.11 Noise

FAA Order 1050.1F and 5050.4B provide guidance on the evaluation of noise impacts associated with a proposed action. The FAA orders specify the use of day-night average sound level (DNL) which is a logarithmic average of the sound levels of multiple events at one location over a 24-hour period. Additionally, the FAA orders defines thresholds of significance for changes in DNL, specifically over noise sensitive areas.

A Noise Technical Report was prepared for this EA and evaluated noise impacts associated with the proposed action of decommissioning and removing Runway 13/31 (SPA and Alternate B) compared to the No Action alternative[112]. The report assumed that Runway 1R/19L would be decommissioned or no longer operational and was not included in the future analysis[113]. The report also assumed that future operations on Runway 13/31 would shift to Runway 1L/19R and Runway 7L/25R. The report concluded that the proposed action of decommissioning Runway 13/31 would not result in a significant noise impact. When compared to the No Action alternative, the proposed action would cause a slight decrease in acreage of the DNL 65dB contours in the CY2029 and CY2034 forecast years and would not impact any additional noncompatible land uses including housing units or noise sensitive areas.

[112] Noise Technical Report prepared by Harris Miller Miller & Hansen, Inc. See Appendix 4.

[113] Studies for the proposed decommissioning and removal of Runway 1R/19L are currently ongoing and Runway 1R/19L may be decommissioned prior to the proposed decommissioning of Runway 13/31.

The Noise Technical Report further describes the regulatory setting, existing conditions, assumptions, methodology, and analysis is included in **Appendix 4**.

Based on the conclusions and data provided in the Noise Technical Report (**Appendix 4**), there are no anticipated noise impacts associated with the SPA or Alternative B when compared to the No Action alternative.

4.12 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

4.12.1 Socioeconomics

Social impacts are generally associated with relocation activities or other community disruptions. Community disruptions include altering surface transportation patterns, dividing or disrupting established communities, disrupting orderly planned development, or creating an appreciable change in employment.

Both the SPA or Alternative B construction activities would be within Airport property, there is no anticipated relocation of residences or businesses and no anticipated disruption to established communities or planned development. Additionally, through the MPU it was identified that the decommissioning and removal of Runway 13/31 and taxiways allows for airport development to meet future needs without requiring the acquisition of additional property. The No Action alternative would result in Runway 13/31 and surrounding runway protections to remain in an as-is condition and property may need be acquired to meet the future development needs of the airport. Additionally, the SPA or Alternative B would not significantly alter the job and economic outlook surrounding the airport in near term. However, the long-term development opportunities associated with the future development plans identified in the MPU and ALP may bring an increased jobs and economic activity to the Airport and surrounding area.

4.12.2 Environmental Justice

Executive Order 12898[114] requires federal agencies to identify community issues of concern, particularly those issues relating to discussions that may have an impact on low-income or minority populations. The Executive Order states that, to the extent practicable and permitted by law, neither minority or low-income populations may receive disproportionately high or adverse impacts as a result of a proposed project. It also requires that representatives of any low-income or minority populations that could be affected by the project in the community be given the opportunity to be included in the impact assessment and public involvement process.

The Department of Transportation Order 5610.2(a) (Actions to Address Environmental Justice in Minority Populations and Low-Income Populations)[115] sets forth the Department of Transportation

[114] Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.

[115] https://www.transportation.gov/transportation-policy/environmental-justice/department-transportation-order-56102a

policy to consider environmental justice principles in programs, policies, and activities. The Order describes how the objectives of environmental justice will be integrated into planning and programming, rulemaking, and policy formulation.

The EJScreen Community Report (**Appendix 3**) identified a population of 126,808 is located within a 3-mile radius of the project area (population surrounding the project area). The percentage of non-white population within population surrounding the project area was 35%. The population surrounding the project area had a lower minority population than Milwaukee County, which had a total population of 577,222, with a non-white population of 48%. The population surrounding the project area has a greater minority population than the State of Wisconsin, which had a total population of 5,893,718, had a non-white population of 19.6%. Based on EJScreen and Census data from 2020, minority populations may be impacted by the proposed project.

The EJScreen Community Report identified 32% of the surrounding population (3-mile radius) as low income. The State of Wisconsin average for low-income population was identified as 28%. The percentage of low-income population in the surrounding area is similar to that of the State of Wisconsin.

The preparation of this EA includes public involvement. The public involvement process described in Chapter 6, Public Coordination and Participation, allows all residents and population groups in the study area the opportunity to participate. The public coordination and participation process does not exclude any persons because of income, race, color, religion, national origin, sex, age, or handicap.

The SPA or Alternative B removal and construction activities would be confined to Airport property and is not anticipated to have impacts on the surrounding populations. Additionally, a noise technical report was prepared to evaluate potential impacts associated with the decommissioning of Runway 13/31 (see **Appendix 4**). The analysis identified no additional housing units or other sensitive sites would be within the DNL 65dB contour when compared to the No Action alternative for forecast years CY 2029 and CY2034. The potential impacts of noise as a result of the SPA or Alternative B are not anticipated to have impacts on the surrounding populations when compared to the No Action alternative.

4.12.3 Children's Environmental Health and Safety Risks

Executive Order 13045[116] requires federal agencies, as appropriate and consistent with the agencies mission, to make it a high priority to identify and assess environmental health risks and safety risks disproportionately affecting children. Agencies are encouraged to participate in implementation of the Executive Order by ensuring their policies, programs, activities, and standards address disproportionate risks to children resulting from environmental health risks or safety risks.

Environmental health risks and safety risks include risks to health or to safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food,

[116] Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks.

drinking water, recreational waters, soil, or products they might be exposed to. Given the location and nature of the project, the SPA or Alternative B removal and construction activities should not have an impact on environmental health and safety risks for children.

The decommissioning of Runway 13/31 would shift aircraft operations to the remaining runways. A noise technical report was prepared to evaluate potential impacts associated with the decommissioning of Runway 13/31 (see **Appendix 4**). The analysis identified that no additional housing units or other sensitive sites (schools, etc.) would be within the DNL 65dB contour when compared to the No Action alternative for forecast years CY2029 and CY2034. The potential impacts of noise as a result of the SPA or Alternative B are not anticipated to have an impact on environmental health and safety risks for children when compared to the No Action alternative.

4.12.4 Summary of Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

This document is in compliance with the United States Department of Transportation and FAA policies to determine whether a proposed project would have induced socioeconomic impacts or any other adverse impacts on minority or low-income groups; it meets the requirements of Executive Order 12898 on environmental justice; and it meets the requirements of Executive Order 13045 on children's environmental health and safety risks.

Neither minority nor low-income populations would receive disproportionately high or adverse impacts as a result of SPA, Alternative B, or the No Action alternative. There are no anticipated impacts to the environmental health and safety risks for children anticipated with either the SPA, Alternative B, or the No Action alternative.

4.13 Visual Effects

Changes in lighting associated with airport operations need to be considered to determine if an annoyance is created in the vicinity of the installation. Airport lighting does not generally result in substantial impacts unless a high intensity strobe light would shine directly into people's homes.

Lighting changes associated with the SPA and Alternative B consist of the removal of the existing runway/taxiway lights, REILs, and PAPIs. A REIL systems consists of two synchronized, unidirectional flashing lights positioned at the end of a runway. The REIL is effective in identifying a runway during reduced visibility. Depending on the type of equipment, a REIL has an approximate range of three miles in daylight and twenty miles at night[117]. A PAPI system consists of four light

[117] FAA, Runway End Identifier Lights: https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/lsg/reil

boxes arranged perpendicular to the runway and provide visual approach slope information to landing aircraft[118].

Visual, or aesthetic, effects are inherently more difficult to define and assess because they involve subjectivity. Visual effects deal broadly with the extent to which airport development contrasts with the existing environment, architecture, historic or cultural setting, or land use planning. The SPA or Alternative B would result in a portion of the project area being restored to a grassy field. The Alternative B project area for holding bay construction would consist of pavement similar to the existing landscape of taxiway and runway pavement.

The SPA or Alternative B would result in a decrease in white runway lights, removal of REILs, and removal of PAPIs resulting in minor light emissions improvements. Additionally, Alternative B would include the incorporation of blue taxiway lights. There are no substantial impacts to visual effects with the SPA or Alternative B.

For the No Action alternative, the existing runway lights, REILs, and PAPIs would remain in an as-is condition. The No Action alternative would keep the existing visual impacts of lighting, specifically the strobes associated with the REILs.

4.14 Water Resources

4.14.1 Wetlands

Executive Order 11990, Protection of Wetlands, is an order given by President Carter in 1977 to avoid the adverse impacts associated with the destruction or modification of wetlands[119]. To implement the guidelines in Executive Order 11900, the U.S. Department of Transportation (DOT) developed and issued DOT Order 5660.1A, Preservation of the Nation's Wetlands to provide guidance to DOT agencies regarding their actions in wetlands. The DOT Order governs FAA's actions. The Order defines wetlands as:

"Lowlands covered with shallow and sometimes temporary or intermittent waters. This includes, but is not limited to, swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, tidal overflows, estuarine areas, and shallow lakes and ponds with emergent vegetation. Areas covered with water for such a short time that there is no effect on moist-soil vegetation are not included in the definition, nor are the permanent waters of streams, reservoirs, and deep lakes. The wetlands ecosystem includes those areas which affect or are affected by the wetland area itself, e.g., adjacent uplands or regions up and downstream from the wetland or by disturbing the water table of the area in which the wetland lies." [120]

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[118] FAA, Precision Approach Path Indicator, https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/lsg/papi

[119] Executive Order 11990: https://www.epa.gov/cwa-404/protection-wetlands-executive-order-11990

[120] DOT Order 5660.1A: https://www.codot.gov/programs/environmental/wetlands/assets/USDOTOrder56601A.pdf

Section 10 of the Rivers and Harbors Act of 1899 requires approval from the United States Army Corps of Engineers (USACE) prior to placing obstructions or excavating and/or depositing materials in navigable waters[121].

The USACE has jurisdiction and regulates the discharge of dredged and fill material into the waters of the United States, including adjacent wetlands, under Section 404 of the Clean Water Act[122]. The WDNR has jurisdiction of isolated wetlands, which are outside of USACE jurisdiction under Section 281.36 of the Wisconsin Statues[123].

A wetland delineation was performed on September 11, 2023 at the proposed project location[124]. The delineation did not identify any wetlands in the proposed project areas. **Figure 4-3** details the wetland delineation limits. A copy of the wetland delineation report was provided to the WDNR for delineation confirmation. Delineation confirmation was received on September 28, 2023 (**Appendix 2**).

The SPA, Alternative B, and No Action alternative would not impact wetlands.

4.14.2 Floodplains

Floodplains are defined in Executive Order 11988[125], Floodplain Management, as "the lowland and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year." (100-year flood). Executive Order 11988 directs Federal agencies to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains.

The DOT Order 5650.2, Floodplain Management and Protection, further defines the natural and beneficial values served by floodplains as including but not limited to "natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, and forestry." The Executive Order and the DOT Order establish a policy to avoid taking an action within a 100-year floodplain where practicable.

Flood insurance rate maps prepared by FEMA determine the limits of 1% and 0.2% annual chance floodplains (commonly referred to as 100-year and 500-year floodplains). Flood insurance rate

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[121] Rivers and Harbors Appropriation Act of 1899: https://www.govinfo.gov/content/pkg/COMPS-5399/pdf/COMPS-5399.pdf

[122] Section 404 of the Clean Water Act: https://www.federalregister.gov/d/2023-15284/p-66

[123] Section 281.36 of Wisconsin Statues: https://docs.legis.wisconsin.gov/statutes/statutes/281/iii/36

[124] A Wetland Delineation Report was prepared by Quest Civil Engineers, LLC, dated September 11, 2023

[125] On May 20, 2021, President Biden signed Executive Order (EO) 14030, Climate-Related Financial Risk, reinstating EO 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input (January 30, 2015). EO 13690 amends the original floodplain management standard established in 1977 by EO 11988, and was revoked by EO 13807 in August 2017, though is now reinstated.

maps prepared by the FEMA were reviewed to determine the limits of base floodplains associated with the proposed project area. Though review of the flood insurance rate maps it was identified that the proposed project area is outside the 100-year flood area[126].

The SPA and Alternative B are not anticipated to impact floodplains and surface waters. The No Action alternative would have no floodplain impacts.

4.14.3 Surface Water

The Clean Water Act (CWA) provides the basic structure for regulating pollutant discharge into waters of the United States[127]. FAA Order 1050.1F identifies a significant impact as an action that would exceed water quality standards established by federal, state, local, and tribal regulatory agencies or contaminate public drinking water supply such that public health may be adversely affected[128].

Wilson Park Creek is enclosed in underground culvers running along Runway 13/31. The SPA or Alternative B is only anticipated to remove existing runway pavement, restore to turf, and keep existing drainage patterns. All removal activities would occur over the top of the enclosed stream. The proposed project activities are not anticipated to impact the culverts that enclose Wilson Park Creek.

The proposed project and Wilson Park Creek was discussed with the WDNR Transportation Liaison prior to the WDNR issuing the Initial Review Letter. The WDNR Initial Review Letter included that the proposed project is only anticipated to remove runway pavement over the top of the enclosed stream[129].

If it is identified through project design the culverts enclosing Wilson Park Creek would be impacted, further coordination with the WDNR Transportation Liaison would be needed to identify the degree of impact. Additionally, if in-stream disturbance is anticipated there shall be no in-stream disturbance between March 1st to June 15th (inclusive) to minimize impacts to fish and other aquatic organism during sensitive time periods of spawning and migration[130].

The SPA and Alternative B is not anticipated to impact Wilson Park Creek and surface waters. The No Action Alternative would not impact surface waters.

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[126] FEMA Flood Mapping Center: https://msc.fema.gov/portal/home

[127] EPA, Summary of the Clean Water Act: https://www.epa.gov/laws-regulations/summary-clean-water-act

[128] FAA Order 1050.1F, Chapter 14. Water Quality: https://www.faa.gov/sites/faa.gov/files/about/office_org/headquarters_offices/apl/14-water-resources.pdf

[129] WDNR Initial Review Letter (1/10/2024), See Appendix 2.

[130] WDNR Initial Review Letter (1/10/2024), See Appendix 2.

4.14.4 Groundwater

The Safe Drinking Water Act (SDWA) regulates public drinking water supply. The SDWA was most recently amended in 1996 and requires federal actions to protect drinking water sources. Additionally, the SDWA prohibits federal agencies from funding actions that would contaminate EPA-designated Sole Source Aquifers (SSAs).

There are no anticipated impacts to EPA designated SSAs, as none are identified in the State of Wisconsin or Northern Illinois. Further analysis on potential groundwater environmental consequences is analyzed relative to water quality and pollutant discharge in Section 4.14.6 Water Quality and Section 4.15 Construction Impacts.

4.14.5 Wild and Scenic Rivers

The Wild and Scenic Rivers Act[131] declared "certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." There are no Wild and Scenic River designations in the proximity of the Airport. Therefore, the provisions of the Wild and Scenic Rivers Act do not apply.

A presidential directive[132] requires federal agencies, as part of their planning and environmental review process, to avoid or mitigate adverse effects on rivers identified in the Nationwide Rivers Inventory (NRI)[133]. The National Park Service has compiled and maintains the NRI, a register of river segments that potentially qualify as national wild, scenic, or recreational river areas. There are no rivers on the NRI in the proximity of the Airport.

Chapter NR 102, Wisconsin Administrative Code, Water Quality Standards for Wisconsin Surface Waters[134] establishes water quality standards for surface waters of the state. Section NR 102.10 of the Wisconsin Administrative Code lists outstanding resource waters. Section NR 102.11 of the Wisconsin Administrative Code lists exceptional resource waters. There are no state designated outstanding resource waters or exceptional resource waters identified within Milwaukee County.

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[131] Wild and Scenic Rivers: https://www.fws.gov/story/wild-and-scenic-rivers#:~:text=The%20Wild%20and%20Scenic%20Rivers%20Act%20of%201968%20established%20the,of%20present%20and%20future%20generations.

[132] Presidential Directive: https://www.nps.gov/subjects/rivers/upload/Presidental-Memorandum-for-Heads-of-Departments-and-Agencies_508-2.pdf

[133] Nationwide Rivers Inventory: https://www.rivers.gov/nri#:~:text=Under%20the%20Wild%20and%20Scenic,adversely%20affect%20NRI%20river%20segments.

[134] Chapter NR 102, Wisconsin Administrative Code, Water Quality Standards for Wisconsin Surface Waters (NR102): http://docs.legis.wisconsin.gov/code/admin_code/nr/100/102.pdf.

There are no anticipated river impacts with either the SPA, Alternative B, or the No Action alternative.

4.14.6 Water Quality

The Federal Water Pollution Control Act, as amended by the CWA of 1977, provides authority to establish water quality standards, control discharges into surface and subsurface waters, develop waste treatment management plans and practices, and issue permits for discharges and for dredged or fill material.

Short-term soil erosion and stormwater quality impacts could result from construction activities. Existing condition of the proposed project area is pavement surrounded by mowed grass, there are no structures. The SPA would remove runway and taxiway pavement and restore to a mowed grass field. Alternative B would construct a holding bay adjacent to Taxiway M existing pavement in addition to the SPA runway and taxiway removals.

Stormwater in the proposed project areas currently consists of topography sheet flow, storm sewer structures and pipes, channels, and ditches. The project area is located entirely in the northern airport drainage basin that outfalls at Wilson Park Creek at a box culvert under Howell Avenue near the intersection of Layton Avenue. **Figure 4-4** is an aerial view of the proposed project areas with the 24K Hydro Waterbodies (lakes)/Flowline (rivers, streams) map layer overlaid.

The SPA is not anticipated to alter the existing drainage patterns within the project area. Alternative B may alter the existing drainage patterns in the project area due to the construction of a holding bay. Through the potential incorporation of culvert pipes, swales, and ditches the construction of the holding bay is not anticipated to change existing drainage patterns outside of the project area.

The SPA and Alternative B would convert impermeable surfaces (pavement) to a permeable surface (turf). The Alternative B areas of holding bay construction would not increase the amount of impermeable surface from existing. The decrease in impermeable surface would decrease stormwater runoff for the project area and increase natural infiltration.

Construction activities would comply with the requirements of Chapters NR 151 Runoff Management and NR 216 Storm Water Discharge Permits of the Wisconsin Administrative Code.

The proposed project would consist of greater than one acre of land disturbance. The proposed project would need to adhere to the Wisconsin Pollutant Discharge Elimination System Transportation Construction General Permit (TGCP) for Storm Water Discharge.

The proposed project would also require an Erosion Control Plan (ECP). The ECP would be provided to the WDNR and would include a description of the best management practices that will be implemented before, during, and after construction and address how post-construction stormwater performance standards will be met for the project area. The WDNR would be provided a grading plan indicating pre-construction grade and final grade. Additionally, the WDNR would be provided an erosion control implementation plan (ECIP) and a storm water management plan for the project. The ECIP would be submitted by the awarded contractor and would outline their implementation of

erosion control measures during project construction and construction methods. The ECIP would be submitted to the WDNR Transportation Liaison at least 14 days prior to the preconstruction conference[135].

Construction documents would include erosion control requirements to maintain water quality. Techniques described in the WDNR's Storm Water Construction Technical Standards would be implemented to prevent erosion and minimize siltation to drainage ways. These techniques may include the use of temporary and permanent sediment traps, silt fences, sodding, ditch checks, erosion mats, temporary and permanent seeding and other means to prevent erosion and trap sediment. During construction, by implementing erosion control measures as specified in the contract documents, impacts to water quality would be minimized.

The FAA Standard Specifications for Construction of Airport (AC 150/5370-10) would be part of the contract documents. General Provisions Section 70-19, Environmental Protection states that the contractor shall[136]:

> *"Comply with all federal, state, and local laws and regulations controlling pollution of the environmental. The contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter."*

Based on the above, the SPA and Alternative B should not have substantial adverse impacts on water quality. The No Action Alternative would keep the existing impermeable pavement area and would not realize the benefits of increased turf (permeable surface).

4.15 Construction Impacts

Construction activities may cause temporary environmental impacts. Generally, these impacts are associated with noise resulting from construction equipment, potential impacts on water quality from run-off and soil erosion from exposed surfaces, and air quality from dust emissions due to equipment operation and soil handling.

Construction activities of the SPA and Alternative B would cause temporary specific impacts as a result of construction activities, exclusively during the construction period.

Construction sound levels refer to instantaneous maximum sound levels as opposed to hourly average sound levels used to describe traffic noise and airport noise. The noise generated by construction equipment would vary greatly, depending on equipment type, equipment model, equipment make, duration of operation, and specific type of work being performed. However, typical noise levels may occur in the 73 to 96 decibels, adjusted range at a distance of 50 feet[137].

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[135] See WDNR Initial Review Letter (1/10/2024). See Appendix 2.

[136] FAA AC 150/5370-10H: https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5370-10H.pdf

[137] The FHWA has produced the Roadway Construction Noise Model (RCNM) to predict construction noise. The RCNM references default noise emission levels. As identified in the *Construction Noise Handbook*, Table 9.1, most construction equipment and

Noise from construction is not expected to surpass the noise from aviation operations. Adverse effects related to construction noise are anticipated to be of a localized, temporary, and transient nature.

To reduce the potential impact of construction noise, the special provisions for the proposed project would require that motorized equipment shall be operated in compliance with all applicable local, state, and federal laws and regulations relating to noise levels permissible within and adjacent to the project construction site. The special provisions may require that motorized construction equipment will not be operated between 10:00 p.m. and 6:00 a.m. without prior written approval of the Airport. All motorized construction equipment would be required to have mufflers and exhaust systems constructed in accordance with equipment manufacture's specifications or systems of equivalent noise reducing capacity, maintained in good operating condition, free from leaks or holes.

An ECIP and a storm water management plan would be prepared in accordance with Chapter Trans 401: Construction site erosion control and storm water management procedures for department actions. The WDNR would be provided a copy of each of these plans prior to construction.

Construction activities would create temporary air quality degradation from equipment exhaust emissions and earth moving and grading operations. The impact would be localized and are not anticipated to be disruptive to occupants of residences adjacent to the Airport. To minimize the potential impact on nearby residents and to avoid contributing to the degradation of regional air quality, excavating, stockpiling, hauling, and constructing should be controlled by watering or other approved dust control measures and appropriate construction sequences.

During the construction period soil would be exposed to the elements resulting in the potential for erosion. Measures to limit the impacts of construction include:

- Limit the area of erosive land exposed at any one time through construction scheduling.
- Limit the duration of such exposure before application of temporary erosion control measures or final revegetation to the extent practicable.
- Establish vegetation as soon as possible.
- Perform operations in or adjacent to drainage routes and ditches carefully to avoid washing, sloughing or deposition of materials in them.
- If possible, operations should be carried out during dry weather.
- Use silt fence and other Best Management Practices (BMP) to remove sediment from overland flow.
- Reduce the volume and velocity of water that crosses disturbed areas by means of planned engineering methods (e.g., diversions, detention basins, berms).

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operation noise level at 50 feet ranges from 73 dBA to 96 dBA. The only construction equipment and operation greater than 96 dBA is Impact and Vibratory Pile Drivers, which would not be used for the proposed project. The *Construction Noise Handbook* can be found online at https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook09.cfm

- Maintain existing vegetative buffers between construction areas and drainage areas and wetlands.
- Avoid removal of surface vegetation whenever possible.
- Incorporate erosion control measures at areas of stockpiled soil.

These controls would minimize the potential of soil erosion into surface water features.

Construction related effects other than sedimentation could impact water quality. To avoid these impacts, if water used during the construction work becomes contaminated by oil, bitumen, harmful or objectionable chemicals, sewage or other pollutants, the water should be disposed of in an acceptable manner to avoid affecting nearby waters and lands. The contractor should not discharge pollutants into any water course or water storage area. Physical removal of maintained grass and other vegetation should be used in lieu of herbicides.

FAA Advisory Circular 150/5370-10H, Standard Specifications for Construction of Airports, Item C-102, Temporary Air and Water Pollution, Soil Erosion and Siltation Control or the Wisconsin Department of Transportation Standard Specifications would be incorporated in project design specifications to further mitigate potential construction impacts. These standards include temporary measures to control pollution of air and water, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods. Additional approval, oversight and permit requirements would also mitigate potential construction impacts. (Reference Section 5.5 Coordination with Public Agencies and State and Local Officials.)

By implementing mitigation measures described in this section, no substantial construction impacts are anticipated with the SPA or Alternative B by operating in accordance with all permit requirements. There are no construction impacts associated with the No Action alternative.

4.16 Cumulative Impacts

According to 40 CFR 1508.7, a cumulative impact "is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively substantial actions taking place over a period of time."[138]

Past and ongoing Airport projects include both landside and airside improvement projects. Previous projects include parking structure repairs, Taxiway E & F pavement rehabilitation, Runway 7R/25L pavement rehabilitation, Taxiway M realignment, north airfield taxiway rehabilitation and removal, and concourse D roof replacement. Most of the recent airside and landside improvements projects consisted of rehabilitating existing infrastructure or improving to meet safety standards. Past projects

[138] 40 CFR 1508.1(g)(3): https://www.ecfr.gov/current/title-40/part-1508#p-1508.1(g)(3)

have complied with state and local stormwater regulations and were adjusted to minimize wetland impacts.

As described in Section 1.4, Other Contemplated Actions, of Chapter 1, there are several potential improvements on the Airport and near the Airport. Future improvements to the Airport would be related to meeting the needs of the users and aligning the airfield with the ALP. These improvements are anticipated to take place on existing Airport property. Most of the potential improvements to the Airport involve some form of construction. Therefore, the potential does exist for minor and short-term impacts from the potential improvements; however, cumulative effects are not anticipated to be substantial.

The Milwaukee County and State of Wisconsin projects near the Airport as described in Section 1.4 also involve construction. There is the potential for minor and short-term impacts from the potential improvements; however, cumulative effects are not anticipated to be substantial.

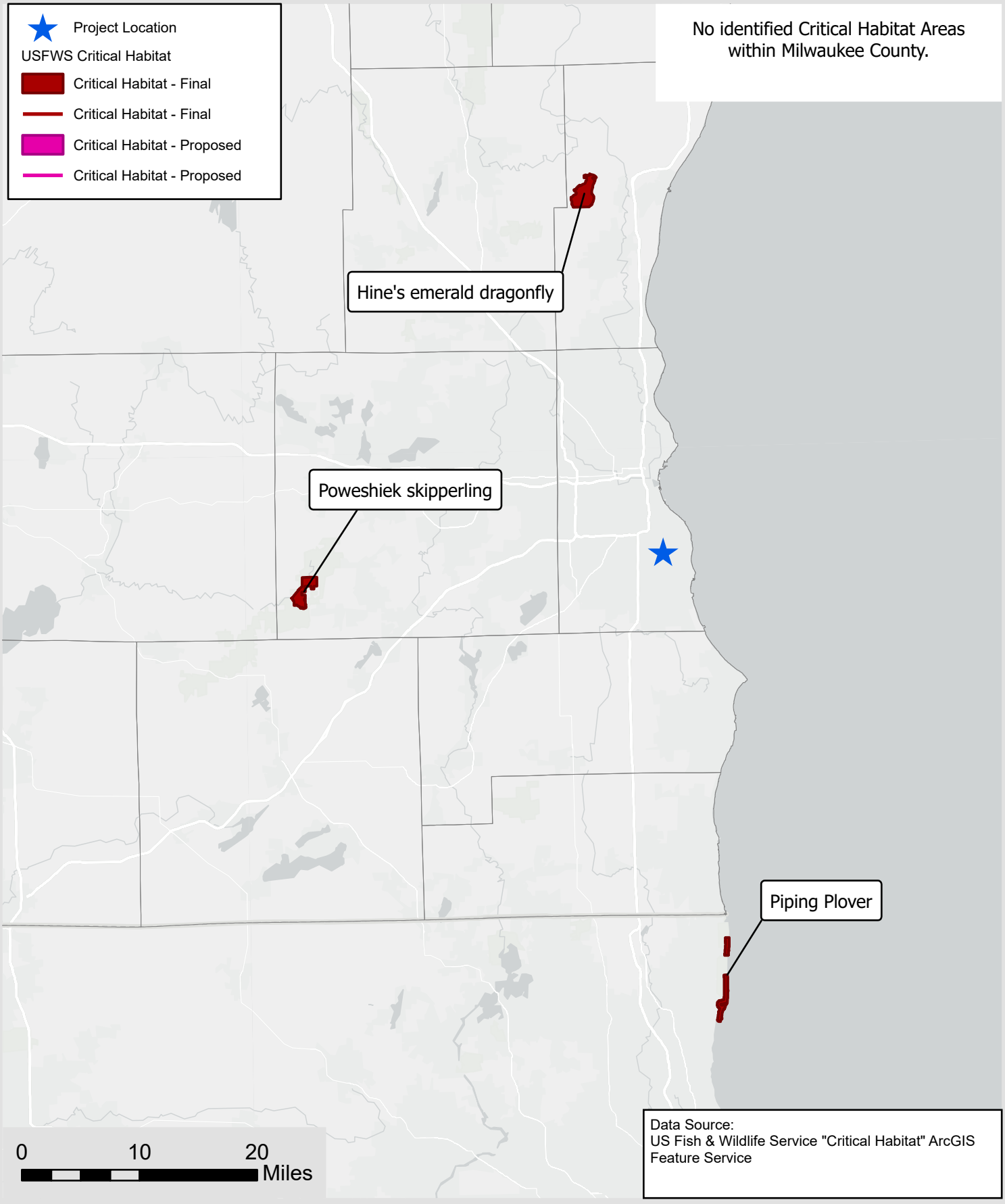
Cumulative impacts associated with the SPA or Alternative B combined with other area projects are not anticipated. Both the SPA and Alternative B allow for Airport development without requiring the acquisition of additional property and improving airfield safety. The No Action alternative would require the acquisition of additional property for development and not realize the benefit of increased airfield safety.

4.17 Secondary (Induced) Impacts

Major airport development projects may have induced or secondary impacts on surrounding communities including shifts in patterns in population movement and growth, public service demands, and changes in business and economic activity.

The removal and decommissioning of Runway 13/31 and taxiways allow for future airport development without requiring the acquisition of additional property while improving airfield safety. Future airport development as a result of the proposed action would increase airport efficiency though taxiway system improvements and other airfield improvements that align with the ALP.

As discussed in other sections of this chapter, the SPA and Alternative B would not have substantial adverse impact on noise and land use. There are no anticipated changes to the population, public service demands, or adverse impacts to the businesses and economy of the surrounding community.



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MKE RUNWAY 13-31 REMOVAL

USFWS CRITICAL HABITAT AREAS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =58,208 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **4-1**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Critical Habitat Map]
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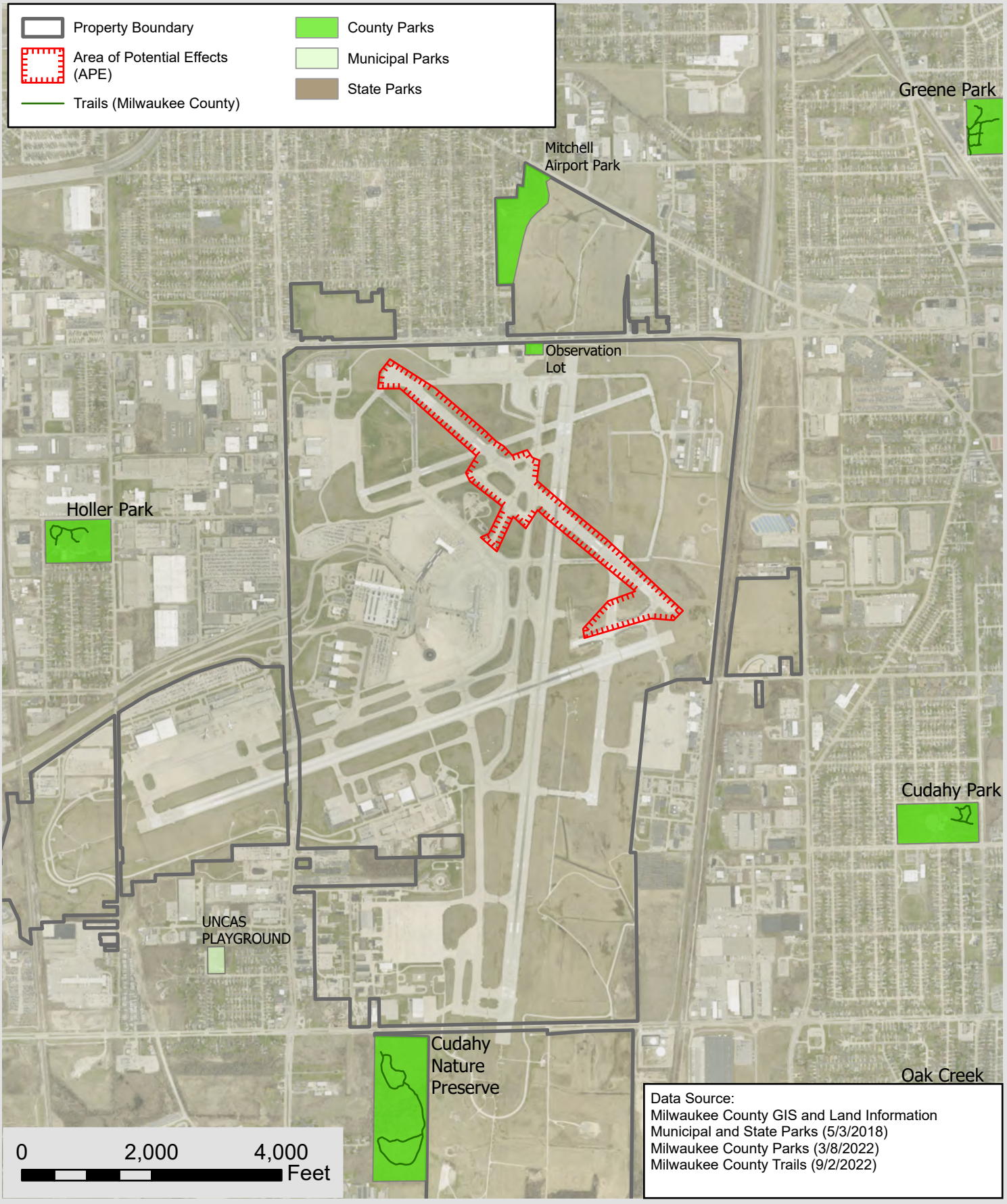

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MKE RUNWAY 13-31 REMOVAL

PARKS AND TRAILS MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **4-2**

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Wetland Map		City of Milwaukee Milwaukee County, WI	Figure **4-3**
MKE Airport Runways 1R-19L & 13-31	By: BWK Date: 9/12/2023	QUEST Civil Engineers, LLC	320 W Grand Ave.,Suite 302 Wisconsin Rapids, WI 54495 715-423-3525

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MKE RUNWAY 13-31 REMOVAL

WATERWAY MAP (24K HYDRO)

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 4/16/2024	FIGURE NO. **4-4**

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CHAPTER 5 – OTHER PUBLIC AND ENVIRONMENTAL CONSIDERATIONS

This chapter discusses the environmental consequences and other considerations that were not covered by the categories discussed in Chapter 4. The following environmental consequences and other considerations are considered as they pertain to the SPA or Alternate B: possible conflicts with land use plans, policies, and controls; consistency with approved State or local plans; mitigation to avoid environmental impacts; degree of controversy on environmental grounds; and coordination with public agencies and State and local officials.

5.1 Possible Conflicts with Land Use Plans, Policies and Controls

The Proposed Action has no known conflicts with Federal, State, or local land use plans. The proposed project is consistent with the Master Plan Update, Airport Layout Plan, and existing airport zoning.

5.2 Consistency with Approved State or Local Plans

There are no known state or local plans with which the proposed project would be inconsistent. The proposed project would occur on Airport property and would not substantially impact resources outside the Airport boundary. The proposed project is consistent with the Wisconsin State Airport System Plan 2030[139] and the Airport Mater Plan Update[140].

5.3 Mitigation to Avoid Environmental Impacts

Where appropriate, mitigation measures are included in the discussion of the specific environmental impact categories in Chapter 4.

5.4 Degree of Controversy on Environmental Grounds

Input was requested during the development of the Preliminary Environmental Assessment from Federal, State, and local agencies and officials to identify controversial actions. The SPA is not expected to be substantially controversial on environmental grounds.

5.5 Coordination with Public Agencies and State and Local Officials

Preliminary coordination letters and responses are provided in **Appendix 2**. Public coordination and participation activities are described in Chapter 6.

In addition to the approvals discussed in this document, additional permits, processes, and resources that may be necessary for project implementation are listed in **Table 5-1.**

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[139] Wisconsin State Airport System Plan 2030: http://wisconsindot.gov/Pages/projects/multimodal/sasp/air2030-chap.aspx

[140] Master Plan Update: https://www.mkeupdate.com/

Table 5-1. Additional Permits, Coordination, and Resources

Agency	Project Activity	Permit Name	Notes
FAA	Project Airspacing and Construction Safety	Form 7460-1 Notice of Proposed Construction or Alteration	Obstruction Evaluation, Airport Airspace Analysis, and Construction Safety Plan Evaluation. FAA Form 7460-1 to be submitted a minimum 45 days before the start of proposed construction or alteration. Filing the notice 60-90 days prior to construction or alteration is highly recommended.
FAA/Airport	Runway Decommissioning	Runway Decommissioning Checklist (not required)	The runway decommissioning checklist is provided by the FAA to help mitigate hazards and increase awareness of closures. The runway decommissioning checklist can be found on the FAA Runway Safety, Runway and Taxiway Construction webpage[141].
WDNR	Stormwater, Grading, and Erosion Control	Final Concurrence Letter (Erosion Control Plan and Stormwater Management Plan)	The Final Concurrence letter is issued after design is complete and documentation shows that the project will meet construction and post-construction performance standards.
WDNR	Stormwater, Grading, and Erosion Control	Transportation Construction General Permit (TCGP)	Coverage under TCGP is required prior to construction due to 1 acre or grater of land disturbance. Additionally, stormwater will need to meet the requirements of TRANS 401. To apply for permit coverage a Notice of Intent (NOI) should be submitted.
WDNR	Stormwater, Grading, and Erosion Control	Erosion Control Implementation Plan (ECIP)	The ECIP would be submitted by the awarded contractor. The ECIP must be developed by the contractor and submitted to WDNR at least 14 days prior to the preconstruction conference.

[141] FAA Runway Safety, Runway and Taxiway Construction webpage: https://www.faa.gov/airports/runway_safety/runway_construction

WDNR	Remediation and Redevelopment – Continuing Obligation	Coordination and Plan Submission	The closed BRRTS site #02-41-558334 has continuing obligations. Due to proximity to the proposed project area once project plans are finalized notify WDNR Remediation and Redevelopment a minimum of 90-days prior to project construction. If issues are encountered regarding BRRTS site #02-41-558334 correspond with WDNR Remediation and Redevelopment.
City of Milwaukee	Stormwater	Coordination	The City of Milwaukee is anticipated to be notified as changes to impervious surface because of the proposed project may impact modeling and reporting.

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CHAPTER 6 – PUBLIC COORDINATION AND PARTICIPATION

The public involvement process described in this chapter discusses community involvement activities, and coordination with state and federal review agencies and other interest groups during the development and evaluation of alternatives and preparation of the Environmental Assessment. The public involvement process is open to all residents and population groups in the study area, and does not exclude any persons because of income, race, color, religion, national origin, sex, age, or handicap. The following is a summary of these activities.

6.1 Public Information/Input

The proposed project was developed through the recent Master Plan Update. Through the Master Plan Update process a total of four public information open houses were held and the public had the opportunity to ask questions and provide input and feedback[142].

As a result of the Master Plan Update, the Airport Layout Plan was updated. Prior to the submission of the ALP to the FAA for approval, Milwaukee County Board Approval is required. On March 9th, 2022 a presentation regarding the preferred alternative was provided to the Committee on Transportation, Public Works, and Transit and the ALP was recommended for adoption. The request to submit the ALP to the FAA was adopted by the Milwaukee County Board on March 24, 2022. Prior to the petition for seeking State and Federal aid for the Environmental Assessment to evaluate the decommissioning and removal of Runway 13/31, a public hearing was held on March 28, 2023.

Future opportunities for public involvement are discussed in Section 6.3. A public information website has been established to disseminate Environmental Assessment project related information. The website and website address are discussed in Section 6.4.

6.2 Agency Coordination

Preliminary coordination was made with the following:

- Milwaukee County Historical Society
- Milwaukee Metropolitan Sewerage District
- Native American Tribes
- United States Army Corps of Engineers
- United States Department of Interior – Fish and Wildlife Service
- United States Environmental Protection Agency
- Wisconsin Department of Administration – Coastal Management Program
- Wisconsin Department of Natural Resources
- Wisconsin Department of Transportation – Bureau of Aeronautics (BOA)

[142] Master Plan Update, Section 9 (Community and Stakeholder Engagement): https://www.mkeupdate.com/application/files/1416/6373/1756/MPU-Section11-CommunityStakeholderEngagement-Final-2022-09-20.pdf

- Wisconsin Department of Transportation – Cultural Resources Team
- Wisconsin Historical Society – State Historic Preservation Office

Table 6-1 summarizes key coordination activities with state and federal agencies, tribal entities, and interest groups.

Table 6-1. Coordination Summary

Agency	Coordination Activities
State Agencies	
State Historic Preservation Office	February 28, 2024 - Section 106 signed by State Historic Preservation Officer. (Appendix 5)
Wisconsin Department of Transportation - Cultural Resources Team (CRT)	January 2024 - BOA submitted Section 106 documentation to CRT for review. February 25, 2024 - Section 106 signed by WisDOT Historic Preservation Officer. (Appendix 5)
Wisconsin Department of Natural Resources (WDNR)	September 9, 2023 - Wetland delineation submitted for WDNR confirmation. September 28, 2023 - Wetland delineation confirmation received from WDNR Bureau of Watershed Management. November 8, 2023 - Notification letter sent to WDNR Transportation Liaison to outline the proposed project. An initial project review was request asking for WDNR staff to conduct NHI screening and provide feedback about the proposed project. A project summary and project maps were included. December 7, 2023 - WDNR Transportation Liaison sent request to BOA to prepare "DNR Coordination Form". December 11, 2023 - "DNR Coordination Form" submitted to BOA who forwarded to WDNR Transportation Liaison. January 5, 2024 - Meeting to discuss scope of proposed project. Discussed concerns regarding Wilson Park Creek and clarified that the project does not anticipate any impacts to the creek. January 10, 2024 - WDNR Initial Project Review Received. February 22, 2024 – Continuing Obligation inquiry sent to WDNR Remediation and Redevelopment program staff to discuss closed BRRTS site #02-41-558334 continuing obligations due to proximity to the proposed project area. A project summary and project maps were included. March 5, 2024 – Airport Staff and Westwood met with WDNR Remediation and Redevelopment staff. Discussion included

	project background, continuing obligations identified, potential project impacts, and timeline. The WDNR remediation and redevelopment staff indicated that they did not have concerns with the proposed project and no formal notification was needed. Once project plans are finalized the WDNR remediation and redevelopment program should be notified at a minimum 90-days before project construction.
Wisconsin Department of Transportation - Bureau of Aeronautics (BOA)	March 28, 2023 - Petition submitted seeking State and Federal aid for the Runway 13/31 Environmental Assessment. October 27, 2023 - Draft tribal coordination letter and supporting documentation sent to BOA. December 13, 2023 - Initial Section 106 Review Archaeological/Historical Information documentation sent for review.
Wisconsin Department of Administration - Coastal Management Program (WCMP)	November 8, 2023 - Notification letter sent to outline the proposed project and solicit input.
Federal Agencies	
United States Army Corps of Engineers (USACE)	December 15, 2023 - Wetland delineation report and Jurisdictional Determination request submitted. Preliminary coordination letter describing the project and project maps were included. December 19, 2023 - Notification of receipt of submittal and Project Manager assignment. January 10, 2024 - Call with USACE Project Manager regarding jurisdictional determination. Discussed wetlands outside of the project area. Preliminary EA will be sent to USACE project manager and general inbox once complete.
United States Department of Interior - Fish and Wildlife Service (USFWS)	January 23, 2024 - Consistency letter received for effect determination using the Minnesota-Wisconsin Federal Endangered Species Determination Key. January 23, 2024 - Consistency letter received for effect determination using the Northern Long-eared Bat Range wide Determination Key
United State Environmental Protection Agency (EPA)	November 8, 2023 - Notification letter sent to outline the proposed project and solicit input.

Native American Interests	
Tribal Notification	December 8, 2023 - Notification letter sent to outline the proposed project and solicit input. December 11, 2023 - Forest County Potawatomi Community responded to the notification letter offering a finding of No Historic Properties affected of significance to the Forest County Potawatomi Community. They wish to remain a consulting party for this project.
Local Governments/Agencies	
Milwaukee County Historical Society	November 8, 2023 - Notification letter sent to outline the proposed project and solicit input.
Milwaukee Metropolitan Sewerage District	November 8, 2023 - Notification letter sent to outline the proposed project and solicit input.
Milwaukee County Committee on Transportation, Public Works, and Transit	March 9, 2022 - Request for approval to submit ALP documentation to the FAA. The Airport Director and Master Plan team presented on the master plan and ALP document. The decommissioning of Runway 13/31 was mentioned. The approval to submit the ALP documentation was recommended for adoption by the committee[143].
Milwaukee County Board of Supervisors	March 24, 2022 - Request for approval to submit ALP documentation to the FAA was adopted[144]. April 7, 2022- The resolution was signed by the County Executive[145].

[143] Transportation, Public Works, and Transit Committee, Wednesday, March 9, 2022 - Meeting Minutes: https://milwaukeecounty.legistar.com/View.ashx?M=M&ID=914884&GUID=10ED908A-DACA-431E-879A-F0DFA5927BE5

[144] Milwaukee County Board of Supervisors, Thursday, March 24, 2022 – Journal of Proceedings – Final: https://milwaukeecounty.legistar.com/View.ashx?M=M&ID=925637&GUID=BD77D3AC-A2CE-4190-8AB3-9C64C4B78610

[145] County Legislative Information Center, File #22-372: https://milwaukeecounty.legistar.com/LegislationDetail.aspx?ID=5472285&GUID=75F8957E-12F9-4148-8319-28BA95402834&Options=&Search=

General Public	
Master Plan Update	During the Airport Master Plan Update, a total of four public information open houses were held. The open houses included presentations and an opportunity for input and feedback[146].
Public Hearing	March 28, 2023 - A public hearing was held prior to the petition for seeking State and Federal aid for the Environmental Assessment to evaluate the decommissioning and removal of Runway 13/31

6.3 Future Opportunities for Public Involvement

A Notice of Availability of a Preliminary Environmental Assessment and Notice of Opportunity for a Public Hearing are planned. The notices will be advertised in the Milwaukee Journal Sentinel and on the Airport notices webpage.

6.4 Public Information Website

A public information website page was established to disseminate Environmental Assessment project related information. The website page contains a link to the preliminary and final environmental assessments (when available), project information/updates, and a notice of public hearing. The web site is accessible at https://www.mitchellairport.com/airport-information/notices.

Following the public comment period for the preliminary and final environmental assessments, documents may be removed from the website page. Documents can be made available upon request to the Wisconsin Department of Transportation - Bureau of Aeronautics[147] or the FAA Chicago Airport District Office.

[146] Master Plan Update, Section 9 (Community and Stakeholder Engagement): https://www.mkeupdate.com/application/files/1416/6373/1756/MPU-Section11-CommunityStakeholderEngagement-Final-2022-09-20.pdf

[147] WisDOT Open Records: https://wisconsindot.gov/pages/about-wisdot/open-rec/default.aspx

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CHAPTER 7 – PREPARERS

This preliminary environmental assessment was prepared under contract with Milwaukee County in 2023-2024 by Westwood Professional Services, Inc. and the following subconsultants:

- Harris Miller Miller & Hanson Inc. – Aviation Noise
- Quest Civil Engineers, LLC. – Wetland Delineation

7.1 General Mitchell International Airport

Justin Weiss, P.E. - *Project Manager*

7.2 Westwood Professional Services

Kaitlyn M. Wehner - *Airport Engineer*

Ms. Wehner is an airport engineer with experience in airport design and construction. Her responsibilities include design services for plan development for the Bureau of Aeronautics, county, and local governments. Kaitlyn has been the construction resident engineer for airfield paving, earthwork, drainage, and fencing projects. Her resident engineering experience includes the construction of projects that were evaluated through the NEPA Environmental Assessment process. Her responsibilities included ensuring that environmental obligations were communicated and met during construction.

B.S., Civil Engineering, Michigan Technological University, Houghton, Michigan

Aaron L. Stewart, P.E. - *Aviation Services Manager, Wisconsin*

Mr. Stewart has extensive experience in airport design and construction. His responsibilities include project administration, design reports, coordination with the Bureau of Aeronautics, FAA, and airport managers, and preliminary and final design. As the aviation services manager, Mr. Stewart is responsible for the quality of work performed by the professionals in the department. His experience also included project manager and resident engineer for airfield paving, earthwork, drainage and turf restoration.

B.S., Civil Engineering, University of Wisconsin - Milwaukee, WI

A.A.S., Civil Engineering Technology, Northeast WI Technical College, Green Bay, WI

Professional Engineer, 1997, Wisconsin #32318

Brian D. Wayner, P.E. - *Service Leader, Environmental*

As environmental service leader, Mr. Wayner is responsible for the quality of work performed by the professionals in the department. He is involved in the planning and implementation of work plans, and directly oversees project work performed in the hydrogeology and engineering areas. Technical experience includes preparing environmental assessments, environmental impact statements, performing investigations and designing remediations for soil and groundwater contaminated sites.

M.S., Environmental Engineering, University of New Haven, West Haven, Connecticut

B.S., Electrical Engineering, University of Wisconsin – Milwaukee

Professional Engineer, 2002, Wisconsin #35304

Evan Dujardin - *Scientist/Hydrogeologist*

Mr. Dujardin is a scientist/hydrogeologist. His experience includes Phase I and Phase II Environmental Site Assessments, and site investigations for soil, groundwater, sediment, and vapor in accordance with Wisconsin Administrative Code NR 700 regulations. Mr. Dujardin has assisted in the preparation of Investigation reports, Low Hazard Waste Grant of Exemption requests, Material Management Plans, and closure requests. He also performs Wisconsin Department of Transportation hazardous waste assessment work. Mr. Dujardin has his Tank System Site Assessor certification.

B.S., Geosciences with an emphasis in Hydrogeology, University of Milwaukee

Jason Weis, P.E., GISP - *Project Manager*

Mr. Weis is professional engineer with extensive experience in geographic information systems (GIS) and database application design. He is also involved with hydraulic and hydrologic modeling, sidewalk management programs and municipal stormwater management programs.

M.S., Environmental Engineering, University of Wyoming

B.S., Civil Engineering, University of Wisconsin – Platteville

Professional Engineer, Wisconsin # 36681

Rigden A. Glaab – *Archaeological Principal Investigator*

Mr. Glaab has over 25 years of archaeological experience including executing projects for academic, government, and private sector environments. He is a Registered Professional Archaeologist (RPA) and meets the Secretary of the Interior's Professional Standards for, prehistoric archaeology and

historical archaeology. He is included on the Wisconsin Historical Society's (WHS) Qualified Archaeologist for Burial Sites list to monitor archaeological construction work and is also on the Wisconsin contractor list to perform cultural resource surveys in Wisconsin.

M.A., Anthropology, University of Texas – Austin

B.A., Anthropology, University of Arizona

Sara J. Nelson – *Architectural Historian*

Ms. Nelson is an architectural historian that supports projects as a cultural resources specialist. She has nearly ten years of experience conducting architectural history surveys and preparing National Register nominations for buildings and districts for the government and private sector. She also conducts Phase 1 archaeological surveys and Phase 1 Environmental Site Assessments.

B.A., Historic Preservation and Community Planning, College of Charleston, South Carolina

7.3 Harris Miller Miller & Hanson Inc.

Vincent Ma – *Consultant*

Vincent Ma is a graduate of California State Polytechnic University (Cal Poly) with a background in environmental and natural resource conservation. Mr. Ma is a Consultant with the Aviation Environmental Services Group at HMMH. Most of his experience has been with projects related to aviation noise including data analysis, noise modeling in AEDT, and reporting. He also has experience conducting noise measurements and modeling in SoundPLAN and ArcGIS for rail and highway noise projects. Mr. Ma is also involved in conducting measurements for residential sound insulation projects at various airports across the country. Vincent is a certified service delivery technician for Envirosuite, providing preventative maintenance and support services for Airport noise monitoring systems throughout the Western United States.

B.S., Environmental Biology, Minor in Regenerative Studies, California State Polytechnic University

Scott Polzin, PMP – *Principal Consultant, Aviation Environmental Services*

Scott Polzin is a Principal Consultant in HMMH's Aviation Environmental Services group. Scott brings over 25 years of environmental planning experience to assignments. The primary focus of his technical experience has been delivering National Environmental Policy Act (NEPA) compliance documents, including environmental impact statements (EISs), environmental assessments (EAs), and categorical exclusions (CatExs). His current focus is delivering NEPA documents on aviation projects but he also has experience on highway, transit, and transmission line projects.

Masters, Community and Regional Planning, University of Nebraska, Lincoln

B.S., Finance, University of Nebraska, Lincoln

Eugene M. Reindel – *Vice President*

Gene has focused the greater part of his career on aircraft noise and consulting across the country and internationally. As Vice President in the Aviation Environmental Services (AES) group at HMMH, he manages a wide range of aviation noise consulting projects and provides technical support on aviation related noise studies and noise measurement programs. Mr. Reindel is a trained facilitator and leads public outreach programs associated with controversial noise studies and programs and uses his training to facilitate community noise forum-type meetings. Gene also teaches courses in acoustics, sound measurements and noise modeling. Gene enjoys and excels at presenting complex issues of aviation noise in an easily understood manner.

M.E., Acoustics, Pennsylvania State University, State College, PA

B.S., Physics Engineering, Pacific Lutheran University, Tacoma, WA

Aofei Li – *Staff Consultant*

Aofei Li is a Consultant in the Aviation Environmental Services group at HMMH. He obtained his M.S. in Aeronautical Science – Aviation Management from Middle Tennessee State University. He works on a variety of projects for airport clients and specializes in noise modeling using the Federal Aviation Administration's (FAA's) Aviation Environmental Design Tool (AEDT) and ArcPORT, as well as regularly performing acoustical measurements in the field. Mr. Li is proficient in Microsoft Access and SQL Server, ANMS, ArcGIS, ELS, GMS, SAMS, and TARGETS.

B.S., Computer Science, Heilongjiang University of Science and Technology, Harbin, China

M.S., Aeronautical Science, Aviation Management, Middle Tennessee State University

7.4 Quest Civil Engineers, LLC.

Brian Kronstedt – *Environmental Specialist*

Mr. Kronstedt has over 23 years of experience performing wetland delineations. He has completed training sponsored by the Wisconsin Coastal Management Program including Basic Wetland Delineation, Advanced Wetland Delineation, Plant Identification, and Hydric Soils.

B.S., Biology and Wildlife Management, University of Wisconsin – Stevens Point

APPENDIX 1 – SITE PHOTOGRAPHS

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Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	1
Description:	Standing on Runway 13-31 looking southwest.				

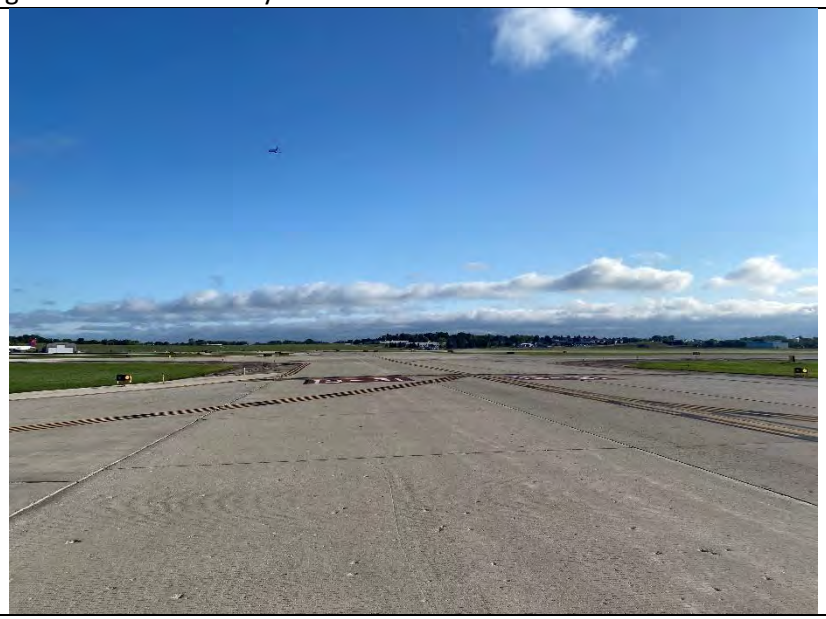
Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	2
Description:	Standing on Runway 13-31 looking southeast towards runway end.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	3
Description:	Standing on Runway 13-31 looking northwest.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	4
Description:	Standing Runway 13-31 looking southeast towards Runway 1R-19L .				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	5
Description:	Standing on Runway 13-31 near Taxiway G looking northeast.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	6
Description:	Standing on Taxiway U looking northeast at Taxiway G.				



Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	7
Description:	Standing on at intersection of Taxiway U and Taxiway G looking southwest towards passenger terminal.				

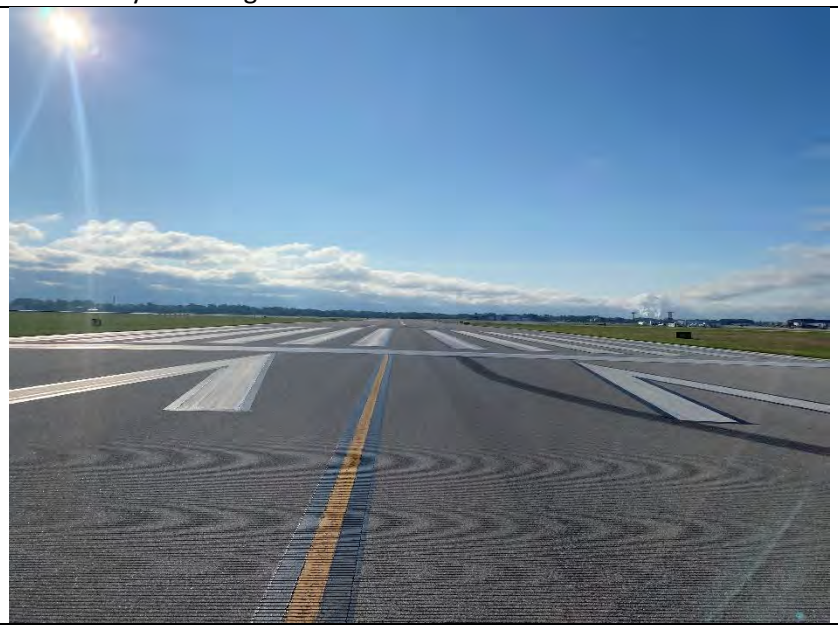
Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	8
Description:	Standing on Taxiway U near Taxiway E facing southeast. Looking at Taxiway Lighting and Signage				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	9
Description:	Standing on Runway 13-31 near Runway 7L-25R looking northeast at PAPIs.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	10
Description:	Standing on Runway 13-31 looking northwest towards Taxiway F.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	11
Description:	Standing on Runway 13-31 near Taxiway F looking northwest.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	12
Description:	Standing on Runway 13-31 near Taxiway F looking southeast.				



Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	13
Description:	Proposed Staging Area northeast of proposed project, looking east.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	14
Description:	Standing on Taxiway M looking northeast at Taxiway N.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	15
Description:	Standing on Taxiway M looking northwest at potential Alternate B Holding Pad location				

APPENDIX 2 – CORRESPONDENCE

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WISCONSIN DEPARTMENT OF NATURAL RESOURCES

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State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W St Paul Ave
Milwaukee WI, WI, 53233

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

09/28/2023 WIC-SE-2023-41-03089

Justin Weiss
General Mitchell International Airport
[sent electronically]

RE: Wetland Delineation Confirmation for "MKE Runways 1R-19L & 13-31" located in NW 1/4, SE 1/4, Section 28, Township 06N, Range 22E, in the City of Milwaukee, Milwaukee County

Dear Justin Weiss

We have reviewed the wetland delineation report from Quest Civil Engineers, LLC prepared for the above-mentioned site. This letter will serve as confirmation that the wetland boundaries shown on the enclosed wetland delineation figure are acceptable. This finding is based upon a detailed report review and interview with the delineator. Any filling or grading within these areas may require DNR approvals. Our wetland confirmation is valid for five years. Be sure to send a copy of the report, as well as any approved revisions, to the U.S. Army Corps of Engineers.

In order to comply with Chapter 23.321, State Statutes, please supply the department with a polygon shapefile of the wetland boundaries delineated within the project area. Please do not include data such as parcel boundaries, project limits, wetland graphic representation symbols, etc. If internal upland polygons are found within a wetland polygon, then please label as UPLAND. The shapefile should utilize a State Plane Projection and be overlain onto recent aerial photography. If a different projection system is used, please indicate in which system the data are projected. In the correspondence sent with the shapefile, please supply a brief description of each wetland's plant community (eg: wet meadow, floodplain forest, etc.). Please send these data to Calvin Lawrence (608-266-0756 or email at calvin.lawrence@wisconsin.gov).

If you are planning development on the property, you are required to avoid take of endangered and threatened species, or obtain an incidental take authorization, to comply with the state's Endangered Species Law. To ensure compliance with the law, you should submit an endangered resources review form (Form 1700-047), available at https://dnr.wi.gov/topic/ERReview/Review.html. The Endangered Resources Program will provide a review response letter identifying any endangered and threatened species and any conditions that must be followed to address potential incidental take.

In addition to contacting WDNR, be sure to contact your local zoning office and U.S. Army Corps of Engineers to determine if any local or federal permits may be required for your project.

If you have any questions, please call me at (414) 308-6780 or you can reach me by email at kara.brooks@wisconsin.gov.

Sincerely,

Kara Brooks
Wetland Identification Specialist

Enclosures: Project Location Figure
Wetland Delineation Figure

Email CC: USACE Project Manager
Brian Krostedt, Quest

Wetland Map		City of Milwaukee Milwaukee County, WI	Figure A
MKE Airport Runways 1R-19L & 13-31	By: BWK Date: 9/12/2023	QUEST Civil Engineers, LLC	320 W Grand Ave.,Suite 302 Wisconsin Rapids, WI 54495 715-423-3525

Kaitlyn Wehner

From: Turk, Christine <cturk@mitchellairport.com>
Sent: Wednesday, November 8, 2023 3:40 PM
To: ryan.pappas@wisconsin.gov
Cc: Weiss, Justin; Hottenstein, Wendy - DOT; Palmer, Mallory K - DOT; Kaitlyn Wehner
Subject: Milwaukee Mitchell International Airport Proposed Runway 13-31 Decommissioning and Removal Project
Attachments: MKE RWY 13-31 - WDNR Initial Project Review Request.pdf; Attachment 1 - RWY 13-31 Location Map.pdf; Attachment 2 - RWY 13-31 Airport Property Map.pdf; Attachment 3 - RWY 13-31 Airport Diagram Map.pdf; Attachment 4 - RWY 13-31 Area of Potential Effects Map.pdf; Attachment 5 - Wetland Delineation Confirmation.pdf; Attachment 6 - RWY 13-31 Photo log.pdf

Good afternoon,

Please see the attached letter and corresponding documents regarding the proposed decommissioning and removal of runway 13-31 at Milwaukee Mitchell International Airport.

Let us know if you have any questions or concerns regarding the proposed project.

Thank you,

Christine Turk, ACE
Airport Planning Manager
Milwaukee Mitchell International Airport
5300 S Howell Avenue
Milwaukee, WI 53207
Office: 414-747-6226

ASQ BEST AIRPORT AWARD | NORTH AMERICA 2022

November 8, 2023

Mr. Ryan Pappas

Wisconsin Department of Natural Resources

1027 West St. Paul Ave

Milwaukee, WI 53233

Via Electronic Mail Only to ryan.pappas@wisconsin.gov

RE: Milwaukee General Mitchell International Airport

Proposed Runway 13-31 Decommissioning and Removal

Dear Mr. Pappas:

General Mitchell International Airport (Airport) is beginning preliminary studies for improvements to the Airport. (See Attachment 1 – Site Location Map & Attachment 2 – Airport Property Map) These proposed improvements include the decommissioning and removal of Runway 13-31 (Project).

Recently, the Airport completed a Master Plan Update, which established the needs and goals for the future of the Airport. The purpose for the proposed project is to align the airfield configuration with the Master Plan Update goals and the recently approved Airport Layout Plan. The proposed project will enhance airfield compliance with updated Federal Aviation Administration (FAA) standards. Additionally, the proposed project will align the airfield for future development and improve safety by removing non-standard runway/taxiway intersections.

Currently, Runway 13-31 is 5,537 feet long and 150 feet wide with numerous connecting taxiways (See Attachment 3 – Airport Diagram Map). Runway 13-31 primarily serves general aviation aircraft. Currently the intersection of Runway 13-31, Taxiway G, and Taxiway E can be classified as non-standard and has a greater potential for pilot confusion.

The proposed project undertaking will consist of the following:

(See Attachment 4 – Area of Potential Effects)

- Decommissioning of Runway 13-31
- Removal of Taxiway G, Taxiway U, and Taxiway N connectors
- Removal of approximately 126,900 SY of pavement and associated electrical utilities and NAVAIDs for Runway 13-31, Taxiway G, Taxiway U, and Taxiway N
- Proposed addition of a holding bay adjacent to Taxiway M including associated lighting.

A wetland delineation was performed at the proposed location and submitted to the DNR. The delineation identified wetlands present in a ditch line southwest of Runway 1R-19L and is located outside of the Area of Potential Effects for the proposed project. (See Attachment 5 – Wetland Delineation Confirmation).

The proposed project area was entered into the Natural Heritage Inventory Public Portal, it was identified that endangered resources are located within the 1-mile and 2-mile buffer of the project area. If requested, the public portal ID can be provided for reference. The project was entered into the U.S. Fish & Wildlife Service Information for Planning and Consultation (IPaC) portal and endangered resources were identified as potentially affected by activities in the project location.

The proposed project is located within airport property, specifically in Sections 27 and 28 of Township 06 North, Range 22 East. The project area is currently pavement and mowed grass fields with no structures. (See Attachment 6 – Site Photographs)

We are requesting that you identify any concerns the Wisconsin Department of Natural Resources may have regarding the proposed project or related information about the area. Any concerns or comments will be included in the preliminary environmental assessment. Additionally, you will be included on the distribution list for the preliminary and final environmental assessment. If you would like to receive additional information regarding this proposed project, please contact Justin Weiss at 414-747-6233 or at jweiss@mitchellairport.com. Thank you for your assistance.

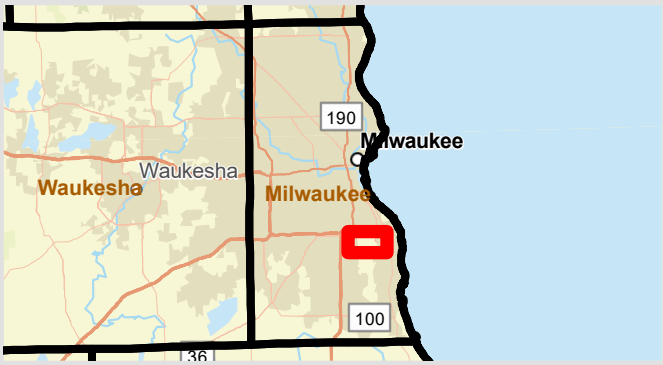
Sincerely,

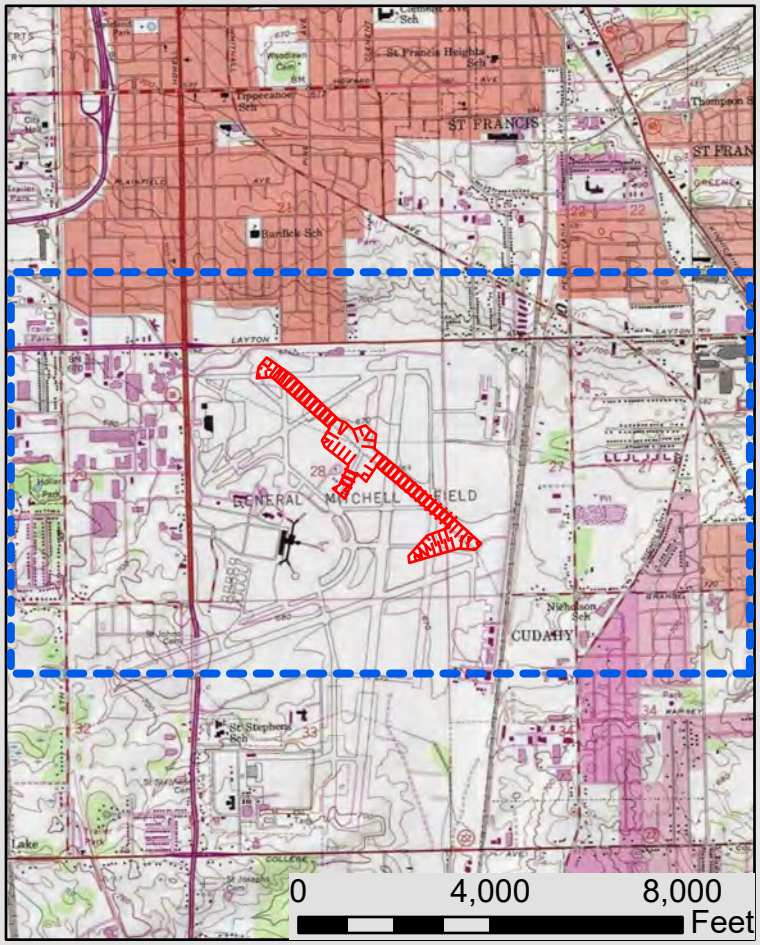
Christine Turk, ACE
Airport Planning Manager
General Mitchell International Airport

Attachments:

1. Site Location Map
2. Airport Property Map
3. Airport Diagram Map
4. Area of Potential Effects
5. Wetland Delineation Confirmation
6. Site Pictures

Cc: Justin Weiss, General Mitchell Airport Project Manager (by email)
Wendy Hottenstein, WisDOT BOA (by email)
Mallory Palmer, WisDOT BOA (by email)
Kaitlyn Wehner, Westwood (by email)





Westwood
1 Systems Drive
Appleton, WI 54914
(920) 735-6900
www.westwoodps.com

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MKE RUNWAY 13-31 REMOVAL

LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	
Project Engineer:	
Drawn By:	JCW
Checked By:	
Date:	9/12/2023
SCALE:	1 in = 2,000 ft
PROJECT NO.	**R3001844.01**
FIGURE NO.	**1**

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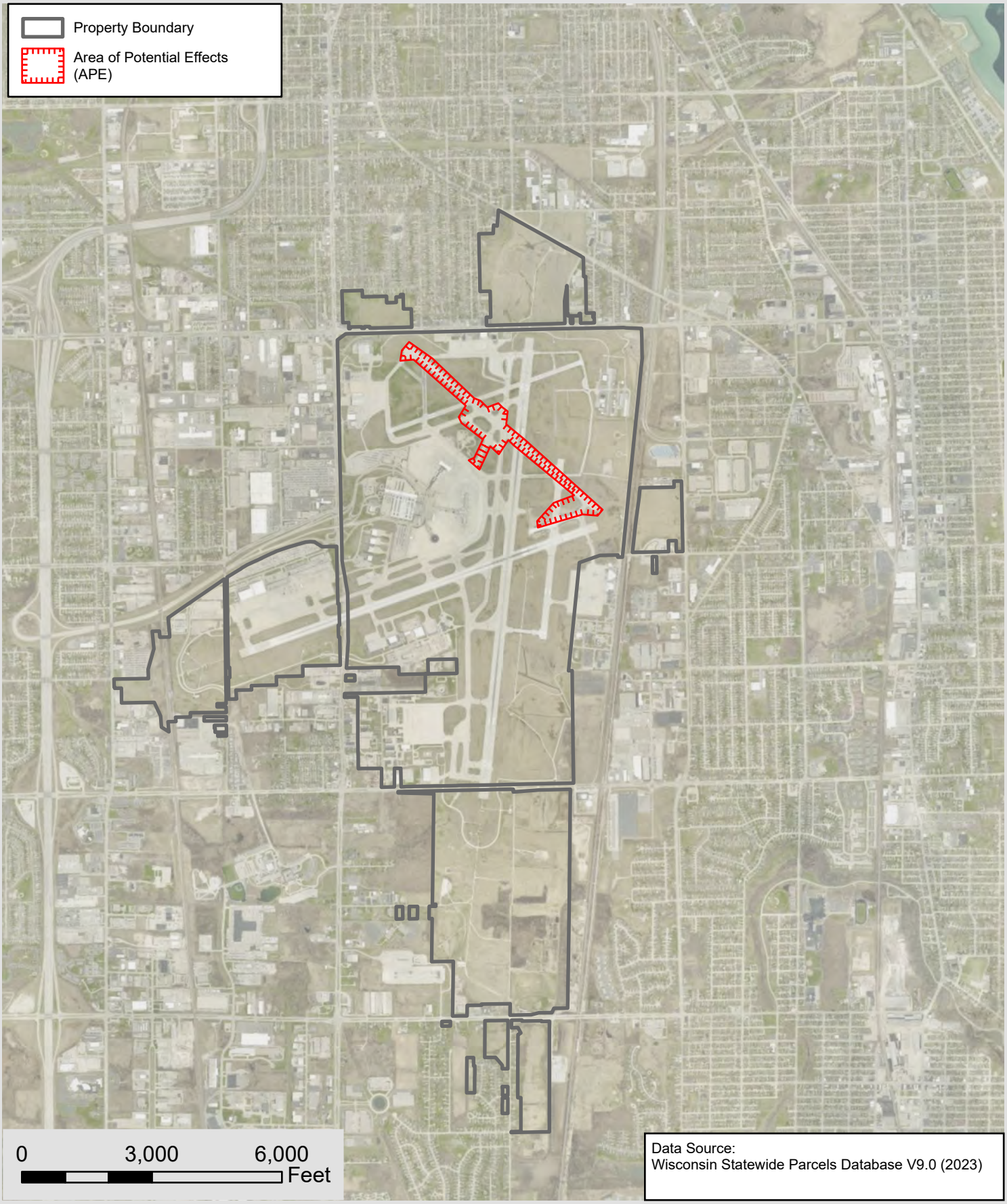

Westwood

1 Systems Drive
Appleton, WI 54914

(920) 735-6900
www.westwoodps.com

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MKE RUNWAY 13-31 REMOVAL

AIRPORT PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	
Project Engineer:	
Drawn By:	JCW
Checked By:	
Date:	9/12/2023
SCALE:	1 in =3,000 ft
PROJECT NO.	**R3001844.01**
FIGURE NO.	**2**

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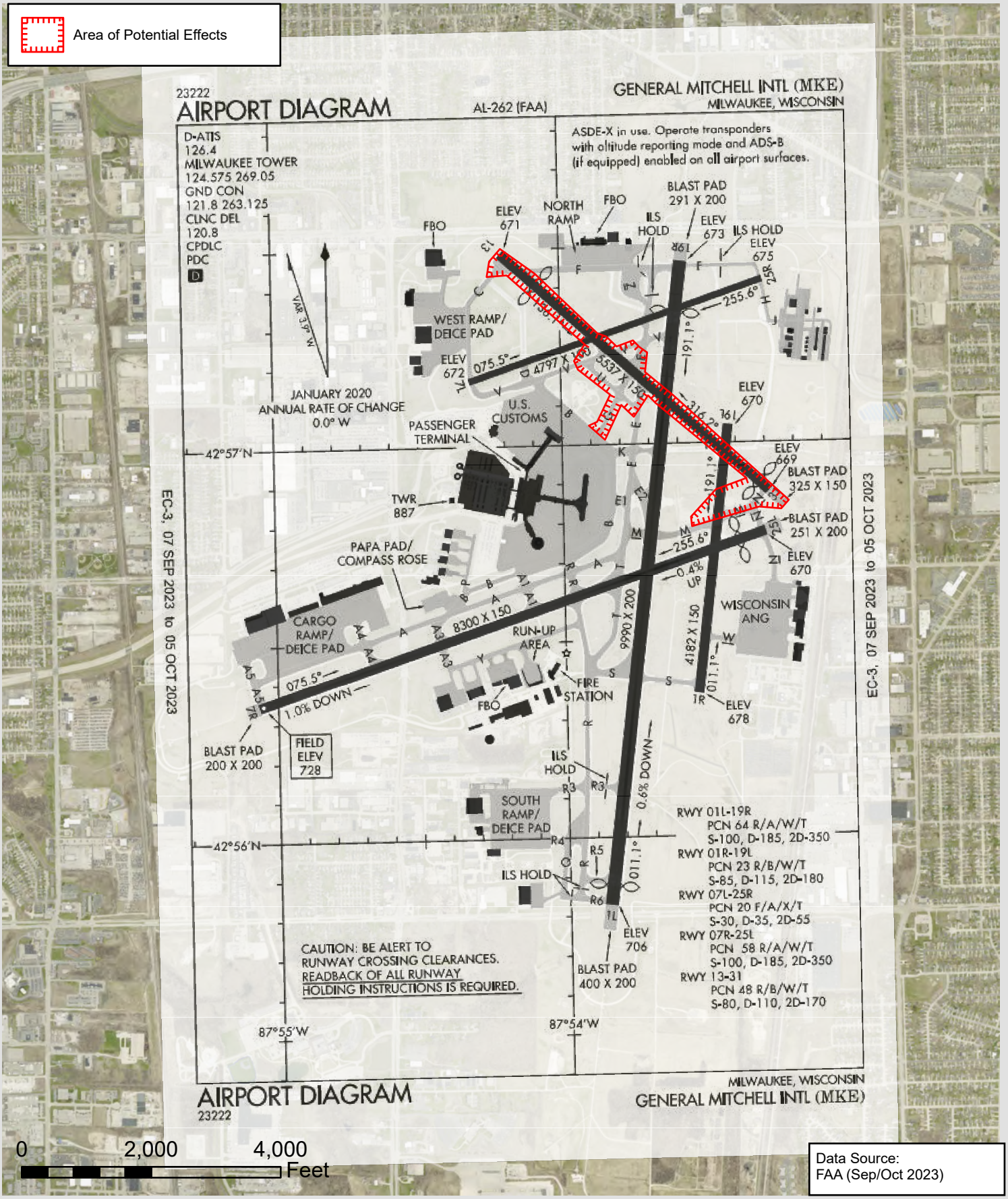

Westwood

1 Systems Drive
Appleton, WI 54914
(920) 735-6900
www.westwoodps.com

N W E S

MKE RUNWAY 13-31 REMOVAL

AIRPORT DIAGRAM MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. R3001844.01
Checked By:	
Date: 9/12/2023	FIGURE NO. 3

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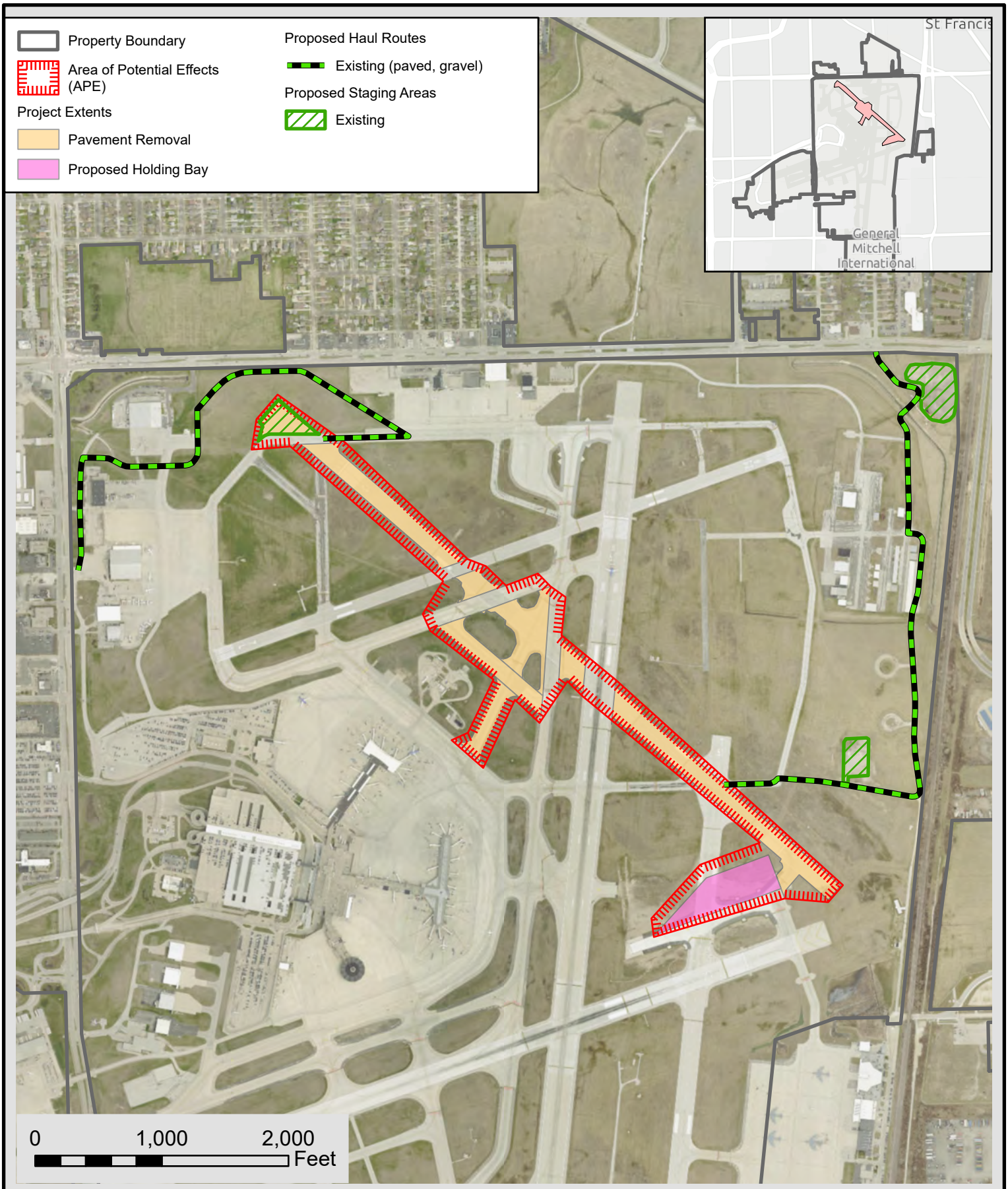

Westwood
1 Systems Drive
Appleton, WI 54914
(920) 735-6900
www.westwoodps.com

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MKE RUNWAY 13-31 REMOVAL

AREA OF POTENTIAL EFFECTS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =1,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 9/12/2023	FIGURE NO. **4**

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State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W St Paul Ave
Milwaukee WI, WI, 53233

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

09/28/2023 WIC-SE-2023-41-03089

Justin Weiss
General Mitchell International Airport
[sent electronically]

RE: Wetland Delineation Confirmation for "MKE Runways 1R-19L & 13-31" located in NW 1/4, SE 1/4, Section 28, Township 06N, Range 22E, in the City of Milwaukee, Milwaukee County

Dear Justin Weiss

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In order to comply with Chapter 23.321, State Statutes, please supply the department with a polygon shapefile of the wetland boundaries delineated within the project area. Please do not include data such as parcel boundaries, project limits, wetland graphic representation symbols, etc. If internal upland polygons are found within a wetland polygon, then please label as UPLAND. The shapefile should utilize a State Plane Projection and be overlain onto recent aerial photography. If a different projection system is used, please indicate in which system the data are projected. In the correspondence sent with the shapefile, please supply a brief description of each wetland's plant community (eg: wet meadow, floodplain forest, etc.). Please send these data to Calvin Lawrence (608-266-0756 or email at calvin.lawrence@wisconsin.gov).

If you are planning development on the property, you are required to avoid take of endangered and threatened species, or obtain an incidental take authorization, to comply with the state's Endangered Species Law. To ensure compliance with the law, you should submit an endangered resources review form (Form 1700-047), available at https://dnr.wi.gov/topic/ERReview/Review.html. The Endangered Resources Program will provide a review response letter identifying any endangered and threatened species and any conditions that must be followed to address potential incidental take.

In addition to contacting WDNR, be sure to contact your local zoning office and U.S. Army Corps of Engineers to determine if any local or federal permits may be required for your project.

If you have any questions, please call me at (414) 308-6780 or you can reach me by email at kara.brooks@wisconsin.gov.

Sincerely,

Kara Brooks
Wetland Identification Specialist

Enclosures: Project Location Figure
Wetland Delineation Figure

Email CC: USACE Project Manager
Brian Krostedt, Quest

Wetland Map		City of Milwaukee Milwaukee County, WI	Figure A
MKE Airport Runways 1R-19L & 13-31	By: BWK Date: 9/12/2023	QUEST Civil Engineers, LLC	320 W Grand Ave.,Suite 302 Wisconsin Rapids, WI 54495 715-423-3525

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	1
Description:	Standing on Taxiway N looking southwest.				

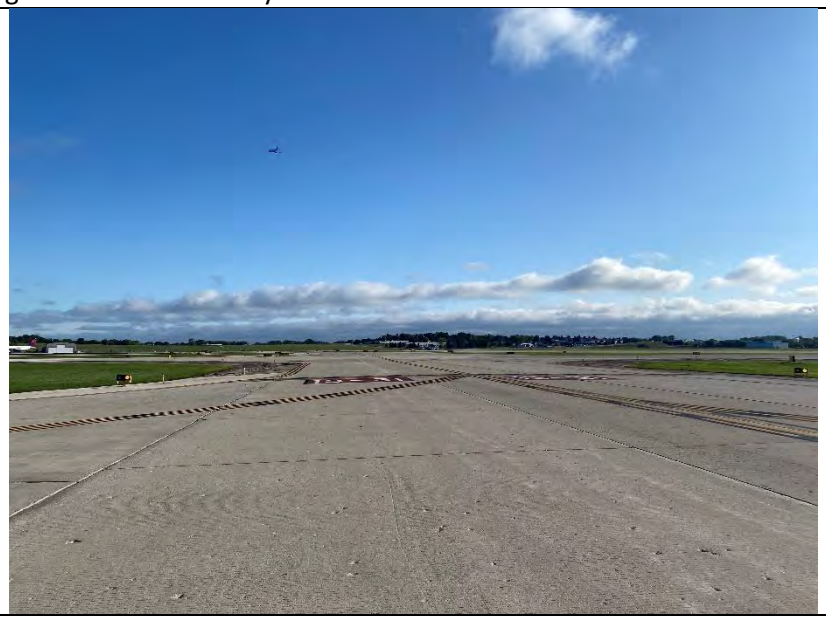
Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	2
Description:	Standing on Runway 13-31 looking southeast towards runway end.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	3
Description:	Standing on Runway 13-31 looking northwest.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	4
Description:	Standing Runway 13-31 looking southeast towards Runway 1R-19L .				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	5
Description:	Standing on Runway 13-31 near Taxiway G looking northeast.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	6
Description:	Standing on Taxiway U looking northeast at Taxiway G.				



Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	7
Description:	Standing on at intersection of Taxiway U and Taxiway G looking southwest towards passenger terminal.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	8
Description:	Standing on Runway 13-31 near Runway 7L-25R looking northeast at PAPIs.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	9
Description:	Standing on Runway 13-31 looking northwest towards Taxiway F.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	10
Description:	Standing on Runway 13-31 near Taxiway F looking northwest.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	11
Description:	Standing on Runway 13-31 near Taxiway F looking southeast.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31	**Date:**	9/12/23	**Photo #**	12
Description:	Proposed Staging Area northeast of proposed project, looking east.				

Site Location:	General Mitchell International Airport – Decommission Runway 13-31		**Date:**	N/A	**Photo #** 13
Description:	Site Aerial Overview				

DNR PROJECT COORDINATION REQUEST

Wisconsin Department of Transportation (WisDOT), Bureau of Aeronautics (BOA)

Purpose: To facilitate interagency coordination utilizing the liaison procedures under the Cooperative Agreement between WDNR and WisDOT.

Goal: Within 30 days of form receipt, the TL and AEC/BOA Project Manager should communicate regarding whether additional information is needed by the TL and the timeframe in which the WisDOT project team requested document is needed.

WDNR Transportation Liaison	**WisDOT Aeronautical Environmental Coordinator** (Send copy of all coordination to AEC)	**WisDOT BOA Project Manager**
TO: Ryan Pappas (414) 750-7495 Ryan.Pappas@Wisconsin.Gov	**FROM:** Mallory K. Palmer (608) 261-5861 malloryk.palmer@dot.wi.gov	Wendy Hottenstein, P.E. (608) 261-6278 Wendy.Hottenstein@Dot.Wi.Gov

WisDOT Project ID	Airport Name (LOC ID)	County & Township/Village/City
0740-40-114	General Mitchell International Airport (MKE)	City of Milwaukee, Milwaukee County

BOA Project ID	Project Name
MKE AIP-114	Runway 13-31 Decommissioning and Removal

Estimated Project Cost (range)	Project Consultant	Project on Lands of Tribal Interest?
	Westwood	☐ Yes ☒ No

Environmental Document Type (per FAA Order 1050.1F or TRANS 400)

☐ Categorical Exclusion (CATEX) ☒ Environmental Assessment (EA) ☐ Environmental Impact Statement (EIS)

Type of Document Requested

☒ Initial Review Letter (IRL)
☐ Final Concurrence Letter (FCL)
☐ Amendment to IRL (Attach latest IRL)
☐ Amendment to FCL (Attach latest FCL)
☐ Other:

Document Delivery Date Information (mm/dd/yyyy)

DNR Project Coordination Request Submittal: 12/11/2023

Initial Review Letter Requested By: 1/15/2024
(Provide at least 30 days lead time from DNR Project Coordination Request Submittal)

Final Concurrence Letter Requested By:
-Indicated date of Planned or Advanceable PS&E:

Proposed Work Involved

☐ Runway Rehabilitation/Reconstruction – Runway ID:
☐ Taxiway Rehabilitation/Reconstruction – Taxiway ID:
☐ Apron Rehabilitation/Reconstruction
☒ Other Pavement(s)
☒ Lighting - Replacement, Upgrade or New
☐ Hangar(s) – New Site, New Building, Demolition or Replacement
☐ Other Building(s) – Terminal, Customs, ARFF, etc.
☐ Obstruction Removal
☐ Fuel System – New, Upgrade or Replacement
☐ Fencing – New, Upgrade or Replacement

☒ NAVAID(S)
☐ Land Acquisition/Easement
☐ Seaplane Base
☒ Grading
☒ Borrow and/or Waste Site Required
☒ Stormwater/Drainage
☐ Culvert Replacement or Extension
☐ Channel Change/Stream Relocation
☒ Other: Runway 13/31 Decommissioning with Pavement Removal, Removal of Taxiway G, U, N, Taxiway M Holding Bay

Storm Water Management
(check all that apply)

Estimated Acres of Ground Disturbance
(include total acreage of all disturbed areas, plus known select sites)

☐ Under 1 acre
☒ Over 1 acre
  ☒ WPDES, Transportation Construction General Permit Stormwater Management Plan per TCGP 3.2 (Guidance)

Attachments

For Initial Review Letter

☒ Map of Project Limits
☒ Wetland Delineation (if available)
☐ Endangered Resource Species Surveys
☐ Preliminary Engineering Plans
☐ Phase 1 ESA Report (Hazmat)
☒ Other: Photo Log

For Final Concurrence Letter

☐ Map of Project Limits
☐ Wetland Delineation
☐ Wetland Impact Tracking Form
☐ Special Provision
☐ Final Engineering Plans
☐ Erosion Control Plans
☐ TCGP NOI
☐ Other:

Proposed Project Description (include proposed design & construction dates)

The proposed project at General Mitchell International Airport (Airport) consists of the decommissioning and removal of Runway 13-31. The Airport owned and operated by Milwaukee County. The Airport is located in the City of Milwaukee, Milwaukee County, Wisconsin; approximately two miles west of Lake Michigan and six miles south of downtown Milwaukee. Specifically, the proposed project is located on Airport property in Sections 27 & 28 of Township 6 North, Range 22 East in Milwaukee County, Wisconsin.

Recently the Airport completed a master plan update which established the needs and goals for the future of the Airport. The purpose for the proposed project is to align the airfield configuration with the master plan update development needs and the recently approved Airport Layout Plan. The proposed project will enhance airfield compliance with updated Federal Aviation Administration (FAA) standards.

The proposed project undertaking will consist of the following:

- Decommissioning of Runway 13-31
- Removal of Taxiway G, Taxiway U, and Taxiway N connectors
- Removal of approximately 126,900 SY of pavement and associated electrical utilities and NAVAIDs for Runway 13-31, Taxiway G, Taxiway U, and Taxiway N
- Proposed addition of a holding bay adjacent to Taxiway M including associated lighting.

The estimated start date and duration of the project construction is spring of 2027 to fall of 2028.

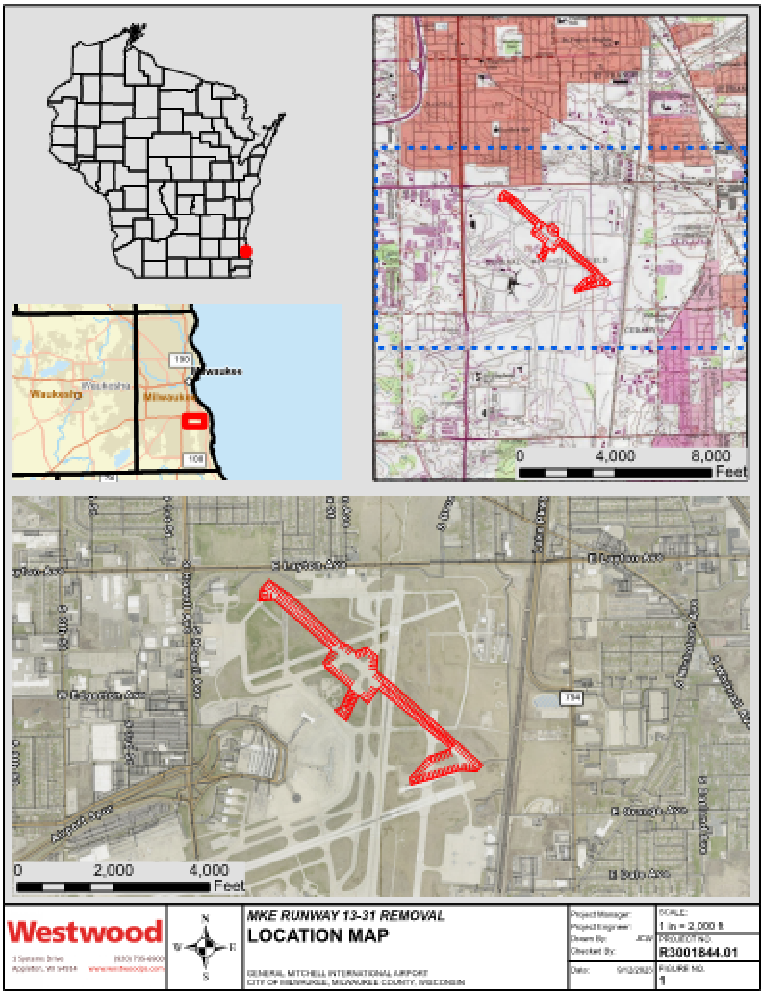
Proposed Project Purpose and Need

In September of 2022 the Airport completed a master plan update. Through the master plan update the opportunity to right size the airfield was analyzed. The airfield analysis focused on balancing the runway configuration with forecast demand, protecting the ability to accommodate growth, and optimizing capacity benefits in the context of future operation and maintenance costs and capital expenses. The purpose of the proposed project is to align the airfield configuration with the master plan update development needs and the recently approved Airport Layout Plan (ALP).

The need for the proposed project is based on addressing the rightsizing needs of the airport by removing underutilized and obsolete pavement. The proposed project also aligns the airfield configuration to meet update FAA standards and align with the most recent ALP update. Currently, the Airport operates using a five (5) runway configuration but through the most recent master plan update, using a three (3) runway system the airport will still be capable to accommodating demand through the 2040 planning horizon. Utilizing a three (3) runway system the airfield taxiway network can be modified to fulfill the need to enhance aircraft circulation and increase efficiency. Additionally, the proposed action is needed to improve safety by removing a non-standard runway/taxiway intersections and reduce operation and maintenance costs associated items such as deteriorating pavement, lighting repairs, and snow plowing. The proposed action facilitates future development to meet the identified future needs of the airport without requiring the acquisition of additional property, while ensuring Airport resources are prudently deployed

List of Attachments (*A Project Location Map with proposed project limits and aerial map showing resources in project area must be included. Other attachments not referenced on the previous page that may expedite the IRL process include; scoping information, plan and profiles including areas highlighting proposed culvert work, site photos and HSIP application, as applicable. Other attachments not referenced on the previous page that may expedite the FCL process include; 90% plans, natural resource-related Special Provisions and hydraulic analyses, as applicable.*)

1. Site Location Map
2. Airport Property Map
3. Airport Diagram Map
4. Area of Potential Effects Map
5. Wetland Delineation Confirmation
6. Photo Log



Westwood

MKE RUNWAY 13-31 REMOVAL
LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 2,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 1

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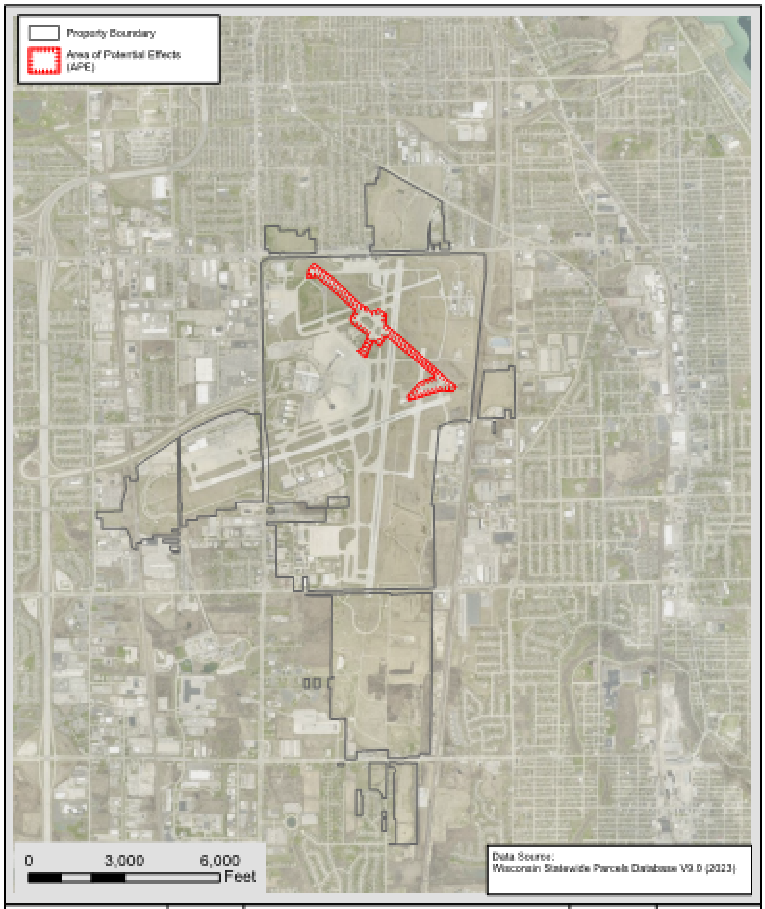

Westwood

MKE RUNWAY 13-31 REMOVAL
AIRPORT PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 3,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 2

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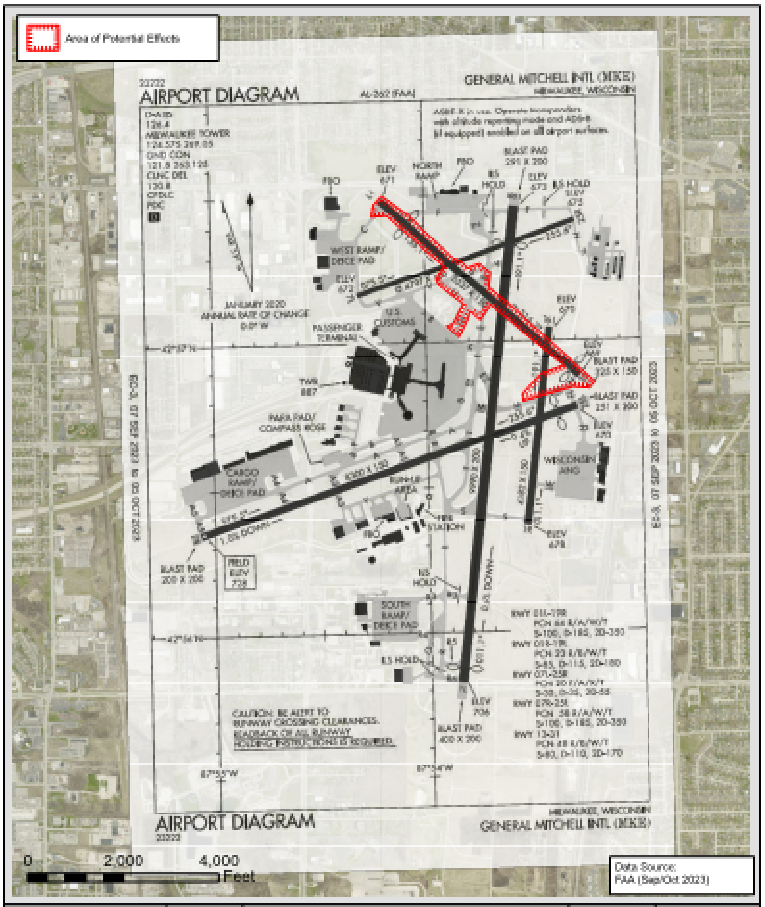

Westwood

MKE RUNWAY 13-31 REMOVAL
AIRPORT DIAGRAM MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 2,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 3

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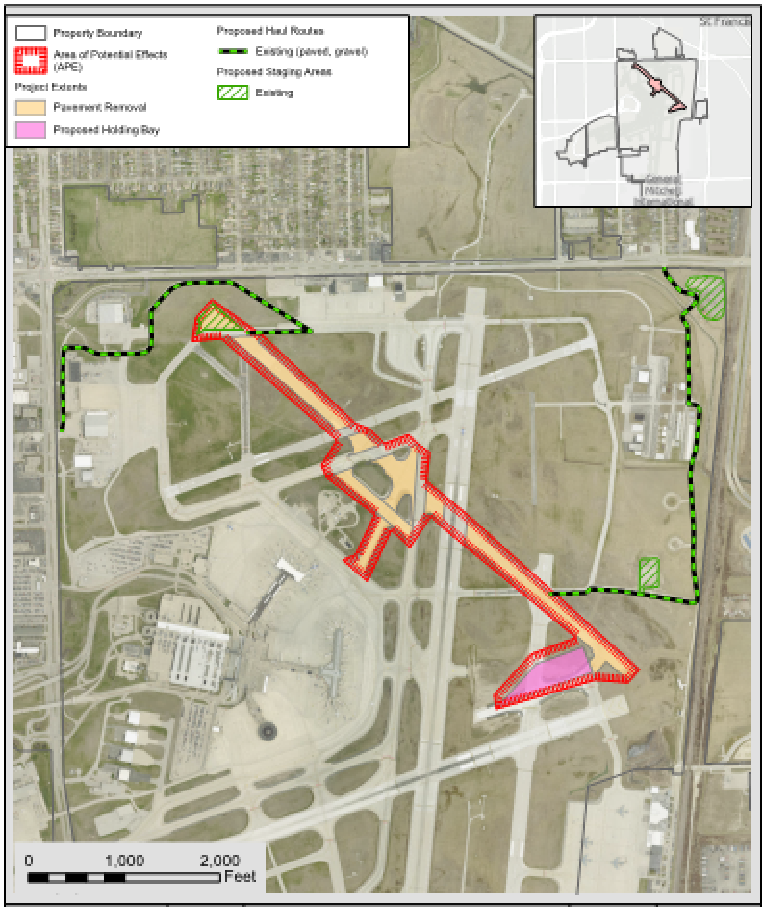

Westwood

MKE RUNWAY 13-31 REMOVAL
AREA OF POTENTIAL EFFECTS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 1,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 4

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State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W St Paul Ave
Milwaukee WI, WI, 53233

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

09/28/2023 WIC-SE-2023-41-03089

Justin Weiss
General Mitchell International Airport
[sent electronically]

RE: Wetland Delineation Confirmation for "MKE Runways 1R-19L & 13-31" located in NW 1/4, SE 1/4, Section 28, Township 06N, Range 22E, in the City of Milwaukee, Milwaukee County

Dear Justin Weiss

We have reviewed the wetland delineation report from Quest Civil Engineers, LLC prepared for the above-mentioned site. This letter will serve as confirmation that the wetland boundaries shown on the enclosed wetland delineation figure are acceptable. This finding is based upon a detailed report review and interview with the delineator. Any filling or grading within these areas may require DNR approvals. Our wetland confirmation is valid for five years. Be sure to send a copy of the report, as well as any approved revisions, to the U.S. Army Corps of Engineers.

In order to comply with Chapter 23.321, State Statutes, please supply the department with a polygon shapefile of the wetland boundaries delineated within the project area. Please do not include data such as parcel boundaries, project limits, wetland graphic representation symbols, etc. If internal upland polygons are found within a wetland polygon, then please label as UPLAND. The shapefile should utilize a State Plane Projection and be overlain onto recent aerial photography. If a different projection system is used, please indicate in which system the data are projected. In the correspondence sent with the shapefile, please supply a brief description of each wetland's plant community (eg: wet meadow, floodplain forest, etc.). Please send these data to Calvin Lawrence (608-266-0756 or email at calvin.lawrence@wisconsin.gov).

If you are planning development on the property, you are required to avoid take of endangered and threatened species, or obtain an incidental take authorization, to comply with the state's Endangered Species Law. To ensure compliance with the law, you should submit an endangered resources review form (Form 1700-047), available at https://dnr.wi.gov/topic/ERReview/Review.html. The Endangered Resources Program will provide a review response letter identifying any endangered and threatened species and any conditions that must be followed to address potential incidental take.

In addition to contacting WDNR, be sure to contact your local zoning office and U.S. Army Corps of Engineers to determine if any local or federal permits may be required for your project.

If you have any questions, please call me at (414) 308-6780 or you can reach me by email at kara.brooks@wisconsin.gov.

Sincerely,

Kara Brooks
Wetland Identification Specialist

Enclosures: Project Location Figure
Wetland Delineation Figure

Email CC: USACE Project Manager
Brian Krostedt, Quest

Wetland Map		City of Milwaukee Milwaukee County, WI	Figure A
MKE Airport Runways 1R-19L & 13-31	By: BWK Date: 9/12/2023	QUEST Civil Engineers, LLC	320 W Grand Ave.,Suite 302 Wisconsin Rapids, WI 54495 715-423-3525

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Taxiway N looking southwest.
Date: 9/12/23 **Photo #** 1

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Runway 13-31 looking southeast towards runway end.
Date: 9/12/23 **Photo #** 2

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Runway 13-31 looking northwest.
Date: 9/12/23 **Photo #** 3

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing Runway 13-31 looking southeast towards Runway 1R-19L.
Date: 9/12/23 **Photo #** 4

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 7

Description: Standing on at intersection of Taxiway U and Taxiway G looking southwest towards passenger terminal.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 8

Description: Standing on Runway 13-31 near Runway 7L-25R looking northeast at PAPIs.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 5

Description: Standing on Runway 13-31 near Taxiway G looking northeast.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 6

Description: Standing on Taxiway U looking northeast at Taxiway G.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 11

Description: Standing on Runway 13-31 near Taxiway F looking southeast.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 12

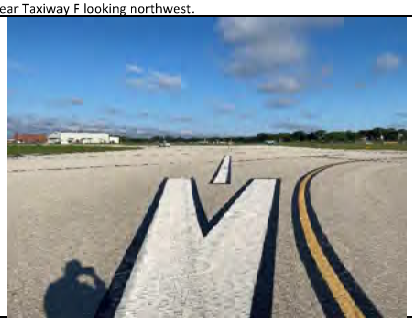
Description: Proposed Staging Area northeast of proposed project, looking east.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 9

Description: Standing on Runway 13-31 looking northwest towards Taxiway F.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 10

Description: Standing on Runway 13-31 near Taxiway F looking northwest.



Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** N/A **Photo #** 13

Description: Site Aerial Overview

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
141 NW Barstow Street #180
Waukesha, WI 53188

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463

January 10, 2024

Mallory K. Palmer
Aeronautical Environmental Coordinator
Wisconsin Department of Transportation
Bureau of Aeronautics
P.O Box 7914
Madison, WI 53707

Subject: DNR Initial Review
WisDOT Project I.D. 0740-40-114
BOA Project I.D. MKE AIP-114
Runway 13-31 Decommissioning and Removal
General Mitchell International Airport (MKE)
City of Milwaukee, Milwaukee County
Sections 27 and 28 Township 06 North Range 22 East

Dear Ms. Palmer:

The Wisconsin Department of Natural Resources (DNR) has received the information you provided for the above-referenced project. According to your proposal, the purpose of this project is to align the airfield configuration with the master plan update development needs and the airport layout plan (ALP). The need is based on addressing the rightsizing needs of the airport by removing underutilized and obsolete pavement. The proposed project also aligns the airfield configuration to meet updated FAA standards and align with the most recent ALP update. The action will reduce maintenance costs and improve safety.

Proposed improvements include the decommissioning and removal of runway 13-31 at the General Mitchell International Airport (MKE). The proposed project undertaking will consist of the following actions:

- Decommissioning of runway 13-31.
- Removal of taxiway G, taxiway U, and taxiway N connectors
- Removal of approx. 126,900 SY of pavement and associated electrical utilities and NAVAIDs for runway 13-31, taxiway G, taxiway U, and taxiway N.
- Proposed addition of a holding bay adjacent to taxiway M including associated lighting.

If the project proposal changes, please reinitiate coordination with the DNR.

Preliminary information has been reviewed by DNR staff for the project under the DNR/DOT Cooperative Agreement. Initial comments on the project as proposed are included below, and we assume that additional information will be provided that addresses all resource concerns identified. When requesting Final Concurrence/Water Quality Certification, please send the most up-to-date plan set (including the erosion control plan sheets), contract special provisions, Wetland Impact Tracking

Form, Notice of Intent for the Transportation Construction General Permit (TCGP), and any additional pertinent information to demonstrate environmental commitments will be met.

Project-Specific Resource Concerns

Wetlands:
There are no wetland concerns with this project, based on the information provided.

Fisheries/In-Stream Work:
Wilson Park creek and associated tributary are navigable waterways. The approximate locations of the waterways are shown below in figure 1, as these waterways are enclosed in underground culverts on the airport property. Unless otherwise agreed upon prior to the start of construction, there shall be no in-stream disturbance between March 1st to June 15th with both dates inclusive of the timeout period. This construction BMP minimizes impacts to fish and other aquatic organisms during sensitive time periods such as spawning and migration.

Wilson Park Creek (WBIC: 15200)

- Classified as a cool warm headwater stream.
- Classified as an impaired waterway for acute aquatic toxicity, recreational restrictions – pathogens, impairment unknown, chronic aquatic toxicity.
- Currently no in-stream work is proposed in the scope of work of this project. Runway and associated features would be removed over the top of the enclosed stream.
- Map below in figure 1.

If erosion control matting is to be used along stream corridors, DNR recommends biodegradable non-netted matting (e.g. Class I Type A Urban, Class I Type B Urban, or Class II Type C). Long-term netted mats may cause animal entrapment. Avoid the use of fine mesh matting that is tied or bonded at the mesh intersection such that the openings in the mesh are fixed in size.

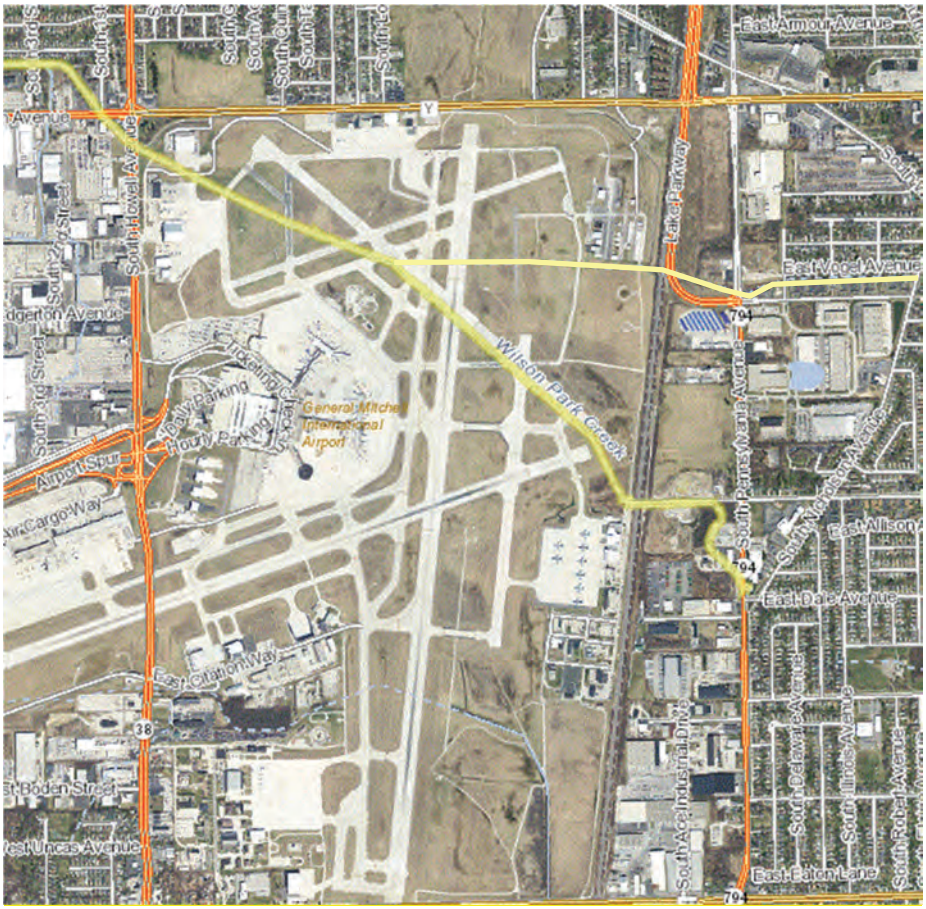


Figure 1. Wilson Park Creek and associated tributary are shown highlighted on the above map. These are navigable waterways that are enclosed on the airport property.

Natural Heritage Conservation

Based upon a review of the Natural Heritage Inventory (NHI) dated 12-1-2023, there are no known state listed threatened or endangered species or suitable habitat that could be impacted by this project. With this review the following has also been determined:

[redacted]

[redacted]

NHI Disclaimer: This review letter may contain NHI data, including specific locations of endangered resources, which are considered sensitive and are not subject to Wisconsin's Open Records Law (s. 23.27 3(b), Wis. Stats.). As a result, endangered resources-related information contained in this review letter may be shared only with individuals or agencies that require this information in order to carry out specific roles in the permitting, planning, and implementation of the proposed project. Endangered resources information must be redacted from this letter prior to inclusion in any publicly disseminated documents

Invasive Species:
All project equipment shall be decontaminated for removal of invasive species prior to and after each use on the project site by utilizing other best management practices (https://dnr.wi.gov/topic/Invasives/bmp.html) to avoid the spread of invasive species as outlined in NR 40, Wis. Adm. Code. For further information, please refer to the following: https://dnr.wi.gov/topic/invasives/classification.html

- **Emerald Ash Borer:** This project has the potential for spreading the Emerald Ash Borer (EAB) beetle. While it is legal to freely move ash debris or wood throughout Wisconsin, it is a best management practice to prevent spreading the pest to areas where it is not yet established. A frequently updated map of where EAB is confirmed in WI is available at Wisconsin's EAB Information website. As a rule of thumb, if your project is in the southern half of the state and you are removing many dead or dying ash, they may be infested with EAB. If so, consider these best management practices to prevent spread of EAB.

- **Oak Wilt:** This project involves work that may involve cutting, pruning, or accidental wounding of oak trees. Follow WDOT policy regarding preventing transmission of oak wilt, https://wisconsindot.gov/rdwy/cmm/cm-03-10.pdf#cm3-10.2

Storm Water Management & Erosion Control:
- For projects disturbing an acre or more of land erosion control and storm water measures must adhere to the Wisconsin Pollutant Discharge Elimination System Transportation Construction General Permit (TCGP) for Storm Water Discharges. Coverage under TCGP is required prior to construction. WisDOT should apply for permit coverage by submitting a Notice of Intent (NOI) prior to, or when requesting Final Concurrence. Permit coverage will be issued by DNR with the Final Concurrence letter after design is complete and documentation shows that the project will meet construction and post-construction performance standards. For more information regarding the TCGP you can go to the following link, and click on the "Transportation" tab: https://dnr.wi.gov/topic/Sectors/Transportation.html

- All projects require an Erosion Control Plan (ECP) that describes best management practices that will be implemented before, during and after construction to minimize pollution from storm water discharges. Additionally, the plan should address how post-construction storm water performance standards will be met for the specific site. The project design and Erosion Control

Implementation Plan (ECIP) must comply with the TCGP in order to receive permit-coverage from the DNR.

- Once the project contract has been awarded, the contractor will be required to outline their implementation of erosion control measures as it relates to the construction project, as well as their construction methods in the ECIP. An adequate ECIP for the project must be developed by the contractor and submitted to this office for review at least 14 days prior to the preconstruction conference. For projects regulated under the TCGP, submit the ECIP as an amendment to the ECP.

Asbestos:
A Notification of Demolition and/or Renovation and Application for Permit Exemption, DNR form 4500-113 (chapters NR 406, 410, and 447 Wis. Adm. Code) may be required. Please refer to DOT FDM 21-5-1 (November 2019) and the DNR's notification requirements web page: http://dnr.wi.gov/topic/Demo/Asbestos.html for further guidance on asbestos inspections and notifications. Contact Mark Chamberlain, Air Management Specialist (608) 575-5634, with questions on the form. The notification must be submitted 10 working days in advance of demolition projects, regardless of asbestos quantities. Please refer to WisDOT procedures on asbestos inspection and abatement for supplemental information.

U.S. Army Corps of Engineers Coordination:
This project may require a permit from the U.S. Army Corps of Engineers (USACE). Please contact USACE for more details.

Other:
All local, state, and federal permits and/or approvals must be obtained prior to commencing construction activities.

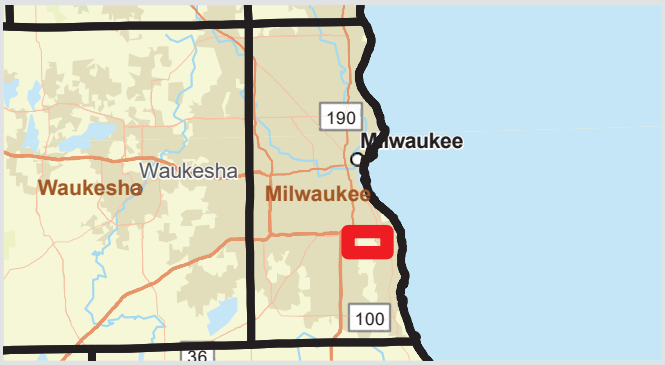
The above comments represent the DNR's initial concerns for the proposed project and does not constitute final concurrence. Final concurrence will be granted after further review of refined project plans, Erosion Control Plan, Wetland Impact Tracking Form, Special Provisions, NOI for the TCGP, and additional coordination if necessary. If any of the concerns or information provided in this letter requires further clarification, please contact this office at (414) 750-7495, or email at Ryan.Pappas@wisconsin.gov

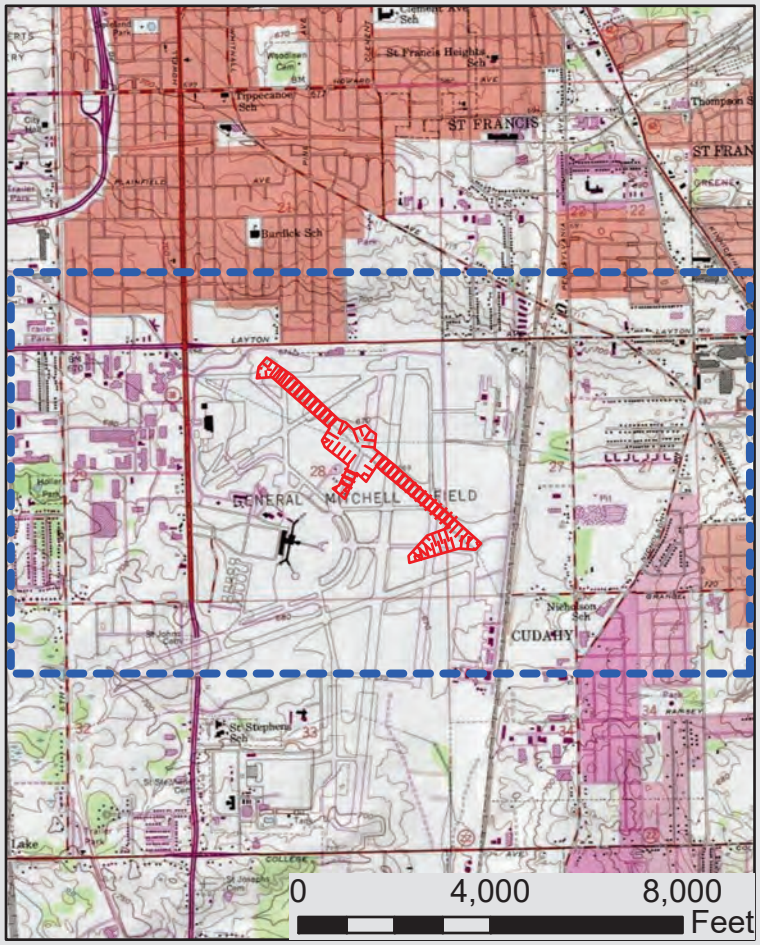
Sincerely,

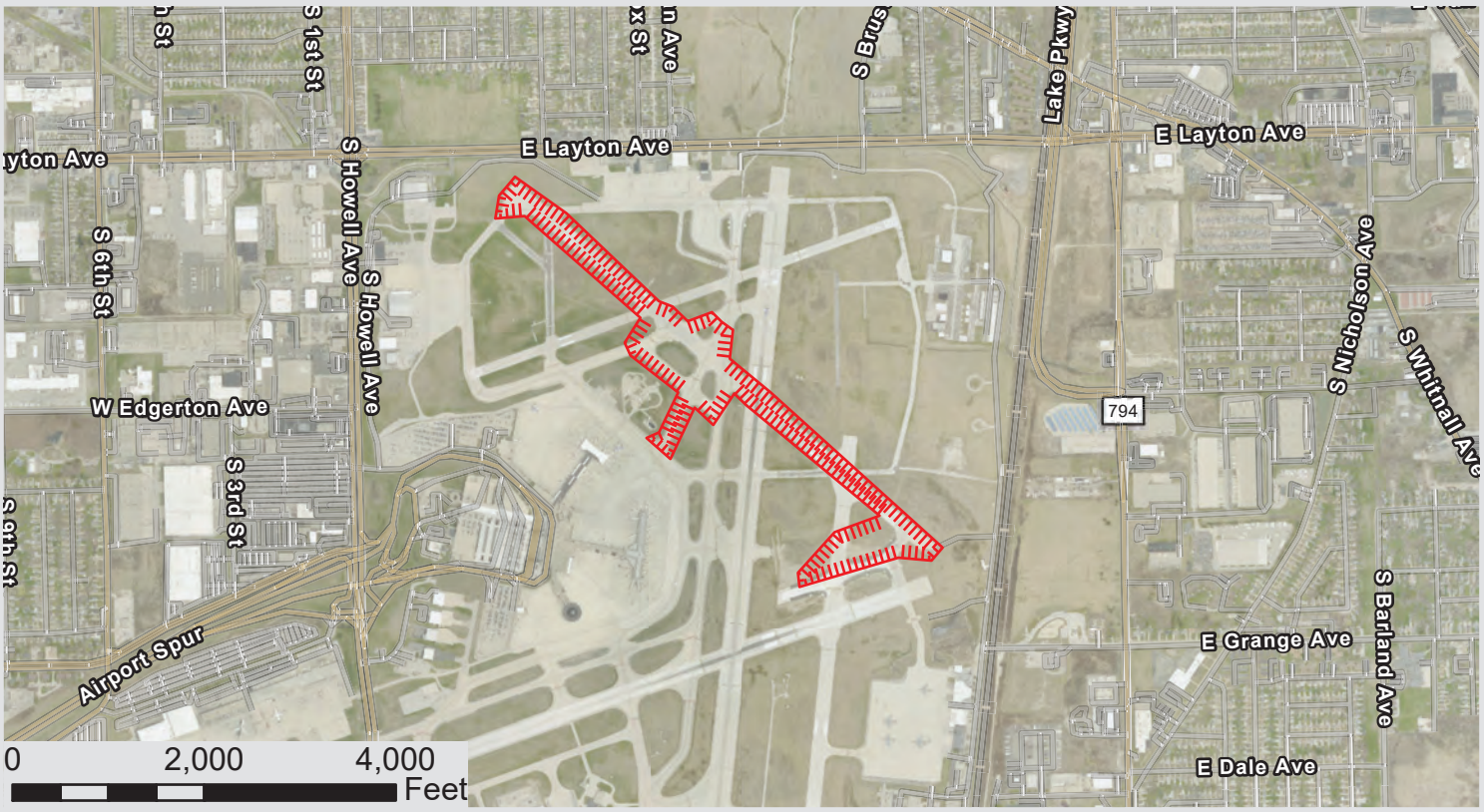
Ryan Pappas
Environmental Analysis & Review Specialist

Enclosure: Map

cc: Wendy Hottenstein, WisDOT – BOA Wendy.Hottenstein@dot.wi.gov
Justin Weiss, General Mitchell International Airport jweiss@mitchellairport.com
Anthony Raab, General Mitchell International Airport araab@mitchellairport.com







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MKE RUNWAY 13-31 REMOVAL

LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in = 2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. R3001844.01
Checked By:	
Date: 9/12/2023	FIGURE NO. 1

N:\3001844.01\GIS\EnvAssessmentMaps.aprx
Printed: KMWehner 9/28/2023 3:36 PM

Kaitlyn Wehner

From: Dasse, Michelle <mdasse@mitchellairport.com>
Sent: Thursday, February 22, 2024 2:18 PM
To: David.Hanson@wisconsin.gov
Cc: Weiss, Justin; Kaitlyn Wehner; Brian Wayner
Subject: Milwaukee General Mitchell Airport – Runway 13-31 EA Continuing Obligation Inquiry (BRRTS # 02-41-558334)
Attachments: Attachments - MKE RWY 13-31 BRRTS# 02-41-558334 Continuing Obligation_ 20240214.zip

Mr. Hanson,

Milwaukee General Mitchell International Airport is beginning preliminary studies for a proposed project of decommissioning and removal of Runway 13-31 (Project). The purpose for the proposed project is to align the airfield configuration with the recent FAA-approved Airport Layout Plan.

The proposed Project would consist of the following (See A- achment 1 – Airport Property Map & A- achment 2 – Area of Potential Effects):

- Decommissioning of Runway 13-31.
- Removal of Taxiway G, Taxiway U, and Taxiway N connectors.
- Removal of approximately 126,900 square yards of pavement with restoration to turf.
- Removal of associated electrical utilities and Navigational Aids (NAVAIDs).
- Alternative for the addition of a holding bay adjacent to Taxiway M, including lighting.

Through preliminary analysis during a Phase 1 Environmental Site Assessment, continuing obligations were identified for closed site BRRTS# 02-41-558334 Shell Pipeline at Gen Mitchell Intl. Airport.

The proposed Project is anticipated to remove pavement within and around the footprint of the closed BRRTS site. A- achment 3 and A- achment 4 show the proposed project anticipated pavement removals in relation to the closed BRRTS site.

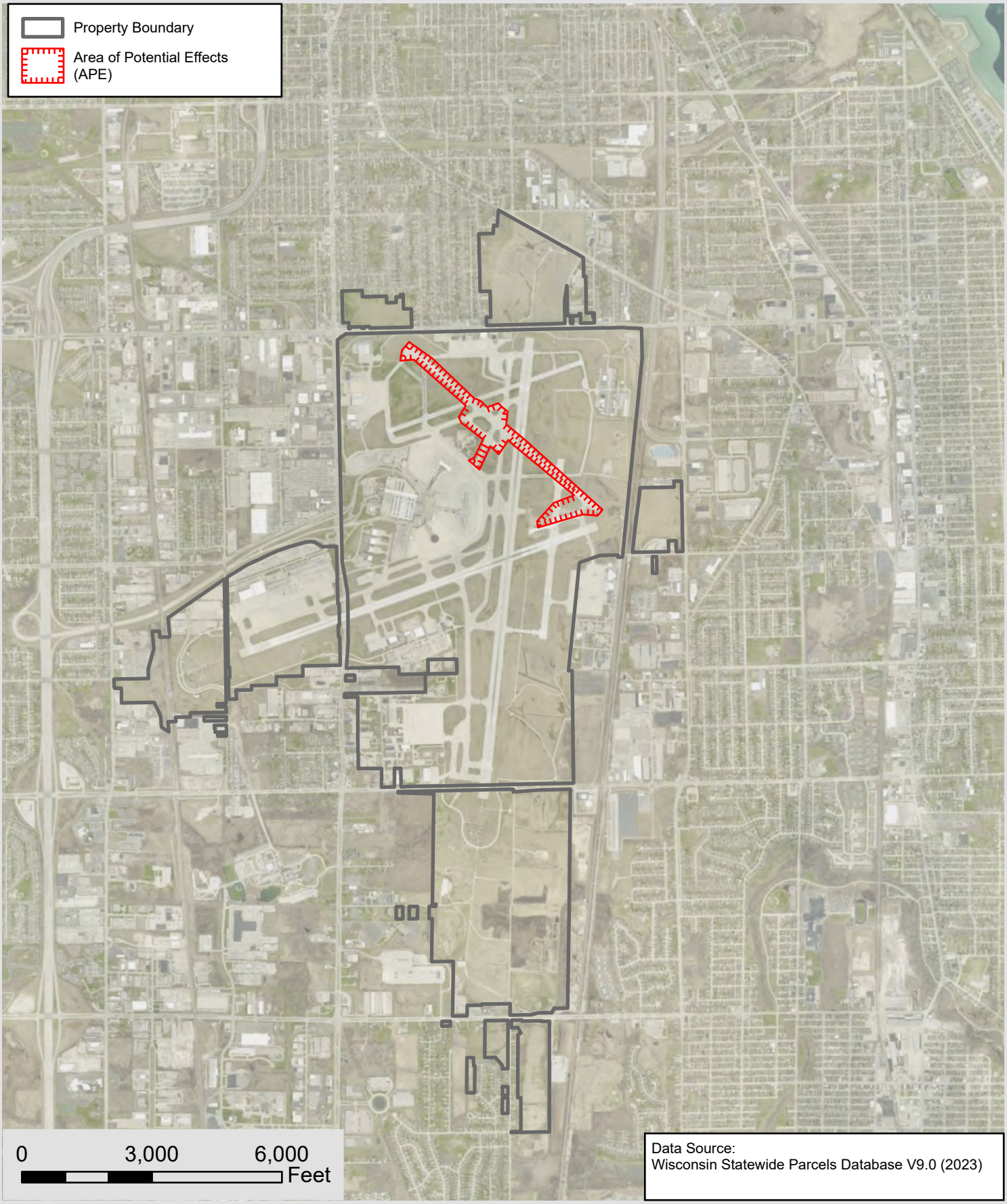
The continuing obligations identified include:

1. Residual Groundwater Contamination
   a. The proposed Project does not include the construction or modification of a well.
2. Residual Soil Contamination
   a. Anticipated construction activities include pavement removal, minor grading, and topsoil placement restored to turf near the closed BRRTS site.
3. Structural Impediments
   a. The Structural Impediment appears to have been east of Taxiway E. The proposed project removals are located west of Taxiway E and north of the pipeline excavation area.

Currently, a NEPA preliminary environmental assessment is being prepared for the Project. The Project is not anticipated to conflict with the continuing obligations of the closed BRRTS site. Please let me know if you have availability for a brief meeting to discuss the proposed Project and any concerns DNR has with the proposed work.

Thank you,
Michelle

Michelle Dasse
Airport Environmental Manager
MKE – Milwaukee Mitchell International Airport
5300 South Howell Avenue
Milwaukee, WI 53207
Tel: 414-747-5713
Cell: 414-307-2545



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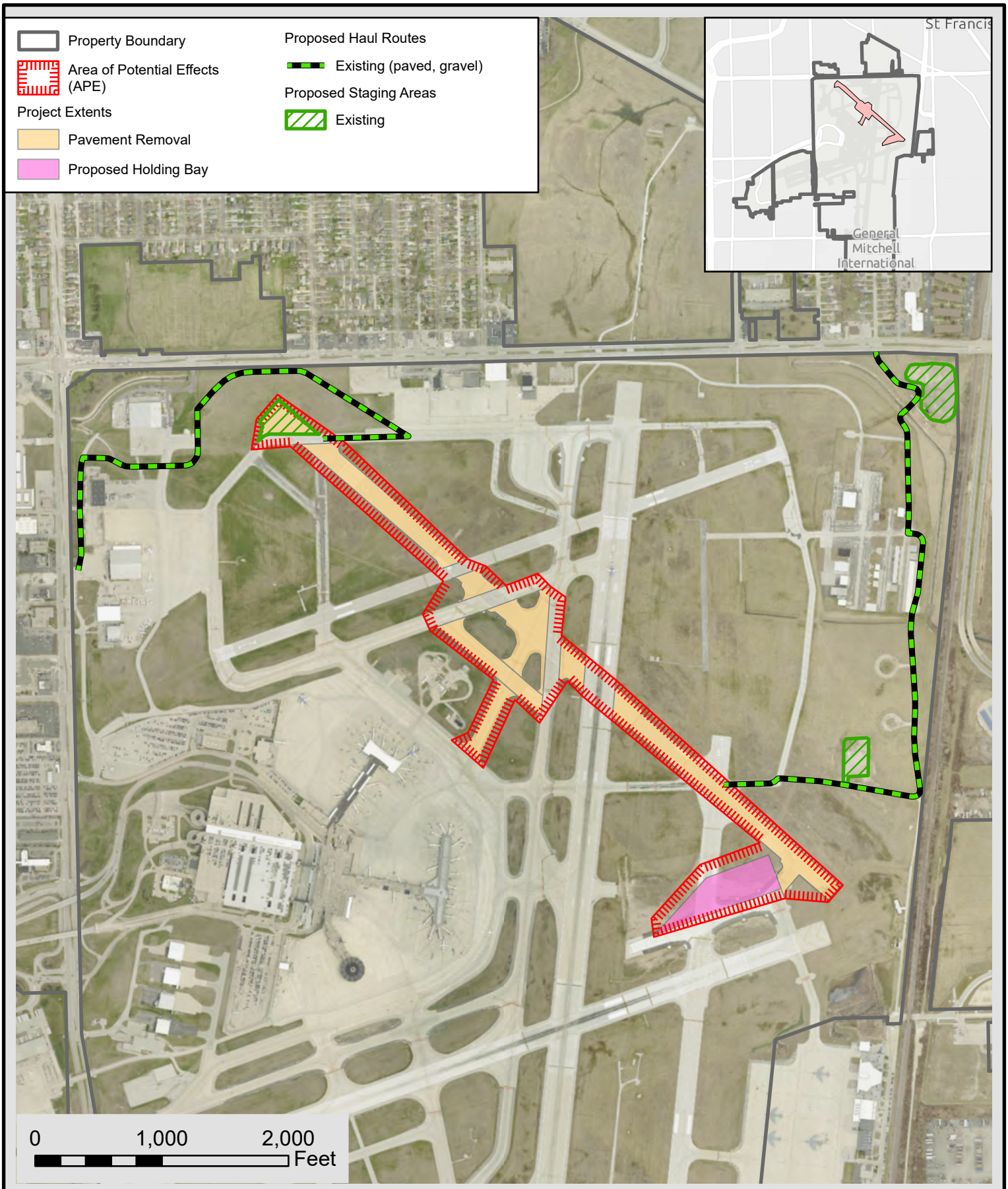
MKE RUNWAY 13-31 REMOVAL

AIRPORT PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	
Project Engineer:	
Drawn By:	JCW
Checked By:	
Date:	9/12/2023
SCALE:	1 in =3,000 ft
PROJECT NO.	**R3001844.01**
FIGURE NO.	**2**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Airport Property Map]
Printed: KMWehner 9/28/2023 3:38 PM



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MKE RUNWAY 13-31 REMOVAL

AREA OF POTENTIAL EFFECTS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =1,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 9/12/2023	FIGURE NO. **4**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Area of Potential Effects Map]
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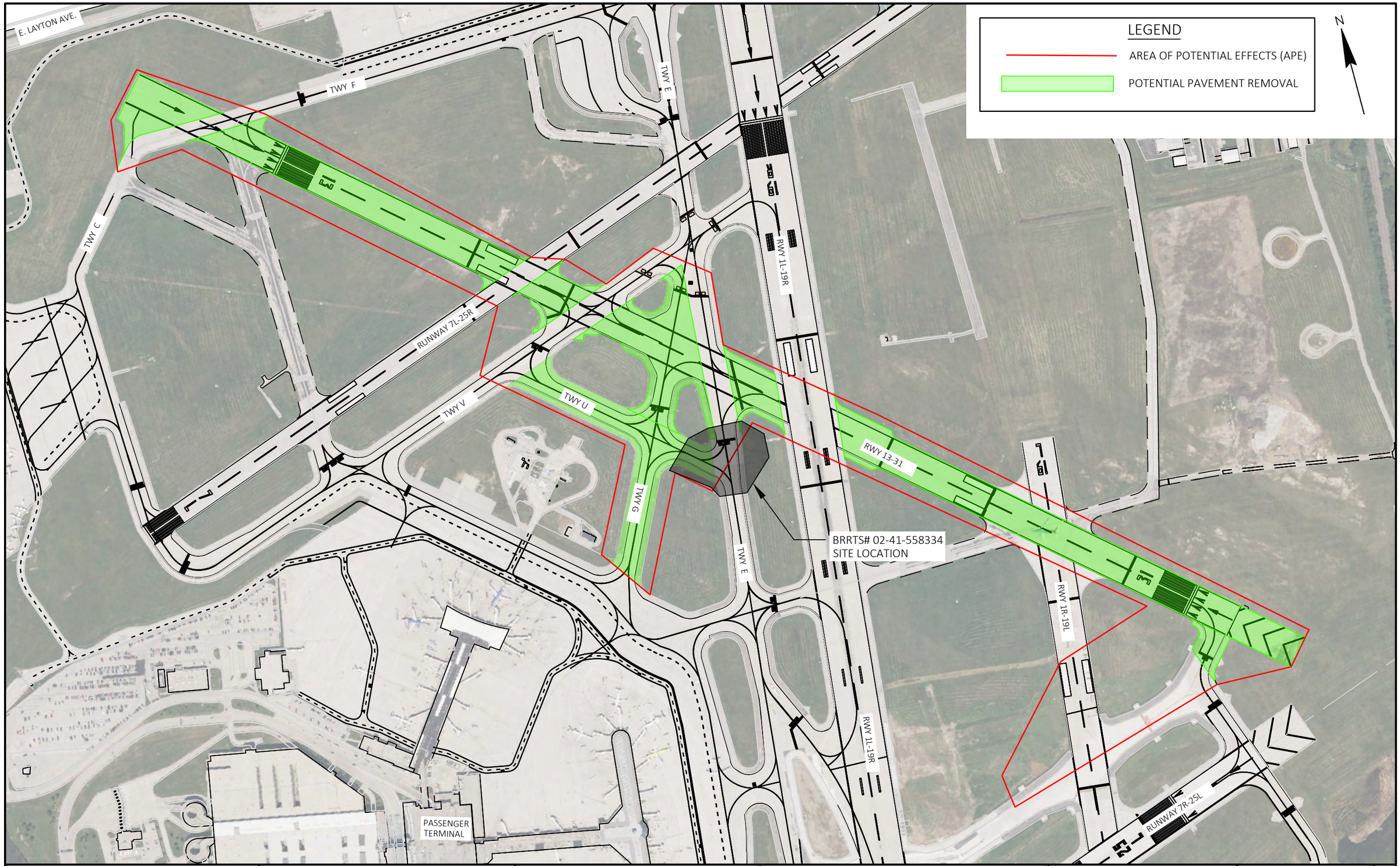
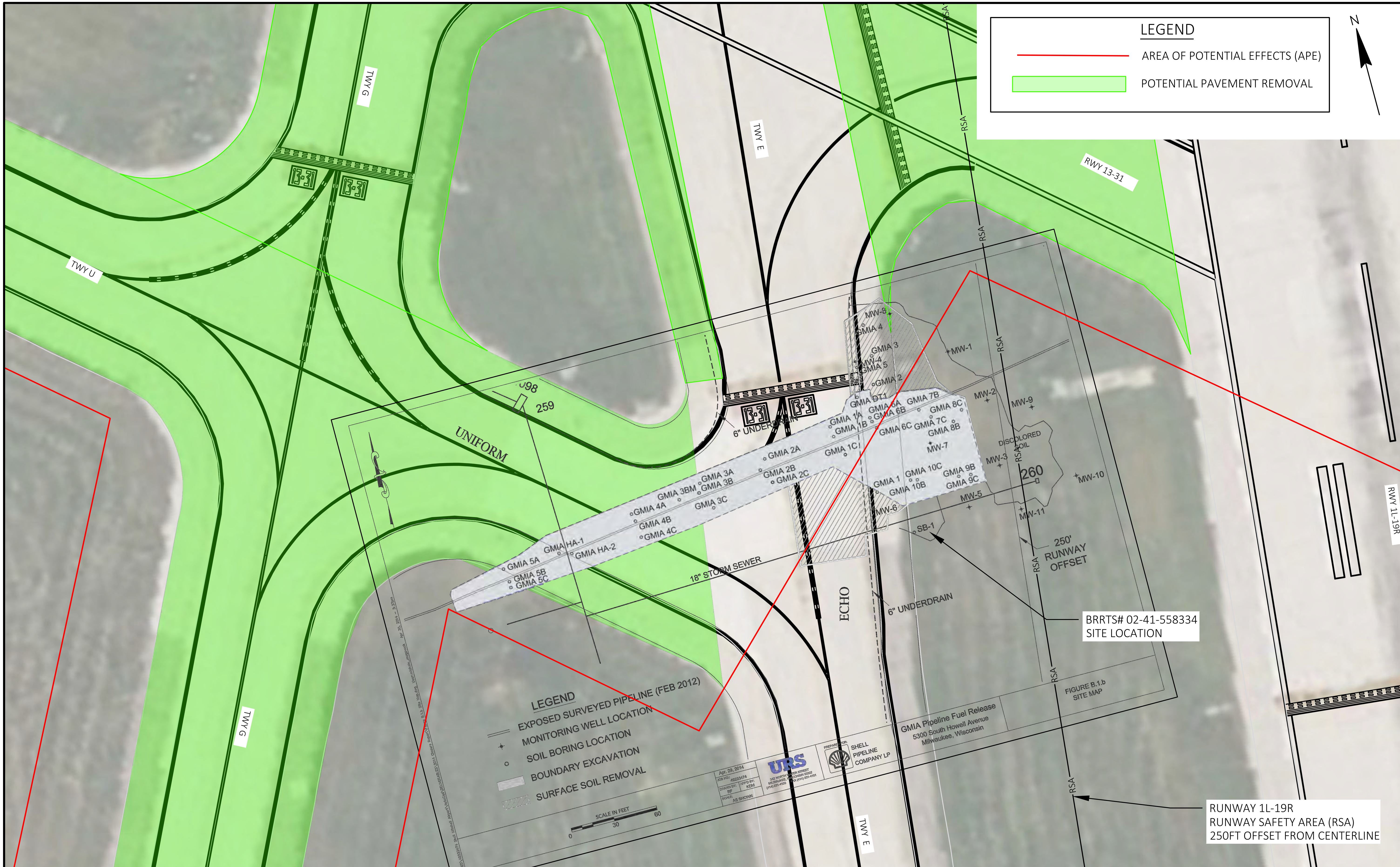


PROJECT NO: RWY 13-31 EA	GENERAL MITCHELL INTERNATIONAL AIRPORT	COUNTY: MILWAUKEE	RWY 13-31 - BRRTS# 02-41-55834 OVERVIEW	SCALE, FEET 0 200 400	SHEET E

FILE NAME : N:\3001844.00\EAS\2. RWY 13_31\CAD\RWY 13-31_PERFERRED ALTERNATIVE REMOVAL DISPLAY.DWG
LAYOUT NAME - RWY 13-31 EA - Overview

PLOT DATE : 2/14/2024 9:07 AM PLOT BY : KAITLYN WEHNER PLOT NAME : PLOT SCALE : 1 IN:400 FT

WISDOT/CADDS SHEET 44


LEGEND
AREA OF POTENTIAL EFFECTS (APE)
POTENTIAL PAVEMENT REMOVAL
N
TWY G
TWY E
TWY U
RWY 13-31
UNIFORM
ECHO
18" STORM SEWER
6" UNDERDRAIN
250' RUNWAY OFFSET
BRRTS# 02-41-558334
SITE LOCATION
RWY 1L-19R
RUNWAY 1L-19R
RUNWAY SAFETY AREA (RSA)
250FT OFFSET FROM CENTERLINE
RSA
LEGEND
EXPOSED SURVEYED PIPELINE (FEB 2012)
MONITORING WELL LOCATION
SOIL BORING LOCATION
BOUNDARY EXCAVATION
SURFACE SOIL REMOVAL
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
FIGURE B.1.b
SITE MAP
URS
SHELL PIPELINE COMPANY LP

PROJECT NO: RWY 13-31 EA	GENERAL MITCHELL INTERNATIONAL AIRPORT	COUNTY: MILWAUKEE	RWY 13-31 - BRRTS# 02-41-55834 SITE LOCATION	SCALE, FEET 0 30 60	SHEET	E

FILE NAME : N:\3001844.00\EAS\2. RWY 13_31\CAD\RWY 13-31_PERFERRED ALTERNATIVE REMOVAL DISPLAY.DWG
LAYOUT NAME - RWY 13-31 EA - SITE LOCATION
PLOT DATE : 2/14/2024 9:08 AM
PLOT BY : KAITLYN WEHNER
PLOT NAME :
PLOT SCALE : 1 IN:60 FT
WISDOT/CADDS SHEET 44

State of Wisconsin
Department of Natural Resources
P.O. Box 7921, Madison, WI 53707-7921

GIS REGISTRY (Cover Sheet)
Form 4400-280 (R 6/13)

Source Property Information

CLOSURE DATE: 05/19/2015

BRRTS #: 02-41-558334

FID #: 241336370

ACTIVITY NAME: SHELL PIPELINE AT GEN MITCHELL INTL AIRPORT

DATCP #:

PROPERTY ADDRESS: 5300 S Howell Ave

PECFA#:

MUNICIPALITY: Milwaukee

PARCEL ID #: 6409999118

***WTM COORDINATES:**

X: **691696** Y: **277576**

** Coordinates are in WTM83, NAD83 (1991)*

WTM COORDINATES REPRESENT:

(•) Approximate Center Of Contaminant Source

( ) Approximate Source Parcel Center

Please check as appropriate: (BRRTS Action Code)

CONTINUING OBLIGATIONS

Contaminated Media for Residual Contamination:

☒ Groundwater Contamination > ES *(236)*

- ☐ Contamination in ROW
- ☐ Off-Source Contamination

*(**note:** for list of off-source properties see "Impacted Off-Source Property Information, Form 4400-246")*

☒ Soil Contamination > *RCL or **SSRCL *(232)*

- ☐ Contamination in ROW
- ☐ Off-Source Contamination

*(**note:** for list of off-source properties see "Impacted Off-Source Property Information, Form 4400-246")*

Site Specific Obligations:

☐ Soil: maintain industrial zoning *(220)*

*(**note:** soil contamination concentrations between non-industrial and industrial levels)*

☒ Structural Impediment *(224)*

☐ Site Specific Condition *(228)*

☐ Cover or Barrier *(222)*

- ☐ Direct Contact
- ☐ Soil to GW Pathway

☐ Vapor Mitigation *(226)*

☐ Maintain Liability Exemption *(230)*

*(**note:** local government unit or economic development corporation was directed to take a response action)*

Monitoring Wells:

Are all monitoring wells properly abandoned per NR 141? *(234)*

(•) Yes ( ) No ( ) N/A

** Residual Contaminant Level*
***Site Specific Residual Contaminant Level*

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee WI 53212-3128

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

May 19, 2015

Mr. Terrence G. Slaybaugh
Airport Director
General Mitchell International Airport
5300 S Howell Ave
Milwaukee, WI 53207

Mr. John Robbins
Shell Oil Products US
20945 S Wilmington Ave
Carson, CA 90810

KEEP THIS DOCUMENT WITH YOUR PROPERTY RECORDS

Subject: Final Case Closure with Continuing Obligations
Shell Oil Products Pipeline Spill at General Mitchell International Airport
5300 S Howell Ave, Milwaukee, WI 53207
DNR BRRTS Activity #: 02-41-558334
FID #: 241336370

Dear Messrs. Slaybaugh and Robbins:

The Wisconsin Department of Natural Resources ("DNR") considers the Shell Oil Products pipeline spill closed, with continuing obligations. No further investigation or remediation is required at this time. However, you, future property owners, and occupants of the property must comply with the continuing obligations as explained in the conditions of closure in this letter. Please read over this letter closely to ensure that you comply with all conditions and other on-going requirements. Provide this letter and any attachments listed at the end of this letter to anyone who purchases, rents or leases this property from you. Certain continuing obligations also apply to affected property owners or rights-of-way holders. These are identified within each continuing obligation.

This final closure decision is based on the correspondence and data provided, and is issued under chs. NR 726 and 727, Wis. Adm. Code. The Southeast Region Closure Committee reviewed the request for closure on September 4, 2014 and on March 5, 2015. The DNR Closure Committee reviewed this environmental remediation case for compliance with state laws and standards to maintain consistency in the closure of these cases. The Shell Oil Products pipeline spill is located at General Mitchell International Airport ("GMIA") at the intersection of taxiways Echo and Uniform, adjacent to the main north-south runway. Hydrocarbons were observed in Wilson Park Creek in late January 2012. Investigation to identify and locate the source indicated that jet fuel was emanating from an observation riser pipe in the Shell Oil Products pipeline. Jet fuel emanating from the riser pipe was flowing over the ground surface and into an adjacent storm sewer catch basin. The storm sewers at the site discharge to the surface at the North West Outfall, located at the intersection of Layton Ave and S Howell Ave in Milwaukee, at the northwest corner of GMIA. The conditions of closure and continuing obligations required were based on the property being used as a commercial airport.

Continuing Obligations

The continuing obligations for this site are summarized below. Further details on actions required are found in the section Closure Conditions.

- Groundwater contamination is present at or above the ch. NR 140, Wis. Adm. Code, enforcement standards.
- Residual soil contamination exists that must be properly managed should it be excavated or removed.
- If a structural impediment that obstructed a complete site investigation and/or cleanup is removed or modified, additional environmental work must be completed.

The DNR fact sheet, "Continuing Obligations for Environmental Protection," RR-819, helps to explain a property owner's responsibility for continuing obligations on their property. The fact sheet may be obtained at http://dnr.wi.gov/files/PDF/pubs/rr/RR819.pdf.

GIS Registry

This site will be included on the Bureau of Remediation and Redevelopment Tracking System (BRRTS on the Web) at http://dnr.wi.gov/topic/Brownfields/clean.html, to provide public notice of residual contamination and of any continuing obligations. The site can also be viewed on the Remediation and Redevelopment Site Map (RRSM), a map view, under the Geographic Information System ("GIS") Registry layer, at the same web address.

DNR approval prior to well construction or reconstruction is required for all sites shown of the GIS Registry, in accordance with s. NR 812.09(4)(w), Wis. Adm. Code. This requirement applies to private drinking water wells and high capacity wells. To obtain approval, complete and submit Form 3300-254 to the DNR Drinking and Groundwater program's regional water supply specialist. This form can be obtained on-line at http://dnr.wi.gov/topic/wells/documents/3300254.pdf.

All site information is also on file at the Southeast Regional DNR office, at 2300 N Dr. Martin Luther King Jr. Drive, Milwaukee. This letter and information that was submitted with your closure request application, including any maps, can be found as a Portable Document Format (PDF) in BRRTS on the Web.

Closure Conditions

Compliance with the requirements of this letter is a responsibility to which the current property owner and any subsequent property owners must adhere. DNR staff will conduct periodic prearranged inspections to ensure that the conditions included in this letter are met. If these requirements are not followed, the DNR may take enforcement action under s. 292.11, Wis. Stats., to ensure compliance with the specified requirements, limitations or other conditions related to the property.

Please send written notifications in accordance with the following requirements to:

Department of Natural Resources
Attn: Remediation and Redevelopment Program Environmental Program Associate
2300 N Dr. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Residual Groundwater Contamination (ch. NR 140, Wis. Adm. Code)
Groundwater contamination greater than enforcement standards is present on the contaminated property, as shown on the attached map, Groundwater Isoconcentrations, Figure B.3.b, dated April 24, 2014. If you intend to construct a new well, or reconstruct an existing well, you'll need prior DNR approval. This continuing obligation also applies to the owners of 5300 S Howell Ave, Milwaukee, WI 53207.

Residual Soil Contamination (ch. NR 718, chs. 500 to 536, Wis. Adm. Code, or ch. 289, Wis. Stats.)
Soil contamination remains at the east end of the pipeline excavation due to the proximity of the 250-foot offset for the main north-south runway, as indicated on the attached site maps, Figures B.1.b and B.2.b, dated April 29, 2014. If soil in the specific locations described above is excavated in the future, the property owner or right-of-way holder at the time of excavation must sample and analyze the excavated soil to determine if contamination remains. If sampling confirms that contamination is present, the property owner or right-of-way holder at the time of excavation will need to determine if the material is considered solid or hazardous waste and ensure that any storage, treatment or disposal is in compliance with applicable standards and rules. Contaminated soil may be managed in accordance with ch. NR 718, Wis. Adm. Code, with prior DNR approval. This continuing obligation also applies to the owners of 5300 S Howell Ave, Milwaukee, WI 53207.

In addition, all current and future owners and occupants of the property and right-of-way holders need to be aware that excavation of the contaminated soil may pose an inhalation or other direct contact hazard and as a result special precautions may need to be taken to prevent a direct contact health threat to humans.

Depending on site-specific conditions, construction over contaminated soils or groundwater may result in vapor migration of contaminants into enclosed structures or migration along newly placed underground utility lines. The potential for vapor inhalation and means of migration should be evaluated when planning any future redevelopment, and measures should be taken to ensure the continued protection of public health, safety, welfare and the environment at the site.

Structural Impediments (s. 292.12(2)(b), Wis. Stats., s. NR 726.15, s. NR 727.07, Wis. Adm. Code)
The remaining north-south runway as shown on the attached maps, Figure 1 Residual Soil Sample Analytical Results, dated February 11, 2014, and Figure 2 Groundwater Analytical Results Summary, dated February 10, 2013 (possibly misdated as 2013), made complete investigation and/or remediation of the soil contamination on this property impracticable. If the structural impediment is to be removed, the property owner shall notify the DNR at least 45 days before removal, and conduct an investigation of the degree and extent of hydrocarbon contamination below the structural impediment. If contamination is found at that time, the contamination shall be properly remediated in accordance with applicable statutes and rules. This continuing obligation also applies to the owners of 5300 S Howell Ave, Milwaukee, WI 53207.

General Wastewater Permits for Construction Related Dewatering Activities

The DNR's Water Quality Program regulates point source discharges of contaminated water, including discharges to surface waters, storm sewers, pits, or to the ground surface. This includes discharges from construction related dewatering activities, including utility and building construction.

If you or any other person plan to conduct such activities, you or that person must contact that program, and if necessary, apply for the necessary discharge permit. Additional information regarding discharge permits is available at http://dnr.wi.gov/topic/wastewater/GeneralPermits.html. If residual soil or groundwater contamination is likely to affect water collected in a pit/trench that requires dewatering, a general permit for Discharge of Contaminated Groundwater from Remedial Action Operations may be needed. If water collecting in a pit/trench that requires dewatering is expected to be free of pollutants other than suspended solids and oil and grease, a general permit for Pit/Trench Dewatering may be needed.

In Closing

Please be aware that the case may be reopened pursuant to s. NR 727.13, Wis. Adm. Code, for any of the following situations:

- If additional information regarding site conditions indicates that contamination on or from the site poses a threat to public health, safety, or welfare or to the environment,
- If the property owner does not comply with the conditions of closure, with any deed restrictions applied to the property, or with a certificate of completion issued under s. 292.15, Wis. Stats., or
- A property owner fails to maintain or comply with a continuing obligation (imposed under this closure approval letter).

The DNR appreciates your efforts to restore the environment at this site. If you have any questions regarding this closure decision or anything outlined in this letter, please contact Scott Ferguson at 414-263-8685, or at Scott.Ferguson@wisconsin.gov.

Sincerely,

Pamela A. Mylotta
Southeast Region Team Supervisor
Remediation & Redevelopment Program

PM/sjf://3-25-2015/shellpipeline.closurelet.pdf

Attachment: Maps, 5 total, described above

C: Scott Ferguson – SER
SER FID #: 241336370 File
Leonard Zintak – USEPA Region 5
Greg Failey – GMIA Environmental Manager
Kurt McClung – URS Corp

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MW-8

Date	11/2/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0047	<0.0057	<0.0056	<0.0050
Benzo(b)fluoranthene	<0.0050	<0.0077	<0.0077	<0.0069
Chrysene	<0.0051	<0.0071	<0.0070	<0.0063
DRO	180	84	49	44 J
GRO	<32.4	35.3 J	<32.4	<34.9

MW-1

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0048	<0.0058	<0.0055	<0.0054
Benzo(b)fluoranthene	<0.0051	<0.0079	<0.0075	<0.0074
Chrysene	<0.0052	<0.0073	<0.0069	0.11 J
DRO	12 J	<11	57	<20
GRO	<32.4	<32.4	<32.4	<34.9

MW-2

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	**18.1**	<1.6	<1.0	*3.3*
Ethylbenzene	*203*	68.1	31.7	82.0
Toluene	<0.67	<2.7	<0.88	<0.88
Total Xylenes	*455.8*	218.9	105.4	93.4
1,2,4-TMB	**604**	**431**	*188*	*256*
1,3,5-TMB	**154**	**136**	*71*	*79.2*
Naphthalene	*92.4*	*59.0*	*29.9*	*68.5*
Benzo(a)pyrene	<0.54	<0.56	<0.22	<0.55
Benzo(b)fluoranthene	<0.58	<0.77	<0.30	<0.75
Chrysene	<0.59	<0.70	<0.28	<0.69
DRO	2,100	2,700	2,300	3,900
GRO	3,720	2,170	1,960	1,550

MW-4

Date	11/2/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	2.2	1.9	1.5	0.91 J
Toluene	0.83 J	<0.67	0.76 J	<0.44
Total Xylenes	6.1	<2.63	5.7	3.0 J
1,2,4-TMB	11.5	6.9	6.8	10.9
1,3,5-TMB	4.2	2.8	2.8 J	3.5 J
Naphthalene	1.7 J	1.4 J	<2.5	<2.5
Benzo(a)pyrene	<0.0045	0.020 J	<0.0056	<0.0054
Benzo(b)fluoranthene	<0.0048	*0.042 J*	<0.0077	<0.0074
Chrysene	0.0067 J	*0.024 J*	<0.0070	<0.0068
DRO	240	98	130	64
GRO	95.7	70.4	37.9 J	55.6

MW-9

Date	11/1/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	0.85 J	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	0.0049 J	<0.0056	<0.0056	<0.0054
Benzo(b)fluoranthene	0.0061 J	<0.0076	<0.0076	<0.0074
Chrysene	0.0069 J	<0.0070	<0.0070	<0.0068
DRO	27 J	70	120	<20
GRO	<32.4	<32.4	<32.4	<34.9

MW-7

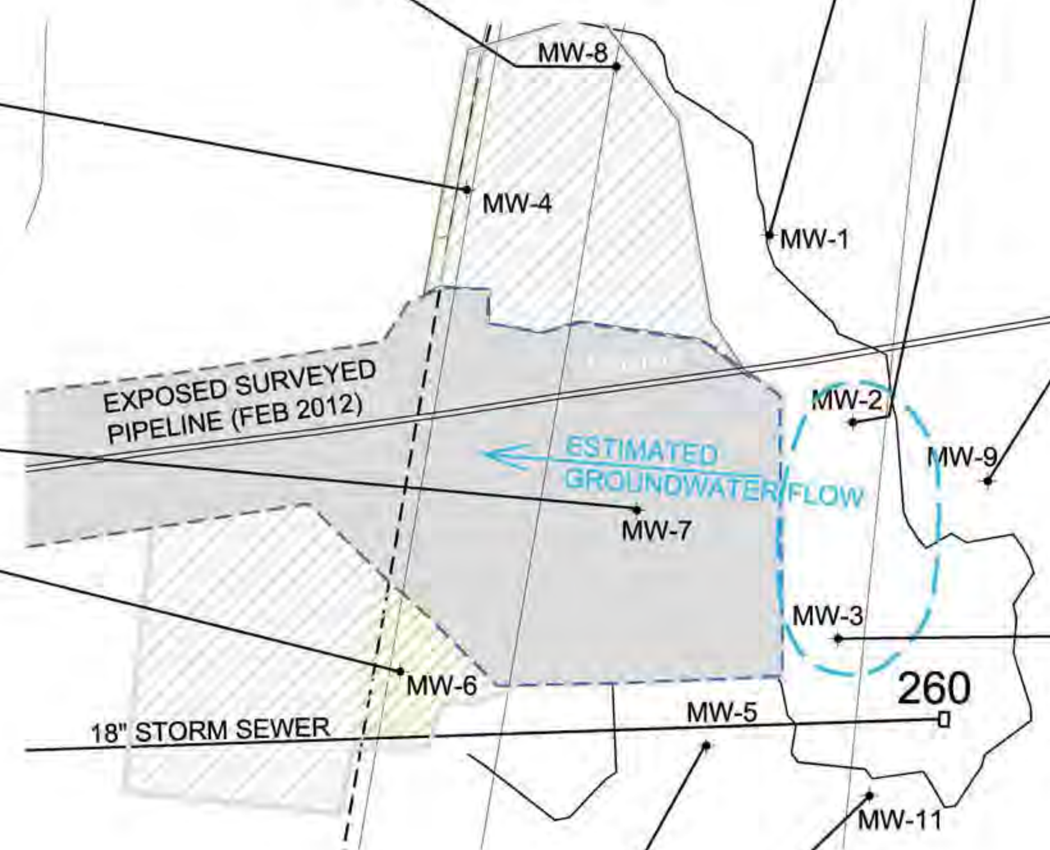
Date	11/1/2012		2/21/2013		5/10/2013	8/1/2013	
Benzene	<0.41	<0.41	<0.41	<0.41	<0.50	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.50	<0.50	<0.50
Toluene	<0.67	<0.67	<0.67	<0.67	<0.44	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<1.32	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.97	<0.97	<0.57	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<0.83	<0.83	<2.5	<2.5	<2.5
Naphthalene	<0.89	<0.89	<0.89	<0.89	<2.5	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0044	<0.0055	<0.0054	<0.0055	<0.0055	<0.0059
Benzo(b)fluoranthene	<0.0047	<0.0047	<0.0075	<0.0074	<0.0075	<0.0075	<0.0080
Chrysene	<0.0048	<0.0048	<0.0069	<0.0068	<0.0069	<0.0069	<0.0073
DRO	90	71	92	90	180	85	64
GRO	<32.4	<32.4	<32.4	<32.4	<32.4	<34.9	<34.9

MW-3

Date	11/1/2012	2/21/2013	5/9/2013		8/1/2013
Benzene	*0.95 J*	<0.41	1.6	1.6	<0.50
Ethylbenzene	3.8	6.5	4.9	4.7	0.57 J
Toluene	<0.67	<0.67	<0.44	<0.44	<0.44
Total Xylenes	<2.63	2.3	13.6	12.9	<1.32
1,2,4-TMB	9.6	41.5	19.5	17.3	4.3 J
1,3,5-TMB	4.6	15.6	6.8	6.1	<2.5
Naphthalene	4.1 J	8.5	4.2 J	4.2 J	<2.5
Benzo(a)pyrene	**0.22**	**0.90**	*0.062 J*	*0.059 J*	0.020 J
Benzo(b)fluoranthene	**0.21**	**1.1**	*0.064 J*	*0.059 J*	*0.023 J*
Chrysene	**0.26**	**0.89**	*0.10*	*0.088 J*	0.018 J
DRO	3,500	420	690	650	340
GRO	192	317	150	141	36.5 J

MW-6

Date	11/1/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0054	<0.0057	<0.0053
Benzo(b)fluoranthene	<0.0046	<0.0074	<0.0077	<0.0072
Chrysene	<0.0047	<0.0068	<0.0071	<0.0066
DRO	130	140	340	100
GRO	<32.4	<32.4	<32.4	<34.9



MW-10

Date	11/1/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0045	<0.0054	<0.0057	<0.0054
Benzo(b)fluoranthene	<0.0048	<0.0074	<0.0078	<0.0074
Chrysene	<0.0049	<0.0068	<0.0072	<0.0068
DRO	27 J	<11	75	<20
GRO	<32.4	<32.4	<32.4	<34.9

MW-5

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0055	<0.0055	<0.0058
Benzo(b)fluoranthene	<0.0047	<0.0075	<0.0075	<0.0079
Chrysene	<0.0048	<0.0069	<0.0069	<0.0073
DRO	<10	<10	24 J	80
GRO	<32.4	<32.4	<32.4	<34.9

MW-11

Date	8/1/2012	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	Not Sampled-Well Frozen	<0.50	<0.50
Ethylbenzene	<0.54	<0.54		<0.50	<0.50
Toluene	<0.67	<0.67		<0.44	<0.44
Total Xylenes	<2.63	<2.63		<1.32	<1.32
1,2,4-TMB	<0.97	<0.97		<0.57	<0.57
1,3,5-TMB	<0.83	<0.83		<2.5	<2.5
Naphthalene	<0.89	<0.89		<2.5	<2.5
Benzo(a)pyrene	0.0036 J	<0.0044		<0.0056	<0.0055
Benzo(b)fluoranthene	0.0038 J	<0.0047		<0.0076	<0.0075
Chrysene	0.0056 J	<0.0048		<0.0070	<0.0069
DRO	36 J	12 J		65	37 J
GRO	<32.4	<32.4		<32.4	<34.9

Notes:

Detections presented in **bold** type indicate an exceedance of the NR 140 groundwater enforcement standard.
Detections presented in *italic* type indicate an exceedance of the NR 140 preventive action limit.
Results are expressed in µg/L (ppb).

J	Estimated concentration detected between the detection limit and reporting limit.
DRO	Diesel Range Organics
GRO	Gasoline Range Organics
1,2,4-TMB	1,2,4-Trimethylbenzene
1,3,5-TMB	1,3,5-Trimethylbenzene

Estimated Extent of Intermittent Exceedence of the NR140 ES.

SCALE IN FEET
0 40 80

Apr. 24, 2014
JOB NO.: 49233474
DRAWN BY: RF APP'D BY: KDM
SCALE: AS SHOWN

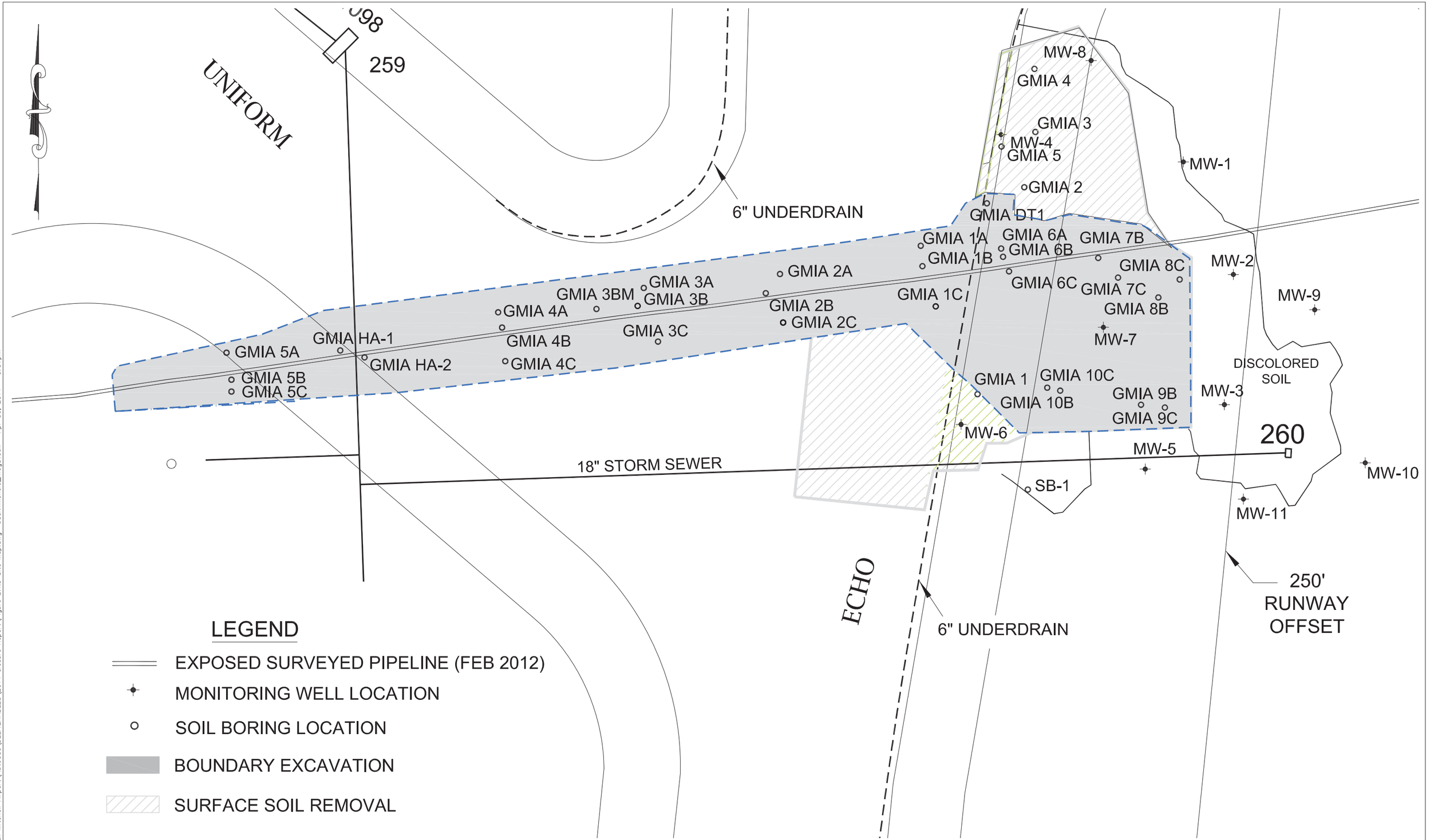
URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.3.b
GROUNDWATER ISOCONCENTRATIONS

P:\GED\49233474 Shell Mitchell Airport\AutoCad\DELIVERABLES\2014 Closure Report\Figure B.3.b Groundwater Isoconcentrations --no aerial.dwg User:michele_mcgivock May 20, 2014 -- 2:36pm



LEGEND

- EXPOSED SURVEYED PIPELINE (FEB 2012)
- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- BOUNDARY EXCAVATION
- SURFACE SOIL REMOVAL

SCALE IN FEET
0 30 60

Apr. 29, 2014

JOB NO.:	49233474
DRAWN BY:	RF
APP'D BY:	KDM
SCALE:	AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release

5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.1.b
SITE MAP

Sample ID	GMIA 4B
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	10.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	6.98
Chrysene	<0.0036

Sample ID	GMIA-4A
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	8.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	3.94
Chrysene	0.0044 J

Sample ID	GMIA 3BM
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	10.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	5.23
Chrysene	<0.0037

Sample ID	GMIA-3B
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	10.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	1.34 J
Chrysene	<0.0039

Sample ID	GMIA-3A
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	7.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.3
DRO	3.11
Chrysene	0.0067 J

Sample ID	GMIA-1A
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	9.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	2.13
Chrysene	0.0264

Sample ID	GMIA DT1
Sample Date	2/22/2012
Field Screening	17.3
Sample Depth	3.0*
Benzene	<0.200
Ethylbenzene	1.39
Toluene	0.822
Total Xylenes	**6.30**
Naphthalene	**2.49**
GRO	**276**
DRO	65.1
Chrysene	0.0193 J

Sample ID	GMIA 5
Sample Date	4/18/2012
Field Screening	NM
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	0.075
Toluene	<0.0250
Total Xylenes	0.453
Naphthalene	0.281
GRO	<3.0
DRO	35.5
Chrysene	0.0064 J

Sample ID	GMIA 4
Sample Date	3/19/2012
Field Screening	10.8
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	0.091
Naphthalene	0.275
GRO	10.9
DRO	77.5
Chrysene	0.082

Sample ID	MW-8	
Sample Date	4/12/2012	
Field Screening	0.0	0.0
Sample Depth	2.5-3	4-6
Benzene	<0.0260	<0.0294
Ethylbenzene	<0.0260	<0.0294
Toluene	<0.0260	<0.0294
Total Xylenes	<0.0781	<0.0822
Naphthalene	<0.0260	<0.0294
DRO	3.57	2.92
GRO	<3.0	<3.0
Chrysene	<0.0037	<0.0036

Sample ID	GMIA 3
Sample Date	3/19/2012
Field Screening	4.7
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	5.2
DRO	21.8
Chrysene	0.0046 J

Sample ID	MW-1	
Sample Date	3/7/2012	
Field Screening	0.0	0.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	<0.0250	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	3.25	1.020 J
GRO	5.5	4.4
Chrysene	0.101	0.0118 J

Sample ID	GMIA HA-1
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	8.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	1.06 J
Chrysene	0.0045 J

Sample ID	GMIA-2A
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	7.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	1.57 J
Chrysene	0.0054 J

Sample ID	GMIA 6A
Sample Date	2/22/2012
Field Screening	8.0
Sample Depth	6.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	6.68
Chrysene	0.0115 J

Sample ID	GMIA 2
Sample Date	3/19/2012
Field Screening	7.8
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<2.7
DRO	27.1
Chrysene	0.0519

Sample ID	MW-4	
Sample Date	3/7/2012	
Field Screening	75.0	5.2
Sample Depth	0-2*	2-4
Benzene	<0.0625	<0.0250
Ethylbenzene	1.57	<0.0250
Toluene	1.41	<0.0250
Total Xylenes	**5.96**	<0.0750
Naphthalene	**1.97**	<0.0035
DRO	**1,390**	3.93
GRO	**581**	5.0
Chrysene	0.265	<0.0036

Sample ID	GMIA 7B
Sample Date	2/22/2012
Field Screening	0.6
Sample Depth	8.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	2.45
Chrysene	0.0100 J

Sample ID	GMIA 7C
Sample Date	2/22/2012
Field Screening	22.6
Sample Depth	5.5*
Benzene	<0.125
Ethylbenzene	1.95
Toluene	**1.87**
Total Xylenes	**7.94**
Naphthalene	**3.12**
GRO	**384**
DRO	**1,490**
Chrysene	0.0910 J

Sample ID	GMIA 5A
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	5.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	1.33 J
Chrysene	<0.0036

Sample ID	GMIA 8C
Sample Date	3/8/2012
Field Screening	203
Sample Depth	5.0
Benzene	<0.125
Ethylbenzene	0.95
Toluene	0.745
Total Xylenes	4.06
Naphthalene	**1.1**
GRO	**336**
DRO	217
Chrysene	<0.0038

Sample ID	GMIA 8B
Sample Date	3/8/2012
Field Screening	0.0
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	0.0425 J
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	<0.927
Chrysene	<0.0038

Sample ID	MW-2	
Sample Date	3/7/2012	
Field Screening	30.0	41.9
Sample Depth	0-2	2-4
Benzene	<0.312	<0.125
Ethylbenzene	**7.300**	**3.24**
Toluene	**6.070**	**2.870**
Total Xylenes	**32.25**	**14.03**
Naphthalene	0.101	**3.440**
DRO	**1,150**	**1,790**
GRO	**1,610**	**917**
Chrysene	0.339	0.118

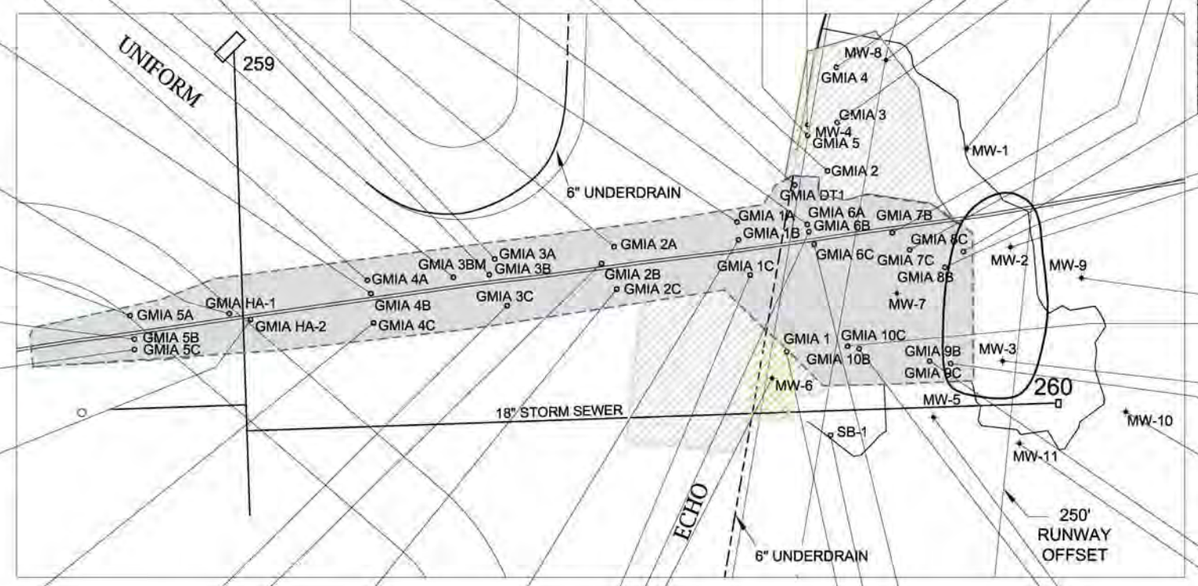
Sample ID	GMIA 5B
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	10.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	4.58
Chrysene	<0.0036

Sample ID	MW-9	
Sample Date	5/11/2012	
Field Screening	0.0	0.0
Sample Depth	0-1	6-7
Benzene	<0.0410	<0.0424
Ethylbenzene	<0.0410	<0.0424
Toluene	<0.0410	<0.0424
Total Xylenes	<0.1230	<0.1271
Naphthalene	<0.0410	<0.0424
DRO	17.2	5.57
GRO	<4.9	<3.8
Chrysene	0.241	<0.0037

Sample ID	GMIA 10C**
Sample Date	03/08-12/2012
Field Screening	81
Sample Depth	5.0*
Benzene	<0.125
Ethylbenzene	1.8
Toluene	**1.48**
Total Xylenes	**7.29**
Naphthalene	**1.95**
GRO	**359**
DRO	**1,270**
Chrysene	<0.0351

Sample ID	GMIA 5C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	7.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	5.8
Chrysene	<0.0036

Sample ID	MW-3	
Sample Date	3/7/2012	
Field Screening	57.1	95.1
Sample Depth	0-2	2-4
Benzene	<0.125	**0.0399 J**
Ethylbenzene	2.55	0.537
Toluene	**2.42**	0.883
Total Xylenes	**11.09**	2.264
Naphthalene	**5.65**	**0.466**
DRO	**723**	**174**
GRO	**695**	**114**
Chrysene	11.9	0.443



Sample ID	GMIA HA-2
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	8.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	<0.925
Chrysene	<0.0037

Sample ID	GMIA 4C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	7.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	3.78
Chrysene	0.0047 J

Sample ID	GMIA-3C
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	6.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	35.3
Chrysene	0.434

Sample ID	GMIA-2B
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	9.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	5.83

Sample ID	GMIA-2C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	8.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	3.68
Chrysene	0.0051 J

Sample ID	GMIA-1B
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	5.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	8.01
Chrysene	<0.0037

Sample ID	GMIA-1C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<2.9
DRO	2.07
Chrysene	0.0070 J

Sample ID	MW-6	
Sample Date	3/15/2012	
Field Screening	55.1	7.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	0.0623 J	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	10.8	3.88
GRO	3.0	<3.2
Chrysene	0.0576 J	0.0137 J

Sample ID	GMIA 6B
Sample Date	2/22/2012
Field Screening	1.3
Sample Depth	9.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	29.6
Chrysene	0.0100 J

Sample ID	GMIA 1
Sample Date	3/19/2012
Field Screening	10.0
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	0.0553 J
Toluene	0.0442 J
Total Xylenes	0.2329
Naphthalene	0.137
GRO	36.6
DRO	128
Chrysene	0.0142 J

Sample ID	GMIA 6C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	5.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	<0.919

Sample ID	SB-01
Sample Date	5/11/2012
Field Screening	0.0
Sample Depth	0-2
Benzene	<0.0299
Ethylbenzene	<0.0299
Toluene	<0.0299
Total Xylenes	<0.0898
Naphthalene	<0.0299
DRO	96.8
GRO	<4.1
Chrysene	0.313

Sample ID	MW-5	
Sample Date	3/15/2012	
Field Screening	0.0	0.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	<0.0250	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	8.65	2.97
GRO	<3.0	<2.9
Chrysene	0.166	0.0156 J

Sample ID	GMIA 10B**
Sample Date	03/08-12/2012
Field Screening	0.6
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	5.21
Chrysene	<0.0036

Sample ID	GMIA 9B
Sample Date	3/8/2012
Field Screening	8.7
Sample Depth	5.5
Benzene	<0.0250
Ethylbenzene	0.0515 J
Toluene	0.0796
Total Xylenes	0.1789 J
Naphthalene	0.0330 J
GRO	22.2
DRO	1.13 J
Chrysene	<0.0038

Sample ID	GMIA 9C
Sample Date	3/8/2012
Field Screening	195
Sample Depth	5.0
Benzene	<0.312
Ethylbenzene	**4.18**
Toluene	**3.58**
Total Xylenes	**17.24**
Naphthalene	**5.39**
GRO	**771**
DRO	**1,220**
Chrysene	0.0888

Sample ID	MW-10	
Sample Date	5/11/2012	
Field Screening	0.0	0.0
Sample Depth	0-1	6-8
Benzene	<0.0357	<0.0316
Ethylbenzene	<0.0357	<0.0316
Toluene	<0.0357	<0.0316
Total Xylenes	<0.1071	<0.0949
Naphthalene	<0.0357	<0.0316
DRO	3.92	5.85
GRO	<4.7	<3.9
Chrysene	0.0195 J	<0.0037

Sample ID	MW-11	
Sample Date	5/11/2012	
Field Screening	0.0	0.0
Sample Depth	0-2	2-2 Dup
Benzene	<0.0325	<0.0333
Ethylbenzene	<0.0325	<0.0333
Toluene	<0.0325	<0.0333
Total Xylenes	<0.0974	<0.1000
Naphthalene	<0.0325	<0.0333
DRO	2.09 J	2.10 J
GRO	<4.3	<4.4
Chrysene	<0.0039	<0.0039

LEGEND:

- EXPOSED SURVEYED PIPELINE (FEB 2012)
- MONITORING WELL LOCATION
- SOIL BORING LOCATION

NOTES:

Soil sample analytical results exceeding the former NR 720 RCL or Interim PAH Guidance are presented in **bold** type.
Results are expressed in ug/kg (ppm).

MW-7 was installed within the excavation after backfilling with clean fill material. Since MW-7 was installed in clean backfill, soil samples were not collected for laboratory analysis.

* Impacted soil was excavated and removed

** Soil PAH samples were re-collected in correct containers and resubmitted for analysis

J Estimated concentration detected between the detection limit and reporting limit

DRO Diesel Range Organics

GRO Gasoline Range Organics

◯ Residual soil exceeding the former NR 720 RCL or Interim PAH Guidance

SCALE IN FEET

0 60 120

Apr. 29, 2014

JOB NO.: 49233474

DRAWN BY: RF | APP'D BY: KDM

SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:

SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release

5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.2.b
POST-REMEDIAL
SOIL CONTAMINATION

P:\GEO\49233474 Shell Mitchell Airport\AutoCad\DELIVERABLES\2014 Closure Report\Figure B.2.b Post-Remedial Soil Contamination.dwg User: michele_mcgovock Apr 30, 2014 - 3:38pm

Sample ID	GMIA 8B
Sample Date	3/8/2012
Field Screening	0.0
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	**0.0425 J**
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	<0.927
Chrysene	<0.0038

Sample ID	GMIA 5
Sample Date	4/18/2012
Field Screening	NM
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	**0.0750**
Toluene	<0.0250
Total Xylenes	**0.453**
Naphthalene	**0.281**
GRO	<3.0
DRO	**35.5**
Chrysene	**0.0064 J**

Sample ID	GMIA 4
Sample Date	3/19/2012
Field Screening	10.8
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	**0.091**
Naphthalene	**0.275**
GRO	**10.9**
DRO	**77.5**
Chrysene	**0.0820**

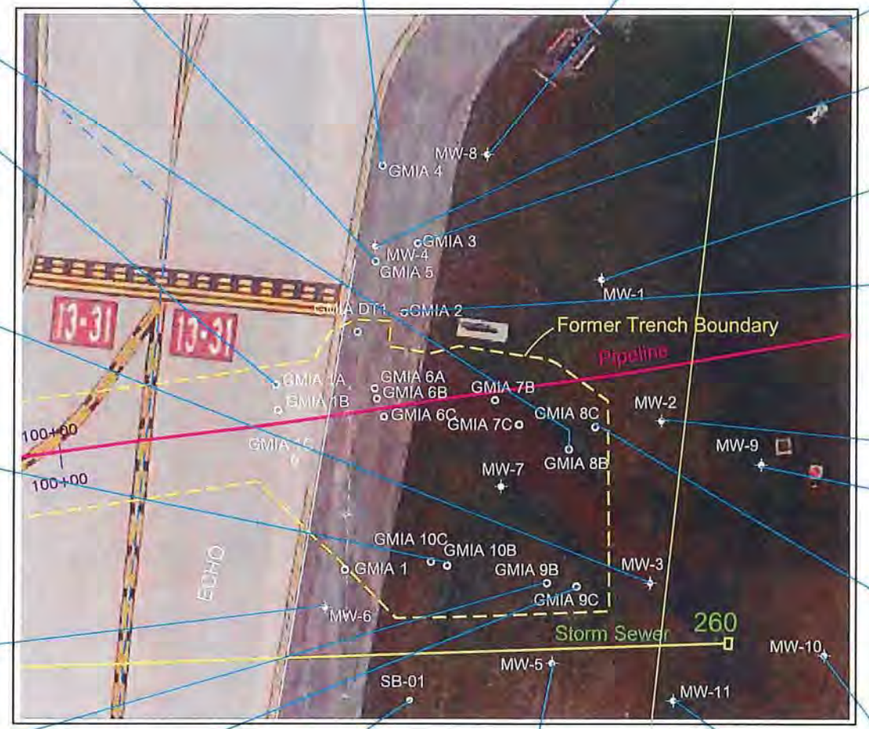
Sample ID	MW-8	
Sample Date	4/12/2012	
Field Screening	0.0	0.0
Sample Depth	2.5-3	4-6
Benzene	<0.0260	<0.0294
Ethylbenzene	<0.0260	<0.0294
Toluene	<0.0260	<0.0294
Total Xylenes	<0.0781	<0.0822
Naphthalene	<0.0260	<0.0294
DRO	**3.57**	**2.92**
GRO	<3.0	<3.0
Chrysene	<0.0037	<0.0036

Sample ID	MW-4	
Sample Date	3/7/2012	
Field Screening	75.0	5.2
Sample Depth	0-2	2-4
Benzene	<0.0625	<0.0250
Ethylbenzene	**1.57**	<0.0250
Toluene	**1.41**	<0.0250
Total Xylenes	**6.96**	<0.0750
Naphthalene	**1.97**	<0.0035
DRO	**1390**	**3.93**
GRO	**581**	**5.0**
Chrysene	**0.265**	<0.0036

Sample ID	GMIA 3
Sample Date	3/19/2012
Field Screening	4.7
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	**5.2**
DRO	**21.8**
Chrysene	**0.0046 J**

Sample ID	GMIA 1
Sample Date	3/19/2012
Field Screening	10.0
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	**0.0553 J**
Toluene	**0.0442 J**
Total Xylenes	**0.2329**
Naphthalene	**0.137**
GRO	**36.6**
DRO	**128**
Chrysene	**0.0142 J**

Sample ID	MW-3	
Sample Date	3/7/2012	
Field Screening	57.1	95.1
Sample Depth	0-2	2-4
Benzene	<0.125	**0.0399 J**
Ethylbenzene	**2.55**	**0.537**
Toluene	**2.42**	**0.883**
Total Xylenes	**11.09**	**2.264**
Naphthalene	**5.65**	**0.466**
DRO	**723**	**174**
GRO	**695**	**114**
Chrysene	**11.9**	**0.443**



Sample ID	GMIA 2
Sample Date	3/19/2012
Field Screening	7.8
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<2.7
DRO	**27.1**
Chrysene	**0.0519**

Sample ID	MW-1	
Sample Date	3/7/2012	
Field Screening	0.0	0.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	<0.0250	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	**3.25**	**1.020 J**
GRO	**5.5**	**4.4**
Chrysene	**0.101**	**0.0118 J**

Sample ID	MW-2	
Sample Date	3/7/2012	
Field Screening	30.0	41.9
Sample Depth	0-2	2-4
Benzene	<0.312	<0.125
Ethylbenzene	**7.300**	**3.24**
Toluene	**6.070**	**2.870**
Total Xylenes	**32.25**	**14.03**
Naphthalene	**0.101**	**3.440**
DRO	**1,150**	**1,790**
GRO	**1,610**	**917**
Chrysene	**0.339**	**0.118**

Sample ID	MW-6	
Sample Date	3/15/2012	
Field Screening	55.1	7.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	**0.0623 J**	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	**10.8**	**3.88**
GRO	**3.0**	<3.2
Chrysene	**0.0576 J**	**0.0137 J**

Sample ID	GMIA 10B**
Sample Date	03/08-12/2012
Field Screening	0.6
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	**5.21**
Chrysene	<0.0036

Sample ID	GMIA 8C
Sample Date	3/8/2012
Field Screening	203
Sample Depth	5.0
Benzene	<0.125
Ethylbenzene	**0.95**
Toluene	**0.745**
Total Xylenes	**4.06**
Naphthalene	**1.1**
GRO	**336**
DRO	**217**
Chrysene	<0.0038

Sample ID	MW-9	
Sample Date	5/11/2012	
Field Screening	0.0	0.0
Sample Depth	0-1	6-7
Benzene	<0.0410	<0.0424
Ethylbenzene	<0.0410	<0.0424
Toluene	<0.0410	<0.0424
Total Xylenes	<0.1230	<0.1271
Naphthalene	<0.0410	<0.0424
DRO	**17.2**	**5.57**
GRO	<4.9	<3.8
Chrysene	**0.241**	<0.0037

Sample ID	GMIA 9B
Sample Date	3/8/2012
Field Screening	8.7
Sample Depth	5.5
Benzene	<0.0250
Ethylbenzene	**0.0515 J**
Toluene	**0.0796**
Total Xylenes	**0.1789 J**
Naphthalene	**0.0330 J**
GRO	**22.2**
DRO	**1.13 J**
Chrysene	<0.0038

Sample ID	GMIA 9C
Sample Date	3/8/2012
Field Screening	195
Sample Depth	5.0
Benzene	<0.312
Ethylbenzene	**4.18**
Toluene	**3.58**
Total Xylenes	**17.24**
Naphthalene	**5.39**
GRO	**771**
DRO	**1,220**
Chrysene	**0.0888**

Sample ID	SB-01
Sample Date	5/11/2012
Field Screening	0.0
Sample Depth	0-2
Benzene	<0.0299
Ethylbenzene	<0.0299
Toluene	<0.0299
Total Xylenes	<0.0898
Naphthalene	<0.0299
DRO	**96.8**
GRO	<4.1
Chrysene	**0.313**

Sample ID	MW-5	
Sample Date	3/15/2012	
Field Screening	0.0	0.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	<0.0250	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	**8.65**	**2.97**
GRO	<3.0	<2.9
Chrysene	**0.166**	**0.0156 J**

Sample ID	MW-11	
Sample Date	5/11/2012	
Field Screening	0.0	0.0
Sample Depth	0-2	0-2 Dup
Benzene	<0.0325	<0.0333
Ethylbenzene	<0.0325	<0.0333
Toluene	<0.0325	<0.0333
Total Xylenes	<0.0974	<0.1000
Naphthalene	<0.0325	<0.0333
DRO	**2.09 J**	**2.10 J**
GRO	<4.3	<4.4
Chrysene	<0.0039	<0.0039

Sample ID	MW-10	
Sample Date	5/11/2012	
Field Screening	0.0	0.0
Sample Depth	0-1	6-8
Benzene	<0.0357	<0.0316
Ethylbenzene	<0.0357	<0.0316
Toluene	<0.0357	<0.0316
Total Xylenes	<0.1071	<0.0949
Naphthalene	<0.0357	<0.0316
DRO	**3.92**	**5.85**
GRO	<4.7	<3.9
Chrysene	**0.0195 J**	<0.0037

NOTES:

All detections are presented in **bold**.
Results are expressed in ug/kG (ppm).

Yellow shading in data boxes indicates exceedance of either the former NR 720 RCL or the former interim PAH guidance standard.

** Soil PAH samples were re-collected in correct containers and resubmitted for analysis.
J Estimated concentration detected between the detection limit and reporting limit
DRO Diesel Range Organics
GRO Gasoline Range Organics

SCALE IN FEET
40 0 40

Feb. 11, 2014
JOB NO.: 49233474
DRAWN BY: RF | APP'D BY: KDM
SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE 1
RESIDUAL SOIL SAMPLE ANALYTICAL RESULTS

P:\GED\49233474 Shell Mitchell Airport\AutoCad\DELIVERABLES\2014 01 Notification Letter\Figure 1 Soil Sample Analytical Results new.dwg User:renee_flink Feb 11, 2014 - 2:12pm

MW-4

Date	11/2/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	2.2	1.9	1.5	0.91 J
Toluene	0.83 J	<0.67	0.76 J	<0.44
Total Xylenes	6.1	<2.63	5.7	3.0 J
1,2,4-TMB	11.5	6.9	6.8	10.9
1,3,5-TMB	4.2	2.8	2.8 J	3.5 J
Naphthalene	1.7 J	1.4 J	<2.5	<2.5
Benzo(a)pyrene	<0.0045	0.020 J	<0.0056	<0.0054
Benzo(b)fluoranthene	<0.0048	0.042 J	<0.0077	<0.0074
Chrysene	0.0067 J	0.024 J	<0.0070	<0.0068
DRO	240	98	130	64
GRO	95.7	70.4	37.9 J	55.6

MW-8

Date	11/2/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0047	<0.0057	<0.0056	<0.0050
Benzo(b)fluoranthene	<0.0050	<0.0077	<0.0077	<0.0069
Chrysene	<0.0051	<0.0071	<0.0070	<0.0063
DRO	180	84	49	44 J
GRO	<32.4	**35.3 J**	<32.4	<34.9

MW-1

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0048	<0.0058	<0.0055	<0.0054
Benzo(b)fluoranthene	<0.0051	<0.0079	<0.0075	<0.0074
Chrysene	<0.0052	<0.0073	<0.0069	0.11 J
DRO	12 J	<11	57	<20
GRO	<32.4	<32.4	<32.4	<34.9

MW-2

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	**18.1**	<1.6	<1.0	3.3
Ethylbenzene	203	68.1	31.7	31.7
Toluene	<0.67	<2.7	<0.88	<0.88
Total Xylenes	455.8	218.9	105.4	105.4
1,2,4-TMB	**604**	**431**	188	256
1,3,5-TMB	**154**	**136**	71	79.2
Naphthalene	92.4	59.0	29.9	29.9
Benzo(a)pyrene	<0.54	<0.56	<0.22	<0.55
Benzo(b)fluoranthene	<0.58	<0.77	<0.30	<0.75
Chrysene	<0.59	<0.70	<0.28	<0.69
DRO	2,100	2,700	2,300	3,900
GRO	3,720	2,170	1,960	1,550

MW-9

Date	11/1/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	0.85 J	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	0.0049 J	<0.0056	<0.0056	<0.0054
Benzo(b)fluoranthene	0.0061 J	<0.0076	<0.0076	<0.0074
Chrysene	0.0069 J	<0.0070	<0.0070	<0.0068
DRO	27 J	70	120	<20
GRO	<32.4	<32.4	<32.4	<34.9

MW-7

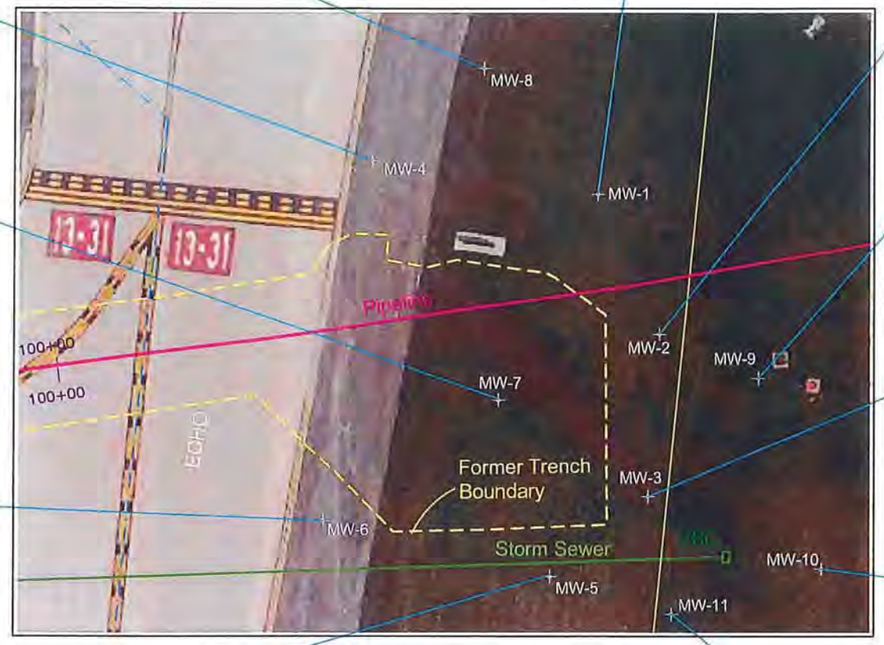
Date	11/1/2012		2/21/2013		5/10/2013	8/1/2013	
Benzene	<0.41	<0.41	<0.41	<0.41	<0.50	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.50	<0.50	<0.50
Toluene	<0.67	<0.67	<0.67	<0.67	<0.44	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<1.32	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.97	<0.97	<0.57	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<0.83	<0.83	<2.5	<2.5	<2.5
Naphthalene	<0.89	<0.89	<0.89	<0.89	<2.5	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0044	<0.0055	<0.0054	<0.0055	<0.0055	<0.0059
Benzo(b)fluoranthene	<0.0047	<0.0047	<0.0075	<0.0074	<0.0075	<0.0075	<0.0080
Chrysene	<0.0048	<0.0048	<0.0069	<0.0068	<0.0069	<0.0069	<0.0073
DRO	90	71	92	90	180	85	64
GRO	<32.4	<32.4	<32.4	<32.4	<32.4	<34.9	<34.9

MW-3

Date	11/1/2012	2/21/2013	5/9/2013		8/1/2013
Benzene	0.95 J	<0.41	1.6	1.6	3.3
Ethylbenzene	3.8	6.5	4.9	4.7	31.7
Toluene	<0.67	<0.67	<0.44	<0.44	<0.88
Total Xylenes	<2.63	<2.63	13.6	12.9	105.4
1,2,4-TMB	9.6	41.5	19.5	17.3	4.3 J
1,3,5-TMB	4.6	15.6	6.8	6.1	<2.5
Naphthalene	4.1 J	8.5	4.2 J	4.2 J	29.9
Benzo(a)pyrene	**0.22**	**0.90**	0.062 J	0.059 J	<0.55
Benzo(b)fluoranthene	**0.21**	**1.1**	0.064 J	0.059 J	<0.75
Chrysene	**0.26**	**0.89**	0.10	0.088 J	<0.69
DRO	3,500	420	690	650	3,900
GRO	192	317	150	141	1,550

MW-6

Date	11/1/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0054	<0.0057	<0.0053
Benzo(b)fluoranthene	<0.0046	<0.0074	<0.0077	<0.0072
Chrysene	<0.0047	<0.0068	<0.0071	<0.0066
DRO	130	140	340	100
GRO	<32.4	<32.4	<32.4	<34.9



MW-5

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0055	<0.0055	<0.0058
Benzo(b)fluoranthene	<0.0047	<0.0075	<0.0075	<0.0079
Chrysene	<0.0048	<0.0069	<0.0069	<0.0073
DRO	<10	<10	24 J	80
GRO	<32.4	<32.4	<32.4	<34.9

MW-11

Date	8/1/2012	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41		<0.50	<0.50
Ethylbenzene	<0.54	<0.54		<0.50	<0.50
Toluene	<0.67	<0.67		<0.44	<0.44
Total Xylenes	<2.63	<2.63		<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	Not	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	Sampled-	<2.5	<2.5
Naphthalene	<0.89	<0.89	Well	<2.5	<2.5
Benzo(a)pyrene	0.0036 J	<0.0044	Frozen	<0.0056	<0.0055
Benzo(b)fluoranthene	0.0038 J	<0.0047		<0.0076	<0.0075
Chrysene	0.0056 J	<0.0048		<0.0070	<0.0069
DRO	36 J	12 J		65	37 J
GRO	<32.4	<32.4		<32.4	<34.9

MW-10

Date	11/1/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0045	<0.0054	<0.0057	<0.0054
Benzo(b)fluoranthene	<0.0048	<0.0074	<0.0078	<0.0074
Chrysene	<0.0049	<0.0068	<0.0072	<0.0068
DRO	27 J	<11	75	<20
GRO	<32.4	<32.4	<32.4	<34.9

NOTES:

Detections presented in bold type indicate an exceedance of the NR 140 groundwater enforcement standard.
Results are expressed in ug/L (ppb).

J	Estimated concentration detected between the detection limit and reporting limit
DRO	Diesel Range Organics
GRO	Gasoline Range Organics
1,2,4-TMB	1,2,4-Trimethylbenzene
1,3,5-TMB	1,3,5-Trimethylbenzene

SCALE IN FEET
40 0 40

Feb. 10, 2013
JOB NO.: 49233474
DRAWN BY: RF | APP'D BY: KDM
SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR: SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE 2
GROUNDWATER ANALYTICAL RESULTS SUMMARY

P:\GED\49233474 Shell Mitchell Airport\AutoCad\DELIVERABLES\2014 01 Notification Letter\Figure 2 GW Analytical Results Summary new.dwg User:renee_flink Feb 11, 2014 - 2:12pm

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State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Case Closure - GIS Registry

Form 4400-202 (R 11/13)

SUBMIT AS UNBOUND PACKAGE IN THE ORDER SHOWN

Notice: Pursuant to ch. 292, Wis. Stats., and chs. NR 726 and 746, Wis. Adm. Code, this form is required to be completed for case closure requests. The closure of a case means that the Department of Natural Resources (DNR) has determined that no further response is required at that time based on the information that has been submitted to the DNR. All sections of this form must be completed unless otherwise directed by the Department. Incomplete forms will be considered "administratively incomplete" and processing of the request will stop until required information is provided. Any section of the form not relevant to the case closure request must be fully filled out or explained on a separate page and attached to the relevant section of this form. DNR will consider your request administratively complete when the form and all sections are completed, all attachments are included, and the applicable fees required under ch. NR 749, Wis. Adm. Code, are included, and sent to the proper destinations. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31 - 19.39, Wis. Stats.).

Site Information

BRRTS No.	Parcel ID No.		
02-41-558334	640-9999-118		
BRRTS Activity (Site) Name	**WTM Coordinates**		
	X	Y	
Shell Pipeline at GMIA	691696	277576	
Street Address	**City**	**State**	**ZIP Code**
5300 S Howell Avenue	Milwaukee	WI	53207

Responsible Party (RP) Name			
John Robbins			
Company Name			
Shell Oil Products US			
Street Address	**City**	**State**	**ZIP Code**
20945 S. Wilmington Avenue	Carson	CA	90810
Phone Number	**Email**		
(815) 468-8824	john.robbins@shell.com		

☐ Check here if the RP is the owner of the source property.

Environmental Consultant Name			
Kurt McClung			
Consulting Firm			
URS Corporation			
Street Address	**City**	**State**	**ZIP Code**
342 North Water Street, 7th Floor	Milwaukee	WI	53202
Phone Number	**Email**		
(414) 831-4100	kurt.mcclung@urs.com		
Acres Ready For Use			
5	Voluntary Party Liability Exemption Site? ○ Yes ◉ No		

Fees and Mailing of Closure Request

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form. All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

1. **Send a copy of page one** of this form and the applicable ch. NR 749, Wis. Adm. Code, fee(s) to the DNR regional Environmental Program Associate at **http://dnr.wi.gov/topic/Brownfields/Contact.html**. Check all fees that apply:

   ☒ $1,050 Closure Fee

   ☒ $300 Database Fee for Soil

   ☒ $350 Database Fee for Groundwater or Other Condition (MW Not Abandoned)

   Total Amount of Payment $ $1,700.00

2. **Send one paper copy and one e-copy on compact disk of the entire closure package** to the Regional Project Manager assigned to your site. Submit as *unbound, separate documents* in the order and with the titles prescribed by this form. For electronic document submittal requirements, see **http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf.**

Site Summary

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form. All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

1. General Site Information and Site History

A. **Site Location**: Describe the physical location of the site, both generally and specific to its immediate surroundings.
The site is located at General Mitchell International Airport (GMIA) at the intersection of taxiways Echo and Uniform, adjacent to the main north-south runway.

B. **Prior and current site usage**: Specifically describe the current and historic occupancy and types of use.
The site was developed as an airfield in 1920 and was purchased by Milwaukee County in 1926. The site is currently used as a municipal airport.

C. Describe how and when site contamination was discovered.
Hydrocarbons were reportedly observed in Wilson Park Creek in late January 2012. Investigation to identify and locate the source indicated that jet fuel was emanating from an observation riser pipe in the pipeline. Jet fuel emanating from the riser pipe was flowing over the ground surface and into an adjacent storm sewer catch basin. The storm sewers at the site discharge to surface at the North West Outfall, located at the intersection of Layton and Howell Avenue in Milwaukee, at the northwest corner of GMIA.

D. Describe the type(s) and source(s) or suspected source(s) of contamination.
The source of jet fuel was a leak from an underground pipeline. The leak has been repaired and the pipeline is currently in use.

E. Other relevant site description information (or enter Not Applicable).
Not Applicable.

F. List BRRTS activity site name and number for all other BRRTS activities at this property, including closed cases.
This closure request is for 02-41-558334 Shell Pipeline at Gen Mitchell Intern Airport.
Nearly 150 BRRTS numbers are listed at 5300 South Howell Avenue, Milwaukee.

G. List BRRTS activity/site name(s) and number(s) for all properties immediately adjacent to this site, and those impacted by contamination from this site.
No other sites are currently impacted by the pipeline release.

H. **Current zoning** (e.g. industrial, commercial, residential) for the site and for neighboring properties, and how verified (Provide documentation in Attachment G).
GMIA is owned by Milwaukee County and is zoned transportation.

2. General Site Conditions

A. Soil/Geology

i. Describe soil type(s) and relevant physical properties, thickness of soil column across the site, vertical and lateral variations in soil types.
Soil consists of fill over sandy silt to the maximum depth excavated or investigated.

ii. Describe the composition, location and lateral extent, and depth of fill or waste deposits on the site.
GMIA was filled and extensively graded during the construction of the runways and taxiways, and during installation of the jet fuel pipeline. No waste deposits were encountered during pipeline repair activity.

iii. Depth to bedrock, bedrock type, and whether or not it was encountered during the investigation.
Bedrock is estimated at greater than 50 feet below ground surface and consists of Silurian Dolomite. Bedrock was not encountered during the removal of impacted soil and pipeline repair activity (maximum depth of penetration is 20 feet). Well logs in the vicinity of GMIA indicate carbonate bedrock at approximately 100 feet below ground surface.

iv. Describe the nature and locations of current surface cover(s) across the site (e.g. natural vegetation, landscaped areas, gravel, hard surfaces, and buildings).
The area affected by the pipeline release is grass landscape, except for paved taxiways and runways.

B. Groundwater

i. **Discuss depth to groundwater and piezometric elevations**. Describe and explain depth variations, and whether free product affects measurement or water table elevation. Describe the stratigraphic unit(s) where water table was found or which were measured for piezometric levels.
Shallow groundwater was observed at 2 to 4 feet below ground surface in monitoring wells during groundwater sampling events. A thin, intermittent apparent hydrocarbon film was observed on the water table at MW-2, however, groundwater sampling analytical results did not reveal hydrocarbon impact to groundwater that are indicative of liquid-

Save...

phase hydrocarbons.

ii. Discuss groundwater flow direction(s), shallow and deep. Describe and explain flow variations, including fracture flow if present.

Shallow groundwater flow is influenced by precipitation and artificial conveyances, however, groundwater flow interpreted from depth to groundwater measurements at monitoring wells during sampling events indicates flow is generally to the west.

iii. Discuss groundwater flow characteristics: hydraulic conductivity, flow rate and permeability, or state why this information was not obtained.

Hydraulic conductivity testing was not completed because nearly all of the hydrocarbon impacted soil was excavated and removed as part of the response action, the groundwater hydrocarbon impacts are at relatively low concentrations, and the areal extent is relatively small. Since a consistent, persistent groundwater hydrocarbon plume is not present at the site exceeding the NR 140 Enforcement Standard and no receptors are threatened, estimated hydrocarbon migration rates in groundwater were not determined.

iv. Identify and describe locations/distance of potable and/or municipal Wells within 1200 feet of the site.

The site is located near the center of GMIA in Milwaukee, Wisconsin. Milwaukee obtains potable water from Lake Michigan and no potable wells are known to exist within 1,200 feet of the groundwater impact at the site.

3. Site Investigation Summary

A. General

i. Provide a brief summary of the site investigation history. Reference previous submittals by name and date. Describe site investigation activities undertaken since the last submittal for this project and attach the appropriate documentation in Attachment C, if not previously provided.

The pipeline was shut-down upon discovery of the source of the release. The section of the pipeline that needed repair was exposed and replaced. Hydrocarbon-impacted soil was excavated from the vicinity of the pipeline and disposed of at the Orchard Ridge Landfill. The excavation was backfilled with compacted granular fill. A relatively small amount of hydrocarbon impacted soil was not excavated at the east end of the excavation due to the proximity of the 250-foot offset for the main north-south runway.

Groundwater monitoring wells were installed to evaluate hydrocarbon impact to groundwater as described in the March 2012 work plan. Additional wells were installed to define the extent of groundwater impact and quarterly groundwater monitoring indicates low-level intermittent detections of groundwater impact above the NR 140 Enforcement Standard.

Storm sewers, drain tile, and buried conduits have been investigated and cleaned under high pressure to remove residual hydrocarbons. Swab samples of the cleaned conduits have been analyzed to document successful cleaning.

Hard booms and sorbent booms were deployed upon discovery of the release at the North West Outfall, Wilson Park Creek, and the Kinnickinnic River to trap and recover free-phase hydrocarbons. The concrete lining and banks of the surface water bodies were pressure washed to allow sorbents to recover hydrocarbons and hydrocarbon-impacted vegetation was collected and disposed of at the Orchard Ridge Landfill.

A sediment sampling work plan was submitted in January 2013 and the work was completed in May 2013. A forensic evaluation of the detected analytes indicated the impacts are urban background and not a result of the pipeline release presented in this report.

ii. Identify whether contamination extends beyond the source property boundary, describe the off-site media (e.g., soil, groundwater, etc.) impacted, and the vertical and horizontal extent of off-site impacts.

Soil and groundwater impact is within property boundaries. Off-site surface water impacts in the Kinnickinnic River exhibit historical background levels. Sediment sampling and forensic evaluation of detected analytes are indicative of urban background.

iii. Identify any structural impediments to the completion of site investigation and/or remediation and whether these impediments are on the source property or off the source property. Identify the type and location of any structural impediment (e.g., structure) that also serves as the performance standard barrier for protection of the direct contact or the groundwater pathway.

The section of taxiway over the pipeline was removed, the pipeline replaced, and the soil adjacent to the pipeline was excavated and disposed of at Orchard Ridge Landfill except the small section described in Section 3Ai above.

B. Soil

i. Describe degree and extent of **soil contamination** at and from this site. Relate this to known or suspected sources and known or potential receptors/migration pathways.

Soil was excavated to expose the pipeline and soil samples were not collected to determine the extent of soil impact prior to excavating.

A relatively small amount of impacted soil was not excavated at the east end of the pipeline excavation due to the

proximity of the 250-foot offset for the main north-south runway.

ii. Describe the level and types of **soil contaminants** found in the upper four feet of the soil column.
Soil samples collected from MW-2 at depths less than 4 feet yielded DRO, GRO, ethylbenzene, toluene, xylenes, and naphthalene exceeding the former NR 720 Residual Contaminant Level (NR 720 RCL) or the former Interim PAH Guidance.

Soil samples collected from MW-3 at depths less than 4 feet yielded DRO, GRO, benzene, toluene, xylenes, and naphthalene exceeding the former NR 720 RCL or the former Interim PAH Guidance.

Although hydrocarbons were detected in soil, no exceedance of a direct contact standard was detected.

iii. Identify the ch. NR 720, Wis. Adm. Code, method used to establish the soil cleanup standards for this site. This includes a soil performance standard established in accordance with s. NR 720.08, a Residual Contaminant Level (RCL) established in accordance with s. NR 720.10 that is protective of groundwater quality, or an RCL established in accordance with s. NR 720.12 that is protective of human health from direct contact with contaminated soil. Identify the land use classification that was used to establish cleanup standards. Provide a copy of the supporting calculations/ information in Attachment C.
All of the soil excavated as part of the pipeline repair was disposed of at Orchard Ridge Landfill, including material that was not impacted with hydrocarbons. The reason for disposal of the soil at a landfill is because the soil could not be stockpiled on-site or used to backfill the pipeline excavation.

Soil cleanup standards were not established, however, the former NR 720 RCLs or the former Interim PAH Guidance for the protection of groundwater are presented on the summary tables.

C. Groundwater

i. Describe degree and extent of groundwater contamination at or from this site. Relate this to known or suspected sources and known or potential receptors/migration pathways. Specifically address any potential or existing impacts to water supply wells or interception with building foundation drain systems.
Over the last four quarters of groundwater sampling, exceedances of the NR 140 Preventive Action Limit (NR 140 PAL) were observed at MW-2, -3, and -4; and low-level exceedances of the NR 140 Enforcement Standard (NR 140 ES) were observed at MW-2 and MW-3. No exceedance of the NR 140 ES was detected over the last two groundwater sampling events. Dissolved phase hydrocarbon concentrations exceeding the NR 140 ES over the four recent quarters of monitoring consist of benzene, trimethylbenzenes, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene.

ii. Describe the presence of free product at the site, including the thickness, depth, and locations.
A thin, intermittent apparent hydrocarbon film was observed on the water table at MW-2, however, groundwater sampling analytical results did not indicate the presence of hydrocarbon impact to groundwater that are indicative of liquid-phase hydrocarbons.

D. Vapor

i. Describe how the vapor migration pathway was assessed, including locations where vapor or indoor air samples were collected. If the vapor pathway was not assessed, explain reasons why.
The vapor migration pathway was not assessed because no buildings are located in proximity to hydrocarbons detected in soil or groundwater.

ii. Identify the applicable DNR action levels and the land use classification used to establish them. Describe where the DNR action levels were reached or exceeded (e.g., sub slab, indoor air or both).
Not applicable.

E. Surface Water and Sediment

i. Identify whether surface water and/or sediment was assessed and describe the impacts found. If this pathway was not assessed, explain why.
Surface water and sediment samples were collected from the Kinnickinnic River Watershed as part of this investigation. Detected impacts are categorized as urban background.

ii. Identify any surface water and/or sediment action levels used to assess the impacts for this pathway and how these were derived. Describe where the DNR action levels were reached or exceeded.
The Milwaukee Metropolitan Sewerage District (MMSD) has been collecting surface water samples for decades prior to the pipeline jet fuel release. The results from the MMSD sampling in 2009 and 2010, which were collected prior to the pipeline release, revealed naphthalene and chrysene detections. Additionally, PAHs were detected in surface water samples (MKEREF100) collected up gradient of NWOF. Naphthalene and chrysene are constituents found in jet fuel and other petroleum products, and were detected in groundwater near the pipeline point of release, however, the surface water sample analyses completed by MMSD indicate these hydrocarbons had been detected in surface water prior to the pipeline release and therefore are not associated with the release.

Naphthalene concentrations at these locations range from 0.0065 JB µg/L at MKEREF100 in May 2012 to 0.036 JB µg/L at the NWOF in June 2012. Initially at MKESTR100, naphthalene was detected at a concentration of 3.2 µg/L on

February 2, 2012, indicating a reduction of two orders of magnitude in June 2012.

Chrysene concentrations at these locations range from approximately 0.0036 J µg/L at MKEREF100 in May 2012 to 0.020 JB µg/L at the NWOF in June 2012. Chrysene was detected at MKESTR100 on February 2, 2012 at a concentration of 0.013 J µg/L, indicating that there is no significant reduction of chrysene in surface water. However, up-gradient samples collected at MKEREF100 detected chrysene ranging from 0.0036 J to 0.012 J µg/L in May and June 2012. This indicates chrysene detections in surface water are at background levels.

The results of the comparison indicate surface water sample results collected several weeks following response activity in the Kinnickinnic River Watershed are similar to surface water analytical results collected before the pipeline fuel release.

Sediment samples were collected for hydrocarbon forensic analysis. The forensic analysis determined the detections in sediment are primarily pyrogenic, predominantly urban background, and none of the heavy petroleum residual detected originated from jet fuel. See Shell's 9/23/13 Sediment Sample Report and the meeting notes dated 10/23/13.

4. Remedial Actions Implemented and Residual Levels at Closure

A. General: Provide a brief summary of the remedial action history. List previous remedial action report submittals by name and date. Identify remedial actions undertaken since the last submittal for this project and provide the appropriate documentation in Attachment C.

All of the soil excavated to expose the jet fuel pipeline was disposed of at Orchard Ridge Landfill. Additional soil that exhibited indication of jet fuel impact was also excavated and disposed of at Orchard Ridge Landfill.

B. Describe any immediate or interim actions taken at the site under ch NR 708, Wis. Adm. Code.

Not Applicable.

C. Describe the *active* remedial actions taken at the site, including: type of remedial system(s) used for each media impacted; the size and location of any excavation or in-situ treatment; the effectiveness of the systems to address the contaminated media and substances; operational history of the systems; and summarize the performance of the active remedial actions. Provide any system performance documentation in Attachment A.7.

The soil was excavated primarily to expose the pipeline and allow repairs. Additional soil was excavated to remove impacted soil that was the result of the pipeline release.

D. Provide a discussion of the nature, degree and extent of residual contamination that will remain at the site or on off-site affected properties after case closure.

A relatively small amount of hydrocarbon impacted soil remains at the east end of the pipeline excavation. Excavation did not continue farther to the east because the 250-foot runway offset could not be safely breached.

E. Describe the remaining soil contamination within four feet of ground surface (direct contact zone) that attains or exceeds Residual Contaminant Levels established under s. NR 720. 12 , the ch. NR720, Wis. Adm. Code, for protection of human health from direct contact.

No soil impacts remain at the site where concentrations exceed the NR 720 direct contact standard.

F. Describe the remaining soil contamination in the vadose zone that attains or exceeds the soil standard(s) for the groundwater pathway.

The shallow water table results in a minimal vadose zone. Soil samples collected during monitoring well installation resulted in soil samples being collected within the smear zone. These soil samples are likely submerged, except during extended periods of dry weather.

G. Describe how the residual contamination will be addressed, including but not limited to details concerning: covers, engineering controls or other barrier features; use of natural attenuation of groundwater; and vapor mitigation systems or measures.

The relatively small amount of residual hydrocarbon impacted soil is not accessible for excavating, does not threaten receptors, and the resulting groundwater impacts are not migrating beyond the location of residual impacted soil.

H. If using natural attenuation as a groundwater remedy, describe how the data collected supports the conclusion that natural attenuation is effective in reducing contaminant mass and concentration, (e.g. stable or receding groundwater plume).

Nearly all of the hydrocarbon-impacted soil has been excavated and removed. Groundwater monitoring for nearly 8 quarters indicates decreasing dissolved-phase hydrocarbon impacts.

I. Identify how all exposure pathways were removed and/or adequately addressed by immediate and/or remedial action(s) described above in paragraphs, B, C, D, E and F.

All of the accessible hydrocarbon-impacted soil has been excavated and removed from the site. Although a small amount of attentuating hydrocarbon-impacted groundwater is present, no receptors are at risk of impact.

J. Identify any system hardware anticipated to be left in place after site closure, and explain the reasons why it will remain.

Not applicable.

Save...

K. Identify the need for a ch. NR 140, Wis. Adm. Code, groundwater Preventive Action Limit (PAL) or Enforcement Standard (ES) exemption, and identify the affected monitoring points and applicable substances.

Exceedances of the NR 140 PAL were observed at MW-2, -3, and -4; and low-level exceedances of the NR 140 ES were observed at MW-2 and MW-3. Hydrocarbon concentrations exceeding the NR 140 ES were detected during two of the last the four quarters of monitoring. Exceedances of the NR 140 ES consisted of benzene, trimethylbenzenes, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene. No exceedance of the NR 140 ES was detected over the last two groundwater sampling events.

L. If a DNR action level for vapor intrusion was exceeded (for indoor air, sub slab, or both) describe where it was exceeded and how the pathway was addressed.

Not applicable.

M. Describe the surface water and/or sediment contaminant concentrations and areas after remediation. If a DNR action level was exceeded, describe where it was exceeded and how the pathway was addressed.

Comparison of surface water sample results collected several weeks following response activity in the Kinnickinnic River Watershed are similar to surface water analytical results collected before the pipeline fuel release, indicating surface water hydrocarbon impacts are at urban background levels and not associated with the pipeline release.

Forensic analysis of sediment samples determined the detections are primarily pyrogenic, predominantly urban background, and none of the heavy petroleum residual detected originated from jet fuel. As a result, the sediment impacts are not the result of the pipeline release.

5. Continuing Obligations: Situations where a maintenance plan(s) and inclusion on DNR's GIS Registry are required.

Directions: Check all that apply to this case closure request:

	This scenario Applies to this Case Closure		Case Closure Scenario: Maintenance Plans and GIS Registry	Maintenance Plan (s) Required in Attachment D	GIS Registry Listing
	A. On-Site	B. Off-Site			
i.	☐	☐	Engineering Control/Barrier for Direct Contact	✓	✓
ii.	☐	☐	Engineering Control/Barrier for Groundwater Infiltration	✓	✓
iii.	☐	☐	Vapor Mitigation - post closure passive system	✓	✓
iv.	☐	☐	Vapor Mitigation - post closure active system	✓	✓
v.	☒	☐	None of the above scenarios apply to this case closure	NA	NA

6. Continuing Obligations: Situations where inclusion on DNR's GIS Registry is required.

Directions: Check all that apply to this case closure request:

	This scenario Applies to this Case Closure		Case Closure Scenario: GIS Registry Only	GIS Registry Listing
	A. On-Site	B. Off-Site		
i.	☒	☐	Residual soil contamination exceeds ch. NR 720 generic or site-specific RCLs	✓
ii.	☒	☐	Sites with groundwater contamination equal to or greater than the ch. NR 140, enforcement standards (ES)	✓
iii.	☐	☐	Monitoring wells: lost, transferred or remaining in use	✓
iv.	☐	☐	Structural Impediment (not as a performance standard)	✓
v.	☐	☐	Residual soil contamination remaining at ch. NR 720 Industrial Use levels	✓
vi.	☐	☐	Vapor intrusion may be future, post-closure issue if building use or land use changes	✓
vii.	☐	☐	None of the above scenarios apply to this case closure	NA

Save...

7. Underground Storage Tanks

A. Were any tanks, piping or other associated tank system components removed as part of the investigation or remedial action? ○ Yes ◉ No

B. Do any upgraded tanks meeting the requirements of ch. SPS 310, Wis. Adm. Code, exist on the property? ○ Yes ○ No

C. If the answer to question 7b is yes, is the leak detection system currently being monitored? ○ Yes ○ No

Data Tables (Attachment A)

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form.All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

General directions for Data Tables:

- Use bold and italics font on information of importance on tables and figures. Use **bold font** for ch. NR 140, Wis. Adm. Code, groundwater enforcement standard (ES) attainments or exceedances, and *italicized font* for ch. NR 140, Wis. Adm. Code, groundwater preventive action limit (PAL) standard attainments or exceedances.
- Do not use shading or highlighting on the analytical tables.
- Include on Data Tables the level of detection for results which are below the detection level (i.e. do not just list as no detect (ND)).
- Include the units on data tables.
- Summaries of all data must include information collected by previous consultants.
- Do not submit lab data sheets unless these have not been submitted in a previous report. Tabulate all data required in s. NR 716.15 (3)(c), Wis. Adm. Code, in the format required in s. NR 716.15(4)(e), Wis. Adm. Code.
- Include in Attachment A all of the following tables, in the order prescribed below, with the specific Closure Form titles noted on the separate attachments (e.g., Title: A.1. Groundwater Analytical Table; A.2. Pre-remedial Soil Analytical Table, etc).
- For required documents, each table (e.g., A.1., A.2., etc.,) should be a separate PDF.

A. Data Tables

A.1. **Groundwater Analytical Table(s):** Table(s) showing the analytical results and collection dates, for all groundwater sampling points e.g. monitoring wells, temporary wells, sumps, extraction wells, any potable wells and any other wells, extraction wells and any potable wells for which samples have been collected.

A.2. **Pre-remedial Soil Analytical Table(s):** Table(s) showing the soil analytical results and collection dates - prior to conducting the interim and/or remedial action. Indicate if sample was collected above or below the all-time low water table (unsaturated verses saturated).

A.3. **Post-remedial Soil Analytical Table(s):** Table(s) showing the post-remedial action soil analytical results and collection dates. Indicate if sample was collected above or below the all-time low water table (unsaturated verses saturated).

A.4. **Pre and Post Remaining Soil Contamination Soil Analytical Table(s):** Table(s) showing only the pre and post remedial action soil analytical results that exceed a Residual Contaminate Level (RCL) or a Site-Specific Residual Level (SSRCL).

A.5. **Vapor Analytical Table**: Table(s) showing type(s) of samples, sample collection methods, analytical method, sample results, date of sample collection, time period for sample collection, method and results of leak detection, and date, method and results of communication testing.

A.6. **Other Media of Concern (e.g., sediment or surface water)**: Table(s) showing type(s) of sample, sample collection method, analytical method, sample results, date of sample collection, time period for sample collection, method and results sampling.

A.7. **Water Level Elevations:** Table(s) showing all water level elevation measurements and dates from all monitoring wells. If present, free product should be noted on the table.

A.8. **Other:** This attachment should include: 1) any available tabulated natural attenuation data; 2) data tables pertaining to engineered remedial systems that document operational history, demonstrate system performance and effectiveness, and display emissions data; and (3) any other data tables relevant to case closure not otherwise noted above. If this section is not applicable, please explain the reasons why.

Maps and Figures (Attachment B)

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form. All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

General Directions for all Maps and Figures:

- If any map or figure is not relevant to the case closure request, you must fully explain the reason(s) why and attach that explanation (properly labeled with the map/ figure title) in Attachment B.
- Provide on paper no larger than 11 x 17 inches, unless otherwise directed by the Department. Maps and figures may be submitted in a larger electronic size than 11x17 inches, in a portable document format (pdf) readable by the Adobe Acrobat Reader. However, those larger-size documents must be legible when printed.
- Prepare visual aids, including maps, plans, drawings, fence diagrams, tables and photographs according to the applicable portions

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of ss. NR 716.15(4), 726.09(2) and 726.11(3), (5) and (6), Wis Adm. Code.

- Do not use shading or highlights on any of the analytical tables.
- Include all sample locations.
- Contour lines should be clearly labeled and defined.
- Include in Attachment B all of the following maps and figures, in the order prescribed below, with the specific Closure Form titles noted on the separate attachments (e.g., Title: B.1. Location Map; B.2. Detailed Site Map, etc).
- For the electronic copies that are required, each map (e.g., B.1.a., B.2.a, etc.,) should be a separate PDF.

B.1. Location Maps

B.1.a. **Location Map:** A map outlining all properties within the contaminated site boundaries on a U.S.G.S. topographic map or plat map in sufficient detail to permit easy location of all impacted and/or adjacent parcels. If groundwater standards are exceeded, include the location of all potable wells, including municipal wells, within 1200 feet of the area of contamination.

B.1.b. **Detailed Site Map:** A map that shows all relevant features (buildings, roads, current ground surface cover, individual property boundaries for on-site and applicable off-site properties, contaminant sources, utility lines, monitoring wells and potable wells) within the contaminated area. This map is to show the location of all contaminated public streets, and highway and railroad rights-of-way in relation to the source property and in relation to the boundaries of groundwater contamination exceeding a ch. NR 140 Enforcement Standard (ES), and/or in relation to the boundaries of soil contamination exceeding a Residual Contaminant Level (RCL) established in accordance with the provisions contained in s. NR 720.10 or s. NR 720.12, Wis. Adm. Code.

B.1.c. **RR Site Map:** From RR Sites Map (http://dnrmaps.wi.gov/sl/?Viewer=RR Sites) attach a map depicting the source property, and all open and closed BRRTS sites within a half-mile radius or less of the property.

B.2. Soil Figures

B.2.a. **Pre-remedial Soil Contamination:** Figure(s) showing the sample location of all pre-remedial, unsaturated contaminated soil and a single contour showing the horizontal extent of each area of contiguous residual soil contamination that exceeded a Residual Contaminant Level (RCL) established in accordance with the provisions contained in s. NR 720.10 or s. NR 720.12, Wis. Adm. Code.

B.2.b. **Post-remedial Soil Contamination :** Figure(s) showing the sample location of all post-remedial, unsaturated contaminated soil and a single contour showing the horizontal extent of each area of contiguous residual soil contamination that exceeds a Residual Contaminant Level (RCL) established in accordance with the provisions contained in s. NR 720.10 or s. NR 720.12, Wis. Adm. Code. A separate contour line should be used to indicate the extent of residual direct contact exceedances.

B.2.c. **Pre/Post Remaining Soil Contamination:** Figure(s) showing the only location of all pre and post remedial residual soil sample location(s) where unsaturated contaminated soil remains after remediation and a single contour showing the horizontal extent of each area of contiguous residual soil contamination that exceeds a Residual Contaminate Level (RCL) established in accordance with the provisions contained in s. NR 720.10 or s. NR 720.12, Wis. Adm. Code. A separate contour line should be used to indicate the extent of residual direct contact exceedances.

B.3. Groundwater Figures

B.3.a. **Geologic Cross-Section Figure(s):** One or more cross-section diagrams showing soil types and correlations across the site, water table and piezometric elevations, and locations and elevations of geologic rock units, if encountered. Display on one or more figures all of the following:

- Source location(s) and vertical extent of residual soil contamination exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL).
- Source location(s) and lateral and vertical extent if groundwater contamination exceeds a ch. NR 140 Enforcement Standard (ES)
- Surface features, including buildings and basements, and show surface elevation changes.
- Any areas of active remediation within the cross section path, such as excavations or treatment zones.
- Include a map displaying the cross-section location(s), if they are not displayed on the Detailed Site Map (Map B.1b)

B.3.b. **Groundwater Isoconcentration:** Figure(s) showing the horizontal extent of the post-remedial groundwater contamination exceeding a ch. NR 140, Wis. Adm. Code, Preventive Action Limit (PAL) and/or an Enforcement Standard (ES). Indicate the date and direction of groundwater flow based on the most recent sampling data.

B.3.c. **Groundwater Flow Direction:** Figure(s) representing groundwater movement at the site. If the flow direction varies by more than 20° over the history of the site, submit two groundwater flow maps showing the maximum variation in flow direction.

B.3.d. **Monitoring Wells:** Figure(s) showing all monitoring wells, with well identification number. Clearly designate any wells that: (1) are proposed to be abandoned; (2) cannot be located; (3) are being transferred; (4) will be retained for further sampling, or (5) have been previously abandoned.

B.4. Vapor Maps and Other Media

B.4.a. **Vapor Intrusion Map:** Map(s) showing all locations and results for samples taken to investigate the vapor intrusion pathway, in relation to remaining soil and groundwater contamination, including sub-slab, indoor air, soil vapor,

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ambient air, and communication testing. Show locations and footprints of affected structures and utility corridors, and/or where residual contamination poses a future risk of vapor intrusion.

B.4.b. **Other media of concern (e.g., sediment or surface water**): Map(s) showing all sampling locations and results for other media investigation. Include the date of sample collection and identify where any standards are exceeded.

B.4.c. **Other:** Include any other relevant maps and figures not otherwise noted above. (This section may remain blank)

Documentation of Remedial Action (Attachment C)

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form. All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

General Directions:

- Include in Attachment C all of the following documentation, in the order prescribed below, with the specific Closure Form titles noted on the separate attachments (e.g., Title: C.1. Site Investigation Documentation; C.2. Investigative Waste, etc).
- If the documentation requested below is "not applicable" to the site-specific circumstances, include a brief explanation to support that conclusion.
- If the documentation requested below has already been submitted to the Department, please note the title and date of the report for that particular document requested.

C.1. **Site investigation documentation,** that has not otherwise been previously submitted.

C.2. **Investigative waste** disposal documentation.

C.3. **Provide a description of the methodology used along with all supporting documentation if the Residual Contaminant Levels are different than those contained in the Department's RCL Spreadsheet available at: http://dnr.wi.gov/topic/Brownfields/Professionals.html.**

C.4. **Construction documentation** or as-built report for any constructed remedial action or portion of, or interim action specified in s. NR 724.02(1), Wis. Adm. Code.

C.5. **Decommissioning of Remedial Systems. I**nclude plans to properly abandon any systems or equipment upon receiving conditional closure.

C.6. **Photos. F**or sites or facilities with a cover or other performance standard, a structural impediment or a vapor mitigation system. Include one or more photographs documenting the condition and extent of the feature at the time of the closure request. Pertinent features should be visible and discernible. Photographs must be labeled with the site name, the features shown, location and the date on which the photograph was taken.

C.7. **Other**. Include any other relevant documentation not otherwise noted above. (This section may remain blank)

Maintenance Plan(s) and Photographs (Attachment D)

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form. All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

When one or more "maintenance plans" are required for a site closure, include in each maintenance plan all required information listed below, and attach the plan(s) in Attachment D. The following "model" maintenance plans can be located at: (1) Maintenance plan for a engineering control or cover: http://dnr.wi.gov/topic/Brownfields/documents/maintenance-plan.pdf; and (2) Maintenance plan for vapor intrusion: http://dnr.wi.gov/topic/Brownfields/documents/appendix5_606.pdf.

D.1. **Location map(s)** which show(s): (1) the feature that requires maintenance; (2) the location of the feature(s) that require(s) maintenance - on and off the source property; (3) the extent of the structure or feature(s) to be maintained, in relation to other structures or features on the site; (4) the extent and type of residual contamination; and (5) and all property boundaries.

D.2. **Brief descriptions** of the type, depth and location of residual contamination.

D.3. **Description of maintenance action(s)** required for maximizing effectiveness of the engineered control, vapor mitigation system, feature or other action for which maintenance is required.

D.4. **Inspection log**, to be maintained on site, or at a location specified in the maintenance plan or approval letter.

D.5. **Contact information,** including the name, address and phone number of the individual or facility who will be conducting the maintenance.

D.6 Photographs

D.6.a. For site or facilities with a cover or other performance standard, a structural impediment or a vapor mitigation system, include one or more photographs documenting the condition and extent of the feature at the time of the closure request. Pertinent features shall be visible and discernible.

D.6.b. Photographs shall be submitted with a title related to the site name and location, and the date on which it was taken.

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Monitoring Well Information (Attachment E)

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form. All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

General Directions:

Attach monitoring well construction and development forms (DNR FORM 4400-113 A and B: http://dnr.wi.gov/topic/groundwater/documents/forms/4400_113_1_2.pdf) for all wells that will remain in-use, be transferred to another party or that could not be located. A figure of these wells should be included in Attachment B.3.d.

Select One:

- ○ No monitoring wells were required as part of this response action.
- ◉ All monitoring wells have been located and will be properly abandoned upon the DNR granting conditional closure to the site
- ○ ***Select One or More:***
  - ☐ Not all monitoring wells can be located, despite good faith efforts. Attachment E must include description of efforts made to locate the "lost" wells.
  - ☐ One or more wells will be transferred to another owner upon case closure being granted. Attachment E should include documentation identifying the name, address and email for the new owner(s).
  - ☐ One or more wells will remain in use at the site after this closure. Attachment E must include documentation as to the reason(s) the well(s) will remain in use.

Notifications to Owners of Impacted Properties (Attachment F)

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form. All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

General Directions:

- State law requires that the responsible party provide a 30-day, written advance notice (i.e., a letter) to certain persons prior to applying for case closure. This requirement applies if: (1) the person conducting the response action does not own the source property; (2) the contamination has migrated onto another property; and/or (3) one or more monitoring wells will not be abandoned.
- Use of Form 4400-286, Notification of Residual Contamination and Continuing Obligations, is required under ch. NR 725 for notifying property owners and right-of-way holders about residual contamination affecting their properties, and of continuing obligations which may be imposed. This form can be downloaded at http://dnr.wi.gov/files/PDF/forms/4400/4400-286.pdf.

Check all that apply to the site-specific circumstances of this case closure:

	A. Impacted Source Property and Owner is not Conducting Cleanup	B. Impacted Right of Way	C. Impacted Off-Site Property Owner	Impacted Property Notification Situations: Ch. NR 726 Appendix A Letter
1.	☒	☐	☐	Residual groundwater contamination exceeds Ch. NR 140 Wis. Administrative Code enforcement standards.
2.	☒	☐	☐	Residual soil contamination that attains or exceeds standards is present after the remedial action is complete, and must be properly managed should it be excavated or removed.
3.	☐	☐	☐	An engineered cover or a soil barrier (e.g. pavement) must be maintained over contaminated soil for direct contact or groundwater infiltration concerns.
4.	☐	☐	☐	Industrial land use soil standards were used for the clean-up standard.
5.	☐	☐	☐	A vapor mitigation system (or other specific vapor protection) must be operated and maintained.
6.	☐	☐	☐	Vapor assessment needed if use changes.
7.	☐	☐	☐	Structural impediment.
8.	☐	☐	☐	Lost, transferred or open monitoring wells.
9.	☐	☐	☐	Not Applicable.

If any of the previous boxes in rows 1 thru 8 were checked, include the following as part of Attachment F:

- FORM 4400-246;
- Copy of each letter sent, 30 days or more prior to requesting closure; and
- Proof of receipt for each letter.
- For this site closure, _____ (number) property (ies) has/have been impacted, the owners have been notified, and copies of the letters and receipts are included in Attachment F.

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Source Legal Documents (Attachment G)

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form.All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

Include all of the following documents, in this order, in Attachment G:

G.1. **Deeds - Source Property and Other Impacted Properties:** The most recent deed with legal descriptions clearly labeled for (1) the **Source Property** (where the contamination originated) and (2) all **off-source** (off-site) properties where letters were required to be sent per the ch. NR 700, Wis. Adm. Code, rule series (e.g., off-site cover maintenance required, lost monitoring well, off-site cover property impacts to groundwater exceeding the ch. NR 140, Wis. Adm. Code.

Note: *If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.*

G.2. ***Certified Survey Map:*** *A copy of the certified survey map or the relevant section of the recorded plat map for those properties where the legal description in the most recent deed refers to a certified survey map or a recorded plat map.* (Lots on subdivided or platted property (e.g. lot 2 of xyz subdivision)).

G.3. **Verification of Zoning**: Documentation (e.g., official zoning map or letter from municipality) of the property's or properties' current zoning status.

G.4. **Signed Statement:** A statement signed by the Responsible Party (RP), which states that he or she believes that the attached legal description(s) accurately describe(s) the correct contaminated property or properties.

Signatures and Findings for Closure Determination

If any section is not relevant to the case closure request, you must fully explain the reasons why and attach that explanation to the relevant section of the form. All information submitted shall be legible. Providing illegible information may result in a submittal being considered incomplete until corrected.

Check the correct box for this case closure request, and have either a professional engineer or a hydrogeologist, as defined in ch. NR 712, Wis. Adm. Code, sign this document.

☒ A response action(s) for this site addresses groundwater contamination (including natural attenuation remedies).

☒ The response action(s) for this site addresses media other than groundwater.

Engineering Certification

I _____ hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this case closure request has been prepared by me or prepared under my supervision in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this case closure request is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code. Specifically, with respect to compliance with the rules, in my professional opinion a site investigation has been conducted in accordance with ch. NR 716, Wis. Adm. Code, and all necessary remedial actions have been completed in accordance with chs. NR 140, NR 718, NR 720, NR 722, NR 724 and NR 726, Wis. Adm. Codes."

_____ Printed Name

_____ Title

_____ Signature

_____ Date

_____ P.E. Stamp and Number

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Hydrogeologist Certification

I Kurt McClung hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this case closure request is correct and the document was prepared by me or prepared by me or prepared under my supervision and, in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code. Specifically, with respect to compliance with the rules, in my professional opinion a site investigation has been conducted in accordance with ch. NR 716, Wis. Adm. Code, and all necessary remedial actions have been completed in accordance with chs. NR 140, NR 718, NR 720, NR 722, NR 724 and NR 726, Wis. Adm. Codes."

Kurt McClung	Senior Hydrogeologist
Printed Name	Title
Signature	5/20/14 Date

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ATTACHMENT A

Data Tables

A.1 Groundwater Analytical Table

A.2.a Pre-Remedial Soil Analytical Table— Excavation

A.2.b Pre-Remedial Soil Analytical Table— Monitoring Wells

A.3 Post-Remedial Soil Analytical Table— **Not Applicable**
Excavation was to expose & repair the pipeline; see A.2.a for sample results

A.4 Pre and Post Remaining Soil Contamination Soil Analytical Table

A.5 Vapor Analytical Table— **Not Applicable**
No buildings are present near soil impacts; no vapor samples were collected

A.6.a.1 Surface Water Sample Analytical Table (DRO, GRO, PVOCs)

A.6.a.2 Surface Water Sample Analytical Table (PAH)

A.6.b Sediment Sample Analytical Table

A.7 Water Level Elevations

A.8 Natural Attenuation Field Parameters Table

TABLE A.1
Groundwater Analytical Results
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-1 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
3/22/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
4/24/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
8/2/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
11/2/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
2/21/2013	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
5/10/2013	<32.4	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5
8/1/2013	<34.9	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5

MW-2 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
3/22/2012	3,270	*243*	*143*	**22.0**	<0.24	84.7	16.3	*227*	*491*	31.5	20.5	8.8	*46.4*
4/23/2012	1,400	*78.2*	*72.6*	*3.4*	<0.24	22.4	4.0	54.8	136.4	7.00	9.5	2.9 J	*11.8*
8/2/2012	752	*88.3*	*42.0*	*3.1*	<0.24	39.5	9.2	0.99 J	64.6	16.8	15.7	5.8	*17.0*
11/2/2012	3,720	**604**	**154**	**18.1**	<2.4	*203*	31.6	<6.7	*455.8*	59.1	21.8	18.9 J	*92.4*
2/21/2013	2,170	**431**	**136**	<1.6	<0.96	68.1	17.3	<2.7	248.9	26.8	20.4	13.5 J	*59.0*
5/10/2013	1,960	*188*	*71.0*	<1.0	<0.78	31.7	10.3	<0.88	105.4	15.8	13.4	9.0 J	*29.9*
8/1/2013	1,550	*256*	*79.2*	*3.3*	<0.78	82.0	19.6	<0.88	93.4	26.3	12.5	12.7	*68.5*

MW-3 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
3/22/2012	1,400	*38.9*	*84.2*	*0.63 J*	0.41 J	4.7	3.4	7.6	87.8	5.3	15.8	3.1 J	4.6 J
3/22/2012 D	1,410	*37.1*	*77.9*	<0.82	<0.48	4.5	2.8	7.2	81.1	4.9	14.1	2.7 J	4.7 J
4/23/2012	1,190	*56.2*	*50.5*	*0.88 J*	<0.24	9.6	2.6	17.5	84.5	4.8	7.1	1.9 J	9.0
8/1/2012	246	8.1	5.3	*2.2*	<0.24	6.0	0.83 J	<0.67	9.4	1.8	1.1	<0.89	3.0 J
8/1/2012 D	179	3.0	2.2	*0.67 J*	<0.24	1.8	<0.59	<0.67	3.2 J	<0.81	<0.67	<0.89	1.1 J
11/1/2012	192	9.6	4.6	*0.95 J*	<0.24	3.8	0.92 J	<0.67	<2.63	1.7	1.2	<0.89	4.1 J
2/21/2013	317	41.5	15.6	<0.41	<0.24	6.5	2.7	<0.67	2.3	5.5	2.9	2.4 J	8.5
5/9/2013	150	19.5	6.8	*1.6*	<0.39	4.9	1.2	<0.44	13.6	2.0	1.1	0.70 J	4.2 J
5/9/2013 D	141	17.3	6.1	*1.6*	<0.39	4.7	1.1	<0.44	12.9	2.0	0.99 J	<0.60	4.2 J
8/1/2013	36.5 J	4.3 J	<2.5	<0.50	<0.39	0.57 J	<0.34	<0.44	<1.32	0.57 J	0.51 J	<0.60	<2.5

TABLE A.1
Groundwater Analytical Results
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-4 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
3/22/2012	459	44	19.5	*0.92 J*	<0.24	13.9	2.4	17.9	50.6	4.5	3.4	1.6 J	9.0
4/24/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
8/1/2012	41.0 J	8.2	3.3	<0.41	<0.24	1.9	<0.59	1.8	6.6	0.92 J	<0.67	<0.89	1.3 J
11/2/2012	95.7	11.5	4.2	<0.41	<0.24	2.2	0.70 J	0.83 J	6.1	1.4	1.0	<0.89	1.7 J
2/21/2013	70.4	6.9	2.8	<0.41	<0.24	1.9	0.66 J	<0.67	<2.63	1.2	<0.67	<0.89	1.4 J
5/9/2013	37.9 J	6.8	2.8 J	<0.50	<0.39	1.5	0.40 J	0.76 J	5.7	0.65 J	<0.40	<0.60	<2.5
8/1/2013	55.6	10.9	3.5 J	<0.50	<0.39	0.91 J	0.55 J	<0.44	3.0 J	1.3	<0.40	<0.60	<2.5

MW-5 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
3/22/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
4/23/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
4/23/2012 D	<32.4	<0.97	<0.83	<0.41	0.87 J	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
8/1/2012	<32.4	<0.97	<0.83	<0.41	0.49 J	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
11/1/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
2/21/2013	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
5/10/2013	<32.4	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5
8/1/2013	<34.9	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5

MW-6 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
3/22/2012	45.1 J	3.6	1.1	<0.41	<0.24	0.70 J	<0.59	1.2	2.63 J	<0.81	<0.67	<0.89	<0.89
4/24/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
8/1/2012	<32.4	<0.97	<0.83	<0.41	0.65 J	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
11/1/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
2/21/2013	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
5/10/2013	<32.4	<0.57	<2.5	<0.50	0.52 J	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5
8/1/2013	<34.9	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5

TABLE A.1
Groundwater Analytical Results
GMIA Pipeline Fuel Release
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MW-7 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
4/23/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
8/2/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
11/1/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
11/1/2012 D	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
2/21/2013	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
2/21/2013 D	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
5/10/2013	<32.4	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5
8/1/2013	<34.9	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5
8/1/2013 D	<34.9	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5

MW-8 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
4/24/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
8/1/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
11/2/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
2/21/2013	35.3 J	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
5/9/2013	<32.4	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5
8/1/2013	<34.9	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5

MW-9 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
5/16/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
8/2/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
11/1/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
2/21/2013	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
5/9/2013	<32.4	0.85 J	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5
8/1/2013	<34.9	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5

TABLE A.1
Groundwater Analytical Results
GMIA Pipeline Fuel Release
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MW-10 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
5/16/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
8/1/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
11/1/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
2/21/2013	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
5/9/2013	<32.4	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5
8/1/2013	<34.9	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5

MW-11 Volatile Organic Compounds

Date	GRO µg/L	1,2,4-TMB µg/L	1,3,5-TMB µg/L	Benzene µg/L	Chloromethane µg/L	Ethylbenzene µg/L	Isopropylbenzene (Cumene) µg/L	Toluene µg/L	Total Xylenes µg/L	n-Propylbenzene µg/L	p-Isopropyltoluene µg/L	sec-Butylbenzene µg/L	Naphthalene µg/L
NR 140 PAL	*NS*	*96*		*0.5*	*3.0*	*140*	*NS*	*160*	*400*	*NS*	*NS*	*NS*	*10*
NR 140 ES	*NS*	*480*		*5.0*	*30*	*700*	*NS*	*800*	*2,000*	*NS*	*NS*	*NS*	*100*
5/16/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
8/1/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
11/2/2012	<32.4	<0.97	<0.83	<0.41	<0.24	<0.54	<0.59	<0.67	<2.63	<0.81	<0.67	<0.89	<0.89
2/21/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5/10/2013	<32.4	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5
8/1/2013	<34.9	<0.57	<2.5	<0.50	<0.39	<0.50	<0.34	<0.44	<1.32	<0.50	<0.40	<0.60	<2.5

Notes:

Exceedance of the Wisconsin Administrative Code Chapter NR 140 groundwater enforcement standard is depicted in **BOLD**.

Exceedance of the Wisconsin Administrative Code Chapter NR 140 groundwater preventive action limit is depicted in *italics*.

Results are expressed in µg/L (ppb).

J Estimated concentration detected between the detection limit and reporting limit.

D Duplicate sample.

NS No Standard

GRO Gasoline Range Organics

DRO Diesel Range Organics

1,2,4-TMB 1,2,4-Trimethylbenzene

1,3,5-TMB 1,3,5-Trimethylbenzene

NA Not Acquired- MW-11 was frozen during the 2/21/2013 sampling event.

TABLE A.1
Groundwater Analytical Results
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
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MW-1 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
3/22/2012	32 J	<0.0048	<0.0038	<0.0061	<0.0038	<0.0030	<0.0036	<0.0051	<0.0046	<0.0037	<0.0047	<0.0051	<0.0050	<0.0086	<0.0050
4/24/2012	25 J	<0.0047	<0.0037	<0.0060	<0.0038	<0.0030	0.0044 J	<0.0050	<0.0045	0.0049 J	0.0071 J	<0.0050	<0.0049	<0.0084	0.0068 J
8/2/2012	26 J	<0.0045	<0.0036	<0.0057	<0.0036	<0.0029	<0.0034	<0.0048	<0.0044	<0.0035	<0.0044	<0.0048	<0.0047	<0.0081	<0.0047
11/3/2012	12 J	<0.0034	<0.0034	<0.0030	<0.0048	<0.0048	<0.0051	<0.0060	<0.0054	<0.0052	<0.0037	<0.0034	<0.0059	<0.0093	<0.0047
2/21/2013	<11	0.013 J	<0.0041	0.0079 J	<0.0056	<0.0058	<0.0079	<0.0095	<0.012	<0.0073	0.018 J,B	0.019 J	<0.0068	0.068 B	0.014 J
5/10/2013	57	<0.0043	<0.0039	<0.0054	<0.0053	<0.0055	<0.0075	<0.0090	<0.012	<0.0069	<0.0058	<0.0043	<0.0065	<0.0043	<0.0059
8/1/2013	<20	<0.0042	<0.0038	0.0056 J,B	0.0095 J	<0.0054	<0.0074	<0.0088	<0.011	0.011 J	0.027 J	0.0055 J	<0.0064	0.018 J,B	0.025 J

MW-2 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
3/22/2012	1,700	0.39	0.21	0.27	0.035 J	0.0091 J	0.011 J	<0.0050	0.012 J	*0.032 J*	0.4	0.76	<0.0049	0.73	0.24
4/23/2012	1,400	0.41	0.068 J	0.23 J	0.28	0.13 J	*0.12 J*	0.050 J	0.12 J	**0.28**	1.2	0.43	0.035 J	0.096 J	1.0
8/2/2012	1,000	<0.0046	<0.0036	<0.0058	<0.0037	<0.0029	<0.0034	<0.0049	<0.0044	<0.0035	<0.0044	<0.0048	<0.0047	<0.0082	<0.0048
11/3/2012	2,100	<0.38	<0.38	0.39 J	<0.54	<0.54	<0.58	<0.68	<0.61	<0.59	1.1 J	0.78 J	<0.67	1.1 J	0.91 J
2/21/2013	2,700	<0.44	<0.40	<0.55	<0.54	<0.56	<0.77	<0.92	<1.2	<0.70	1.4 J,B	0.86 J	<0.66	1.3 J,B	1.1 J,B
5/10/2013	2,300	0.25 J	<0.16	<0.22	<0.21	<0.22	<0.30	<0.36	<0.46	<0.28	0.59 J	0.42 J	<0.26	0.35 J	0.38 J
8/1/2013	3,900	<0.43	<0.39	<0.54	<0.53	<0.55	<0.75	<0.90	<1.2	<0.69	<0.58	0.64 J	<0.65	0.56 J,B	<0.59

MW-3 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
3/22/2012	1,300	1.1	0.13 J	1.2	0.24 J	*0.059 J*	0.071 J	<0.050	0.060 J	**0.25 J**	3.1	0.85	<0.049	<0.084	1.7
3/22/2012 D	1,100	1.5	0.17 J	1.2	0.21 J	*0.049 J*	0.053 J	<0.050	0.054 J	0.19 J	2.9	1.1	<0.048	<0.083	1.7
4/23/2012	1,800	1.4	0.11 J	0.96	0.51	*0.16 J*	0.14 J	0.060 J	0.17 J	**0.44 J**	4.0	1.0	0.055 J	<0.082	2.9
8/1/2012	4,300	0.058 J	0.11	0.29	0.11	**0.39**	**0.36**	0.17	0.28	**0.22**	0.56	0.026 J	0.15	0.023 J	0.70
8/1/2012 D	5,600	0.11 J	0.14 J	0.37	0.12 J	**0.32**	**0.29**	0.17 J	0.22	*0.20*	0.78	1.0	0.16 J	0.037 J	0.73
11/1/2012	3,500	0.071	0.016 J	0.15	0.19	**0.22**	**0.21**	0.089	0.18	**0.26**	0.45	0.16	0.085	0.084	0.53
2/21/2013	420	0.71	0.14 J	0.55	1.0	**0.90**	**1.1**	0.66	0.62	**0.89**	2.8	0.68	0.59	1.2 B	2.3
5/9/2013	690	0.33	0.042 J	0.088 J	0.093 J	*0.062 J*	*0.064 J*	0.021 J	0.041 J	*0.10*	0.65	0.27	0.016 J	0.074 J,B	0.54
5/9/2013 D	650	0.30	0.037 J	0.074 J	0.079 J	*0.059 J*	*0.059 J*	0.020 J	0.038 J	*0.088 J*	0.56	0.25	0.015 J	0.063 J	0.46
8/1/2013	340	0.0062 J	0.012 J	0.033 J	0.0074 J	0.020 J	*0.023 J*	0.021 J	0.012 J	0.018 J	0.015 J	0.010 J	0.014 J	0.026 J	0.016 J

TABLE A.1
Groundwater Analytical Results
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-4 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
3/22/2012	300	0.084	0.017 J	0.044 J	0.026 J	0.010 J	0.0099 J	0.0070 J	0.013 J	*0.024 J*	0.15	0.038 J	0.0055 J	<0.0084	0.1
4/24/2012	350	0.0050 J	0.0058 J	0.012 J	0.017 J	0.0056 J	0.011 J	0.0061 J	0.0050 J	0.012 J	0.030 J	<0.0050	0.0061 J	0.011 J	0.075
8/1/2012	210	<0.0046	<0.0037	<0.0058	<0.0037	<0.0029	<0.0035	<0.0049	<0.0045	<0.0035	<0.0045	<0.0049	<0.0048	<0.0082	<0.0048
11/2/2012	240	0.019 J	0.0038 J	0.0068 J	0.0047 J	<0.0045	<0.0048	<0.0057	<0.0051	0.0067 J	0.025 J	0.017 J	<0.0056	<0.0088	0.051
2/21/2013	98	<0.0045	<0.0041	0.0061 J	0.016 J	0.020 J	*0.042 J*	0.044 J	0.019 J	*0.024 J*	0.045 J,B	0.0088 J	0.039 J	0.058 B	0.082
5/9/2013	130	0.017 J	<0.0040	<0.0055	<0.0054	<0.0056	<0.0077	<0.0092	<0.012	<0.0070	<0.0059	0.0096 J	<0.0066	0.013 J	0.0080 J
8/1/2013	64	<0.0043	<0.0039	<0.0053	<0.0052	<0.0054	<0.0074	<0.0089	<0.011	<0.0068	<0.0057	<0.0043	<0.0064	0.0076 J,B	0.0098 J

MW-5 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
3/22/2012	44 J	0.012 J	<0.0038	0.0064 J	<0.0038	<0.0030	<0.0036	<0.0050	<0.0046	<0.0037	0.0062 J	0.011 J	<0.0049	0.030 J	<0.0050
4/23/2012	13 J	<0.0048	<0.0038	<0.0061	<0.0038	<0.0030	<0.0036	<0.0051	<0.0046	<0.0037	0.0077 J	<0.0051	<0.0050	<0.0086	0.010 J
4/23/2012 D	18 J	<0.0048	<0.0038	<0.0061	<0.0038	<0.0030	<0.0036	<0.0051	<0.0046	<0.0037	<0.0047	<0.0051	<0.0050	<0.0086	0.0059 J
8/1/2012	38 J	0.0053 J	<0.0040	<0.0064	<0.0040	<0.0032	<0.0038	<0.0054	<0.0049	0.0040 J	0.0066 J	<0.0053	<0.0052	<0.0090	<0.0053
11/1/2012	<10	0.0037 J	<0.0031	<0.0027	<0.0044	<0.0044	<0.0047	<0.0056	<0.0050	<0.0048	0.0094 J	0.0036 J	<0.0055	0.019 J	0.0071 J
2/21/2013	<10	<0.0043	<0.0039	<0.0054	<0.0053	<0.0055	<0.0075	<0.0090	<0.012	<0.0069	0.0090 J,B	0.0072 J	<0.0065	0.019 J,B	0.0013 J,B
5/10/2013	24 J	<0.0043	<0.0039	<0.0054	<0.0053	<0.0055	<0.0075	<0.0090	<0.012	<0.0069	0.0097 J	<0.0043	<0.0065	0.011 J	0.0089 J
8/1/2013	80	<0.0045	<0.0041	<0.0057	<0.0056	<0.0058	<0.0079	<0.0095	<0.012	<0.0073	<0.0061	0.0055 J	<0.0068	0.0092 J,B	<0.0062

MW-6 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
3/22/2012	180	0.013 J	0.0058 J	<0.0061	<0.0039	<0.0031	<0.0036	<0.0052	<0.0047	0.0039 J	0.013 J	0.015 J	<0.0050	0.032 J	0.0096 J
4/24/2012	330	<0.0048	0.0093 J	0.019 J	0.0050 J	0.0036 J	0.0051 J	<0.0052	<0.0047	0.0053 J	0.0095 J	<0.0051	<0.0050	0.022 J	0.036 J
8/1/2012	430	<0.0046	<0.0037	0.0086 J	<0.0037	<0.0029	<0.0035	<0.0049	<0.0045	<0.0035	0.0069 J	<0.0049	<0.0048	<0.0082	0.017 J
11/1/2012	130	0.0056 J	<0.0031	0.0052 J	<0.0044	<0.0044	<0.0046	<0.0055	<0.0049	<0.0047	0.0079 J	<0.0031	<0.0054	0.011 J	0.010 J
2/21/2013	140	0.0062 J	<0.0038	<0.0053	<0.0052	<0.0054	<0.0074	<0.0088	<0.011	<0.0068	0.0065 J,B	0.0076 J	<0.0064	0.017 J,B	0.011 J,B
5/10/2013	340	0.0056 J	<0.0040	<0.0056	<0.0055	<0.0057	<0.0077	<0.0093	<0.012	<0.0071	0.0099 J	<0.0044	<0.0067	0.012 J	0.015 J
8/1/2013	100	0.0083 J	<0.0038	<0.0052	<0.0051	<0.0053	<0.0072	<0.0087	<0.011	<0.0066	<0.0056	0.0046 J	<0.0062	0.010 J,B	0.0071 J

TABLE A.1
Groundwater Analytical Results
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-7 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
4/23/2012	87	<0.0046	<0.0036	<0.0058	<0.0037	<0.0029	<0.0034	<0.0049	<0.0044	<0.0035	<0.0044	<0.0048	<0.0047	<0.0082	<0.0048
8/2/2012	65	<0.0046	<0.0036	<0.0058	0.013 J	0.0090 J	0.012 J	0.0083 J	0.013 J	0.018 J	0.0073 J	<0.0048	0.0089 J	<0.0082	0.0072 J
11/1/2012	90	<0.0031	<0.0031	0.0032 J	<0.0044	<0.0044	<0.0047	<0.0055	<0.0050	<0.0048	0.0068 J	<0.0031	<0.0054	0.016 J	0.0058 J
11/1/2012 D	71	<0.0031	<0.0031	<0.0027	<0.0044	<0.0044	<0.0047	<0.0056	<0.0050	<0.0048	0.0069 J	<0.0031	<0.0055	0.018 J	0.0058 J
2/21/2013	92	<0.0043	<0.0039	<0.0054	<0.0053	<0.0055	<0.0075	<0.0090	<0.012	<0.0069	0.0091 J,B	<0.0043	<0.0065	0.0092 J,B	0.010 J,B
2/21/2013 D	90	<0.0043	<0.0039	<0.0053	<0.0052	<0.0054	<0.0074	<0.0089	<0.011	<0.0068	<0.0057	<0.0043	<0.0064	0.0066 J,B	<0.0058
5/10/2013	180	<0.0043	<0.0039	<0.0054	<0.0053	<0.0055	<0.0075	<0.0090	<0.012	<0.0069	0.0096 J	<0.0043	<0.0065	0.0071 J	0.0080 J
8/1/2013	85	0.0060 J	<0.0039	0.0083 J	<0.0053	<0.0055	<0.0075	<0.0090	<0.012	<0.0069	0.012 J	0.013 J	<0.0065	0.038 J,B	0.011 J
8/1/2013 D	64	<0.0046	<0.0041	<0.0057	<0.0056	<0.0059	<0.0080	<0.0096	<0.012	<0.0073	0.012 J	0.0070 J	<0.0069	0.015 J,B	0.011 J

MW-8 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
4/24/2012	31 J	<0.0047	<0.0037	<0.0060	0.0097 J	0.0050 J	0.0094 J	0.0066 J	0.0080 J	0.012 J	0.0097 J	<0.0050	0.0063 J	<0.0084	0.0096 J
8/1/2012	81	<0.0046	<0.0036	0.0066 J	<0.0037	<0.0029	<0.0034	<0.0049	<0.0044	0.0039 J	<0.0044	<0.0048	<0.0047	<0.0082	0.034 J
11/2/2012	180	<0.0033	<0.0033	<0.0029	<0.0047	<0.0047	<0.0050	<0.0059	<0.0053	<0.0051	<0.0036	<0.0033	<0.0058	<0.0091	<0.0046
2/21/2013	84	<0.0044	<0.0040	<0.0056	<0.0055	<0.0057	<0.0077	<0.0093	<0.012	<0.0071	<0.0060	<0.0044	<0.0067	0.0060 J,B	<0.0061
5/9/2013	49	<0.0044	<0.0040	<0.0055	<0.0054	<0.0056	<0.0077	<0.0092	<0.012	<0.0070	<0.0059	<0.0044	<0.0066	<0.0044	<0.0060
8/1/2013	44 J	<0.0039	<0.0036	<0.0050	<0.0049	<0.0050	<0.0069	<0.0083	<0.011	<0.0063	<0.0053	<0.0039	<0.0060	0.0072 J,B	<0.0054

MW-9 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
5/16/2012	60	<0.0048	<0.0038	<0.0061	<0.0038	<0.0030	<0.0036	<0.0051	<0.0046	<0.0037	<0.0047	<0.0051	<0.0050	<0.0086	<0.0050
8/2/2012	59	<0.0046	<0.0036	<0.0058	<0.0037	<0.0029	<0.0034	<0.0049	<0.0044	<0.0035	<0.0044	<0.0048	<0.0047	<0.0082	<0.0048
11/1/2012	27 J	<0.0031	<0.0031	0.0033 J	0.0067 J	0.0049 J	0.0061 J	<0.0056	0.0066 J	0.0069 J	0.010 J	<0.0031	<0.0055	0.012 J	0.0096 J
2/21/2013	70	<0.0043	<0.0039	<0.0055	<0.0054	<0.0056	<0.0076	<0.0091	<0.012	<0.0070	0.0060 J,B	<0.0043	<0.0066	0.0081 J,B	0.0073 J,B
5/9/2013	120	<0.0043	<0.0039	<0.0055	<0.0054	<0.0056	<0.0076	<0.0091	<0.012	<0.0070	<0.0059	0.0047 J	<0.0066	0.0049 J	0.0080 J
8/1/2013	<20	<0.0042	<0.0038	<0.0053	<0.0052	<0.0054	<0.0074	<0.0088	<0.011	<0.0068	<0.0057	<0.0042	<0.0064	0.0077 J,B	<0.0058

TABLE A.1
Groundwater Analytical Results
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-10 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
5/16/2012	31 J	0.0077 J	<0.0039	<0.0063	<0.0040	<0.0031	<0.0037	<0.0053	<0.0048	0.0039 J	0.012 J	0.0088 J	<0.0051	0.016 J	0.0093 J
8/1/2012	42 J	<0.0048	<0.0038	<0.0061	<0.0038	<0.0030	<0.0036	<0.0051	<0.0046	0.0052 J	<0.0047	<0.0051	<0.0050	<0.0086	<0.0050
11/1/2012	27 J	0.0045 J	<0.0032	<0.0028	<0.0045	<0.0045	<0.0048	<0.0057	<0.0051	<0.0049	0.0050 J	0.0033 J	<0.0056	0.013 J	<0.0044
2/21/2013	<11	<0.0043	<0.0039	<0.0053	<0.0052	<0.0054	<0.0074	<0.0089	<0.011	<0.0068	<0.0057	<0.0043	<0.0064	0.0058 J,B	<0.0058
5/9/2013	75	0.0058 J	<0.0041	<0.0056	<0.0055	<0.0057	<0.0078	<0.0094	<0.012	<0.0072	0.0086 J	<0.0045	<0.0068	0.0093 J	0.022 J
8/1/2013	<20	<0.0042	<0.0038	<0.0053	<0.0052	<0.0054	<0.0074	<0.0088	<0.011	<0.0068	<0.0057	<0.0042	<0.0064	0.010 J,B	<0.0058

MW-11 Polynuclear Aromatic Hydrocarbons

Date	DRO µg/L	Acenaphthene µg/L	Acenaphthylene µg/L	Anthracene µg/L	Benzo(a) anthracene µg/L	Benzo(a) pyrene µg/L	Benzo(b) fluoranthene µg/L	Benzo(g,h,i) perylene µg/L	Benzo(k) fluoranthene µg/L	Chrysene µg/L	Fluoranthene µg/L	Fluorene µg/L	Indeno(1,2,3-cd) pyrene µg/L	Phenanthrene µg/L	Pyrene µg/L
NR 140 PAL	*NS*	*NS*	*NS*	*600*	*NS*	*0.02*	*0.02*	*NS*	*NS*	*0.02*	*80*	*80*	*NS*	*NS*	*50*
NR 140 ES	*NS*	*NS*	*NS*	*3,000*	*NS*	*0.2*	*0.2*	*NS*	*NS*	*0.2*	*400*	*400*	*NS*	*NS*	*250*
5/16/2012	28 J	<0.0048	<0.0038	<0.0061	<0.0038	<0.0030	<0.0036	<0.0051	<0.0046	<0.0037	<0.0047	0.0055 J	<0.0050	0.011 J	<0.0050
8/1/2012	36 J	<0.0045	<0.0036	<0.0057	<0.0036	0.0036 J	0.0038 J	<0.0048	0.0050 J	0.0056 J	0.010 J	<0.0048	<0.0047	<0.0081	0.0078 J
11/2/2012	12 J	<0.0031	<0.0031	<0.0027	<0.0044	<0.0044	<0.0047	<0.0056	<0.0050	<0.0048	<0.0034	<0.0031	<0.0055	<0.0086	<0.0043
2/21/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5/10/2013	65	<0.0043	<0.0039	<0.0055	<0.0054	<0.0056	<0.0076	<0.0091	<0.012	<0.0070	0.018 J	<0.0043	<0.0066	0.0091 J	0.014 J
8/1/2013	37 J	<0.0043	<0.0039	<0.0054	<0.0053	<0.0055	<0.0075	<0.0090	<0.012	<0.0069	0.0067 J	<0.0043	<0.0065	0.011 J,B	0.0063 J

Notes:

Exceedance of the Wisconsin Administrative Code Chapter NR 140 groundwater enforcement standard is depicted in **BOLD**.

Exceedance of the Wisconsin Administrative Code Chapter NR 140 groundwater preventive action limit is depicted in *italics*.

Results are expressed in µg/L (ppb).

J Estimated concentration detected between the detection limit and reporting limit.

D Duplicate sample.

NS No Standard

GRO Gasoline Range Organics

DRO Diesel Range Organics

1,2,4-TMB 1,2,4-Trimethylbenzene

1,3,5-TMB 1,3,5-Trimethylbenzene

NA Not Acquired- MW-11 was frozen during the 2/21/2013 sampling event.

TABLE A.2.a
Pre Remedial Soil Analytical Table- Excavation
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

Volatile Organic Compounds

Sample Location	Sample Date	Field Screening IU	Depth Interval feet	GRO mg/kg	1,2,4-TMB mg/kg	1,3,5-TMB mg/kg	Ethylbenzene mg/kg	Isopropylbenzene (Cumene) mg/kg	Methylene Chloride mg/kg	Toluene mg/kg	Total Xylenes mg/kg	n-Butylbenzene mg/kg	n-Propylbenzene mg/kg	p-Isopropyltoluene mg/kg	sec-Butylbenzene mg/kg	Naphthalene mg/kg
Former NR 720 RCL				250 mg/kg	No Standard	No Standard	2.9 mg/kg	No Standard	No Standard	1.5 mg/kg	4.1 mg/kg	No Standard	No Standard	No Standard	No Standard	0.4 mg/kg
GMIA 1A	2/21/2012	0.0	9.0	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 1B	2/21/2012	0.0	5.5	<3.0	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 1C	2/21/2012	0.0	6.0	<2.9	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 2A	2/21/2012	0.1	7.0	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 2B	2/21/2012	0.0	9.5	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	0.0326 J	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 2C	2/21/2012	0.0	6.5	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	0.0320 J	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 3A	2/21/2012	0.0	7.0	<3.3	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 3B	2/21/2012	0.1	10.0	<3.2	<0.0250	<0.0250	<0.0250	<0.0250	0.0442 J	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 3BM	2/21/2012	0.1	10.5	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	0.0765	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 3C	2/21/2012	0.1	6.5	<3.0	<0.0250	<0.0250	<0.0250	<0.0250	0.0505 J	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 4A	2/21/2012	0.0	8.0	<3.2	<0.0250	<0.0250	<0.0250	<0.0250	0.0495 J	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 4B	2/21/2012	0.0	10.0	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	0.0463 J	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 4C	2/21/2012	0.0	7.5	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	0.0698 J	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 5A	2/21/2012	0.0	5.5	<3.0	<0.0250	<0.0250	<0.0250	<0.0250	0.0678 J	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 5B	2/21/2012	0.1	10.0	<3.0	<0.0250	<0.0250	<0.0250	<0.0250	0.1	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 5C	2/21/2012	0.0	7.5	<3.0	<0.0250	<0.0250	<0.0250	<0.0250	0.0936	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA HA-1	2/21/2012	0.0	8.5	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	0.112	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA HA-2	2/21/2012	0.1	8.5	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	0.114	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 6A	2/22/2012	8.0	6.5	<3.0	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 6B	2/22/2012	1.3	9.0	<3.1	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 6C	2/21/2012	0.0	5.5	<3.2	<0.0250	<0.0250	<0.0250	<0.0250	0.113	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA DT1	2/22/2012	17.3	3.0	**276**	14.6	4.21	1.39	0.774	<0.200	0.822	**6.30**	3.16	2.14	1.46	1.68	**2.49**
GMIA 7B	2/22/2012	0.6	8.0	<3.0	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 7C	2/22/2012	22.6	5.5	**384**	15.8	4.27	1.95	0.8	<0.125	**1.87**	**7.94**	2.88	2.27	1.35	1.48	**3.12**
GMIA 8B	3/8/2012	0.0	6.0	<3.2	0.0465 J	<0.0250	<0.0250	<0.0250	<0.0250	0.0425 J	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 8C	3/8/2012	203	5.0	**336**	8.52	2.51	0.95	0.505	<0.125	0.745	4.06	2.12	1.41	0.919	1.06	**1.1**
GMIA 9B	3/8/2012	8.7	5.5	22.2	0.24	0.0725 J	0.0515 J	<0.0250	<0.0250	0.0796	0.1789 J	<0.0404	0.0396 J	<0.0250	<0.0250	0.0330 J
GMIA 9C	3/8/2012	195	5.0	**771**	35.2	10.5	**4.18**	1.95	<0.312	**3.58**	**17.24**	8.49	5.79	3.58	4.22	**5.39**
GMIA 10B**	03/08-12/2012	0.6	6.0	<3.2	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 10C**	03/08-12/2012	81	5.0	**359**	15	4.36	1.8	0.881	<0.125	**1.48**	**7.29**	3.71	2.42	1.59	1.85	**1.95**
GMIA 1	3/19/2012	10.0	2.0	36.6	0.527	0.159	0.0553 J	0.0317 J	<0.0250	0.0442 J	0.2329	0.165	0.0774	0.0615 J	0.0689 J	0.137
GMIA 2	3/19/2012	7.8	2.0	<2.7	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 3	3/19/2012	4.7	2.0	5.2	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
GMIA 4	3/19/2012	10.8	2.0	10.9	0.294	0.0883	<0.0250	<0.0250	<0.0250	<0.0250	0.091	0.0847	0.0483 J	0.0378 J	0.0444 J	0.275
GMIA 5	4/18/2012	NM	2.0	<3.0	2.02	0.565	0.075	0.0788	<0.0250	<0.0250	0.453	0.581	0.245	0.227	0.247	0.281

Polynuclear Aromatic Hydrocarbons (also known as Polycyclic Aromatic Hydrocarbons)

Sample Location	Sample Date	Field Screening IU	Depth Interval feet	DRO mg/kg	Acenaphthene mg/kg	Acenaphthylene mg/kg	Anthracene mg/kg	Benzo(a) anthracene mg/kg	Benzo(a)pyrene mg/kg	Benzo(b) fluoranthene mg/kg	Benzo(g,h,i)perylene mg/kg
Former NR 720 RCL or PAH Interim Guidance RCL for Protection of GW				250 mg/kg	38 mg/kg	0.7 mg/kg	3,000 mg/kg	17 mg/kg	48 mg/kg	360 mg/kg	6,800 mg/kg
GMIA 1A	2/21/2012	0.0	9.0	2.13	<0.0029	<0.0033	0.0112 J	0.0229	0.0207 J	0.0174 J	0.0143 J
GMIA 1B	2/21/2012	0.0	5.5	8.01	<0.0029	<0.0032	<0.0047	<0.0029	<0.0033	<0.0035	<0.0027
GMIA 1C	2/21/2012	0.0	6.0	2.07	<0.0028	<0.0031	<0.0046	0.0064 J	0.0054 J	0.0047 J	0.0031 J
GMIA 2A	2/21/2012	0.1	7.0	1.57 J	<0.0029	<0.0033	<0.0049	0.0034 J	<0.0034	<0.0036	0.0030 J
GMIA 2B	2/21/2012	0.0	9.5	5.83	<0.0029	<0.0033	<0.0048	<0.0029	<0.0034	<0.0036	<0.0027
GMIA 2C	2/21/2012	0.0	6.5	3.68	<0.0029	<0.0033	<0.0048	0.0041 J	0.0039 J	<0.0036	<0.0027
GMIA 3A	2/21/2012	0.0	7.0	3.11	<0.0031	<0.0035	<0.0051	0.0050 J	0.0046 J	0.0045 J	0.0037 J
GMIA 3B	2/21/2012	0.1	10.0	1.34 J	<0.0034	<0.0039	<0.0050	<0.0030	<0.0035	<0.0037	<0.0028
GMIA 3BM	2/21/2012	0.1	10.5	5.23	<0.0029	<0.0033	<0.0048	<0.0029	<0.0033	<0.0035	<0.0027
GMIA 3C	2/21/2012	0.1	6.5	35.3	0.0188 J	0.0943	0.146	0.388	0.443	0.443	0.311
GMIA 4A	2/21/2012	0.0	8.0	3.94	<0.0030	<0.0034	<0.0049	<0.0030	<0.0035	<0.0037	<0.0028
GMIA 4B	2/21/2012	0.0	10.0	6.98	<0.0029	<0.0033	<0.0049	<0.0030	<0.0034	<0.0036	<0.0028
GMIA 4C	2/21/2012	0.0	7.5	3.78	<0.0029	<0.0033	<0.0049	<0.0030	<0.0034	<0.0036	<0.0028
GMIA 5A	2/21/2012	0.0	5.5	1.33 J	<0.0028	<0.0032	<0.0047	<0.0028	<0.0033	<0.0035	<0.0026
GMIA 5B	2/21/2012	0.1	10.0	4.58	<0.0028	<0.0031	<0.0046	<0.0028	<0.0032	<0.0034	<0.0026
GMIA 5C	2/21/2012	0.0	7.5	5.8	<0.0028	<0.0032	<0.0047	<0.0029	<0.0033	<0.0035	<0.0027
GMIA HA-1	2/21/2012	0.0	8.5	1.06 J	<0.0029	<0.0033	<0.0049	0.0036 J	<0.0034	<0.0036	<0.0028
GMIA HA-2	2/21/2012	0.1	8.5	<0.925	<0.0029	<0.0033	<0.0048	<0.0029	<0.0034	<0.0036	<0.0027
GMIA 6A	2/22/2012	8.0	6.5	6.68	<0.0028	<0.0032	<0.0047	<0.0029	<0.0033	<0.0035	0.0046 J
GMIA 6B	2/22/2012	1.3	9.0	29.6	<0.0029	<0.0033	<0.0048	<0.0029	<0.0034	<0.0036	0.0056 J
GMIA 6C	2/21/2012	0.0	5.5	<0.919	<0.0030	<0.0034	<0.0050	<0.0030	<0.0035	<0.0037	<0.0028
GMIA DT1	2/22/2012	17.3	3.0	65.1	0.0157 J	0.0116 J	<0.0047	0.0157 J	0.0137 J	0.0124 J	0.0107 J
GMIA 7B	2/22/2012	0.6	8.0	2.45	<0.0028	<0.0032	<0.0047	<0.0029	<0.0033	<0.0035	0.0046 J
GMIA 7C	2/22/2012	22.6	5.5	**1,490**	0.201 J	<0.0346	<0.0506	0.108 J	0.0638 J	0.0441 J	0.0308 J
GMIA 8B	3/8/2012	0.0	6.0	<0.927	<0.0030	<0.0034	<0.0049	<0.0030	<0.0035	<0.0037	<0.0028
GMIA 8C	3/8/2012	203	5.0	217	<0.0029	<0.0033	<0.0048	<0.0029	<0.0034	<0.0036	<0.0027
GMIA 9B	3/8/2012	8.7	5.5	1.13	<0.0030	<0.0034	<0.0049	<0.0030	<0.0035	<0.0037	<0.0028
GMIA 9C	3/8/2012	195	5.0	**1,220**	0.0445 J	0.0237 J	0.0509 J	0.0992	0.0671 J	0.0833	0.0298 J
GMIA 10B**	03/08-12/2012	0.6	6.0	5.21	<0.0028	<0.0032	<0.0047	<0.0029	<0.0033	<0.0035	<0.0027
GMIA 10C**	03/08-12/2012	81	5.0	**1,270**	0.125 J	0.031 J	<0.045	<0.0275	<0.0317	<0.0335	<0.0255
GMIA 1	3/19/2012	10.0	2.0	128	<0.0028	<0.0032	<0.0047	0.0113 J	0.0110 J	0.0152 J	0.0088 J
GMIA 2	3/19/2012	7.8	2.0	27.1	0.0069 J	<0.0029	0.0157 J	0.0438	0.0455	0.0516	0.0299
GMIA 3	3/19/2012	4.7	2.0	21.8	<0.0027	<0.0031	<0.0046	<0.0028	<0.0032	<0.0034	<0.0026
GMIA 4	3/19/2012	10.8	2.0	77.5	0.0153 J	0.0055 J	0.0186 J	0.072	0.0679	0.0777	0.0459
GMIA 5	4/18/2012	NM	2.0	35.5	<0.0028	<0.0032	<0.0047	0.0048 J	0.0054 J	0.0044 J	<0.0026

TABLE A.2.a
Pre Remedial Soil Analytical Table- Excavation
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

Sample Location	Sample Date	Field Screening	Depth Interval	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene
		IU	feet	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Former PAH Interim Guidance RCL for Protection of GW				870 mg/kg	37 mg/kg	38 mg/kg	500 mg/kg	100 mg/kg	680 mg/kg	0.4 mg/kg	1.8 mg/kg	8,700 mg/kg
GMIA 1A	2/21/2012	0.0	9.0	0.0190 J	0.0264	<0.0057	0.056	<0.0052	0.0116 J	<0.0037	0.0368	0.0479
GMIA 1B	2/21/2012	0.0	5.5	<0.0038	<0.0037	<0.0055	<0.0101	<0.0050	<0.0029	<0.0036	<0.0045	<0.0037
GMIA 1C	2/21/2012	0.0	6.0	0.0045 J	0.0070 J	<0.0053	0.0121 J	<0.0049	0.0029 J	<0.0034	<0.0043	0.0108 J
GMIA 2A	2/21/2012	0.1	7.0	<0.0039	0.0054 J	<0.0057	<0.0105	<0.0052	<0.0030	<0.0037	<0.0046	0.0074 J
GMIA 2B	2/21/2012	0.0	9.5	<0.0038	<0.0037	<0.0056	<0.0103	<0.0051	<0.0029	<0.0036	<0.0045	<0.0038
GMIA 2C	2/21/2012	0.0	6.5	<0.0039	0.0051 J	<0.0057	<0.0104	<0.0052	<0.0030	0.0105J	0.0112 J	0.0082 J
GMIA 3A	2/21/2012	0.0	7.0	0.0043 J	0.0067 J	<0.0060	<0.0110	<0.0055	<0.0031	<0.0039	0.0074 J	0.0103 J
GMIA 3B	2/21/2012	0.1	10.0	<0.0040	<0.0039	<0.0058	<0.0107	<0.0053	<0.0030	0.0044J	<0.0047	<0.0039
GMIA 3BM	2/21/2012	0.1	10.5	<0.0038	<0.0037	<0.0056	<0.0102	<0.0051	<0.0029	<0.0036	<0.0045	<0.0037
GMIA 3C	2/21/2012	0.1	6.5	0.362	0.434	0.101	0.569	0.0235	0.27	0.0362	0.26	0.552
GMIA 4A	2/21/2012	0.0	8.0	<0.0039	0.0044 J	<0.0058	<0.0106	<0.0053	<0.0030	<0.0037	<0.0047	<0.0039
GMIA 4B	2/21/2012	0.0	10.0	<0.0039	<0.0038	<0.0057	<0.0105	<0.0052	<0.0030	<0.0037	<0.0046	<0.0038
GMIA 4C	2/21/2012	0.0	7.5	<0.0039	0.0047 J	<0.0057	<0.0105	<0.0052	<0.0030	0.0061J	<0.0046	0.0040 J
GMIA 5A	2/21/2012	0.0	5.5	<0.0037	<0.0036	<0.0054	<0.0100	<0.0050	<0.0028	<0.0035	<0.0044	<0.0037
GMIA 5B	2/21/2012	0.1	10.0	<0.0037	<0.0036	<0.0054	<0.0098	<0.0049	<0.0028	<0.0034	<0.0043	<0.0036
GMIA 5C	2/21/2012	0.0	7.5	<0.0037	<0.0036	<0.0055	<0.0100	<0.0050	<0.0029	<0.0035	<0.0044	<0.0037
GMIA HA-1	2/21/2012	0.0	8.5	<0.0039	0.0045 J	<0.0057	<0.0105	<0.0052	<0.0030	<0.0037	<0.0046	0.0057 J
GMIA HA-2	2/21/2012	0.1	8.5	<0.0038	<0.0037	<0.0056	<0.0103	<0.0051	<0.0029	<0.0036	<0.0045	<0.0038
GMIA 6A	2/22/2012	8.0	6.5	<0.0038	0.0115 J	<0.0055	<0.0101	<0.0050	<0.0029	<0.0250	<0.0044	0.0064 J
GMIA 6B	2/22/2012	1.3	9.0	<0.0038	0.0100 J	<0.0056	<0.0104	<0.0052	<0.0029	<0.0250	0.0048 J	<0.0038
GMIA 6C	2/21/2012	0.0	5.5	<0.0040	<0.0039	<0.0058	<0.0107	<0.0053	<0.0030	0.0056J	<0.0047	0.0043 J
GMIA DT1	2/22/2012	17.3	3.0	0.0156 J	0.0193 J	<0.0055	0.0345	0.0196 J	0.0078 J	**2.49**	0.0171 J	0.0334
GMIA 7B	2/22/2012	0.6	8.0	<0.0037	0.0100 J	<0.0055	<0.0101	<0.0050	<0.0029	<0.0250	0.0061 J	0.0073 J
GMIA 7C	2/22/2012	22.6	5.5	0.0794 J	0.0910 J	<0.0592	0.247	0.0985 J	<0.0309	**3.12**	0.170 J	0.169 J
GMIA 8B	3/8/2012	0.0	6.0	<0.0039	<0.0038	<0.0058	<0.0106	<0.0053	<0.0030	0.0060 J	<0.0047	<0.0039
GMIA 8C	3/8/2012	203	5.0	<0.0038	<0.0038	<0.0056	<0.0104	<0.0052	<0.0029	<0.0036	<0.0046	<0.0038
GMIA 9B	3/8/2012	8.7	5.5	<0.0039	<0.0038	<0.0058	<0.0106	<0.0053	<0.0030	0.0095 J	<0.0047	<0.0039
GMIA 9C	3/8/2012	195	5.0	0.0468 J	0.0888	<0.0224	0.237	0.0595 J	0.0246 J	**0.861**	0.146	0.169
GMIA 10B**	03/08-12/2012	0.6	6.0	<0.0037	<0.0036	<0.0055	<0.0101	<0.0050	<0.0029	**4.4 J**	<0.0044	<0.0037
GMIA 10C**	03/08-12/2012	81	5.0	<0.0359	<0.0351	<0.0526	<0.0967	0.116 J	<0.0275	**2.68**	<0.0425	<0.0354
GMIA 1	3/19/2012	10.0	2.0	0.0063 J	0.0142 J	<0.0054	0.0207	0.0065 J	0.0059 J	NA	0.0073 J	0.0239
GMIA 2	3/19/2012	7.8	2.0	0.0354	0.0519	0.0082 J	0.108	0.0082 J	0.0247	NA	0.0609	0.1
GMIA 3	3/19/2012	4.7	2.0	<0.0036	0.0046 J	<0.0053	<0.0098	<0.0049	<0.0028	NA	<0.0043	<0.0036
GMIA 4	3/19/2012	10.8	2.0	0.0469	0.082	0.0117 J	0.17	0.0216	0.0339	NA	0.0511	0.155
GMIA 5	4/18/2012	NM	2.0	0.0059 J	0.0064 J	<0.0054	0.0114 J	<0.0050	0.0034 J	NA	0.0057 J	0.0086 J

Notes:

All detections presented in **bold** type indicates an exceedance of the former NR 720 RCL or PAH Interim Guidance RCL for the Protection of Groundwater.
Results are reported on a dry weight basis.

IU	Instrument units; photoionization detector was field-calibrated to 100 parts per million isobutylene span gas.
mg/kg	milligrams per kilogram, approximately equivalent to parts per million
**	Soil PAH samples collected were orignially collected in incorrect containers. Soil samples were collected in correct containers and resubmitted for analysis.
TMB	Trimethylbenzene
J	Estimated concentration detected between the detection limit and reporting limit.
NM	Not Measured

TABLE A.2.b
Pre Remedial Soil Analytical Table- Monitoring Wells
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

Volatile Organic Compounds

Sample Location	Sample Date	Field Screening IU	Depth Interval feet	GRO mg/kg	1,2,4-TMB mg/kg	1,3,5-TMB mg/kg	Benzene mg/kg	Ethylbenzene mg/kg	Isopropylbenzene (Cumene) mg/kg	Toluene mg/kg	Total Xylenes mg/kg	n-Butylbenzene mg/kg	n-Propylbenzene mg/kg	p-Isopropyl toluene mg/kg	sec-Butylbenzene mg/kg	Naphthalene mg/kg
Former NR 720 RCL				**250 mg/kg**	**No Standard**	**No Standard**	**0.0055 mg/kg**	**2.9 mg/kg**	**No Standard**	**1.5 mg/kg**	**4.1 mg/kg**	**No Standard**	**No Standard**	**No Standard**	**No Standard**	**0.4 mg/kg**
MW-1	3/7/2012	0.0	0-2	5.5	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
		0.0	2-4	4.4	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
MW-2	3/7/2012	30.0	0-2	**1,610**	64.2	18.4	<0.312	**7.300**	3.410	**6.070**	**32.25**	12.900	9.370	6.230	6.95	**10.0**
		41.9	2-4	**917**	26.2	7.65	<0.125	**3.24**	1.48	**2.870**	**14.03**	5.38	3.77	2.61	2.910	**3.440**
MW-3	3/7/2012	57.1	0-2	**695**	20.30	5.78	<0.125	2.55	1.12	**2.42**	**11.09**	4.000	2.98	1.89	2.1	**3.06**
		95.1	2-4	114	2.93	0.845	**0.0399 J**	0.537	0.169	0.883	2.264	0.546	0.427	0.256	0.291	**0.466**
MW-4	3/7/2012	75.0	0-2	**581**	15	4.24	<0.0625	1.57	0.802	1.41	**6.96**	3.2	2.1	1.5	1.67	**1.97**
		5.2	2-4	5.0	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0035
MW-5	3/15/2012	0.0	0-2	<3.0	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
		0.0	2-4	<2.9	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
MW-6	3/15/2012	55.1	0-2	3.0	0.0375 J	<0.0250	<0.0250	<0.0250	<0.0250	0.0623 J	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
		7.0	2-4	<3.2	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0750	<0.0404	<0.0250	<0.0250	<0.0250	<0.0250
MW-8	4/12/2012	0.0	2.5-3	<3.0	<0.0260	<0.0260	<0.0260	<0.0260	<0.0260	<0.0260	<0.0781	<0.0421	<0.0260	<0.0260	<0.0260	<0.0260
		0.0	4-6	<3.0	<0.0294	<0.0294	<0.0294	<0.0294	<0.0294	<0.0294	<0.0822	<0.0475	<0.0294	<0.0294	<0.0294	<0.0294
MW-9	5/11/2012	0.0	0-1	<4.9	<0.0410	<0.0410	<0.0410	<0.0410	<0.0410	<0.0410	<0.1230	<0.0662	<0.0410	<0.0410	<0.0410	<0.0410
		0.0	6-7	<3.8	<0.0424	<0.0424	<0.0424	<0.0424	<0.0424	<0.0424	<0.1271	<0.0685	<0.0424	<0.0424	<0.0424	<0.0424
MW-10	5/11/2012	0.0	0-1	<4.7	<0.0357	<0.0357	<0.0357	<0.0357	<0.0357	<0.0357	<0.1071	<0.0577	<0.0357	<0.0357	<0.0357	<0.0357
		0.0	6-8	<3.9	<0.0316	<0.0316	<0.0316	<0.0316	<0.0316	<0.0316	<0.0949	<0.0511	<0.0316	<0.0316	<0.0316	<0.0316
MW-11	5/11/2012	0.0	0-2	<4.3	<0.0325	<0.0325	<0.0325	<0.0325	<0.0325	<0.0325	<0.0974	<0.0525	<0.0325	<0.0325	<0.0325	<0.0325
			0-2 Dup	<4.4	<0.0333	<0.0333	<0.0333	<0.0333	<0.0333	<0.0333	<0.100	<0.0539	<0.0333	<0.0333	<0.0333	<0.0333
SB-01	5/11/2012	0.0	0-2	<4.1	<0.0299	<0.0299	<0.0299	<0.0299	<0.0299	<0.0299	<0.0898	<0.0484	<0.0299	<0.0299	<0.0299	<0.0299

Polynuclear Aromatic Hydrocarbons (also known as Polycyclic Aromatic Hydrocarbons

Sample Location	Sample Date	Field Screening IU	Depth Interval feet	DRO mg/kg	Acenaphthene mg/kg	Acenaphthylene mg/kg	Anthracene mg/kg	Benzo(a)anthracene mg/kg	Benzo(a)pyrene mg/kg	Benzo(b) fluoranthene mg/kg	Benzo(g,h,i) perylene mg/kg
Former PAH Interim Guidance				**250 mg/kg**	**38 mg/kg**	**0.7 mg/kg**	**3,000 mg/kg**	**17 mg/kg**	**48 mg/kg**	**360 mg/kg**	**6,800 mg/kg**
MW-1	3/7/2012	0.0	0-2	3.25	0.0121 J	0.0056 J	0.0263	0.0800	0.0942	0.0936	0.0654
		0.0	2-4	1.020 J	0.0041 J	<0.0033	0.0080 J	0.0086 J	0.0082 J	0.0117 J	0.0084 J
MW-2	3/7/2012	30.0	0-2	**1,150**	0.669	0.0040 J	0.108	0.288	0.324	0.397	0.221
		41.9	2-4	**1,790**	0.0530 J	0.0337 J	0.648 J	0.132	0.0883 J	0.0902 J	0.0450 J
MW-3	3/7/2012	57.1	0-2	**723**	1.970 J	**0.926 J**	8.6	11.5	9.08	8.55	4.98
		95.1	2-4	174	0.0876	0.0369 J	0.325	0.422	0.353	0.452	0.195
MW-4	3/7/2012	75.0	0-2	**1,390**	0.102	0.0235 J	0.178	0.253	0.219	0.247	0.134
		5.2	2-4	3.93	<0.0028	<0.0032	<0.0046	<0.0028	<0.0033	<0.0035	<0.0026
MW-5	3/15/2012	0.0	0-2	8.65	0.0125 J	0.0159 J	0.0577	0.141	0.139	0.153	0.0897
		0.0	2-4	2.97	<0.0028	<0.0031	0.0065 J	0.0131 J	0.0104 J	0.0134 J	0.0069 J
MW-6	3/15/2012	55.1	0-2	10.8	0.124 J	0.0499 J	<0.0581	0.0420 J	<0.0409	0.0520 J	<0.0330
		7.0	2-4	3.88	<0.0030	<0.0034	0.0055 J	0.0113 J	0.0096 J	0.0123 J	0.0067 J
MW-8	4/12/2012	0.0	2.5-3	3.57	<0.0029	<0.0032	<0.0047	<0.0029	<0.0033	<0.0035	<0.0027
		0.0	4-6	2.92	<0.0028	<0.0032	<0.0047	<0.0029	<0.0033	<0.0035	<0.0027
MW-9	5/11/2012	0.0	0-1	17.2	0.0267	0.0071 J	0.0682	0.194	0.201	0.199	0.0955
		0.0	6-7	5.57	<0.0028	<0.0032	<0.0047	<0.0029	<0.0033	<0.0035	<0.0027
MW-10	5/11/2012	0.0	0-1	3.92	<0.0032	<0.0036	<0.0052	0.0152 J	0.0137 J	0.0144 J	0.0054 J
		0.0	6-8	5.85	<0.0029	<0.0032	<0.0047	<0.0029	<0.0033	<0.0035	<0.0027
MW-11	5/11/2012	0.0	0-2	2.09 J	<0.0030	<0.0035	<0.0050	<0.0031	<0.0035	<0.0037	<0.0029
			0-2 Dup	2.10 J	<0.0031	<0.0035	<0.0051	<0.0031	<0.0036	<0.0038	<0.0029
SB-01	5/11/2012	0.0	0-2	96.8	0.0376	0.0178 J	0.0206	0.0304	0.243	0.043	0.0983

Sample Location	Sample Date	Field Screening IU	Depth Interval feet	Benzo(k) fluoranthene mg/kg	Chrysene mg/kg	Dibenz(a,h) anthracene mg/kg	Fluoranthene mg/kg	Fluorene mg/kg	Indeno(1,2,3-cd) pyrene mg/kg	Phenanthrene mg/kg	Pyrene mg/kg
Former PAH Interim Guidance				**870 mg/kg**	**37 mg/kg**	**38 mg/kg**	**500 mg/kg**	**100 mg/kg**	**680 mg/kg**	**1.8 mg/kg**	**8,700 mg/kg**
MW-1	3/7/2012	0.0	0-2	0.087	0.101	0.0188 J	0.233	0.0098 J	0.0556	0.118	0.159
		0.0	2-4	0.0085 J	0.0118 J	<0.0056	0.0211	0.0071 J	0.0063 J	0.0242	0.0128 J
MW-2	3/7/2012	30.0	0-2	0.318	0.339	0.0691	0.932	0.436	0.199	0.506	0.664
		41.9	2-4	0.0766 J	0.118	<0.0272	0.314	0.0774 J	0.0404 J	0.219	0.222
MW-3	3/7/2012	57.1	0-2	7.73	11.9	1.930 J	28.3	3.56	4.56	**24.1**	19.9
		95.1	2-4	0.196	0.443	0.0668	1.11	0.124	0.176	0.876	0.721
MW-4	3/7/2012	75.0	0-2	0.156	0.265	0.0437 J	0.731	0.102	0.119	0.579	0.459
		5.2	2-4	<0.0037	<0.0036	<0.0054	<0.0100	<0.0050	<0.0028	<0.0044	<0.0037
MW-5	3/15/2012	0.0	0-2	0.109	0.166	0.0275	0.337	0.0141 J	0.0735	0.185	0.231
		0.0	2-4	0.0074 J	0.0156 J	<0.0053	0.0244	<0.0049	0.0045 J	0.0134 J	0.0189 J
MW-6	3/15/2012	55.1	0-2	<0.0464	0.0576 J	<0.0680	0.126 J	0.176 J	<0.0355	0.0889 J	0.0994 J
		7.0	2-4	0.0063 J	0.0137 J	<0.0058	0.0308	<0.0053	0.0045 J	0.0217	0.0227
MW-8	4/12/2012	0.0	2.5-3	<0.0038	<0.0037	<0.0055	<0.0101	<0.0050	<0.0029	<0.0045	<0.0037
		0.0	4-6	<0.0037	<0.0036	<0.0055	<0.0101	<0.0050	<0.0029	<0.0044	<0.0037
MW-9	5/11/2012	0.0	0-1	0.210	0.241	0.0335	0.524	0.0218	0.0895	0.300	0.423
		0.0	6-7	<0.0037	<0.0037	<0.0055	<0.0101	<0.0050	<0.0029	<0.0044	0.0046 J
MW-10	5/11/2012	0.0	0-1	0.0176 J	0.0195 J	<0.0061	0.0349	<0.0056	0.0050 J	0.0208 J	0.0277
		0.0	6-8	<0.0038	<0.0037	<0.0055	<0.0102	<0.0051	<0.0029	<0.0045	<0.0037
MW-11	5/11/2012	0.0	0-2	<0.0040	<0.0039	<0.0059	<0.0108	<0.0054	<0.0031	<0.0048	0.0045 J
			0-2 Dup	<0.0040	<0.0039	<0.0059	<0.0109	<0.0054	<0.0031	<0.0048	<0.0040
SB-01	5/11/2012	0.0	0-2	0.241	0.313	0.0426	0.644	0.0507	0.0976	0.467	0.523

Notes:

Exceedance of the former NR 720 RCL or the former Interim PAH Guidance RCL for the protection of groundwater is depicted in **BOLD** type.
Results are reported on a dry weight basis.
IU Instrument units; photoionization detector was field-calibrated to 100 parts per million isobutylene span gas.
mg/kg milligrams per kilogram, approximately equivalent to parts per million

GRO Gasoline Range Organics
DRO Diesel Range Organics
TMB Trimethylbenzene
J Estimated concentration detected between the detection limit and reporting limit.

TABLE A.4
Pre and Post Remaining Soil Contaimination Soil Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

Volatile Organic Compounds

Sample Location	Sample Date	Field Screening	Depth Interval	GRO	1,2,4-TMB	1,3,5-TMB	Benzene	Ethylbenzene	Isopropylbenzene (Cumene)	Toluene	Total Xylenes	n-Butylbenzene	n-Propylbenzene	p-Isopropyltoluene	sec-Butylbenzene	Naphthalene
		IU	feet	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Former NR 720 RCL				250 mg/kg	No Standard	No Standard	0.0055 mg/kg	2.9 mg/kg	No Standard	1.5 mg/kg	4.1 mg/kg	No Standard	No Standard	No Standard	No Standard	0.4 mg/kg
GMIA 8C	3/8/2012	203	5.0	**336**	8.52	2.51	<0.125	0.95	0.505	0.745	4.06	2.12	1.41	0.919	1.06	**1.1**
GMIA 9C	3/8/2012	195	5.0	**771**	35.2	10.5	<0.312	**4.18**	1.95	**3.58**	**17.24**	8.49	5.79	3.58	4.22	**5.39**
MW-2	3/7/2012	30.0	0-2	**1,610**	64.2	18.4	<0.312	**7.300**	3.410	**6.070**	**32.25**	12.900	9.370	6.230	6.95	**10.0**
		41.9	2-4	**917**	26.2	7.65	<0.125	**3.24**	1.48	**2.870**	**14.03**	5.38	3.77	2.61	2.910	**3.440**
MW-3	3/7/2012	57.1	0-2	**695**	20.30	5.78	<0.125	2.55	1.12	**2.42**	**11.09**	4.000	2.98	1.89	2.1	**3.06**
		95.1	2-4	114	2.93	0.845	**0.0399 J**	0.537	0.169	0.883	2.264	0.546	0.427	0.256	0.291	**0.466**

Polynuclear Aromatic Hydrocarbons (also known as Polycyclic Aromatic Hydrocarbons)

Sample Location	Sample Date	Field Screening	Depth Interval	DRO	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a)pyrene	Benzo(b) fluoranthene	Benzo(g,h,i)perylene
		IU	feet	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Former NR 720 RCL or PAH Interim Guidance RCL for Protection of GW				250 mg/kg	38 mg/kg	0.7 mg/kg	3,000 mg/kg	17 mg/kg	48 mg/kg	360 mg/kg	6,800 mg/kg
GMIA 8C	3/8/2012	203	5.0	217	<0.0029	<0.0033	<0.0048	<0.0029	<0.0034	<0.0036	<0.0027
GMIA 9C	3/8/2012	195	5.0	**1,220**	0.0445 J	0.0237 J	0.0509 J	0.0992	0.0671 J	0.0833	0.0298 J
MW-2	3/7/2012	30.0	0-2	**1,150**	0.669	0.0040 J	0.108	0.288	0.324	0.397	0.221
		41.9	2-4	**1,790**	0.0530 J	0.0337 J	0.648 J	0.132	0.0883 J	0.0902 J	0.0450 J
MW-3	3/7/2012	57.1	0-2	**723**	1.970 J	**0.926 J**	8.6	11.5	9.08	8.55	4.98
		95.1	2-4	174	0.0876	0.0369 J	0.325	0.422	0.353	0.452	0.195

Sample Location	Sample Date	Field Screening	Depth Interval	Benzo(k) fluoranthene	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene
		IU	feet	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Former PAH Interim Guidance RCL for Protection of GW				870 mg/kg	37 mg/kg	38 mg/kg	500 mg/kg	100 mg/kg	680 mg/kg	0.4 mg/kg	1.8 mg/kg	8,700 mg/kg
GMIA 8C	3/8/2012	203	5.0	<0.0038	<0.0038	<0.0056	<0.0104	<0.0052	<0.0029	<0.0036	<0.0046	<0.0038
GMIA 9C	3/8/2012	195	5.0	0.0468 J	0.0888	<0.0224	0.237	0.0595 J	0.0246 J	**0.861**	0.146	0.169
MW-2	3/7/2012	30.0	0-2	0.318	0.339	0.0691	0.932	0.436	0.199	0.101	0.506	0.664
		41.9	2-4	0.0766 J	0.118	<0.0272	0.314	0.0774 J	0.0404 J	**1.02**	0.219	0.222
MW-3	3/7/2012	57.1	0-2	7.73	11.9	1.930 J	28.3	3.56	4.56	**5.65**	**24.1**	19.9
		95.1	2-4	0.196	0.443	0.0668	1.11	0.124	0.176	0.284	0.876	0.721

Notes:

All detections presented in **bold** type indicates an exceedance of the former NR 720 RCL or PAH Interim Guidance RCL for the Protection of Groundwater.
Results are reported on a dry weight basis.
IU Instrument units; photoionization detector was field-calibrated to 100 parts per million isobutylene span gas.
mg/kg milligrams per kilogram, approximately equivalent to parts per million
TMB Trimethylbenzene
J Estimated concentration detected between the detection limit and reporting limit.
NM Not Measured

TABLE A.6.a.1
Surface Water Sample Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
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MKEREF100

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.4	<32.4
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.1	<32.4
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.4	<32.4
2/6/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.1	<32.4
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.1	<32.4
2/8/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.1	<32.4
2/8/2012 D	<0.41	<0.54	<0.89	<0.67	<2.63	<10.1	<32.4
2/9/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.1	<32.4
2/16/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**209**	<32.4
2/28/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**25 J**	<32.4
3/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**43 J**	<32.4
3/13/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**41 J**	<32.4
3/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**40 J**	<32.4
3/30/2012	<0.41	<0.54	NA	<0.67	<2.63	**280**	<32.4
4/3/2012	<0.41	<0.54	NA	<0.67	<2.63	<10	<32.4
4/9/2012	<0.41	<0.54	NA	<0.67	<2.63	<32.4	<11
4/19/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10	<32.4
4/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**25 J**	<32.4
5/3/2012	<0.41	<0.54	NA	<0.67	<2.63	**47 J**	<32.4
5/9/2012	<0.41	<0.54	NA	<0.67	<2.63	**93**	<32.4
5/14/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**37 J**	<32.4
5/22/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**23 J**	<32.4
5/30/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**40 J**	<32.4
6/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**50**	<32.4
6/12/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**29 J**	<32.4
6/19/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**57**	<32.4
6/27/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**13 J**	<32.4
7/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**47 J**	<32.4
7/12/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**16 J**	<32.4

MKEREF100T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/6/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/8/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/16/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKEREF200

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**23.1 J**	<32.4
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.1	<32.4
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**30.4 J**	<32.4
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**22.0 J**	<32.4

MKEREF200T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKEREF300

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/3/2012	<0.41	<0.54	**0.028 J**	<0.67	<2.63	**65.4**	<32.4
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**72.5**	<32.4
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**64.9**	<32.4

MKEREF300T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

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MKEREF400

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/4/2012	<4.1	<5.4	<8.9	<6.7	<26.3	**245**	**105**

MKEREF400T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKEREF500

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**15.1 J**	<32.4

MKEREF500T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

NWOF

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/24/2012	<0.41	**0.87 J**	**11.4**	**0.94 J**	**7.3**	**101**	**499**
2/29/2012	<0.41	**0.71 J**	**1.6 J**	**1.1**	**3.50 J**	**270**	**41.4 J**
3/2/2012	<0.41	**0.79 J**	**4.5 J**	**0.92 J**	**3.5**	**120**	**128**
3/6/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**310**	<32.4
3/8/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**130**	<32.4
3/12/2012	<0.82	<1.1	<1.8	<1.3	<5.30	**360**	<32.4
3/14/2012	<0.41	<0.54	**1.1 J**	<0.67	<2.63	**230**	<32.4
3/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**610**	**40.1 J**
3/30/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**590**	<32.4
4/15/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**250**	<32.4
4/19/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**150**	<32.4
4/19/2012 D	<0.41	<0.54	<0.89	<0.67	<2.63	**390**	<32.4
4/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**290**	<32.4
5/3/2012	<0.41	<0.54	NA	<0.67	<2.63	**390**	<32.4
5/9/2012	<0.41	<0.54	NA	<0.67	<2.63	**210**	<32.4
5/14/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**180**	<32.4
5/22/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**420**	<32.4
5/30/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**190**	<32.4
6/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**290**	<32.4
6/12/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**510**	<32.4
6/19/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**250**	<32.4
6/27/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**330**	<32.4
7/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**200**	<32.4
7/12/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**320**	<32.4

MKESTR100-BEFORE

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/6/2012	<0.41	<0.54	**1.2 J**	<0.67	<2.63	**277**	<32.4
2/6/2012 D	<0.41	<0.54	**1.2 J**	<0.67	<2.63	**145**	<32.4

MKESTR100-DURING

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/6/2012	<0.41	<0.54	1.3 J	<0.67	<2.63	**169**	<32.4

MKESTR100-AFTER

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/6/2012	<0.41	<0.54	**3.1 J**	<0.67	**2.9**	**211**	**53.6**

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MKESTR100

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	**2.8 J**	<0.67	<2.63	**382**	**68.1**
2/3/2012	<0.41	**0.58 J**	**2.6 J**	**0.71 J**	**2.72 J**	**151**	**61.9**
2/4/2012	<0.41	**0.98 J**	**9.3**	<0.67	**5.9**	**277**	**162**
2/4/2012 D	<0.41	**1.1**	**9.7**	<0.67	**5.2**	**307**	**169**
2/5/2012	<0.41	<0.54	**1.4 J**	<0.67	<2.63	**226**	<32.4
2/8/2012	<0.41	<0.54	**2.1 J**	<0.67	<2.63	**149**	**41.7 J**
2/9/2012	<0.41	<0.54	**2.5 J**	<0.67	<2.63	**106**	**43.3 J**
2/16/2012	<4.1	<5.4	<8.9	<6.7	<26.3	**440**	**151**
2/28/2012	<0.41	<0.54	**1.7 J**	<0.67	<2.63	**57.3**	**280**
3/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**55.4**	**230**
3/13/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**150**	<32.4
3/13/2012 D	<0.41	<0.54	<0.89	<0.67	<2.63	**130**	<32.4
3/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**540**	<32.4
3/30/2012	<0.41	<0.54	NA	<0.67	<2.63	**400**	<32.4
4/3/2012	<0.41	<0.54	NA	<0.67	<2.63	**86**	<32.4
4/9/2012	<0.41	<0.54	NA	<0.67	<2.63	**84**	<32.4
4/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**150**	<32.4
5/22/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**130**	<32.4
6/27/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**52**	<32.4

MKESTR100T-BEFORE

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/6/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKESTR100T-DURING

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/6/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKESTR100T-AFTER

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKESTR100T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/9/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKESTR200

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	**1.0 J**	<0.67	<2.63	**175**	<32.4
2/3/2012	<0.41	<0.54	**1.2 J**	<0.67	<2.63	**195**	<32.4
2/4/2012	<0.41	<0.54	**1.2 J**	<0.67	<2.63	**116**	<32.4
2/5/2012	<0.41	<0.54	**0.93 J**	<0.67	<2.63	**152**	<32.4

MKESTR200T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

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MKESTR300

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**214**	<32.4
2/3/2012 D	<0.41	<0.54	<0.89	<0.67	<2.63	**464**	<32.4
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**117**	<32.4
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**90.7**	<32.4
2/6/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**1,060**	<32.4
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**97.8**	<32.4
2/8/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**40.7 J**	<32.4
2/9/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**128**	<32.4
2/16/2012	<0.82	<1.1	<1.8	<1.3	<5.3	**273**	<32.4
2/28/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**210**	<32.4
3/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**120**	<32.4
3/13/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**86**	<32.4
3/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**1,100**	<32.4
3/30/2012	<0.41	<0.54	NA	<0.67	<2.63	**2,300**	<32.4
4/3/2012	<0.41	<0.54	NA	<0.67	<2.63	**84**	<32.4
4/9/2012	<0.41	<0.54	NA	<0.67	<2.63	**40 J**	<32.4
4/19/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**100**	<32.4
4/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**110**	<32.4
5/3/2012	<0.41	<0.54	NA	<0.67	<2.63	**310**	<32.4
5/9/2012	<0.41	<0.54	NA	<0.67	<2.63	**420**	<32.4
5/14/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**51**	<32.4
5/22/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**110**	<32.4
5/30/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**180**	<32.4
6/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**120**	<32.4
6/12/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**36 J**	<32.4
6/19/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**130**	<32.4
6/27/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**66**	<32.4
7/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**36 J**	<32.4
7/12/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**92**	<32.4

MKESTR300T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/6/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/9/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKESTR400

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**165**	<32.4
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**140**	<32.4
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**138**	<32.4
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**189**	<32.4
2/5/2012 D	<0.41	<0.54	<0.89	<0.67	<2.63	**214**	<32.4

MKESTR400T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

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MKESTR450

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**176**	<32.4
2/8/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**266**	<32.4
2/9/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**210**	<32.4
2/16/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**226**	<32.4
2/28/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**550**	<32.4
3/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**220**	<32.4
3/13/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**120**	<32.4
3/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**980**	<32.4
3/30/2012	<0.41	<0.54	NA	<0.67	<2.63	**810**	<32.4
4/3/2012	<0.41	<0.54	NA	<0.67	<2.63	**55**	<32.4
4/9/2012	<0.41	<0.54	NA	**1.5**	<2.63	**95**	<32.4
4/23/2012	<0.41	<0.54	<0.89	**0.95 J**	<2.63	**120**	<32.4
5/22/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**43 J**	<32.4
6/27/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**65**	<32.4

MKESTR450T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/9/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/16/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKESTR500

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	**2.4 J**	<0.67	<2.63	**311**	**51.9**
2/3/2012	<0.41	<0.54	**1.6 J**	0.68 J	<2.63	**228**	<32.4
2/4/2012	<0.41	<0.54	**1.1 J**	<0.67	<2.63	**162**	<32.4
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**131**	<32.4

MKESTR500T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKESTR600

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.6	<32.4
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.3	<32.4
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.2	<32.4
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.1	<32.4
2/6/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**22.7 J**	<32.4
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**17.3 J**	<32.4
2/8/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**192**	<32.4
2/8/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**119**	<32.4
2/9/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**153**	<32.4
2/16/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**33.3 J**	<32.4
2/28/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**48 J**	<32.4
3/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**18 J**	<32.4
3/13/2012	<0.41	<0.54	<0.89	**0.82 J**	<2.63	**59**	<32.4
3/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**130**	<32.4
3/30/2012	<0.41	<0.54	NA	<0.67	<2.63	**100**	<32.4
4/3/2012	<0.41	<0.54	NA	<0.67	<2.63	**18 J**	<32.4
4/9/2012	<0.41	<0.54	NA	<0.67	<2.63	**19 J**	<32.4
4/23/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**91**	<32.4
5/22/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**92**	<32.4
6/27/2012	<0.41	<0.54	<0.89	<0.67	<2.63	**25 J**	<32.4

TABLE A.6.a.1
Surface Water Sample Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MKESTR600T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/6/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/7/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/8/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/8/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

MKESTR700

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.4	<32.4
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.3	<32.4
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.4	<32.4
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	<10.1	<32.4

MKESTR700T

Date	Benzene	Ethylbenzene	Naphthalene	Toluene	Total Xylenes	DRO	GRO
2/2/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/3/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/4/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA
2/5/2012	<0.41	<0.54	<0.89	<0.67	<2.63	NA	NA

Notes:
All detections are presented in **bold** type.
Results are expressed in µg/L (ppb).

D	Duplicate sample
NS	No Standard
GRO	Gasoline Range Organics
DRO	Diesel Range Organics
1,2,4-TMB	1,2,4-Trimethylbenzene
1,3,5-TMB	1,3,5-Trimethylbenzene
J	Estimated concentration detected between the detection limit and reporting limit.

TABLE A.6.a.2
Surface Water Sample Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MKEREF100

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/3/2012	0	**0.039 J**	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	NA	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021
5/22/2012	0	**0.0065 JB**	<0.0036	<0.0046	<0.0048	<0.0082	<0.0058	**0.0099 J**	**0.0057 J**	<0.0037	**0.0036 J**	<0.0044	<0.0034	<0.0029	<0.0049	**0.0032**	<0.0047
6/27/2012	0	**0.0077 JB**	<0.0038	<0.0048	<0.0051	<0.0086	<0.0061	**0.019 J**	**0.014 J**	**0.0068 J**	**0.012 J**	**0.012 J**	**0.0090 J**	**0.0090 J**	**0.0098 J**	<0.0034	**0.0073 J**

MKENWOF

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
5/22/2012	0	**0.044 JB**	**0.0063 J**	**0.012 J**	**0.011 J**	**0.020 J**	**0.014 J**	**0.036 J**	**0.020 J**	<0.0036	**0.0069 J**	<0.0044	**0.0036 J**	<0.0029	<0.0048	<0.0032	<0.0047
6/27/2012	0	**0.036 JB**	**0.017 J**	**0.011 J**	**0.014 J**	**0.034 J**	**0.011 J**	**0.042 J**	**0.045 J**	**0.015 J**	**0.020 J**	**0.015 J**	**0.016 J**	**0.013 J**	**0.011 J**	**0.0046 J**	**0.010 J**

MKESTR100

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/2/2012	0	**3.2**	**0.042 J**	**0.053**	**0.30**	**0.091**	**0.0097 J**	**0.069**	**0.040 J**	**0.0050 J**	**0.013 J**	**0.0080 J**	**0.0073 J**	**0.0047 J**	<0.022	<0.022	<0.022
2/3/2012	0	**2.7**	<0.020	**0.17**	**0.19**	**0.058**	<0.020	**0.046**	**0.026 J**	<0.020	NA	<0.020	<0.020	<0.020	<0.020	<0.020	**0.020 J**
5/22/2012	0	**0.018 JB**	<0.0036	**0.0051 J**	**0.0067 J**	**0.015 J**	**0.0071 J**	**0.026 J**	**0.014 J**	<0.0037	**0.0065 J**	<0.0044	**0.0038 J**	<0.0029	<0.0049	<0.0032	<0.0047
6/27/2012	0	**0.0072 JB**	<0.0038	<0.0048	<0.0051	**0.015 J**	<0.0061	**0.037 J**	**0.023 J**	**0.0055 J**	**0.014 J**	**0.0097 J**	**0.0092 J**	**0.0052 J**	**0.0072 J**	<0.0034	**0.0060 J**

MKEREF200

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/2/2012	0	**0.17**	<0.020	**0.031 J**	**0.028 J**	**0.062**	**0.0080 J**	**0.22**	**0.11**	**0.0084 J**	**0.032 J**	**0.014 J**	<0.020	**0.0084 J**	**0.010 J**	<0.0039	**0.0077 J**

MKESTR200

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/2/2012	0	**1.0**	**0.017 J**	**0.036 J**	**0.15**	**0.18**	**0.016 J**	**0.24**	**0.12**	**0.028 J**	**0.035 J**	**0.020 J**	**0.018 J**	**0.012 J**	**0.013 J**	**0.0036 J**	**0.010 J**
2/3/2012	0	**1.2**	<0.020	**0.11**	**0.12**	**0.14**	<0.020	**0.18**	**0.091**	**0.021 J**	NA	<0.020	<0.020	<0.020	<0.020	<0.020	**0.026 J**

MKEREF300

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/3/2012	0	<0.89	<0.022	<0.022	<0.022	**0.049**	<0.022	**0.12**	**0.066**	<0.022	NA	<0.022	<0.022	<0.022	<0.022	<0.022	**0.025 J**

MKESTR300

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/3/2012	0	**0.55**	**0.033 J**	**0.078**	**0.11**	**0.25**	**0.031 J**	**0.47**	**0.26**	**0.082**	NA	**0.064**	**0.028 J**	**0.092**	**0.088**	<0.020	**0.085**
2/3/2012	0	**0.60**	**0.040 J**	**0.11**	**0.14**	**0.33**	**0.043**	**0.71**	**0.42**	**0.15**	NA	**0.11**	**0.050**	**0.18**	**0.16**	<0.021	**0.15**
5/22/2012	0	**0.0086 JB**	<0.0038	<0.0048	<0.0051	**0.013J**	**0.0070 J**	**0.023 J**	**0.011 J**	<0.0038	**0.0062 J**	<0.0046	<0.0036	<0.0030	<0.0051	<0.0034	<0.0050
6/27/2012	0	**0.0082 JB**	<0.0037	<0.0046	<0.0049	**0.012 J**	<0.0058	**0.020 J**	**0.011 J**	**0.0044 J**	**0.0075 J**	**0.0056 J**	**0.0046 J**	**0.0038 J**	<0.0049	<0.0033	<0.0048

MKESTR400

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/2/2012	0	**0.84**	**0.015 J**	**0.026 J**	**0.15**	**0.17**	**0.017 J**	**0.25**	**0.13**	**0.032 J**	**0.035 J**	**0.020 J**	**0.016 J**	**0.011 J**	**0.012 J**	<0.021	**0.0094 J**
2/3/2012	0	**0.41**	<0.020	**0.074**	**0.10**	**0.14**	<0.020	**0.23**	**0.12**	**0.025 J**	NA	<0.020	<0.020	**0.022 J**	<0.020	<0.020	**0.031 J**

TABLE A.6.a.2
Surface Water Sample Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

RI-12S

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
5/18/2000	0.2	ND	ND	ND	ND	0.42	ND	1.4	0.49	0.22	0.35	0.22	0.5	0.33	0.36	0.21	0.36
8/17/2000	0.4	ND	ND	ND	ND	0.2	ND	0.34	0.13	0.093	0.09	0.073	0.12	0.092	0.096	ND	0.062
10/1/2000	0.1	ND	ND	ND	ND	ND	ND	0.034	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/15/2001	0.1	ND	ND	ND	ND	ND	ND	0.098	ND	ND	ND	ND	ND	0.051	ND	ND	ND
6/13/2001	0.2	0.15	ND	ND	0.15	0.21	ND	0.069	ND	ND	ND	ND	ND	ND	ND	ND	ND
6/28/2001	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/18/2001	0.2	ND	ND	ND	ND	0.15	ND	0.14	ND	ND	0.028	ND	0.031	0.086	ND	ND	ND
7/8/2002	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/9/2002	0.2	ND	ND	6.6	ND	ND	ND	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/13/2002	0.1	ND	0.54	ND	0.067	0.16	0.017	0.22	0.15	0.045	0.057	0.034	0.075	0.058	ND	ND	0.096
6/18/2003	0.1	ND	0.29	ND	ND	0.032	ND	0.069	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/25/2003	0.2	ND	ND	ND	ND	0.073	0.013	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/14/2004	0.1	0.39	0.55	ND	ND	0.098	0.016	0.23	0.23	0.088	0.12	0.026	0.093	0.084	ND	ND	0.084
5/22/2004	0.1	ND	ND	ND	ND	0.1	0.019	0.26	ND	0.06	0.11	0.053	0.11	0.086	ND	ND	0.071
7/29/2004	0.1	ND	ND	ND	ND	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/24/2004	0.1	ND	ND	ND	ND	0.032	ND	0.086	ND	ND	ND	ND	ND	ND	ND	ND	ND
6/23/2005	0.1	ND	ND	ND	ND	0.038	ND	0.057	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/26/2005	0.1	ND	ND	ND	ND	0.064	ND	0.17	0.13	0.032	0.052	0.025	0.054	0.044	ND	ND	0.04
10/24/2005	0.4	ND	ND	ND	ND	0.08	ND	0.21	0.13	0.023	0.061	0.029	0.07	0.041	ND	ND	0.054
3/13/2006	0.83	ND	ND	ND	ND	0.17	ND	0.39	0.31	0.082	0.15	0.068	0.16	0.12	0.099	ND	0.13
7/20/2006	0.23	ND	0.35	ND	ND	0.096	0.026	0.23	0.14	0.032	0.05	0.021	0.042	0.027	ND	ND	ND
8/17/2006	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/3/2007	0.2	0.022	0.024	0.017	0.017	0.18	0.047	0.47	0.35	0.15	0.22	0.24	0.36	0.26	0.24	0.062	0.21
7/24/2007	0.37	ND	ND	ND	ND	0.02	ND	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/20/2007	0.2	0.013	ND	0.025	0.023	0.1	0.049	0.28	0.18	0.064	0.1	0.084	0.13	0.084	0.075	0.021	0.058
12/2/2007	0.67	0.7	ND	ND	ND	3.2	0.57	6.8	4.5	1.3	3.6	2.6	2.7	1.8	1.9	ND	1.5
4/11/2008	0.05	0.038	0.014	0.016	0.015	0.12	0.028	0.4	0.26	0.08	0.19	0.15	0.15	0.11	0.12	0.026	0.098
6/8/2008	0.1	ND	0.0086	0.011	0.011	0.055	0.021	0.19	0.17	0.081	0.092	0.08	0.11	0.082	0.072	0.014	0.06
7/29/2008	0.22	ND	ND	ND	ND	0.014	ND	0.018	0.0096	ND	ND	ND	ND	ND	ND	ND	ND
11/25/2008	0.48	ND	0.25	ND	0.04	0.25	0.18	0.76	0.71	0.42	0.52	0.61	0.64	0.71	0.61	0.13	0.5
4/27/2009	0.6	0.029	0.012	0.017	0.016	0.046	0.026	0.14	0.11	0.038	0.064	0.052	0.061	0.048	0.049	0.011	0.039
6/19/2009	0.98	0.013	0.014	0.022	0.018	0.1	0.043	0.38	0.26	0.11	0.16	0.12	0.19	0.14	0.11	0.029	0.094
7/9/2009	0.27	0.012	0.021	0.014	0.013	0.024	0.017	0.081	0.037	0.009	0.013	ND	0.0071	0.0035	ND	ND	ND
8/26/2009	0.6	0.015	ND	0.0084	0.011	0.046	0.03	0.14	0.083	0.024	0.049	0.032	0.038	0.03	0.028	0.0065	0.023
6/16/2010	0.34	0.028	0.0038	0.014	0.01	0.038	0.021	0.11	0.073	0.023	0.047	0.036	0.046	0.03	0.031	0.0074	0.025
7/15/2010	0.87	0.019	0.013	0.014	0.012	0.076	0.045	0.28	0.22	0.091	0.15	0.14	0.13	0.12	0.11	0.033	0.085
8/30/2010	0.36	0.0084	ND	ND	ND	0.012	ND	0.029	0.024	0.0063	0.015	0.0087	0.0093	0.0063	0.006	ND	ND

TABLE A.6.a.2
Surface Water Sample Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

RI-13S

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
5/18/2000	0.2	ND	ND	ND	ND	0.54	0.1	1.3	0.53	0.25	0.36	0.23	0.51	0.35	0.36	0.22	0.36
8/17/2000	0.1	ND	ND	ND	ND	0.19	ND	0.29	0.13	0.089	0.09	0.075	0.12	0.088	0.097	ND	0.061
10/1/2000	0.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/15/2001	0.1	ND	ND	ND	ND	ND	ND	0.092	ND	ND	ND	ND	ND	0.053	ND	ND	ND
6/13/2001	0.2	0.31	ND	ND	ND	0.2	ND	0.066	ND	ND	ND	ND	ND	ND	ND	ND	ND
6/28/2001	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/18/2001	0.2	ND	ND	ND	ND	ND	ND	0.17	0.71	ND	ND	ND	ND	0.15	ND	ND	ND
7/8/2002	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/9/2002	0.1	ND	ND	ND	ND	ND	ND	0.11	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/13/2002	0.1	ND	ND	ND	ND	0.19	0.022	0.27	0.22	0.057	0.093	0.042	0.088	0.087	0.067	0.11	0.1
6/18/2003	0.1	ND	ND	ND	ND	0.03	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/25/2003	0.2	ND	ND	ND	ND	0.094	0.013	0.14	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/14/2004	0.1	ND	0.51	ND	ND	0.12	0.019	0.4	0.36	0.088	0.18	0.079	0.16	0.14	0.11	ND	0.11
5/22/2004	0.1	ND	ND	ND	ND	0.1	0.018	0.21	ND	0.046	0.084	0.038	0.08	0.062	ND	ND	0.051
7/29/2004	0.1	ND	ND	ND	ND	0.025	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/24/2004	0.1	ND	ND	ND	ND	0.028	ND	0.077	ND	ND	ND	ND	ND	ND	ND	ND	ND
6/23/2005	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9/26/2005	0.1	ND	ND	ND	ND	0.062	ND	0.16	0.12	0.029	0.052	0.022	0.05	0.041	ND	ND	0.037
10/24/2005	0.2	ND	ND	ND	ND	0.08	ND	0.2	0.12	0.019	0.049	ND	0.05	0.029	ND	ND	0.038
3/13/2006	0.21	ND	ND	ND	ND	0.16	ND	0.35	0.27	0.072	0.13	0.06	0.14	0.1	0.09	ND	0.11
7/20/2006	0.16	ND	0.36	ND	ND	0.095	0.027	0.24	0.14	0.03	0.051	ND	0.045	0.032	ND	ND	ND
8/17/2006	0.07	ND	ND	ND	ND	0.032	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4/3/2007	0.3	0.03	0.027	0.02	0.021	0.2	0.053	0.52	0.39	0.17	0.23	0.26	0.41	0.28	0.26	0.07	0.23
7/24/2007	0.3	ND	ND	ND	ND	0.02	ND	0.021	ND	ND	ND	ND	ND	ND	ND	ND	ND
8/20/2007	0.4	ND	0.011	0.028	0.03	0.13	0.059	0.36	0.25	0.092	0.14	0.11	0.15	0.12	0.1	0.027	0.078
12/2/2007	0.21	ND	ND	ND	ND	1.1	0.22	2.9	1.9	0.59	1.6	1.2	1.2	0.88	0.9	ND	0.74
4/11/2008	0.01	0.032	0.013	0.017	0.019	0.13	0.038	0.43	0.29	0.093	0.21	0.16	0.16	0.12	0.13	0.028	0.1
6/8/2008	0.1	ND	0.0074	0.014	0.013	0.075	0.03	0.22	0.18	0.076	0.088	0.077	0.099	0.079	0.069	0.013	0.055
7/29/2008	0.1	ND	ND	ND	ND	0.016	ND	0.013	ND	ND	ND	ND	ND	ND	ND	ND	ND
11/25/2008	0.28	ND	ND	ND	0.0078	0.082	0.022	0.13	0.076	0.019	0.043	0.022	0.032	0.013	0.022	0.0052	0.018
4/27/2009	0.25	0.028	0.007	0.016	0.013	0.039	0.022	0.12	0.088	0.032	0.054	0.042	0.048	0.04	0.037	0.0075	0.031
6/19/2009	0.2	0.014	0.02	0.021	0.027	0.16	0.072	0.64	0.44	0.19	0.27	0.22	0.29	0.23	0.19	0.053	0.16
7/9/2009	0.27	0.013	0.018	0.02	0.016	0.039	0.018	0.061	0.022	0.0052	0.0068	ND	ND	ND	ND	ND	ND
8/26/2009	0.34	0.0096	0.0039	0.0059	0.0085	0.05	0.044	0.17	0.094	0.031	0.058	0.029	0.052	0.029	0.033	0.0087	0.027
6/16/2010	0.15	0.022	ND	0.018	0.011	0.042	0.019	0.096	0.051	0.012	0.029	0.014	0.02	0.012	0.012	ND	0.0096
7/15/2010	0.58	0.02	0.013	0.018	0.019	0.087	0.05	0.27	0.21	0.091	0.13	0.12	0.11	0.11	0.096	0.027	0.078
8/30/2010	0.33	0.011	ND	0.0055	ND	0.011	ND	0.017	0.0094	ND	0.0071	ND	0.0043	ND	ND	ND	ND

MKESTR450

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
5/22/2012	0	0.010 JB	<0.0036	0.0089 J	0.0068 J	0.021 J	0.0083 J	0.045 J	0.021 J	<0.0036	0.012 J	0.0055 J	0.0063 J	<0.0029	<0.0048	<0.0032	<0.0047
6/27/2012	0	0.0082 JB	<0.0037	0.0079 J	<0.0050	0.023 J	0.0082 J	0.072	0.054 J	0.014 J	0.026 J	0.019 J	0.021 J	0.015 J	0.015 J	0.0050 J	0.012 J

MKESTR500

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/2/2012	0	1.9	0.047 J	0.063	0.27	0.22	0.032 J	0.30	0.18	0.064	0.11	0.081	0.082	0.063	0.061	0.018 J	0.051
2/3/2012	0	1.5	<0.021	0.18	0.21	0.15	<0.021	0.22	0.12	0.032 J	NA	0.024 J	<0.021	0.032 J	0.029 J	<0.021	0.042

RI-14M

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
6/16/2010	3.06	0.028	0.0066	0.044	0.029	0.088	0.043	0.26	0.16	0.046	0.084	0.057	0.07	0.049	0.038	0.0097	0.029
7/15/2010	3.25	0.04	0.0078	0.03	0.028	0.073	0.051	0.19	0.13	0.042	0.062	0.052	0.048	0.043	0.041	0.01	0.032
8/30/2010	3.01	0.0071	ND	ND	ND	0.013	0.0083	0.054	0.13	0.019	0.038	0.029	0.032	0.024	0.024	0.0045	0.016

TABLE A.6.a.2
Surface Water Sample Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

RI-14S

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
5/18/2000	1.000	ND	ND	0.11	0.13	1.4	0.29	2.9	1.1	0.19	0.8	0.5	1.2	0.79	0.76	0.67	0.86
8/17/2000	1.000	ND	ND	ND	ND	0.19	ND	0.79	0.39	0.16	0.15	0.1	0.2	0.13	0.14	ND	0.097
10/1/2000	1.000	ND	ND	ND	ND	ND	ND	0.089	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/15/2001	1.000	ND	ND	ND	ND	0.4	ND	1.2	0.93	0.22	0.4	0.2	0.52	0.39	0.37	0.17	0.32
6/13/2001	1.000	ND	ND	ND	ND	ND	ND	0.51	0.44	0.058	0.11	0.054	0.14	0.077	ND	ND	0.081
6/28/2001	1.000	ND	ND	ND	ND	0.13	ND	0.33	0.27	0.043	0.1	0.049	0.13	0.052	ND	ND	0.075
7/18/2001	1.000	ND	ND	ND	ND	ND	ND	0.37	0.31	0.041	0.068	ND	0.074	0.09	ND	ND	ND
7/8/2002	1.1	ND	ND	ND	ND	0.082	0.013	0.27	0.32	0.045	0.14	0.05	0.14	0.12	ND	ND	0.095
7/9/2002	1.000	ND	ND	ND	ND	0.16	0.022	0.6	0.4	0.12	0.25	0.11	0.23	0.19	0.1	0.14	0.18
8/13/2002	1.000	ND	ND	ND	0.085	0.17	0.024	0.36	0.23	0.054	0.092	0.041	0.087	0.069	0.081	ND	0.072
6/18/2003	1.000	ND	ND	ND	ND	0.068	0.017	0.27	0.34	0.061	0.096	0.045	0.1	0.098	0.13	0.16	0.071
10/25/2003	1.000	ND	ND	ND	ND	0.24	0.063	0.75	0.48	0.13	0.28	0.12	0.27	0.25	0.16	ND	0.22
5/14/2004	1.000	ND	0.29	ND	ND	0.12	0.028	0.51	0.36	0.088	0.17	0.088	0.2	0.13	ND	ND	0.12
5/22/2004	1.000	ND	ND	ND	ND	0.31	0.057	0.84	0.55	0.21	0.35	0.18	0.37	0.3	0.2	ND	0.25
7/29/2004	1.000	ND	ND	ND	ND	0.078	0.016	0.25	ND	0.055	0.087	0.032	0.095	0.06	ND	ND	0.07
10/24/2004	1.000	ND	ND	ND	ND	0.031	0.015	0.16	ND	0.038	0.059	0.028	0.063	0.039	ND	ND	0.044
6/23/2005	1.000	ND	ND	ND	ND	0.066	0.039	0.33	0.28	0.085	0.13	0.074	0.13	0.1	0.11	ND	0.11
9/26/2005	1.000	ND	ND	ND	0.059	0.18	0.05	0.35	0.24	0.05	0.082	0.037	0.082	0.065	ND	ND	0.06
10/24/2005	1.000	ND	ND	ND	ND	0.062	ND	0.16	0.12	0.027	0.055	0.025	0.057	0.041	ND	ND	0.043
3/13/2006	1.04	ND	ND	ND	0.065	0.29	0.059	0.53	0.4	0.11	0.18	0.084	0.18	0.15	0.12	0.092	0.14
7/20/2006	1.000	ND	0.48	ND	0.087	0.2	0.064	0.35	0.21	0.038	0.066	0.024	0.053	0.04	ND	ND	0.035
8/17/2006	1.1	ND	ND	ND	ND	0.1	0.043	0.54	0.37	0.097	0.15	0.06	0.13	0.11	0.084	ND	0.1
4/3/2007	1.18	0.089	0.054	0.052	0.063	0.85	0.15	2.3	1.5	0.64	0.98	1.1	1.2	1.1	0.88	0.26	0.77
7/24/2007	1.01	ND	0.012	ND	ND	0.092	0.023	0.43	0.42	0.11	0.2	0.16	0.29	0.19	0.18	0.048	0.14
8/20/2007	1.05	0.031	0.014	0.086	0.095	0.34	0.14	0.67	0.45	0.18	0.24	0.22	0.31	0.23	0.18	0.045	0.14
12/2/2007	1.03	ND	0.049	ND	ND	0.36	0.13	1.9	1.3	0.53	1	0.79	0.75	0.71	0.65	0.15	0.51
4/11/2008	0.97	0.036	0.021	0.026	0.024	0.2	0.054	0.66	0.45	0.16	0.31	0.24	0.26	0.22	0.22	0.048	0.18
6/8/2008	0.96	ND	ND	0.044	0.045	0.2	0.066	0.59	0.47	0.19	0.21	0.17	0.21	0.18	0.15	0.031	0.12
7/29/2008	1.03	ND	0.013	ND	ND	0.074	0.027	0.34	0.49	0.14	0.19	0.14	0.23	0.16	0.16	0.04	0.12
11/25/2008	1.04	ND	0.016	0.026	0.018	0.066	0.03	0.42	0.3	0.082	0.14	0.088	0.12	0.077	0.087	0.02	0.063
4/27/2009	0.98	0.019	0.016	0.02	0.021	0.12	0.044	0.4	0.31	0.11	0.18	0.13	0.18	0.14	0.12	0.031	0.1
6/19/2009	0.32	0.026	0.02	0.023	0.038	0.15	0.065	0.48	0.35	0.16	0.2	0.15	0.24	0.19	0.14	0.04	0.12
7/9/2009	1.17	0.0089	0.013	0.0071	0.0085	0.068	0.034	0.32	0.52	0.095	0.13	0.097	0.15	0.12	0.1	0.02	0.075
8/26/2009	1.39	0.0082	0.011	ND	0.0064	0.081	0.06	0.39	0.34	0.12	0.2	0.13	0.24	0.16	0.14	0.033	0.12

TABLE A.6.a.2
Surface Water Sample Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

RI-18M

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
5/18/2000	4.5	ND	ND	ND	ND	0.29	0.11	1.4	0.51	0.28	0.28	0.19	0.41	0.31	0.32	0.19	0.28
8/17/2000	4.000	ND	ND	ND	ND	ND	ND	ND	0.13	0.049	0.028	0.037	0.031	0.037	ND	ND	ND
10/1/2000	4.1	ND	ND	ND	ND	ND	ND	0.051	0.14	ND	ND	ND	ND	ND	ND	ND	ND
5/15/2001	4.6	ND	ND	ND	ND	ND	ND	0.073	ND	ND	0.027	ND	ND	0.073	ND	ND	ND
6/13/2001	4.5	ND	ND	ND	ND	ND	ND	0.082	ND	ND	0.024	ND	0.054	0.035	ND	ND	ND
6/28/2001	4.5	0.098	ND	ND	ND	0.3	0.11	0.76	0.64	0.23	0.31	0.19	0.39	0.22	0.31	0.3	0.23
7/18/2001	4.5	ND	ND	ND	ND	ND	ND	0.06	0.11	ND	ND	ND	ND	ND	ND	ND	ND
7/8/2002	4.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/9/2002	4.5	ND	ND	ND	ND	ND	ND	0.1	0.12	0.029	0.052	ND	0.054	0.047	ND	ND	0.028
8/13/2002	4.5	ND	ND	ND	ND	ND	ND	0.14	0.13	ND	0.038	ND	ND	ND	ND	ND	ND
6/18/2003	4.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/25/2003	4.000	ND	ND	ND	ND	0.018	0.0098	0.06	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/14/2004	4.5	0.37	0.6	ND	ND	0.03	0.0092	0.087	ND	0.037	0.041	0.019	0.04	0.049	ND	ND	0.036
5/22/2004	4.5	ND	ND	ND	ND	0.065	0.021	0.22	0.2	0.059	0.094	0.051	0.11	0.09	ND	ND	0.069
7/29/2004	4.5	ND	ND	ND	ND	0.016	0.0076	0.055	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/24/2004	4.5	ND	ND	ND	ND	0.016	0.01	0.075	ND	0.022	0.027	ND	0.035	ND	ND	ND	ND
6/23/2005	4.5	ND	ND	ND	ND	ND	ND	0.097	0.092	0.02	0.026	ND	0.027	0.021	ND	ND	ND
9/26/2005	4.2	ND	ND	ND	ND	0.044	0.039	0.39	0.29	0.048	0.08	0.029	0.066	0.052	ND	ND	0.042
10/24/2005	4.6	ND	ND	ND	ND	0.04	ND	0.13	0.2	0.055	0.073	0.034	0.074	0.069	ND	ND	0.055
3/13/2006	5.51	ND	0.19	ND	0.037	0.16	0.029	0.4	0.27	0.048	0.099	0.043	0.096	0.066	ND	ND	0.071
7/20/2006	4.62	ND	ND	ND	ND	ND	ND	0.11	0.15	0.031	0.046	ND	0.046	0.034	ND	ND	ND
8/17/2006	4.55	ND	ND	ND	ND	ND	ND	0.11	0.12	0.025	0.036	ND	0.035	0.026	ND	ND	ND
4/3/2007	4.5	0.022	0.019	0.025	0.026	0.19	0.043	0.55	0.37	0.14	0.23	0.23	0.35	0.24	0.22	0.057	0.19
7/24/2007	4.37	ND	ND	ND	ND	0.014	ND	0.078	0.077	ND	0.029	0.022	0.031	0.023	ND	ND	ND
8/20/2007	4.4	ND	ND	ND	ND	0.06	0.023	0.22	0.23	0.081	0.098	0.07	0.14	0.098	0.076	0.02	0.058
12/2/2007	4.61	0.014	0.012	ND	ND	0.036	0.017	0.13	0.14	0.044	0.076	0.058	0.054	0.055	0.043	ND	0.032
4/11/2008	4.6	0.029	0.025	0.034	0.03	0.26	0.068	0.92	0.61	0.21	0.43	0.32	0.36	0.28	0.28	0.071	0.22
6/8/2008	4.1	ND	ND	0.1	0.087	0.21	0.097	0.96	0.66	0.17	0.24	0.15	0.2	0.13	0.14	0.028	0.11
7/29/2008	4.69	ND	ND	ND	ND	0.012	ND	0.039	0.11	0.016	0.031	0.019	0.03	0.016	0.019	ND	0.014
11/25/2008	4.7	ND	ND	ND	ND	0.016	0.0078	0.069	0.076	0.022	0.036	0.026	0.028	0.024	0.022	0.005	0.017
4/27/2009	4.63	0.029	0.019	0.029	0.032	0.17	0.05	0.55	0.4	0.14	0.23	0.16	0.24	0.16	0.16	0.039	0.13
6/19/2009	5.08	0.04	0.025	0.067	0.066	0.2	0.089	0.73	0.51	0.2	0.25	0.19	0.25	0.22	0.17	0.046	0.14
7/9/2009	4.86	0.011	0.0077	ND	0.0063	0.028	0.012	0.12	0.14	0.036	0.05	0.035	0.057	0.045	0.034	0.0064	0.026
8/26/2009	4.98	0.0068	ND	ND	ND	0.018	0.0081	0.062	0.12	0.022	0.04	0.034	0.044	0.027	0.029	0.0072	0.022
6/16/2010	4.68	0.025	0.016	0.0062	0.0093	0.06	0.034	0.26	0.24	0.094	0.15	0.11	0.16	0.12	0.11	0.027	0.088
7/15/2010	4.52	0.018	0.0082	0.025	0.021	0.092	0.043	0.32	0.26	0.067	0.1	0.068	0.11	0.072	0.064	0.016	0.052
8/30/2010	4.61	0.013	0.0085	ND	0.0064	0.022	0.012	0.1	0.13	0.046	0.072	0.054	0.058	0.051	0.041	0.0086	0.03

TABLE A.6.a.2
Surface Water Sample Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

RI-19M

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
5/18/2000	4.1	ND	ND	ND	ND	**0.2**	**0.21**	**0.87**	**0.54**	**0.16**	**0.18**	**0.12**	**0.26**	**0.21**	**ND**	**0.13**	**0.2**
8/17/2000	5.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/1/2000	4.000	ND	ND	ND	ND	ND	ND	**0.033**	**0.12**	ND	ND	ND	ND	ND	ND	ND	ND
5/15/2001	5.3	ND	ND	ND	ND	ND	ND	**0.14**	**0.13**	ND	ND	ND	ND	ND	ND	ND	ND
6/13/2001	4.5	ND	ND	ND	ND	ND	ND	**0.084**	ND	ND	ND	ND	**0.032**	**0.065**	ND	ND	ND
6/28/2001	4.000	ND	ND	ND	ND	ND	ND	**0.048**	ND	ND	ND	ND	**0.022**	**0.041**	ND	ND	ND
7/18/2001	4.9	ND	ND	ND	ND	ND	ND	**0.053**	ND	ND	ND	ND	ND	ND	ND	ND	ND
7/8/2002	4.5	ND	ND	ND	ND	**0.06**	ND	ND	ND	ND	**0.055**	ND	ND	ND	ND	ND	ND
7/9/2002	5.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.032**	ND	ND	**0.033**	ND	ND	**0.025**
8/13/2002	5.000	ND	ND	ND	ND	ND	ND	**0.12**	**0.13**	**0.029**	**0.052**	ND	**0.039**	**0.039**	ND	ND	**0.058**
6/18/2003	4.000	ND	ND	ND	ND	ND	ND	**0.052**	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/25/2003	5.5	ND	ND	ND	ND	**0.017**	**0.01**	**0.061**	ND	ND	ND	ND	ND	ND	ND	ND	ND
5/14/2004	5.000	**0.4**	**0.55**	ND	ND	**0.043**	**0.011**	**0.16**	ND	**0.043**	**0.063**	**0.024**	**0.068**	**0.042**	ND	ND	**0.057**
5/22/2004	4.6	ND	ND	ND	ND	**0.062**	**0.015**	**0.15**	ND	**0.033**	**0.057**	**0.027**	**0.055**	**0.046**	ND	ND	**0.037**
7/29/2004	5.6	ND	ND	ND	ND	**0.018**	**0.0072**	**0.054**	ND	ND	ND	ND	ND	ND	ND	ND	ND
10/24/2004	5.5	ND	ND	ND	ND	**0.022**	**0.011**	**0.081**	ND	**0.024**	**0.03**	ND	**0.037**	ND	ND	ND	ND
6/23/2005	4.9	ND	ND	ND	ND	ND	ND	**0.08**	**0.073**	ND	**0.028**	ND	**0.025**	**0.02**	ND	ND	ND
9/26/2005	4.3	ND	ND	ND	ND	**0.044**	**0.036**	**0.35**	**0.27**	**0.048**	**0.075**	**0.029**	**0.063**	**0.054**	ND	ND	**0.045**
10/24/2005	5.1	ND	ND	ND	ND	ND	ND	**0.1**	**0.15**	**0.039**	**0.054**	**0.024**	**0.054**	**0.048**	ND	ND	**0.042**
3/13/2006	4.55	ND	**0.17**	ND	**0.051**	**0.26**	**0.045**	**0.43**	**0.36**	**0.061**	**0.12**	**0.054**	**0.12**	**0.086**	ND	ND	**0.094**
7/20/2006	4.48	ND	ND	ND	ND	**0.046**	ND	**0.17**	**0.18**	**0.046**	**0.067**	**0.024**	**0.072**	**0.059**	ND	ND	**0.054**
8/17/2006	5.5	ND	ND	ND	ND	ND	ND	**0.079**	**0.081**	ND	**0.029**	ND	ND	**0.019**	ND	ND	ND
4/3/2007	5.000	ND	ND	**0.0087**	ND	**0.038**	ND	**0.13**	**0.091**	**0.028**	**0.047**	**0.045**	**0.068**	**0.044**	**0.039**	ND	**0.034**
7/24/2007	5.32	ND	ND	ND	ND	**0.023**	ND	**0.076**	**0.075**	**0.018**	**0.032**	**0.028**	**0.036**	**0.022**	**0.024**	ND	ND
8/20/2007	5.4	**0.02**	ND	ND	ND	**0.043**	**0.019**	**0.15**	**0.15**	**0.059**	**0.073**	**0.053**	**0.095**	**0.072**	**0.06**	ND	**0.046**
12/2/2007	5.12	ND	ND	ND	ND	**0.033**	**0.013**	**0.11**	**0.1**	**0.035**	**0.068**	**0.054**	**0.05**	**0.044**	**0.042**	ND	**0.031**
4/11/2008	4.6	**0.02**	**0.025**	**0.028**	**0.026**	**0.26**	**0.07**	**1.1**	**0.65**	**0.22**	**0.49**	**0.36**	**0.41**	**0.31**	**0.31**	**0.08**	**0.26**
6/8/2008	5.5	ND	ND	**0.078**	**0.067**	**0.23**	**0.074**	**0.66**	**0.47**	**0.14**	**0.18**	**0.13**	**0.16**	**0.13**	**0.12**	**0.029**	**0.093**
7/29/2008	5.1	ND	ND	ND	ND	**0.011**	ND	**0.034**	**0.088**	**0.013**	**0.025**	**0.017**	**0.022**	**0.012**	**0.016**	ND	**0.011**
11/25/2008	4.89	ND	ND	ND	ND	**0.012**	**0.0078**	**0.047**	**0.054**	**0.014**	**0.024**	**0.017**	**0.016**	**0.012**	**0.015**	ND	**0.011**
4/27/2009	4.73	**0.026**	**0.012**	**0.019**	**0.021**	**0.11**	**0.033**	**0.34**	**0.25**	**0.081**	**0.15**	**0.1**	**0.14**	**0.099**	**0.099**	**0.021**	**0.08**
6/19/2009	5	**0.026**	**0.015**	**0.046**	**0.039**	**0.13**	**0.055**	**0.53**	**0.37**	**0.13**	**0.18**	**0.13**	**0.2**	**0.16**	**0.12**	**0.032**	**0.097**
7/9/2009	4.51	**0.011**	ND	ND	ND	**0.016**	ND	**0.061**	**0.072**	**0.017**	**0.028**	**0.022**	**0.031**	**0.023**	**0.02**	ND	**0.015**
8/26/2009	4.42	**0.0051**	ND	ND	ND	**0.017**	**0.0066**	**0.074**	**0.082**	**0.02**	**0.037**	**0.032**	**0.034**	**0.029**	**0.029**	**0.0075**	**0.022**
7/15/2010	5.24	**0.014**	**0.012**	**0.011**	**0.014**	**0.088**	**0.047**	**0.36**	**0.32**	**0.12**	**0.18**	**0.16**	**0.15**	**0.14**	**0.13**	**0.036**	**0.11**
8/30/2010	5.11	**0.013**	**0.0048**	ND	ND	**0.017**	**0.0091**	**0.067**	**0.11**	**0.024**	**0.041**	**0.028**	**0.031**	**0.025**	**0.022**	**0.0043**	**0.015**

MKESTR600

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/2/2012	0	**0.19**	<0.021	**0.0057 J**	**0.024 J**	**0.048**	<0.021	**0.064**	**0.040 J**	**0.0066 J**	**0.015 J**	**0.0085 J**	**0.0096 J**	**0.0065 J**	**0.0073 J**	<0.021	**0.0054 J**
2/3/2012	0	**0.29**	**0.025 J**	**0.057**	**0.087**	**0.053**	<0.020	**0.042**	<0.020	<0.020	NA	<0.020	<0.020	<0.020	<0.020	<0.020	**0.021 J**
5/22/2012	0	**0.056 B**	**0.0054 J**	<0.0045	**0.0049 J**	**0.024 J**	<0.0057	**0.063**	**0.049**	**0.013 J**	**0.027 J**	**0.025 J**	**0.021 J**	**0.016 J**	**0.016 J**	**0.0036 J**	**0.012 J**
6/27/2012	0	**0.0059 JB**	<0.0046	<0.0037	<0.0049	**0.011 J**	<0.0058	**0.021 J**	**0.034 J**	**0.0068 J**	**0.016 J**	**0.013 J**	**0.011 J**	**0.0079 J**	**0.011 J**	**0.0038 J**	**0.0084 J**

MKESTR700

Sample Collection Date	Depth (meters)	Naphthalene (ug/L)	Acenaphthylene (ug/L)	Acenaphthene (ug/L)	Fluorene (ug/L)	Phenanthrene (ug/L)	Anthracene (ug/L)	Fluoranthene (ug/L)	Pyrene (ug/L)	Benzo(a)Anthracene (ug/L)	Chrysene (ug/L)	Benzo(k)Fluoranthene (ug/L)	Benzo(b)Fluoranthene (ug/L)	Benzo(a)Pyrene (ug/L)	Benzo(g,h,i)Perylene (ug/L)	Dibenzo(a,h)Anthracene (ug/L)	Indeno(1,2,3-cd)Pyrene (ug/L)
2/2/2012	0	**0.14**	<0.022	<0.022	**0.023 J**	**0.023 J**	<0.022	<0.022	**0.0054 J**	<0.022	**0.0039 J**	<0.022	<0.022	<0.022	<0.022	<0.022	<0.022
2/3/2012	0	**0.037 J**	<0.020	<0.020	<0.020	**0.025 J**	<0.020	**0.022 J**	<0.020	<0.020	NA	<0.020	<0.020	<0.020	<0.020	<0.020	**0.021 J**

All detections are presented in **bold** type.
Results are expressed in µg/L (ppb).
D Duplicate sample
ND Not Detected
J Estimated concentration detected between the detection limit and reporting limit.

TABLE A.6.b
Sediment Sample Analytical Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

Sample Location	Date Sampled	Field Screening	GRO	Benzene	Ethylbenzene	Toluene	Xylenes	Naphthalene
		IU	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MKE-HOC-SD01	4/8/2013	15.0	<3.7	0.112 J	0.009 J	0.054 J	0.049 J	0.070
MKE-KKR-SD01	4/8/2013	1.1	<3.6	0.09 J	0.01 J	0.04 J	0.093 J	0.02
MKE-KKR-SD02	4/8/2013	2.0	<3.3	<0.080 J	0.010 J	0.094 J	0.116 J	0.065
MKE-KKR-SD03	4/10/2013	0.4	<3.9	0.074 B	0.009	0.046 B	0.058	0.090
MKE-KKR-SD04	4/9/2013	16.7	12.8	0.359 J	0.077 J	1.25 J	1.24 J	0.297
MKE-KKR-SD04 Dup			15.7	0.215 J	0.046 J	0.966 J	1.093 J	0.220
MKE-KKR-SD05	4/9/2013	34.3	<5.8	0.495 J	0.065 J	1.51 J	1.131 J	0.423
MKE-UNC-SD01	4/8/2013	1.0	<3.6	<0.088 J	0.006 J	0.086 B,J	0.269 J	0.026
MKE-VMC-SD01	4/8/2013	0.9	<2.9	<0.078 J	<0.009 J	0.041 J	0.036 J	0.063
MKE-WPC-SD01	4/8/2013	3.6	<3.5	0.276 J	0.078 J	0.174 J	0.241 J	0.054
MKE-WPC-SD02	4/8/2013	2.9	<5.9	0.518 J	0.089 J	0.467 J	1.00 J	2.36
MKE-WPC-SD03	4/8/2013	1.4	<3.6	<0.079 B,J	0.012 J	0.103 J	0.200 J	0.358
MKE-WPC-SD04	4/8/2013	0.4	<3.1	<0.088 J	0.007 J	<0.035 J	0.068 J	0.122
MKE-WPC-SD04 Dup			<3.0	<0.042 J	0.005 J	<0.032 J	0.025 J	0.026
MKE-WPC-SD05	4/8/2013	0.5	<3.2	0.122 J	0.013 J	0.052 J	0.095 J	0.016

Sample Location	Date Sampled	Field Screening	DRO	Oil & Grease	Organic Carbon	Acenaphthene	Acenaphthylene	Anthracene	Benz(a) anthracene	Benzo(a) pyrene	Benzo(b) fluoranthene	Benzo(e) pyrene	Benzo(g,h,i) perylene	Benzo(j/k) fluoranthene	Chrysene	Dibenz(a,h) anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd) pyrene	2-Methyl naphthalene	Phenanthrene	Pyrene	Total PAH (16)	Total PAH (42)
		IU	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MKE-HOC-SD01	4/8/2013	15.0	211	2,870	31,200	0.334	0.876	1.89 J	9.24 J	12.0 J	12.7 J	10.4 J	11.3 J	10.3 J	12.0 J	2.97 B	23.9 J	0.664	9.88 J	0.056	10.3 J	18.4 J	137	176
MKE-KKR-SD01	4/8/2013	1.1	9.41	476	25,200	0.07	0.12	0.26 J	0.96 J	1.26 J	1.29 J	1.09 J	1.10 J	1.10 J	1.28 J	0.28 B	2.49 J	0.08	0.97 J	0.02	1.12 J	1.96 J	14.4	18.8
MKE-KKR-SD02	4/8/2013	2.0	128	1,140	46,100	0.051	0.08	0.187 J	0.773	1.11	1.31	1.1	1.17	1.08	1.19	0.286 B	2.19 J	0.066	0.998 J	0.069	1.02 B	1.71 J	13.3	17.9
MKE-KKR-SD03	4/10/2013	0.4	117	249 J	31,900	0.370	0.258	1.240	3.970	4.660	4.710	4.040	4.070	3.940	4.780	1.060	10.500	0.434	3.450	0.060	5.520	8.250	57.3	75.4
MKE-KKR-SD04	4/9/2013	16.7	66	701	71,900	1.02	0.735	2.93 J	8.78 J	11.4 J	12.4 J	10.2 J	10.3 J	10.2 J	12.7 J	2.82 B	24.4 J	1.54	9.09 J	0.523	13.8 J	19.2 J	142	202
MKE-KKR-SD04 Dup			132	751	63,700	0.711	0.559	2.09 J	6.38 J	8.51 J	9.49 J	7.76 J	7.82 J	8.17 J	9.49 J	2.14 B	18.0 J	1.08	6.84 J	0.381	9.96 J	13.8 J	105	150
MKE-KKR-SD05	4/9/2013	34.3	22	1,660	67,400	0.527	0.791	1.79	4.9 J	6.07 J	6.83 J	5.65 J	5.46 J	5.56 J	7.15 J	1.52 B	13.4	0.801	4.8 J	0.282	7.56	10.6	78.2	113
MKE-UNC-SD01	4/8/2013	1.0	16.6	287 J	26,000	0.068	0.102	0.265 J	1.01 J	1.41 J	1.5 J	1.27 J	1.38 J	1.24 J	1.46 J	0.335	2.76 J	0.097	1.17 J	0.017	1.33 J	2.16 J	16.3	21.2
MKE-VMC-SD01	4/8/2013	0.9	304	4,640	32,100	0.319	0.536	1.15 J	7.17 J	8.81 J	9.35 J	7.56 J	7.84 B	7.83 J	9.14 J	2.07	18.8 J	0.425	6.8 J	0.046	8.6 J	15.4 J	104	136
MKE-WPC-SD01	4/8/2013	3.6	22	281 J	40,800	0.112	0.188	0.364 J	1.42 J	1.99 J	2.19 J	1.98 J	2.02 J	1.87 J	2.0 J	0.510 B	3.76 J	0.127	1.72 J	0.040	1.5 J	2.95 J	22.8	30.8
MKE-WPC-SD02	4/8/2013	2.9	45	1,170	83,600	0.988	0.619	1.96 J	6.38 J	9.16 J	10.5 J	8.8 J	9.13 J	8.67 J	9.76 J	2.24	18.8 J	1.22	7.94 J	1.19	12.2 J	14.4 J	116	154
MKE-WPC-SD03	4/8/2013	1.4	158	531	40,000	0.778	0.559	2.11 J	8.83	12.3	13.4	11.1	11.6	10.5	12.2	3.06 B	23.7 J	1.0	10.2	0.192	13.5 J	18.6 J	147	191
MKE-WPC-SD04	4/8/2013	0.4	251	1,120	13,600	0.36	0.567	1.15 J	6.75	12.8 D,J	10.9 J	9.52 J	9.74 J	9.02 J	8.04	2.87 B	13.1 D,J	0.43	8.96	0.068	3.96 J	15 D,J	104	136
MKE-WPC-SD04 Dup			159	3,130	18,400	0.185	0.134	0.562 J	2.31	2.95	2.96	2.5	2.63	2.5	3.07	0.676 B	6.53 J	0.247	2.28	0.027	3.96 J	5.09 J	36.1	48.4
MKE-WPC-SD05	4/8/2013	0.5	241	2,770	15,400	0.069	0.099	0.387 J	1.33 J	1.62 J	1.6 J	1.39 J	1.41 J	1.39 J	1.6 J	0.381 B	3.25 J	0.091	1.23 J	0.016	1.41 J	2.55 J	18.4	24.6

Notes
The laboratory results on this table were evaluated using a Level II data validation protocol. See Attachment 2 for the Data Assessment Report.
Conentrations are expressed in milligrams per kilogram, dry weight equivalent to parts per million

GRO	Gasoline Range Organics
DRO	Diesel Range Organics
PAH	Polynuclear Aromatic Hydrocarbons
IU	Instrument Units
mg/kg	milligrams per kilogram

Data Qualifiers
Triphenylene is known to coelute with chrysene. The reported concentration of chrysene includes triphenylene.

B	Analyte was detected in the method blank
D	Analyte was reported from a diluted extract
J	Estimated concentration detected between the Reporting Limit and the Estimated Detection Level
Dup	Duplicate sample collected in the field
NS	No standard

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TABLE A.7
Water Level Elevations
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-1

Ground Elevation	666.98
Top of Casing Elevation	666.76
Top of Screen Elevation	665.22

Measurement Date	Depth To Water	Groundwater Elevation	Comments
03/22/2012	2.65	664.11	
04/24/2012	2.35	664.41	
05/11/2012	1.85	664.91	
08/02/2012	3.92	662.84	
11/02/2012	3.80	662.96	
12/06/2012	4.12	662.64	
02/21/2013	2.96	663.80	
05/10/2013	2.92	663.84	
08/01/2013	3.98	662.78	

MW-2

Ground Elevation	666.67
Top of Casing Elevation	666.54
Top of Screen Elevation	665.44

Measurement Date	Depth To Water	Groundwater Elevation	Comments
03/22/2012	2.93	663.61	
04/23/2012	2.21	664.33	
05/11/2012	2.06	664.48	
08/02/2012	3.42	663.12	
11/02/2012	3.80	662.74	Cap broken off. 0.01 feet LPH.
12/06/2012	3.99	662.55	0.02 feet LPH
02/21/2013	NM		Well iced up
05/10/2013	2.85	663.69	hydrocarbon sheen observed
08/01/2013	3.63	662.91	

MW-3

Ground Elevation	665.69
Top of Casing Elevation	665.53
Top of Screen Elevation	664.71

Measurement Date	Depth To Water	Groundwater Elevation	Comments
03/22/2012	3.53	662.00	
04/23/2012	2.15	663.38	
05/11/2012	2.13	663.40	
08/01/2012	1.73	663.80	
11/01/2012	2.75	662.78	Well cap broken
12/06/2012	2.91	662.62	
02/21/2013	2.92	662.61	
05/09/2013	2.49	663.04	
08/01/2013	0.88	664.65	

MW-4

Ground Elevation	666.82
Top of Casing Elevation	666.53
Top of Screen Elevation	663.52

Measurement Date	Depth To Water	Groundwater Elevation	Comments
03/22/2012	3.68	662.85	
04/24/2012	2.61	663.92	
05/11/2012	1.98	664.55	
08/01/2012	3.28	663.25	
11/02/2012	3.17	663.36	
12/06/2012	4.66	661.87	
02/21/2013	4.12	662.41	
05/09/2013	2.68	663.85	
08/01/2013	2.55	663.98	

MW-5

Ground Elevation	666.63
Top of Casing Elevation	666.17
Top of Screen Elevation	664.67

Measurement Date	Depth To Water	Groundwater Elevation	Comments
03/22/2012	3.42	662.75	
04/23/2012	2.78	663.39	
05/11/2012	2.83	663.34	
08/01/2012	3.55	662.62	
11/01/2012	3.05	663.12	Well cap, well box, lid, & concrete broken
12/06/2012	3.10	663.07	
02/21/2013	3.25	662.92	
05/10/2013	3.23	662.94	
08/01/2013	3.35	662.82	

MW-6

Ground Elevation	666.63
Top of Casing Elevation	666.43
Top of Screen Elevation	665.18

Measurement Date	Depth To Water	Groundwater Elevation	Comments
03/22/2012	4.08	662.35	
04/24/2012	3.50	662.93	
05/11/2012	3.41	663.02	
08/01/2012	3.58	662.85	
11/01/2012	3.92	662.51	Well shifted, difficult to open
12/06/2012	3.97	662.46	
02/21/2013	4.15	662.28	
05/10/2013	3.81	662.62	
08/01/2013	3.58	662.85	

MW-7

Ground Elevation	666.32
Top of Casing Elevation	666.02
Top of Screen Elevation	664.64

Measurement Date	Depth To Water	Groundwater Elevation	Comments
04/23/12	2.81	663.21	
05/11/12	2.91	663.11	
08/02/12	2.64	663.38	
11/1/2012	2.88	663.14	
12/6/2012	2.76	663.26	
2/21/2013	3.00	663.02	
5/10/2013	2.15	663.87	
8/1/2013	2.41	663.61	

MW-8

Ground Elevation	666.61
Top of Casing Elevation	666.50
Top of Screen Elevation	664.56

Measurement Date	Depth To Water	Groundwater Elevation	Comments
04/24/2012	1.70	664.80	
05/11/2012	1.19	665.31	
08/01/2012	2.44	664.06	
11/02/2012	2.66	663.84	
12/06/2012	2.99	663.51	
02/21/2013	2.91	663.59	Ice on surface of well casing
05/09/2013	2.13	664.37	
08/01/2013	2.10	664.40	

TABLE A.7
Water Level Elevations
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-9

Ground Elevation	666.32
Top of Casing Elevation	665.99
Top of Screen Elevation	664.26

Measurement Date	Depth To Water	Groundwater Elevation	Comments
05/11/2012	7.53	658.46	
08/02/2012	2.21	663.78	
11/01/2012	2.59	663.40	
12/06/2012	2.58	663.41	
02/21/2013	2.50	663.49	
05/09/2013	2.36	663.63	
08/01/2013	3.00	662.99	

MW-10

Ground Elevation	666.33
Top of Casing Elevation	665.89
Top of Screen Elevation	664.23

Measurement Date	Depth To Water	Groundwater Elevation	Comments
05/11/2012	11.21	654.68	
08/01/2012	1.09	664.80	
11/01/2012	1.45	664.44	
12/06/2012	1.70	664.19	
02/21/2013	2.18	663.71	
05/09/2013	2.30	663.59	
08/01/2013	2.76	663.13	

MW-11

Ground Elevation	666.08
Top of Casing Elevation	665.92
Top of Screen Elevation	664.14

Measurement Date	Depth To Water	Groundwater Elevation	Comments
05/11/2012	9.76	656.16	
08/01/2012	1.76	664.16	
11/02/2012	1.51	664.41	
12/06/2012	2.08	663.84	
02/21/2013	NM		Well is frozen- No Sample
05/10/2013	2.53	663.39	
08/01/2013	2.88	663.04	

Notes:
TOC = Top of Casing
NM = Not Measured
LPH = Liquid Phase Hydrocarbon

Table A.8
Natural Attenuation Field Parameters Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-1

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
3/19/2012	9.2	67	8.6	0.816	6.96
3/22/2012	3.1	-25	10.5	0.760	6.57
4/24/2012	1.2	-56	10.3	0.465	6.93
11/2/2012	1.54	-11.5	14.28	1.413	7.49
2/21/2013	1.3	-127	4.2	1.315	7.1
5/10/2013	1.2	-56.3	7.1	0.758	6.74
8/1/2013	1.43	235.1	17.42	1.028	6.98

MW-2

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
3/19/2012	10.6	69	9.5	0.786	7.20
3/22/2012	7.1	65	10.8	0.739	6.82
4/23/2012	0.5	64	11.1	0.732	7.44
11/2/2012	0.16	-115.9	13.23	1.243	7.42
2/21/2013	0.7	-171	4.8	0.982	7.31
5/10/2013	6.4	-41.4	9.84	0.291	7.41
8/1/2013	1.8	-256.1	17.6	0.899	6.99

MW-3

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
3/19/2012	10.0	62	9.3	0.730	7.1
3/22/2012	5.5	102	9.9	0.779	6.85
4/23/2012	1.8	-56	11.1	0.978	7.01
11/1/2012	0.18	-120.8	14.32	0.952	7.6
2/21/2013	0.6	-183	4	2.031	7.19
5/9/2013	0.68	-42.3	11.54	0.649	6.47
8/1/2013	3.91	-112.9	17.76	0.333	6.99

Table A.8
Natural Attenuation Field Parameters Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-4

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
3/19/2012	8.5	21	10.0	0.868	7.68
3/22/2012	7.1	58	13.3	1.022	7.42
4/24/2012	1.6	36	11.4	0.596	7.13
11/2/2012	0.26	-97.6	14.57	0.062	8.02
2/21/2013	1.4	-120	4.8	1.439	7.64
5/9/2013	0.48	-92	11.08	0.962	7.00
8/1/2013	1.86	-203.4	20.96	0.983	7.12

MW-5

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
3/19/2012	10.3	66	9.3	0.703	7.14
3/22/2012	6.6	58	9.7	0.742	6.96
4/23/2012	2.3	-27	11.4	0.678	7.01
11/1/2012	1.8	-2.7	13.99	0.806	7.61
2/21/2013	1.3	-83	4.5	1.026	6.88
5/10/2013	1.39	-37.7	6.95	0.642	6.8
8/1/2013	1.66	-149.4	15.75	0.758	7.01

MW-6

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
3/19/2012	10.0	59	9.7	0.706	7.28
3/22/2012	5.7	60	13.88	0.795	7.20
4/24/2012	2.9	15	10.4	0.395	7.19
11/1/2012	1.43	-40.8	12.9	0.518	8.02
2/21/2013	1.7	-150	1.7	2.159	7.5
5/10/2013	1.2	-70.2	8.03	1.242	7.1
8/1/2013	1.85	-183.4	22.4	0.824	7.3

Table A.8
Natural Attenuation Field Parameters Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-7

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
4/12/2012	3.7	99	9.5	2.48	7.16
4/23/2012	0.7	172	10.1	1.331	7.27
11/1/2012	0.2	-12.6	14.46	1.83	8.17
2/21/2013	0.6	-283	4.2	4.16	7.62
5/10/2013	0.8	-201.3	7.05	1.88	7.6
8/1/2013	1.34	-291.3	17.96	1.64	7.63

MW-8

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
4/13/2012	9.0	76	9.2	0.814	6.79
4/24/2012	4.2	79	8.8	0.435	6.87
11/2/2012	1.42	16.3	13.14	1.344	7.41
2/21/2013	0.9	-125	4.5	1.488	7.09
5/9/2013	0.99	-76.3	9.78	0.853	6.34
8/1/2013	2.28	-205.9	18.99	0.99	6.85

MW-9

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
11/1/2012	1.5	-6	13.93	0.859	7.25
2/21/2013	1	-167	4.4	1.333	7.23
5/9/2013	0.98	-149.4	9.57	1.11	6.49
8/1/2013	2.18	-180.7	17.01	0.931	6.9

MW-10

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
11/1/2012	2.5	-15.9	13.23	0.89	7.3
2/21/2013	1	-81	4.7	1.089	7.09
5/9/2013	1.68	-56	9.73	0.83	6.1
8/1/2013	2.31	-169.5	17.03	0.839	6.81

Table A.8
Natural Attenuation Field Parameters Table
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin
BRRTS 02-41-558334

MW-11

Parameter	Dissolved Oxygen	Oxidation-Reduction Potential	Temperature	Specific Conductance	pH
Date / Units	mg/L	mV	deg C	mS/cm	IU
11/2/2012	2.7	56.9	10.3	1.115	7.34
2/21/2013	WELL FROZEN				
5/10/2013	2.3	-61.4	6.99	1.159	6.67
8/1/2013	2.36	-193.4	16.21	0.918	6.83

Notes:
mg/L = miligrams per liter, approximately equivalent to parts per million
mV = millivolts
deg C = degrees Celcius
mS/cm =microSiemens per centimeter
IU + instrument units

ATTACHMENT B

Figures

B.1.a Site Location Map

B.1.b Site Map

B.1.c RR Site Map

B.2.a Pre-Remedial Soil Contamination— **Not Applicable**
No Remedial Action Plan was prepared for pipeline repair excavation.

B.2.b Post-remedial Soil Contamination

B.2.c Pre/Post Remaining Soil Contamination

B.3.a.1 Geologic Cross Sections A To A'

B.3.a.2 Geologic Cross Sections B To B'

B.3.a.3 Cross Sections Overview Plan

B.3.b Groundwater Isoconcentrations

B.3.c Groundwater Flow Direction

B.3.d Monitoring Wells

B.4.a Vapor Intrusion Map— **Not Applicable**
No buildings are located near the release and no indoor vapor samples were collected.

B.4.b.1 Surface Water Sample Results

B.4.b.2 Sediment Sample Results

B.4.c Other— **Not Applicable**

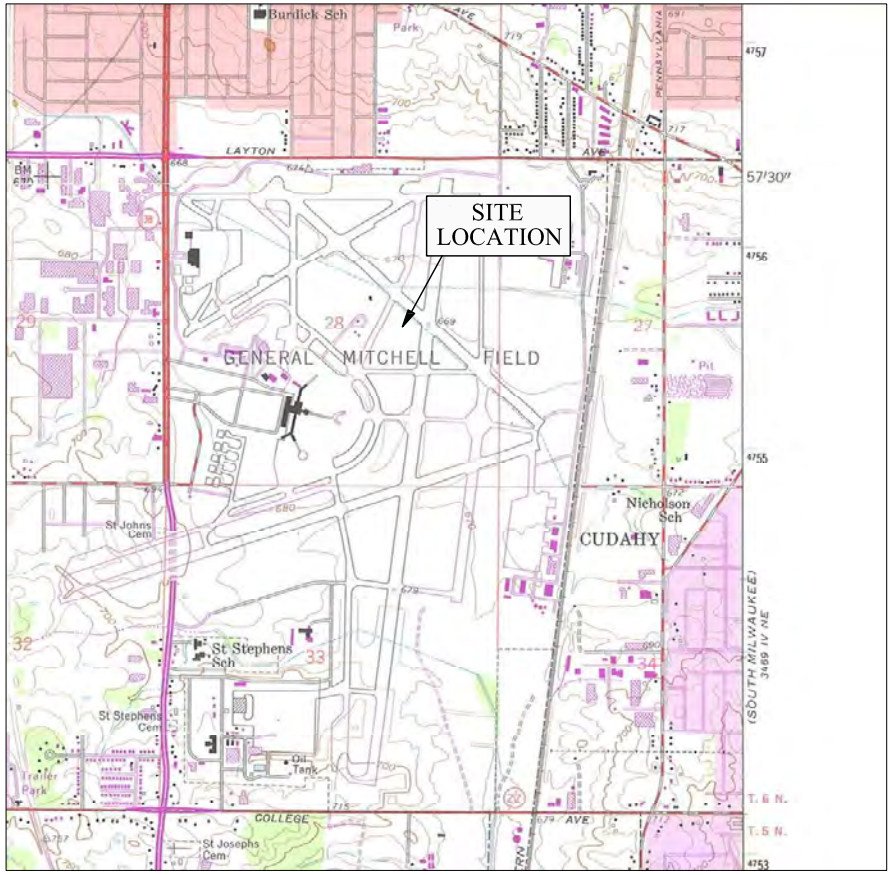


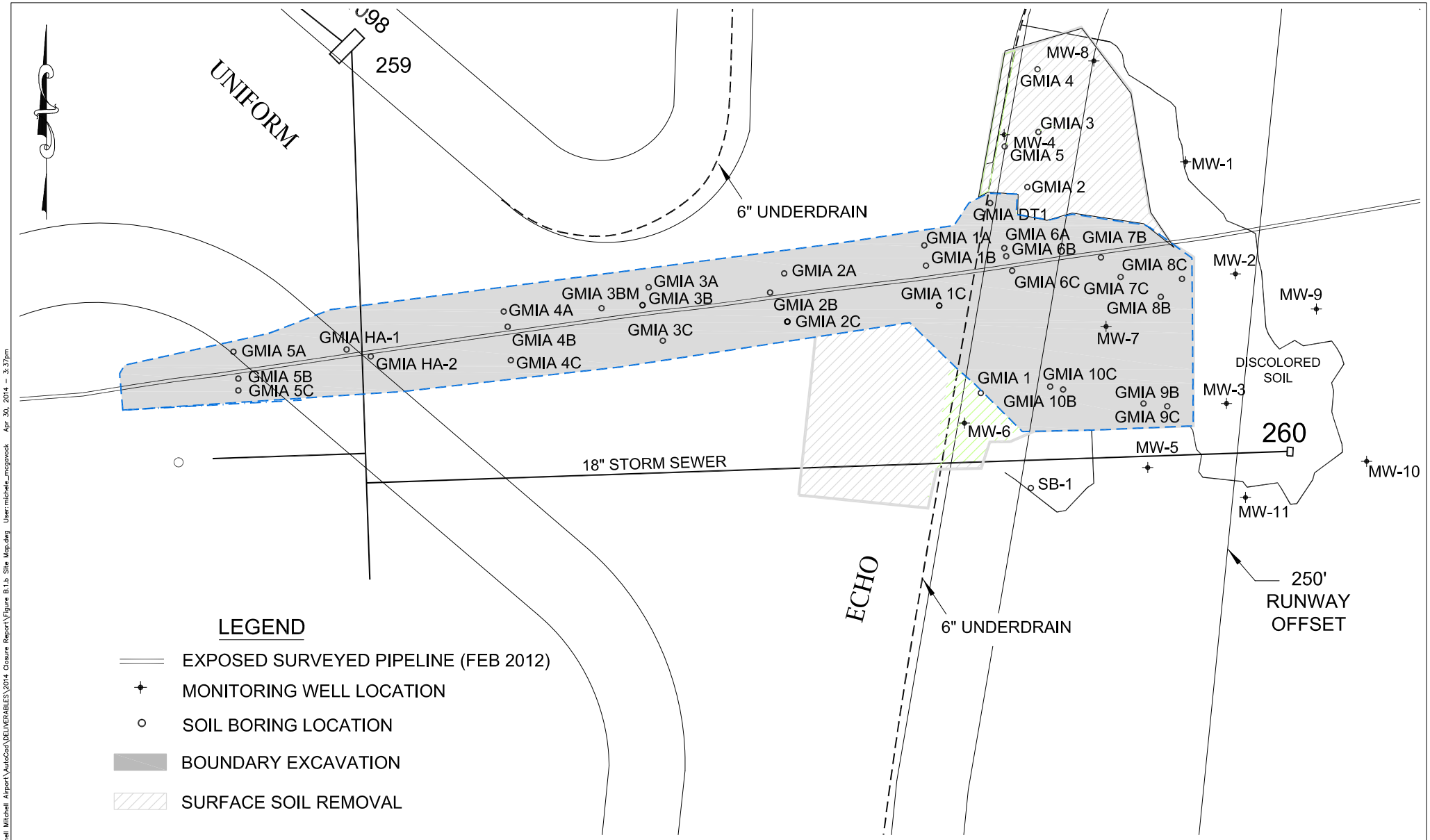
FIGURE B.1.a
SITE LOCATION MAP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

DATE: August 23, 2013	
JOB NO.: 49233474	
DRAWN BY: RF	CHK'D BY: KDM
SCALE: AS SHOWN	

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202

P:\GED\49233474 Shell Mitchell Airport\AutoCad\DELIVERABLES\2014 Closure Report\Figure B.1.a – Site Location Map.dwg



SCALE IN FEET
0 30 60

Apr. 29, 2014
JOB NO.: 49233474
DRAWN BY: RF | APP'D BY: KDM
SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

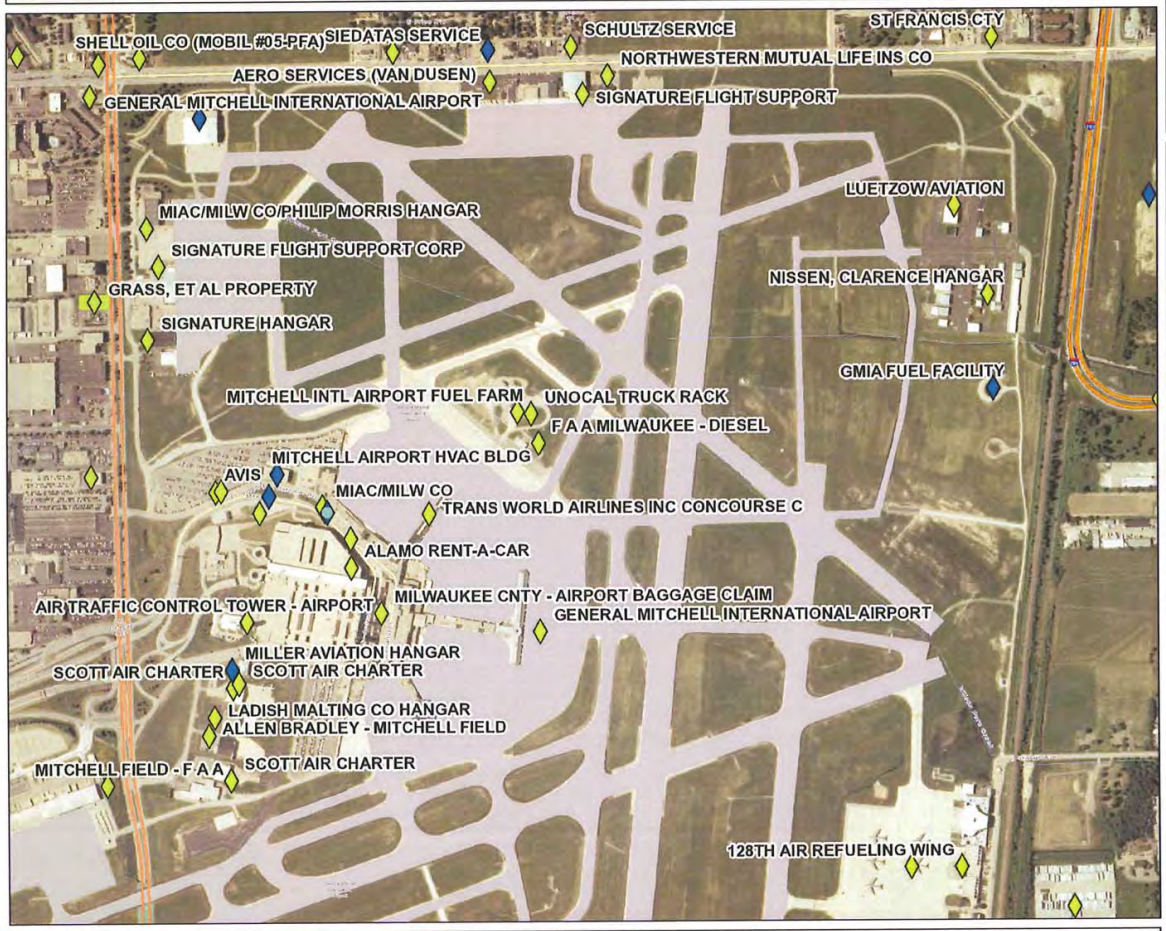
PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.1.b
SITE MAP

P:\GED\49233474 Shell Mitchell Airport\AutoCad\DELIVERABLES\2014 Closure Report\Figure B.1.b Site Map.dwg User: michele_mcgavock Apr 30, 2014 - 3:37pm

Figure B.1.c RR Site Map



Legend

- Open Site (ongoing cleanup)
- Open Site Boundary
- Closed Site (completed cleanup)
- Closed Site Boundary
- Airport
- 2010 Air Photos (WROC)
- Cities
- Villages

Notes

0.4 0 0.21 0.4 Miles

NAD_1983_HARN_Wisconsin_TM

1: 13,001

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made aregarding accuracy, applicability for a particular use, completemenss, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/org/legal/

Note: Not all sites are mapped.

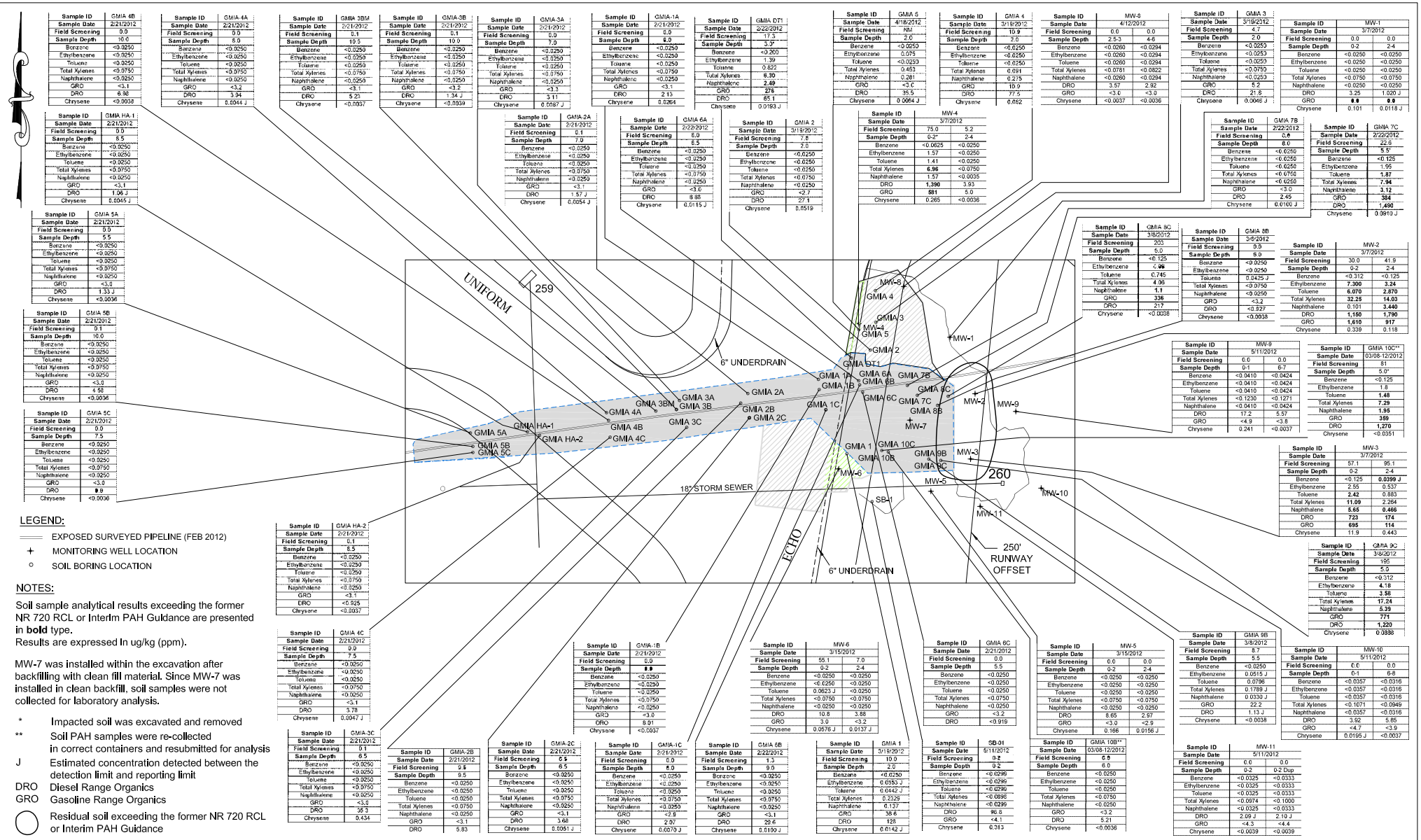
Apr. 24, 2014	
JOB NO.: 49233474	
DRAWN BY: RF	APP'D BY: KDM
SCALE: AS SHOWN	

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR: SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.1.c
RR SITE MAP



Sample ID	GMIA 4B
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	10.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	6.98
Chrysene	<0.0038

Sample ID	GMIA 4A
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	8.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	3.94
Chrysene	0.0044 J

Sample ID	GMIA 3BM
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	10.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	5.23
Chrysene	<0.0037

Sample ID	GMIA 3B
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	10.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	1.34 J
Chrysene	<0.0039

Sample ID	GMIA 3A
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	7.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.3
DRO	3.11
Chrysene	0.0067 J

Sample ID	GMIA-1A
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	9.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	2.13
Chrysene	0.0264

Sample ID	GMIA DT1
Sample Date	2/22/2012
Field Screening	17.3
Sample Depth	3.0*
Benzene	<0.200
Ethylbenzene	1.39
Toluene	0.822
Total Xylenes	6.30
Naphthalene	2.49
GRO	276
DRO	65.1
Chrysene	0.0193 J

Sample ID	GMIA 5
Sample Date	4/18/2012
Field Screening	NM
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	0.075
Toluene	<0.0250
Total Xylenes	0.453
Naphthalene	0.281
GRO	<3.0
DRO	35.5
Chrysene	0.0064 J

Sample ID	GMIA 4
Sample Date	3/19/2012
Field Screening	10.9
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	0.091
Naphthalene	0.275
GRO	10.9
DRO	77.5
Chrysene	0.052

Sample ID	MW-8	
Sample Date	4/12/2012	
Field Screening	0.0	0.0
Sample Depth	2.5-3	4-6
Benzene	<0.0260	<0.0294
Ethylbenzene	<0.0260	<0.0294
Toluene	<0.0260	<0.0294
Total Xylenes	<0.0781	<0.0822
Naphthalene	<0.0260	<0.0294
DRO	3.57	2.92
GRO	<3.0	<3.0
Chrysene	<0.0037	<0.0036

Sample ID	GMIA 3
Sample Date	3/19/2012
Field Screening	4.7
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	5.2
DRO	21.8
Chrysene	0.0046 J

Sample ID	MW-1	
Sample Date	3/7/2012	
Field Screening	0.0	0.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	<0.0250	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	3.25	1.020 J
GRO	**8.8**	**0.0**
Chrysene	0.101	0.0118 J

Sample ID	GMIA HA 1
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	8.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	1.06 J
Chrysene	0.0045 J

Sample ID	GMIA-2A
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	7.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	1.57 J
Chrysene	0.0054 J

Sample ID	GMIA 6A
Sample Date	2/22/2012
Field Screening	8.0
Sample Depth	6.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	8.88
Chrysene	0.0115 J

Sample ID	GMIA 2
Sample Date	3/19/2012
Field Screening	7.8
Sample Depth	3.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<2.7
DRO	27.1
Chrysene	0.0519

Sample ID	MW-4	
Sample Date	3/7/2012	
Field Screening	75.0	5.2
Sample Depth	0-2*	2-4
Benzene	<0.0625	<0.0250
Ethylbenzene	1.57	<0.0250
Toluene	1.41	<0.0250
Total Xylenes	**6.96**	<0.0750
Naphthalene	1.57	<0.0035
DRO	**1,390**	3.93
GRO	**581**	5.0
Chrysene	0.265	<0.0036

Sample ID	GMIA 7B
Sample Date	2/22/2012
Field Screening	0.0
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	2.45
Chrysene	0.0100 J

Sample ID	GMIA 7C
Sample Date	2/22/2012
Field Screening	22.6
Sample Depth	5.5*
Benzene	**<0.125**
Ethylbenzene	1.95
Toluene	**1.87**
Total Xylenes	**7.94**
Naphthalene	**3.12**
GRO	**384**
DRO	**1,490**
Chrysene	0.0910 J

Sample ID	GMIA 5A
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	5.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	1.33 J
Chrysene	<0.0036

Sample ID	GMIA 8C
Sample Date	3/8/2012
Field Screening	203
Sample Depth	5.0
Benzene	<0.125
Ethylbenzene	**4.96**
Toluene	0.745
Total Xylenes	**4.06**
Naphthalene	**1.1**
GRO	**336**
DRO	217
Chrysene	<0.0038

Sample ID	GMIA 8B
Sample Date	3/8/2012
Field Screening	0.0
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	0.0425 J
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	<0.927
Chrysene	<0.0038

Sample ID	MW-2	
Sample Date	3/7/2012	
Field Screening	30.0	41.9
Sample Depth	0-2	2-4
Benzene	<0.312	<0.125
Ethylbenzene	**7.300**	**3.24**
Toluene	**6.070**	**2.870**
Total Xylenes	**32.25**	**14.03**
Naphthalene	0.101	**3.440**
DRO	**1,150**	**1,790**
GRO	**1,610**	**917**
Chrysene	0.339	0.118

Sample ID	GMIA 5B
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	10.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	4.58
Chrysene	<0.0036

Sample ID	MW-9	
Sample Date	5/11/2012	
Field Screening	0.0	0.0
Sample Depth	0-1	6-7
Benzene	<0.0410	<0.0424
Ethylbenzene	<0.0410	<0.0424
Toluene	<0.0410	<0.0424
Total Xylenes	<0.1230	<0.1271
Naphthalene	<0.0410	<0.0424
DRO	17.2	5.57
GRO	<4.9	<3.8
Chrysene	0.241	<0.0037

Sample ID	GMIA 10C**
Sample Date	03/08-12/2012
Field Screening	81
Sample Depth	5.0*
Benzene	<0.125
Ethylbenzene	1.8
Toluene	**1.48**
Total Xylenes	**7.29**
Naphthalene	**1.95**
GRO	**389**
DRO	**1,270**
Chrysene	<0.0351

Sample ID	GMIA 5C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	7.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	**9.9**
Chrysene	<0.0036

Sample ID	MW-3	
Sample Date	3/7/2012	
Field Screening	57.1	95.1
Sample Depth	0-2	2-4
Benzene	<0.125	**0.0399 J**
Ethylbenzene	2.55	0.537
Toluene	**2.42**	0.883
Total Xylenes	**11.09**	2.264
Naphthalene	**5.65**	**0.466**
DRO	**723**	**174**
GRO	**695**	**114**
Chrysene	11.9	0.443

Sample ID	GMIA HA-2
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	8.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	<0.925
Chrysene	<0.0037

Sample ID	GMIA 9C
Sample Date	3/8/2012
Field Screening	195
Sample Depth	5.0
Benzene	<0.312
Ethylbenzene	**4.18**
Toluene	**3.58**
Total Xylenes	**17.24**
Naphthalene	**5.39**
GRO	**771**
DRO	**1,220**
Chrysene	0.0898

Sample ID	GMIA 4C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	7.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	5.78
Chrysene	0.0047 J

Sample ID	GMIA-1B
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	8.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.0
DRO	8.91
Chrysene	<0.0037

Sample ID	MW-6	
Sample Date	3/15/2012	
Field Screening	55.1	7.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	0.0623 J	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	10.8	3.88
GRO	3.0	<3.2
Chrysene	0.0576 J	0.0137 J

Sample ID	GMIA 6C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	5.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	<0.919

Sample ID	MW-5	
Sample Date	3/15/2012	
Field Screening	0.0	0.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	<0.0250	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	8.65	2.97
GRO	<3.0	<2.9
Chrysene	0.166	0.0156 J

Sample ID	GMIA 9B
Sample Date	3/8/2012
Field Screening	8.7
Sample Depth	5.5
Benzene	<0.0250
Ethylbenzene	0.0515 J
Toluene	0.0796
Total Xylenes	0.1789 J
Naphthalene	0.0330 J
GRO	22.2
DRO	1.13 J
Chrysene	<0.0038

Sample ID	MW-10	
Sample Date	5/11/2012	
Field Screening	0.0	0.0
Sample Depth	0-1	6-8
Benzene	<0.0357	<0.0316
Ethylbenzene	<0.0357	<0.0316
Toluene	<0.0357	<0.0316
Total Xylenes	<0.1071	<0.0949
Naphthalene	<0.0357	<0.0316
DRO	3.92	5.85
GRO	<4.7	<3.9
Chrysene	0.0195 J	<0.0037

Sample ID	GMIA-2B
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	9.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	5.83

Sample ID	GMIA-2C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	6.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	3.68
Chrysene	0.0051 J

Sample ID	GMIA-1C
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	8.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<2.8
DRO	2.07
Chrysene	0.0070 J

Sample ID	GMIA 6B
Sample Date	2/22/2012
Field Screening	1.3
Sample Depth	9.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	29.6
Chrysene	0.0190 J

Sample ID	GMIA 1
Sample Date	3/19/2012
Field Screening	10.0
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	0.0553 J
Toluene	0.0442 J
Total Xylenes	0.2329
Naphthalene	0.137
GRO	38.6
DRO	128
Chrysene	0.0142 J

Sample ID	SB-01
Sample Date	5/11/2012
Field Screening	0.2
Sample Depth	0-2
Benzene	<0.0299
Ethylbenzene	<0.0299
Toluene	<0.0299
Total Xylenes	<0.0898
Naphthalene	<0.0299
GRO	96.8
DRO	<4.1
Chrysene	0.313

Sample ID	GMIA 10B**
Sample Date	03/08-12/2012
Field Screening	0.0
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	5.21
Chrysene	<0.0036

Sample ID	MW-11	
Sample Date	5/11/2012	
Field Screening	0.0	0.0
Sample Depth	0-2	0-2 Dup
Benzene	<0.0325	<0.0333
Ethylbenzene	<0.0325	<0.0333
Toluene	<0.0325	<0.0333
Total Xylenes	<0.0974	<0.1000
Naphthalene	<0.0325	<0.0333
DRO	2.09 J	2.10 J
GRO	<4.3	<4.4
Chrysene	<0.0039	<0.0039

Sample ID	GMIA HA-1
Sample Date	2/21/2012
Field Screening	0.0
Sample Depth	8.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.1
DRO	1.06 J
Chrysene	0.0045 J

Sample ID	GMIA 3C
Sample Date	2/21/2012
Field Screening	0.1
Sample Depth	8.5
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	0.434
Chrysene	

LEGEND:

- EXPOSED SURVEYED PIPELINE (FEB 2012)
- \+ MONITORING WELL LOCATION
- ○ SOIL BORING LOCATION

NOTES:

Soil sample analytical results exceeding the former NR 720 RCL or Interim PAH Guidance are presented in **bold** type.
Results are expressed in ug/kg (ppm).

MW-7 was installed within the excavation after backfilling with clean fill material. Since MW-7 was installed in clean backfill, soil samples were not collected for laboratory analysis.

* Impacted soil was excavated and removed
** Soil PAH samples were re-collected in correct containers and resubmitted for analysis
J Estimated concentration detected between the detection limit and reporting limit
DRO Diesel Range Organics
GRO Gasoline Range Organics
◯ Residual soil exceeding the former NR 720 RCL or Interim PAH Guidance

SCALE IN FEET
0 60 120

Apr. 29, 2014
JOB NO.: 49233474
DRAWN BY: RF APP'D BY: KDM
SCALE: AS SHOWN

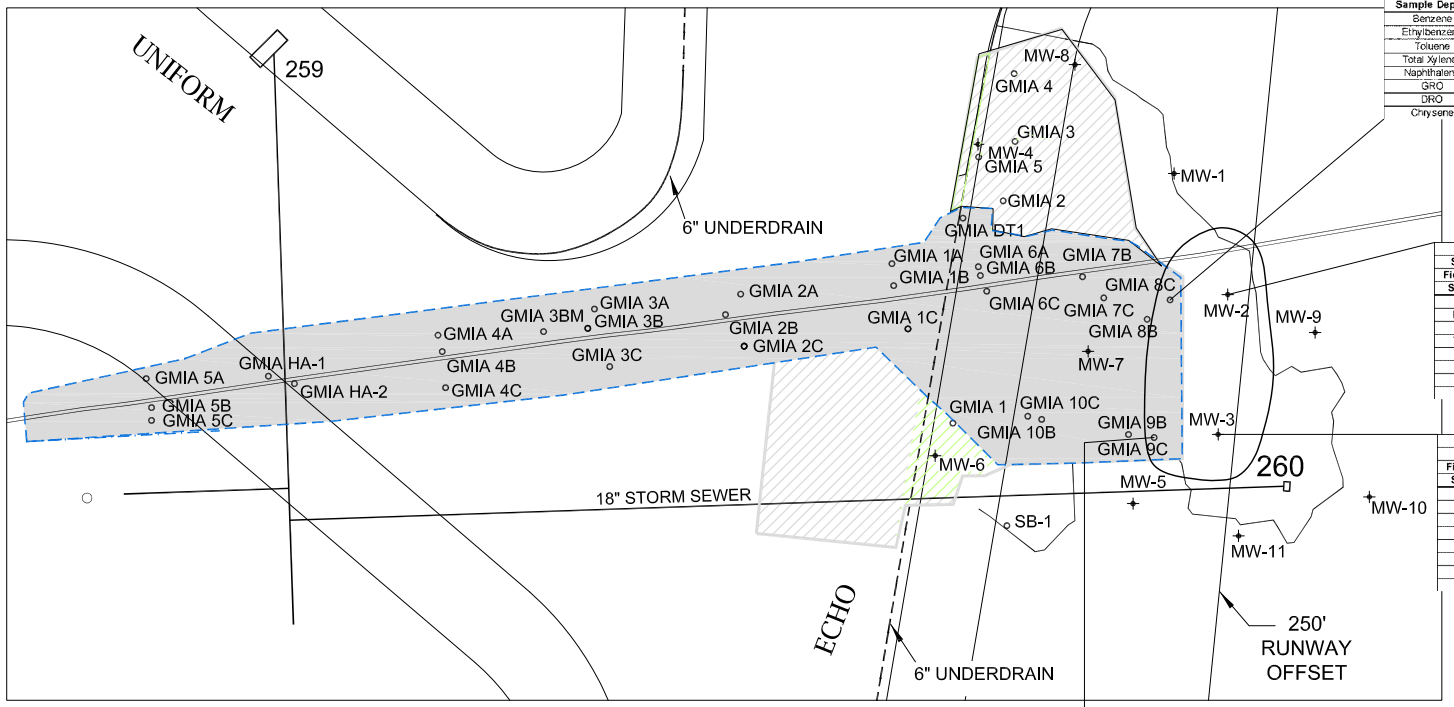
URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.2.b
POST-REMEDIAL
SOIL CONTAMINATION

P:\GED\49233474 Shell Mitchell Airport\AutoCad\DELIVERABLES\2014 Closure Report\Figure B.2.b Post-Remedial Soil Contamination.dwg User:michele_mcgavock Apr 30, 2014 - 3:38pm



Sample ID	GMIA 8C
Sample Date	3/8/2012
Field Screening	203
Sample Depth	5.0
Benzene	<0.125
Ethylbenzene	0.95
Toluene	0.745
Total Xylenes	4.06
Naphthalene	**1.1**
GRO	**336**
DRO	217
Chrysene	<0.0338

Sample ID	MW-2	
Sample Date	3/7/2012	
Field Screening	30.0	41.9
Sample Depth	0-2	2-4
Benzene	<0.312	<0.125
Ethylbenzene	**7.300**	**3.24**
Toluene	**6.070**	**2.870**
Total Xylenes	**32.25**	**14.03**
Naphthalene	0.101	**3.440**
DRO	**1,150**	**1,790**
GRO	**1,610**	**917**
Chrysene	0.339	0.118

Sample ID	MW-3	
Sample Date	3/7/2012	
Field Screening	57.1	95.1
Sample Depth	0-2	2-4
Benzene	<0.125	**0.0399 J**
Ethylbenzene	2.55	0.537
Toluene	**2.42**	0.883
Total Xylenes	**11.09**	2.264
Naphthalene	**5.65**	**0.466**
DRO	**723**	**174**
GRO	**695**	**114**
Chrysene	11.9	0.353

Sample ID	GMIA 9C
Sample Date	3/8/2012
Field Screening	195
Sample Depth	5.0
Benzene	<0.312
Ethylbenzene	**4.18**
Toluene	**3.68**
Total Xylenes	**17.24**
Naphthalene	**5.39**
GRO	**771**
DRO	**1,220**
Chrysene	0.0888

LEGEND:

- EXPOSED SURVEYED PIPELINE (FEB 2012)
- MONITORING WELL LOCATION
- SOIL BORING LOCATION

NOTES:

Soil sample analytical results exceeding the former NR 720 RCL or Interim PAH Guidance are presented in **bold** type.
Results are expressed in ug/kg (ppm).

MW-7 was installed within the excavation after backfilling with clean fill material. Since MW-7 was installed in clean backfill, soil samples were not collected for laboratory analysis.

* Impacted soil was excavated and removed

J Estimated concentration detected between the detection limit and reporting limit

DRO Diesel Range Organics

GRO Gasoline Range Organics

◯ Residual soil exceeding the former NR 720 RCL or Interim PAH Guidance

SCALE IN FEET
0 40 80

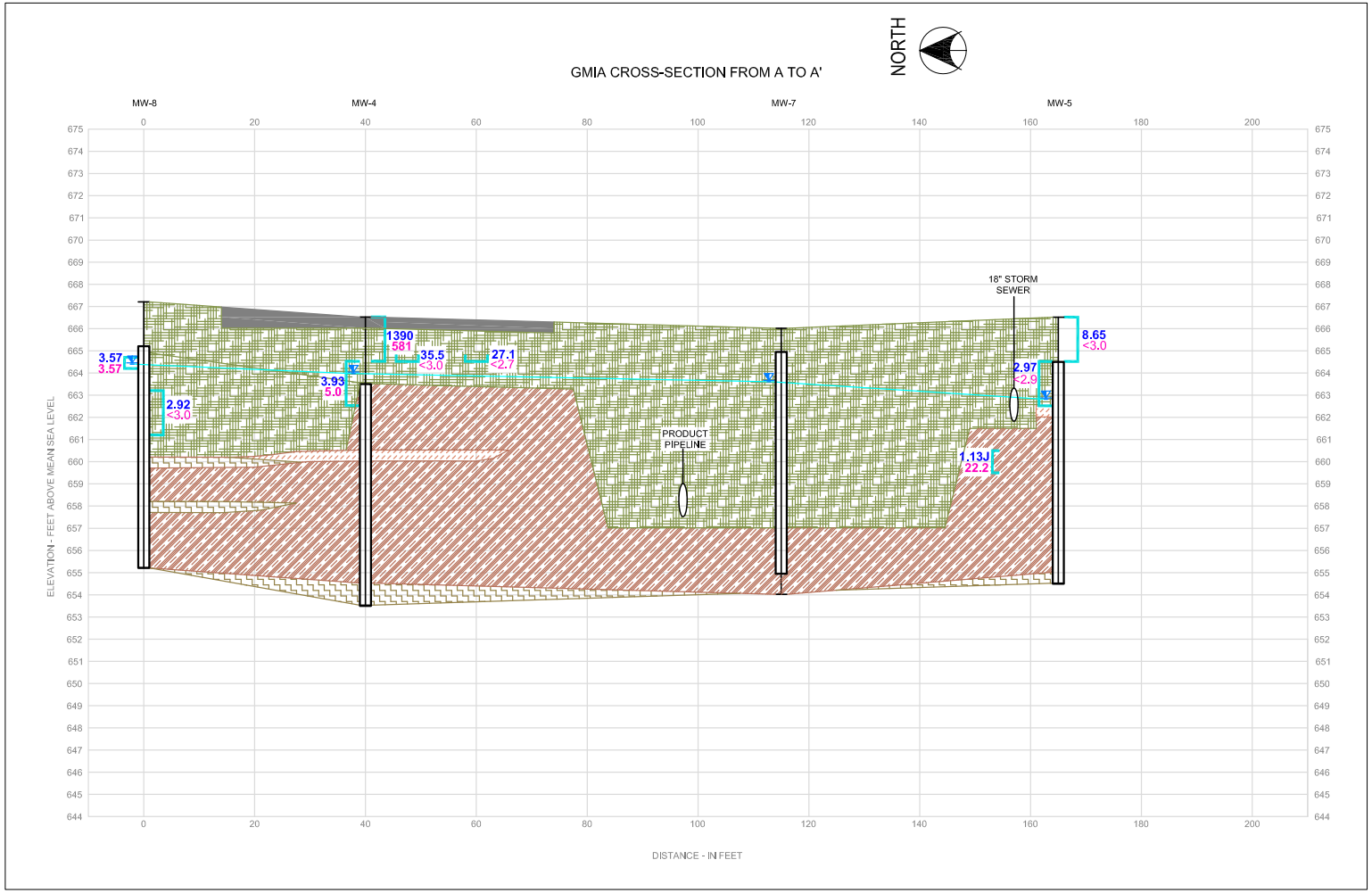
Apr. 29, 2014
JOB NO.: 49233474
DRAWN BY: RF | APP'D BY: KDM
SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.2.c
PRE/POST REMAINING
SOIL CONTAMINATION



LEGEND

- WELL
- WELL SCREEN
- WATER LEVEL
- SAMPLE SAMPLE INTERVAL
- DRO CONCENTRATION (mg/kg) 723
- GRO CONCENTRATION (mg/kg) 695
- ASPHALT
- CLAY
- FILL
- SILT
- SILTY SAND

BOLD = EXCEEDS RCL VALUE OF 250 mg/kg

SCALE: VERTICAL : 1" = 20'
HORIZONTAL: 1" = 5'

SCALE IN FEET (VERTICAL)
0 120 240

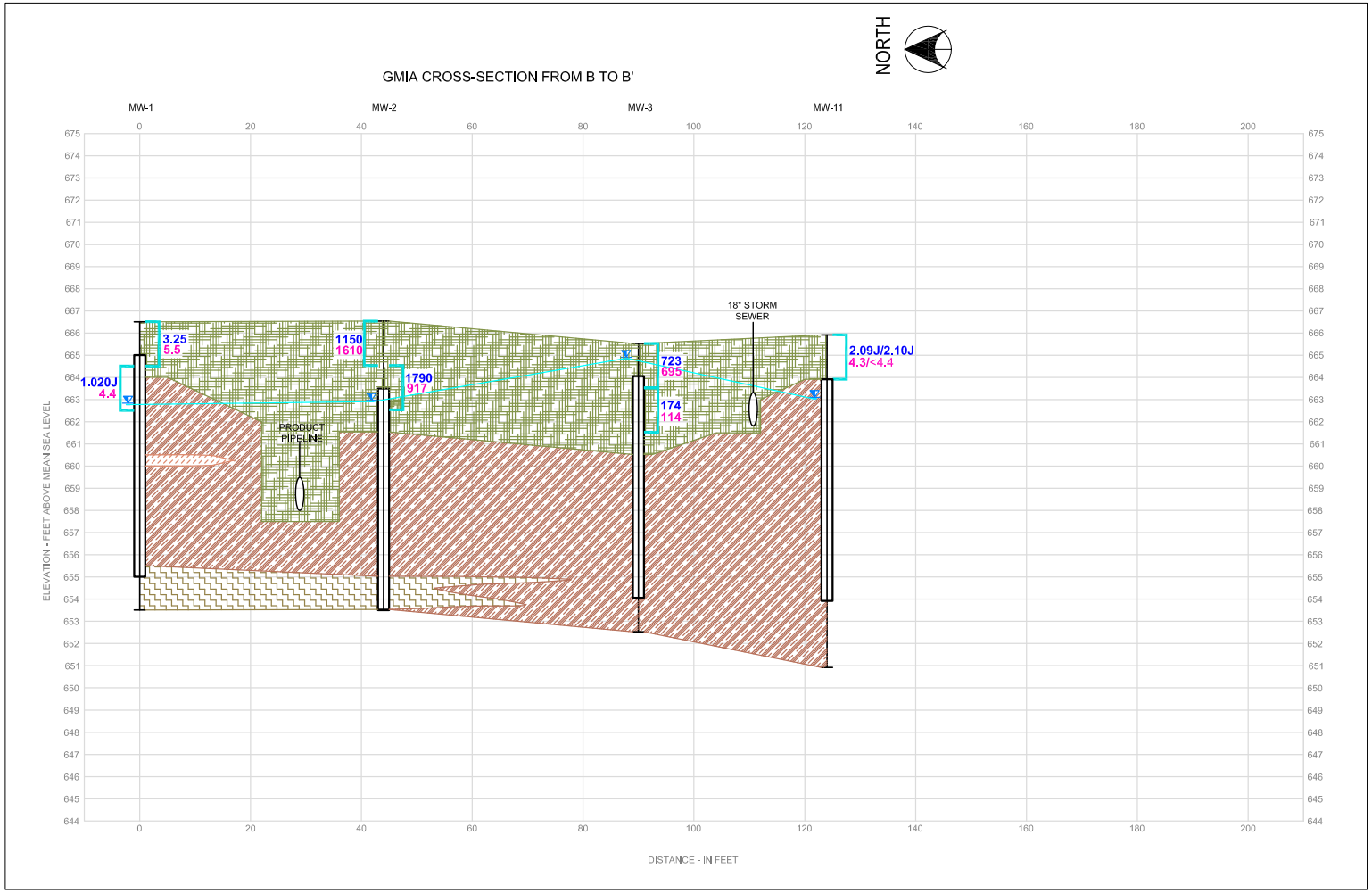
April 24, 2014
JOB NO.: 49233474
DRAWN BY: MMM | APP'D BY: KDM
SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.3.a.1
CROSS SECTIONS
A TO A'



LEGEND

- WELL
- WELL SCREEN
- WATER LEVEL
- SAMPLE SAMPLE INTERVAL
- DRO CONCENTRATION (mg/kg) 723
- GRO CONCENTRATION (mg/kg) 695
- ASPHALT
- CLAY
- FILL
- SILT
- SILTY SAND

BOLD = EXCEEDS RCL VALUE OF 250 mg/kg

SCALE: VERTICAL : 1" = 20'
HORIZONTAL: 1" = 5'

SCALE IN FEET (VERTICAL)
0 120 240

April 24, 2014
JOB NO.: 49233474
DRAWN BY: MMM | APP'D BY: KDM
SCALE: AS SHOWN

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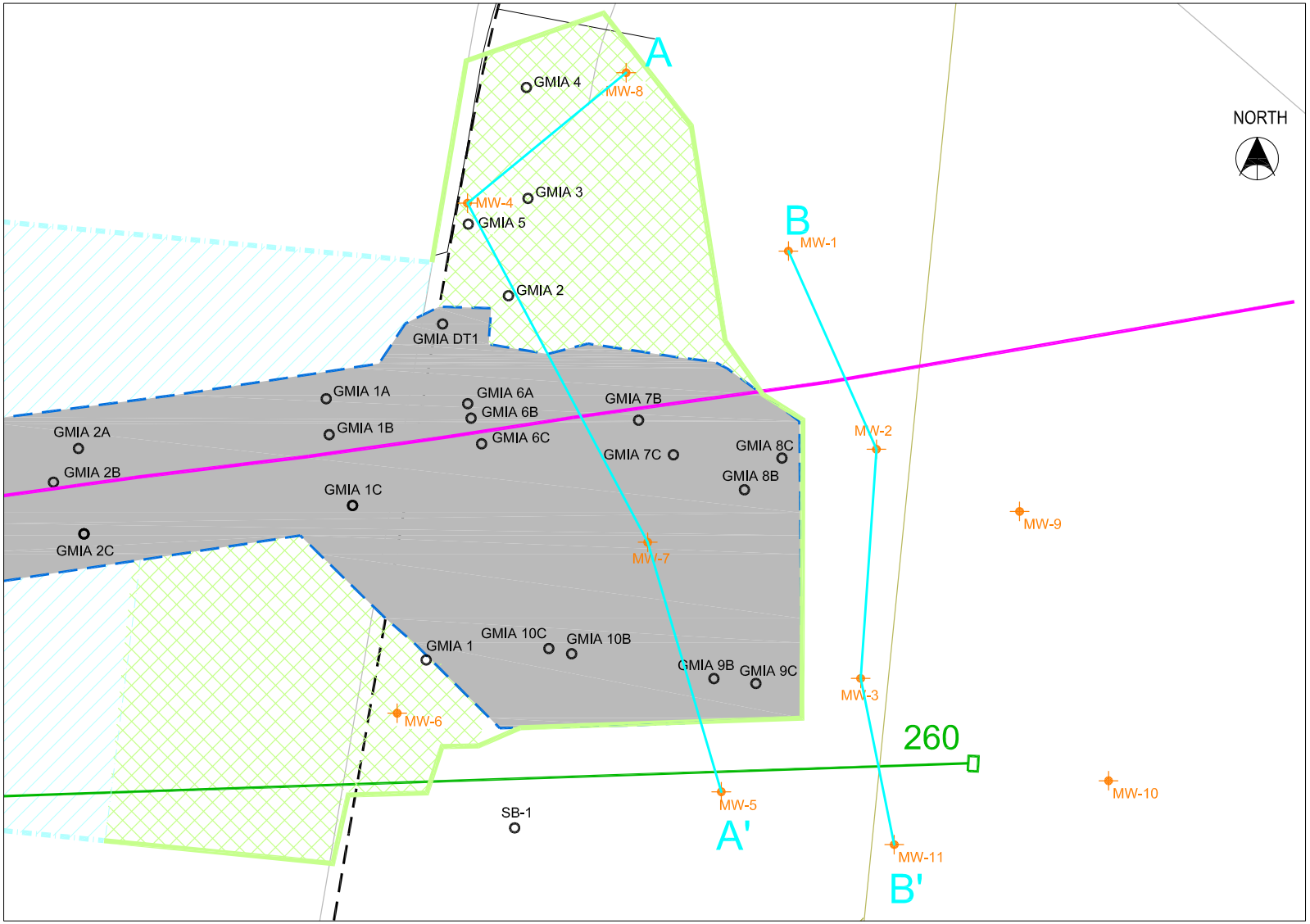
GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.3.a.2
CROSS SECTIONS
B TO B'



LEGEND

- A - A' — A - A' CROSS SECTION LOCATION
- DAYLIT SURVEYED PIPELINE (FEB 2012)
- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- BOUNDARY AND REMEDIAL EXCAVATION
- SURFACE SOIL REMOVAL
- PAVEMENT REMOVAL

SCALE IN FEET
0 20 40

April 24, 2014

JOB NO.:	
49233474	
DRAWN BY: MMM	APP'D BY: KDM
SCALE: AS SHOWN	

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.3.a.3
CROSS SECTIONS
OVERVIEW PLAN

P:\GED\49233474 Shell Mitchell Airport\AutoCad\DELIVERABLES\2014 Closure Report\Figure B.3.a.3 Cross Section Overview Plan - no aerial.dwg User:michele_mcgavock Apr 30, 2014 - 3:42pm

MW-8

Date	11/2/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0047	<0.0057	<0.0056	<0.0050
Benzo(b)fluoranthene	<0.0050	<0.0077	<0.0077	<0.0069
Chrysene	<0.0051	<0.0071	<0.0070	<0.0063
DRO	180	84	49	44 J
GRO	<32.4	35.3 J	<32.4	<34.9

MW-1

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0048	<0.0058	<0.0055	<0.0054
Benzo(b)fluoranthene	<0.0051	<0.0079	<0.0078	<0.0074
Chrysene	<0.0052	<0.0079	<0.0069	0.11 J
DRO	12 J	<11	57	<20
GRO	<32.4	<32.4	<32.4	<34.9

MW-2

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	**18.1**	<1.8	<1.0	*3.3*
Ethylbenzene	*203*	68.1	31.7	82.0
Toluene	<0.67	<2.7	<0.88	<0.88
Total Xylenes	*455.8*	218.9	105.4	93.4
1,2,4-TMB	**604**	**431**	*188*	*256*
1,3,5-TMB	**154**	**136**	*71*	*79.2*
Naphthalene	*92.4*	*59.0*	*29.9*	*68.5*
Benzo(a)pyrene	<0.54	<0.56	<0.22	<0.55
Benzo(b)fluoranthene	<0.59	<0.77	<0.30	<0.75
Chrysene	<0.59	<0.70	<0.28	<0.55
DRO	2,100	2,700	2,300	3,900
GRO	3,720	2,170	1,960	1,550

MW-4

Date	11/2/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	2.2	1.5	1.5	0.91 J
Toluene	0.83 J	<0.67	0.76 J	<0.44
Total Xylenes	6.8	<2.63	5.7	3.0 J
1,2,4-TMB	11.5	6.9	6.8	10.9
1,3,5-TMB	4.2	2.8	2.8 J	3.8 J
Naphthalene	1.7 J	1.4 J	<2.5	<2.5
Benzo(a)pyrene	<0.0045	0.020 J	<0.0056	<0.0054
Benzo(b)fluoranthene	<0.0048	*0.042 J*	<0.0077	<0.0074
Chrysene	0.0067 J	*0.024 J*	<0.0070	<0.0068
DRO	240	98	130	64
GRO	95.7	70.4	37.9 J	55.6

MW-9

Date	11/1/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	0.85 J	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	0.0049 J	<0.0056	<0.0056	<0.0054
Benzo(b)fluoranthene	0.0061 J	<0.0076	<0.0078	<0.0074
Chrysene	0.0069 J	<0.0070	<0.0070	<0.0068
DRO	27 J	70	120	<20
GRO	<32.4	<32.4	<32.4	<34.9

MW-7

Date	11/1/2012		2/21/2013		5/10/2013	8/1/2013	
Benzene	<0.41	<0.41	<0.41	<0.41	<0.50	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.50	<0.50	<0.50
Toluene	<0.67	<0.67	<0.97	<0.97	<0.44	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<1.32	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.97	<0.97	<0.57	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<0.83	<0.83	<2.5	<2.5	<2.5
Naphthalene	<0.89	<0.89	<0.89	<0.89	<2.5	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0044	<0.0055	<0.0054	<0.0055	<0.0055	<0.0059
Benzo(b)fluoranthene	<0.0044	<0.0044	<0.0075	<0.0074	<0.0075	<0.0075	<0.0080
Chrysene	<0.0048	<0.0048	<0.0069	<0.0068	<0.0069	<0.0069	<0.0073
DRO	90	71	92	90	180	85	64
GRO	<32.4	<32.4	<32.4	<32.4	<32.4	<34.9	<34.9

MW-3

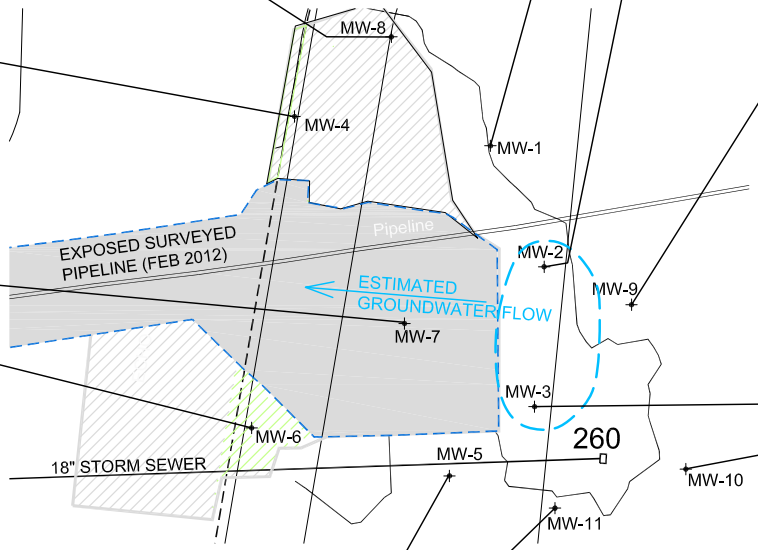
Date	11/1/2012	2/21/2013	5/9/2013		8/1/2013
Benzene	*0.95 J*	<0.41	1.6	1.6	<0.50
Ethylbenzene	3.8	6.5	4.9	4.7	0.57 J
Toluene	<0.67	<0.67	<0.44	<0.44	<0.44
Total Xylenes	<2.63	2.3	13.6	12.9	<1.32
1,2,4-TMB	9.6	41.5	19.5	17.3	4.3 J
1,3,5-TMB	4.6	15.6	6.4	6.1	<2.5
Naphthalene	4.1 J	8.5	4.2 J	4.2 J	<2.5
Benzo(a)pyrene	**0.22**	**0.89**	*0.062 J*	*0.059 J*	0.020 J
Benzo(b)fluoranthene	**0.21**	**1.1**	*0.064 J*	*0.059 J*	*0.023 J*
Chrysene	**0.26**	**0.89**	*0.10*	*0.088 J*	0.018 J
DRO	3,500	420	690	650	340
GRO	192	317	150	141	36.5 J

MW-6

Date	11/1/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.97	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0054	<0.0057	<0.0053
Benzo(b)fluoranthene	<0.0046	<0.0074	<0.0077	<0.0072
Chrysene	<0.0047	<0.0068	<0.0071	<0.0066
DRO	130	140	340	130
GRO	<32.4	<32.4	<32.4	<34.9

MW-10

Date	11/1/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.97	<0.97	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.85	<0.85	<2.5	<2.5
Benzo(a)pyrene	<0.0045	<0.0054	<0.0057	<0.0054
Benzo(b)fluoranthene	<0.0049	<0.0074	<0.0078	<0.0074
Chrysene	<0.0049	<0.0069	<0.0072	<0.0069
DRO	27 J	<11	75	<20
GRO	<32.4	<32.4	<32.4	<34.9



MW-5

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.67	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.85	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0048	<0.0055	<0.0055	<0.0058
Benzo(b)fluoranthene	<0.0047	<0.0075	<0.0075	<0.0075
Chrysene	<0.0048	<0.0069	<0.0069	<0.0073
DRO	<10	<10	24 J	80
GRO	<32.4	<32.4	<32.4	<34.9

MW-11

Date	8/1/2012	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41		<0.50	<0.50
Ethylbenzene	<0.54	<0.54		<0.50	<0.50
Toluene	<0.67	<0.67		<0.44	<0.44
Total Xylenes	<2.63	<2.63		<1.32	<1.32
1,2,4-TMB	<0.67	<0.37	Not	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	Sampled-	<2.5	<2.5
Naphthalene	<0.89	<0.89	Well	<2.5	<2.5
Benzo(a)pyrene	0.0036 J	<0.0048	Frozen	<0.0056	<0.0055
Benzo(b)fluoranthene	0.0038 J	<0.0047		<0.0078	<0.0075
Chrysene	0.0056 J	<0.0048		<0.0070	<0.0069
DRO	36 J	12 J		65	37 J
GRO	<32.4	<32.4		<32.4	<34.9

Notes:

Detections presented in **bold** type indicate an exceedance of the NR 140 groundwater enforcement standard.
Detections presented in *italic* type indicate an exceedance of the NR 140 preventive action limit.
Results are expressed in µg/L (ppb).

J Estimated concentration detected between the detection limit and reporting limit.
DRO Diesel Range Organics
GRO Gasoline Range Organics
1,2,4-TMB 1,2,4-Trimethylbenzene
1,3,5-TMB 1,3,5-Trimethylbenzene

Estimated Extent of Intermittent Exceedence of the NR140 ES.

SCALE IN FEET
0 40 80

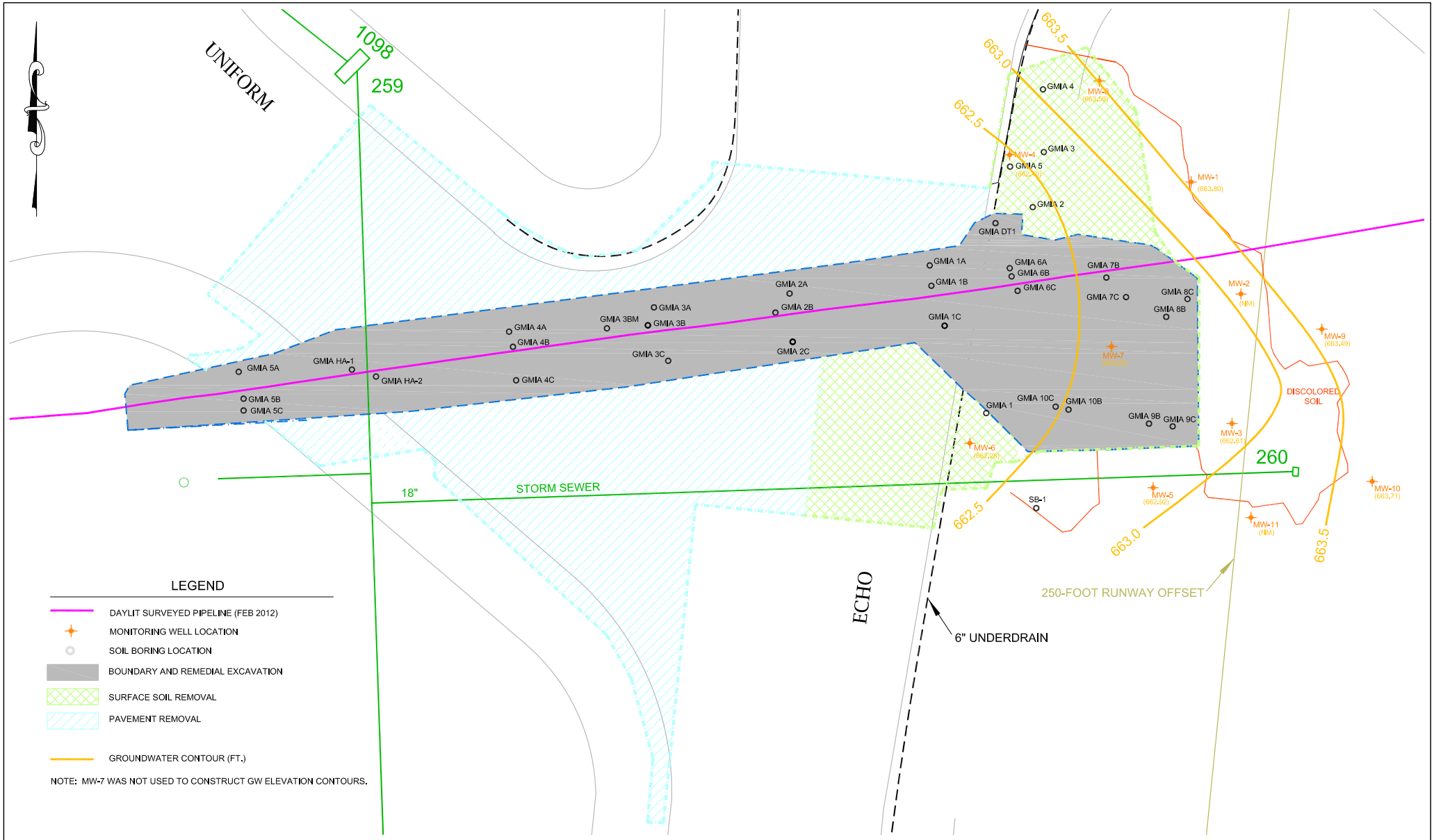
Apr. 24, 2014
JOB NO.: 49233474
DRAWN BY: RF | APP'D BY: KDM
SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.3.b
GROUNDWATER ISOCONCENTRATIONS



SCALE IN FEET
30 0 30

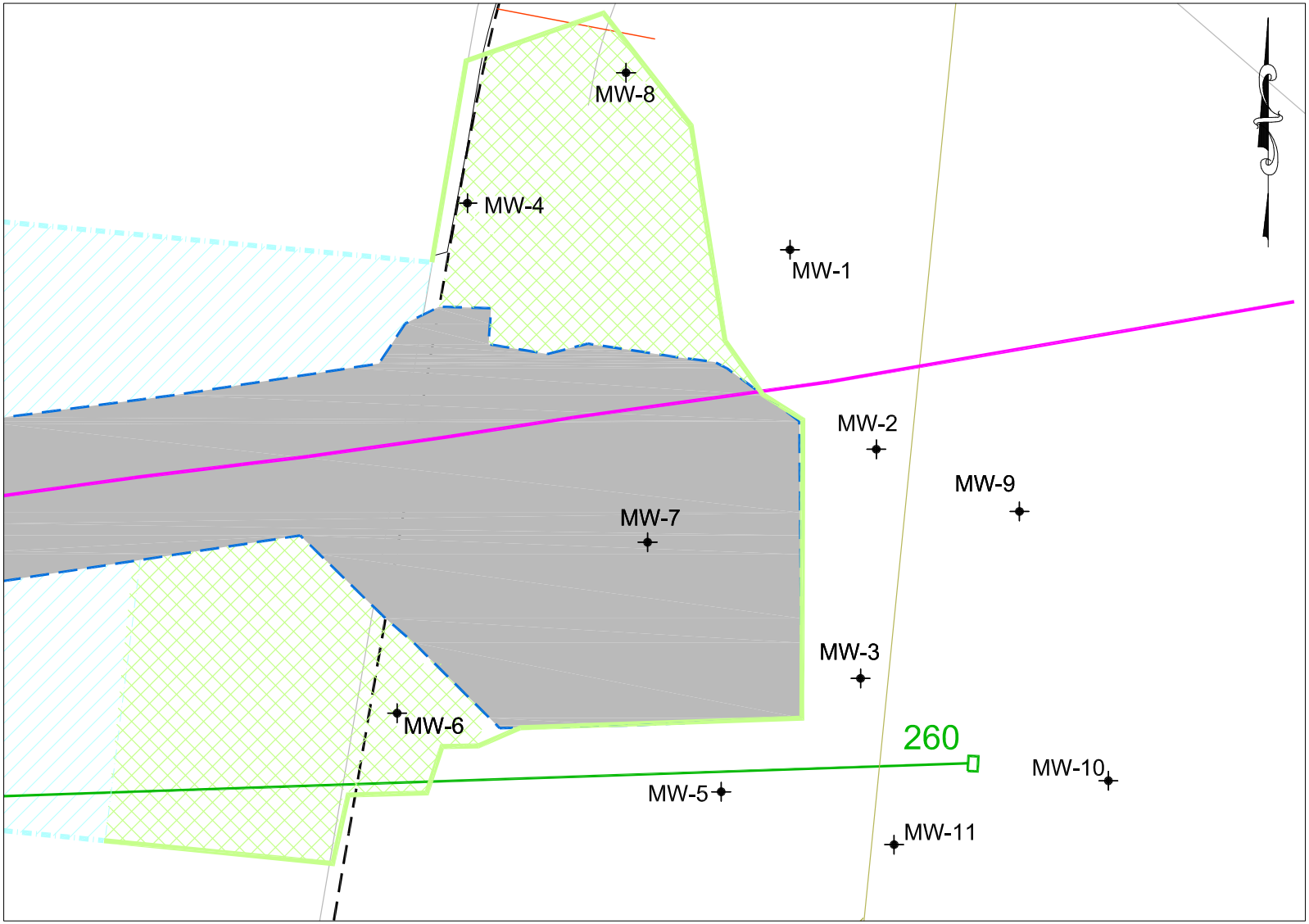
April 24, 2014
JOB NO.: 49233474
DRAWN BY: RF | APP'D BY: KDM
SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL OIL COMPANY

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.3.c
GROUNDWATER FLOW DIRECTION



LEGEND

- DAYLIT SURVEYED PIPELINE (FEB 2012)
- MONITORING WELL LOCATION
- BOUNDARY AND REMEDIAL EXCAVATION
- SURFACE SOIL REMOVAL
- PAVEMENT REMOVAL

SCALE IN FEET
0 20 40

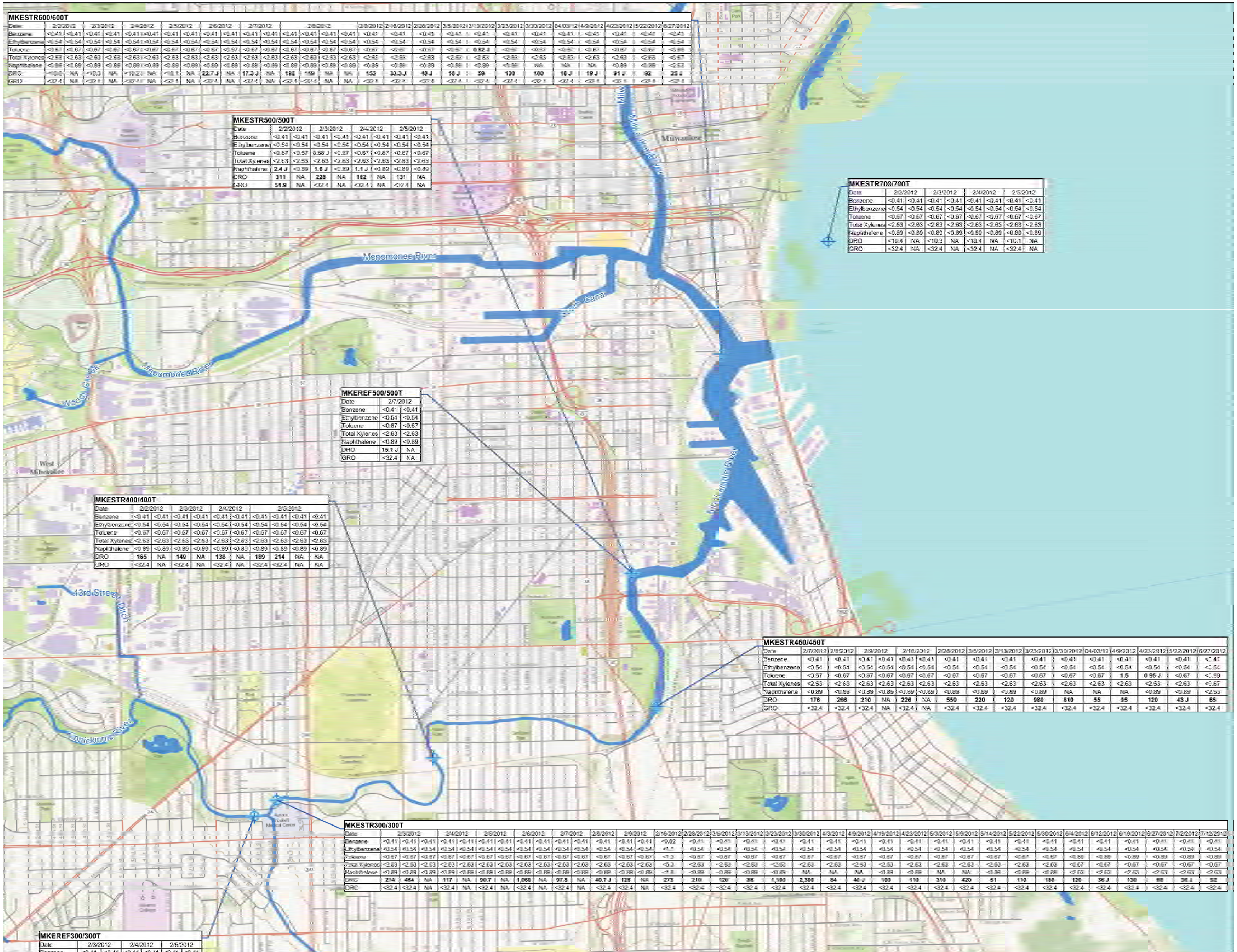
April 24, 2014
JOB NO.: 49233474
DRAWN BY: MMM | APP'D BY: KDM
SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:
SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release
5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.3.d
MONITORING WELLS



MKESTR600/600T

Date	2/2/2012		2/3/2012		2/4/2012		2/5/2012		2/6/2012		2/7/2012		2/8/2012				2/9/2012	2/16/2012	2/28/2012	3/5/2012	3/13/2012	3/23/2012	3/30/2012	04/03/12	4/9/2012	4/23/2012	5/22/2012	6/27/2012
Benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Toluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	0.82 J	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.89
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<0.67
Naphthalene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	NA	NA	NA	<0.89	<0.89	<2.63
DRO	<10.6	NA	<10.3	NA	<10.2	NA	<10.1	NA	22.7 J	NA	17.3 J	NA	182	189	NA	NA	153	33.3 J	43 J	18 J	59	130	100	18 J	19 J	91 J	92	25 J
GRO	<32.4	NA	<32.4	NA	<32.4	NA	<32.4	NA	<32.4	NA	<32.4	NA	<32.4	<32.4	NA	NA	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4

MKESTR500/500T

Date	2/2/2012		2/3/2012		2/4/2012		2/5/2012	
Benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Toluene	<0.67	<0.67	0.68 J	<0.67	<0.67	<0.67	<0.67	<0.67
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63
Naphthalene	**2.4 J**	<0.89	**1.6 J**	<0.89	**1.1 J**	<0.89	<0.89	<0.89
DRO	**311**	NA	**228**	NA	**182**	NA	**131**	NA
GRO	**51.9**	NA	<32.4	NA	<32.4	NA	<32.4	NA

MKESTR700/700T

Date	2/2/2012		2/3/2012		2/4/2012		2/5/2012	
Benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Toluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63
Naphthalene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89
DRO	<10.4	NA	<10.3	NA	<10.4	NA	<10.1	NA
GRO	<32.4	NA	<32.4	NA	<32.4	NA	<32.4	NA

MKEREF500/500T

Date	2/7/2012	
Benzene	<0.41	<0.41
Ethylbenzene	<0.54	<0.54
Toluene	<0.67	<0.67
Total Xylenes	<2.63	<2.63
Naphthalene	<0.89	<0.89
DRO	**15.1 J**	NA
GRO	<32.4	NA

MKESTR400/400T

Date	2/2/2012		2/3/2012		2/4/2012		2/5/2012			
Benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Toluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63
Naphthalene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89
DRO	**165**	NA	**140**	NA	**138**	NA	**189**	**214**	NA	NA
GRO	<32.4	NA	<32.4	NA	<32.4	NA	<32.4	<32.4	NA	NA

MKESTR450/450T

Date	2/7/2012	2/8/2012	2/9/2012		2/16/2012		2/28/2012	3/5/2012	3/13/2012	3/23/2012	3/30/2012	04/03/12	4/9/2012	4/23/2012	5/22/2012	6/27/2012
Benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Toluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	**1.5**	**0.95 J**	<0.67	<0.89
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<0.67
Naphthalene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	NA	NA	NA	<0.89	<0.89	<2.63
DRO	**176**	**266**	**210**	NA	**226**	NA	**550**	**220**	**120**	**980**	**810**	**55**	**95**	**120**	**43 J**	**65**
GRO	<32.4	<32.4	<32.4	NA	<32.4	NA	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4

MKESTR300/300T

Date	2/3/2012			2/4/2012		2/5/2012		2/6/2012		2/7/2012		2/8/2012	2/9/2012		2/16/2012	2/28/2012	3/5/2012	3/13/2012
Benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.82	<0.41	<0.41	<0.41
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<1.1	<0.54	<0.54	<0.54
Toluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<1.3	<0.67	<0.67	<0.67
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<5.3	<2.63	<2.63	<2.63
Naphthalene	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89	<1.8	<0.89	<0.89	<0.89
DRO	**254**	**464**	NA	**117**	NA	**90.7**	NA	**1,060**	NA	**97.8**	NA	**40.7 J**	**128**	NA	**273**	**210**	**120**	**86**
GRO	<32.4	<32.4	NA	<32.4	NA	<32.4	NA	<32.4	NA	<32.4	NA	<32.4	<32.4	NA	<32.4	<32.4	<32.4	<32.4

Date	3/23/2012	3/30/2012	4/3/2012	4/9/2012	4/19/2012	4/23/2012	5/3/2012	5/9/2012	5/14/2012	5/22/2012	5/30/2012	6/4/2012	6/12/2012	6/19/2012	6/27/2012	7/2/2012	7/12/2012
Benzene	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54
Toluene	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.89	<0.89	<0.89	<0.89	<0.89	<0.89
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67
Naphthalene	<0.89	NA	NA	NA	<0.89	<0.89	NA	NA	<0.89	<0.89	<0.89	<2.63	<2.63	<2.63	<2.63	<2.63	<2.63
DRO	**1,190**	**2,300**	**84**	**46 J**	**100**	**110**	**310**	**420**	**51**	**110**	**180**	**120**	**36 J**	**130**	**86**	**36 J**	**92**
GRO	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4	<32.4

MKEREF300/300T

Date	2/3/2012		2/4/2012		2/5/2012	
Benzene						

Date	MKE-KKR-SD01 4/8/2013
Field Screening	1.1
Benzene	0.09 J
Ethylbenzene	0.01 J
Toluene	0.04 J
Xylenes	0.093 J
Naphthalene	0.02
GRO	<3.6
DRO	9.41
Benzo(a) pyrene	1.26 J
Benzo(b) fluoranthene	1.29 J
Chrysene	1.28 J
Fluoranthene	2.49 J
Pyrene	1.95 J
Total PAH (16)	14.4

Date	MKE-KKR-SD02 4/8/2013
Field Screening	2.0
Benzene	<0.080 J
Ethylbenzene	0.010 J
Toluene	0.094 J
Xylenes	0.116 J
Naphthalene	0.065
GRO	<3.3
DRO	128
Benzo(a) pyrene	1.11
Benzo(b) fluoranthene	1.31
Chrysene	1.19
Fluoranthene	2.19 J
Pyrene	1.71 J
Total PAH (16)	13.3

Date	MKE-KKR-SD03 4/10/2013
Field Screening	0.4
Benzene	0.074 B
Ethylbenzene	0.009
Toluene	0.046 B
Xylenes	0.058
Naphthalene	0.090
GRO	<3.9
DRO	117
Benzo(a) pyrene	4.660
Benzo(b) fluoranthene	4.710
Chrysene	4.780
Fluoranthene	10.500
Pyrene	8.250
Total PAH (16)	57.3

Date	MKE-KKR-SD04	MKE-KKR-SD04 Dup
Field Screening	4/9/2013 16.7	
Benzene	0.359 J	0.215 J
Ethylbenzene	0.077 J	0.046 J
Toluene	1.25 J	0.966 J
Xylenes	1.24 J	1.093 J
Naphthalene	0.297	0.220
GRO	12.8	15.7
DRO	66	132
Benzo(a) pyrene	11.4 J	8.51 J
Benzo(b) fluoranthene	12.4 J	9.49 J
Chrysene	12.7 J	9.49 J
Fluoranthene	24.4 J	18.0 J
Pyrene	19.2 J	13.8 J
Total PAH (16)	142	105

Date	MKE-KKR-SD05 4/9/2013
Field Screening	34.3
Benzene	0.495 J
Ethylbenzene	0.065 J
Toluene	1.51 J
Xylenes	1.131 J
Naphthalene	0.423
GRO	<5.8
DRO	22
Benzo(a) pyrene	6.07 J
Benzo(b) fluoranthene	6.83 J
Chrysene	7.15 J
Fluoranthene	13.4
Pyrene	10.6
Total PAH (16)	78.2

Date	MKE-UNC-SD01 4/8/2013
Field Screening	1.0
Benzene	<0.088 J
Ethylbenzene	0.006 J
Toluene	0.086 B,J
Xylenes	0.269 J
Naphthalene	0.026
GRO	<3.6
DRO	16.6
Benzo(a) pyrene	1.41 J
Benzo(b) fluoranthene	1.5 J
Chrysene	1.46 J
Fluoranthene	2.76 J
Pyrene	2.16 J
Total PAH (16)	16.3

Date	MKE-WPC-SD05 4/8/2013
Field Screening	0.5
Benzene	0.122 J
Ethylbenzene	0.013 J
Toluene	0.052 J
Xylenes	0.095 J
Naphthalene	0.016
GRO	<3.2
DRO	241
Benzo(a) pyrene	1.62 J
Benzo(b) fluoranthene	1.6 J
Chrysene	1.6 J
Fluoranthene	3.25 J
Pyrene	2.55 J
Total PAH (16)	18.4

Date	MKE-VMC-SD01 4/8/2013
Field Screening	0.9
Benzene	<0.078 J
Ethylbenzene	<0.009 J
Toluene	0.041 J
Xylenes	0.036 J
Naphthalene	0.063
GRO	<2.9
DRO	304
Benzo(a) pyrene	8.81 J
Benzo(b) fluoranthene	9.35 J
Chrysene	9.14 J
Fluoranthene	18.8 J
Pyrene	15.4 J
Total PAH (16)	104

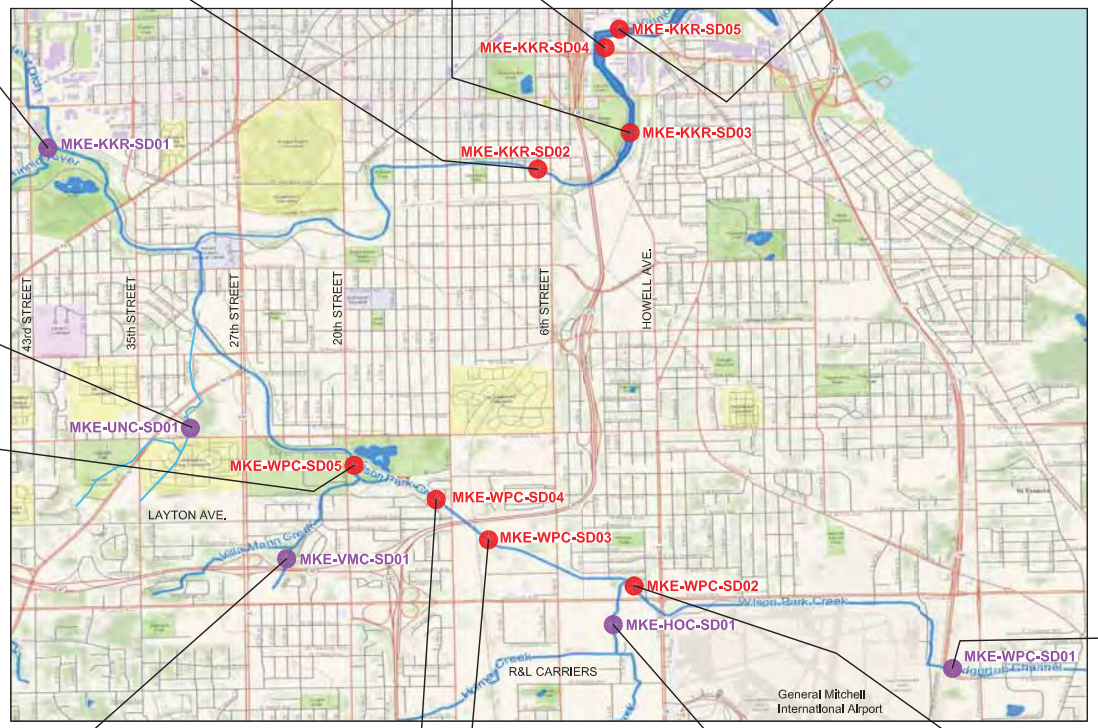
Date	MKE-WPC-SD04	MKE-WPC-SD04 Dup
Field Screening	4/8/2013 0.4	
Benzene	<0.088 J	<0.042 J
Ethylbenzene	0.007 J	0.005 J
Toluene	<0.035 J	<0.032 J
Xylenes	0.068 J	0.025 J
Naphthalene	0.122	0.026
GRO	<3.1	<3.0
DRO	251	159
Benzo(a) pyrene	12.8 D,J	2.95
Benzo(b) fluoranthene	10.9 J	2.96
Chrysene	8.04	3.07
Fluoranthene	13.1 D,J	6.53 J
Pyrene	15 D,J	5.09 J
Total PAH (16)	104	36.1

Date	MKE-WPC-SD03 4/8/2013
Field Screening	1.4
Benzene	<0.079 B,J
Ethylbenzene	0.012 J
Toluene	0.103 J
Xylenes	0.200 J
Naphthalene	0.358
GRO	<3.6
DRO	158
Benzo(a) pyrene	12.3
Benzo(b) fluoranthene	13.4
Chrysene	12.2
Fluoranthene	23.7 J
Pyrene	18.6 J
Total PAH (16)	147

Date	MKE-HOC-SD01 4/8/2013
Field Screening	15.0
Benzene	0.112 J
Ethylbenzene	0.009 J
Toluene	0.054 J
Xylenes	0.049 J
Naphthalene	0.070
GRO	<3.7
DRO	211
Benzo(a) pyrene	12.0 J
Benzo(b) fluoranthene	12.7 J
Chrysene	12.0 J
Fluoranthene	23.9 J
Pyrene	18.4 J
Total PAH (16)	137

Date	MKE-WPC-SD02 4/8/2013
Field Screening	2.9
Benzene	0.518 J
Ethylbenzene	0.089 J
Toluene	0.467 J
Xylenes	1.00 J
Naphthalene	2.36
GRO	<5.9
DRO	45
Benzo(a) pyrene	9.16 J
Benzo(b) fluoranthene	10.5 J
Chrysene	9.76 J
Fluoranthene	18.8 J
Pyrene	14.4 J
Total PAH (16)	116

Date	MKE-WPC-SD01 4/8/2013
Field Screening	3.6
Benzene	0.276 J
Ethylbenzene	0.078 J
Toluene	0.174 J
Xylenes	0.241 J
Naphthalene	0.054
GRO	<3.5
DRO	22
Benzo(a) pyrene	1.99 J
Benzo(b) fluoranthene	2.19 J
Chrysene	2.0 J
Fluoranthene	3.76 J
Pyrene	2.95 J
Total PAH (16)	22.8



LEGEND

MKE-WPC-SD02 Downstream sampling location

MKE-HOC-SD01 Upstream sampling location

Sample Numbering System

MKE–Site–MatrixXX

MKE – designates sample is from the Milwaukee site

Site – indicates the waterway which is:

HOC	Holmes Creek
KKR	Kinnickinnic River
UNC	Unnamed Creek
VMC	Villa Mann Creek
WPC	Wilson Park Creek

Matrix – indicates the matrix which is "SD" for sediment

XX – indicates the sample number

Notes:

Concentrations are expressed in milligrams per kilogram, dry weight equivalen to parts per million.

These laboratory results were evaluated using a Level II data validation protocol. See Attachment 2 for the Data Assessment Report.

Total PAH (16) is the sum of the detected PAH Priority Pollutants.

Triphenylene is known to coelute with chrysene. The reported concentration of chrysene includes triphenylene.

GRO	Gasoline Range Organics
DRO	Diesel Range Organics
PAH	Polynuclear Aromatic Hydrocarbons
IU	Instrument Units
mg/kg	milligrams per kilogram
B	Analyte was detected in the method blank
D	Analyte was reported from a diluted extract
Dup	Duplicate sample collected in the field
J	Estimated concentration detected between the Reporting Limit and the Estimated Detection Level
NS	No standard

SCALE IN FEET

0 3,000 6,000

Apr. 24, 2014

JOB NO.: 49233474

DRAWN BY: RF | APP'D BY: KDM

SCALE: AS SHOWN

URS

342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4101

PREPARED FOR:

SHELL PIPELINE COMPANY LP

GMIA Pipeline Fuel Release

5300 South Howell Avenue
Milwaukee, Wisconsin

FIGURE B.4.b.2
SEDIMENT SAMPLE RESULTS

P:\GED\49233474 Shell Mitchell Airport\AutoCad\DELIVERABLES\2014 Closure Report\Figure B.4.b.2 Sediment Sample Results Map.dwg User:michele_mcgovock May 20, 2014 – 1:58pm

ATTACHMENT C

Documentation of Remedial Action— Not Applicable
A Remedial Action Plan was not submitted; the excavation was conducted as part of pipeline repairs

ATTACHMENT D

Maintenance Plans and Photographs— Not Applicable
No Maintenance Plan is proposed

ATTACHMENT E

Monitoring Well Information— Not Applicable
All wells will be located and abandoned upon receiving conditional case closure

ATTACHMENT F

Notifications to Owners of Impacted Properties—Notice to Airport Director

MILWAUKEE MAIN PO
MILWAUKEE, Wisconsin
532033099
5654840203 -0098
03/10/2014 (800)275-8777 03:57:20 PM

Sales Receipt

Product Description	Sale Qty	Unit Price	Final Price
MILWAUKEE WI 53207 Zone-0			$1.61
First-Class Mail Large Env			
3.30 oz.			
Expected Delivery: Tue 03/11/14			
Return Rcpt (Green Card)			$2.70
@@ Certified			$3.30
USPS Certified Mail #:			
70122920000222625275			
Issue PVI:			$7.61
Total:			$7.61

Paid by:
Cash $8.00
Change Due: -$0.39

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Sent To: AIRPORT DIRECTOR
Street, Apt. No., or PO Box No.: 5300 S HOWELL AVE
City, State, ZIP+4: MILWAUKEE WI 53207-6189

PS Form 3800, August 2006 See Reverse for Instructions

7012 2920 0002 2262 5275

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:
AIRPORT DIRECTOR
GMIA
5300 S HOWELL AVE
MILWAUKEE WI 53207-6189

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Gayle Dorkas ☐ Agent ☐ Addressee

B. Received by (Printed Name) Gayle Douglas C. Date of Delivery 3/11/14

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☒ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from serv 7012 2920 0002 2262 5275

March 10 , 2014

Shell Oil Products US
20945 S. Wilmington Ave.
Carson, California 90810
Attn: John Robbins
Phone: 815-468-8824
Fax: 713-423-0544
Email john.robbins@shell.com

Mr. C. Barry Batem+n
ę irport Director
Gener+l Mitchell Administration
5300 S " owe Ō. Ṣenue
Mi Ø + %kee, W+53207-6189

Su>ǯect: J otiḱication of Qesidual Contamination
!ḱel Ō Pipe Ōne Company XU
MKE Spill Sĭe
5300 Souḱ Howell Aven%e Milwaukee, Wisconsin

Dear Mr. Bateman,

This letter is in regards to the investigation of a release of jet fuel from a pipeline located near the intersection of taxiways Echo and Uniform at General Mitchell International Airport (GMIA) located at 5300 South Howell Avenue in Milwaukee, Wisconsin ("site" or "subject property"). This investigation has shown that contamination remains on this property. Shell Pipeline (Shell) has conducted a cleanup and will be requesting that the Wisconsin Department of Natural Resources (WDNR) grant case closure. Closure means the WDNR will not be requiring any further investigation or cleanup action to be taken.

As part of the cleanup, Shell proposes that the subject property be listed on Wisconsin's Geographic Information System (GIS) Registry of closed remediation sites for the residual groundwater impacts exceeding Wisconsin Administrative Code Chapter NR 140 Enforcement Standards (NR 140 ES) and for the residual soil impacts located along the buried pipeline within the 250-foot setback from the North-South Runway (19R-1L).

The WDNR will not review a closure request for at least 30 days after the date of this letter. As an affected property owner, you have a right to contact the WDNR to provide any technical information that you may have that indicates closure should not be granted for this site. If you would like to submit any information to the WDNR that is relevant to this closure request, you should mail that information to:

Scott J. Ferguson
Southeast Region Office- WDNR
2300 North Martin Luther King Drive
Milwaukee, Wisconsin 53212
(414) 263-8685

Please review the following legal description of your property and notify me within the next 30 days if the legal description is incorrect:

LANDS IN 1/4 SECS OF NW & SW 27, NE 32, NW & SW 34, ALL OF SEC 28 AND SEC 33 OF T6N R22E (MILWAUKEE COUNTY AIRPORT) THAT PRT BETW E LAYTON AV-CITY LIMITS LI-58.50 AC M/L OF WIS STATE ARMORY BOARD LANDS IN SECS 33 & 34-N & W LI SW 1/4 SEC 34-E COLLEGE AV-SW1/4 SEC 33 (EXC ST R/W & S 528' OF E 660' & S 484' OF W 600' OF E 1320')-W LI SEC 33-NW1/4 SEC 33 (EXC THAT PRT BEG SE COR SD SEC TH N 567'-TH SWLY 701.54'-TH S 330'-TH E 660' TO BEG & S 165' OF W 1330' AND ST R/W)-NE 1/4 SEC 32 (EXC CSM #2066 & E 23.50' OF S LI OF W 56.50' OF S 231' & AIRPORT SPUR FWY AND STS) & E LI S HOWELL AVE IN SW & NW SEC 28-6-22
TAXKEY: 640-9999-118

Before a request for closure is submitted, WDNR must be informed who will be responsible for the continuing obligation on your property. Under s. 292.12, Wis. Stats., the responsibility for maintaining all necessary continuing obligations for your property will fall on you or any subsequent property owner, unless another person has a legally enforceable responsibility to comply with the requirements of the final closure letter. If you need more time to finalize an agreement on the responsibility for properly disposing of jet fuel impacted soil that is excavated from along the pipeline, you will need to request additional time from Scott J. Ferguson at WDNR.

Under s. 292.12(5), Wis. Stats., occupants of this property are also responsible for complying with any continuing obligations. Please notify any current and future occupants that may be affected by a continuing obligation, by supplying them with a copy of this letter. The WDNR fact sheet, RR-819, *Continuing Obligations for Environmental Protection*, has been included with this letter, to help explain a property owner's responsibility for continuing obligations on their property. If the fact sheet is lost, you may obtain copies at http://dnr.wi.gov/org/aw/rr/archives/pubs/RR819.pdf.

Groundwater contamination at relatively low concentrations was detected intermittently in groundwater samples collected from monitoring wells installed near the pipeline release. Groundwater samples intermittently contain concentrations of benzene, trimethylbenzenes, benzo(a)pyrene, benzo(b)fluoranthene, and/or chrysene above the state groundwater enforcement standards found in chapter NR 140, Wisconsin Administrative Code. If you intend to construct a new well, or reconstruct an existing well, you'll need prior WDNR approval.

The environmental consultants who have investigated this contamination have determined the groundwater contaminant plume is stable or receding and will naturally degrade over time. Natural attenuation will eventually complete the cleanup at this site will meet the requirements for case closure that are found in chapter NR 726, Wisconsin Administrative Code, and I will be requesting that the WDNR accept natural attenuation as the final remedy for this site and grant case closure.

The following WDNR fact sheet (RR 671 – *What Landowners Should Know: Information About Using Natural Attenuation to Clean Up Contaminated Groundwater*) has been included with this letter, to help explain the use of natural attenuation as a remedy. If the fact sheet is lost, you may obtain a copy at http://dnr.wi.gov/org/aw/rr/archives/pubs/RR671.pdf.

Residual soil contamination remains near the intersection of taxiways Echo and Uniform, east of the offset for the North-South Runway. The remaining contaminants include low concentrations of Gasoline Range Organics (GRO), Diesel Range Organics (DRO), benzene, toluene, ethylbenzene, and xylenes (BTEX), naphthalene, and chrysene. Soil contamination has be excavated and removed to the extent practicable. A relatively small amount of impacted soil remains at areas that are inaccessible due to proximity to buried utilities and/or the North-South Runway. The small amount of residual soil impact will degrade naturally over time and is not anticipated to pose a threat to human health or the environment.

If soil in the specific location described above is excavated, the property owner at the time of excavation must sample and analyze the excavated soil to determine if residual contamination remains. If sampling confirms that contamination is present, the property owner at the time of excavation will need to determine whether the material would be considered solid or hazardous waste and ensure that any storage, treatment, or disposal is in compliance with applicable statutes and rules. In addition, all current and future owners and occupants of the property need to be aware that excavation of the contaminated soil may pose an inhalation or other direct contact hazard and as a result special precautions may need to be taken during excavation activities to prevent a health threat to humans.

Summary

Once the Department makes a decision on the closure request, it will be documented in a letter. If the WDNR grants closure, you will receive a copy of the closure letter. If you need to, you may also obtain a copy of the closure letter by requesting a copy from me, by writing to the agency address given above, or by accessing the WDNR Geographic Information System (GIS) Registry (via RR Sites Map) on the internet at http://www.dnr.wi.gov/org/aw/rr/gis/index.htm. The final closure letter will contain a description of the continuing obligation, any prohibitions on activities and will include any applicable maintenance plan. The final closure letter, any required maintenance plan and a map of the properties affected will be included as part of the site file

attached on the GIS Registry.

If this case is closed, all properties within the site boundaries where groundwater contamination attains or exceeds the NR 140 ES and soil contamination attains or exceeds WAC Chapter NR 720 residual contaminant levels will be listed on the publicly accessible Bureau for Remediation and Redevelopment Tracking System on the Web (BOTW) to provide public notice of remaining contamination and of any continuing obligations. In addition, information will be displayed on the Remediation and Redevelopment Sites Map (RR Sites Map); a mapping application, under the GIS Registry theme. This GIS Registry is available to the general public on the WDNR's internet web site. WDNR approval prior to well construction or reconstruction is required for all sites shown on the GIS Registry, in accordance with s. NR 812.09(4) (w), Wis. Adm. Code.

Should you or any subsequent property owner wish to construct or reconstruct a well on your property, special well construction standards may be necessary to protect the well from the remaining contamination. Any well driller who proposes to construct a well on your property in the future will first need to obtain approval from a regional water supply specialist in WDNR's Drinking Water and Groundwater Program. The well construction application, form 3300–254, is on the internet at http://www.dnr.state.wi.us/org/water/dwg/3300254.pdf., or may be accessed through the GIS Registry web address in the preceding paragraph.

If you need more information about my proposed cleanup completion and request for closure, you may contact me at (815) 468-8824 or at the letterhead address. If you need more information about cleanups and closure requirements, or to review the WDNR's file on my case, you may contact Scott J. Ferguson at the Southeast Region Headquarters of the WDNR at (414) 263-8685.

Sincerely,

Shell Oil Products US

John Robbins
Sr. Program Manager

Enclosures

c: Greg Failey, Milwaukee County- General Mitchell International Airport
Scott J. Ferguson, Wisconsin Department of Natural Resources
Kurt McClung, URS Corporation

Sample ID	GMIA 8B
Sample Date	3/8/2012
Field Screening	0.0
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	**0.0425 J**
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	<0.927
Chrysene	<0.0038

Sample ID	GMIA 5
Sample Date	4/18/2012
Field Screening	NM
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	**0.0750**
Toluene	<0.0250
Total Xylenes	**0.453**
Naphthalene	**0.281**
GRO	<3.0
DRO	**35.5**
Chrysene	**0.0064 J**

Sample
Sample D
Field Scree
Sample De
Benzen
Ethylbenz
Toluene
Total Xyle
Naphthale
GRO
DRO
Chrysen

Sample ID	GMIA 1
Sample Date	3/19/2012
Field Screening	10.0
Sample Depth	2.0
Benzene	<0.0250
Ethylbenzene	**0.0553 J**
Toluene	**0.0442 J**
Total Xylenes	**0.2329**
Naphthalene	**0.137**
GRO	**36.6**
DRO	**128**
Chrysene	**0.0142 J**

Sample ID	MW-3	
Sample Date	3/7/2012	
Field Screening	57.1	95.1
Sample Depth	0-2	2-4
Benzene	<0.125	**0.0399 J**
Ethylbenzene	**2.55**	**0.537**
Toluene	**2.42**	**0.883**
Total Xylenes	**11.09**	**2.264**
Naphthalene	**5.65**	**0.466**
DRO	**723**	**174**
GRO	**695**	**114**
Chrysene	**11.9**	**0.443**

Sample ID	GMIA 10B**
Sample Date	03/08-12/2012
Field Screening	0.6
Sample Depth	6.0
Benzene	<0.0250
Ethylbenzene	<0.0250
Toluene	<0.0250
Total Xylenes	<0.0750
Naphthalene	<0.0250
GRO	<3.2
DRO	**5.21**
Chrysene	<0.0036

Sample ID	MW-6	
Sample Date	3/15/2012	
Field Screening	55.1	7.0
Sample Depth	0-2	2-4
Benzene	<0.0250	<0.0250
Ethylbenzene	<0.0250	<0.0250
Toluene	**0.0623 J**	<0.0250
Total Xylenes	<0.0750	<0.0750
Naphthalene	<0.0250	<0.0250
DRO	**10.8**	**3.88**
GRO	**3.0**	<3.2
Chrysene	**0.0576 J**	**0.0137 J**

Sample ID	GMIA 9B
Sample Date	3/8/2012
Field Screening	8.7
Sample Depth	5.5
Benzene	<0.0250
Ethylbenzene	**0.0515 J**
Toluene	**0.0796**
Total Xylenes	**0.1789 J**
Naphthalene	**0.0330 J**
GRO	**22.2**
DRO	**1.13 J**
Chrysene	<0.0038

Sample ID	GMIA 9C
Sample Date	3/8/2012
Field Screening	195
Sample Depth	5.0
Benzene	<0.312
Ethylbenzene	**4.18**
Toluene	**3.58**
Total Xylenes	**17.24**
Naphthalene	**5.39**
GRO	**771**
DRO	**1,220**
Chrysene	**0.0888**

Sample ID	SB-01
Sample Date	5/11/2012
Field Screening	0.0
Sample Depth	0-2
Benzene	<0.0299
Ethylbenzene	<0.0299
Toluene	<0.0299
Total Xylenes	<0.0898
Naphthalene	<0.0299
DRO	**96.8**
GRO	<4.1
Chrysene	**0.313**

NOTES:

All detections are presented in **bold**.
Results are expressed in ug/kG (ppm).

Yellow shading in data boxes indicates exceedance of either the former NR 720 RCL or the former interim PAH guidance standard.

** Soil PAH samples were re-collected in correct containers and resubmitted for analysis.
J Estimated concentration detected between the detection limit and reporting limit
DRO Diesel Range Organics
GRO Gasoline Range Organics

SCALE IN FEET
40 0 40

Feb. 11, 2014
JOB NO.: 49233474
DRAWN BY: RF
APP'D BY: KDM
SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-41

MW-4

Date	11/2/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	2.2	1.9	1.5	0.91 J
Toluene	0.83 J	<0.67	0.76 J	<0.44
Total Xylenes	6.1	<2.63	5.7	3.0 J
1,2,4-TMB	11.5	6.9	6.8	10.9
1,3,5-TMB	4.2	2.8	2.8 J	3.5 J
Naphthalene	1.7 J	1.4 J	<2.5	<2.5
Benzo(a)pyrene	<0.0045	0.020 J	<0.0056	<0.0054
Benzo(b)fluoranthene	<0.0048	0.042 J	<0.0077	<0.0074
Chrysene	0.0067 J	0.024 J	<0.0070	<0.0068
DRO	240	98	130	64
GRO	95.7	70.4	37.9 J	55.6

MW-8

Date	11/2/2012	2/21/2013	5/9/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0047	<0.0057	<0.0056	<0.0050
Benzo(b)fluoranthene	<0.0050	<0.0077	<0.0077	<0.0069
Chrysene	<0.0051	<0.0071	<0.0070	<0.0063
DRO	180	84	49	44 J
GRO	<32.4	**35.3 J**	<32.4	<34.9

MW-7

Date	11/1/2012		2/21/2013		5/10/2013	8/1/2013	
Benzene	<0.41	<0.41	<0.41	<0.41	<0.50	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.54	<0.54	<0.50	<0.50	<0.50
Toluene	<0.67	<0.67	<0.67	<0.67	<0.44	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<2.63	<2.63	<1.32	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.97	<0.97	<0.57	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<0.83	<0.83	<2.5	<2.5	<2.5
Naphthalene	<0.89	<0.89	<0.89	<0.89	<2.5	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0044	<0.0055	<0.0054	<0.0055	<0.0055	<0.0059
Benzo(b)fluoranthene	<0.0047	<0.0047	<0.0075	<0.0074	<0.0075	<0.0075	<0.0080
Chrysene	<0.0048	<0.0048	<0.0069	<0.0068	<0.0069	<0.0069	<0.0073
DRO	90	71	92	90	180	85	64
GRO	<32.4	<32.4	<32.4	<32.4	<32.4	<34.9	<34.9

MW-6

Date	11/1/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0054	<0.0057	<0.0053
Benzo(b)fluoranthene	<0.0046	<0.0074	<0.0077	<0.0072
Chrysene	<0.0047	<0.0068	<0.0071	<0.0066
DRO	130	140	340	100
GRO	<32.4	<32.4	<32.4	<34.9

MW-5

Date	11/2/2012	2/21/2013	5/10/2013	8/1/2013
Benzene	<0.41	<0.41	<0.50	<0.50
Ethylbenzene	<0.54	<0.54	<0.50	<0.50
Toluene	<0.67	<0.67	<0.44	<0.44
Total Xylenes	<2.63	<2.63	<1.32	<1.32
1,2,4-TMB	<0.97	<0.97	<0.57	<0.57
1,3,5-TMB	<0.83	<0.83	<2.5	<2.5
Naphthalene	<0.89	<0.89	<2.5	<2.5
Benzo(a)pyrene	<0.0044	<0.0055	<0.0055	<0.0058
Benzo(b)fluoranthene	<0.0047	<0.0075	<0.0075	<0.0079
Chrysene	<0.0048	<0.0069	<0.0069	<0.0073
DRO	<10	<10	24 J	80
GRO	<32.4	<32.4	<32.4	<34.9

NOTES:

Detections presented in bold type indicate an exceedance of the NR 140 groundwater enforcement standard.
Results are expressed in ug/L (ppb).

J	Estimated concentration detected between the detection limit and reporting limit
DRO	Diesel Range Organics
GRO	Gasoline Range Organics
1,2,4-TMB	1,2,4-Trimethylbenzene
1,3,5-TMB	1,3,5-Trimethylbenzene

SCALE IN FEET

40 0 40

Feb. 10, 2013

JOB NO.: 49233474

DRAWN BY: RF | APP'D BY: KDM

SCALE: AS SHOWN

URS
342 NORTH WATER STREET
MILWAUKEE, WISCONSIN 53202
(414) 831-4100 FAX (414) 831-4

ATTACHMENT G

Source Legal Documents

G.1 Lands Map and Sample Deeds

G.2 Certified Survey Map—**Not Applicable**

G.3 Zoning Map

G.4 Signed Statement

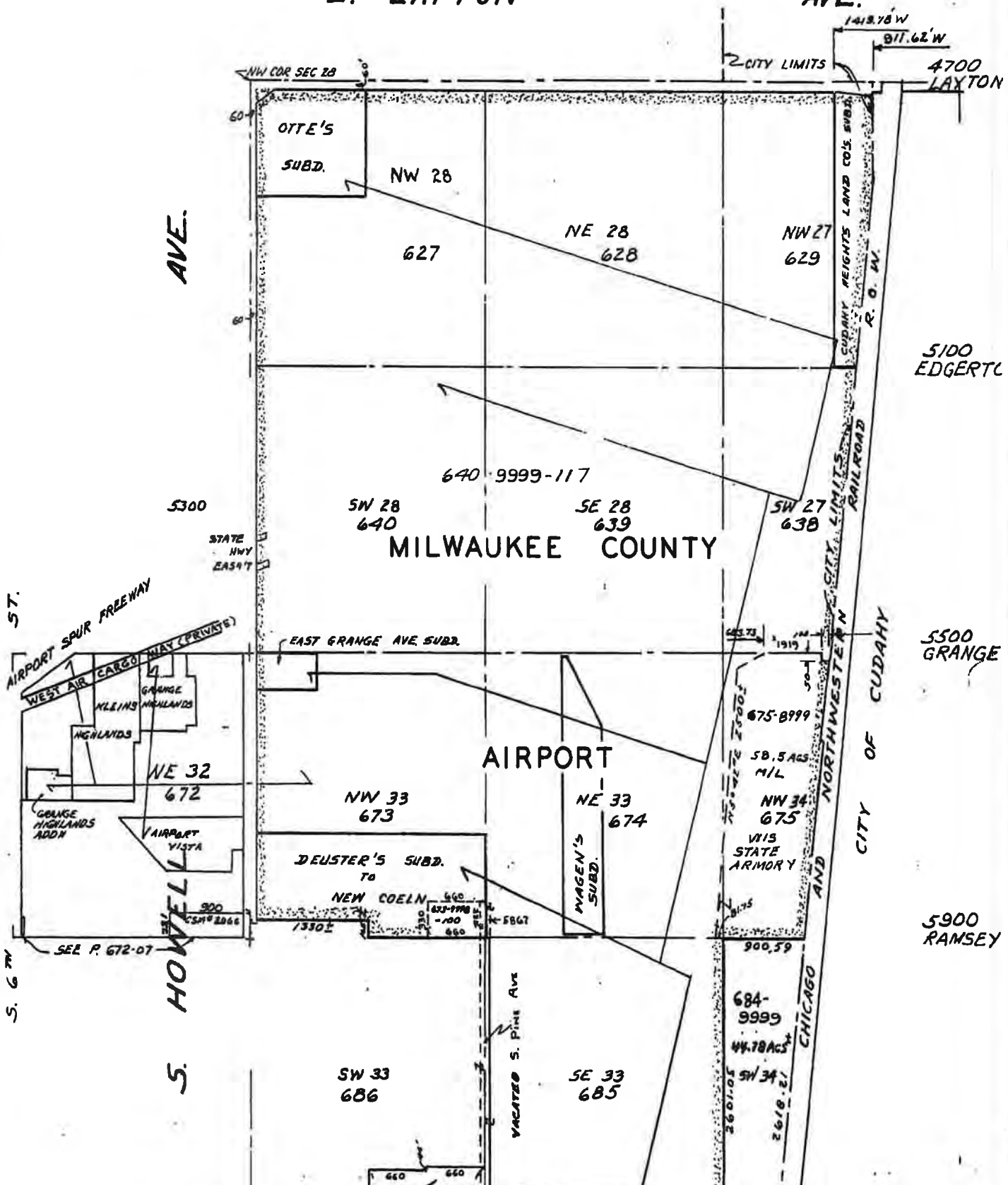
640-673-684-675 640-01

NW & SW 27-6-22 - A.P. 629 & 638
SEC. 28-6-22 - ATLAS P. 627-628-639 & 640
SEC. 33-6-22 - ATLAS P. 674-673-685-686
NW & SW 34-6-22 - ATLAS P. 675 & 684
NE 32-6-22 ATLAS P. 672

SCALE 1,200' = 1"

LANDS

FEB - 2 1998



WARRANTY DEED—To Corporation

STATE OF WISCONSIN
FORM No. 4

Wisconsin Legal Blank Company
Milwaukee, Wisconsin 11788

29

This indenture, Made this 20th day of January, A. D., 19 41, between Arthur H. Schroeter and Mildred F. Schroeter, his wife, of the Town of Lake, Milwaukee County, Wisconsin part ies of the first part, and Milwaukee County, a municipal body corporate,

~~a Corporation~~ duly organized and existing under and by virtue of the laws of the State of Wisconsin, located at Milwaukee County, Wisconsin, party of the second part.

Witnesseth, That the said part ies of the first part, for and in consideration of the sum of Twelve Thousand and 00/100 Dollars ($12,000.00) -

to them in hand paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, ha ve given, granted, bargained, sold, remised, released, aliened, conveyed and confirmed, and by these presents do give, grant, bargain, sell, remise, release, alien, convey and confirm unto the said party of the second part, its successors and assigns forever, the following described real estate, situated in the County of Milwaukee and State of Wisconsin, to-wit:

That part of the south 5 acres of the west 13 acres of the west 1/2 of the southeast 1/4 of section 28, town 6 north, range 22 east, bounded and described as follows, to wit; Commencing at the southeast corner of said south 5 acres, running thence north along the east line of said south 5 acres 400 feet to a point, thence west on a line parallel with the south line of said 1/4 section 75 feet to a point, thence south on a line parallel with the east line of said south 5 acres 400 feet to a point in the south line of said 1/4 section, thence east along said south line 75 feet to the place of beginning, excepting the south 55 feet thereof.

Together with all and singular the hereditaments and appurtenances thereunto belonging or in any wise appertaining; and all the estate, right, title, interest, claim or demand whatsoever, of the said part ies of the first part, either in law or equity, either in possession or expectancy of, in and to the above bargained premises, and their hereditaments and appurtenances.

To have and to hold the said premises as above described with the hereditaments and appurtenances, unto the said party of the second part, and to its successors and assigns FOREVER.

And the said Arthur H. Schroeter and Mildred F. Schroeter, his wife,

for themselves, their heirs, executors and administrators, do covenant, grant, bargain and agree to and with the said party of the second part, its successors and assigns, that at the time of the ensealing and delivery of these presents they are well seized of the premises above described, as of a good, sure, perfect, absolute and indefeasible estate of inheritance in the law, in fee simple, and that the same are free and clear from all incumbrances whatever, provided, however, that the grantors reserve the right to occupy the house and other buildings on the premises rent free until September 1, 1941,

part, its successors and assigns, against all and every person or persons lawfully claiming the whole or any part thereof, they will forever WARRANT AND DEFEND.

In Witness Whereof, the said part ies of the first part ha ve hereunto set their hand s and seal s this 20th day of January, A. D., 1941.

SIGNED AND SEALED IN PRESENCE OF

Stanley Berg

Eleanor M. Foster

Arthur H. Schroeter (Seal)

Mildred F. Schroeter (Seal)

(Seal)

(Seal)

State of Wisconsin, } ss.
Milwaukee County.

Personally came before me this 20th day of January, A. D., 1941, the above named Arthur H. Schroeter and Mildred F. Schroeter, his wife,

to me known to be the person s who executed the foregoing instrument and acknowledged the same.

Eleanor M. Foster

Notary Public, Milwaukee County, Wis.

My commission expires Aug 3, A. D., 19 4[illegible]

WARRANTY DEED—By Corporation | STATE OF WISCONSIN FORM No. 2 | C917 | Wisconsin Legal Blank Company Milwaukee, Wisconsin 14725

DEED 1718 PAGE 419

This indenture, Made this 22 day of March, A. D. 19 41, between NORTHWESTERN TRUST AND INVESTMENT ASSOCIATION, a Corporation duly organized and existing under and by virtue of the laws of the State of Wisconsin, located at Milwaukee, Wisconsin, party of the first part, and MILWAUKEE COUNTY, WISCONSIN, party of the second part.

Witnesseth, That the said party of the first part, for and in consideration of the sum of One Dollar ($1.00) and other good and valuable consideration, to it paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, has given, granted, bargained, sold, remised, released, aliened, conveyed and confirmed, and by these presents does give, grant, bargain, sell, remise, release, alien, convey and confirm unto the said party of the second part, its successors and assigns forever, the following described real estate, situated in the County of Milwaukee and State of Wisconsin, to-wit:

The South Seventy (70) acres of the East one-half ($E\frac{1}{2}$) of the Southeast One-quarter ($SE\frac{1}{4}$) of Section Twenty-eight (28), Township No. Six (6), Range No. Twenty-two (22) East, in the Town of Lake, County and State aforesaid.

given in
This deed is/fulfillment of a land contract between the parties hereto dated June 17, 1938.

Together with all and singular the hereditaments and appurtenances thereunto belonging or in any wise appertaining; and all the estate, right, title, interest, claim or demand whatsoever, of the said party of the first part, either in law or equity, either in possession or expectancy of, in and to the above bargained premises, and their hereditaments and appurtenances.

successors
part, his heirs and assigns, against all and every person or persons lawfully claiming the whole or any part thereof, it will forever WARRANT and DEFEND.

In Witness Whereof, the said NORTHWESTERN TRUST AND INVESTMENT ASSOCIATION, party of the first part, has caused these presents to be signed by E. L. Richardson its President, and countersigned by Donald A. Grant, its Secretary, at Milwaukee, Wisconsin, and its corporate seal to be hereunto affixed, this 22nd day of March A. D. 1941.

SIGNED AND SEALED IN PRESENCE OF

Ruth Ostermann
(Ruth Ostermann)

Edith Nestingen
(Edith Nestingen)

NORTHWESTERN TRUST AND INVESTMENT ASSOCIATION
Corporate Name

By: E. L. Richardson
(E. L. Richardson) President

COUNTERSIGNED:

Donald A. Grant
(Donald A. Grant) Secretary

NORTHWESTERN TRUST AND INVESTMENT ASSOCIATION

State of Wisconsin, } ss.
MILWAUKEE County.

Personally came before me, this 22nd day of March, A. D. 1941, E. L. Richardson, President, and Donald A. Grant, Secretary of the above named Corporation, to me known to be the persons who executed the foregoing instrument, and to me known to be such President and Secretary of said Corporation, and acknowledged that they executed the foregoing instrument as such officers as the deed of said Corporation, by its authority.

NOTARY PUBLIC MILWAUKEE CO. WIS.

Edith Nestingen
Notary Public, Milwaukee County, Wis.

My commission expires December 7, A. D., 1941.

WARRANTY DEED—To Corporation

STATE OF WISCONSIN
FORM No. 4

Wisconsin Legal Blank Company
Milwaukee, Wisconsin 14515

DEED 1732 PAGE 91

This Indenture, Made this 14th day of March, A. D., 1941, between Hugo Schroeter and Louise Schroeter, husband and wife, of Milwaukee County, Wisconsin, parties of the first part, and Milwaukee County, a municipal body corporate, axxxxxxxx duly organized and existing under and by virtue of the laws of the State of Wisconsin, located at Milwaukee County Wisconsin, party of the second part.

Witnesseth, That the said parties of the first part, for and in consideration of the sum of Seventeen Thousand and 00/100 Dollars ($17,000.00) - to them in hand paid by the said party of the second part, the receipt whereof is hereby confessed and acknowledged, have given, granted, bargained, sold, remised, released, aliened conveyed and confirmed, and by these presents do give, grant, bargain, sell, remise, release, alien, convey and confirm unto the said party of the second part, its successors and assigns forever, the following described real estate, situated in the County of Milwaukee and State of Wisconsin, to-wit:

That part of the South Five (5) acres of the West Thirteen (13) acres of the West One-half (1/2) of the South East One-quarter (1/4) of Section numbered Twenty-eight (28) in Township numbered Six (6) North, Range numbered Twenty-two (22) East, in the Town of Lake, bounded and described as follows, to-wit: Commencing at a point in the West line of said South 5 acres, 55 feet North of (measured at right angles) the South line of said South East 1/4 of Section 28, running thence North along the West line of said South 5 acres to the North West corner thereof, thence East along the North line of said South 5 acres to the North East corner thereof, thence South along the East line of said South 5 acres to a point 400 feet North of the South East corner thereof, thence West on a line parallel with the South line of said 1/4 Section, 75 feet to a point, thence South on a line parallel with the East line of said South 5 acres to a point, 55 feet North of (measured at right angles) the South line of said 1/4 Section, thence West on a line 55 feet North of and parallel with the South line of said 1/4 Section to the place of beginning.

Together with all and singular the hereditaments and appurtenances thereunto belonging or in any wise appertaining; and all the estate, right, title, interest, claim or demand whatsoever, of the said parties of the first part, either in law or equity, either in possession or expectancy of, in and to the above bargained premises and their hereditaments and appurtenances.

To have and to hold the said premises as above described with the hereditaments and appurtenances unto

part, its successors and assigns, against all and every person or persons lawfully claiming the whole or any part thereof, they will forever WARRANT and DEFEND.

In Witness Whereof, the said part ies of the first part ha ve hereunto set their hand s and seal s this 14th day of March, A. D., 19 41.

SIGNED AND SEALED IN PRESENCE OF

H. Stanley Berg

Eleanor M. Soeder

Hugo Schroeter. (SEAL)

Louise Schroeter. (SEAL)

(SEAL)

(SEAL)

State of Wisconsin, } ss.
Milwaukee County.

Personally came before me, this 14th day of March, A. D., 19 41, the above named Hugo Schroeter and Louise Schroeter, husband and wife, of Milwaukee County, Wisconsin,

to me known to be the person s who executed the foregoing instrument and acknowledged the same.

Eleanor M. Soeder

Notary Public, Milwaukee County, Wis.

My commission expires Aug 3 A. D., 19 4[illegible]

CLERK OF CIRCUIT COURT NOTARY PUBLIC MILWAUKEE CO. WIS.

(Original)

231793O

Warranty Deed

REGISTER'S OFFICE,
State of Wisconsin,
County.

Received for Record this day of
1941 at o'clock M., and recorded in
Vol. of Deeds on page 91

Register of Deeds

Deputy

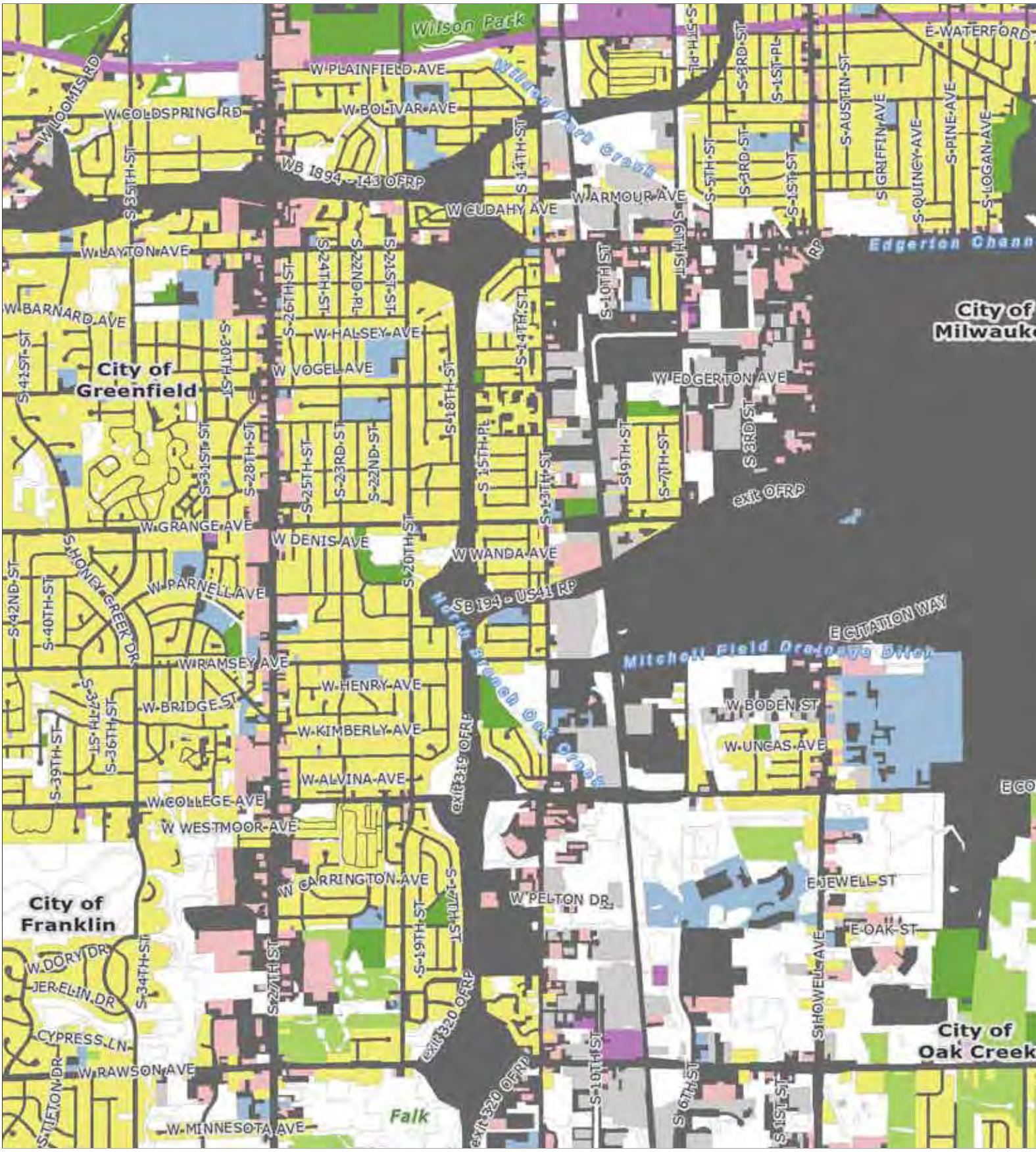
Hugo Schroeter and Louise Schroeter, husband and wife,

to

Milwaukee County

Recd. Feb 3/14/41

Figure G.3 GMIA Zoning



4,850 0 2,425 4,850 Feet

Statement of Legal Property Description Accuracy

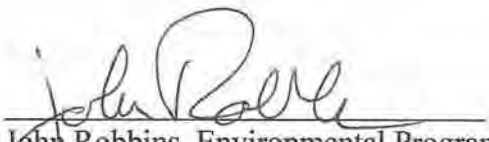
FOR

Parcel Identification Number: 640-9999-118
General Mitchell International Airport
5300 South Howell Avenue
Milwaukee, Wisconsin 53207
BRRTS No. 02-41-558334

General Mitchell International Airport provided the following legal description of the above-mentioned property:

LANDS IN 1/4 SECS OF NW & SW 27, NE 32, NW & SW 34, ALL OF SEC 28 AND SEC 33 OF T6N R22E (MILWAUKEE COUNTY AIRPORT) THAT PRT BETW E LAYTON AV-CITY LIMITS LI-58.50 AC M/L OF WIS STATE ARMORY BOARD LANDS IN SECS 33 & 34-N & W LI SW 1/4 SEC 34-E COLLEGE AV-SW1/4 SEC 33 (EXC ST R/W & S 528' OF E 660' & S 484' OF W 600' OF E 1320')-W LI SEC 33-NW1/4 SEC 33 (EXC THAT PRT BEG SE COR SD SEC TH N 567'-TH SWLY 701.54'-TH S 330'-TH E 660' TO BEG & S 165' OF W 1330' AND ST R/W)-NE 1/4 SEC 32 (EXC CSM #2066 & E 23.50' OF S LI OF W 56.50' OF S 231' & AIRPORT SPUR FWY AND STS) & E LI S HOWELL AVE IN SW & NW SEC 28-6-22

According to the information available to me and to the best of my knowledge, the legal description presented on the deed for the property provided by General Mitchell International Airport is accurate.



5/20/14

John Robbins, Environmental Program Manager
Shell Oil Products US
Soil and Groundwater FDG
20945 S. Wilmington Ave.
Carson, California 90810

Date

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WISCONSIN DEPARTMENT OF ADMINISTRATION – COASTAL MANAGEMENT PROGRAM (WCMP)

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Kaitlyn Wehner

From: Turk, Christine <cturk@mitchellairport.com>
Sent: Wednesday, November 8, 2023 3:52 PM
To: kathleen.angel@wisconsin.gov
Cc: Weiss, Justin; Hottenstein, Wendy - DOT; Palmer, Mallory K - DOT; Kaitlyn Wehner
Subject: Milwaukee Mitchell International Airport Proposed Runway 13-31 Decommissioning and Removal Project
Attachments: MKE RWY 13-31 - Wisconsin Coastal Management Program Letter.pdf; Attachment 1 - RWY 13-31 Location Map.pdf; Attachment 2 - RWY 13-31 Airport Property Map.pdf; Attachment 3 - RWY 13-31 Airport Diagram Map.pdf; Attachment 4 - RWY 13-31 Area of Potential Effects Map.pdf

Good afternoon,

Please see the attached letter and corresponding documents regarding the proposed decommissioning and removal of runway 13-31 at Milwaukee Mitchell International Airport.

Let us know if you have any questions or concerns regarding the proposed project.

Thank you,

Christine Turk, ACE
Airport Planning Manager
Milwaukee Mitchell International Airport
5300 S Howell Avenue
Milwaukee, WI 53207
Office: 414-747-6226

ASQ BEST AIRPORT AWARD | NORTH AMERICA 2022

November 8, 2023

Kathleen Angel

Wisconsin Coastal Management Program

Division of Intergovernmental Relations

(608) 267-7988

Via Electronic Mail Only to kathleen.angel@wisconsin.gov

RE: Milwaukee General Mitchell International Airport

Proposed Runway 13-31 Decommissioning and Removal

Dear Ms. Angel:

General Mitchell International Airport (Airport) is beginning preliminary studies for improvements to the Airport. (See Attachment 1 – Site Location Map & Attachment 2 – Airport Property Map) These proposed improvements include the decommissioning and removal of Runway 13-31 (Project).

Recently, the Airport completed a Master Plan Update, which established the needs and goals for the future of the Airport. The purpose for the proposed project is to align the airfield configuration with the Master Plan Update goals and the recently approved Airport Layout Plan. The proposed project will enhance airfield compliance with updated Federal Aviation Administration (FAA) standards. Additionally, the proposed project will align the airfield for future development and improve safety by removing non-standard runway/taxiway intersections.

Currently, Runway 13-31 is 5,537 feet long and 150 feet wide with numerous connecting taxiways (See Attachment 3 – Airport Diagram Map). Runway 13-31 primarily serves general aviation aircraft. Currently the intersection of Runway 13-31, Taxiway G, and Taxiway E can be classified as non-standard and has a greater potential for pilot confusion.

The proposed project undertaking will consist of the following:

(See Attachment 4 – Area of Potential Effects)

- Decommissioning of Runway 13-31
- Removal of Taxiway G, Taxiway U, and Taxiway N connectors
- Removal of approximately 126,900 SY of pavement and associated electrical utilities and NAVAIDs for Runway 13-31, Taxiway G, Taxiway U, and Taxiway N
- Proposed addition of a holding bay adjacent to Taxiway M including associated lighting.

MILWAUKEE
Mitchell International Airport

We are requesting that you identify any concerns about the proposed project and any additional requirements associated with the Wisconsin Coastal Management Program. Any concerns or requirements will be included in the preliminary environmental assessment. Additionally, you will be included on the distribution list for the preliminary and final environmental assessment. If you would like to receive additional information regarding this proposed project, please contact Justin Weiss at 414-747-6233 or at jweiss@mitchellairport.com. Thank you for your assistance.

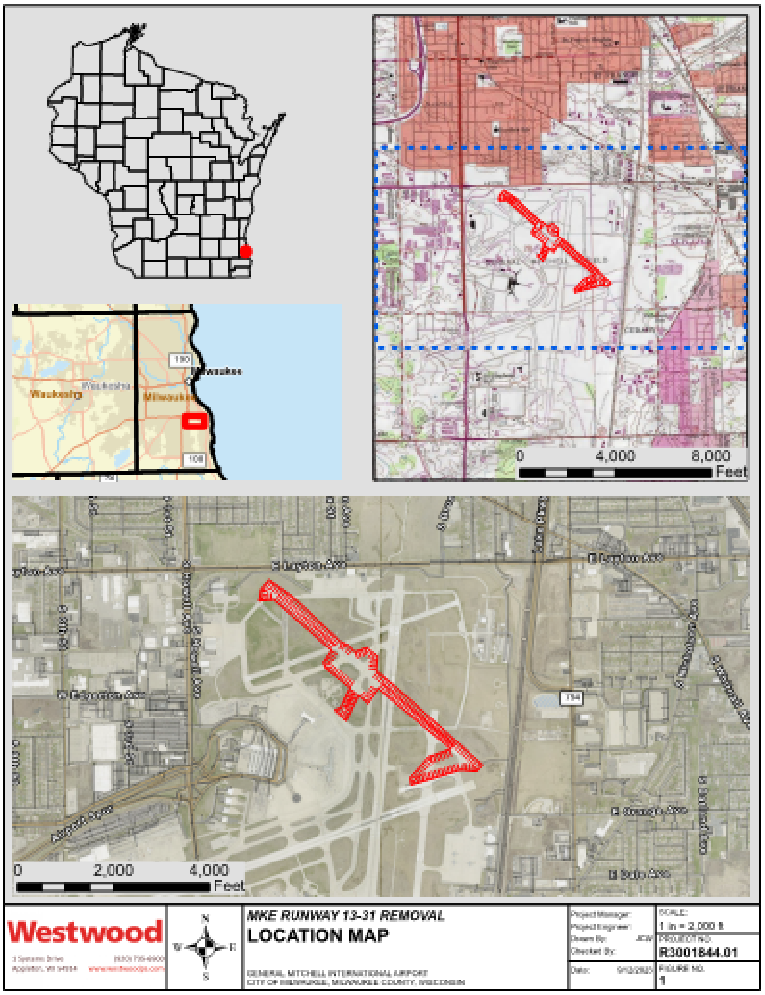
Sincerely,

Christine Turk, ACE
Airport Planning Manager
General Mitchell International Airport

Attachments:

1. Site Location Map
2. Airport Property Map
3. Airport Diagram Map
4. Area of Potential Effects

Cc: Justin Weiss, General Mitchell Airport Project Manager (by email)
Wendy Hottenstein, WisDOT BOA (by email)
Mallory Palmer, WisDOT BOA (by email)
Kaitlyn Wehner, Westwood (by email)



Westwood

MKE RUNWAY 13-31 REMOVAL
LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 2,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 1

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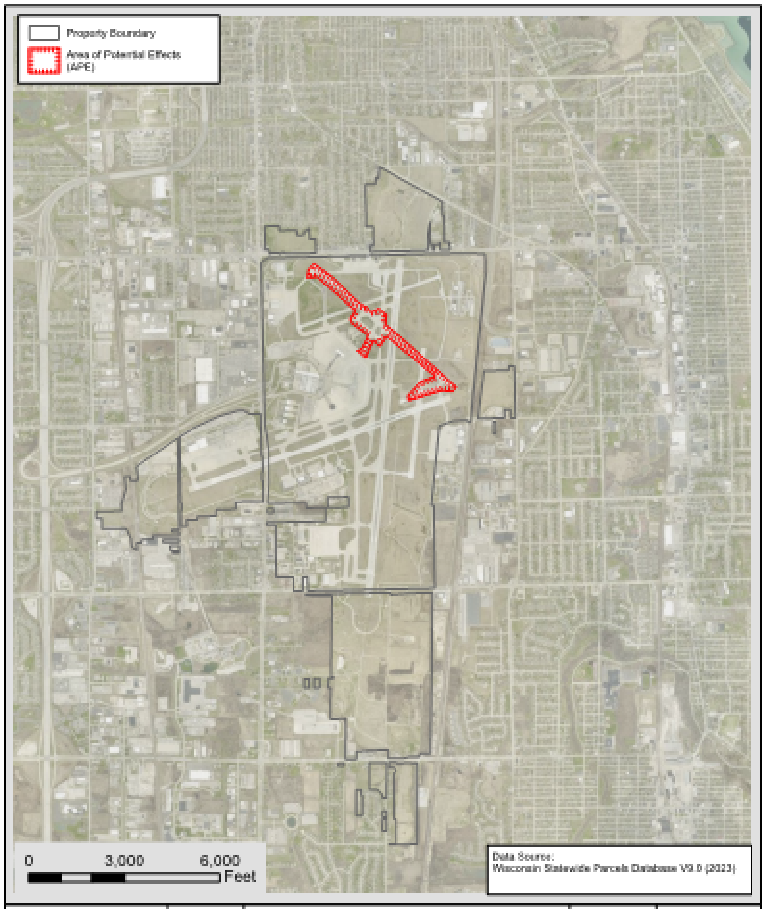

Westwood

MKE RUNWAY 13-31 REMOVAL
AIRPORT PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 3,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 2

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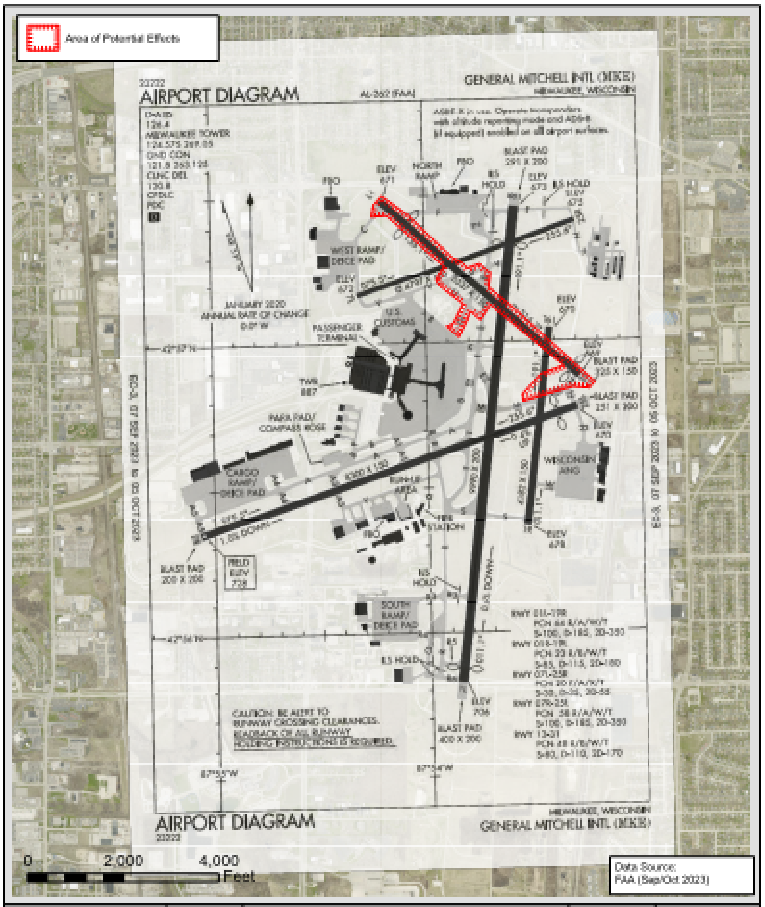
Printed: RMWarner 9/29/2023 3:30 PM



Westwood

MKE RUNWAY 13-31 REMOVAL
AIRPORT DIAGRAM MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 2,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 3

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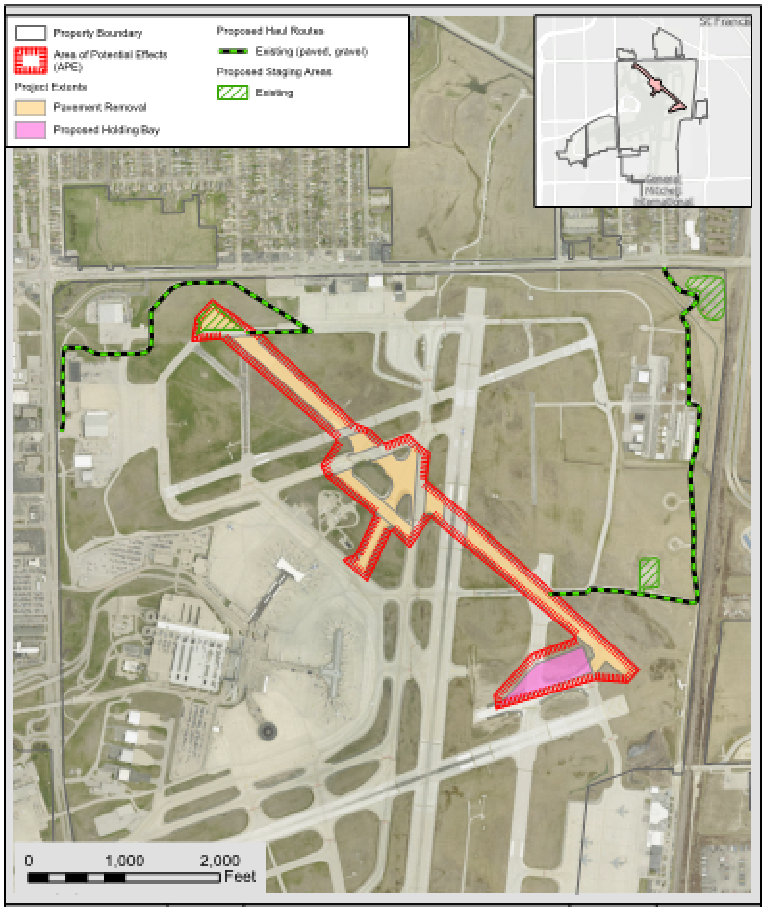

Westwood

MKE RUNWAY 13-31 REMOVAL
AREA OF POTENTIAL EFFECTS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 1,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 4

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Printed: RMWarner 9/29/2023 3:30 PM

UNITED STATES ARMY CORPS OF ENGINEERS (USACE)

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Kaitlyn Wehner

From: Kaitlyn Wehner
Sent: Friday, December 15, 2023 10:20 AM
To: USACE_Requests_WI@usace.army.mil
Cc: cturk@mitchellairport.com; Weiss, Justin; Hottenstein, Wendy - DOT; Palmer, Mallory K - DOT; DOT BOA Environmental; Kaitlyn Wehner
Subject: Milwaukee Mitchell International Airport Proposed Runway Decommissioning and Removal Projects
Attachments: RWY 1R-19L EA & RWY 13-31 EA - JD Request Form_signed.pdf; RWY 1R-19L EA & RWY 13-31 EA Project Mapping.pdf; RWY 1R-19L EA & RWY 13-31 EA WetlandDelineation Report.pdf; MKE RWY 13-31 - USACE Project Review Request.pdf; MKE RWY 1R-19L - USACE Project Review Request.pdf

Hello USACE Brookfield Team,

Westwood on behalf of General Mitchell Interna! onal Airport is working on an Environmental Assessment for the decommissioning and removal of Runway 1R-19L and a separate Environmental Assessment for the decommissioning and removal of Runway 13-31. The environmental assessments are being performed concurrently and a combined wetland delinea! on was completed for both proposed project areas.

We are reques! ng a Jurisdic! onal Determina! on for the proposed project areas, a2 ached is the Request for Corps Jurisdic! onal Determina! on form, project maps, and the wetland delinea! on report.

Addi! onally, preliminary coordina! on le2 ers describing each project are a2 ached separately. These le2 ers discuss the proposed project undertaking, project loca! on maps, and WIDNR wetland confirma! on.

Thank you,

Kaitlyn Wehner
Airport Engineer
kaitlyn.wehner@westwoodps.com

main (920)-735-6900
office (920)-830-6183

Westwood
1 Systems Drive
Appleton, WI 54914

westwoodps.com
(888) 937-5150

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: District Name Here

- I am requesting a JD on property located at: 5300 S. Howell Avenue
  (Street Address)
  City/Township/Parish: City of Milwaukee County: Milwaukee State: WI
  Acreage of Parcel/Review Area for JD: 62.844 Acres
  Section: 27, 28, & 33 Township: 06 North Range: 22 East
  Latitude (decimal degrees): 42.948542000 Longitude (decimal degrees): -87.895240862
  (For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- ☐ I currently own this property. ___ I plan to purchase this property.
  ☑ I am an agent/consultant acting on behalf of the requestor.
  ☐ Other (please explain): _____.
- Reason for request: (check as many as applicable)
  ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
  ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
  ☑ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
  ☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
  ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
  ☑ A Corps JD is required in order to obtain my local/state authorization.
  ☐ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
  ☐ I believe that the site may be comprised entirely of dry land.
  ☐ Other: _____
- Type of determination being requested:
  ☑ I am requesting an approved JD.
  ☐ I am requesting a preliminary JD.
  ☐ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
  ☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

*Signature: Kaitlyn Wehner Digitally signed by Kaitlyn Wehner Date: 2023.12.15 09:08:45-06'00' Date: 12/15/2023

- Typed or printed name: Kaitlyn Wehner
  Company name: Westwood Professional Services
  Address: 1N Systems Drive
  Appleton, WI 54914
  Daytime phone no.: 920-830-6183
  Email address: kaitlyn.wehner@westwoodps.com

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

Wetland Delineation

Runway Abandonment Project
Runways 1R-19L & 13-31
Milwaukee General Mitchell International Airport (MKE)
Milwaukee County, WI

Prepared for: **Westwood Professional Services**
Attn: Kaitlyn Wehner
1 Systems Drive
Appleton, WI 54914
(920) 735-6900
kaitlynwehner@westwoodps.com

Prepared by: Brian Kronstedt

QUEST Civil Engineers, LLC

QUEST Civil Engineers, LLC
320 West Grand Avenue, Suite 302
Wisconsin Rapids, WI 54495
Phone: 715-423-3525
www.questllc.biz

Table of Contents

1.0 Executive Summary

1.1 Purpose of Delineation

This wetland delineation was prepared for and at the request of Westwood Professional Services who is under contract with Milwaukee General Mitchel Airport (MKE) (**See Figure 1 for Location Map**). This delineation was conducted to assess this property for the presence and location of wetlands to assess if proposed runway removal activities would result in wetland impacts.

The field review for this delineation was conducted by QUEST Civil Engineers, LLC. (QUEST) on September 11, 2023.

2.0 Delineator's Qualifications

Delineated by: **Brian Kronstedt – Environmental Specialist for QUEST Civil Engineers, LLC.**

Qualifications: Completed the following training sponsored by the Wisconsin Coastal Management Program: Basic Wetland Delineation / Advanced Wetland Delineation / Plant Identification / Hydric Soils

B.S. degree from the University of Wisconsin – Stevens Point, majoring in Biology and Wildlife Management.

23 years of experience performing wetland delineations.

3.0 Property Description

3.1 Project Location

This project is located in the city of Milwaukee on the Milwaukee General Mitchel International Airport (MKE), in Milwaukee County, WI (**Figure 3.1-1 and 3.1-2**).

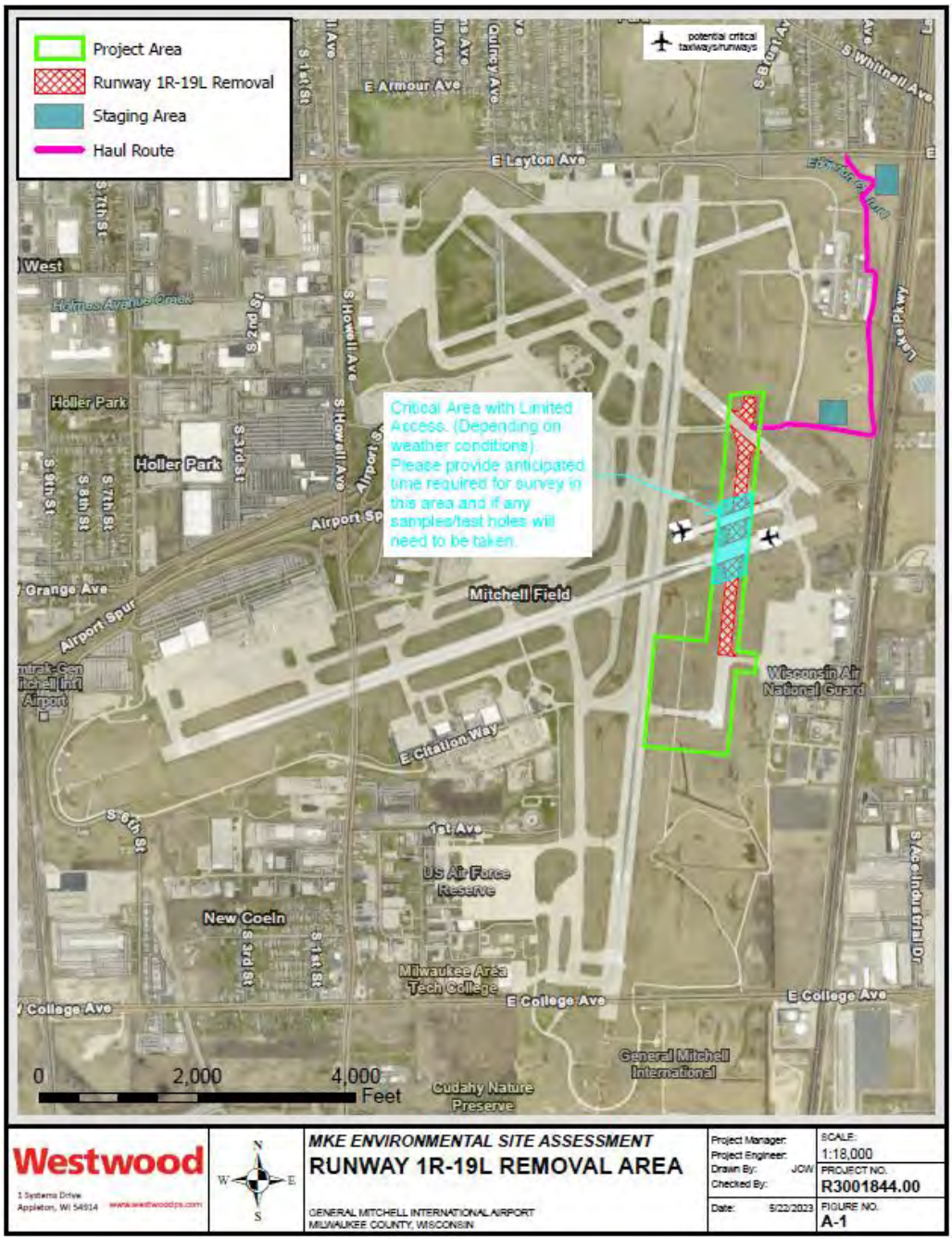
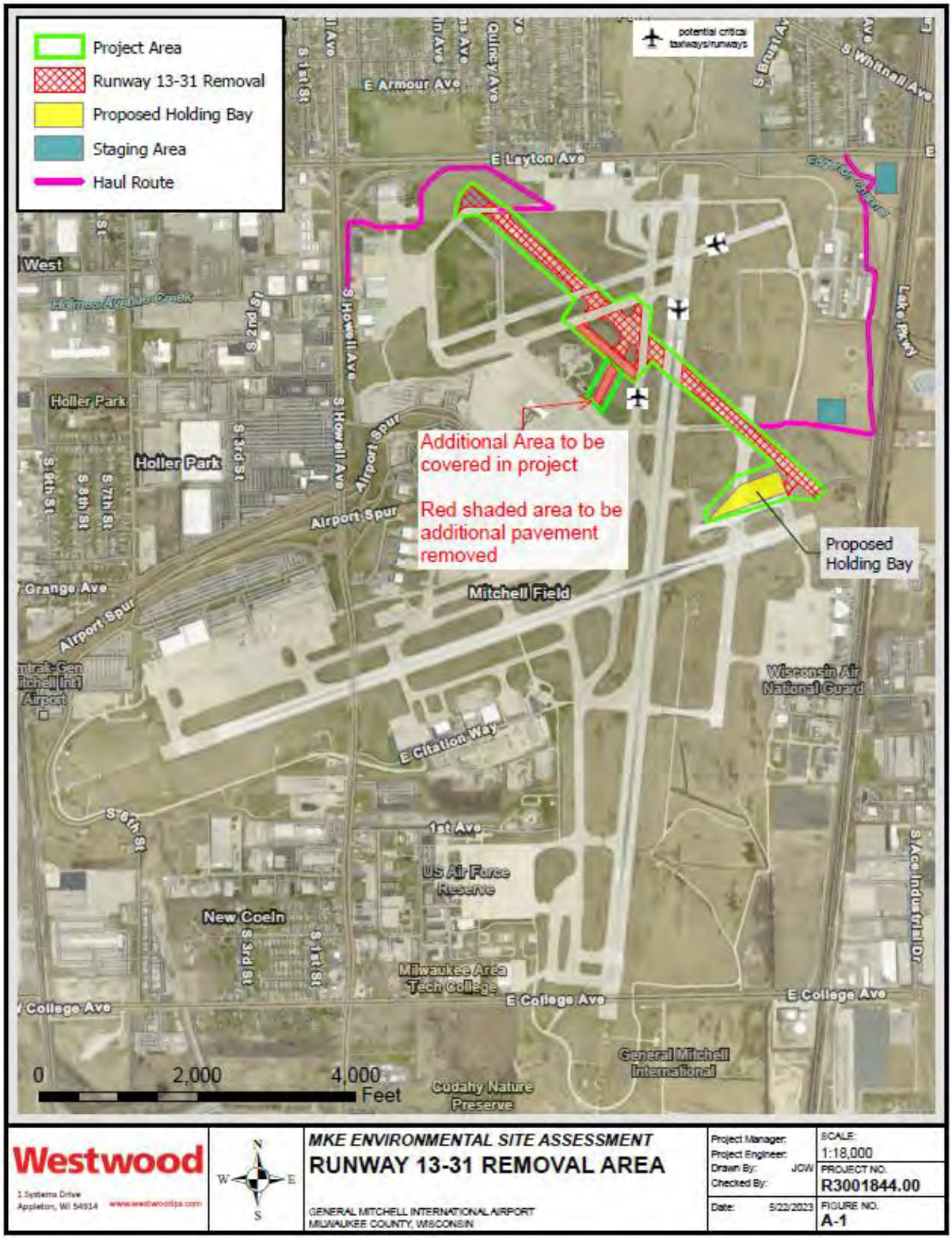


Figure 3.1-1


Project Area
Runway 13-31 Removal
Proposed Holding Bay
Staging Area
Haul Route
potential critical taxiways/runways
Additional Area to be covered in project
Red shaded area to be additional pavement removed
Proposed Holding Bay
E Armour Ave
E Layton Ave
S Howell Ave
Airport Spur
Mitchell Field
Grange Ave
E Citation Way
1st Ave
US Air Force Reserve
Wisconsin Air National Guard
New Coeln
Milwaukee Area Tech College
E College Ave
College Ave
General Mitchell International
Cudahy Nature Preserve
Holler Park
West
0
2,000
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Feet
Westwood
1 Systems Drive
Appleton, WI 54914
www.westwoodps.com
N
W
E
S
MKE ENVIRONMENTAL SITE ASSESSMENT
RUNWAY 13-31 REMOVAL AREA
GENERAL MITCHELL INTERNATIONAL AIRPORT
MILWAUKEE COUNTY, WISCONSIN
Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 5/22/2023
SCALE: 1:18,000
PROJECT NO. R3001844.00
FIGURE NO. A-1

Figure 3.1-2

3.2 Area of Review

The Area of Review for this project is all of Runways 1R-19L and 13-31 including their immediate surroundings as shown in lime green linework in **Figure 3.1-1 & 3.1-2**.

3.3 Property Description

The entire Area of Review is comprised of the runways itself and manicured lawn surrounding the runway corridor on both sides. All unpaved areas showed evidence of routine mowing with no portions being avoided due to saturated conditions.

4.0 Review of Existing Information

4.1 NRCS Soils Summary

A review of the NRCS Web Soil Survey mapping revealed only one soil type as being present within the Area of Review (**Figure 4.1-1**).

Cv – Clayey land

Figure 4.1-1

4.2 Wisconsin Wetland Inventory Mapping

The Wisconsin Wetland Inventory (WWI) mapping does not show any wetlands but does show wetland indicators to be present throughout the site (**Figure 4.2-1)**.

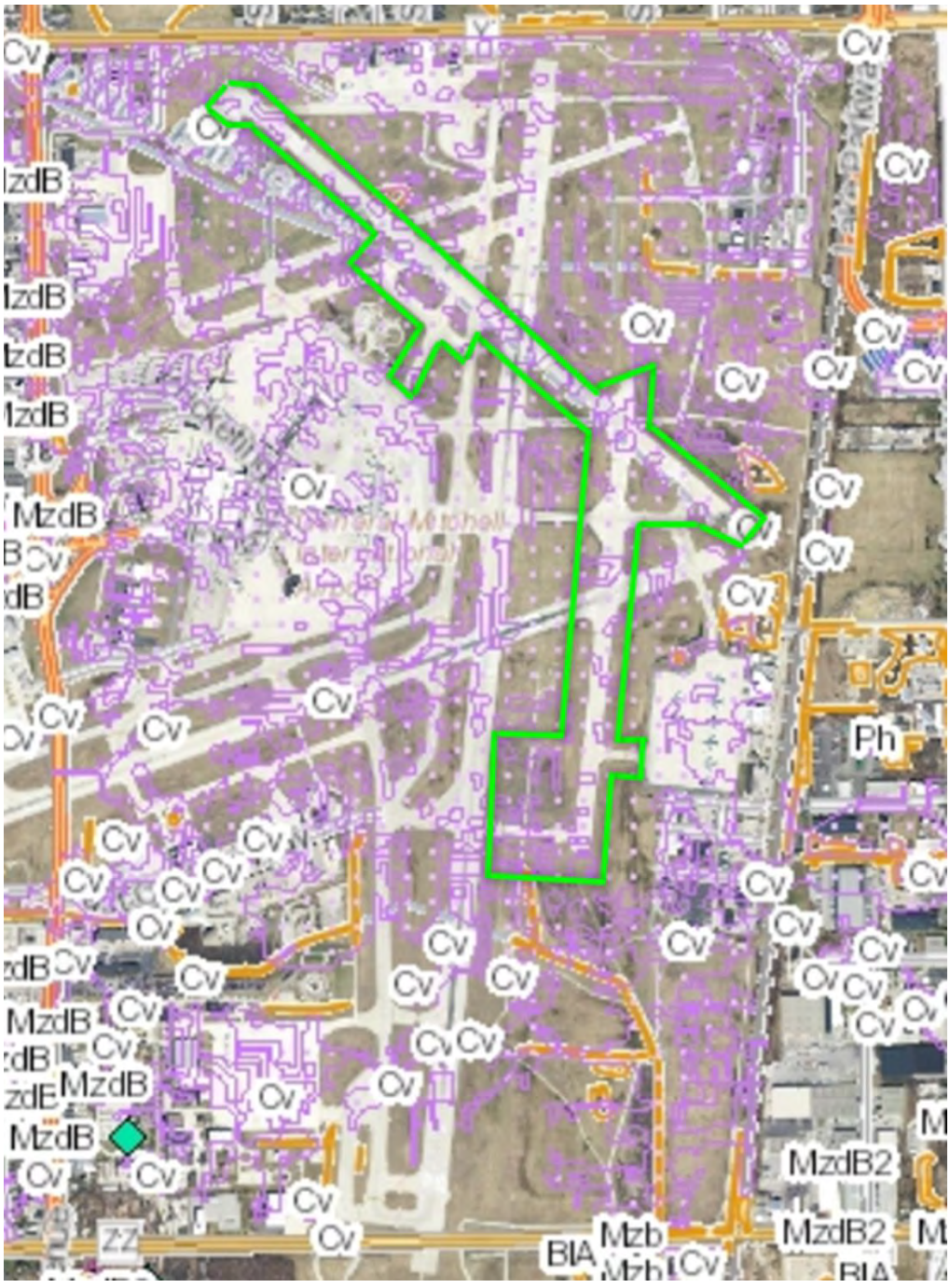

Figure 4.2-1

4.3 National Wetland Inventory Mapping

The National Wetland Inventory (NWI) Map mimics that of the Wisconsin's Wetland Inventory and does not show any wetlands to be present within the Area of Review (**Figure 4.3-1**).
https://www.fws.gov/wetlands/data/mapper.html

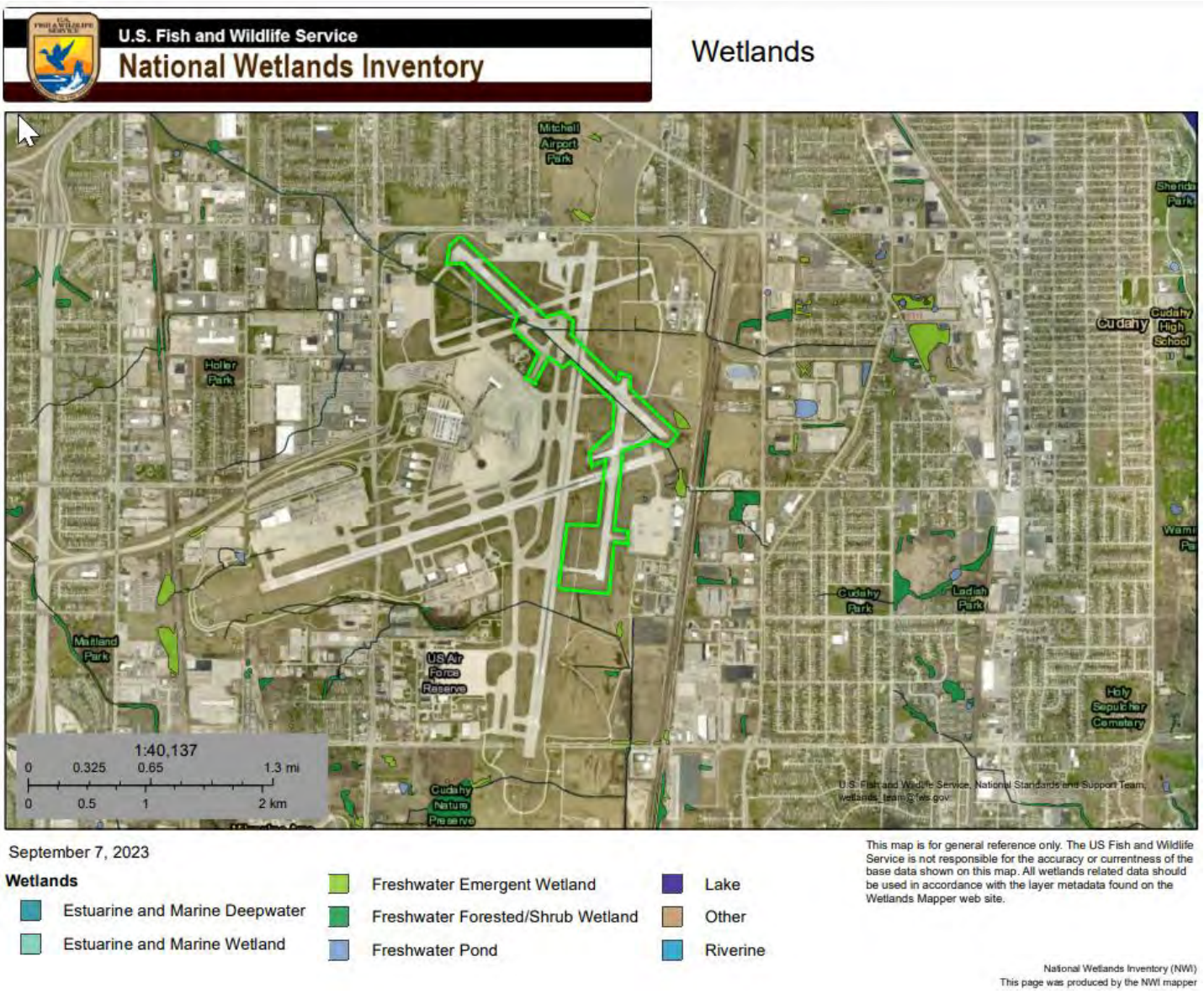

Figure 4.3-1

4.4 Topographical Mapping

The topography of the site is very flat. (**Figure 4.4-1**).

Figure 4.4-1

4.6 Antecedent Precipitation

An analysis of precipitation for the three-month period prior to the delineation was conducted and determined that prior precipitation levels for this period were classified as "Dry" for the site **(Table 4.6-1).**

WETS Analysis Worksheet										
Project Name:		**MKE Runway Abandonmnet - Runwasy 1R-19L &13-31**								
Project Number:		**ENV 2023 018 & 019**								
Period of Interest:		**June-**								
Station:		**June-Aug**								
County:		**Milwaukee**								
	Long-term rainfall records (from WETS table)							**Site Determination**		
	Month	**3 years in 10 less than**	**Normal**	**3 years in 10 greater than**		**Site Rainfall (in)**	**Condition Dry/Normal*/Wet**	**Condition** Value**	**Month Weight**	**Product**
1st month prior	**April**	2.40	3.56	4.26		1.82	Normal	2	3	6
2nd month prior	**May**	2.44	3.56	4.25		4.33	Dry	1	2	2
3rd month prior	**June**	2.86	4.03	4.77		2.60	Dry	1	1	1
		Sum =	**11.15**		Sum =	**8.75**			Sum*** =	
										9
	*Normal precipitation with 30% to 70% probability of occurrence							Determination:		_____Wet
										___x__Dry
**Condition Value:				***If sum is:						_____Normal
	Dry =	1		6 to 9	then period has been drier than normal					
	Normal =	2		10 to 14	then period has been normal					
	Wet =	3		15 to 18	then period has been wetter than normal					
Precipitation data source:		ACIS - NOAA Regional Climate Centers; http://agacis.rcc-acis.org								
Reference:	Donald E. Woodward, ed. 1997. *Hydrology Tools for Wetland Determination,* Chapter 19. Engineering Field Handbook.									
	U.S. Department of Agriculture, Natural Resources Conservation Service, Fort Worth, TX.									

Table 4.6-1

5.0 Methodology

5.1 Delineation Methodology

Delineation methods followed that of the Routine On-Site Determination Method described in the U.S. Army Corps of Engineer's "Federal Manual for Identifying and Delineating Jurisdictional Wetlands" (1987 Edition) as well as the Northcentral and Northeast Interim Regional Supplement to the 1987 manual.

Field review methodology consisted of driving and walking the runway looking for hydric indicators. The entire Area of Review was documented using video in case an off site review was preferred by the Department due to the complexities of accessing the Area of Review due to aviation traffic and obtaining access to the site. These videos can be made available upon request.

In attempt to minimize the amount of time spent potentially disrupting aviation traffic, an extensive desktop review was conducted prior to the field review. This review focused on identifying areas with the highest probability of having wetlands present using WWI, aerial photography, historical aerial photography and topographical mapping. Field review then focused on assessing these areas to determine if wetlands were or were not present.

A total of 4 sample plot locations were assessed. Sample Plot 1 represented an area of suspected saturation that appeared visible on the air photos. Field review determined this was not a wetland and that the darker coloration observed on the air photos was due to the presence of witches broom grass (*Panicum capillare)* FAC within that location. Although this location indicated a slightly less dry condition than elsewhere in the Area of Review, an abundance of FACU species were noted throughout the stand of witches broom.

Sample Plot 2 although technically outside of the Area of Review, was conducted to verify if the mapped wetland shown on the WWI was present due to it's proximity to the Area of Review. No soils investigation was conducted at this sample plot due to its proximity to instrument lighting and no locates being marked. It was determined that this area did not meet the criteria of being a wetland and that no wetland was present in the area shown on the WWI.

Sample Plot 3 was conducted due to darker coloration shown on the air photos. It was discovered that this area is a slight depressional area with a stormwater inlet (manhole) present. This area was also deemed not to meet the criteria of being a wetland. Both dandelion and yellow hawkweed were present throughout the depression surrounding the inlet.

Sample Plot 4 represents the wetland boundary associated with a ditchline on the south end of the Area of Review for Runway 1R-19L. Due to rain falling prior to and during the field review, the water level within the ditchline appeared to be higher than normal. Due to standing water conditions, no wetland soils investigation was conducted. A soils pit was assessed on the upland side of the wetland boundary. The wetland boundary at this location was distinct, follows the contour of the ditchline and extends southerly beyond the Area of Review.

6.0 Findings and Conclusions

6.1 Vegetation Communities

The uplands within the Area of Review are limited to manicured turf grass. No shrubs or trees are present.

6.2 Hydrology

Hydrology of the site is primarily related to proximity to groundwater. Runoff within delineated wetlands associated with the ditchline near 1R-19L flows in a southeasterly direction.

6.3 Wetland Determination

This delineation determined the presence of just one wetland area within the Area of Review. This wetland is located near the south end of the Area of Review for Runway 1R-19L. The wetland boundary is confined to the extent of the ditchline. The boundary is distinct and follows the contour of the ditch that then extends southerly beyond the Area of Review. **(Figure 6.3-1).**

Figure 6.3-1

7.0 Bibliography

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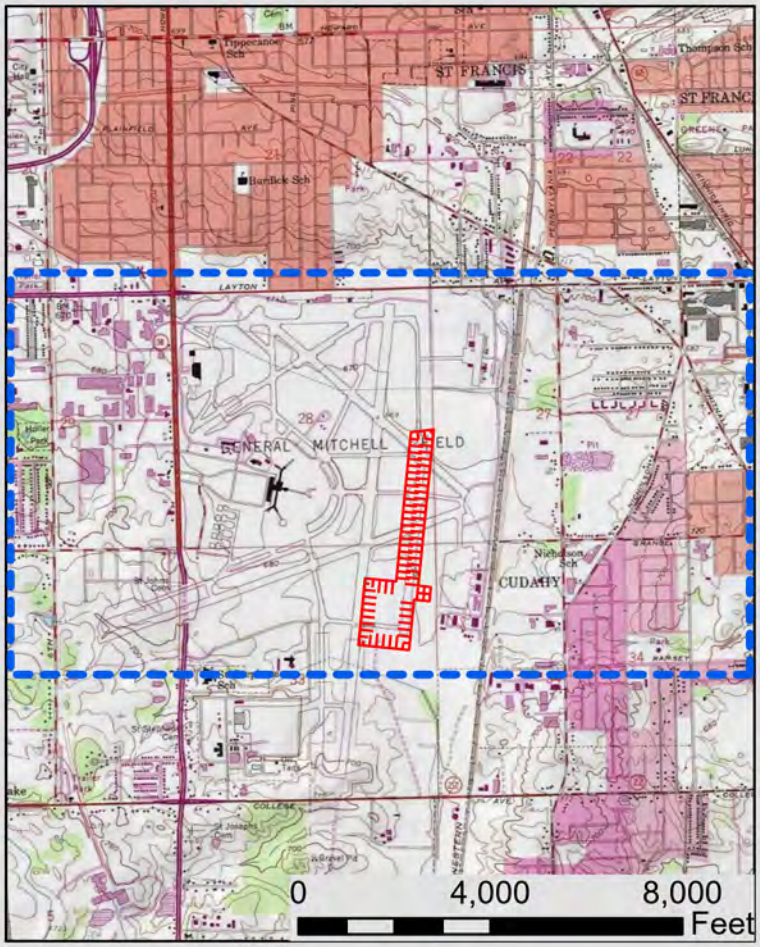
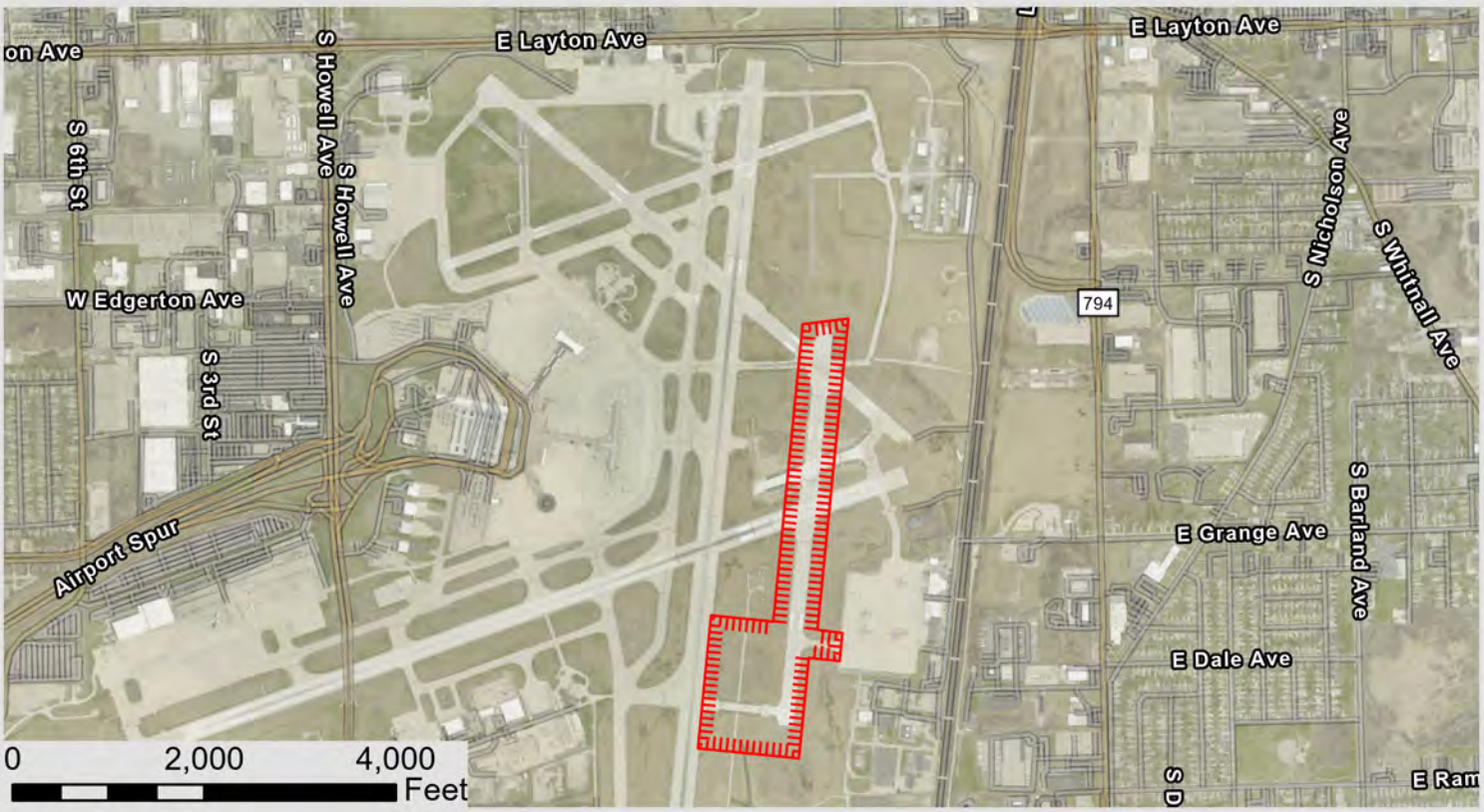
-Wildlife Research Center Online. (Version 03SEP1998). http://www.npwrc.usgs.gov/resource/plants/mnplant/index.htm

-Wisconsin State Herbarium, University Wisconsin – Madison, WisFlora: Wisconsin Vascular Plant Species, http://www.botany.wisc.edu/wisflora/

-United States Department of Agriculture – Natural Resource Conservation Service, Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/app/

-Wisconsin Department of Natural Resources, WDNR Webview, http://dnrmaps.wisconsin.gov/img/imf.jsp?site=webview





Westwood

1 Systems Drive
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(920) 735-6900
www.westwoodps.com

N
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MKE RUNWAY 1R-19L REMOVAL

LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in = 2,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.00**
Checked By:	
Date: 10/17/2023	FIGURE NO. **1**

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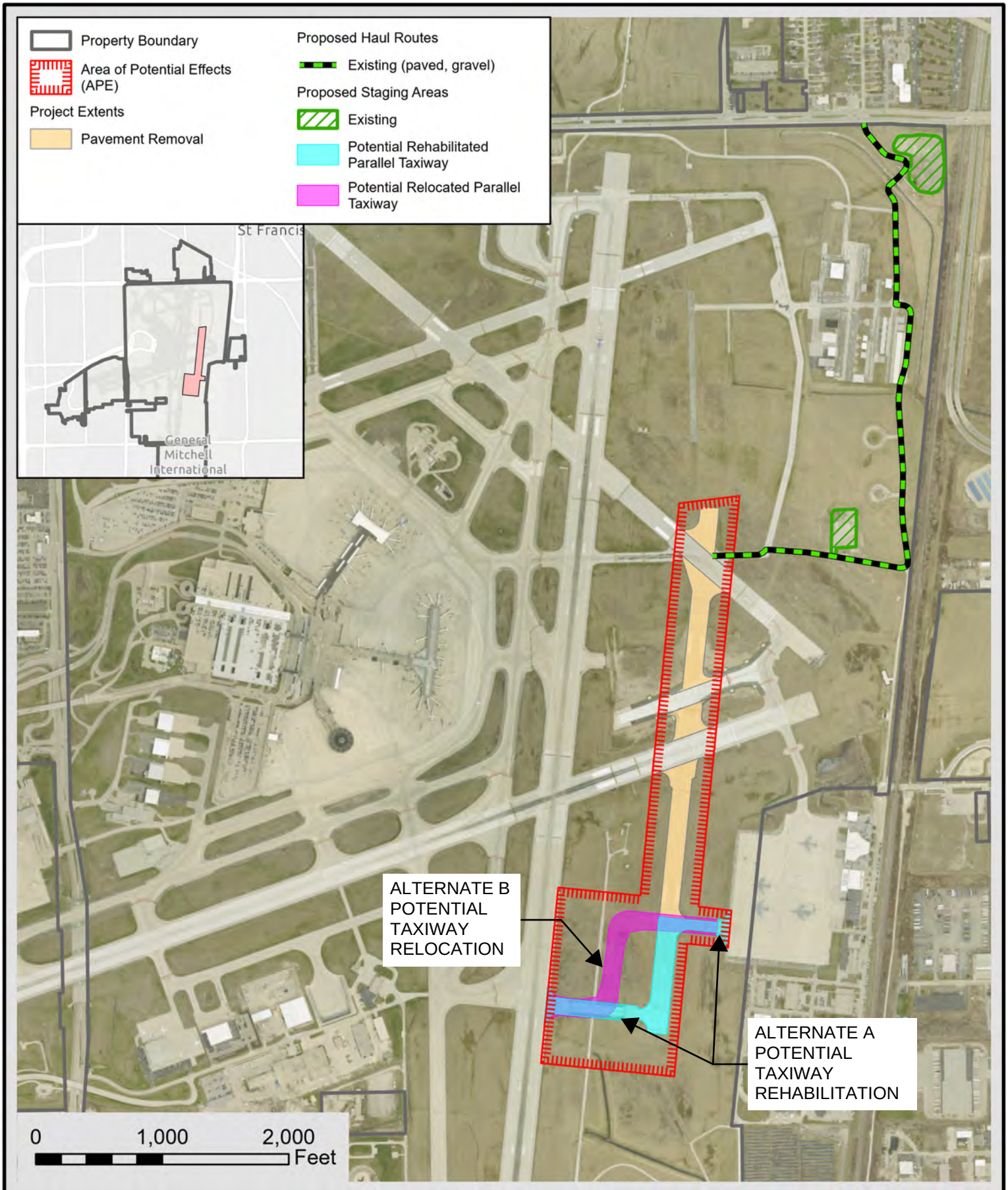

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Appleton, WI 54914
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N
W E
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MKE RUNWAY 1R-19L REMOVAL

AREA OF POTENTIAL EFFECTS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =1,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. R3001844.00
Checked By:	
Date: 10/10/2023	FIGURE NO. 4

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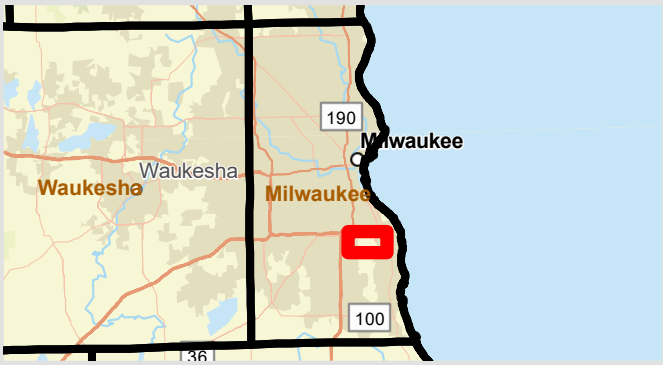

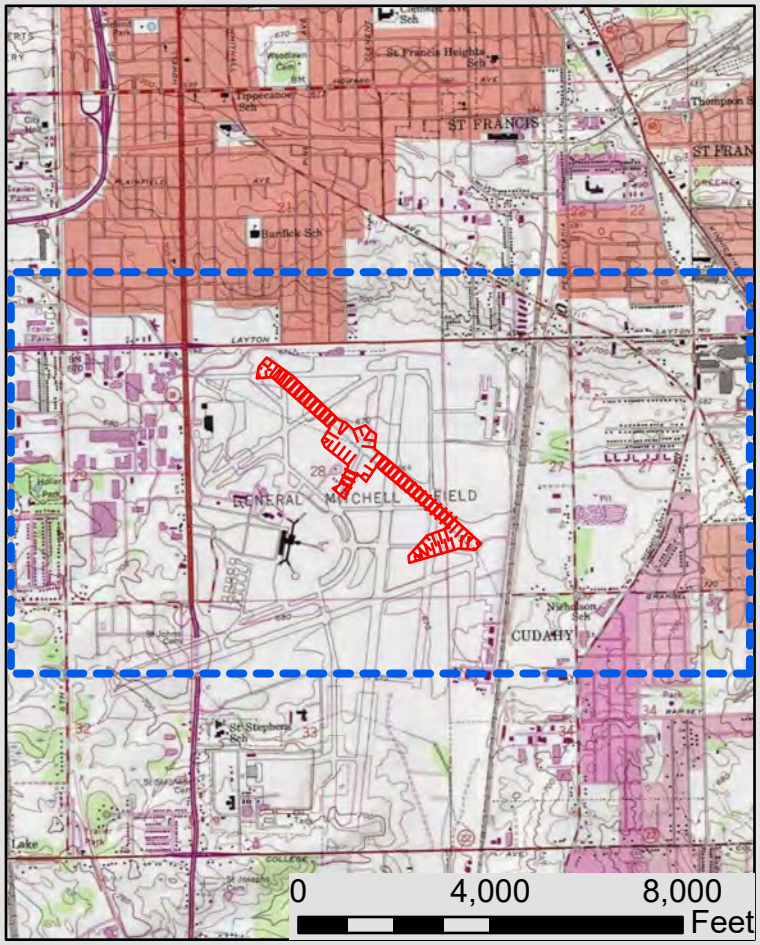

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1 Systems Drive
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N
W E
S

MKE RUNWAY 13-31 REMOVAL

LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	
Project Engineer:	
Drawn By:	JCW
Checked By:	
Date:	9/12/2023
SCALE:	1 in = 2,000 ft
PROJECT NO.	**R3001844.01**
FIGURE NO.	**1**

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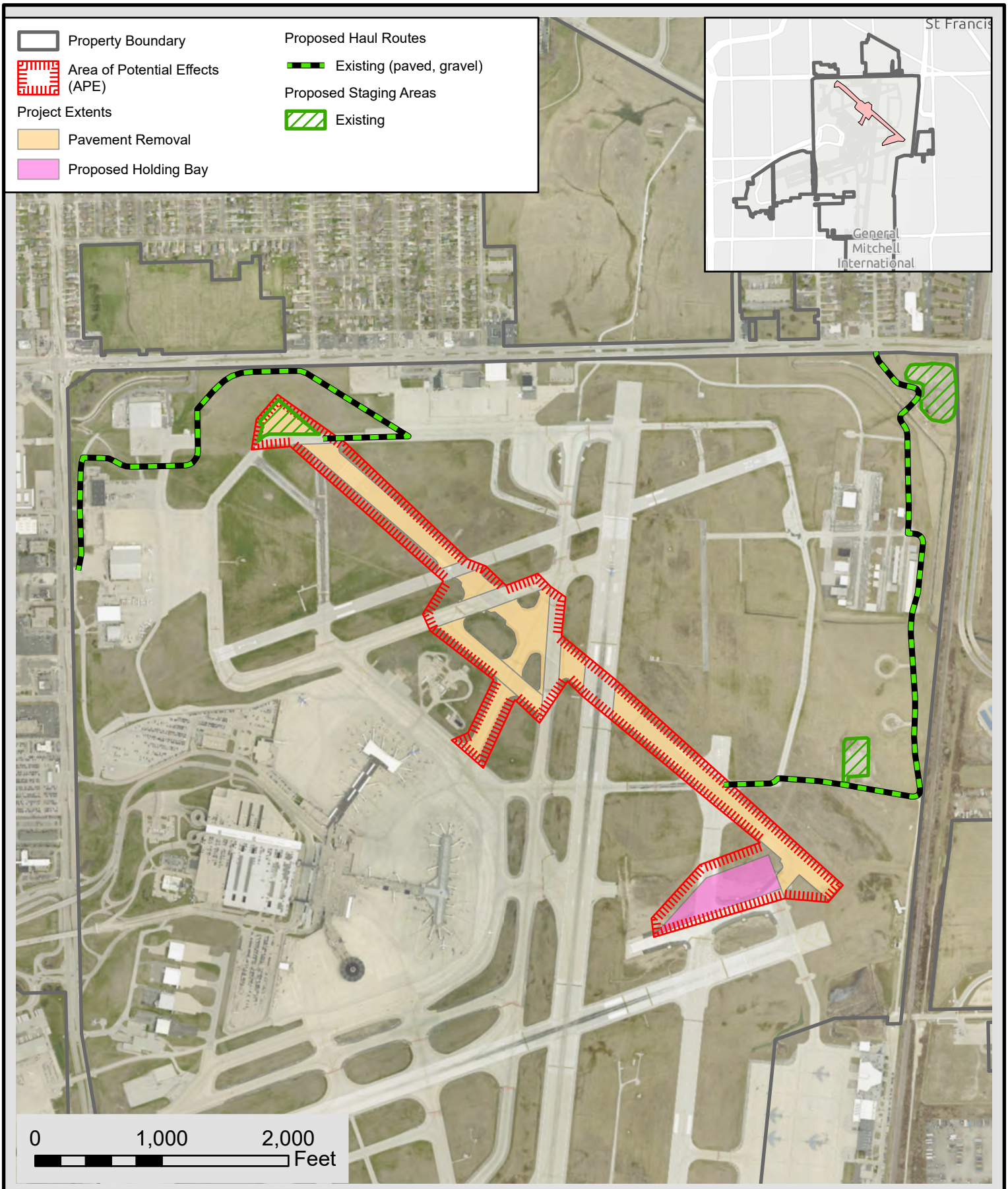

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S

MKE RUNWAY 13-31 REMOVAL

AREA OF POTENTIAL EFFECTS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:	SCALE: 1 in =1,000 ft
Project Engineer:	
Drawn By: JCW	PROJECT NO. **R3001844.01**
Checked By:	
Date: 9/12/2023	FIGURE NO. **4**

N:\3001844.01\GIS\EnvAssessmentMaps.aprx [Area of Potential Effects Map]
Printed: KMWehner 9/28/2023 3:36 PM

Westwood

1 Systems Drive
Appleton, WI 54914

main (920) 735-6900

December 15, 2023

US Army Corps of Engineers (USACE)
Brookfield Office
250 North Sunnyslope Road, Suite 296
Brookfield, WI 53005
Via Electronic Mail Only to USACE_Requests_WI@usace.army.mil

RE: Milwaukee General Mitchell International Airport
Proposed Runway 13-31 Decommissioning and Removal

Dear USACE Brookfield Team:

General Mitchell International Airport (Airport) is beginning preliminary studies for improvements to the Airport. (See Attachment 1 – Site Location Map & Attachment 2 – Airport Property Map) These proposed improvements include the decommissioning and removal of Runway 13-31 (Project).

Recently, the Airport completed a Master Plan Update, which established the needs and goals for the future of the Airport. The purpose for the proposed project is to align the airfield configuration with the Master Plan Update goals and the recently approved Airport Layout Plan. The proposed project will enhance airfield compliance with updated Federal Aviation Administration (FAA) standards. Additionally, the proposed project will align the airfield for future development and improve safety by removing non-standard runway/taxiway intersections.
Currently, Runway 13-31 is 5,537 feet long and 150 feet wide with numerous connecting taxiways (See Attachment 3 – Airport Diagram Map). Runway 13-31 primarily services general aviation aircraft. Currently the intersection of Runway 13-31, Taxiway G, and Taxiway E can be classified as non-standard and has a greater potential for pilot confusion.

The proposed project undertaking will consist of the following:
(See Attachment 4 – Area of Potential Effects)

- Decommissioning of Runway 13-31
- Removal of Taxiway G, Taxiway U, and Taxiway N connectors
- Removal of approximately 126,900 SY of pavement and associated electrical utilities and NAVAIDs for Runway 13-31, Taxiway G, Taxiway U, and Taxiway N
- Proposed addition of a holding bay adjacent to Taxiway M including associated lighting.

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1 Systems Drive
Appleton, WI 54914

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A combined wetland delineation was performed at the proposed location for the Runway 13-31 removal study and the study for the removal of Runway 1R-19L was submitted to the Wisconsin Department of Natural Resources. The delineation identified wetlands present in a ditch line southwest of Runway 1R-19L and is located outside of the Area of Potential Effects for the proposed Runway 13-31 project. (See Attachment 5 – Wetland Delineation Confirmation).

The proposed project is located within airport property, specifically in Sections 27 and 28 of Township 06 North, Range 22 East. The project area is currently pavement and mowed grass fields with no structures. (See Attachment 6 – Site Photographs)

We are requesting a Jurisdictional Determination for the proposed project areas (attached separately via email). Additionally, we are requesting that you identify any concerns the US Army Corps of Engineers may have regarding the proposed project. Any concerns or comments will be included in the preliminary environmental assessment. Additionally, you will be included on the distribution list for the preliminary and final environmental assessments. If you would like to receive additional information regarding this proposed project, please contact Justin Weiss at 414-747-6233 or at jweiss@mitchellairport.com or Kaitlyn Wehner at 920-830-6183 or at Kaitlyn.wehner@wetwoodps.com. Thank you for your assistance.

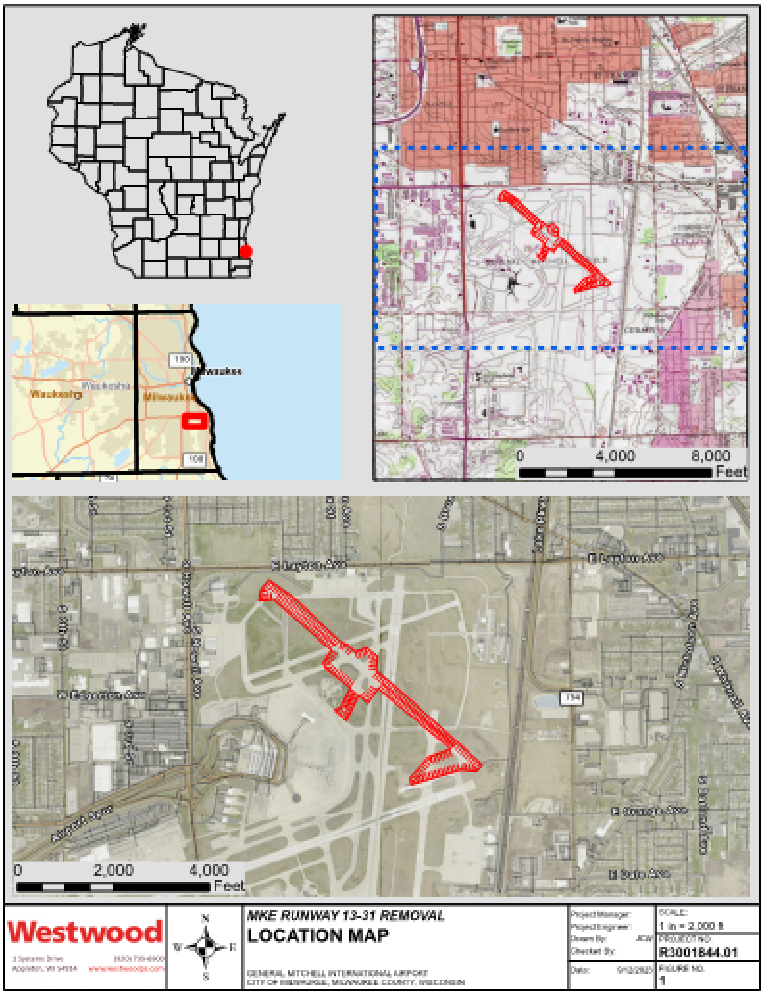
Sincerely,

Kaitlyn Wehner
Airport Engineer
Westwood Professional Services

Attachments:

1. Site Location Map
2. Airport Property Map
3. Airport Diagram Map
4. Area of Potential Effects
5. Wetland Delineation Confirmation
6. Site Pictures

Cc: Christine Turk, General Mitchell Airport – Airport Planning Manager (by email)
Justin Weiss, General Mitchell Airport - Project Manager (by email)
Wendy Hottenstein, WisDOT BOA (by email)
Mallory Palmer, WisDOT BOA (by email)



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MKE RUNWAY 13-31 REMOVAL
LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
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Date: 9/12/2023

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FIGURE NO. 1

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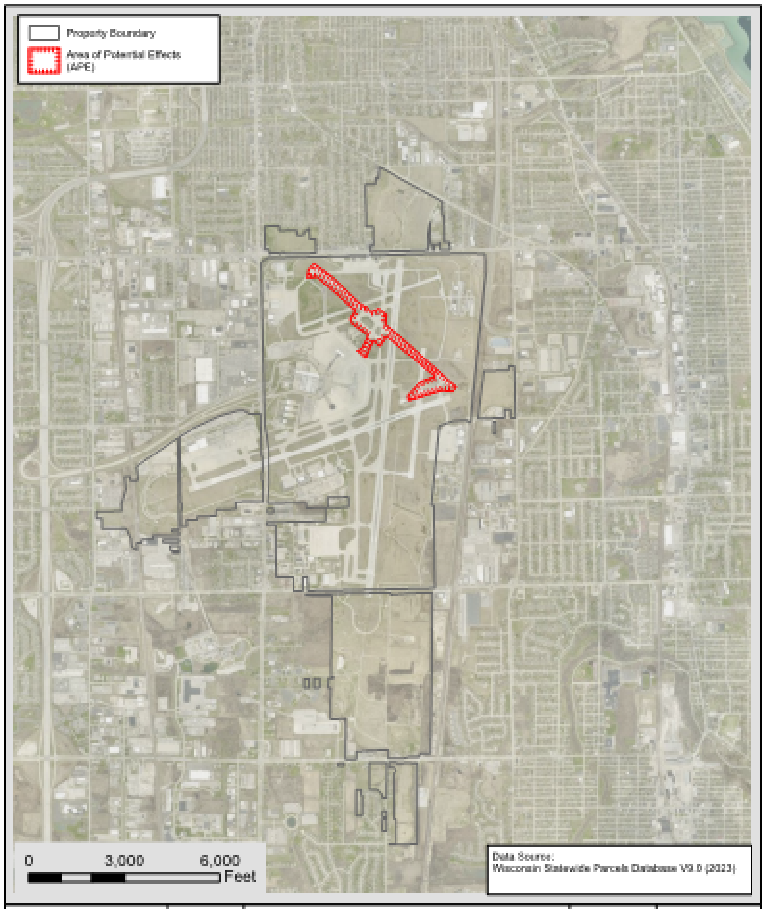

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MKE RUNWAY 13-31 REMOVAL
AIRPORT PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 3,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 2

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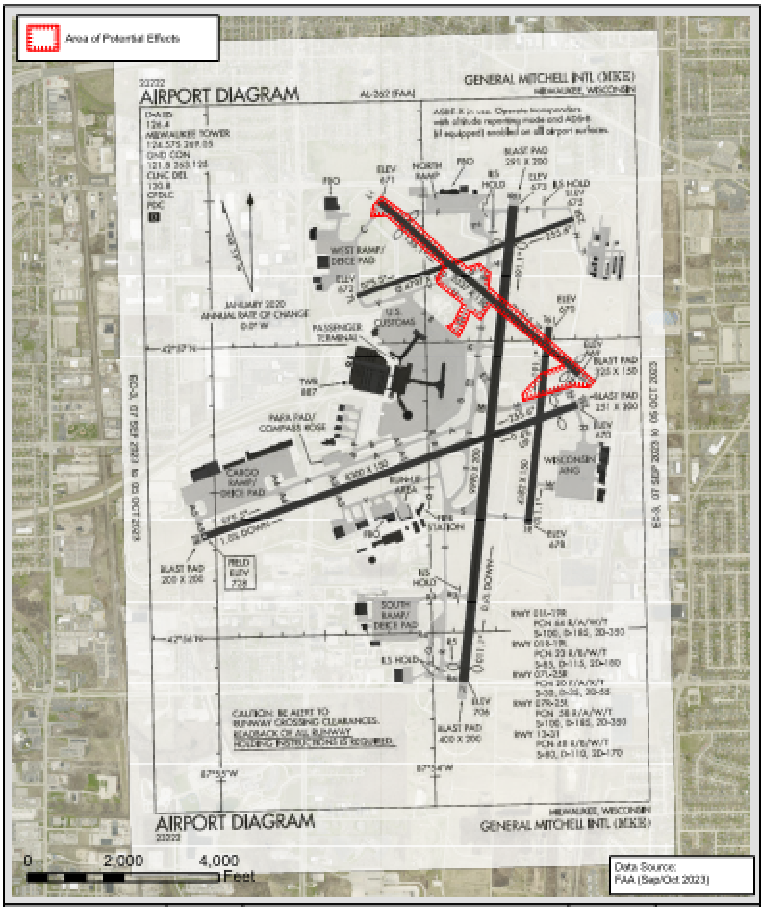

Westwood

MKE RUNWAY 13-31 REMOVAL
AIRPORT DIAGRAM MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
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Checked By:
Date: 9/12/2023

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PROJECT NO. R3001844.01
FIGURE NO. 3

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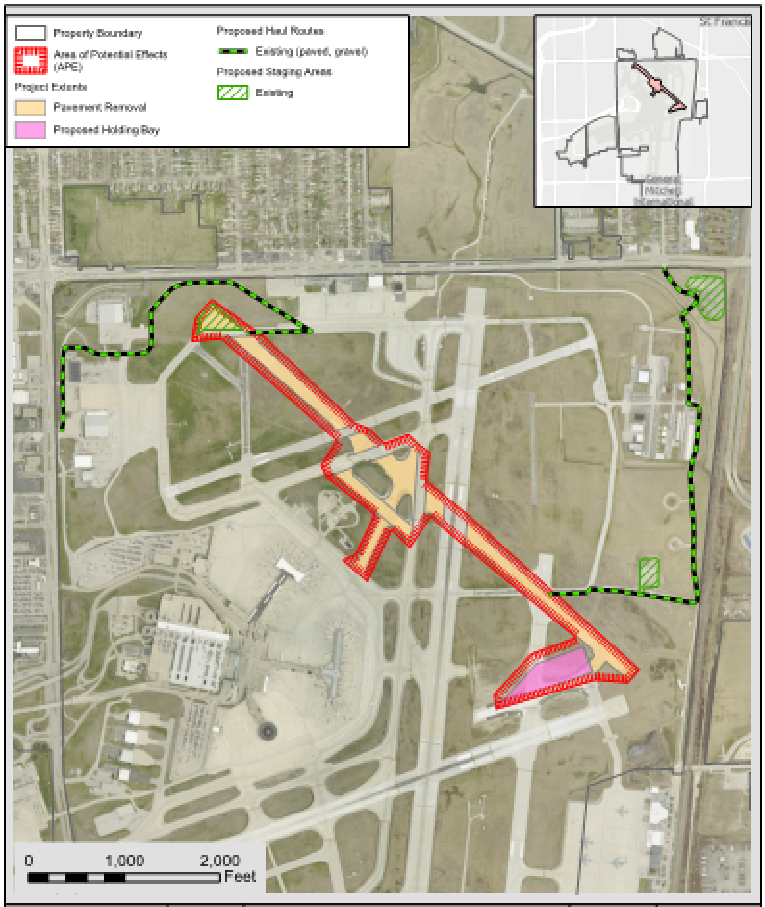

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FIGURE NO. 4

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State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W St Paul Ave
Milwaukee WI, WI, 53233

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

09/28/2023 WIC-SE-2023-41-03089

Justin Weiss
General Mitchell International Airport
[sent electronically]

RE: Wetland Delineation Confirmation for "MKE Runways 1R-19L & 13-31" located in NW 1/4, SE 1/4, Section 28, Township 06N, Range 22E, in the City of Milwaukee, Milwaukee County

Dear Justin Weiss

We have reviewed the wetland delineation report from Quest Civil Engineers, LLC prepared for the above-mentioned site. This letter will serve as confirmation that the wetland boundaries shown on the enclosed wetland delineation figure are acceptable. This finding is based upon a detailed report review and interview with the delineator. Any filling or grading within these areas may require DNR approvals. Our wetland confirmation is valid for five years. Be sure to send a copy of the report, as well as any approved revisions, to the U.S. Army Corps of Engineers.

In order to comply with Chapter 23.321, State Statutes, please supply the department with a polygon shapefile of the wetland boundaries delineated within the project area. Please do not include data such as parcel boundaries, project limits, wetland graphic representation symbols, etc. If internal upland polygons are found within a wetland polygon, then please label as UPLAND. The shapefile should utilize a State Plane Projection and be overlain onto recent aerial photography. If a different projection system is used, please indicate in which system the data are projected. In the correspondence sent with the shapefile, please supply a brief description of each wetland's plant community (eg: wet meadow, floodplain forest, etc.). Please send these data to Calvin Lawrence (608-266-0756 or email at calvin.lawrence@wisconsin.gov).

If you are planning development on the property, you are required to avoid take of endangered and threatened species, or obtain an incidental take authorization, to comply with the state's Endangered Species Law. To ensure compliance with the law, you should submit an endangered resources review form (Form 1700-047), available at https://dnr.wi.gov/topic/ERReview/Review.html. The Endangered Resources Program will provide a review response letter identifying any endangered and threatened species and any conditions that must be followed to address potential incidental take.

In addition to contacting WDNR, be sure to contact your local zoning office and U.S. Army Corps of Engineers to determine if any local or federal permits may be required for your project.

If you have any questions, please call me at (414) 308-6780 or you can reach me by email at kara.brooks@wisconsin.gov.

Sincerely,

Kara Brooks
Wetland Identification Specialist

Enclosures: Project Location Figure
Wetland Delineation Figure

Email CC: USACE Project Manager
Brian Krostedt, Quest

Wetland Map		City of Milwaukee Milwaukee County, WI	Figure A
MKE Airport Runways 1R-19L & 13-31	By: BWK Date: 9/12/2023	QUEST Civil Engineers, LLC	320 W Grand Ave.,Suite 302 Wisconsin Rapids, WI 54495 715-423-3525

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Taxiway N looking southwest.
Date: 9/12/23 **Photo #** 1

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Runway 13-31 looking southeast towards runway end.
Date: 9/12/23 **Photo #** 2

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Runway 13-31 looking northwest.
Date: 9/12/23 **Photo #** 3

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing Runway 13-31 looking southeast towards Runway 1R-19L.
Date: 9/12/23 **Photo #** 4

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 7

Description: Standing on at intersection of Taxiway U and Taxiway G looking southwest towards passenger terminal.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 8

Description: Standing on Runway 13-31 near Runway 7L-25R looking northeast at PAPIs.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 5

Description: Standing on Runway 13-31 near Taxiway G looking northeast.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 6

Description: Standing on Taxiway U looking northeast at Taxiway G.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 11

Description: Standing on Runway 13-31 near Taxiway F looking southeast.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 12

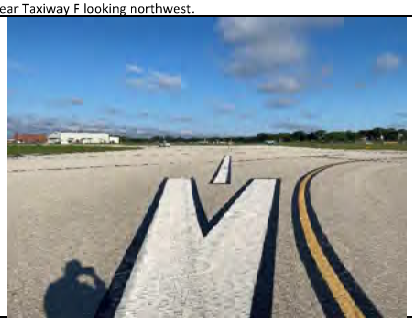
Description: Proposed Staging Area northeast of proposed project, looking east.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 9

Description: Standing on Runway 13-31 looking northwest towards Taxiway F.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 10

Description: Standing on Runway 13-31 near Taxiway F looking northwest.



Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** N/A **Photo #** 13

Description: Site Aerial Overview

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
332 MINNESOTA STREET, SUITE E1500
ST. PAUL, MN 55101-1323

12/19/2023

Regulatory File No. MVP-2007-01108-LAH

THIS IS NOT A PERMIT

Kaitlyn Wehner
Westwood Professional Services
1N Systems Dr
Appleton, WI 54914

To Whom It May Concern:

We have received your submittal described below. You may contact the Project Manager with questions regarding the evaluation process. The Project Manager may request additional information necessary to evaluate your submittal.

File Number: MVP-2007-01108-LAH

Applicant:

Project Name: AJD Milwaukee Mitchell International Airport Proposed Runway Decommissioning and Removal Projects

Project Location: Section 9 of Township 5 N, Range 22 E, Milwaukee County, Wisconsin (Latitude: 42.9443430756561; Longitude: -87.898156636076)

Received Date: 12/15/2023

Project Manager: Leah Huff
(651) 318-9382
Leah.A.Huff@usace.army.mil

Additional information about the St. Paul District Regulatory Program can be found on our web site at http://www.mvp.usace.army.mil/missions/regulatory.

Please note that initiating work in waters of the United States prior to receiving Department of the Army authorization could constitute a violation of Federal law. If you have any questions, please contact the Project Manager.

Thank you.

U.S. Army Corps of Engineers
St. Paul District
Regulatory Branch

Kaitlyn Wehner

From: Kaitlyn Wehner
Sent: Wednesday, January 10, 2024 9:40 AM
To: Huff, Leah A CIV CEMVP
Subject: RE: 2007-01108-LAH AJD Milwaukee Mitchell International Airport Proposed Runway Decommissioning and Removal Projects

Leah,

That sounds good and we will plan on continuing coordination regarding the wetland area the once the plans are more developed and identify if impacts are avoided.

Thank you very much!

Kaitlyn Wehner
Airport Engineer
kaitlyn.wehner@westwoodps.com

main (920)-735-6900

Westwood
1 Systems Drive
Appleton, WI 54914

From: Huff, Leah A CIV CEMVP <Leah.A.Huff@usace.army.mil>
Sent: Wednesday, January 10, 2024 9:23 AM
To: Kaitlyn Wehner <Kaitlyn.Wehner@westwoodps.com>
Subject: RE: 2007-01108-LAH AJD Milwaukee Mitchell International Airport Proposed Runway Decommissioning and Removal Projects

Kaitlyn,

We do not provide affirmative jurisdictional determinations. So, as far as the AJD request is concerned, that will be withdrawn and the permit process will continue in its place once you have those plans ready for review. Again, the proposed plans don't presently seem to have a large amount of impacts to that wetland/waterway (potentially avoidable all-together), therefore there may be no need to submit a preconstruction notification (application) to the Corps if proposed impacts are below those thresholds highlighted and within the RGP-Transportation Category 2 guidelines.

Thank you,

Leah Huff
Regulatory Specialist
US Army Corps of Engineers
St. Paul District, Regulatory Division
East Wisconsin Branch
(651) 318-9382

From: Kaitlyn Wehner <Kaitlyn.Wehner@westwoodps.com>
Sent: Wednesday, January 10, 2024 9:14 AM
To: Huff, Leah A CIV CEMVP <Leah.A.Huff@usace.army.mil>
Subject: [Non-DoD Source] RE: 2007-01108-LAH AJD Milwaukee Mitchell International Airport Proposed Runway Decommissioning and Removal Projects

Thank you Leah!

I will be sure to include this in the Environmental Assessments and will share our Preliminary EA with you and the general inbox once distributed.

I assume that once the determination is completed, we will be geF ng a notification on that as well?

Thank you,
Kaitlyn

Kaitlyn Wehner
Airport Engineer
kaitlyn.wehner@westwoodps.com

main (920)-735-6900
office (920)-830-6183

Westwood
1 Systems Drive
Appleton, WI 54914

westwoodps.com
(888) 937-5150

From: Huff, Leah A CIV CEMVP <Leah.A.Huff@usace.army.mil>
Sent: Wednesday, January 10, 2024 8:55 AM
To: Kaitlyn Wehner <Kaitlyn.Wehner@westwoodps.com>
Subject: 2007-01108-LAH AJD Milwaukee Mitchell International Airport Proposed Runway Decommissioning and Removal Projects

Good morning Kaitlyn,

I have aI ached the Regional General Permit – Transportation guidelines with Category 2: Modification – Linear Transportation section thresholds highlighted as we discussed. Please feel free to reach out to me directly with any additional questions as your project plans get developed.

Thank you,

Leah Huff
Regulatory Specialist
US Army Corps of Engineers

St. Paul District, Regulatory Division
East Wisconsin Branch
(651) 318-9382

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA)

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Kaitlyn Wehner

From: Turk, Christine <cturk@mitchellairport.com>
Sent: Wednesday, November 8, 2023 3:32 PM
To: tyler.jennifer@epa.gov
Cc: Weiss, Justin; Hottenstein, Wendy - DOT; Palmer, Mallory K - DOT; Kaitlyn Wehner
Subject: Milwaukee Mitchell International Airport Proposed Runway 13-31 Decommissioning and Removal Project
Attachments: MKE RWY 13-31 - EPA Initial Project Review Letter.pdf; Attachment 1 - RWY 13-31 Location Map.pdf; Attachment 2 - RWY 13-31 Airport Property Map.pdf; Attachment 3 - RWY 13-31 Airport Diagram Map.pdf; Attachment 4 - RWY 13-31 Area of Potential Effects Map.pdf; Attachment 5 - Wetland Delineation Confirmation.pdf; Attachment 6 - RWY 13-31 Photo log.pdf

Good afternoon,

Please see the attached letter and corresponding documents regarding the proposed decommissioning and removal of runway 13-31 at Milwaukee Mitchell International Airport.

Let us know if you have any questions or concerns regarding the proposed project.

Thank you,

Christine Turk, ACE
Airport Planning Manager
Milwaukee Mitchell International Airport
5300 S Howell Avenue
Milwaukee, WI 53207
Office: 414-747-6226

MKE | ASQ 2021 Awards | ASQ 2022 Winner
ASQ BEST AIRPORT AWARD | NORTH AMERICA 2022

November 8, 2023

Jennifer Tyler

Office of the Regional Administrator

U.S. Environmental Protection Agency – Region 5

77 W Jackson Boulevard

Chicago, IL 60604-3507

Via Electronic Mail Only to tyler.jennifer@epa.gov

RE: Milwaukee General Mitchell International Airport

Proposed Runway 13-31 Decommissioning and Removal

Dear Ms. Tyler:

General Mitchell International Airport (Airport) is beginning preliminary studies for improvements to the Airport. (See Attachment 1 – Site Location Map & Attachment 2 – Airport Property Map) These proposed improvements include the decommissioning and removal of Runway 13-31 (Project).

Recently, the Airport completed a Master Plan Update, which established the needs and goals for the future of the Airport. The purpose for the proposed project is to align the airfield configuration with the Master Plan Update goals and the recently approved Airport Layout Plan. The proposed project will enhance airfield compliance with updated Federal Aviation Administration (FAA) standards. Additionally, the proposed project will align the airfield for future development and improve safety by removing non-standard runway/taxiway intersections.

Currently, Runway 13-31 is 5,537 feet long and 150 feet wide with numerous connecting taxiways (See Attachment 3 – Airport Diagram Map). Runway 13-31 primarily serves general aviation aircraft. Currently the intersection of Runway 13-31, Taxiway G, and Taxiway E can be classified as non-standard and has a greater potential for pilot confusion.

The proposed project undertaking will consist of the following:

(See Attachment 4 – Area of Potential Effects)

- Decommissioning of Runway 13-31
- Removal of Taxiway G, Taxiway U, and Taxiway N connectors
- Removal of approximately 126,900 SY of pavement and associated electrical utilities and NAVAIDs for Runway 13-31, Taxiway G, Taxiway U, and Taxiway N
- Proposed addition of a holding bay adjacent to Taxiway M including associated lighting.

MKE
MILWAUKEE
Mitchell International Airport

A wetland delineation was performed at the proposed location and submitted to the Wisconsin Department of Natural Resources (WIDNR). The delineation identified wetlands present in a ditch line southwest of Runway 1R-19L and is located outside of the Area of Potential Effects for the proposed project. (See Attachment 5 – Wetland Delineation Confirmation).

The proposed project area was entered into the WIDNR Natural Heritage Inventory Public Portal, it was identified that endangered resources are located within the 1-mile and 2-mile buffer of the project area. If requested, the public portal ID can be provided for reference. The proposed project was entered into the U.S. Fish & Wildlife Service Information for Planning and Consultation (IPaC) portal and endangered resources were identified as potentially affected by activities in the project location.

A cultural resources investigation was completed for the proposed project area, no cultural resources were identified during a pedestrian survey. Consultation with the Wisconsin State Historic Preservation Office (SHPO) under Section 106 of the National Historic Preservation Act will be completed during the Preliminary Environmental Assessment (PEA) process.

Additional project studies include a Phase 1 Environmental Site Assessment for hazardous materials. A noise analysis is being completed to assess the DNL contours of the existing operational conditions, no project forecast year, and with project forecast year.

The proposed project is located within airport property, specifically in Sections 27 and 28 of Township 06 North, Range 22 East. The project area is currently pavement and mowed grass fields with no structures. (See Attachment 6 – Site Photographs)

We are requesting that you identify any concerns the U.S. Environmental Protection Agency may have regarding the proposed project or related information about the area. Concerns or comments will be included in the PEA. Additionally, you will be included on the distribution list for the preliminary and final environmental assessments. If you would like to receive additional information regarding this proposed project, please contact Justin Weiss at 414-747-6233 or at jweiss@mitchellairport.com. Thank you for your assistance.

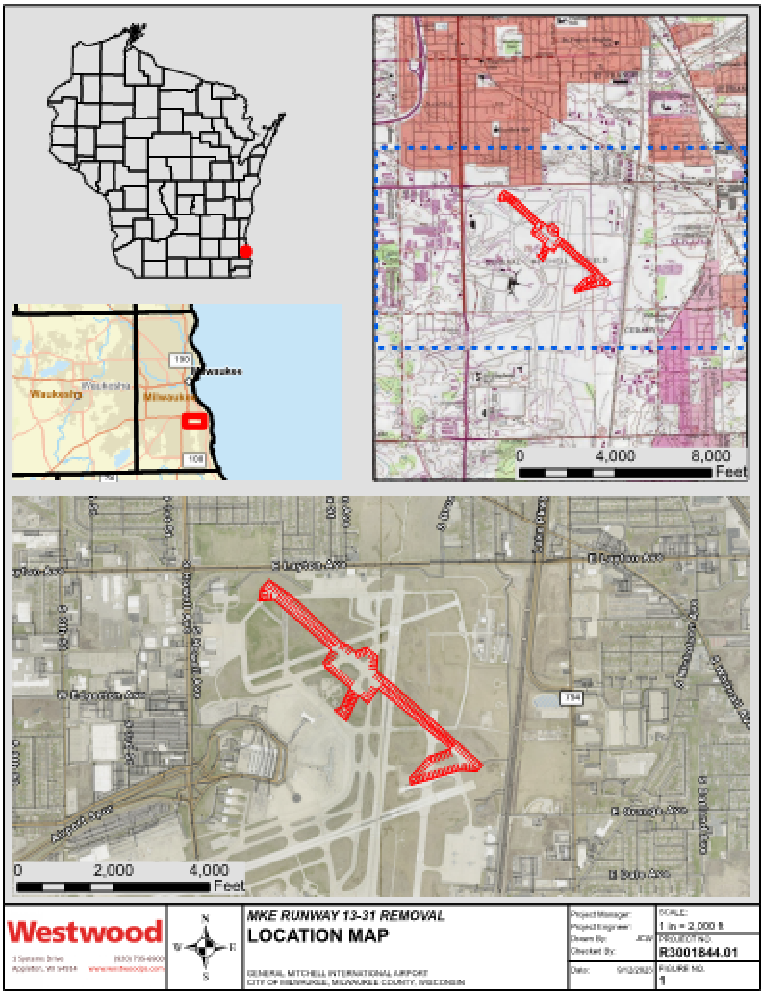
Sincerely,

Christine Turk, ACE
Airport Planning Manager
General Mitchell International Airport

Attachments:

1. Site Location Map
2. Airport Property Map
3. Airport Diagram Map
4. Area of Potential Effects
5. Wetland Delineation Confirmation
6. Site Pictures

Cc: Justin Weiss, General Mitchell Airport Project Manager (by email)
Wendy Hottenstein, WisDOT BOA (by email)
Mallory Palmer, WisDOT BOA (by email)
Kaitlyn Wehner, Westwood (by email)



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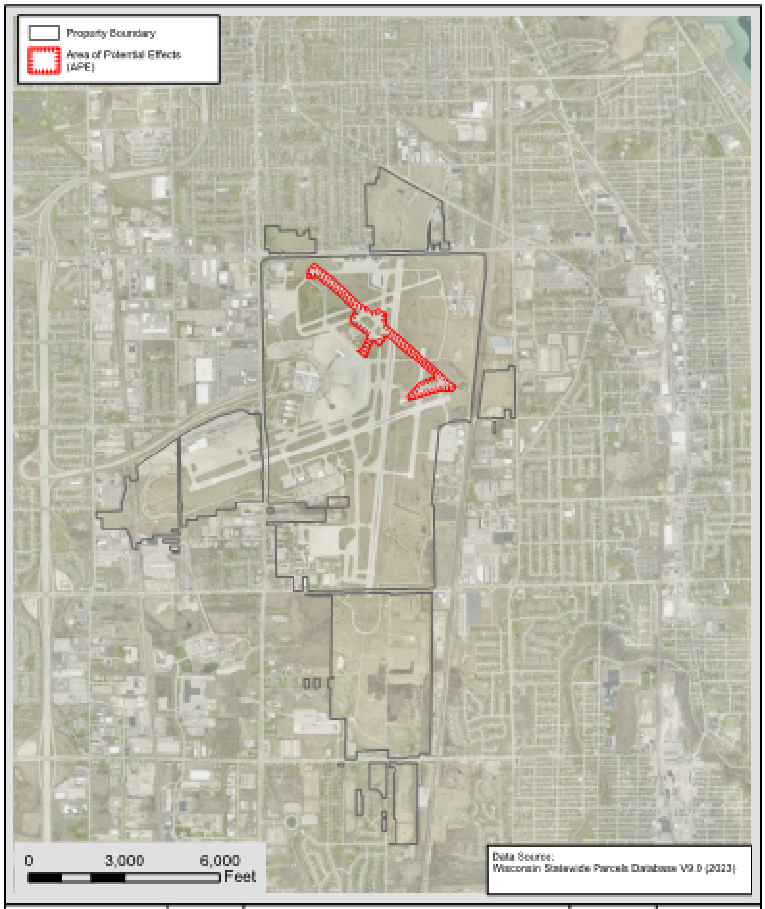

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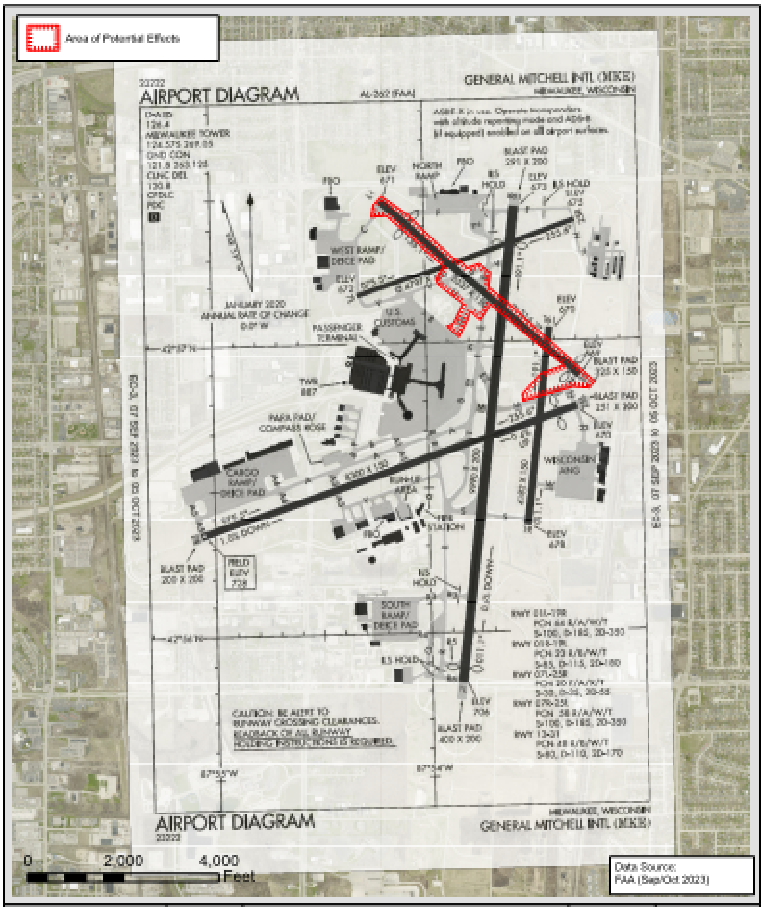

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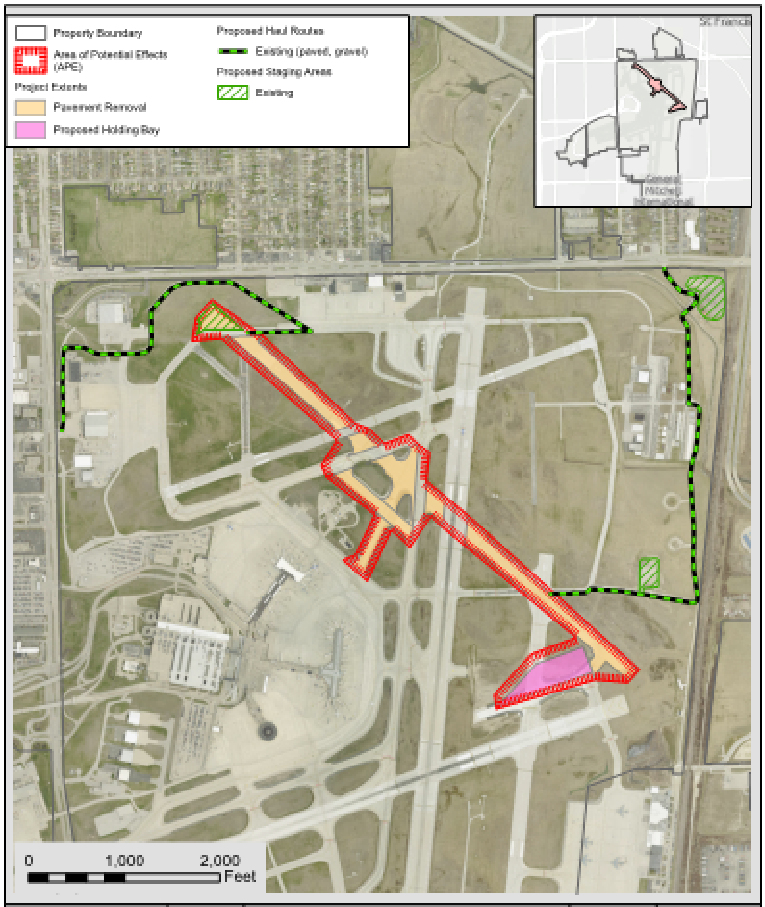

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State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W St Paul Ave
Milwaukee WI, WI, 53233

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

09/28/2023 WIC-SE-2023-41-03089

Justin Weiss
General Mitchell International Airport
[sent electronically]

RE: Wetland Delineation Confirmation for "MKE Runways 1R-19L & 13-31" located in NW 1/4, SE 1/4, Section 28, Township 06N, Range 22E, in the City of Milwaukee, Milwaukee County

Dear Justin Weiss

We have reviewed the wetland delineation report from Quest Civil Engineers, LLC prepared for the above-mentioned site. This letter will serve as confirmation that the wetland boundaries shown on the enclosed wetland delineation figure are acceptable. This finding is based upon a detailed report review and interview with the delineator. Any filling or grading within these areas may require DNR approvals. Our wetland confirmation is valid for five years. Be sure to send a copy of the report, as well as any approved revisions, to the U.S. Army Corps of Engineers.

In order to comply with Chapter 23.321, State Statutes, please supply the department with a polygon shapefile of the wetland boundaries delineated within the project area. Please do not include data such as parcel boundaries, project limits, wetland graphic representation symbols, etc. If internal upland polygons are found within a wetland polygon, then please label as UPLAND. The shapefile should utilize a State Plane Projection and be overlain onto recent aerial photography. If a different projection system is used, please indicate in which system the data are projected. In the correspondence sent with the shapefile, please supply a brief description of each wetland's plant community (eg: wet meadow, floodplain forest, etc.). Please send these data to Calvin Lawrence (608-266-0756 or email at calvin.lawrence@wisconsin.gov).

If you are planning development on the property, you are required to avoid take of endangered and threatened species, or obtain an incidental take authorization, to comply with the state's Endangered Species Law. To ensure compliance with the law, you should submit an endangered resources review form (Form 1700-047), available at https://dnr.wi.gov/topic/ERReview/Review.html. The Endangered Resources Program will provide a review response letter identifying any endangered and threatened species and any conditions that must be followed to address potential incidental take.

In addition to contacting WDNR, be sure to contact your local zoning office and U.S. Army Corps of Engineers to determine if any local or federal permits may be required for your project.

If you have any questions, please call me at (414) 308-6780 or you can reach me by email at kara.brooks@wisconsin.gov.

Sincerely,

Kara Brooks
Wetland Identification Specialist

Enclosures: Project Location Figure
Wetland Delineation Figure

Email CC: USACE Project Manager
Brian Krostedt, Quest

Wetland Map		City of Milwaukee Milwaukee County, WI	Figure A
MKE Airport Runways 1R-19L & 13-31	By: BWK Date: 9/12/2023	QUEST Civil Engineers, LLC	320 W Grand Ave.,Suite 302 Wisconsin Rapids, WI 54495 715-423-3525

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Taxiway N looking southwest.
Date: 9/12/23 **Photo #** 1

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Runway 13-31 looking southeast towards runway end.
Date: 9/12/23 **Photo #** 2

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Runway 13-31 looking northwest.
Date: 9/12/23 **Photo #** 3

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing Runway 13-31 looking southeast towards Runway 1R-19L.
Date: 9/12/23 **Photo #** 4

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 7

Description: Standing on at intersection of Taxiway U and Taxiway G looking southwest towards passenger terminal.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 8

Description: Standing on Runway 13-31 near Runway 7L-25R looking northeast at PAPIs.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 5

Description: Standing on Runway 13-31 near Taxiway G looking northeast.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 6

Description: Standing on Taxiway U looking northeast at Taxiway G.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 11

Description: Standing on Runway 13-31 near Taxiway F looking southeast.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 12

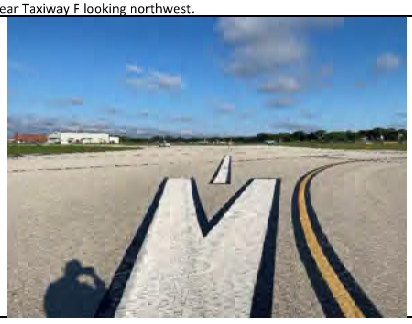
Description: Proposed Staging Area northeast of proposed project, looking east.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 9

Description: Standing on Runway 13-31 looking northwest towards Taxiway F.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 10

Description: Standing on Runway 13-31 near Taxiway F looking northwest.



Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** N/A **Photo #** 13

Description: Site Aerial Overview

TRIBAL NOTIFICATION

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Kaitlyn Wehner

From: Weiss, Justin <jweiss@mitchellairport.com>
Sent: Friday, December 8, 2023 9:06 AM
To: Kaitlyn Wehner
Subject: FW: WisDOT request for comment and notification of Federal undertaking under 36 CFR 800 (0740-40-114)
Attachments: Attachments RWY 1R-19L.pdf; Attachments RWY 13-31.pdf

Good Morning Kaitlyn,

See below for the tribal notification email for the runway decommissioning projects.

Let me know if you have any questions.

Justin Weiss, PE
Project Manager, Airport Engineering
Milwaukee Mitchell International Airport
5300 South Howell Avenue
Milwaukee, WI 53207
Email: jweiss@mitchellairport.com
Office: 414-747-6233
Cell: 414-309-4694

From: DOT BOA Environmental <DOTBOAEnvironmental@dot.wi.gov>
Sent: Friday, December 8, 2023 8:42 AM
To: DOT DL THPOs <DOTDLTHPOs@dot.wi.gov>
Cc: MikeW <Mikew@badriver-nsn.gov>; FCPGrantsChairman@fcp-nsn.gov; Greendeer, Jon - DNR <maasusga@ho-chunk.com>; Louis Taylor <Louis.taylor@lco-nsn.gov>; Johnson, J <jjohnsonsr@ldftribe.com>; Chairman-MITW <chairman@mitw.org>; Shannon Holsey <shannon.holsey@mohican-nsn.gov>; Hill, Tehassi - DNR <thill7@oneidanation.org>; Boyd, Nicole - DNR <Nicole.boyd@redcliff-nsn.gov>; Fowler, Thomas - DNR <thomasf@stcroixojibwe-nsn.gov>; VanZile, Robert - DNR <robert.vanzile@scc-nsn.gov>; Hottenstein, Wendy - DOT <wendy.hottenstein@dot.wi.gov>; DOT BOA Environmental <DOTBOAEnvironmental@dot.wi.gov>; Turk, Christine <cturk@mitchellairport.com>; Weiss, Justin <jweiss@mitchellairport.com>
Subject: WisDOT request for comment and notification of Federal undertaking under 36 CFR 800 (0740-40-114)

WisDOT Project: 0740-40-114
AIP#: AIP-114
Airport Name: General Mitchell International Airport (MKE)
County: Milwaukee
Township, Range, Section: T06N, R22E, Sections 27, 28, & 33

The Wisconsin Department of Transportation (WisDOT), in cooperation with the Federal Aviation Administration (FAA), is considering an undertaking located at Milwaukee General Mitchell International Airport. The proposed undertaking will consist of the following:

RUNWAY 1R-19L

- **Decommissioning and removal of Runway 1R-19L and associated electrical utilities.**
- **Potential rehabilitation and conversion of Runway 1R-19L south of Taxiway W to a parallel taxiway including associated lighting (Alternate A) or,**
- **Potential partial parallel taxiway and connector relocation including associated lighting. Located west of the existing Runway 1R-19L connecting Taxiway W and Taxiway S (Alternate B).**

RUNWAY 13-31

- **Decommissioning and Removal of Runway 13-31 and associated electrical utilities.**
- **Removal of Taxiway G, Taxiway U, Taxiway N connector and associated electrical utilities.**
- **Proposed addition of a holding bay adjacent to Taxiway M including associated lighting.**

Attached is information regarding the proposed undertaking to assist you in providing comments regarding the determination of the area of potential effect (APE) and potential impacts to historic properties and/or burial sites.

WisDOT would be pleased to receive any comments your tribe wishes to share regarding the determination of the APE or potential impacts to historic properties and/or burials in this undertaking. Additionally, you may use this opportunity to request consultation pursuant to 36 CFR 800.3. WisDOT understands that your tribe is a sovereign nation and as such has the discretion to consult government to government with the FAA directly. Also other environmental studies may be conducted to include endangered species survey, contaminated material investigations, soil testing and right-of-way surveys. Results of these studies will assist the engineers in the design to avoid, minimize or mitigate the proposed project's effect upon cultural and natural resources. If WisDOT identifies the potential for historic properties to be affected, you will be provided more information.

To ensure your comments are considered during this early phase of project development, WisDOT requests a response within 30 days of receipt of this letter.

If your tribe wishes to become a consulting party under Section 106 of the National Historic Preservation Act or would like to receive additional information regarding this proposed project, please reply to this email or contact:

WisDOT Project Manager: Wendy Hottenstein, P.E.
Phone: 608-261-6278
Address: Wisconsin Department of Transportation – Bureau of Aeronautics, 4822 Madison Yards Way, 5th Floor South, Madison, WI 53705

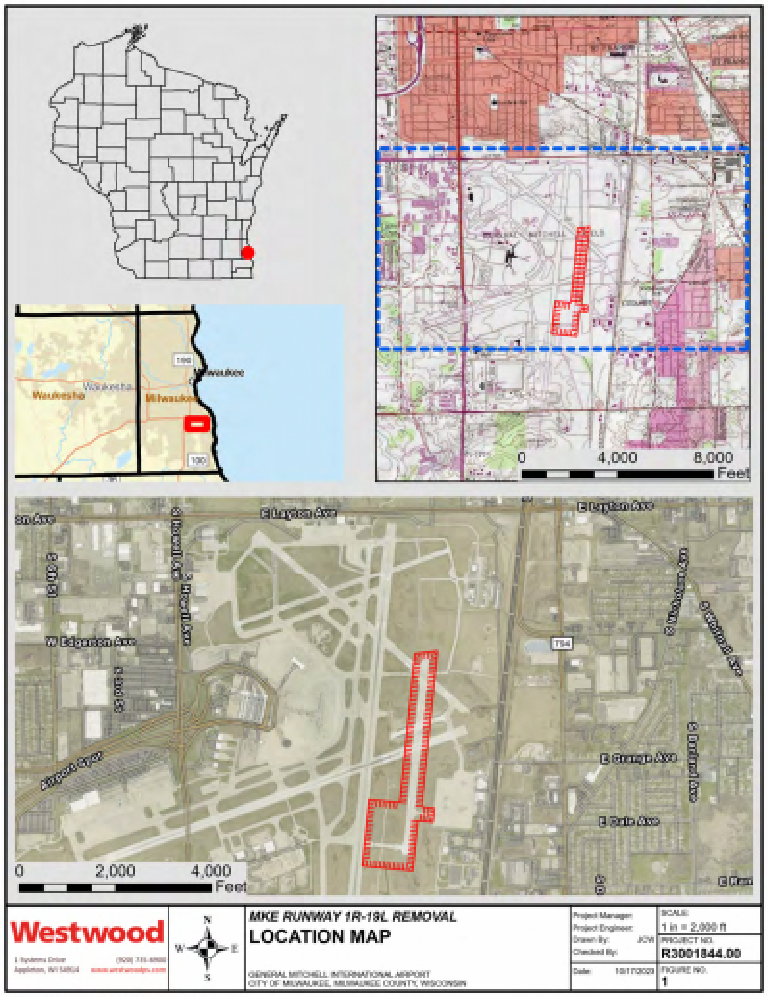
Thank you,

Bureau of Aeronautics Environmental Team
DOTBOAEnvironmental@dot.wi.gov

Mallory Palmer | (608) 261-5861 | malloryk.palmer@dot.wi.gov
Kelly Halada | (608) 267-3633 | kelly.halada@dot.wi.gov

Attachments: Project Location Maps (Site Location Map, Airport Property Map, Airport Diagram Map, Area of Potential Effects Map)

EC: Regional Tribal Liaison
Tribal Leader
CC: Johnathon Buffalo, NAGPRA Rep. – Sac and Fox Tribe of the Mississippi in Iowa
Cultural Preservation Office - Iowa Tribe of Oklahoma
Hattie Mitchell, THPO – Prairie Band Potawatomi Nation



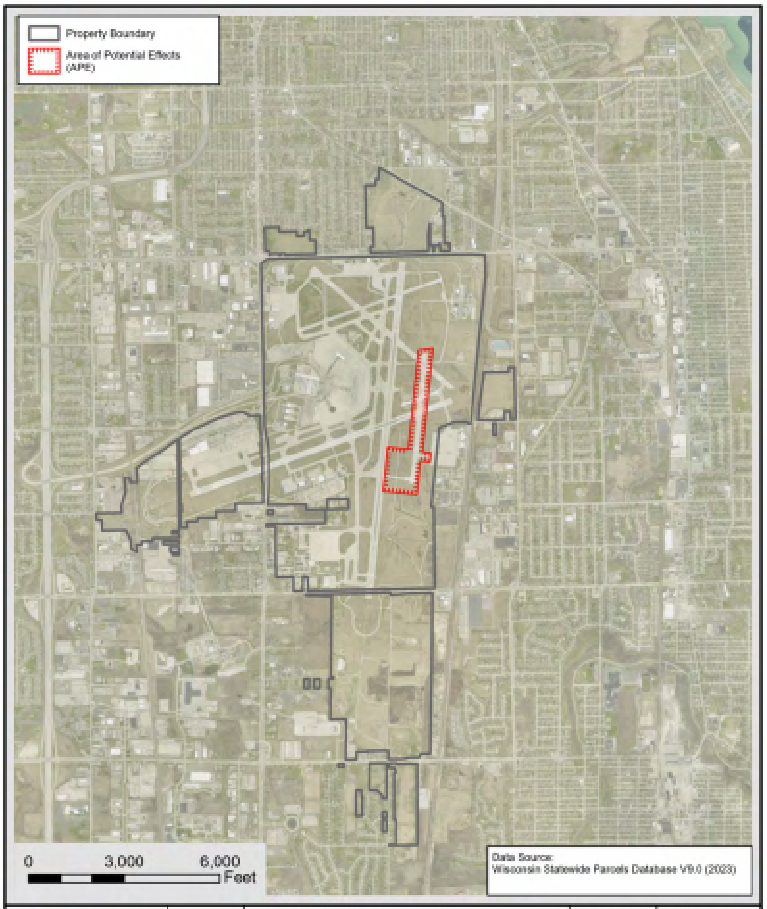
Westwood

MKE RUNWAY 1R-19L REMOVAL
LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 10/17/2023

SCALE: 1 in = 2,000 ft
PROJECT NO. R3001844.00
FIGURE NO. 1



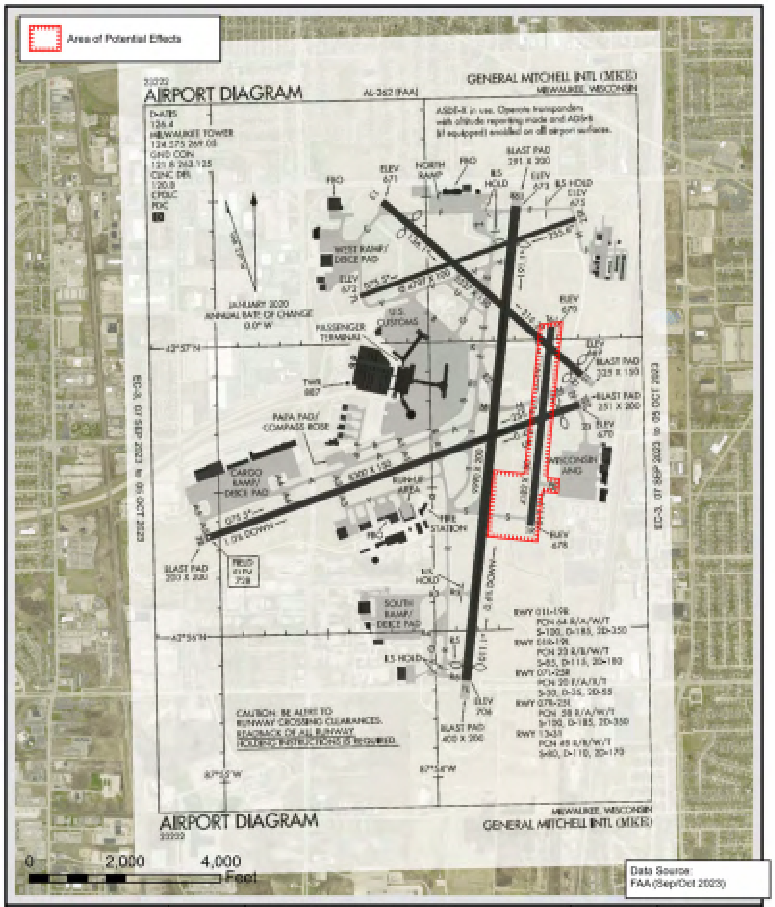
Westwood

MKE RUNWAY 1R-19L REMOVAL
AIRPORT PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 10/17/2023

SCALE: 1 in =3,000 ft
PROJECT NO. R3001844.00
FIGURE NO. 2



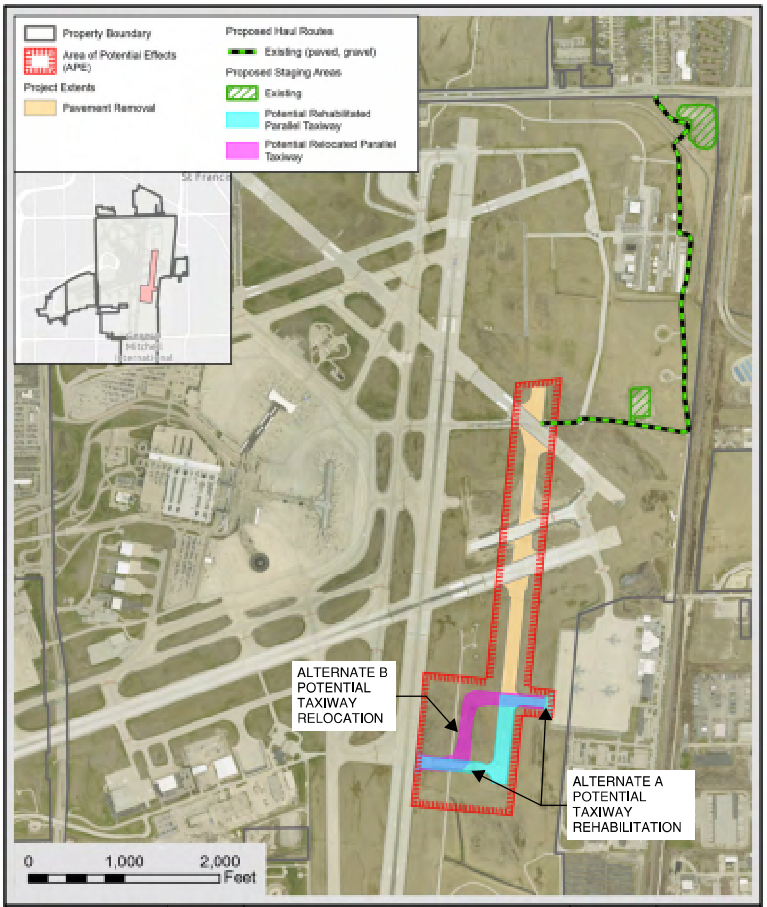
Westwood

MKE RUNWAY 1R-19L REMOVAL
AIRPORT DIAGRAM MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 10/17/2023

SCALE: 1 in =2,000 ft
PROJECT NO. R3001844.00
FIGURE NO. 3



Westwood

MKE RUNWAY 1R-19L REMOVAL
AREA OF POTENTIAL EFFECTS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 10/17/2023

SCALE: 1 in =1,000 ft
PROJECT NO. R3001844.00
FIGURE NO. 4

MILWAUKEE COUNTY HISTORICAL SOCIETY

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Kaitlyn Wehner

From: Turk, Christine <cturk@mitchellairport.com>
Sent: Wednesday, November 8, 2023 12:56 PM
To: info@milwaukeehistory.net
Cc: Weiss, Justin; Hottenstein, Wendy - DOT; Palmer, Mallory K - DOT; Kaitlyn Wehner
Subject: Milwaukee Mitchell International Airport Proposed Runway 13-31 Decommissioning and Removal Project
Attachments: MKE RWY 13-31 - Milwaukee Co Historical Society Letter.pdf; Attachment 1 - RWY 13-31 Location Map.pdf; Attachment 2 - RWY 13-31 Airport Property Map.pdf; Attachment 3 - RWY 13-31 Airport Diagram Map.pdf; Attachment 4 - RWY 13-31 Area of Potential Effects Map.pdf

Good afternoon,

Please see the attached letter and corresponding documents regarding the proposed decommissioning and removal of runway 13-31 at Milwaukee Mitchell International Airport.

Let us know if you have any questions or concerns regarding the proposed project.

Thank you,

Christine Turk, ACE
Airport Planning Manager
Milwaukee Mitchell International Airport
5300 S Howell Avenue
Milwaukee, WI 53207
Office: 414-747-6226

MKE | ASQ BEST AIRPORT AWARD | NORTH AMERICA 2022

MILWAUKEE
Mitchell International Airport

November 8, 2023

Milwaukee County Historical Society

910 North Dr. Martin Luther King Jr. Dr

Milwaukee, WI 53203

Via Electronic Mail Only to info@milwaukeehistory.net

RE: Milwaukee General Mitchell International Airport

Proposed Runway 13-31 Decommissioning and Removal

Dear Milwaukee County Historical Society:

General Mitchell International Airport (Airport) is beginning preliminary studies for improvements to the Airport. (See Attachment 1 – Site Location Map & Attachment 2 – Airport Property Map) These proposed improvements include the decommissioning and removal of Runway 13-31 (Project).

Recently, the Airport completed a Master Plan Update, which established the needs and goals for the future of the Airport. The purpose for the proposed project is to align the airfield configuration with the Master Plan Update goals and the recently approved Airport Layout Plan. The proposed project will enhance airfield compliance with updated Federal Aviation Administration (FAA) standards. Additionally, the proposed project will align the airfield for future development and improve safety by removing non-standard runway/taxiway intersections.

Currently, Runway 13-31 is 5,537 feet long and 150 feet wide with numerous connecting taxiways (See Attachment 3 – Airport Diagram Map). Runway 13-31 primarily serves general aviation aircraft. Currently the intersection of Runway 13-31, Taxiway G, and Taxiway E can be classified as non-standard and has a greater potential for pilot confusion.

The proposed project undertaking will consist of the following:

(See Attachment 4 – Area of Potential Effects)

- Decommissioning of Runway 13-31
- Removal of Taxiway G, Taxiway U, and Taxiway N connectors
- Removal of approximately 126,900 SY of pavement and associated electrical utilities and NAVAIDs for Runway 13-31, Taxiway G, Taxiway U, and Taxiway N
- Proposed addition of a holding bay adjacent to Taxiway M including associated lighting.

The Wisconsin National Register of Historic Places online database was searched. No records in or near the proposed project area were identified. The closest identified property is the New Coeln House located at 5905 South Howell Avenue.

MKE
MILWAUKEE
Mitchell International Airport

We are requesting that the Milwaukee County Historical Society identify any concerns they may have regarding the proposed project. If you would like to receive additional information regarding this proposed project, please contact Justin Weiss at 414-747-6233 or at jweiss@mitchellairport.com. Thank you for your assistance.

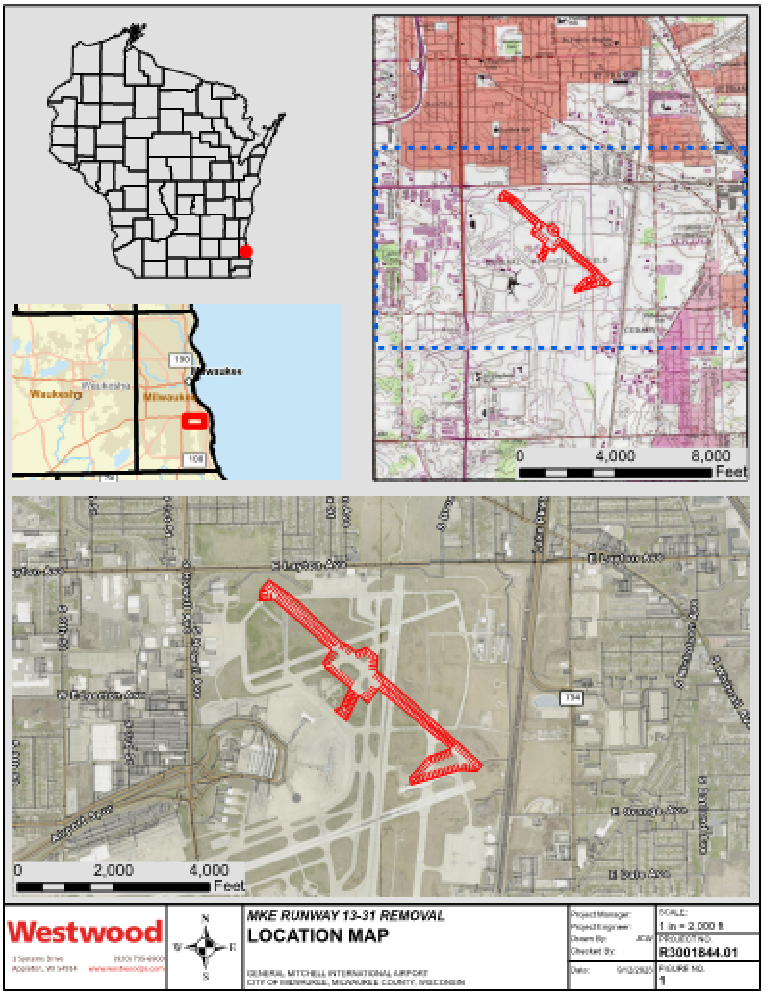
Sincerely,

Christine Turk, ACE
Airport Planning Manager
General Mitchell International Airport

Attachments:

1. Site Location Map
2. Airport Property Map
3. Airport Diagram Map
4. Area of Potential Effects

Cc: Justin Weiss, General Mitchell Airport Project Manager (by email)
Wendy Hottenstein, WisDOT BOA (by email)
Mallory Palmer, WisDOT BOA (by email)
Kaitlyn Wehner, Westwood (by email)



Westwood

MKE RUNWAY 13-31 REMOVAL
LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 2,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 1

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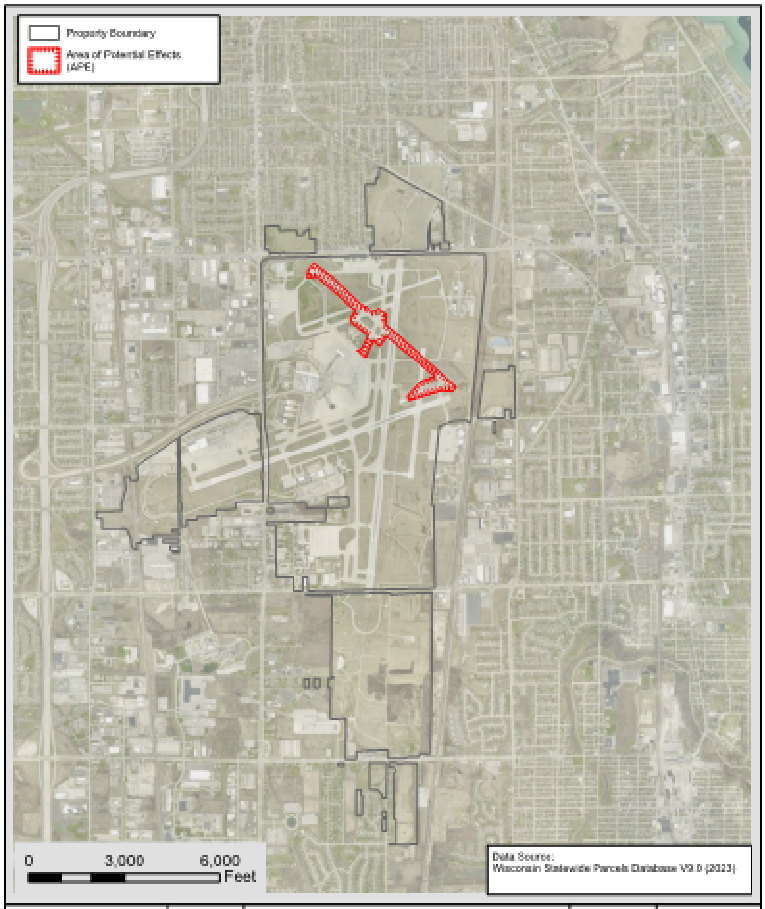

Westwood

MKE RUNWAY 13-31 REMOVAL
AIRPORT PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 3,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 2

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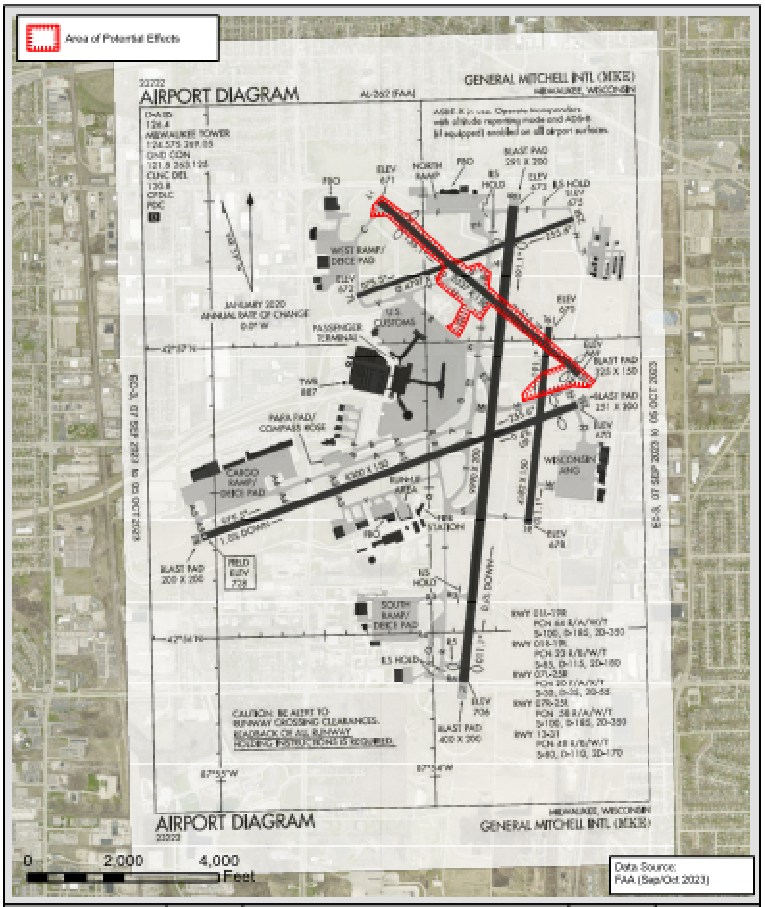

Westwood

MKE RUNWAY 13-31 REMOVAL
AIRPORT DIAGRAM MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 2,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 3

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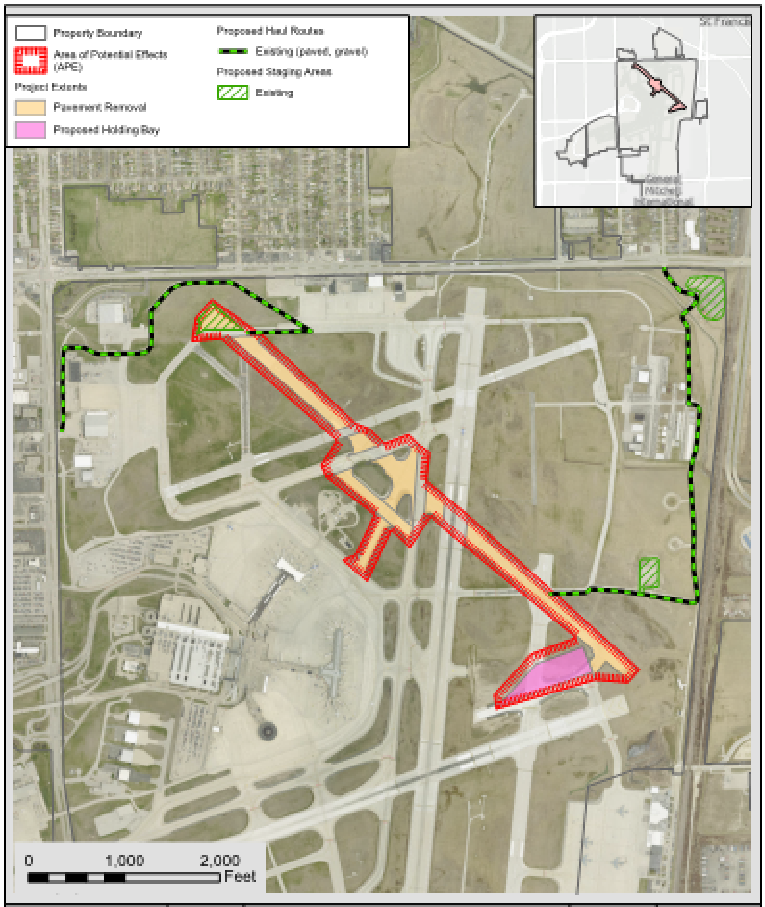

Westwood

MKE RUNWAY 13-31 REMOVAL
AREA OF POTENTIAL EFFECTS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 1,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 4

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MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

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Kaitlyn Wehner

From: Turk, Christine <cturk@mitchellairport.com>
Sent: Wednesday, November 8, 2023 3:20 PM
To: mklappasullivan@mmsd.com
Cc: Weiss, Justin; Hottenstein, Wendy - DOT; Palmer, Mallory K - DOT; Kaitlyn Wehner
Subject: Milwaukee Mitchell International Airport Proposed Runway 13-31 Decommissioning and Removal Project
Attachments: MKE RWY 13-31 - MMSD Initial Letter.pdf; Attachment 1 - RWY 13-31 Location Map.pdf; Attachment 2 - RWY 13-31 Airport Property Map.pdf; Attachment 3 - RWY 13-31 Airport Diagram Map.pdf; Attachment 4 - RWY 13-31 Area of Potential Effects Map.pdf; Attachment 5 - Wetland Delineation Confirmation.pdf; Attachment 6 - RWY 13-31 Photo log.pdf

Good afternoon,

Please see the attached letter and corresponding documents regarding the proposed decommissioning and removal of runway 13-31 at Milwaukee Mitchell International Airport.

Let us know if you have any questions or concerns regarding the proposed project.

Thank you,

Christine Turk, ACE
Airport Planning Manager
Milwaukee Mitchell International Airport
5300 S Howell Avenue
Milwaukee, WI 53207
Office: 414-747-6226

November 8, 2023

Micki Klappa-Sullivan, PE, ENV SP

Manager of Engineering Planning

Milwaukee Metropolitan Sewerage District (MMSD)

260 W. Seeboth Street

Milwaukee, WI 53204

Via Electronic Mail Only to mklappasullivan@mmsd.com

RE: Milwaukee General Mitchell International Airport

Proposed Runway 13-31 Decommissioning and Removal

Dear Ms. Klappa-Sullivan:

General Mitchell International Airport (Airport) is beginning preliminary studies for improvements to the Airport. (See Attachment 1 – Site Location Map & Attachment 2 – Airport Property Map) These proposed improvements include the decommissioning and removal of Runway 13-31 (Project).

Recently, the Airport completed a Master Plan Update, which established the needs and goals for the future of the Airport. The purpose for the proposed project is to align the airfield configuration with the Master Plan Update goals and the recently approved Airport Layout Plan. The proposed project will enhance airfield compliance with updated Federal Aviation Administration (FAA) standards. Additionally, the proposed project will align the airfield for future development and improve safety by removing non-standard runway/taxiway intersections.

Currently, Runway 13-31 is 5,537 feet long and 150 feet wide with numerous connecting taxiways (See Attachment 3 – Airport Diagram Map). Runway 13-31 primarily services general aviation aircraft. Currently the intersection of Runway 13-31, Taxiway G, and Taxiway E can be classified as non-standard and has a greater potential for pilot confusion.

The proposed project undertaking will consist of the following:

(See Attachment 4 – Area of Potential Effects)

- Decommissioning of Runway 13-31
- Removal of Taxiway G, Taxiway U, and Taxiway N connectors
- Removal of approximately 126,900 SY of pavement and associated electrical utilities and NAVAIDs for Runway 13-31, Taxiway G, Taxiway U, and Taxiway N
- Proposed addition of a holding bay adjacent to Taxiway M including associated lighting.

MILWAUKEE
Mitchell International Airport

A wetland delineation was performed at the proposed location and submitted to the Wisconsin Department of Natural Resources. The delineation identified wetlands present in a ditch line southwest of Runway 1R-19L and is located outside of the Area of Potential Effects for the proposed project. (See Attachment 5 – Wetland Delineation Confirmation).

The proposed project is located within airport property, specifically in Sections 27 and 28 of Township 06 North, Range 22 East. The project area is currently pavement and mowed grass fields with no structures. (See Attachment 6 – Site Photographs)

We are requesting that you identify any concerns the Milwaukee Metropolitan Sewerage District may have about the proposed project. Additionally, you will be included on the distribution list for the preliminary and final environmental assessments. If you would like to receive additional information regarding this proposed project, please contact Justin Weiss at 414-747-6233 or at jweiss@mitchellairport.com. Thank you for your assistance.

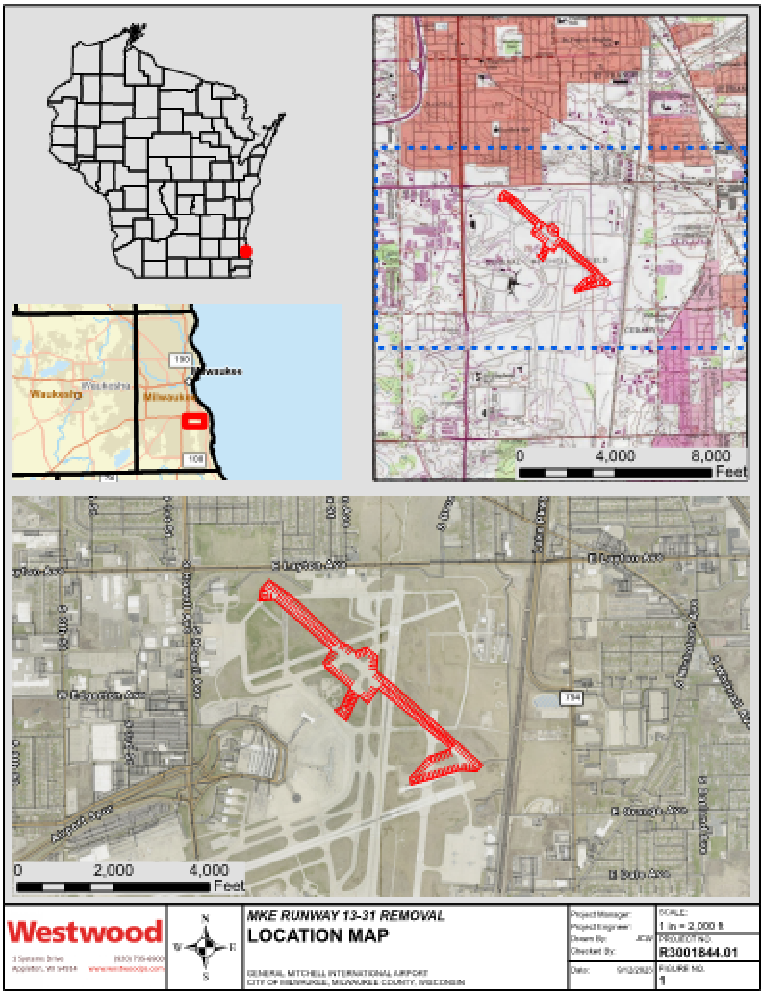
Sincerely,

Christine Turk, ACE
Airport Planning Manager
General Mitchell International Airport

Attachments:

1. Site Location Map
2. Airport Property Map
3. Airport Diagram Map
4. Area of Potential Effects
5. Wetland Delineation Confirmation
6. Site Pictures

Cc: Justin Weiss, General Mitchell Airport Project Manager (by email)
Wendy Hottenstein, WisDOT BOA (by email)
Mallory Palmer, WisDOT BOA (by email)
Kaitlyn Wehner, Westwood (by email)



Westwood

MKE RUNWAY 13-31 REMOVAL
LOCATION MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 2,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 1

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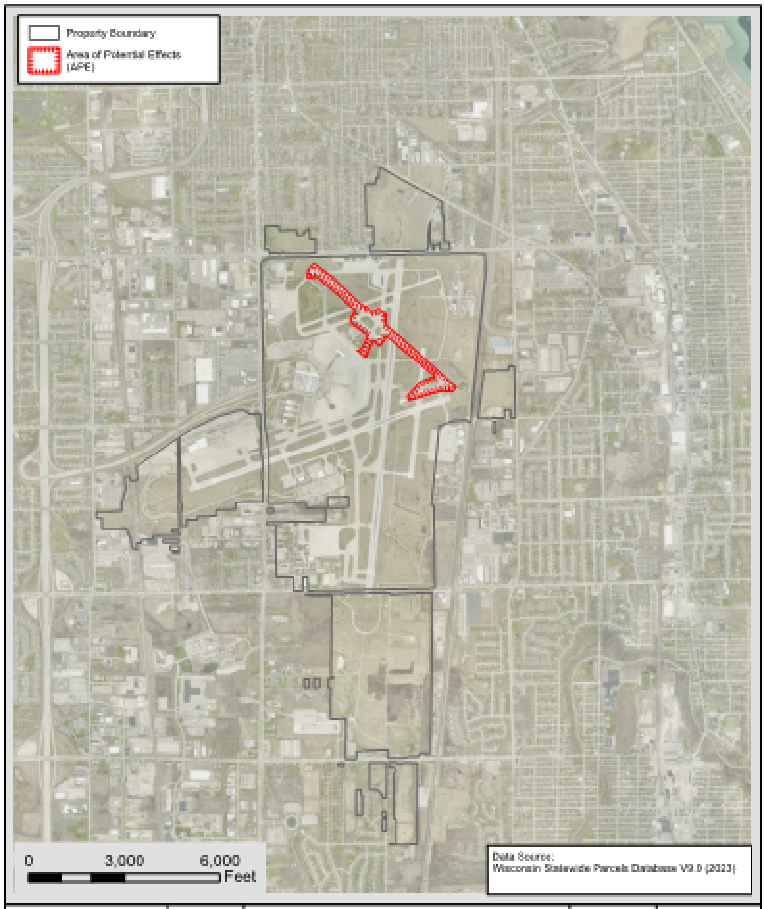

Westwood

MKE RUNWAY 13-31 REMOVAL
AIRPORT PROPERTY MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 3,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 2

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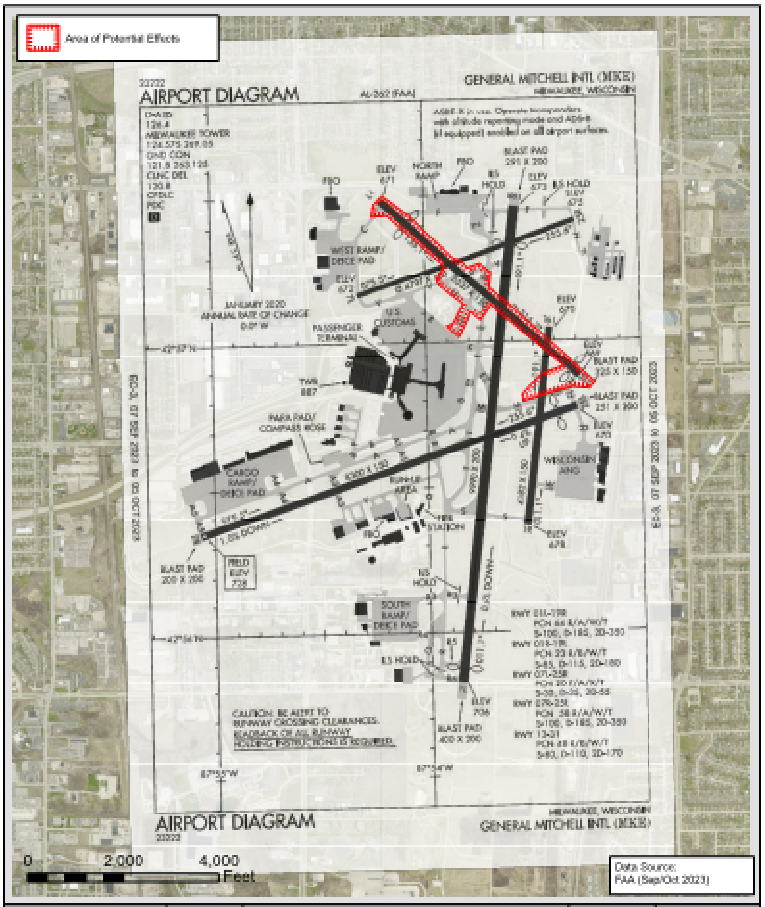

Westwood

MKE RUNWAY 13-31 REMOVAL
AIRPORT DIAGRAM MAP

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 2,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 3

M:\3001844.01\GIS\Env\Assessment\Maps.aprx [Airport Diagram Map]
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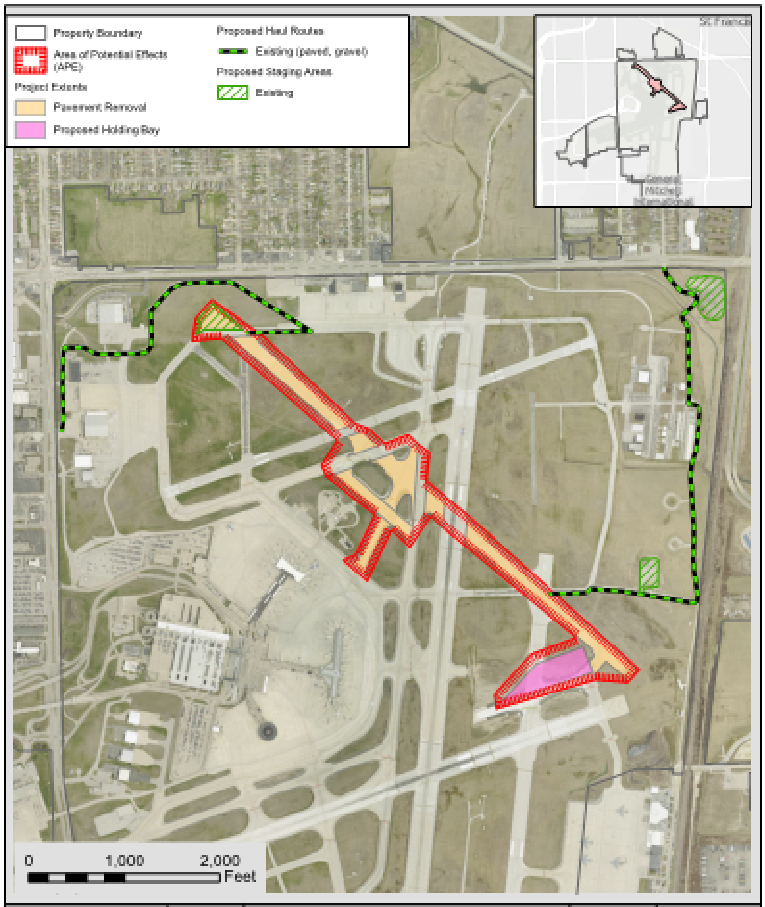

Westwood

MKE RUNWAY 13-31 REMOVAL
AREA OF POTENTIAL EFFECTS

GENERAL MITCHELL INTERNATIONAL AIRPORT
CITY OF MILWAUKEE, MILWAUKEE COUNTY, WISCONSIN

Project Manager:
Project Engineer:
Drawn By: JCW
Checked By:
Date: 9/12/2023

SCALE: 1 in = 1,000 ft
PROJECT NO. R3001844.01
FIGURE NO. 4

M:\3001844.01\GIS\Env\Assessment\Maps.aprx [Area of Potential Effects Map]
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State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
1027 W St Paul Ave
Milwaukee WI, WI, 53233

Tony Evers, Governor
Adam N. Payne, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

09/28/2023 WIC-SE-2023-41-03089

Justin Weiss
General Mitchell International Airport
[sent electronically]

RE: Wetland Delineation Confirmation for "MKE Runways 1R-19L & 13-31" located in NW 1/4, SE 1/4, Section 28, Township 06N, Range 22E, in the City of Milwaukee, Milwaukee County

Dear Justin Weiss

We have reviewed the wetland delineation report from Quest Civil Engineers, LLC prepared for the above-mentioned site. This letter will serve as confirmation that the wetland boundaries shown on the enclosed wetland delineation figure are acceptable. This finding is based upon a detailed report review and interview with the delineator. Any filling or grading within these areas may require DNR approvals. Our wetland confirmation is valid for five years. Be sure to send a copy of the report, as well as any approved revisions, to the U.S. Army Corps of Engineers.

In order to comply with Chapter 23.321, State Statutes, please supply the department with a polygon shapefile of the wetland boundaries delineated within the project area. Please do not include data such as parcel boundaries, project limits, wetland graphic representation symbols, etc. If internal upland polygons are found within a wetland polygon, then please label as UPLAND. The shapefile should utilize a State Plane Projection and be overlain onto recent aerial photography. If a different projection system is used, please indicate in which system the data are projected. In the correspondence sent with the shapefile, please supply a brief description of each wetland's plant community (eg: wet meadow, floodplain forest, etc.). Please send these data to Calvin Lawrence (608-266-0756 or email at calvin.lawrence@wisconsin.gov).

If you are planning development on the property, you are required to avoid take of endangered and threatened species, or obtain an incidental take authorization, to comply with the state's Endangered Species Law. To ensure compliance with the law, you should submit an endangered resources review form (Form 1700-047), available at https://dnr.wi.gov/topic/ERReview/Review.html. The Endangered Resources Program will provide a review response letter identifying any endangered and threatened species and any conditions that must be followed to address potential incidental take.

In addition to contacting WDNR, be sure to contact your local zoning office and U.S. Army Corps of Engineers to determine if any local or federal permits may be required for your project.

If you have any questions, please call me at (414) 308-6780 or you can reach me by email at kara.brooks@wisconsin.gov.

Sincerely,

Kara Brooks
Wetland Identification Specialist

Enclosures: Project Location Figure
Wetland Delineation Figure

Email CC: USACE Project Manager
Brian Krostedt, Quest

Wetland Map		City of Milwaukee Milwaukee County, WI	Figure A
MKE Airport Runways 1R-19L & 13-31	By: BWK Date: 9/12/2023	QUEST Civil Engineers, LLC	320 W Grand Ave.,Suite 302 Wisconsin Rapids, WI 54495 715-423-3525

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Taxiway N looking southwest.
Date: 9/12/23 **Photo #** 1

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Runway 13-31 looking southeast towards runway end.
Date: 9/12/23 **Photo #** 2

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing on Runway 13-31 looking northwest.
Date: 9/12/23 **Photo #** 3

Site Location: General Mitchell International Airport – Decommission Runway 13-31
Description: Standing Runway 13-31 looking southeast towards Runway 1R-19L.
Date: 9/12/23 **Photo #** 4

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 7

Description: Standing on at intersection of Taxiway U and Taxiway G looking southwest towards passenger terminal.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 8

Description: Standing on Runway 13-31 near Runway 7L-25R looking northeast at PAPIs.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 5

Description: Standing on Runway 13-31 near Taxiway G looking northeast.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 6

Description: Standing on Taxiway U looking northeast at Taxiway G.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 11

Description: Standing on Runway 13-31 near Taxiway F looking southeast.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 12

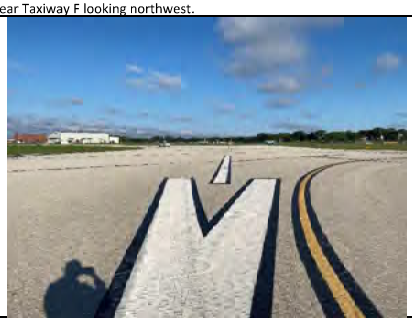
Description: Proposed Staging Area northeast of proposed project, looking east.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 9

Description: Standing on Runway 13-31 looking northwest towards Taxiway F.

Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** 9/12/23 **Photo #** 10

Description: Standing on Runway 13-31 near Taxiway F looking northwest.



Site Location: General Mitchell International Airport – Decommission Runway 13-31 **Date:** N/A **Photo #** 13

Description: Site Aerial Overview

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APPENDIX 3 – EJSCREEN COMMUNITY REPORT

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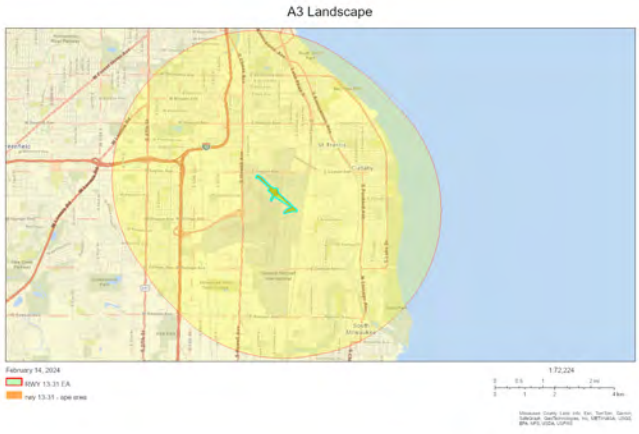
EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Milwaukee, WI

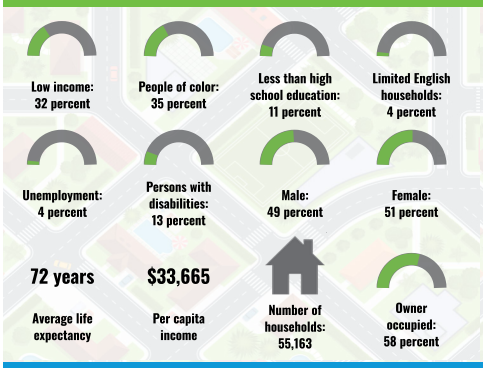
3 miles Ring around the Area
Population: 126,808
Area in square miles: 35.91



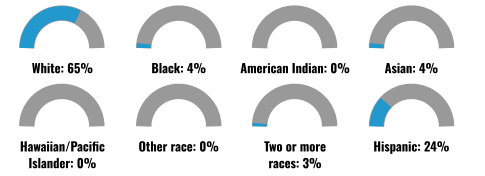
LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	76%
Spanish	17%
Russian, Polish, or Other Slavic	1%
Other Indo-European	2%
Other Asian and Pacific Island	2%
Arabic	2%
Total Non-English	24%

COMMUNITY INFORMATION



BREAKDOWN BY RACE



BREAKDOWN BY AGE

LIMITED ENGLISH SPEAKING BREAKDOWN

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

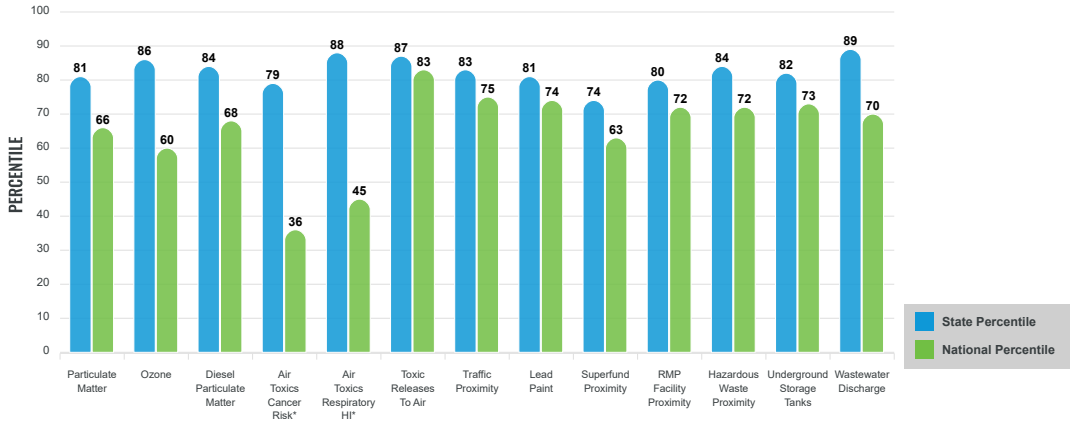
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

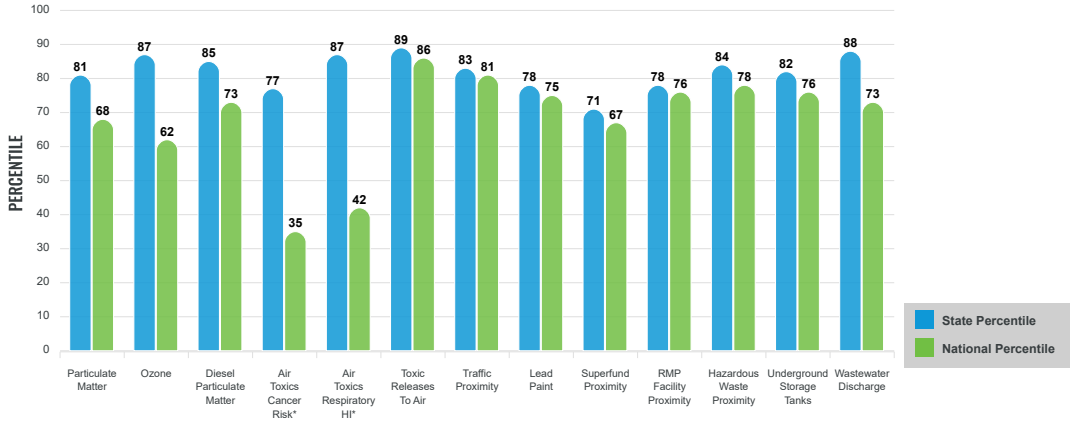
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 3 miles Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (µg/m^3)	8.52	7.98	62	8.08	59
Ozone (ppb)	61.2	58.6	88	61.6	51
Diesel Particulate Matter (µg/m^3)	0.279	0.179	83	0.261	64
Air Toxics Cancer Risk* (lifetime risk per million)	20	19	12	25	5
Air Toxics Respiratory HI*	0.24	0.21	7	0.31	4
Toxic Releases to Air	140,000	8,100	99	4,600	99
Traffic Proximity (daily traffic count/distance to road)	800	320	87	210	94
Lead Paint (% Pre-1960 Housing)	0.59	0.4	73	0.3	79
Superfund Proximity (site count/km distance)	0.072	0.12	53	0.13	55
RMP Facility Proximity (facility count/km distance)	0.76	0.59	73	0.43	84
Hazardous Waste Proximity (facility count/km distance)	2.6	1.4	81	1.9	78
Underground Storage Tanks (count/km^2)	6.9	3.3	85	3.9	83
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.022	0.028	87	22	73
SOCIOECONOMIC INDICATORS					
Demographic Index	34%	24%	79	35%	56
Supplemental Demographic Index	15%	12%	75	14%	59
People of Color	35%	21%	82	39%	54
Low Income	32%	28%	67	31%	58
Unemployment Rate	4%	4%	63	6%	48
Limited English Speaking Households	4%	1%	89	5%	72
Less Than High School Education	11%	8%	78	12%	62
Under Age 5	6%	5%	64	6%	63
Over Age 64	15%	18%	44	17%	49
Low Life Expectancy	19%	19%	56	20%	47

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	7
Water Dischargers	62
Air Pollution	15
Brownfields	7
Toxic Release Inventory	52

Other community features within defined area:

Schools	36
Hospitals	4
Places of Worship	49

Other environmental data:

Air Non-attainment	Yes
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	Yes
Selected location contains an EPA IRA disadvantaged community	Yes

Report for 3 miles Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	19%	19%	56	20%	47
Heart Disease	5.7	5.8	46	6.1	44
Asthma	9.5	9.9	38	10	40
Cancer	6.3	6.6	35	6.1	52
Persons with Disabilities	12.2%	12.1%	54	13.4%	47

CLIMATE INDICATORS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	6%	9%	42	12%	45
Wildfire Risk	0%	0%	0	14%	0

CRITICAL SERVICE GAPS

INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	15%	14%	59	14%	62
Lack of Health Insurance	7%	6%	75	9%	53
Housing Burden	Yes	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Report for 3 miles Ring around the Area

APPENDIX 4 – NOISE ANALYSIS

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Milwaukee Mitchell International Airport Runway 13-31 Decommissioning Environmental Assessment

DRAFT Noise Technical Report

HMMH Report No. 23-0069B.002

April 2024

Prepared for:

Kaitlyn Wehner
Westwood
1 Systems Drive
Appleton, WI 54914

Prepared by:

Vincent Ma
Trent Tougas
Scott Polzin

HMMH
700 District Avenue, Suite 800
Burlington, MA 01803
T 781.229.0707

Executive Summary

In support of an Environmental Assessment (EA) for Milwaukee County, this Noise Technical Report provides an assessment of the potential noise impacts associated with the proposed decommissioning of Runway 13-31 at Milwaukee Mitchell International Airport (MKE). Harris Miller Miller & Hanson Inc. (HMMH) evaluated potential impacts from noise due to the Proposed Action under the National Environmental Policy Act (NEPA) in accordance with Federal Aviation Administration (FAA) Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*.

HMMH assessed noise changes for two specific periods: calendar year (CY) 2029, which corresponds to the year immediately following the completion of the proposed project, and CY 2034, representing a five-year interval beyond the implementation year. For each future period, a No Action and Proposed Action alternative was prepared.

An EA for the Decomissioning of Runway 1R-19L was prepared separately from this EA and this EA assumes that Runway 1R-19L will be decommissioned or no longer operational, therefore it is not included in the future analysis. Aircraft operations are not forecasted to increase as a result of the Proposed Action. The future operations on Runway 13-31 will shift to the remaining runways in the future under the Proposed Action scenarios. Future operations on Runway 13-31 will utilize Runway 1L-19R and Runway 7L-25R in the Proposed Action.

The Proposed Action will not result in a significant noise impact as a result of the decommissioning of Runway 13-31. The Proposed Action will cause a slight decrease in acreage of the DNL 65 dB contours in both 2029 and 2034 forecast years respectively and will not impact any additional noncompatible land use.

There are projected to be no additional housing units or noise sensitive sites within the Proposed Action DNL 65 dB contours for 2029 or 2034. Therefore, no mitigation is proposed or required for Proposed Action.

Contents

Figures

Tables

Appendix

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1 Introduction

An Environmental Assessment (EA) is being prepared by Westwood for Milwaukee County to evaluate the potential environmental consequences of the Proposed Action at Milwaukee Mitchell International Airport (MKE) in Milwaukee County, Wisconsin. The EA is needed to assess the potential environmental impacts of the proposed decommissioning of Runway 13-31. Federal Aviation Administration (FAA) approval of the proposed project is considered a Federal Action, subject to the National Environmental Policy Act (NEPA). This EA does not include consideration of noise from non-airport related sources, such as commercial activity, highway traffic, or noise from local roadways.

This Noise Technical Report was prepared in support of the EA by Harris Miller Miller & Hanson Inc. (HMMH). HMMH modeled five scenarios:

- Existing Conditions (2023)
- Forecast year 2029 No-Action
- Forecast year 2029 Proposed Action
- Forecast year 2034 No-Action
- Forecast year 2034 Proposed Action

For a NEPA noise analysis of aircraft operations, the FAA requires the use of the Day-Night Average Sound Level (DNL) metric. The 24-hour analysis period must represent the average annual day (AAD), meaning average daily aircraft operations over a 365-day period.

Section 2 of this report presents the regulatory setting, **Section 3** presents the modeling methodology, **Section 4** presents the existing (2023) conditions, and **Section 5** presents the future (2029 and 2034) alternative scenarios. An explanation of the acoustical terminology is provided in **Appendix A**.

2 Regulatory Setting

2.1 FAA Order 1050.1F, Environmental Impacts: Policies and Procedures

FAA Order 1050.1F serves as the FAA's policy and procedures for compliance with NEPA and implementing regulations issued by the Council on Environmental Quality (CEQ). The provisions of this Order and the CEQ Regulations apply to actions directly undertaken by the FAA and to actions undertaken by a non-federal entity where the FAA has authority to condition a permit, license, or other approval. The requirements in this Order apply to, but are not limited to, the following actions: grants, loans, contracts, leases, construction and installation actions, procedural actions, research activities, rulemaking and regulatory actions, certifications, licensing, permits, plans submitted to the FAA by state and local agencies for approval, and legislation proposed by the FAA. Order 1050.1F and the 1050.1F 2023 Desk Reference provide the specific requirements for this EA.

2.2 FAA Order 5050.4B, National Environmental Policy Act Implementing Instructions for Airport Actions

FAA's Office of Airports (ARP) is responsible for identifying major federal actions involving the Nation's public-use airports. After determining that an airport sponsor is proposing a major Federal Action such as this EA, ARP is responsible for analyzing the environmental effects of that action and its alternatives. FAA Order 5050.4B, "National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions," provides instruction on evaluating those environmental effects. Order 5050.4B supplements FAA Order 1050.1F, "Environmental Impacts: Policies and Procedures."

These laws and guidance documents specify the use of DNL as the noise metric used in all FAA aviation noise studies in airport communities. DNL, a cumulative sound level, provides a measure of total sound energy. DNL is a logarithmic average of the sound levels of multiple events at one location over a 24-hour period. A 10 dB penalty is added to all sounds occurring during nighttime hours (between 10:00 p.m. and 6:59 a.m.). The 10 dB increase for nighttime events accounts for the added disturbance of noise during typical sleeping hours as ambient sound levels during nighttime hours are typically about 10 dB lower than during daytime hours.

The noise analysis compares the No Action Alternative and Proposed Action Alternative for the future year using the FAA's thresholds of significance. **Table 1** defines the significance threshold for changes in noise in accordance with FAA Order 1050.1F. When an action (compared to the No Action Alternative for the same timeframe) would cause noise-sensitive areas to have a DNL greater than or equal to 65 dB and experience a change in noise of at least 1.5 dB, the impact is considered significant. For example, an increase from No Action DNL 65.5 dB to Proposed Action DNL 67 dB is considered a significant impact, as is an increase from No Action DNL 63.5 dB to Proposed Action DNL 65 dB. **Table 1** also lists FAA-defined reportable changes of noise levels.

Table 1. Aircraft DNL Thresholds and Impact Categories

Source: FAA Order 1050.1F and the 1050.1F 2023 Desk Reference

	DNL 65 dB or Greater	Greater than or equal to DNL 60 dB but less than DNL 65 dB	Greater than or equal to DNL 45 dB but less than DNL 60 dB
Minimum **Change in** DNL **When Compared to the Higher of the** Proposed Action Alternative **or** No Action Alternative DNL over noise sensitive land use	1.5 dB	3.0 dB	5.0 dB
Level **Of** Change	Significant	Reportable	Reportable

In addition to defining significant impacts, FAA Order 1050.1F includes additional reporting requirements, including:

- The location and number of noise-sensitive sites at or above DNL 65 dB.
- The disclosure of potentially newly noncompatible land use regardless of whether there is a significant noise impact.
- Maps depicting the number of residences or people residing at or above DNL 65 dB, 70 dB, and 75 dB exposure levels.

FAA Order 1050.1F states, "Special consideration needs to be given to the evaluation of the significance of noise impacts on noise-sensitive areas within Section 4(f) properties (including, but not limited to, noise-sensitive areas within national parks; national wildlife and waterfowl refuges; and historic sites, including traditional cultural properties) where the land use compatibility guidelines in 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question."1 For example, the DNL 65 dB threshold does not adequately address the impacts of noise on visitors to areas within a national park or national wildlife and waterfowl refuge where other noise is very low and a quiet setting is a generally recognized purpose and attribute. There are no areas of natural quiet near the proposed project; therefore, special consideration for these areas does not apply.

2.2.1 Land Use Compatibility Guidelines

The objective of airport noise compatibility planning is to promote compatible land use in communities surrounding airports. NEPA requires the review of land uses surrounding an airport to determine land use compatibility associated with aircraft activity at the airport. This includes delineation of land uses within the DNL 65 dB and higher aircraft noise exposure contours on the noise contour exhibits and identification of noise-sensitive uses that may be noncompatible with that level of noise exposure. Identification of a noise-sensitive use within the DNL 65 dB contour does not necessarily mean that the use is either considered noncompatible or that it is eligible for mitigation. Rather, identification merely indicates that the use is generally considered noncompatible but requires further investigation. Factors that influence compatibility and/or eligibility may include but are not limited to previous sound reduction treatments, current interior noise levels, structure condition, ambient and self-generated

[1] FAA Order 1050.1F, Section 4-3, Exhibit 4-1, https://www.faa.gov/documentlibrary/media/order/faa_order_1050_1f.pdf.

noise levels, whether a given use is considered temporary or permanent, and the timeframe within which a given structure was constructed.

The FAA has published land use compatibility designations, as set forth in Part 150, Appendix A, Table 1 (reproduced here as **Table 2**). As the table indicates, the FAA generally considers all land uses to be compatible with aircraft related DNL below 65 dB, including residential, hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries. These categories are referenced throughout the EA. Institutional or public land use consists of schools, hospitals, nursing homes, churches, auditoriums, concert halls, governmental services, transportation, and parking. While all these uses are compatible with aircraft related DNL below 65 dB, schools are not compatible above DNL 65 dB without mitigation and are listed separately in the EA.

Table 2. Part 150 Land Use Compatibility with Yearly Day-Night Average Sound Levels

Source: FAA Part 150, Appendix A, Table 1, 2007

Land Use	Yearly Day-Night Average Sound Level [DNL] in Decibels (Key and notes on following page)					
	Below 65	65 – 70	70 – 75	75 – 80	80 – 85	Over 85
Residential Uses						
Residential other than mobile homes and transient lodgings	Y	N[(a)]	N[(a)]	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N[(a)]	N[(a)]	N[(a)]	N	N
Public Uses						
Schools	Y	N[(a)]	N[(a)]	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y[(b)]	Y[(c)]	Y[(d)]	Y[(d)]
Parking	Y	Y	Y[(b)]	Y[(c)]	Y[(d)]	N
Commercial Uses						
Retail trade–general	Y	Y	25	30	N	N
Utilities	Y	Y	Y[(b)]	Y[(c)]	Y[(d)]	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y[(b)]	Y[(c)]	Y[(d)]	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y[(f)]	Y[(g)]	Y[(h)]	Y[(h)]	Y[(h)]
Livestock farming and breeding	Y	Y[(f)]	Y[(g)]	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y

Land Use	Yearly Day-Night Average Sound Level [DNL] in Decibels (Key and notes on following page)					
	Below 65	65 – 70	70 – 75	75 – 80	80 – 85	Over 85
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(e)	Y(e)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key:

SLUCM = Standard Land Use Coding Manual

Y(Yes): Land use and related structures compatible without restrictions.

N(No): Land use and related structures are not compatible and should be prohibited.

NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25 dBA, 30 dBA, or 35 dBA must be incorporated into design and construction of structure.

Notes:

The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses.

(a) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dBA and 30 dBA should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dBA, thus, the reduction requirements are often stated as 5 dBA, 10 dBA, or 15 dBA over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(b) Measures to achieve NLR of 25 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

(c) Measures to achieve NLR of 30 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas or where the normal noise level is low.

(d) Measures to achieve NLR of 35 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.

(e) Land use compatible provided special sound reinforcement systems are installed.

(f) Residential buildings require an NLR of 25 dBA

(g) Residential buildings require an NLR of 30 dBA

(h) Residential buildings not permitted

3 Noise Modeling Methodology

The following sections present the modeling methodology and data inputs for the noise analysis for the Existing Condition, Future No Action, and Future Proposed Action alternatives.

3.1 Aviation Environmental Design Tool

For an action occurring on or in the vicinity of a single airport, or as part of an air traffic action, the FAA directs the use of the latest version of the Aviation Environmental Design Tool (AEDT) for detailed noise modeling or another model, as approved by FAA. The model must be used to produce DNL 65 dB, DNL 70 dB, and DNL 75 dB contours, and other contours as needed. The aircraft noise analysis for this EA uses AEDT Version 3e (released May 9, 2022).[2] All AEDT modeling conducted for this study adheres to "Guidance on Using the Aviation Environmental Design Tool (AEDT) to Conduct Environmental Modeling for FAA Actions Subject to NEPA."[3]

AEDT is a combined noise and emission model that uses a database of aircraft noise and performance characteristics. The AEDT predicts ground based DNL values from user input for aircraft types, AAD aircraft operations, airport operating conditions, aircraft performance, and flight patterns. AEDT also calculates air pollutant emissions from aircraft engines for air quality analyses, enables noise and air quality calculations on a regional basis (as opposed to in the immediate airport environment only), and includes updated databases for newer aircraft models.

The noise pattern calculated by the AEDT for an airport is a function of several factors, including the number of aircraft operations during the period evaluated, the types of aircraft flown, the time of day when they are flown, the way they are flown, how frequently each runway is used for landing and takeoff, and the routes of flight used to and from the runways. Substantial variations in any one of these factors may, when extended over a long period of time, cause marked changes to the noise pattern. The primary data input categories for the AEDT are listed in **Table 3**.

[2] FAA released AEDT Version 3f in December 2023, however FAA policy allows for the version of AEDT already in use to be used to complete the project.
[3] FAA, "Guidance on Using the Aviation Environmental Design Tool (AEDT) to Conduct Environmental Modeling for FAA Actions Subject to NEPA," 2017, https://aedt.faa.gov/Documents/guidance_aedt_nepa.pdf.

Table 3. Data Sources of Noise Model Inputs

AEDT Input Category	Data Source(s) – all inputs remain consistent for alternatives except aircraft operations
Physical description of the airfield layout	FAA 5010 Airport Data and Information Portal
Aircraft noise and performance characteristics	Standard AEDT database
Aircraft flight operations	MKE NOMS system data from November 2022 through October 2023, FAA OPSNET
Runway utilization rates	MKE NOMS system data from November 2022 through October 2023
Flight track geometry and utilization rates	MKE NOMS system data from November 2022 through October 2023
Meteorological conditions	AEDT database - National Climatic Data Center data
Terrain data	United States Geological Survey National Elevation Dataset - geoTIFF

NOMS = Noise and Operafions Monitoring System

3.1.1 Noise Exposure Contours

Noise contours (i.e., lines of equal noise exposure, usually expressed in terms of DNL) are used to illustrate average daily noise exposure around an airport. Noise contours are conceptually similar to topographic contour maps. A set of concentric contours, representing successively lower DNL, usually extends away from the airport's runways. DNL contours are typically presented in 5 dB increments on a base map, with each successive contour representing a 5 dB decrease in noise exposure on an AAD basis. Contours developed for the EA include DNL 65 dB, DNL 70 dB, and DNL 75 dB. Notably, a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not the other. For further information on noise and its effects on people, please refer to **Appendix A**.

3.1.2 Grid Point Noise Calculations

Besides noise contours, the AEDT provides another way to show noise levels in the airport environs. DNL (or other metrics supported by the AEDT) can be calculated for specific locations, defined as grid points, and can be presented in a number of formats. Grid point analyses can show the change in noise levels over specific locations and are helpful in determining where significant or reportable noise changes may occur. For the EA, noise levels are developed for one area-wide grid set. The noise study area (NSA) grid points are defined to cover the complete NSA area. The NSA grid consists of a rectangle with points spaced 0.02 nautical miles (nmi; 122 feet) apart, extending approximately 5 nmi to the east and west and 5 nmi to the north and south from the Airport Reference Point (which is near the geographic center of MKE's runways).

3.2 Study Area

To adequately capture the effects of aircraft noise, the NSA must include not only the immediate airport environs, where aircraft flight paths are aligned with the runways, but also other potentially affected areas over which aircraft would fly as they follow any modified flight corridors that join the surrounding airspace. The NSA was developed to encompass an area that would contain at least the lateral extent of

the estimated DNL 65 dB contour resulting from aircraft flight and ground operations contemplated under the Proposed Action, with an adequate buffer to accommodate potential changes in the contour between the No Action and Proposed Action alternatives.

MKE is located in Milwaukee County, Wisconsin approximately 5 miles south of the city center of Milwaukee. **Figure 1** displays nearby land uses to the airport within the NSA. The NSA is approximately 2 nmi to the east, 2.8 nmi to the west, 2.3 nmi to the north, and 2.4 nmi to the south. Existing land use in the nearby area consist primarily of airport property, agricultural use, some residential uses, manufacturing and production, and industrial land uses, as shown on **Figure 1**. All noise-sensitive sites such as schools, nursing homes, hospitals and places of worship have been identified and are shown on **Figure 1**. Any potential noncompatible land use and the noise-sensitive sites within the study area are evaluated in the EA.

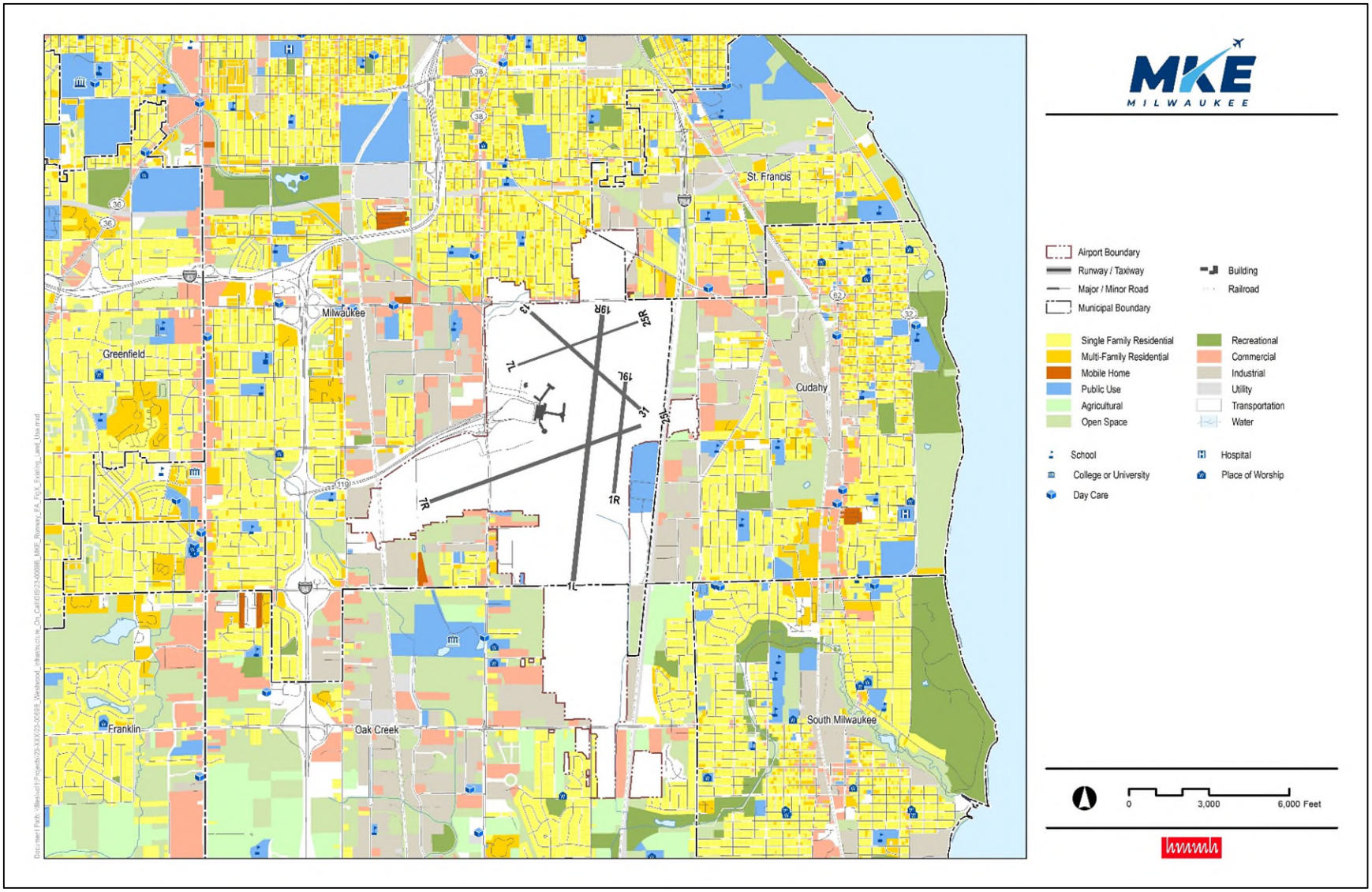


Figure 1. Existing Land Use

3.2.1 Airfield Layout

Airfield layout includes the coordinates of each runway centerline endpoint, runway widths, approach threshold crossing heights, and runway end elevations. As shown in **Figure 2**, the existing condition airfield layout of MKE is comprised of five runways: two sets of parallel runways, Runway 1L-19R and Runway 1R-19L and Runway 7L-25R and Runway 7R-25L, and one crosswind runway, Runway 13-31. For purposes of modeling, the helipad (H1) is located on the West Ramp.

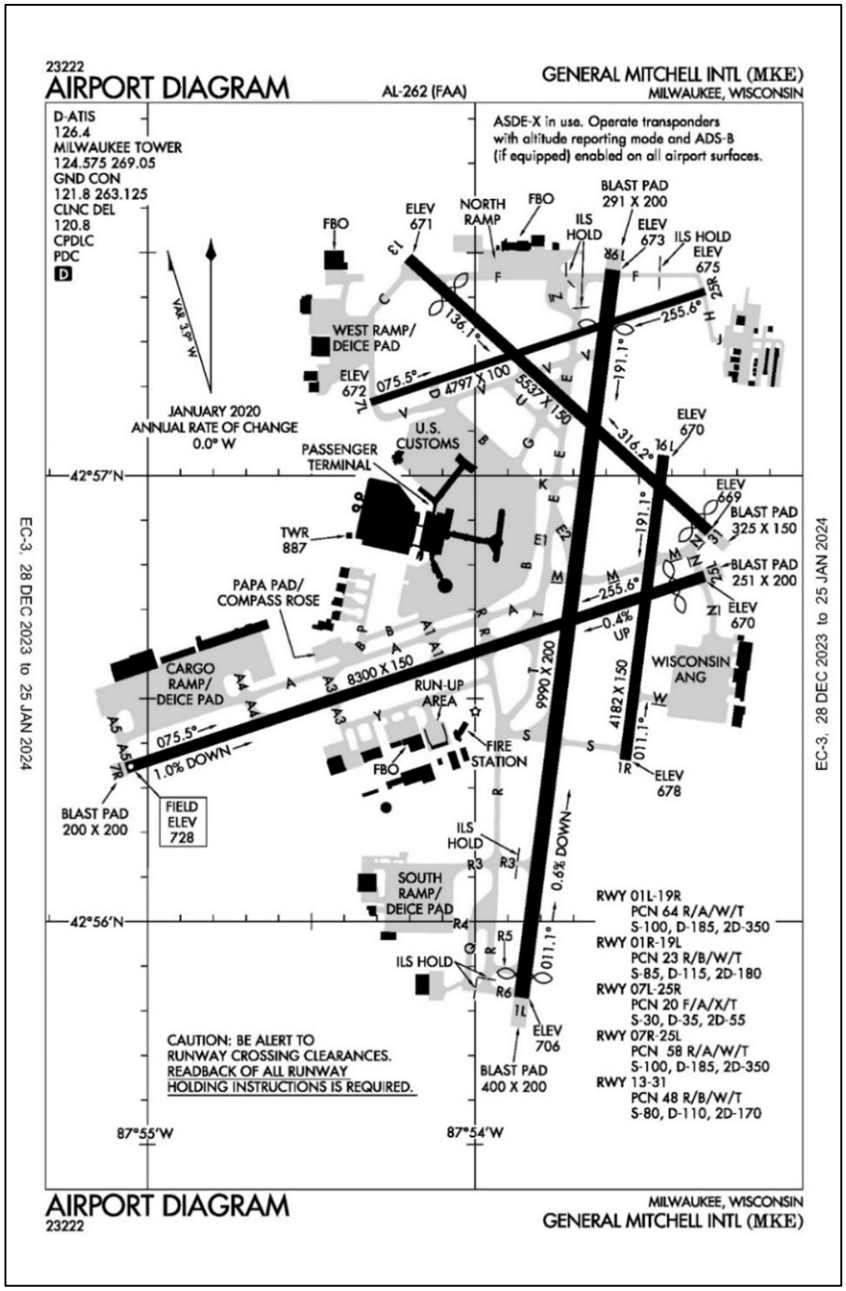


Figure 2. MKE Existing Airport Layout

Source: FAA

Runway width, instrumentation, and declared distances do not directly affect noise calculations. However, these parameters may affect which aircraft might use a particular runway and under what conditions and therefore how often a runway would be used relative to the other runways at the Airport. **Table 4** provides the detailed parameters for each runway end.

Table 4. Existing and Future Runway Information

Sources: FAA National Airspace System Resources (NASR) and MKE

Runway	Latitude (degrees)	Longitude (degrees)	Elevation (feet, MSL)	Displaced Landing Threshold (feet)	Glide Slope (degrees)	Magnetic Orientation (degrees)	True Heading (degrees)
1L	42.930499	-87.897643	705.8	300	3	11	7
1R	42.939379	-87.892362	677.7	0	-	11	7
7L	42.952747	-87.905308	671.5	0	3	76	72
7R	42.939074	-87.917753	728.4	0	3	76	72
13	42.958133	-87.903415	671.4	738	3	136	132
19L	42.950762	-87.890413	669.6	0	-	191	187
19R	42.957694	-87.892993	672.7	785	3	191	187
25L	42.946243	-87.888333	669.9	433	3	256	252
25R	42.956890	-87.888304	674.6	0	3	256	252
31	42.947919	-87.888107	668.6	205	3	316	312
H1	42.957390	-87.906362	729.0	-	-	-	-

Notes: NASR data retrieved from https://adip.faa.gov/agis/public/#/simpleAirportMap/MKE on January 2, 2024.
MSL = mean sea level

3.3 Meteorological Data

AEDT uses meteorological data to adjust aircraft performance and sound propagation based on average weather conditions at the airport. The meteorological parameters include temperature, barometric pressure, relative humidity, and wind speed. AEDT 3e database includes 10-year average weather (2012 to 2021) from National Oceanic and Atmospheric Administration Integrated Surface Data. These data for MKE are:

- Temperature: 48.8° F
- Station Pressure: 990.69 mbar
- Sea Level Pressure: 1016.66 mbar
- Dew point: 39.05° F
- Relative humidity: 68.93%
- Wind speed: 8.38 knots

3.4 Terrain Data

AEDT uses terrain data to adjust the aircraft-to-ground path length, which is the distance between the modeled location on the ground and the aircraft in flight, making the ground closer to or farther from the aircraft relative to flat-earth conditions. AEDT does not use terrain data to account for shielding or reflective effects of terrain.

3.5 Flight Tracks

The AEDT pre-processor automates the process of preparing AEDT inputs directly from recorded flight operations and models the full range of aircraft activity as precisely as possible. The pre-processor directly converts the flight track recorded by the MKE Noise and Operations Monitoring System (NOMS) for every identified aircraft operation to an AEDT track, rather than assigning all operations to a limited number of prototypical tracks. All arrival and departure operations were modeled as flown from November 2022 – October 2023, including deviations due to weather, safety, or other reasons from the typical flight patterns. The flight tracks used in the modeling of 2023 operations are depicted in **Figure 3** and **Figure 4**. Each flight track is represented by a single continuous line. When lines overlap and become layered, the color shifts from cool (blue) to warm (red) indicates a greater degree of flight track concentration.

In the future No Action, it is assumed that Runway 1R-19L will be decommissioned or no longer operational. The runway utilization for this scenario will be based on the Proposed Action runway utilization developed in the Runway 1R-19L Decommissioning EA.

In the future Proposed Action scenarios, the operations previously conducted on Runway 13-31 will be redirected to use established "donor" tracks from Runway 1L-19R and Runway 7L-25R. These "donor" tracks will be specifically chosen based on their high utilization in the existing scenario, meaning they were heavily used in the past. This approach ensures that the most frequently utilized tracks are utilized for aircraft operations when transitioning from Runway 13-31 to Runway 1L-19R and Runway 7L-25R in the proposed action.

Figure 3. Existing Modeled Arrival Tracks

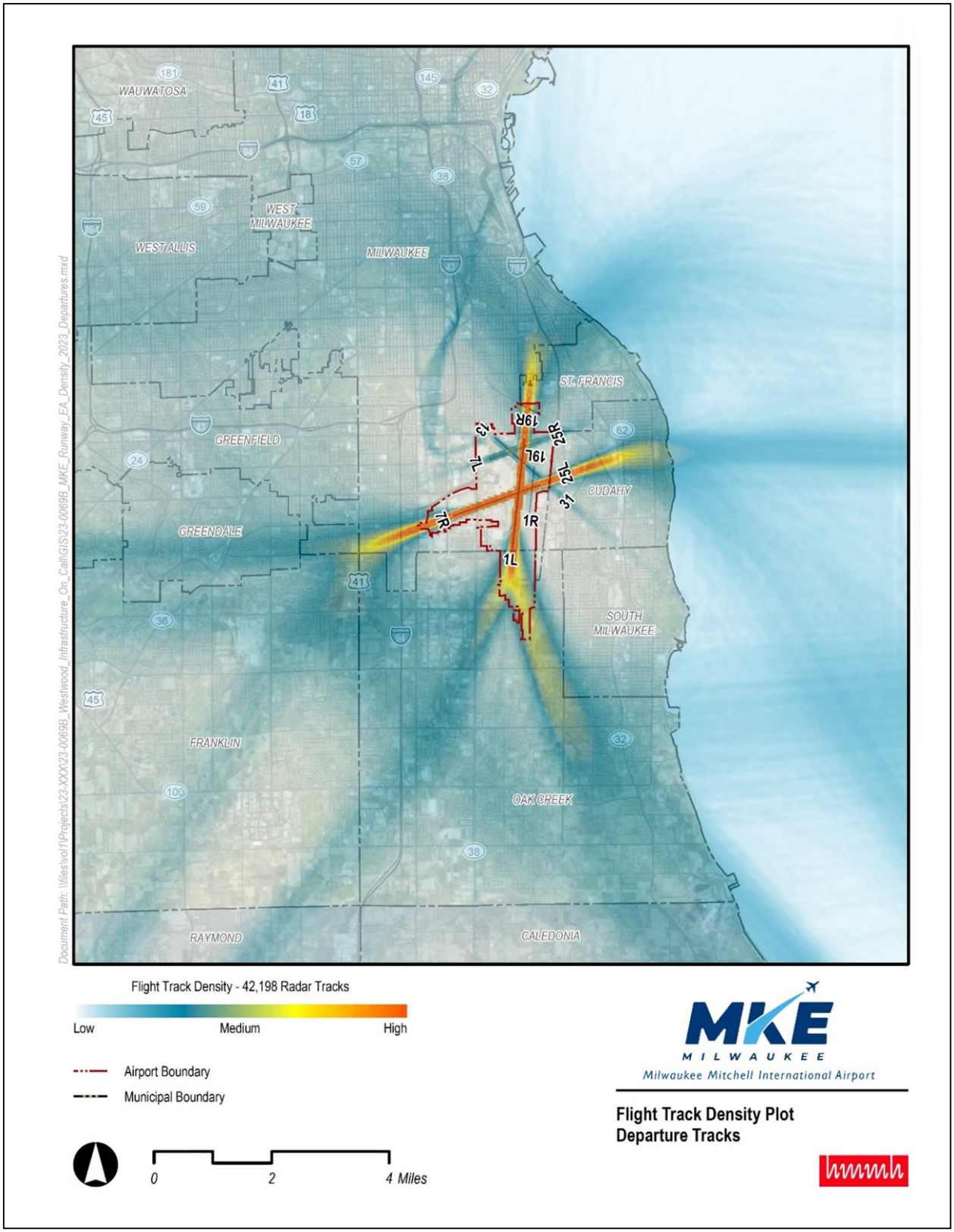


Figure 4. Existing Modeled Departure Tracks

3.6 Aircraft Stage Length and Operational Profiles

Within the AEDT database, aircraft departure profiles are defined by a range of trip distances identified as "stage lengths." Stage length is assigned according to each departure's trip distance to its destination, using city-pair information provided in the operations forecast. The assigned stage length then determines the appropriate flight performance profile from the AEDT database. Higher stage lengths (longer trip distances) are associated with heavier aircraft due to the increase in fuel requirements for the flight. For example, a departure aircraft with a trip distance less than 500 nmi would be assigned a stage length value of one, where a departure aircraft with a trip distance of 3,000 nmi would be assigned a stage length value of five. **Table 5** provides the stage length classifications by their associated trip distances. The stage lengths flown from MKE are based on the city pair information provided by the radar data operations.

Table 5. AEDT Stage Length Categories

Source: AEDT 3e User Guide, May 2022

Category	Stage Length (nmi)
1	0-500
2	500-1000
3	1000-1500
4	1500-2500
5	2500-3500
6	3500-4500
7	4500-5500
8	5500-6500
9	6500+

Note: Stage Length is defined as the distance an aircraft travels from takeoff to landing.

AEDT includes standard flight procedure data for each aircraft that represents each phase of flight to or from the airport. Information related to aircraft speed, altitude, thrust settings, flap settings, and distance is available and used by AEDT to calculate noise levels on the ground. Standard aircraft departure profiles are supplied from the runway (field elevation) up to 10,000 feet above field elevation. Aircraft arrival profiles are supplied from 6,000 feet above field elevation down to the runway including the application of reverse thrust and rollout. The FAA requires that these standard arrival and departure profiles be used unless there is evidence that they are not applicable. The noise calculations presented in this document used the standard AEDT departure profiles.

4 Existing Condition

This section provides the description of current noise conditions within the study area from aircraft noise. Typically, a recent calendar year (CY) data set is utilized to develop the existing condition information, and for this EA, CY 2023 was used.

4.1 Aircraft Activity Levels and Fleet Mix

HMMH obtained data from MKE's NOMS database for November 2022 through October 2023. The air carrier, air taxi, general aviation, and military operations data were then scaled to the FAA-reported tower counts for CY 2023. **Table 6** shows the FAA-reported tower counts for CY 2023 and AAD operations count by aircraft category.

Table 6. 2023 Existing Conditions Operations

Source: FAA OPSNET

Modeling Scenario	Air Carrier	Air Taxi	General Aviation	Military	Total
Existing Annual Operations	55,223	23,771	15,767	1,994	96,755
AAD	151.3	65.1	43.2	5.5	265.1

HMMH utilized the 2022/2023 NOMS fleet mix for the Forecast No Action and Proposed Action conditions. The AEDT database contains noise and performance data for more than 300 different aircraft types. AEDT accesses the noise and performance data for takeoff, landing, and pattern operations by those aircraft. The database provides single-event noise levels for slant distances from 200 feet to 25,000 feet for several thrust or power settings for each aircraft type. Performance data includes thrust, speed, and altitude profiles for takeoffs and landings. All aircraft types evaluated for the MKE modeling are either in the AEDT database or have approved substitutions within the model.

Table 7 provides the annual operations, by aircraft type, that were used in AEDT for the existing conditions. The average daily number of aircraft arrivals and departures for the CY2023 Noise Contour are calculated by determining the total annual operations and dividing by 365 (days in a year). For the purposes of EA, daytime is defined as 7:00 a.m. to 9:59 p.m., while nighttime is defined as 10:00 p.m. to 6:59 a.m. Departures and arrivals were the two types of flight operations modeled for the EA.

Maintenance run-ups occur at the ground run-up enclosure located south of Runway 7R-25L. These run-ups occur in the ground run-up enclosure, which typically reduces engine run-up noise by more than 50 percent through its aerodynamic design and the use of sound reducing panels. As such, run-up activity will likely not have any influence on the 65 DNL contour. Because of this, run-ups were not modeled for this EA.

Table 7. Existing Condition (2023) Modeled Annual Aircraft Operations by AEDT Aircraft Type

Source: MKE NOMS, FAA OPSNET, and HMMH, 2024

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
Air Carrier	717200	1,234.0	11.2	1,245.2	1,108.0	137.2	1,245.2	**2,490.4**
	737300	1.0	-	1.0	1.0	-	1.0	**2.0**
	737400	53.1	53.1	106.2	20.4	85.8	106.2	**212.5**
	737700	4,255.2	1,008.7	5,263.9	4,314.9	949.0	5,263.9	**10,527.7**
	737800	3,113.3	1,160.7	4,274.0	3,062.5	1,211.5	4,274.0	**8,548.0**
	757300	6.1	2.0	8.2	5.1	3.1	8.2	**16.3**
	767300	1.0	1.0	2.0	1.0	1.0	2.0	**4.1**
	727EM2	1.0	-	1.0	-	1.0	1.0	**2.0**
	7378MAX	1,217.0	543.1	1,760.1	1,223.8	536.3	1,760.1	**3,520.1**
	757PW	199.2	102.2	301.3	196.8	104.5	301.3	**602.7**
	757RR	7.2	104.2	111.3	5.2	106.2	111.3	**222.7**
	7673ER	299.0	56.5	355.5	279.9	75.6	355.5	**711.0**
	767CF6	4.1	2.0	6.1	1.0	5.1	6.1	**12.3**
	767JT9	3.1	2.0	5.1	1.0	4.1	5.1	**10.2**
	7773ER	1.0	-	1.0	-	1.0	1.0	**2.0**
	A300-622R	275.6	213.7	489.3	323.8	165.5	489.3	**978.6**
	A319-131	1,452.4	159.6	1,611.9	1,528.2	83.8	1,611.9	**3,223.9**
	A320-211	913.8	125.1	1,038.9	854.0	184.9	1,038.9	**2,077.8**
	A320-232	536.2	143.1	679.3	624.1	55.2	679.3	**1,358.6**
	A320-271N	566.9	272.7	839.7	580.6	259.1	839.7	**1,679.4**
	A321-232	1,360.4	818.5	2,178.9	1,705.9	473.0	2,178.9	**4,357.8**
	A330-343	2.0	-	2.0	1.0	1.0	2.0	**4.1**
	ATR72-212A	1.0	-	1.0	-	1.0	1.0	**2.0**
	CRJ9-ER	2,622.9	86.1	2,709.1	2,333.1	375.9	2,709.1	**5,418.1**
	DC93LW	1.0	-	1.0	1.0	-	1.0	**2.0**
	EMB170	239.0	10.3	249.2	242.1	7.2	249.2	**498.5**
	EMB175	3,526.1	475.2	4,001.3	3,623.3	378.0	4,001.3	**8,002.5**
	EMB190	89.9	1.0	90.9	88.9	2.0	90.9	**181.8**
	HS748A	3.1	-	3.1	3.1	-	3.1	**6.1**
	MD11GE	4.4	79.4	83.8	77.6	6.1	83.8	**167.5**
	MD11PW	7.2	177.7	184.9	177.5	7.4	184.9	**369.8**
	MD83	3.1	2.0	5.1	5.1	-	5.1	**10.2**
Subtotal		**22,000.2**	**5,611.3**	**27,611.5**	**22,390.0**	**5,221.5**	**27,611.5**	**55,223.0**
Air Taxi	1900D	256.7	-	256.7	253.3	3.4	256.7	**513.4**
	BD-700-1A10	17.6	-	17.6	16.5	1.2	17.6	**35.3**
	BD-700-1A11	15.4	-	15.4	13.2	2.2	15.4	**30.8**
	BEC58P	75.9	45.3	121.2	45.2	76.0	121.2	**242.4**
	CL600	2,658.5	268.8	2,927.3	2,559.7	367.6	2,927.3	**5,854.6**

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
	CL601	58.4	1.1	59.5	57.3	2.2	59.5	**119.0**
	CNA208	2,315.3	30.3	2,345.6	1,489.5	856.0	2,345.6	**4,691.2**
	CNA510	1.1	-	1.1	1.1	-	1.1	**2.2**
	CNA525C	323.9	26.4	350.4	282.0	68.3	350.4	**700.7**
	CNA55B	256.6	7.8	264.4	245.7	18.7	264.4	**528.8**
	CNA560E	2.2	-	2.2	2.2	-	2.2	**4.4**
	CNA560U	35.3	-	35.3	35.3	-	35.3	**70.5**
	CNA560XL	210.4	12.1	222.6	217.0	5.5	222.6	**445.1**
	CNA680	565.2	27.5	592.7	560.6	32.1	592.7	**1,185.5**
	CNA750	185.1	3.3	188.4	181.8	6.6	188.4	**376.8**
	COMSEP	1.1	-	1.1	1.1	-	1.1	**2.2**
	DHC6	1,755.1	267.7	2,022.8	879.2	1,143.6	2,022.8	**4,045.6**
	DHC830	2.2	-	2.2	2.2	-	2.2	**4.4**
	ECLIPSE500	5.5	-	5.5	5.5	-	5.5	**11.0**
	EMB120	279.1	206.8	485.9	334.9	150.9	485.9	**971.7**
	EMB145	13.2	-	13.2	13.2	-	13.2	**26.4**
	EMB14L	365.8	-	365.8	365.8	-	365.8	**731.6**
	FAL20	2.2	-	2.2	2.2	-	2.2	**4.4**
	FAL900EX	39.6	1.1	40.8	39.7	1.1	40.8	**81.5**
	G650ER	30.8	-	30.8	25.3	5.5	30.8	**61.7**
	GASEPF	3.3	-	3.3	3.3	-	3.3	**6.6**
	GASEPV	2.2	-	2.2	2.2	-	2.2	**4.4**
	GIV	115.7	7.7	123.4	97.8	25.6	123.4	**246.8**
	GV	39.4	3.6	43.0	40.8	2.2	43.0	**85.9**
	HS748A	152.0	126.7	278.7	236.7	42.0	278.7	**557.5**
	IA1125	18.7	3.3	22.0	19.8	2.2	22.0	**44.1**
	LEAR35	514.2	38.9	553.1	515.6	37.5	553.1	**1,106.1**
	MU3001	46.3	1.1	47.4	46.3	1.1	47.4	**94.7**
	PA30	11.0	-	11.0	11.0	-	11.0	**22.0**
	SD330	403.5	25.1	428.6	415.4	13.2	428.6	**857.1**
	SF340	1.1	1.1	2.2	2.2	-	2.2	**4.4**
Subtotal		**10,779.7**	**1,105.8**	**11,885.5**	**9,020.6**	**2,864.9**	**11,885.5**	**23,771.0**
General Aviation	737700	11.3	-	11.3	11.3	-	11.3	**22.7**
	1900D	4.9	-	4.9	4.9	-	4.9	**9.7**
	757PW	-	1.6	1.6	-	1.6	1.6	**3.2**
	A319-131	1.6	-	1.6	1.6	-	1.6	**3.2**
	B206L	-	8.1	8.1	3.2	4.9	8.1	**16.2**
	B222	1.6	-	1.6	-	1.6	1.6	**3.2**
	BD-700-1A10	157.1	4.9	162.0	157.1	4.9	162.0	**324.0**
	BD-700-1A11	4.9	-	4.9	3.2	1.6	4.9	**9.7**
	BEC58P	119.8	3.3	123.1	118.2	4.9	123.1	**246.2**

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
	CIT3	81.5	9.3	90.7	81.0	9.7	90.7	**181.4**
	CL600	184.7	9.7	194.4	181.4	13.0	194.4	**388.7**
	CL601	252.7	27.5	280.2	255.1	25.2	280.2	**560.4**
	CNA172	494.3	30.6	524.8	474.6	50.2	524.8	**1,049.6**
	CNA182	61.4	1.8	63.2	61.6	1.6	63.2	**126.3**
	CNA206	6.5	-	6.5	6.5	-	6.5	**13.0**
	CNA208	221.9	63.2	285.1	199.9	85.2	285.1	**570.2**
	CNA20T	3.2	-	3.2	3.2	-	3.2	**6.5**
	CNA441	48.6	3.2	51.8	48.6	3.2	51.8	**103.7**
	CNA500	14.6	-	14.6	14.6	-	14.6	**29.2**
	CNA510	106.9	-	106.9	105.2	1.7	106.9	**213.8**
	CNA525C	649.5	45.4	694.9	660.4	34.5	694.9	**1,389.8**
	CNA55B	330.4	42.1	372.6	325.4	47.2	372.6	**745.1**
	CNA560E	3.2	1.6	4.9	4.9	-	4.9	**9.7**
	CNA560U	93.9	6.5	100.4	97.0	3.4	100.4	**200.9**
	CNA560XL	200.8	11.4	212.2	200.9	11.3	212.2	**424.4**
	CNA680	189.3	6.7	196.0	191.1	4.9	196.0	**392.0**
	CNA750	630.1	29.2	659.3	620.4	38.9	659.3	**1,318.5**
	COMSEP	223.3	8.3	231.6	213.8	17.8	231.6	**463.3**
	CRJ9-ER	6.5	-	6.5	6.5	-	6.5	**13.0**
	DHC6	304.0	19.9	324.0	302.9	21.1	324.0	**647.9**
	EC130	10.4	13.9	24.3	8.1	16.2	24.3	**48.6**
	ECLIPSE500	38.9	1.6	40.5	38.8	1.7	40.5	**81.0**
	EMB145	55.1	4.9	59.9	53.3	6.7	59.9	**119.9**
	EMB14L	4.9	-	4.9	4.9	-	4.9	**9.7**
	FAL900EX	168.5	22.7	191.1	154.6	36.6	191.1	**382.3**
	G650ER	34.0	-	34.0	30.6	3.4	34.0	**68.0**
	GASEPF	656.4	36.9	693.3	664.1	29.2	693.3	**1,386.5**
	GASEPV	400.1	9.7	409.8	390.3	19.5	409.8	**819.6**
	GIV	181.4	4.9	186.3	163.6	22.7	186.3	**372.6**
	GV	422.8	16.2	439.0	383.9	55.1	439.0	**877.9**
	HS748A	1.6	-	1.6	1.6	-	1.6	**3.2**
	IA1125	25.9	-	25.9	25.9	-	25.9	**51.8**
	LEAR35	343.4	32.4	375.8	348.3	27.5	375.8	**751.6**
	MD81	1.6	-	1.6	1.6	-	1.6	**3.2**
	MU3001	186.3	19.4	205.7	197.5	8.2	205.7	**411.4**
	PA30	19.4	-	19.4	17.7	1.8	19.4	**38.9**
	R44	427.6	-	427.6	427.6	-	427.6	**855.2**
Subtotal		**7,386.6**	**496.9**	**7,883.5**	**7,266.8**	**616.7**	**7,883.5**	**15,767.0**

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
Military	737700	45.3	-	45.3	45.3	-	45.3	**90.6**
	CNA208	90.6	-	90.6	90.6	-	90.6	**181.3**
	DHC6	90.6	-	90.6	90.6	-	90.6	**181.3**
	KC135R	770.4	-	770.4	770.4	-	770.4	**1,540.8**
Subtotal		**997.0**	**-**	**997.0**	**997.0**	**-**	**997.0**	**1,994.0**
Grand Total		**41,163.5**	**7,214.0**	**48,377.5**	**39,674.5**	**8,703.0**	**48,377.5**	**96,755.0**

Note: Totals may not add up due to rounding.

4.2 Runway Utilization

Weather, particularly wind direction and wind speed, is the primary factor affecting runway use at airports. Additional factors that may affect runway use include the position of a facility (such as a passenger terminal) relative to the runways and temporary runway closures, generally for airfield maintenance and construction. HMMH derived the Existing Condition runway usage by aircraft category from the analysis of 2022/2023 radar flight track data. **Table 8** presents the runway usage rates modeled for each runway for day and night periods in the Existing Conditions and Future No Action cases.

Table 8. Existing Conditions Runway Use

Source: MKE NOMS

Runway	Arrival		Departure	
	Day	Night	Day	Night
1L	19.4%	29.3%	19.3%	24.4%
1R	0.1%	0.0%	0.3%	0.0%
7L	1.3%	0.1%	1.1%	0.2%
7R	26.0%	17.1%	23.3%	16.7%
13	0.2%	0.1%	0.8%	0.2%
19L	0.1%	0.0%	0.3%	0.1%
19R	16.4%	28.6%	29.0%	30.9%
25L	35.0%	24.6%	24.2%	27.1%
25R	1.0%	0.1%	0.6%	0.2%
31	0.2%	0.1%	0.1%	0.1%
H1	0.4%	0.0%	0.8%	0.1%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note: Totals may not add up due to rounding.

4.3 Existing Noise Exposure Contours

Figure 5 displays the DNL 65 dB – 75 dB noise contours for the 2023 Existing Conditions over a map of the existing land use in the study area. The DNL 65 dB noise contour remains primarily on airport property and does not include any residential land use. There is no residential land use within the DNL 65 dB or higher contours.

Table 9 provides the population exposure, housing unit count, and contour areas for the 2023 DNL noise contours. The DNL 65 dB noise contour covers approximately 1,092.84 acres and contains no residents and no housing units. In addition, no individual noise-sensitive locations, such as schools or places of worship are within the 2023 DNL 65 dB noise contour.

Table 9. 2023 Existing Conditions Noise Contours Population, Housing, and Area

Source: HMMH, 2024; U.S. Census Bureau, 2020

DNL (dB) Noise Contour	Population Census	Housing Units	Area (acres)
65 - 70	0	0	636.70
70 - 75	0	0	250.85
> 75	0	0	205.29
Total	**0**	**0**	**1,092.84**

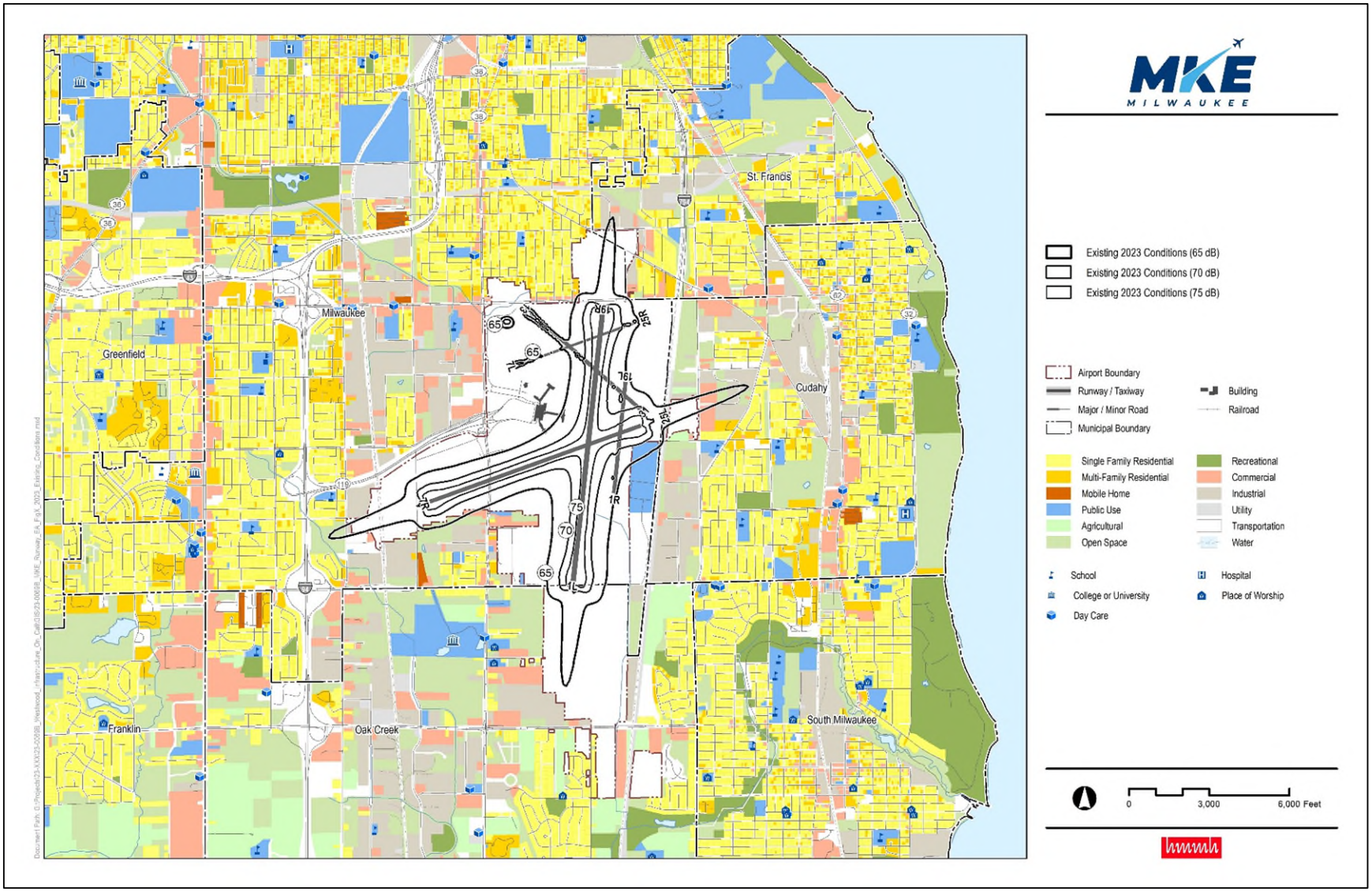


Figure 5. Existing 2023 Conditions

5 Future Alternatives

The following sections discuss the development of the future 2029 and 2034 aircraft operational forecast, runway use, flight tracks, and flight track usage for the future 2029/2034 No Action and Proposed Action alternatives. **Section 5.3.3** and **Section 5.3.6** discuss the comparison between the two alternatives for 2029 and 2034.

5.1 Forecast Activity Levels and Fleet Mix

Flight operation totals for both future condition model years (2029 and 2034) were scaled from the 2023 FAA approved TAF (published January 2024), as listed in **Table 10**. It is assumed that the Proposed Action would not induce or cause changes to the number of flight operations or day/night split. The future fleet mix includes new generation aircraft replacing those aircraft that are assumed to be no longer operating at the airport due to airlines retiring older, less efficient aircraft. These new aircraft were obtained from the MKE masterplan update published in September 2022. **Table 11** displays the fleet mix breakdown for 2029 Proposed Action and No Action operations. **Table 12** displays the fleet mix breakdown for 2034 Proposed Action and No Action operations.

Table 10. 2029 and 2034 Future Condition Annual Operations

Source: FAA OPSNET, FAA TAF, MKE NOMS, and HMMH, 2024

Scenario	Air Carrier	Air Taxi	General Aviation	Military	Total Operations
Existing Condition	55,223	23,771	15,767	1,994	96,755
2029 No Action	73,439	19,635	14,719	2,027	109,820
2029 Proposed Action	73,439	19,635	14,719	2,027	109,820
2034 No Action	79,552	20,761	14,719	2,027	117,059
2034 Proposed Action	79,552	20,761	14,719	2,027	117,059

Table 11. Future (2029) Proposed Action and No Action Annual Operations

Source: MKE NOMS, FAA TAF, and HMMH, 2024

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
Air Carrier	BCS100	1,641.0	14.9	1,656.0	1,473.5	182.5	1,656.0	**3,312.0**
	737300	1.4	-	1.4	1.4	-	1.4	**2.7**
	737400	70.6	70.6	141.3	27.2	114.1	141.3	**282.6**
	737700	5,658.8	1,341.4	7,000.2	5,738.2	1,262.0	7,000.2	**14,000.4**
	737800	4,140.3	1,543.6	5,683.8	4,072.7	1,611.1	5,683.8	**11,367.7**
	757300	8.2	2.7	10.9	6.8	4.1	10.9	**21.7**
	767300	1.4	1.4	2.7	1.4	1.4	2.7	**5.4**
	727EM2	1.4	-	1.4	-	1.4	1.4	**2.7**

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
	7378MAX	1,622.60	724.90	2,347.40	1,634.20	713.20	2,347.40	**4,694.90**
	757PW	264.9	135.8	400.7	261.7	139.0	400.7	**801.5**
	757RR	9.5	138.6	148.1	6.9	141.2	148.1	**296.1**
	7673ER	397.6	75.1	472.7	372.2	100.5	472.7	**945.5**
	767CF6	5.4	2.7	8.2	1.4	6.8	8.2	**16.3**
	767JT9	4.1	2.7	6.8	1.4	5.4	6.8	**13.6**
	7773ER	1.4	-	1.4	-	1.4	1.4	**2.7**
	A300-622R	366.5	284.2	650.7	430.6	220.1	650.7	**1,301.4**
	A319-131	1,931.5	212.2	2,143.7	2,032.3	111.4	2,143.7	**4,287.3**
	A320-211	1,215.2	166.4	1,381.6	1,135.7	245.9	1,381.6	**2,763.1**
	A320-232	713.1	190.3	903.4	830.0	73.4	903.4	**1,806.8**
	A320-271N	754.0	362.7	1,116.7	772.1	344.5	1,116.7	**2,233.3**
	A321-232	1,809.1	1,088.5	2,897.6	2,268.6	629.0	2,897.6	**5,795.2**
	A330-343	2.7	-	2.7	1.4	1.4	2.7	**5.4**
	ATR72-212A	1.4	-	1.4	-	1.4	1.4	**2.7**
	CRJ9-ER	3,488.1	114.5	3,602.7	3,102.8	499.9	3,602.7	**7,205.3**
	DC93LW	1.4	-	1.4	1.4	-	1.4	**2.7**
	EMB170	317.8	13.6	331.5	322.0	9.5	331.5	**662.9**
	EMB175	4,689.2	632.0	5,321.1	4,818.5	502.6	5,321.1	**10,642.3**
	EMB190	119.5	1.4	120.9	118.2	2.7	120.9	**241.8**
	HS748A	4.1	-	4.1	4.1	-	4.1	**8.2**
	MD11GE	5.8	105.6	111.4	103.2	8.2	111.4	**222.8**
	MD11PW	9.5	236.4	245.9	236.0	9.8	245.9	**491.8**
Subtotal		**29,257.3**	**7,462.2**	**36,719.5**	**29,775.7**	**6,943.8**	**36,719.5**	**73,439.0**
Air Taxi	1900D	212.0	-	212.0	209.2	2.8	212.0	**424.1**
	BD-700-1A10	14.6	-	14.6	13.6	1.0	14.6	**29.1**
	BD-700-1A11	12.7	-	12.7	10.9	1.8	12.7	**25.5**
	BEC58P	62.7	37.4	100.1	37.3	62.8	100.1	**200.2**
	CL600	2,195.9	222.0	2,418.0	2,114.4	303.6	2,418.0	**4,835.9**
	CL601	48.2	0.9	49.1	47.3	1.8	49.1	**98.3**
	CNA208	1,912.5	25.0	1,937.5	1,230.4	707.1	1,937.5	**3,874.9**
	CNA510	0.9	-	0.9	0.9	-	0.9	**1.8**
	CNA525C	267.6	21.8	289.4	233.0	56.4	289.4	**578.8**
	CNA55B	212.0	6.5	218.4	202.9	15.5	218.4	**436.8**
	CNA560E	1.8	-	1.8	1.8	-	1.8	**3.6**
	CNA560U	29.1	-	29.1	29.1	-	29.1	**58.2**
	CNA560XL	173.8	10.0	183.8	179.3	4.6	183.8	**367.7**
	CNA680	466.8	22.8	489.6	463.1	26.5	489.6	**979.2**
	CNA750	152.9	2.7	155.6	150.2	5.5	155.6	**311.2**
	COMSEP	0.9	-	0.9	0.9	-	0.9	**1.8**

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
	DHC6	1,449.7	221.1	1,670.8	726.2	944.6	1,670.8	**3,341.7**
	DHC830	1.8	-	1.8	1.8	-	1.8	**3.6**
	ECLIPSE500	4.6	-	4.6	4.6	-	4.6	**9.1**
	EMB120	230.5	170.8	401.3	276.7	124.7	401.3	**802.7**
	EMB145	10.9	-	10.9	10.9	-	10.9	**21.8**
	EMB14L	302.1	-	302.1	302.1	-	302.1	**604.3**
	FAL20	1.8	-	1.8	1.8	-	1.8	**3.6**
	FAL900EX	32.7	0.9	33.7	32.8	0.9	33.7	**67.3**
	G650ER	25.5	-	25.5	20.9	4.6	25.5	**51.0**
	GASEPF	2.7	-	2.7	2.7	-	2.7	**5.5**
	GASEPV	1.8	-	1.8	1.8	-	1.8	**3.6**
	GIV	95.6	6.4	101.9	80.8	21.1	101.9	**203.8**
	GV	32.5	3.0	35.5	33.7	1.8	35.5	**71.0**
	HS748A	125.6	104.7	230.2	195.5	34.7	230.2	**460.5**
	IA1125	15.5	2.7	18.2	16.4	1.8	18.2	**36.4**
	LEAR35	424.7	32.1	456.8	425.9	30.9	456.8	**913.7**
	MU3001	38.2	0.9	39.1	38.2	0.9	39.1	**78.3**
	PA30	9.1	-	9.1	9.1	-	9.1	**18.2**
	SD330	333.3	20.7	354.0	343.1	10.9	354.0	**708.0**
	SF340	0.9	0.9	1.8	1.8	-	1.8	**3.6**
Subtotal		**8,904.1**	**913.4**	**9,817.5**	**7,451.1**	**2,366.4**	**9,817.5**	**19,635.0**
General Aviation	737700	10.6	-	10.6	10.6	-	10.6	**21.2**
	1900D	4.5	-	4.5	4.5	-	4.5	**9.1**
	757PW	-	1.5	1.5	-	1.5	1.5	**3.0**
	A319-131	1.5	-	1.5	1.5	-	1.5	**3.0**
	B206L	-	7.6	7.6	3.0	4.5	7.6	**15.1**
	B222	1.5	-	1.5	-	1.5	1.5	**3.0**
	BD-700-1A10	146.6	4.6	151.2	146.7	4.5	151.2	**302.4**
	BD-700-1A11	4.5	-	4.5	3.0	1.5	4.5	**9.1**
	BEC58P	111.8	3.1	114.9	110.4	4.5	114.9	**229.8**
	CIT3	76.0	8.6	84.7	75.6	9.1	84.7	**169.4**
	CL600	172.4	9.1	181.5	169.4	12.1	181.5	**362.9**
	CL601	235.9	25.7	261.6	238.1	23.5	261.6	**523.2**
	CNA172	461.4	28.5	489.9	443.1	46.9	489.9	**979.9**
	CNA182	57.3	1.7	59.0	57.5	1.5	59.0	**117.9**
	CNA206	6.0	-	6.0	6.0	-	6.0	**12.1**
	CNA208	207.2	59.0	266.1	186.6	79.5	266.1	**532.3**
	CNA20T	3.0	-	3.0	3.0	-	3.0	**6.0**
	CNA441	45.4	3.0	48.4	45.4	3.0	48.4	**96.8**
	CNA500	13.6	-	13.6	13.6	-	13.6	**27.2**
	CNA510	99.8	-	99.8	98.2	1.6	99.8	**199.6**

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
	CNA525C	606.4	42.3	648.7	616.5	32.2	648.7	**1,297.4**
	CNA55B	308.5	39.3	347.8	303.7	44.0	347.8	**695.6**
	CNA560E	3.0	1.5	4.5	4.5	-	4.5	**9.1**
	CNA560U	87.7	6.0	93.8	90.6	3.2	93.8	**187.5**
	CNA560XL	187.4	10.7	198.1	187.5	10.6	198.1	**396.2**
	CNA680	176.7	6.3	183.0	178.4	4.5	183.0	**365.9**
	CNA750	588.2	27.2	615.4	579.1	36.3	615.4	**1,230.9**
	COMSEP	208.5	7.8	216.2	199.6	16.6	216.2	**432.5**
	CRJ9-ER	6.0	-	6.0	6.0	-	6.0	**12.1**
	DHC6	283.8	18.6	302.4	282.8	19.7	302.4	**604.8**
	EC130	9.7	13.0	22.7	7.6	15.1	22.7	**45.4**
	ECLIPSE500	36.3	1.5	37.8	36.2	1.6	37.8	**75.6**
	EMB145	51.4	4.5	55.9	49.7	6.2	55.9	**111.9**
	EMB14L	4.5	-	4.5	4.5	-	4.5	**9.1**
	FAL900EX	157.3	21.2	178.4	144.3	34.1	178.4	**356.9**
	G650ER	31.8	-	31.8	28.6	3.2	31.8	**63.5**
	GASEPF	612.7	34.5	647.2	620.0	27.2	647.2	**1,294.4**
	GASEPV	373.5	9.1	382.6	364.3	18.2	382.6	**765.1**
	GIV	169.4	4.5	173.9	152.7	21.2	173.9	**347.8**
	GV	394.7	15.1	409.8	358.4	51.4	409.8	**819.6**
	HS748A	1.5	-	1.5	1.5	-	1.5	**3.0**
	IA1125	24.2	-	24.2	24.2	-	24.2	**48.4**
	LEAR35	320.6	30.2	350.8	325.2	25.6	350.8	**701.6**
	MD81	1.5	-	1.5	1.5	-	1.5	**3.0**
	MU3001	173.9	18.1	192.0	184.4	7.7	192.0	**384.1**
	PA30	18.1	-	18.1	16.5	1.6	18.1	**36.3**
	R44	399.2	-	399.2	399.2	-	399.2	**798.4**
Subtotal		**6,895.6**	**463.9**	**7,359.5**	**6,783.8**	**575.7**	**7,359.5**	**14,719.0**
Military	737700	46.1	-	46.1	46.1	-	46.1	**92.1**
	CNA208	92.1	-	92.1	92.1	-	92.1	**184.3**
	DHC6	92.1	-	92.1	92.1	-	92.1	**184.3**
	KC135R	783.2	-	783.2	783.2	-	783.2	**1,566.3**
Subtotal		**1,013.5**	**-**	**1,013.5**	**1,013.5**	**-**	**1,013.5**	**2,027.0**
Grand Total		**46,070.4**	**8,839.6**	**54,910.0**	**45,024.1**	**9,885.9**	**54,910.0**	**109,820.0**

Note: Totals may not add up due to rounding.

Table 12. Future (2034) Proposed Action and No Action Annual Operations

Source: MKE NOMS, FAA TAF, and HMMH, 2024

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
Air Carrier	BCS100	1,777.6	16.2	1,793.8	1,596.1	197.7	1,793.8	**3,587.6**
	737300	1.5	-	1.5	1.5	-	1.5	**2.9**
	737400	76.5	76.5	153.0	29.4	123.6	153.0	**306.1**
	737700	6,129.8	1,453.1	7,582.9	6,215.8	1,367.1	7,582.9	**15,165.8**
	737800	4,484.9	1,672.1	6,157.0	4,411.7	1,745.3	6,157.0	**12,313.9**
	757300	8.8	2.9	11.8	7.4	4.4	11.8	**23.5**
	767300	1.5	1.5	2.9	1.5	1.5	2.9	**5.9**
	727EM2	1.5	-	1.5	-	1.5	1.5	**2.9**
	7378MAX	1,757.60	785.20	2,542.90	1,770.30	772.60	2,542.90	**5,085.70**
	757PW	287.0	147.2	434.1	283.5	150.6	434.1	**868.2**
	757RR	10.3	150.1	160.4	7.4	153.0	160.4	**320.8**
	7673ER	430.7	81.4	512.1	403.2	108.9	512.1	**1,024.2**
	767CF6	5.9	2.9	8.8	1.5	7.4	8.8	**17.7**
	767JT9	4.4	2.9	7.4	1.5	5.9	7.4	**14.7**
	7773ER	1.5	-	1.5	-	1.5	1.5	**2.9**
	A300-622R	397.0	307.8	704.9	466.5	238.4	704.9	**1,409.7**
	A319-131	2,092.3	229.9	2,322.1	2,201.4	120.7	2,322.1	**4,644.2**
	A320-211	1,316.3	180.2	1,496.6	1,230.2	266.4	1,496.6	**2,993.1**
	A320-232	772.5	206.1	978.6	899.1	79.5	978.6	**1,957.2**
	A320-271N	816.7	392.9	1,209.6	836.4	373.2	1,209.6	**2,419.2**
	A321-232	1,959.7	1,179.1	3,138.8	2,457.5	681.3	3,138.8	**6,277.6**
	A330-343	2.9	-	2.9	1.5	1.5	2.9	**5.9**
	ATR72-212A	1.5	-	1.5	-	1.5	1.5	**2.9**
	CRJ9-ER	3,778.5	124.1	3,902.6	3,361.0	541.5	3,902.6	**7,805.1**
	DC93LW	1.5	-	1.5	1.5	-	1.5	**2.9**
	EMB170	344.3	14.8	359.1	348.8	10.3	359.1	**718.1**
	EMB175	5,079.5	684.6	5,764.1	5,219.6	544.5	5,764.1	**11,528.1**
	EMB190	129.5	1.5	131.0	128.0	2.9	131.0	**261.9**
	HS748A	4.4	-	4.4	4.4	-	4.4	**8.8**
	MD11GE	6.3	114.4	120.7	111.8	8.8	120.7	**241.3**
	MD11PW	10.3	256.0	266.4	255.7	10.7	266.4	**532.7**
Subtotal		**31,692.6**	**8,083.4**	**39,776.0**	**32,254.2**	**7,521.8**	**39,776.0**	**79,552.0**
Air Taxi	1900D	224.2	-	224.2	221.2	3.0	224.2	**448.4**
	BD-700-1A10	15.4	-	15.4	14.4	1.0	15.4	**30.8**
	BD-700-1A11	13.5	-	13.5	11.5	1.9	13.5	**26.9**
	BEC58P	66.3	39.6	105.8	39.5	66.4	105.8	**211.7**
	CL600	2,321.9	234.8	2,556.6	2,235.6	321.0	2,556.6	**5,113.3**
	CL601	51.0	1.0	52.0	50.0	1.9	52.0	**103.9**

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
	CNA208	2,022.1	26.4	2,048.6	1,300.9	747.7	2,048.6	**4,097.2**
	CNA510	1.0	-	1.0	1.0	-	1.0	**1.9**
	CNA525C	282.9	23.1	306.0	246.3	59.7	306.0	**612.0**
	CNA55B	224.1	6.8	230.9	214.6	16.4	230.9	**461.9**
	CNA560E	1.9	-	1.9	1.9	-	1.9	**3.8**
	CNA560U	30.8	-	30.8	30.8	-	30.8	**61.6**
	CNA560XL	183.8	10.6	194.4	189.5	4.8	194.4	**388.7**
	CNA680	493.6	24.1	517.7	489.6	28.1	517.7	**1,035.4**
	CNA750	161.6	2.9	164.5	158.8	5.8	164.5	**329.1**
	COMSEP	1.0	-	1.0	1.0	-	1.0	**1.9**
	DHC6	1,532.8	233.8	1,766.6	767.9	998.8	1,766.6	**3,533.3**
	DHC830	1.9	-	1.9	1.9	-	1.9	**3.8**
	ECLIPSE500	4.8	-	4.8	4.8	-	4.8	**9.6**
	EMB120	243.7	180.6	424.3	292.5	131.8	424.3	**848.7**
	EMB145	11.5	-	11.5	11.5	-	11.5	**23.1**
	EMB14L	319.5	-	319.5	319.5	-	319.5	**638.9**
	FAL20	1.9	-	1.9	1.9	-	1.9	**3.8**
	FAL900EX	34.6	1.0	35.6	34.6	1.0	35.6	**71.2**
	G650ER	26.9	-	26.9	22.1	4.8	26.9	**53.9**
	GASEPF	2.9	-	2.9	2.9	-	2.9	**5.8**
	GASEPV	1.9	-	1.9	1.9	-	1.9	**3.8**
	GIV	101.0	6.7	107.8	85.4	22.3	107.8	**215.5**
	GV	34.4	3.1	37.5	35.6	1.9	37.5	**75.1**
	HS748A	132.8	110.7	243.4	206.7	36.7	243.4	**486.9**
	IA1125	16.4	2.9	19.2	17.3	1.9	19.2	**38.5**
	LEAR35	449.1	33.9	483.0	450.3	32.7	483.0	**966.1**
	MU3001	40.4	1.0	41.4	40.4	1.0	41.4	**82.8**
	PA30	9.6	-	9.6	9.6	-	9.6	**19.2**
	SD330	352.4	21.9	374.3	362.8	11.5	374.3	**748.6**
	SF340	1.0	1.0	1.9	1.9	-	1.9	**3.8**
Subtotal		**9,414.7**	**965.8**	**10,380.5**	**7,878.4**	**2,502.1**	**10,380.5**	**20,761.0**
General Aviation	737700	10.6	-	10.6	10.6	-	10.6	**21.2**
	1900D	4.5	-	4.5	4.5	-	4.5	**9.1**
	757PW	-	1.5	1.5	-	1.5	1.5	**3.0**
	A319-131	1.5	-	1.5	1.5	-	1.5	**3.0**
	B206L	-	7.6	7.6	3.0	4.5	7.6	**15.1**
	B222	1.5	-	1.5	-	1.5	1.5	**3.0**
	BD-700-1A10	146.6	4.6	151.2	146.7	4.5	151.2	**302.4**
	BD-700-1A11	4.5	-	4.5	3.0	1.5	4.5	**9.1**
	BEC58P	111.8	3.1	114.9	110.4	4.5	114.9	**229.8**

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
	CIT3	76.0	8.6	84.7	75.6	9.1	84.7	**169.4**
	CL600	172.4	9.1	181.5	169.4	12.1	181.5	**362.9**
	CL601	235.9	25.7	261.6	238.1	23.5	261.6	**523.2**
	CNA172	461.4	28.5	489.9	443.1	46.9	489.9	**979.9**
	CNA182	57.3	1.7	59.0	57.5	1.5	59.0	**117.9**
	CNA206	6.0	-	6.0	6.0	-	6.0	**12.1**
	CNA208	207.2	59.0	266.1	186.6	79.5	266.1	**532.3**
	CNA20T	3.0	-	3.0	3.0	-	3.0	**6.0**
	CNA441	45.4	3.0	48.4	45.4	3.0	48.4	**96.8**
	CNA500	13.6	-	13.6	13.6	-	13.6	**27.2**
	CNA510	99.8	-	99.8	98.2	1.6	99.8	**199.6**
	CNA525C	606.4	42.3	648.7	616.5	32.2	648.7	**1,297.4**
	CNA55B	308.5	39.3	347.8	303.7	44.0	347.8	**695.6**
	CNA560E	3.0	1.5	4.5	4.5	-	4.5	**9.1**
	CNA560U	87.7	6.0	93.8	90.6	3.2	93.8	**187.5**
	CNA560XL	187.4	10.7	198.1	187.5	10.6	198.1	**396.2**
	CNA680	176.7	6.3	183.0	178.4	4.5	183.0	**365.9**
	CNA750	588.2	27.2	615.4	579.1	36.3	615.4	**1,230.9**
	COMSEP	208.5	7.8	216.2	199.6	16.6	216.2	**432.5**
	CRJ9-ER	6.0	-	6.0	6.0	-	6.0	**12.1**
	DHC6	283.8	18.6	302.4	282.8	19.7	302.4	**604.8**
	EC130	9.7	13.0	22.7	7.6	15.1	22.7	**45.4**
	ECLIPSE500	36.3	1.5	37.8	36.2	1.6	37.8	**75.6**
	EMB145	51.4	4.5	55.9	49.7	6.2	55.9	**111.9**
	EMB14L	4.5	-	4.5	4.5	-	4.5	**9.1**
	FAL900EX	157.3	21.2	178.4	144.3	34.1	178.4	**356.9**
	G650ER	31.8	-	31.8	28.6	3.2	31.8	**63.5**
	GASEPF	612.7	34.5	647.2	620.0	27.2	647.2	**1,294.4**
	GASEPV	373.5	9.1	382.6	364.3	18.2	382.6	**765.1**
	GIV	169.4	4.5	173.9	152.7	21.2	173.9	**347.8**
	GV	394.7	15.1	409.8	358.4	51.4	409.8	**819.6**
	HS748A	1.5	-	1.5	1.5	-	1.5	**3.0**
	IA1125	24.2	-	24.2	24.2	-	24.2	**48.4**
	LEAR35	320.6	30.2	350.8	325.2	25.6	350.8	**701.6**
	MD81	1.5	-	1.5	1.5	-	1.5	**3.0**
	MU3001	173.9	18.1	192.0	184.4	7.7	192.0	**384.1**
	PA30	18.1	-	18.1	16.5	1.6	18.1	**36.3**
	R44	399.2	-	399.2	399.2	-	399.2	**798.4**
Subtotal		**6,895.6**	**463.9**	**7,359.5**	**6,783.8**	**575.7**	**7,359.5**	**14,719.0**
Military	737700	46.1	-	46.1	46.1	-	46.1	**92.1**
	CNA208	92.1	-	92.1	92.1	-	92.1	**184.3**

Category	Aircraft Type	Arrivals			Departures			Grand Total
		Day	Night	Total	Day	Night	Total	
	DHC6	92.1	-	92.1	92.1	-	92.1	**184.3**
	KC135R	783.2	-	783.2	783.2	-	783.2	**1,566.3**
Subtotal		**1,013.5**	**-**	**1,013.5**	**1,013.5**	**-**	**1,013.5**	**2,027.0**
Grand Total		**49,016.4**	**9,513.1**	**58,529.5**	**47,929.9**	**10,599.6**	**58,529.5**	**117,059.0**

Note: Totals may not add up due to rounding.

5.2 Runway Utilization

Table 13 and **Table 14** present the runway usage rates modeled for each runway for day and night periods in the Future No Action and the Future Proposed Action scenarios. In the Future No Action scenario, it is assumed that Runway 1R-19L will be decommissioned or no longer operational. The runway utilization for the No Action scenario will be based on the runway utilization developed for the Proposed Action in the Runway 1R-19L Decommissioning EA. For the future Proposed Action, Runway 13-31 will be decommissioned. The operations on Runway 13-31 will shift over to Runway 1L-19R and Runway 7L-25R.

Table 13. Future No Action Runway Use

Source: MKE NOMS

Runway	Arrival		Departure	
	Day	Night	Day	Night
1L	19.5%	29.3%	19.7%	24.4%
7L	1.3%	0.1%	1.1%	0.2%
7R	26.0%	17.1%	23.3%	16.7%
13	0.2%	0.1%	0.8%	0.2%
19R	16.5%	28.6%	29.3%	31.0%
25L	35.0%	24.6%	24.2%	27.1%
25R	1.0%	0.1%	0.6%	0.2%
31	0.2%	0.1%	0.1%	0.1%
H1	0.4%	0.0%	0.8%	0.1%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note: Runway 1R-19L is closed.
Totals may not add up due to rounding.

Table 14. Future Proposed Action Runway Use

Source: MKE NOMS, HMMH

Runway	Arrival		Departure	
	Day	Night	Day	Night
1L	19.6%	29.4%	19.8%	24.5%
7L	1.4%	0.1%	1.8%	0.4%
7R	26.0%	17.1%	23.3%	16.7%
19R	16.6%	28.7%	29.4%	31.0%
25L	35.0%	24.6%	24.2%	27.1%
25R	1.0%	0.2%	0.7%	0.2%
H1	0.4%	0.0%	0.8%	0.1%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Note: Runway 1R-19L is closed and Runway 13-31 is closed.
Totals may not add up due to rounding.

5.3 Future Noise Analysis

This section presents the noise modeling results along with an analysis of noise-impacted population and noise-sensitive sites, and the potential noise effects associated with the implementation of the No Action Alternative or the Proposed Action Alternative.

5.3.1 No Action Alternative (2029)

Figure 6 displays the DNL 65 dB – 75 dB noise contours for the 2029 No Action Alternative over a map of the existing land use in the study area. The DNL 65 dB noise contour remains primarily on airport property with an increase in exposure extending to the north, east, and west into areas of residential land use from the Existing Scenario. There is no residential land use within the DNL 70 dB or higher contours.

Table 15 provides the population exposure, housing unit count, and contour areas for the 2029 Future No Action DNL noise contours. The DNL 65 dB noise contour covers approximately 1,326.37 acres and contains 86 residents and 36 housing units. The 70 dB noise contours associated with the No Action Alternative does not contain any residents or housing units. In addition, no individual noise-sensitive locations, such as schools or places of worship are within the 2029 No Action Alternative DNL 65 dB noise contour.

Table 15. Future 2029 No Action Noise Contours Population, Housing, and Area

Source: HMMH, 2024; U.S. Census Bureau, 2020

DNL (dB) Noise Contour	Population Census	Housing Units	Area (acres)
65 - 70	86	36	789.44
70 - 75	0	0	293.20
> 75	0	0	243.73
Total	**86**	**36**	**1,326.37**

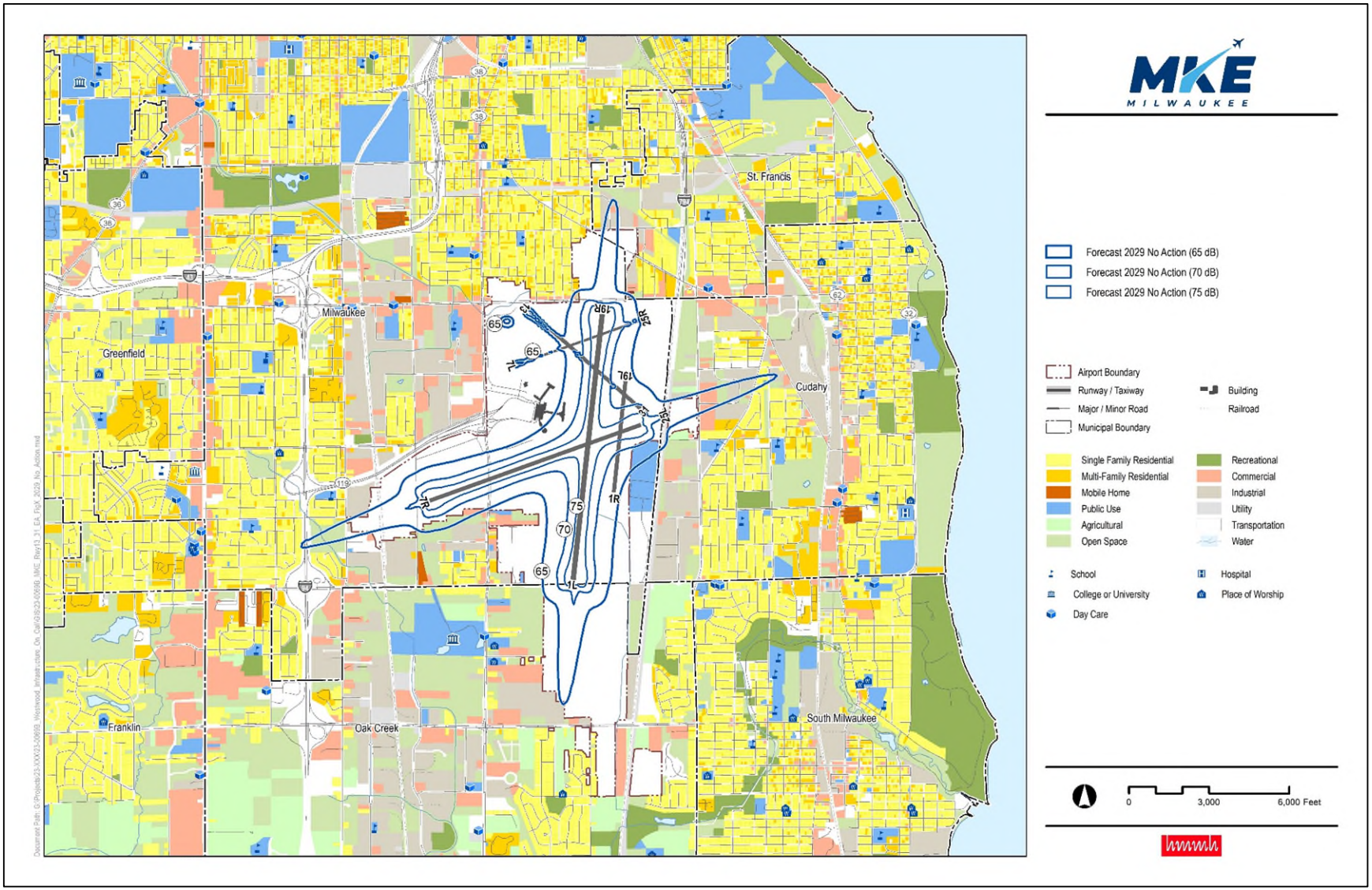


Figure 6. Future Forecast 2029 No Action DNL Contours

5.3.2 Proposed Action Alternative (2029)

Figure 7 displays the DNL 65 dB – 75 dB noise contours for the 2029 Proposed Action Alternative over a map of the existing land use in the study area. Similarly to the No Action Alternative, The DNL 65 dB noise contour remains primarily on airport property with an increase in the DNL 65 dB contour to the north, east, and west into areas of residential land use. There is no residential land use within the DNL 70 dB or higher contours.

Table 16 provides the population exposure, housing unit count, and contour areas for the 2029 Future Proposed Action DNL noise contours. The DNL 65 dB noise contour covers approximately 1,323.55 acres and contains 86 residents and 36 housing units. The 70 dB noise contours associated with the Proposed Action does not contain any residents or housing units. In addition, no individual noise-sensitive locations, such as schools or places of worship are within the 2029 Proposed Action Alternative DNL 65 dB noise contour.

Table 16. 2029 Proposed Action Noise Contours Population, Housing, and Area

Source: HMMH, 2024; U.S. Census Bureau, 2020.

DNL (dB) Noise Contour	Population Census	Housing Units	Area (acres)
65 - 70	86	36	789.03
70 - 75	0	0	290.80
> 75	0	0	243.72
Total	**86**	**36**	**1,323.55**

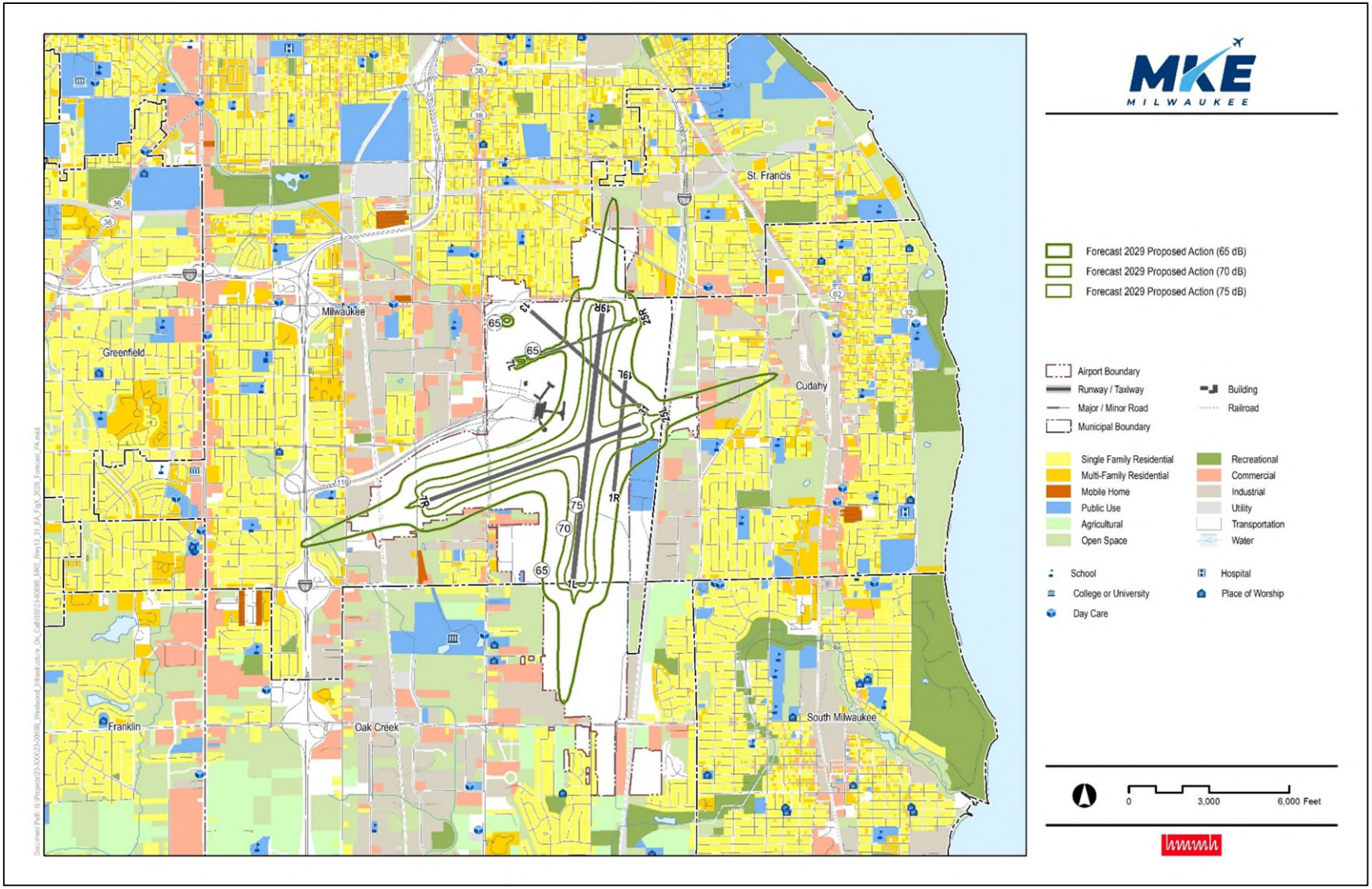


Figure 7. Future Forecast 2029 Proposed Action DNL Contours

5.3.3 No Action and Proposed Action Comparison (2029)

The 2029 Proposed Action DNL 65 dB contour is smaller than the No Action DNL 65 dB contour. The number of people exposed to a DNL 65 dB or greater noise level remains unchanged. There is a decrease in the DNL 65 dB contour area of approximately 2.82 acres.

Table 17 provides a summary of changes between the 2029 No Action and Proposed Action DNL 65 dB contours. **Figure 8** provides a comparison of the DNL 65 dB contours for each of the 2029 alternatives and shows the grid points that would see a significant or reportable change in DNL when comparing the modeling results for the 2029 No Action Alternative and 2029 Proposed Action. As shown in the figure below, the most significant change as a result of the Proposed Action occurs within the airport boundary and will have minimal impact on residential land use.

Table 17. Summary of Changes with the 2029 No Action and Proposed Action DNL 65 dB Contour

DNL 65 dB	No Action	Proposed Action	Difference
2020 Population	86	86	0
2020 Housing Units	36	36	0
Acres	1,326.37	1,323.55	-2.82
Noise Sensitive Sites	0	0	0

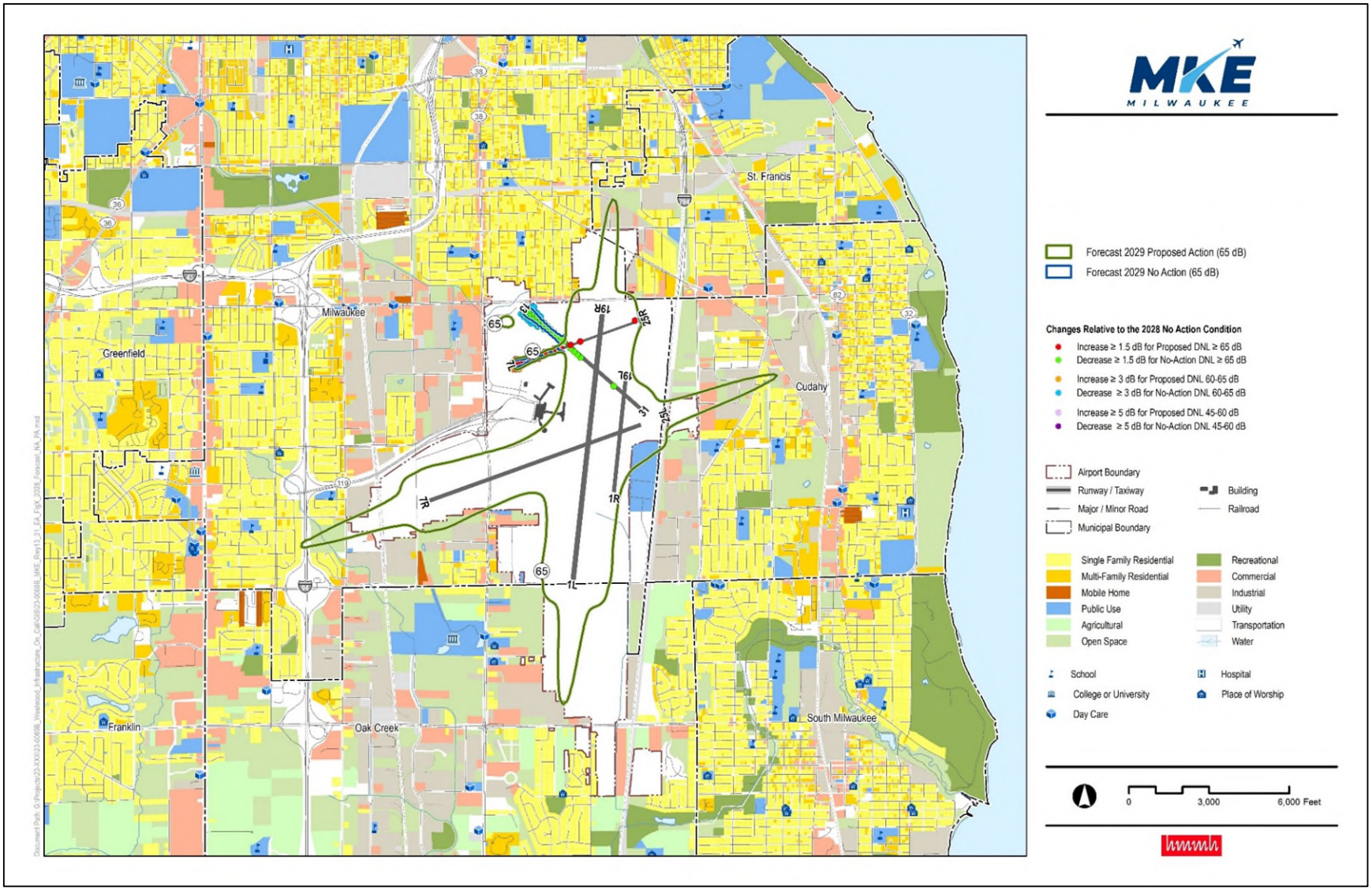


Figure 8. Future Forecast 2029 No Action and Proposed Action DNL 65 dB and Impact Sets

5.3.4 No Action Alternative (2034)

Figure 9 displays the DNL 65 dB – 75 dB noise contours for the 2034 No Action Alternative over a map of the existing land use in the study area. The DNL 65 dB noise contour remains primarily on airport property with an increase in the 65 dB contour to the north, east, and west into areas of residential land use from the Existing Scenario. There is no residential land use within the DNL 70 dB or higher contours.

Table 18 provides the population exposure, housing unit count, and contour areas for the 2034 Future No Action DNL noise contours. The DNL 65 dB noise contour covers approximately 1,413.95 acres and contains 144 residents and 62 housing units. The 70 dB noise contours associated with the No Action Alternative does not contain any residents or housing units. In addition, no individual noise-sensitive locations, such as schools or places of worship are within the 2034 No Action Alternative DNL 65 dB noise contour.

Table 18. 2034 No Action Noise Contours Population, Housing, and Area

Source: HMMH, 2024; U.S. Census Bureau, 2020

DNL (dB) Noise Contour	Population Census	Housing Units	Area (acres)
65 - 70	144	62	847.96
70 - 75	0	0	309.41
> 75	0	0	256.58
Total	**144**	**62**	**1,413.95**

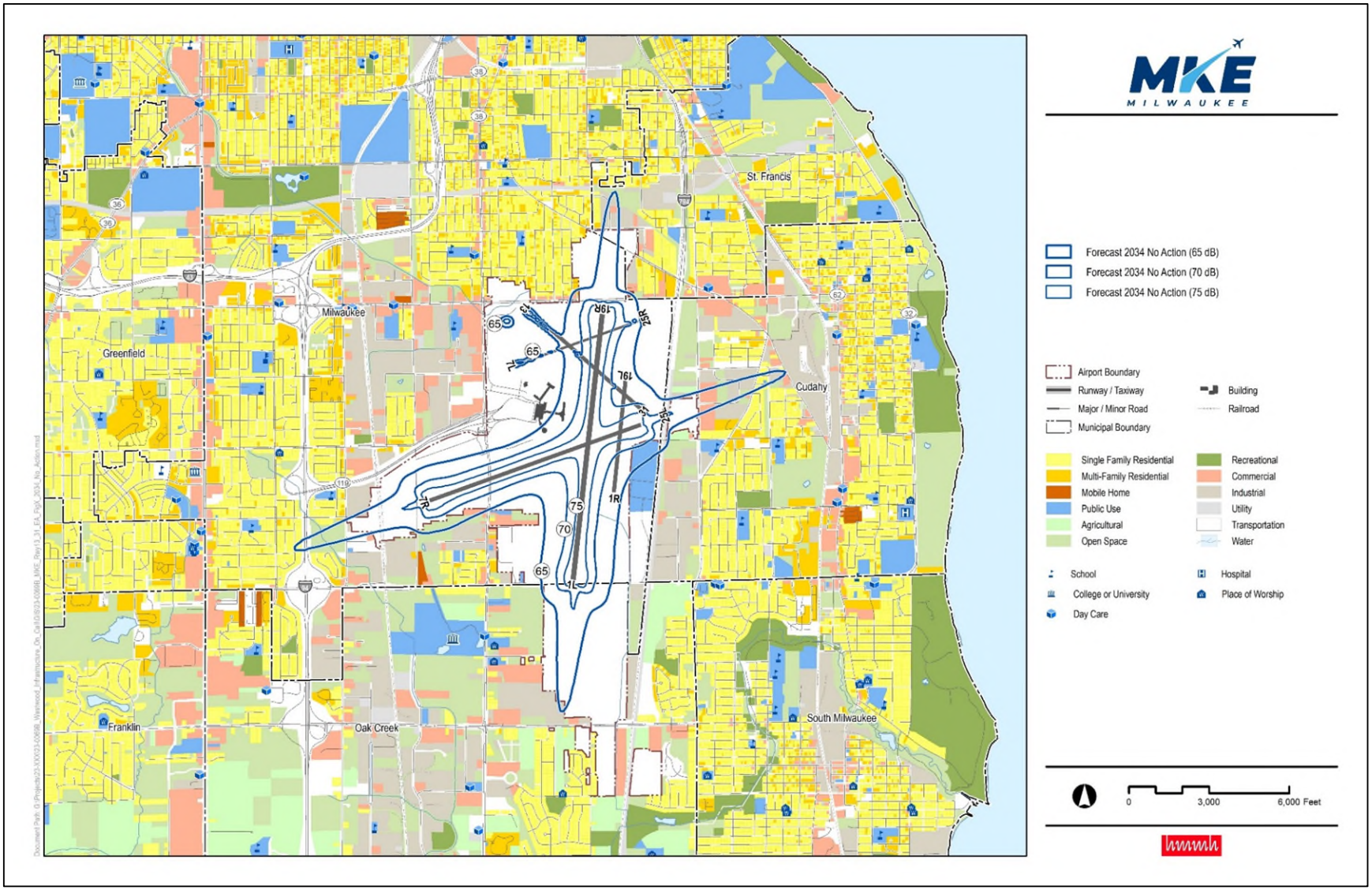


Figure 9. Future Forecast 2034 No Action DNL Contours

5.3.5 Proposed Action Alternative (2034)

Figure 10 displays the DNL 65 dB – 75 dB noise contours for the 2034 Proposed Action Alternative over a map of the existing land use in the study area. The DNL 65 dB noise contour follows the same pattern as the No Action Alternative, remaining primarily on airport property with an increase in the 65 dB contour to the north, east, and west into areas of residential land use. There is no residential land use within the DNL 70 dB or higher contours.

Table 19 provides the population exposure, housing unit count, and contour areas for the 2034 Future Proposed Action DNL noise contours. The DNL 65 dB noise contour covers approximately 1,410.81 acres and contains 144 residents and 62 housing units. There are no residents and housing units within the 70 dB contour as a result of the proposed action. In addition, no individual noise-sensitive locations, such as schools or places of worship are within the 2034 Proposed Action Alternative DNL 65 dB noise contour.

Table 19. 2034 Proposed Action Noise Contours Population, Housing, and Area

Source: HMMH, 2024; U.S. Census Bureau, 2020.

DNL (dB) Noise Contour	Population Census	Housing Units	Area (acres)
65 - 70	144	62	847.42
70 - 75	0	0	306.82
> 75	0	0	256.57
Total	**144**	**62**	**1,410.81**

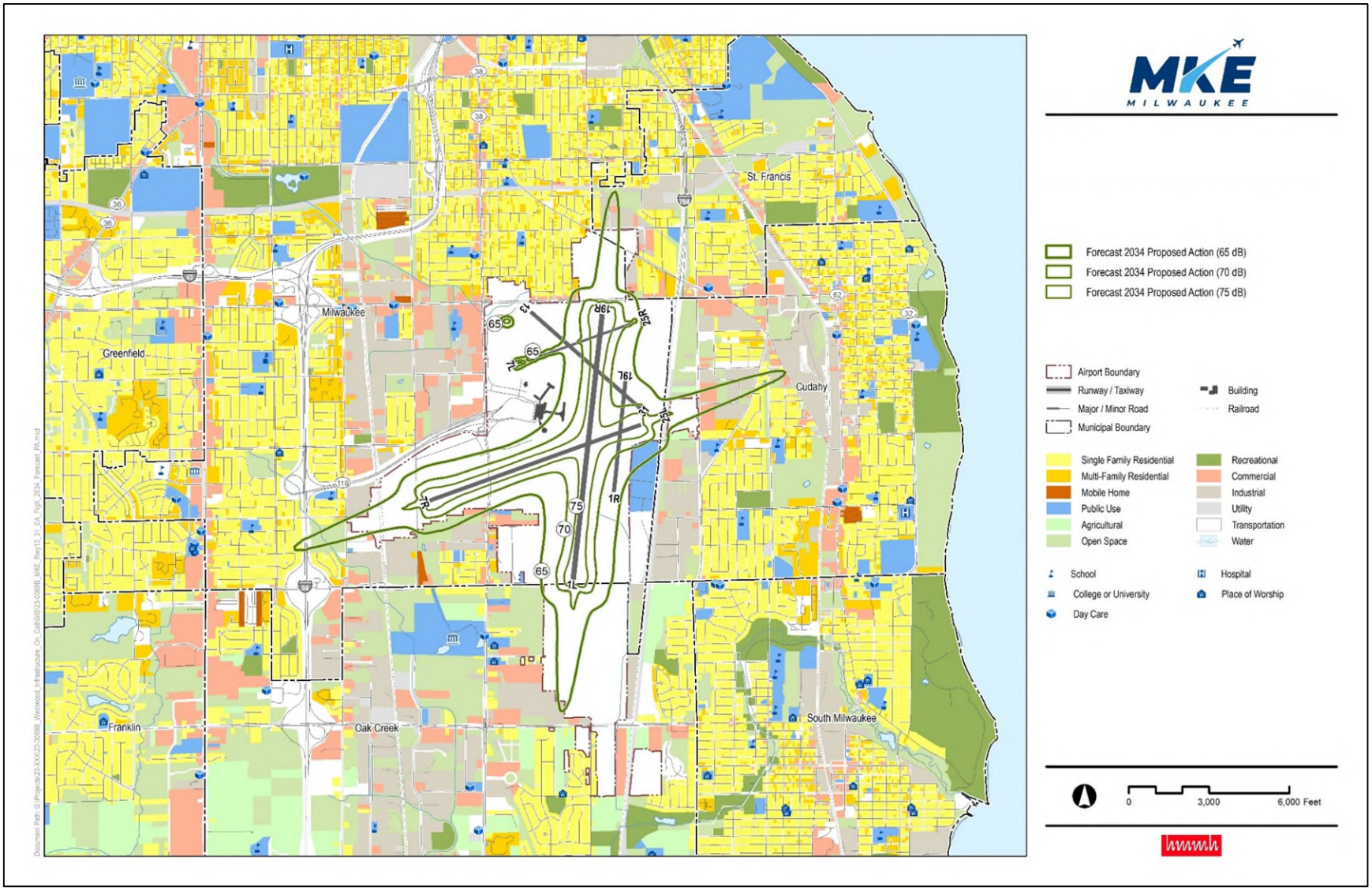


Figure 10. Future Forecast 2034 Proposed Action DNL Contours

5.3.6 No Action and Proposed Action Comparison (2034)

The 2034 Proposed Action DNL 65 dB contour is smaller than the No Action DNL 65 dB contour. The number of people exposed to a DNL 65 dB or greater noise level remains unchanged. There is a decrease in the DNL 65 dB contour area of approximately 3.14 acres.

Table 20 provides a summary of changes between the 2034 No Action and Proposed Action DNL 65 dB contours. **Figure 11** provides a comparison of the DNL 65 dB contours for each of the 2034 alternatives and shows the grid points that would see a significant or reportable change in DNL when comparing the modeling results for the 2034 No Action Alternative and 2034 Proposed Action Alternative. As depicted, the most significant change as a result of the Proposed Action occurs within the airport boundary and will have minimal impact on residential land use.

Table 20. Summary of Changes with the 2034 No Action and Proposed Action DNL 65 dB Contours

DNL 65 dB	No Action	Proposed Action	Difference
Population	144	144	0
Housing Units	62	62	0
Acres	1,413.95	1,410.81	-3.14
Noise Sensitive Sites	0	0	0

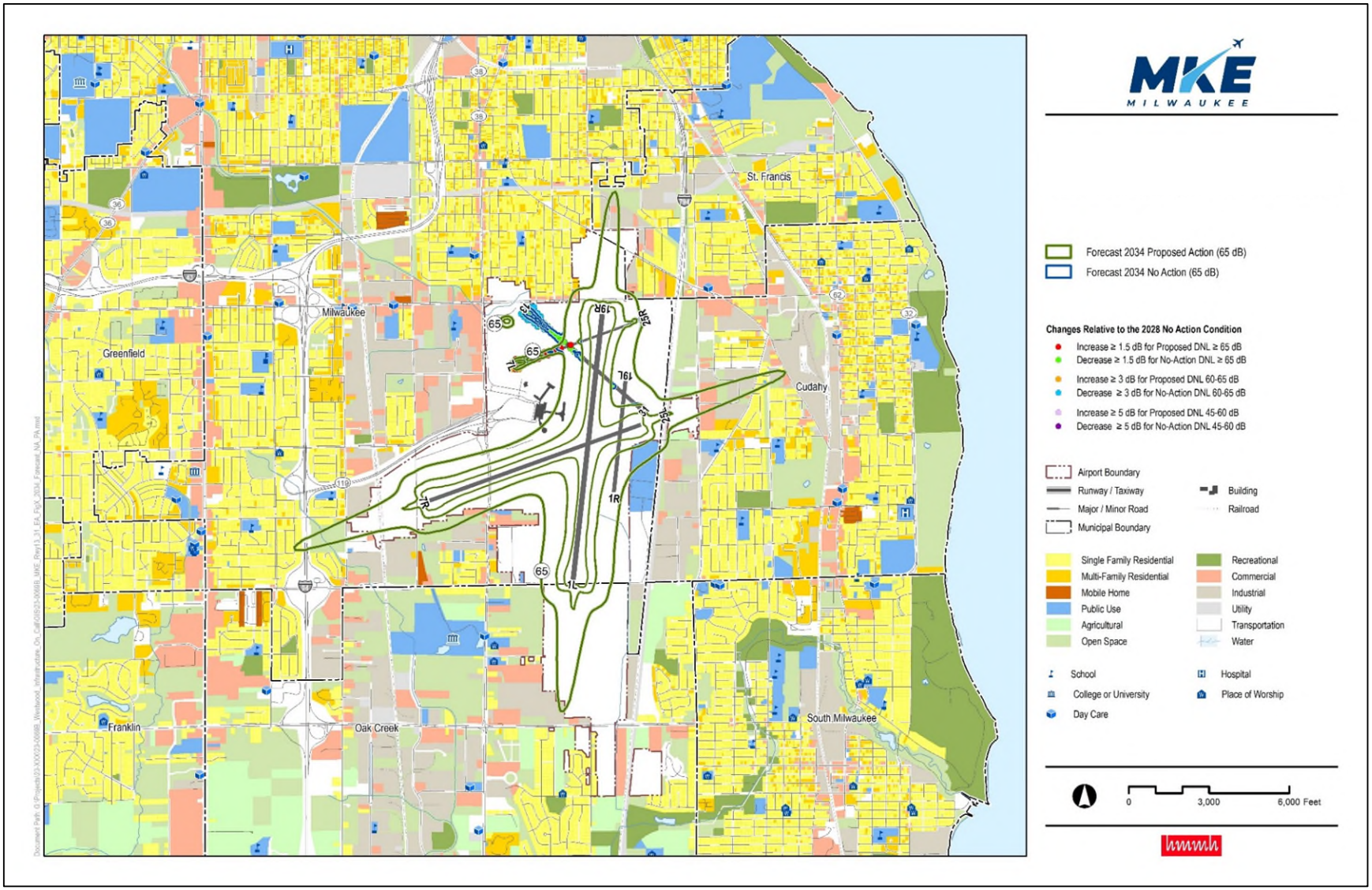


Figure 11. Future Forecast 2034 No Action and Proposed Action DNL Contours and Impact Sets

5.4 Mitigation Measures

There are projected to be no areas of significant noise impact, additional housing units or noise sensitive sites within the Proposed Action DNL 65 dB contours for 2029 or 2034. Therefore, no mitigation is proposed or required for Proposed Action.

Appendix A Aircraft Noise Terminology

Noise is a complex physical quantity. The properties, measurement, and presentation of noise involve specialized terminology that can be difficult to understand. To provide a basic reference on these technical issues, this section introduces fundamentals of noise terminology, the effects of noise on human activity, and noise propagation.

A.1 Introduction to Noise Terminology

Analyses of potential impacts from changes in aircraft noise levels rely largely on a measure of cumulative noise exposure over an entire calendar year, expressed in terms of a metric called the Day-Night Average Sound Level (DNL). However, DNL does not provide an adequate description of noise for many purposes. A variety of measures, which are further described in subsequent sub-sections, are available to address essentially any issue of concern, including:

- Sound Pressure Level, SPL, and the Decibel, dB
- A-Weighted Decibel, dBA
- Maximum A-Weighted Sound Level, L_{max}
- Time Above, TA
- Sound Exposure Level, SEL
- Equivalent A-Weighted Sound Level, L_{eq}
- Day-Night Average Sound Level, DNL

A.1.1 Sound Pressure Level, SPL, and the Decibel, dB

All sounds come from a sound source – a musical instrument, a voice speaking, an airplane passing overhead. It takes energy to produce sound. The sound energy produced by any sound source travels through the air in sound waves – tiny, quick oscillations of pressure just above and just below atmospheric pressure. The ear senses these pressure variations and – with much processing in our brain – translates them into “sound.”

Our ears are sensitive to a wide range of sound pressures. The loudest sounds that we can hear without pain contain about one million times more energy than the quietest sounds we can detect. To allow us to perceive sound over this very wide range, our ear/brain “auditory system” compresses our response in a complex manner, represented by a term called sound pressure level (SPL), which we express in units called decibels (dB).

Mathematically, SPL is a logarithmic quantity based on the ratio of two sound pressures, the numerator being the pressure of the sound source of interest (P_{source}), and the denominator being a reference pressure ($P_{reference}$).[4]

$$Sound\ Pressure\ Level\ (SPL) = 20 * Log\left(\frac{P_{source}}{P_{reference}}\right) dB$$

The logarithmic conversion of sound pressure to SPL means that the quietest sound that we can hear (the reference pressure) has a sound pressure level of about 0 dB, while the loudest sounds that we hear without pain have sound pressure levels of about 120 dB. Most sounds in our day-to-day environment have sound pressure levels from about 40 to 100 dB.[5]

Because decibels are logarithmic quantities, we cannot use common arithmetic to combine them. For example, if two sound sources each produce 100 dB operating individually, when they operate simultaneously, they produce 103 dB -- not the 200 dB we might expect. Increasing to four equal sources operating simultaneously will add another three decibels of noise, resulting in a total SPL of 106 dB. For every doubling of the number of equal sources, the SPL goes up another three decibels.

If one noise source is much louder than another is, the louder source "masks" the quieter one and the two sources together produce virtually the same SPL as the louder source alone. For example, a 100 dB and 80 dB sources produce approximately 100 dB of noise when operating together.

Two useful “rules of thumb” related to SPL are worth noting: (1) humans generally perceive a six to 10 dB increase in SPL to be about a doubling of loudness,6 and (2) changes in SPL of less than about three decibels for a particular sound are not readily detectable outside of a laboratory environment.

A.1.2 A-Weighted Decibel

An important characteristic of sound is its frequency, or "pitch.” This is the per-second oscillation rate of the sound pressure variation at our ear, expressed in units known as Hertz (Hz).

When analyzing the total noise of any source, acousticians often break the noise into frequency components (or bands) to consider the “low,” “medium,” and “high” frequency components. This breakdown is important for two reasons:

- Our ear is better equipped to hear mid and high frequencies and is least sensitive to lower frequencies. Thus, we find mid- and high-frequency noise more annoying.
- Engineering solutions to noise problems differ with frequency content. Low-frequency noise is generally harder to control.

[4] The reference pressure is approximately the quietest sound that a healthy young adult can hear.

[5] The logarithmic ratio used in its calculation means that SPL changes relatively quickly at low sound pressures and more slowly at high pressures. This relationship matches human detection of changes in pressure. We are much more sensitive to changes in level when the SPL is low (for example, hearing a baby crying in a distant bedroom), than we are to changes in level when the SPL is high (for example, when listening to highly amplified music).

[6] A “10 dB per doubling” rule of thumb is the most often used approximation.

The normal frequency range of hearing for most people extends from a low of about 20 Hz to a high of about 10,000 to 15,000 Hz. Most people respond to sound most readily when the predominant frequency is in the range of normal conversation – typically around 1,000 to 2,000 Hz. The acoustical community has defined several “filters,” which approximate this sensitivity of our ear and thus, help us to judge the relative loudness of various sounds made up of many different frequencies.

The so-called "A" filter (“A weighting”) generally does the best job of matching human response to most environmental noise sources, including natural sounds and sound from common transportation sources. “A-weighted decibels” are abbreviated “dBA.” Because of the correlation with our hearing, the U. S. Environmental Protection Agency (EPA) and nearly every other federal and state agency have adopted A-weighted decibels as the metric for use in describing environmental and transportation noise. **Figure A-1** depicts A-weighting adjustments to sound from approximately 20 Hz to 10,000 Hz.

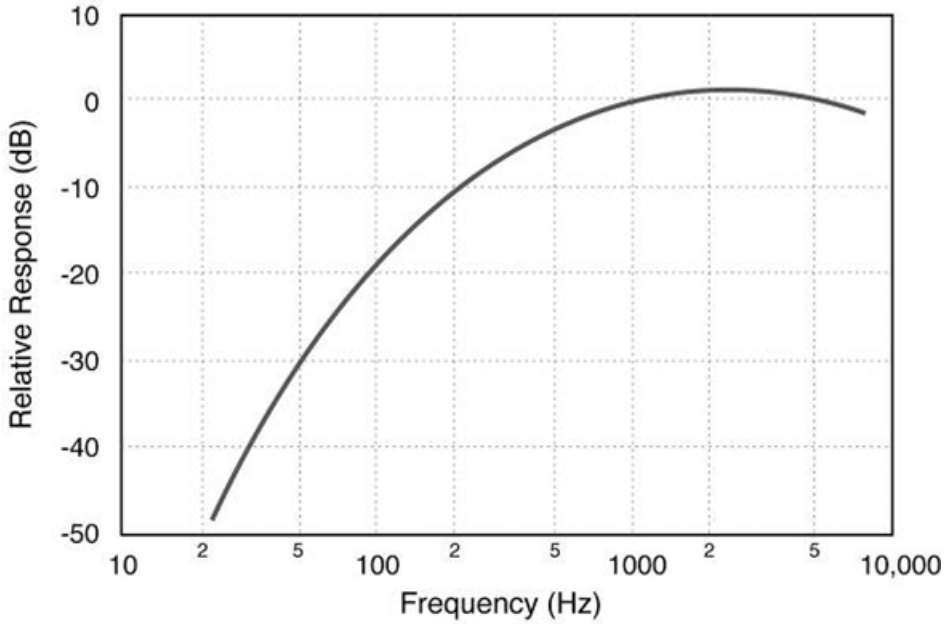


Figure A-1. A-Weighting Frequency Response

Source: Extract from Harris, Cyril M., Editor, “Handbook of Acoustical Measurements and Control,” McGraw-Hill, Inc., 1991, pg. 5.13; HMMH

As **Figure A-1** shows, A-weighting significantly de-emphasizes noise content at lower and higher frequencies where we do not hear as well, and has little effect, or is nearly "flat,” in for mid-range frequencies between 1,000 and 5,000 Hz. All sound pressure levels presented in this document are A-weighted unless otherwise specified.

Figure A-2 depicts representative A-weighted sound levels for a variety of common sounds.

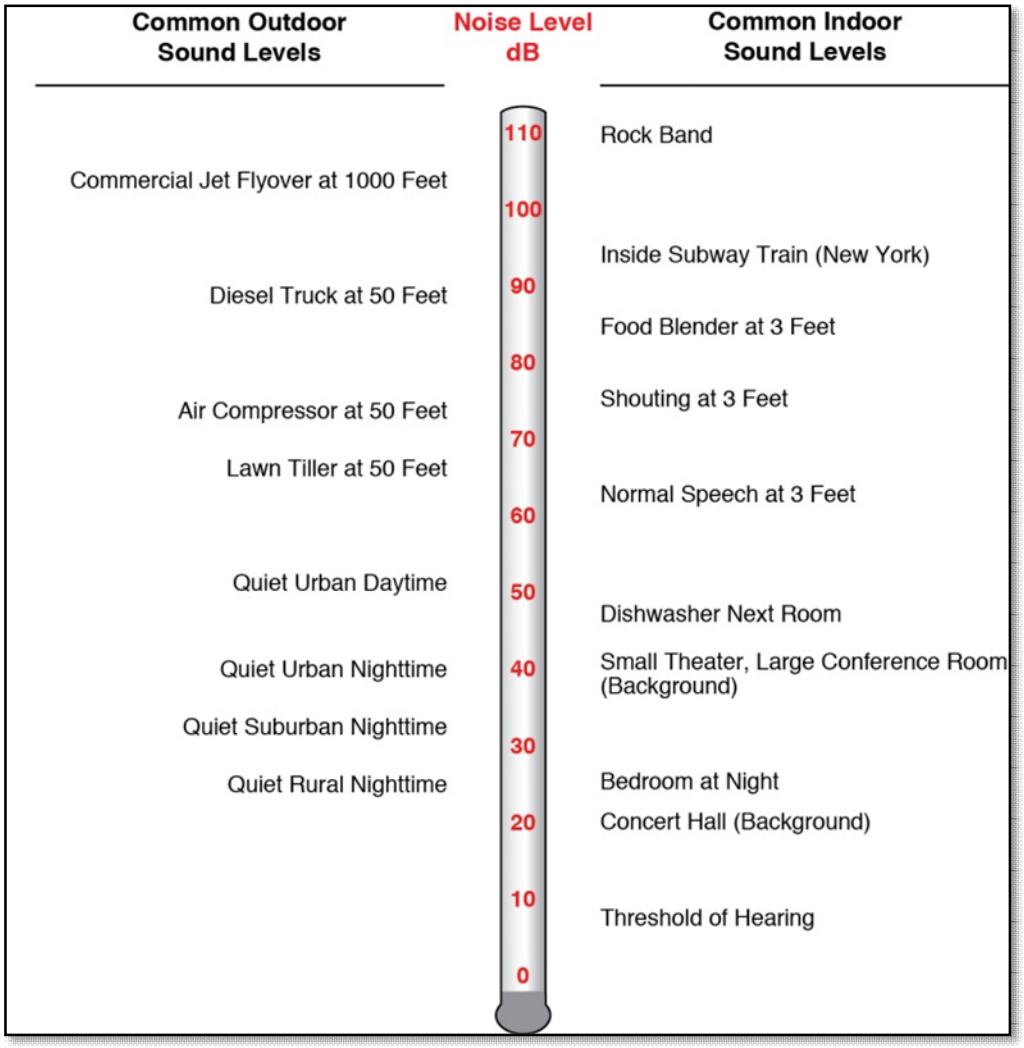


Figure A-2. A-Weighted Sound Levels for Common Sounds

Source: HMMH

A.1.3 Maximum A-Weighted Sound Level, L_{max}

An additional dimension to environmental noise is that A-weighted levels vary with time. For example, the sound level increases as a car or aircraft approaches, then falls and blends into the background as the aircraft recedes into the distance. The background or "ambient" level continues to vary in the absence of a distinctive source, for example due to birds chirping, insects buzzing, leaves rustling, etc. It is often convenient to describe a particular noise "event" (such as a vehicle passing by, a dog barking, etc.) by its maximum sound level, abbreviated as L_{max}.

Figure A-3 depicts this general concept, for a hypothetical noise event with an L_{max} of approximately 102 dB.

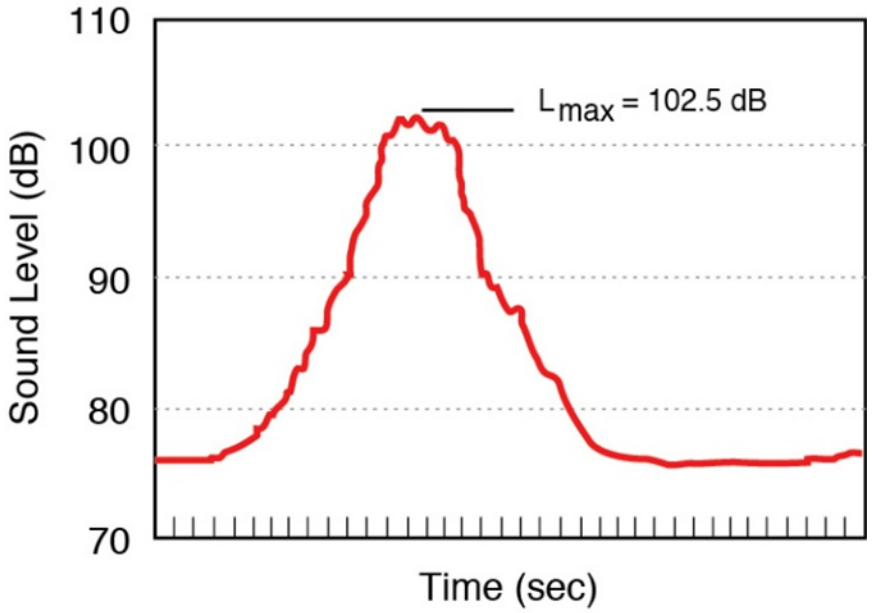


Figure A-3. Variation in A-Weighted Sound Level over Time and Maximum Noise Level

Source: HMMH

While the maximum level is easy to understand, it suffers from a serious drawback when used to describe the relative "noisiness" of an event such as an aircraft flyover; i.e., it describes only one dimension of the event and provides no information on the event's overall, or cumulative, noise exposure. In fact, two events with identical maximum levels may produce very different total exposures. One may be of very short duration, while the other may continue for an extended period and be judged much more annoying. The next section introduces a measure that accounts for this concept of a noise "dose," or the cumulative exposure associated with an individual "noise event" such as an aircraft flyover.

A.1.4 Sound Exposure Level, SEL

The most commonly used measure of cumulative noise exposure for an individual noise event, such as an aircraft flyover, is the Sound Exposure Level, or SEL. SEL is a summation of the A-weighted sound energy over the entire duration of a noise event. SEL expresses the accumulated energy in terms of the one-second-long steady-state sound level that would contain the same amount of energy as the actual time-varying level.

SEL provides a basis for comparing noise events that generally match our impression of their overall "noisiness," including the effects of both duration and level. The higher the SEL, the more annoying a noise event is likely to be. In simple terms, SEL "compresses" the energy for the noise event into a single second. **Figure A-4** depicts this compression, for the same hypothetical event shown in **Figure A-3**. Note that the SEL is higher than the L_{max}.

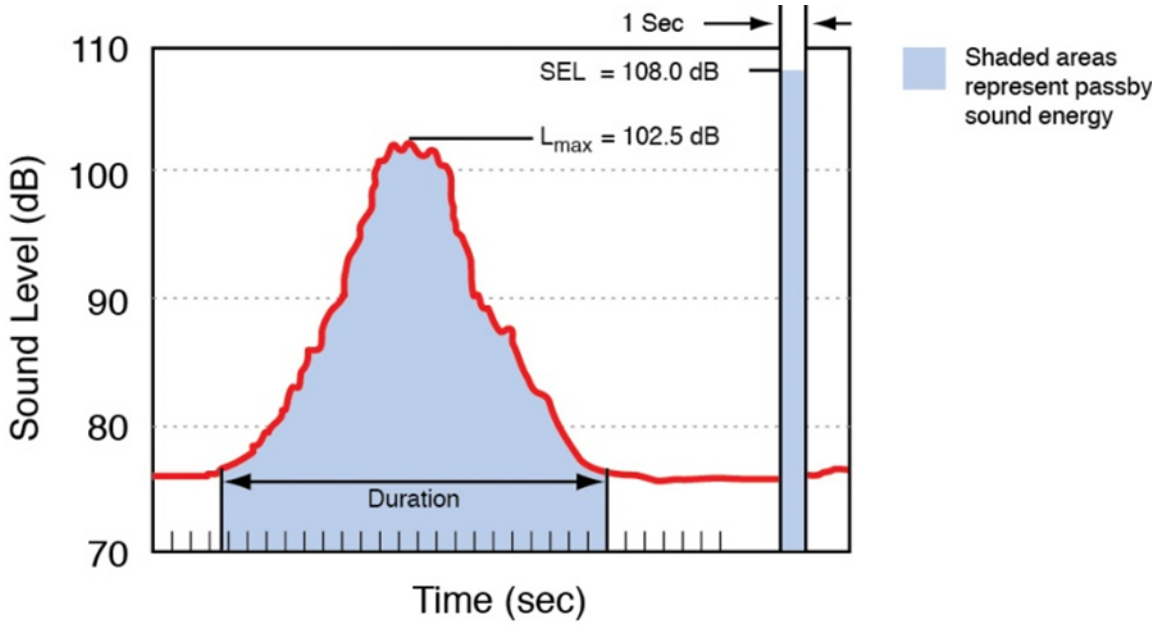


Figure A-4. Graphical Depiction of Sound Exposure Level

Source: HMMH

The "compression" of energy into one second means that a given noise event's SEL will almost always will be a higher value than its L_{max}. For most aircraft flyovers, SEL is roughly five to 12 dB higher than L_{max}. Adjustment for duration means that relatively slow and quiet propeller aircraft can have the same or higher SEL than faster, louder jets, which produce shorter duration events.

A.1.5 Equivalent A-Weighted Sound Level, L_{eq}

The Equivalent Sound Level, abbreviated L_{eq}, is a measure of the exposure resulting from the accumulation of sound levels over a particular period of interest; e.g., one hour, an eight-hour school day, nighttime, or a full 24-hour day. L_{eq} plots for consecutive hours can help illustrate how the noise dose rises and falls over a day or how a few loud aircraft significantly affect some hours.

L_{eq} may be thought of as the constant sound level over the period of interest that would contain as much sound energy as the actual varying level. It is a way of assigning a single number to a time-varying sound level. **Figure A-5** illustrates this concept for the same hypothetical event shown in **Figure A-3** and **Figure A-4**. Note that the L_{eq} is lower than either the L_{max} or SEL.

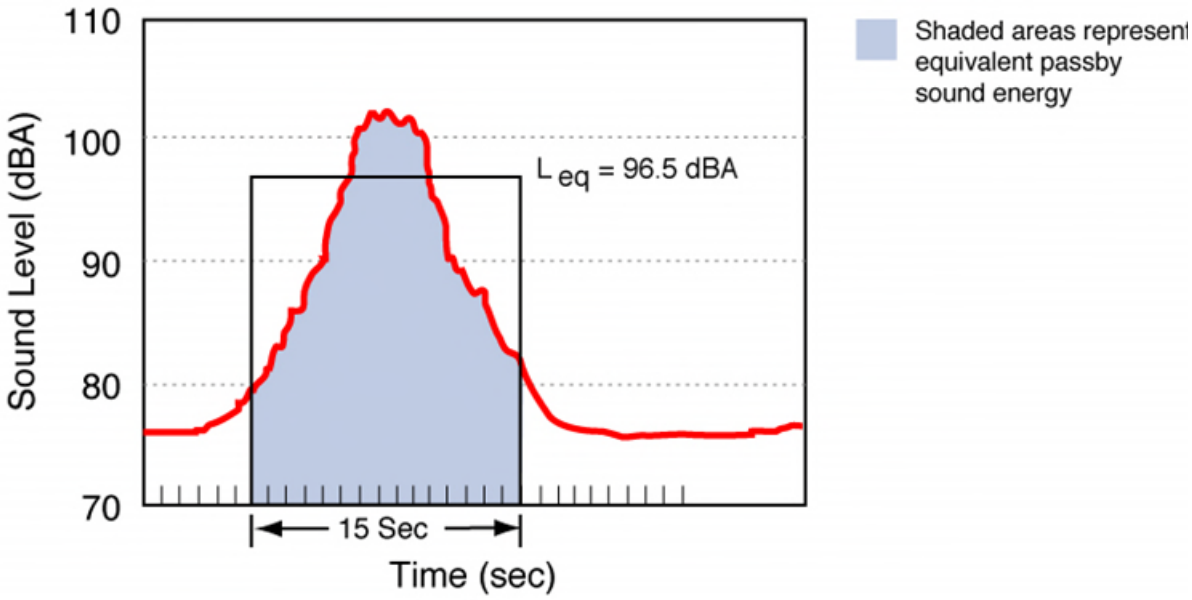


Figure A-5. Example of a 15-Second Equivalent Sound Level

Source: HMMH

A.1.6 Day-Night Average Sound Level, DNL or L_{dn}

The FAA requires that airports use a measure of noise exposure that is slightly more complicated than L_{eq} to describe cumulative noise exposure – the Day-Night Average Sound Level, DNL.

The U.S. EPA identified DNL as the most appropriate means of evaluating airport noise based on the following considerations.[7]

- The measure should be applicable to the evaluation of pervasive long-term noise in various defined areas and under various conditions over long periods.
- The measure should correlate well with known effects of the noise environment and on individuals and the public.
- The measure should be simple, practical, and accurate. In principle, it should be useful for planning as well as for enforcement or monitoring purposes.
- The required measurement equipment, with standard characteristics, should be commercially available.
- The measure should be closely related to existing methods currently in use.
- The single measure of noise at a given location should be predictable, within an acceptable tolerance, from knowledge of the physical events producing the noise.

[7] "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," U. S. EPA Report No. 550/9-74-004, March 1974.

- The measure should lend itself to small, simple monitors, which can be left unattended in public areas for long periods.

Most federal agencies dealing with noise have formally adopted DNL. The Federal Interagency Committee on Noise (FICON) reaffirmed the appropriateness of DNL in 1992. The FICON summary report stated: "There are no new descriptors or metrics of sufficient scientific standing to substitute for the present DNL cumulative noise exposure metric."

In 2015, the FAA began a multi-year effort to update the scientific evidence on the relationship between aircraft noise exposure and its effects on communities around airports.[8] This was the most comprehensive study using a single noise survey ever undertaken in the U.S., polling communities surrounding 20 airports nationwide. The FAA Reauthorization Act of 2018 under Section 188 and 173, required FAA to complete the evaluation of alternative metrics to the DNL standard within one year. The Section 188 and 173 Report to Congress was delivered on April 14, 2020[9] and concluded that while no single noise metric can cover all situations, DNL provides the most comprehensive way to consider the range of factors influencing exposure to aircraft noise. In addition, use of supplemental metrics is both encouraged and supported to further disclose and aid in the public understanding of community noise impacts. The full study supporting these reports was released in January 2021. If changes are warranted in the use of DNL, which DNL level to assess or the use of supplemental metrics, FAA will propose revised policy and related guidance and regulations, subject to interagency coordination, as well as public review and comment.

In simple terms, DNL is the 24-hour L_{eq} with one adjustment; all noises occurring at night (defined as 10 p.m. through 7 a.m.) are increased by 10 dB, to reflect the added intrusiveness of nighttime noise events when background noise levels decrease. In calculating aircraft exposure, this 10 dB increase is mathematically identical to counting each nighttime aircraft noise event ten times.

DNL can be measured or estimated. Measurements are practical only for obtaining DNL values for limited numbers of points, and, in the absence of a permanently installed monitoring system, only for relatively short periods. Most airport noise studies use computer-generated DNL estimates depicted as equal-exposure noise contours (much as topographic maps have contours of equal elevation).

The annual DNL is mathematically identical to the DNL for the AAD—i.e., a day on which the number of operations is equal to the annual total divided by 365 (366 in a leap year). **Figure A-6** graphically depicts the manner in which the nighttime adjustment applies in calculating DNL. **Figure A-7** presents representative outdoor DNL values measured at various U.S. locations.

[8] FAA. Press Release – FAA To Re-Evaluate Method for Measuring Effects of Aircraft Noise. https://www.faa.gov/news/press_releases/news_story.cfm?newsId=18774

[9] FAA. Report to Congress on an evaluation of alternative noise metrics. https://www.faa.gov/about/plans_reports/congress/media/Day-Night_Average_Sound_Levels_COMPLETED_report_w_letters.pdf

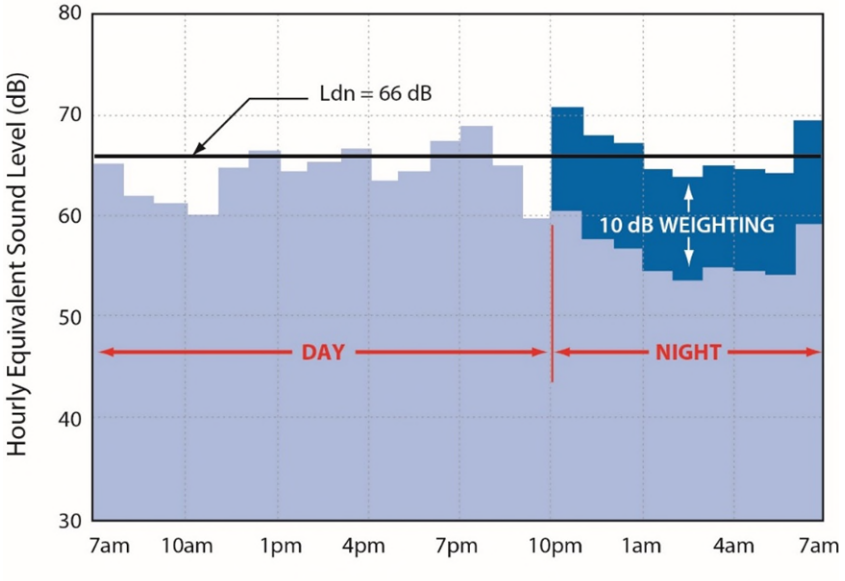


Figure A-6. Example of a Day-Night Average Sound Level Calculation

Source: HMMH

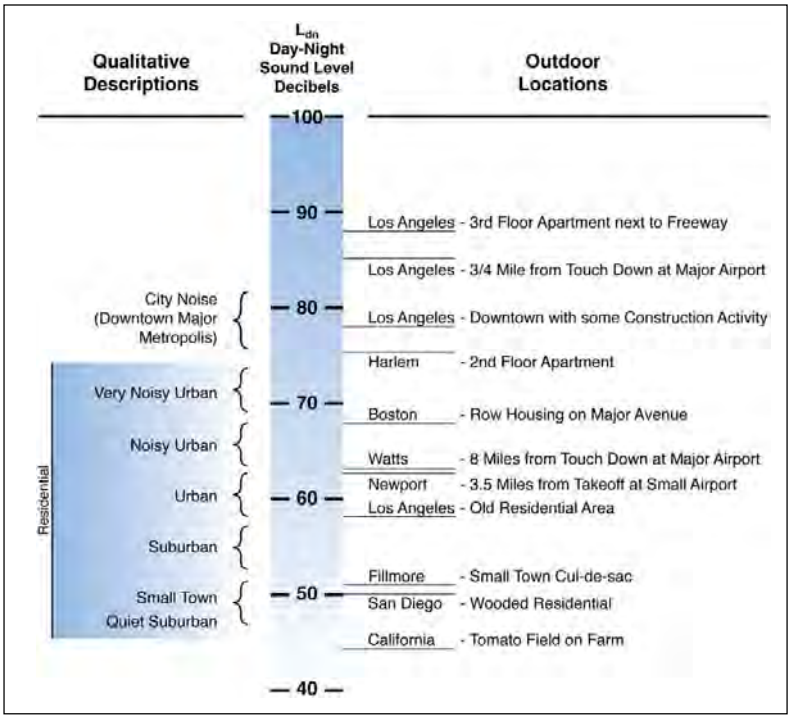


Figure A-7. Examples of Measured Day-Night Average Sound Levels, DNL

Source: U.S. Environmental Protection Agency, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," March 1974, p.14.

A.2 Aircraft Noise Effects on Human Activity

Aircraft noise can be an annoyance and a nuisance. It can interfere with conversation and listening to television, disrupt classroom activities in schools, and disrupt sleep. Relating these effects to specific noise metrics helps in the understanding of how and why people react to their environment.

A.2.1 Speech Interference

One potential effect of aircraft noise is its tendency to "mask" speech, making it difficult to carry on a normal conversation. The sound level of speech decreases as the distance between a talker and listener increases. As the background sound level increases, it becomes harder to hear speech.

Figure A-8 presents typical distances between talker and listener for satisfactory outdoor conversations, in the presence of different steady A-weighted background noise levels for raised, normal, and relaxed voice effort. As the background level increases, the talker must raise his/her voice, or the individuals must get closer together to continue talking.

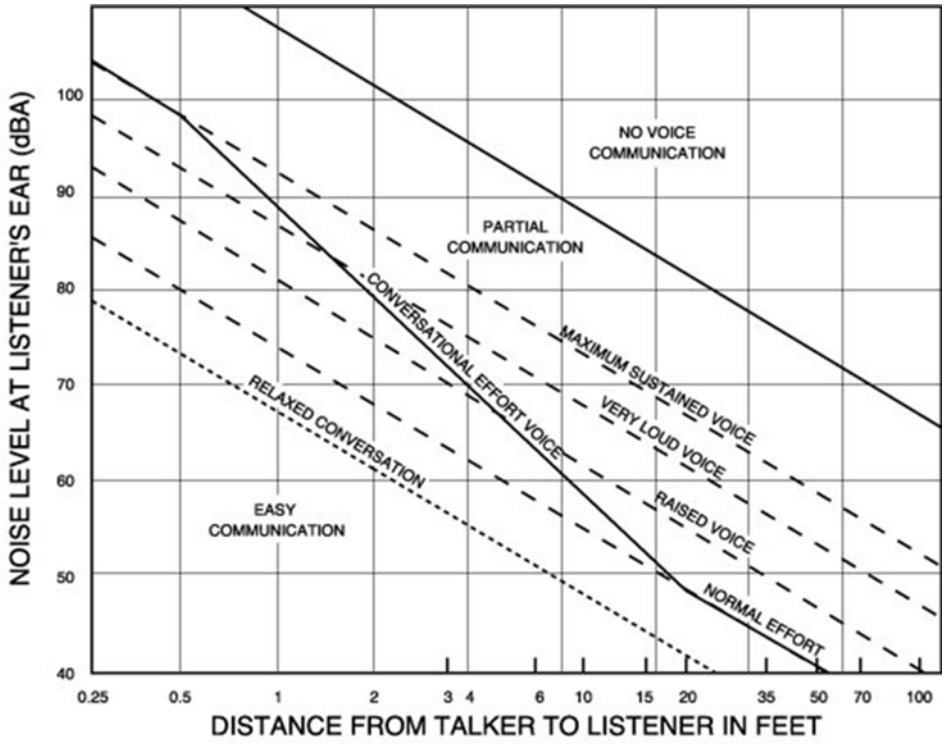


Figure A-8. Outdoor Speech Intelligibility

Source: U.S. EPA, "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," March 1974, p.D-5.

Satisfactory conversation does not always require hearing every word; 95 percent intelligibility is acceptable for many conversations. In relaxed conversation, however, we have higher expectations of hearing speech and generally require closer to 100 percent intelligibility. Any combination of talker-listener distances and background noise that falls below the bottom line in the figure (which roughly represents the upper boundary of 100 percent intelligibility) represents an ideal environment for outdoor speech communication. Indoor communication is generally acceptable in this region as well.

One implication of the relationships in **Figure A-8** is that for typical communication distances of three or four feet, acceptable outdoor conversations can be carried on in a normal voice as long as the background noise outdoors is less than about 65 dB. If the noise exceeds this level, as might occur when an aircraft passes overhead, intelligibility would be lost unless vocal effort were increased or communication distance were decreased.

Indoors, typical distances, voice levels, and intelligibility expectations generally require a background level less than 45 dB. With windows partly open, housing generally provides about 10 to 15 dB of interior-to-exterior noise level reduction. Thus, if the outdoor sound level is 60 dB or less, there is a reasonable chance that the resulting indoor sound level will afford acceptable interior conversation. With windows closed, 24 dB of attenuation is typical.

A.2.2 Sleep Interference

Research on sleep disruption from noise has led to widely varying observations. In part, this is because (1) sleep can be disturbed without awakening, (2) the deeper the sleep the more noise it takes to cause arousal, (3) the tendency to awaken increases with age, and other factors. **Figure A-9** shows a summary of findings on the topic.

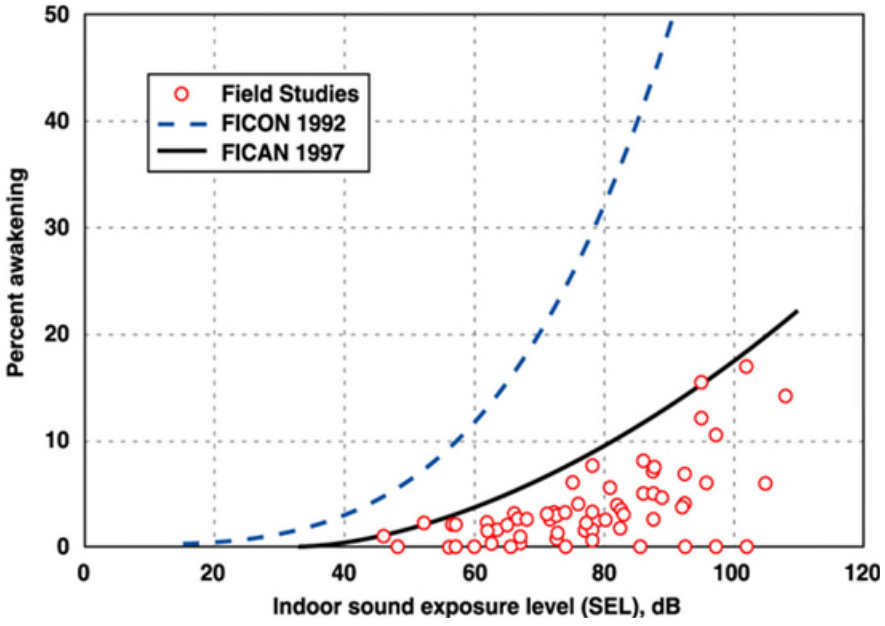


Figure A-9. Sleep Interference

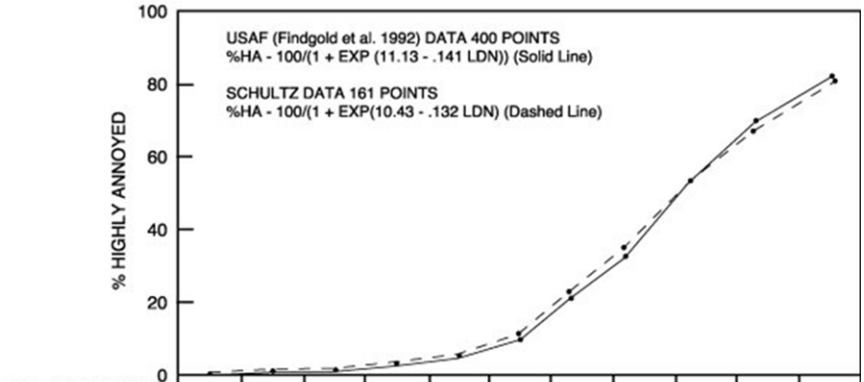
Source: Federal Interagency Committee on Aircraft Noise (FICAN), "Effects of Aviation Noise on Awakenings from Sleep," June 1997, pg. 6

Figure A-9 uses indoor SEL as the measure of noise exposure; current research supports the use of this metric in assessing sleep disruption. An indoor SEL of 80 dBA results in a maximum of 10 percent awakening.[10]

A.2.3 Community Annoyance

Numerous psychoacoustic surveys provide substantial evidence that individual reactions to noise vary widely with noise exposure level. Since the early 1970s, researchers have determined (and subsequently confirmed) that aggregate community response is generally predictable and relates reasonably well to cumulative noise exposure such as DNL. **Figure A-10** depicts the widely recognized relationship between environmental noise and the percentage of people "highly annoyed," with annoyance being the key indicator of community response usually cited in this body of research. Separate work by the EPA showed that overall community reaction to a noise environment was also correlated with DNL. **Figure A-11** depicts this relationship.

As noted above in the discussion of DNL, the full report on the FAA's recent research, polling communities surrounding 20 airports nationwide, was released in January 2021. At the time of this reporting, the public review and comment period on that research had ended but FAA had not yet issued new guidance.



Day - Night Average Sound Level in dB		40	45	50	55	60	65	70	75	80	85	100
Calculated %HA Points	USAF	0.41	0.831	1.66	3.31	6.48	12.29	22.1	36.47	53.74	70.16	82.64
	SCHULTZ	0.576	1.11	2.12	4.03	7.52	13.59	23.32	37.05	53.25	68.78	81

Figure A-10. Percentage of People Highly Annoyed

Source: FICON, "Federal Agency Review of Selected Airport Noise Analysis Issues," September 1992

[10] The awakening data presented in Figure A-9 apply only to individual noise events. The American National Standards Institute (ANSI) has published a standard that provides a method for estimating the number of people awakened at least once from a full night of noise events: ANSI/ASA S12.9-2008 / Part 6, "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 6: Methods for Estimation of Awakenings Associated with Outdoor Noise Events Heard in Homes." This method can use the information on single events computed by a program such as the FAA's AEDT, to compute awakenings.

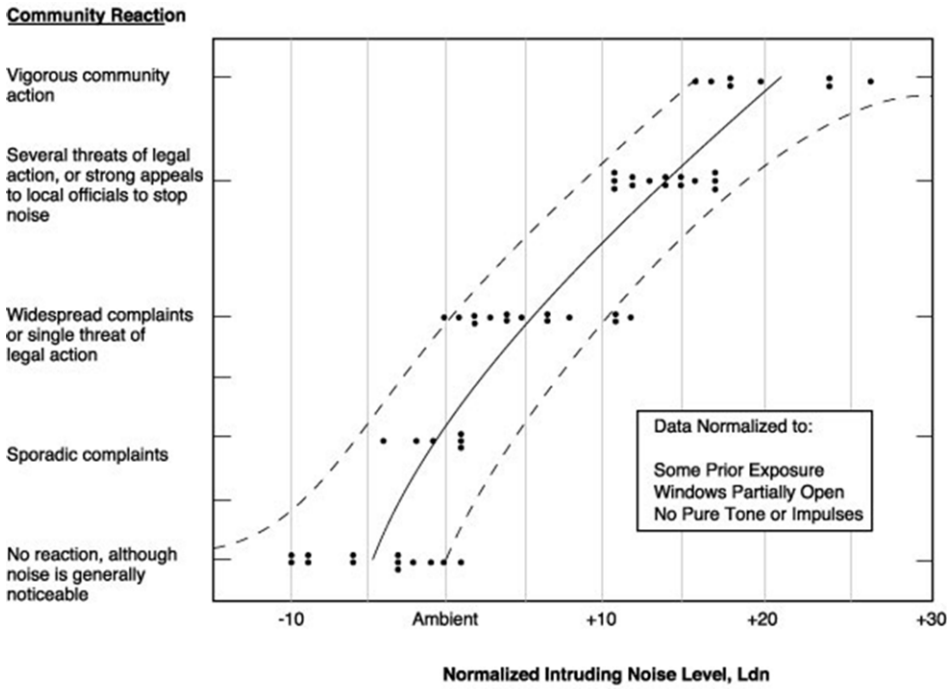


Figure A-11. Community Reaction as a Function of Outdoor DNL

Source: Wyle Laboratories, Community Noise, prepared for the U.S. EPA, Office of Noise Abatement and Control, Washington, D.C., December 1971, pg. 63

Data summarized in the figure suggests that little reaction would be expected for intrusive noise levels five decibels below the ambient, while widespread complaints can be expected as intruding noise exceeds background levels by about five decibels. Vigorous action is likely when levels exceed the background by 20 dB.

A.3 Noise Propagation

This section presents information sound-propagation effect due to weather, source-to-listener distance, and vegetation.

A.3.1 Weather-Related Effects

Weather (or atmospheric) conditions that can influence the propagation of sound include humidity, precipitation, temperature, wind, and turbulence (or gustiness). The effect of wind – turbulence in particular – is generally more important than the effects of other factors. Under calm-wind conditions, the importance of temperature (in particular vertical “gradients”) can increase, sometimes to very significant levels. Humidity generally has little significance relative to the other effects.

A.3.2 Influence of Humidity and Precipitation

Humidity and precipitation rarely affect sound propagation in a significant manner. Humidity can reduce propagation of high-frequency noise under calm-wind conditions. This is called “Atmospheric absorption.” In very cold conditions, listeners often observe that aircraft sound “tinny,” because the dry

air increases the propagation of high-frequency sound. Rain, snow, and fog also have little, if any, noticeable effect on sound propagation. A substantial body of empirical data supports these conclusions.[11]

A.3.3 Influence of Temperature

The velocity of sound in the atmosphere is dependent on the air temperature.[12] As a result, if the temperature varies at different heights above the ground, sound will travel in curved paths rather than straight lines. During the day, the temperature normally decreases with increasing height. Under such "temperature lapse" conditions, the atmosphere refracts ("bends") sound waves upwards and an acoustical shadow zone may exist at some distance from the noise source.

Under some weather conditions, an upper level of warmer air may trap a lower layer of cool air. Such a "temperature inversion" is most common in the evening, at night, and early in the morning when heat absorbed by the ground during the day radiates into the atmosphere.[13] The effect of an inversion is just the opposite of lapse conditions. It causes sound propagating through the atmosphere to refract downward.

The downward refraction caused by temperature inversions often allows sound rays with originally upward-sloping paths to bypass obstructions and ground effects, increasing noise levels at greater distances. This type of effect is most prevalent at night, when temperature inversions are most common and when wind levels often are very low, limiting any confounding factors.[14] Under extreme conditions, one study found that noise from ground-borne aircraft might be amplified 15 to 20 dB by a temperature inversion. In a similar study, noise caused by an aircraft on the ground registered a higher level at an observer location 1.8 miles away than at a second observer location only 0.2 miles from the aircraft.[15]

A.3.4 Influence of Wind

Wind has a strong directional component that can lead to significant variation in propagation. In general, receivers that are downwind of a source will experience higher sound levels, and those that are upwind will experience lower sound levels. Wind perpendicular to the source-to-receiver path has no significant effect.

The refraction caused by wind direction and temperature gradients is additive.[16] One study suggests that for frequencies greater than 500 Hz, the combined effects of these two factors tends towards two

[11] Ingard, Uno. "A Review of the Influence of Meteorological Conditions on Sound Propagation," *Journal of the Acoustical Society of America*, Vol. 25, No. 3, May 1953, p. 407.

[12] In dry air, the approximate velocity of sound can be obtained from the relationship:

$c = 331 + 0.6T_c$ (c in meters per second, T_c in degrees Celsius). Pierce, Allan D., *Acoustics: An Introduction to its Physical Principles and Applications.* McGraw-Hill. 1981. p. 29.

[13] Embleton, T.F.W., G.J. Thiessen, and J.E. Piercy, "Propagation in an inversion and reflections at the ground," *Journal of the Acoustical Society of America*, Vol. 59, No. 2, February 1976, p. 278.

[14] Ingard, p. 407.

[15] Dickinson, P.J., "Temperature Inversion Effects on Aircraft Noise Propagation," (Letters to the Editor) *Journal of Sound and Vibration.* Vol. 47, No. 3, 1976, p. 442.

[16] Piercy and Embleton, p. 1412. Note, in addition, as a result of the scalar nature of temperature and the vector nature of wind, the following is true: under lapse conditions, the refractive effects of wind and temperature add in the upwind direction and cancel each other in the downwind direction. Under inversion conditions, the opposite is true.

extreme values: approximately 0 dB in conditions of downward refraction (temperature inversion or downwind propagation) and -20 dB in upward refraction conditions (temperature lapse or upwind propagation). At lower frequencies, the effects of refraction due to wind and temperature gradients are less pronounced.[17]

Wind turbulence (or "gustiness") can also affect sound propagation. Sound levels heard at remote receiver locations will fluctuate with gustiness. In addition, gustiness can cause considerable attenuation of sound due to effects of eddies traveling with the wind. Attenuation due to eddies is essentially the same in all directions, with or against the flow of the wind, and can mask the refractive effects discussed above.[18]

A.3.5 Distance-Related Effects

People often ask how distance from an aircraft to a listener affects sound levels. Changes in distance may be associated with varying terrain, offsets to the side of a flight path, or aircraft altitude. The answer is a bit complex because distance affects the propagation of sound in several ways.

The principal effect results from the fact that any emitted sound expands in a spherical fashion – like a balloon – as the distance from the source increases, resulting in the sound energy being spread out over a larger volume. With each doubling of distance, spherical spreading reduces instantaneous or maximum level by approximately six decibels and SEL by approximately three decibels.

A.3.6 Vegetation-Related Effects

Sound can be scattered and absorbed as it travels through vegetation. This results in a decrease in sound levels. The literature on the effect of vegetation on sound propagation contains several approaches to calculating its effect. Although these approaches differ in some aspects, they agree on the following:

- The vegetation must be dense and deep enough to block the line of sight.
- The noise reduction is greatest at high frequencies and least at low frequencies.

The International Standard ISO 9613-2[19] provides a useful example of the types of calculations employed in these methods. Originally developed for industrial noise sources, ISO 9613-2 is well-suited for the evaluation of ground-based aircraft noise sources under favorable meteorological conditions for sound propagation. ISO 9613-2's methodology for calculating sound propagation includes geometric dispersion from acoustical point sources, atmospheric absorption, the effects of areas of hard and soft ground, screening due to barriers, and reflections. The attenuation provided by dense foliage varies by octave band and by distance as shown in **Table A-1**.

For propagation through less than 10 m of dense foliage, no attenuation is assumed. For propagation through 10 m to 20 m of dense foliage, the total attenuation is shown in the first row of **Table A-1**. For

[17] Piercy and Embleton, p. 1413.

[18] Ingard, pp. 409-410.

[19] International Organization for Standardization, Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of calculation, International Standard ISO9613-2, Geneva, Switzerland (15 December 1996).

distances between 20 m and 200 m, the total attenuation is computed by multiplying the distance of propagation through dense foliage by the dB/m values shown in the second row of **Table A-1**.

Table A-1. Dense Foliage Noise Attenuation

Propagation Distance	Nominal Midband Frequency (Hz)							
	63	125	250	500	1,000	2,000	4,000	8,000
10 m to 20 m (dB Attenuation)	0	0	1	1	1	1	2	3
20 m to 200 m (dB/m Attenuation)	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.12

Source: ISO 9613-2, Table A.1

ISO 9613-2 assumes a moderate downwind condition. The equations in the ISO Standard also hold, equivalently, for average propagation under a well-developed moderate ground-based temperature inversion, such as commonly occurs on clear, calm nights. In either case, the sound is refracted downward. The radius of this curved path is assumed to be 5 km. With this curved sound path, only portions of the sound path may travel through the dense foliage, as illustrated by **Figure A-12**. Thus, the relative locations of the source and receiver, the dimensions of the volume of dense foliage, and the contours of the intervening terrain are essential to the estimation of the noise attenuation.

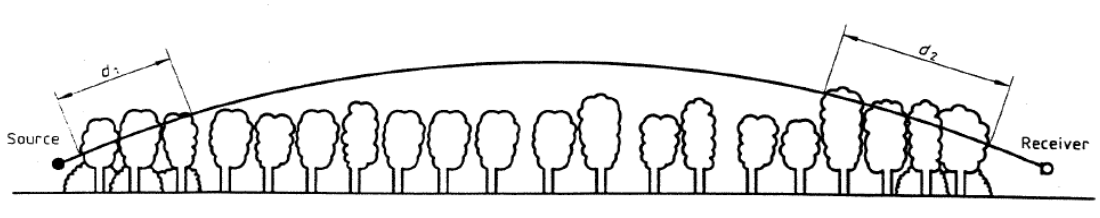


Figure A-12. Downward Refracting Sound Path

Source: ISO 9613-2

As illustrated in **Figure A-12**, the foliage only provides attenuation if the sound path passes through the foliage. For aircraft in the air, the sound will pass through little, if any foliage. Additionally, either the noise source or receiver must be near the foliage for it to have an effect.

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APPENDIX 5 – SECTION 106 APPROVAL

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BUREAU OF AERONAUTICS

SECTION 106 REVIEW
ARCHAEOLOGICAL/HISTORICAL INFORMATION

Wisconsin Department of Transportation

I. PROJECT INFORMATION

FOS Project ID AIP-114 (WisDOT ID 0740-40-114) MKE Decommission and Remove RWY 13-31	County Milwaukee
Airport Name General Mitchell International Airport (MKE)	Airport Manager Brian Dranzik
Project Engineer/Project Manager Wendy Hottenstein	(Area Code) Telephone Number (608) 261-6278
Planning/Design Consultant Kaitlyn Wehner, Westwood	(Area Code) Telephone Number (920) 830-6183
Archaeological Consultant Rigden Glaab, Westwood	(Area Code) Telephone Number (952) 697-5791
Architecture/History Consultant Sara Nelson, Westwood	(Area Code) Telephone Number (952) 697-5790
Date of Need As soon as possible	24-0404

II. PROJECT DESCRIPTION

Type of Project ☐ New Construction ☐ Reconstruction ☐ Recondition ☒ Other
☐ Wetland Mitigation ☐ Runway Extension ☐ Land Acquisition

☐ Known Cemetery	Amount of land to be disturbed: Acres 60.9 acres	Amount of acres to be acquired Acres 0.00

Describe ground disturbing activity associated with proposed construction - e.g., strip construction, slope grading, temporary bypass, realignment, stream channel change, etc.

Brief Project Description: (Be specific and include all activities associated with the project.)

The proposed project at General Mitchell International Airport (Airport) consists of the decommissioning and removal of Runway 13-31. The Airport owned and operated by Milwaukee County. The Airport is located in the City of Milwaukee, Milwaukee County, Wisconsin; approximately two miles west of Lake Michigan and six miles south of downtown Milwaukee. Specifically, the proposed project is located within airport property in Sections 27 and 28 of Township 6 North, Range 22 East in Milwaukee County, Wisconsin.

Recently the Airport completed a Master Plan Update which established the needs and goals for the future of the Airport. The purpose for the proposed project is to align the airfield configuration with the Master Plan Update goals and the recently approved Airport Layout Plan. The proposed project will enhance airfield compliance with updated Federal Aviation Administration (FAA) standards.

The proposed project activities will consist of the decommissioning of Runway 13-31 and the removal of Taxiway G, Taxiway U, and Taxiway N connectors. The project is anticipated to include the removal of approximately 126,900 SY of pavement and associated electrical utilities and NAVAIDs for Runway 13-31, Taxiway G, Taxiway U, and Taxiway N and restoration to turf. The proposed project also consists of the addition of a holding bay adjacent to Taxiway M including associated lighting. Possible haul routes and staging areas are located on airport property utilizing existing paved or gravel roads and staging areas for other airfield projects.

Construction for the proposed project is anticipated to start during the spring of 2027 and continue through the fall of 2028.

III. NOTIFICATION

How has notification of the project been provided to:

☒ Property Owners
- ☒ Public Information Meeting Notice
- ☐ Letter [required for Archaeology]
- ☐ Telephone Call
- ☐ Other

☒ Historical Societies/Organizations
- ☐ Public Information Meeting Notice
- ☒ Letter
- ☐ Telephone Call
- ☐ Other

☒ Native American Tribes
Must notify with:
- ☐ Public Info. Mtg. Notice
- ☒ Letter

*Attach one copy of the base letter, list of addresses and comments received. For history include telephone memos as appropriate.

IV. AREA OF POTENTIAL EFFECTS [APE]

HISTORY: Describe the area of potential effects for buildings/structures.

The area of potential effects lies completely within the airport property boundary. There are no existing building or structures within the area of potential effects. Thirty-one historical resources stand within one mile of the Project. A historic building is located off airport property approximately 0.26 miles north of the area of potential effects. The proposed project is not anticipated to impact any historical resources and the historic building.

If you wish to claim there is no APE for buildings/structures, you must justify that claim. [NOTE: If there are no buildings/structures of any kind in the APE, go to Item V., check "Architecture/History survey is not needed" and state why.]

ARCHAEOLOGY: Area of potential effect for archaeology is the existing and proposed ROW, temporary and permanent easements. Agricultural practices do not constitute a ground disturbance.

V. SURVEY NEEDED

ARCHAEOLOGY	HISTORY
☒ Archaeological survey **is needed** [See Chapter 26-35-1 of FDM for procedure and # of exhibits]	☒ Architecture/History survey is needed
☐ Archaeological survey **is not needed** - provide justification ☐ SHPO records search conducted ___ (date). ☐ Screening list ___ (date). ☐ No potential to affect archaeological sites Describe project area and attach project plans	☐ Architecture/History survey is not needed

VI. SURVEY COMPLETED-Documentation required for submittal to TSS

ARCHAEOLOGY	HISTORY
☒ Project maps attached [most recent design] ☒ ASFR attached [**NO** archaeological sites(s) identified] ☐ Report attached [**NO** potentially eligible site(s) in project area] ☐ Report attached [potentially eligible site(s) avoided] ☐ Report attached - cemetery documentation ☐ Native American response letters & reports [Send four reports + # of copies for NA requests to district.]	☒ A/HSF attached [**NO** buildings/structures identified] ☐ A/HSF attached [potentially eligible buildings/structures identified.]

VII. EVALUATION COMPLETED-Documentation required for submittal to TSS

- ☐ Report attached [no arch site(s) eligible for NRHP]
- ☐ Report and DOE attached [arch site(s) eligible for NRHP]
- ☐ Report and draft DOE attached [arch site(s) eligible for NRHP—avoided through project redesign]
- ☐ DOE attached [no buildings/structure(s) eligible for NRHP]
- ☐ DOE attached [building/structure(s) eligible for NRHP]

VIII. COMMITMENTS

IX. PROJECT REVIEW

- ☒ No eligible properties in APE
- ☐ No effect on historic buildings and/or archaeological sites eligible for NRHP
- ☐ Eligible properties may be affected by project-go to Step 4: Assess effects and begin consultation

Wendy Hottenstein	DocuSigned by: Barry Paye 3F13053827A84D7...	DocuSigned by: Kimberly Cook 2F3FB81F8D004A4...
(BOA Project Manager)	(WisDOT Historic Preservation Officer)	(State Historic Preservation Officer)
1/16/24	25 February 2024	28 February 2024
(Date)	(Date)	(Date)
Kathy Wehner		
(Consultant Project Manager)		
12/8/2023		
(Date)		

APPENDIX 6 – GREENHOUSE GAS EMISSION CALCULATIONS

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MKE RWY 13/13 Decomission and Removal Estimated Construction Emissions - Proposed Action Alternative								
Major Construction Operations Tasks	**Estimated Working Days for 1 Crew (Days)**	**Estimated Equipment**	**Estimated Fuel Burn (gal/hr)**	**Hours per day (hr/day)**	**Estimated Diesel Fuel Consumed (gal)**	**MT CO2**	**MT CH4**	**MT N2O**
Excavation	27	4 Quads 1 Dozer 1 Excavator	36	10	9720	98.9496	0.0098172	0.0091368
Milling Asphalt	3	1 Mill 8 Quads	44	10	1320	13.4376	0.0013332	0.0012408
Remove Concrete	58	1 Dozer - Heavy 1 Excavator 5 Quads	44	10	25520	259.7936	0.0257752	0.0239888
Topsoil/Fill Placement	115	5 Quads 2 Dozer	36	10	41400	421.452	0.041814	0.038916
				Totals	**77960**	**793.633**	**0.079**	**0.073**

MKE RWY 13/31 Decomission and Removal Estimated Construction Emissions - Alternative B								
Major Construction Operations Tasks	**Estimated Working Days for 1 Crew (Days)**	**Estimated Equipment**	**Estimated Fuel Burn (gal/hr)**	**Hours per day (hr/day)**	**Estimated Diesel Fuel Consumed (gal)**	**MT CO2**	**MT CH4**	**MT N2O**
Excavation	56	4 Quads 1 Dozer 1 Excavator	36	10	20160	205.2288	0.0203616	0.0189504
Milling Asphalt	3	1 Mill 8 Quads	44	10	1320	13.4376	0.0013332	0.0012408
Remove Concrete	58	1 Dozer - Heavy 1 Excavator 5 Quads	44	10	25520	259.7936	0.0257752	0.0239888
Subbase Course	11	6 Quads 2 Dozer	40	10	4400	44.792	0.004444	0.004136
Base Course	13	6 Quads 2 Dozer	40	10	5200	52.936	0.005252	0.004888
Lean Concrete Pavement	11	15 Quads 1 Paver	72	10	7920	80.6256	0.0079992	0.0074448
Concrete Pavement	11	15 Quads 1 Paver	72	10	7920	80.6256	0.0079992	0.0074448
Asphalt Pavement	2	15 Quads 1 Paver	72	10	1440	14.6592	0.0014544	0.0013536
Topsoil Placement	118	5 Quads 2 Dozer	36	10	42480	432.4464	0.0429048	0.0399312
				Totals	**116360**	**1184.545**	**0.118**	**0.109**

Estimated Construction Emissions Calculation Assumptions

Gallons of Diesel Consumed to CO2
10180 grams of CO2 = 1 gallon of diesel
10.180 x 10^-3 metric tons CO2 = 1 gallon of diesel
Source: https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references

CH4 & N2O Emissions for Non-Road Vehicles	
Diesel Equipment	CH4 = 1.01 g/gallon
	N2O = 0.94 g/gallon
Light Duty Trucks	CH4 = 0.0290 g/mile
Source: https://www.epa.gov/system/files/documents/2023-03/ghg_emission_factors_hub.pdf	

Estimated Production Rates	Expected Production Range	
Remove Concrete Pavement	410-2500 SY/Day	1,000 SY/Day, Typ.
Milling Asphalt (thick, 2 inches or more)	8000-20000 SY/Day	14,000 SY/Day, typ.
Excavation (Truck)	250-1,300 CY/Day	600 CY/Day, typ.
Base Course (Roadway)	350 - 1300 Ton/Day	700 Ton/Day, typ.
Breaker Run	730 - 2800 Ton/Day	1600 Ton/Day, typ.
Concrete Pavement	850-4000 SY/Day	2300 SY/Day, typ.
HMA Pavement	700-1800 Tons/Day	1300 Ton/Day, typ.
Topsoil Placement	120-700 CY/Day	280 CY/day
Source: https://wisconsindot.gov/Documents/doing-bus/eng-consultants/cnslt·rsrces/tools/estimating/production-rate-table.pdf		

Equipment	Fuel Burn Per Hour
Dozer/Scraper	6-8 gal/hour
Quad Axle Dump	4 gal/hour
Excavator	10-12 gal/hour
Articulated Dump	8 gal/hour
Heavy Dozer	12 gal/hour
Paver (conc or asphalt)	12 gal/hour

MKE RUNWAY 13-31 ENVIRONMENTAL ASSESSMENT

ANTICIPATED CONSTRUCTION MATERIAL PRODUCTION EMISSIONS
LCA PAVE TOOL CALCULATIONS AND ASSUMPTIONS

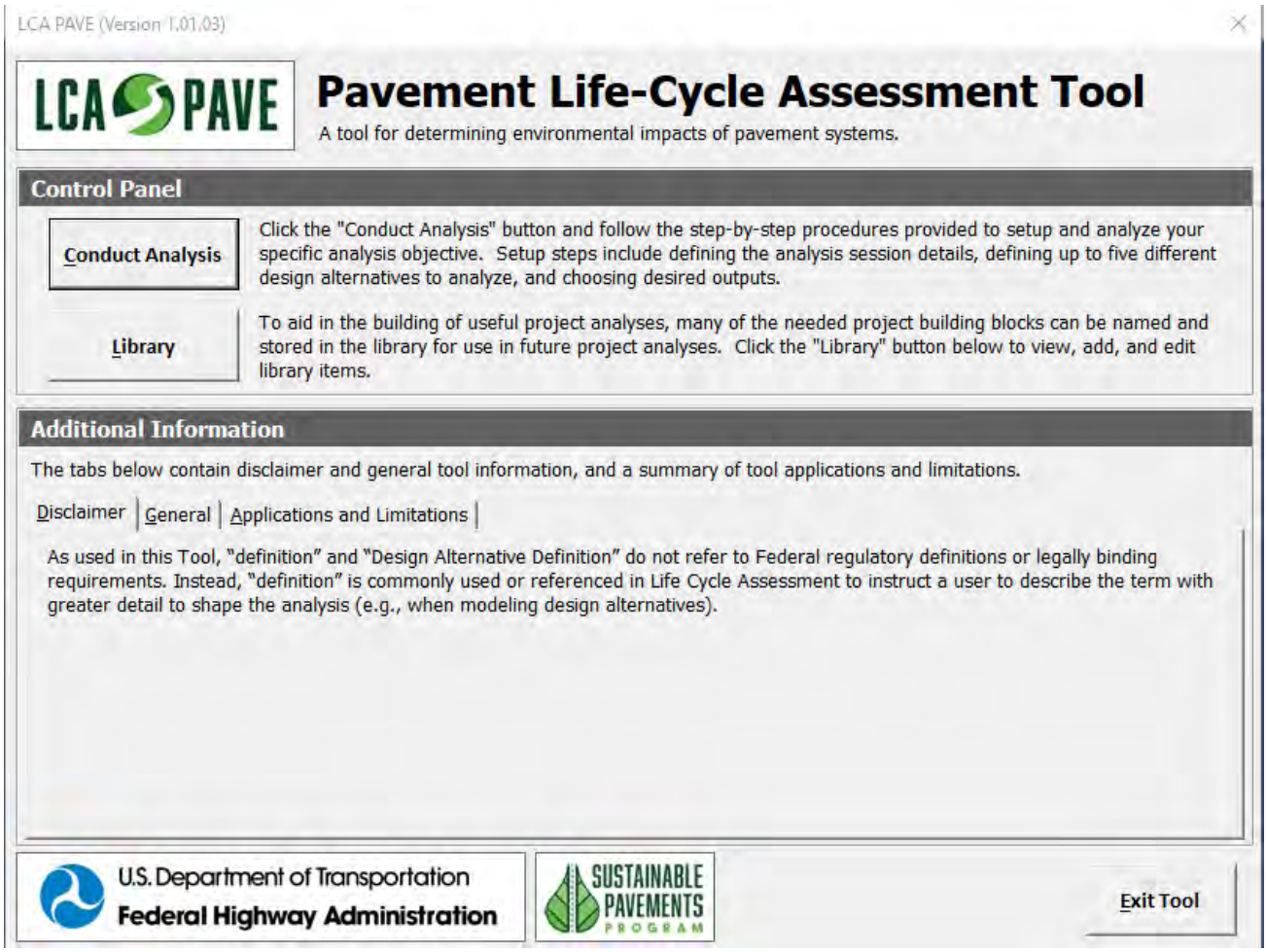

Figure 1. LCA Pavement Life-Cycle Assessment Tool Home Page[1]

[1] LCA Pave Tool was created by the U.S. Department of Transportation Federal Highway Administration (FHWA). The tool can be downloaded on the FHWA website: https://www.fhwa.dot.gov/pavement/lcatool/

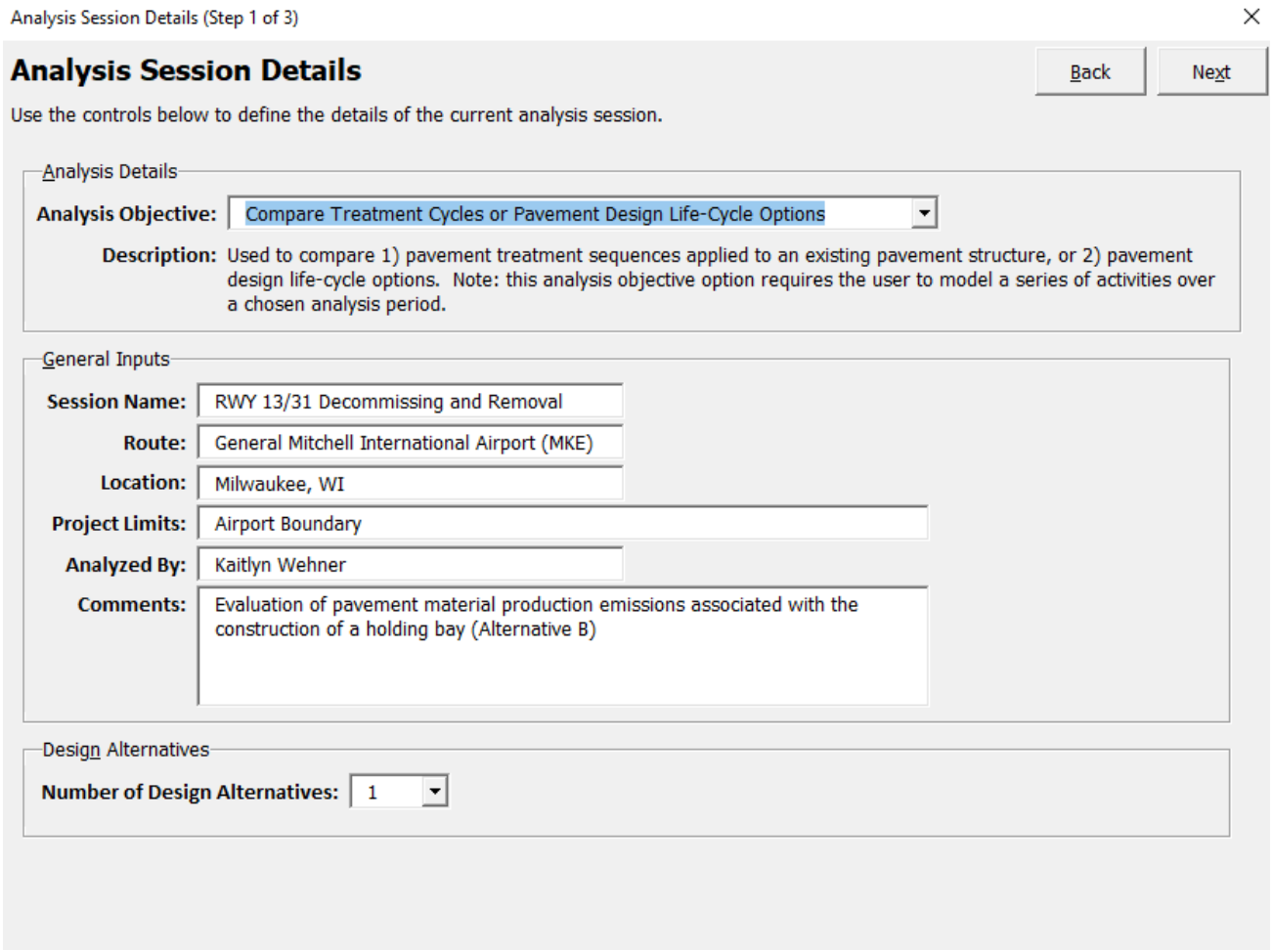

Figure 2. Analysis Session Details

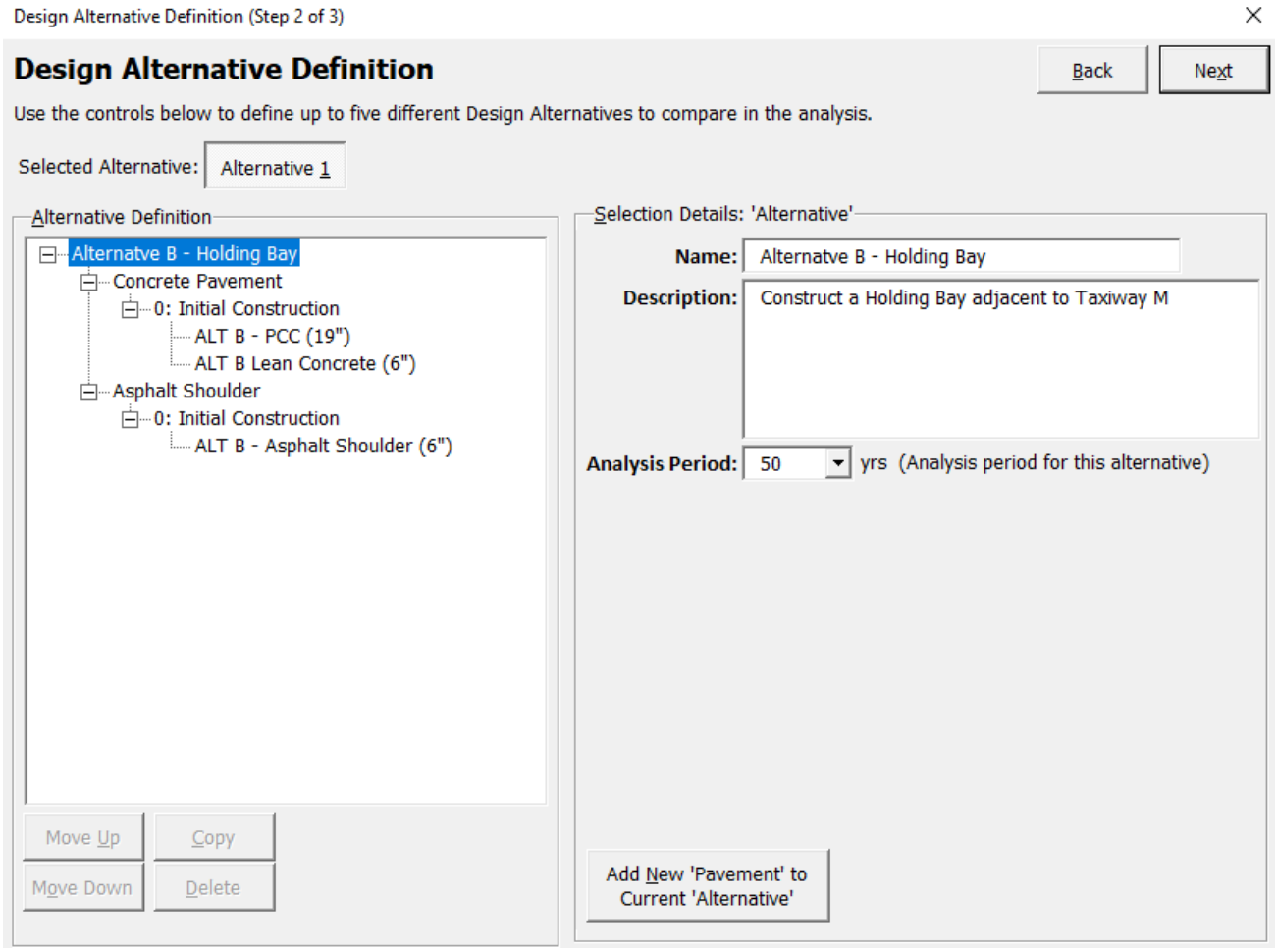

Figure 3. Alternative 1 Description

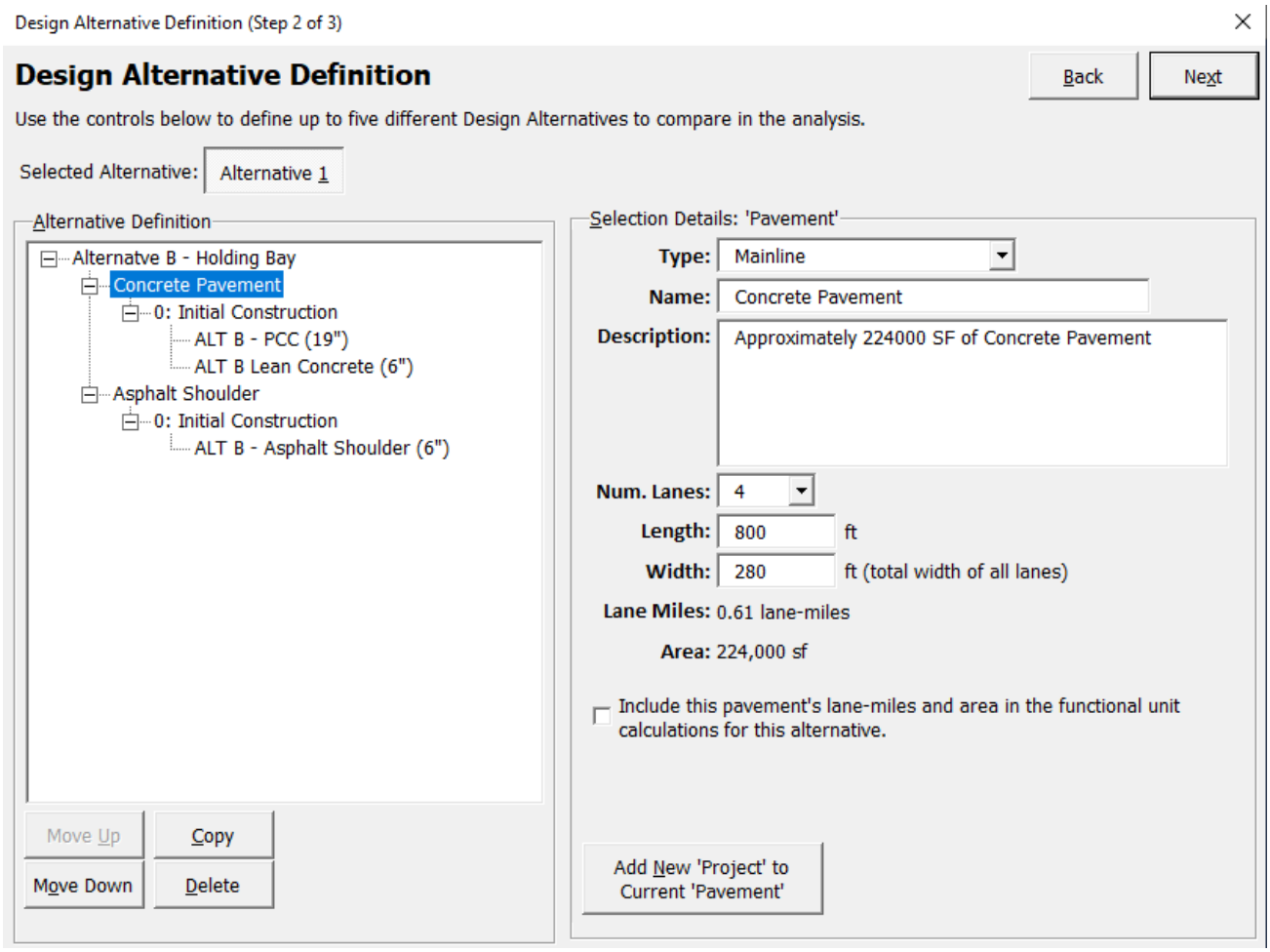

Figure 4. Alternative 1 Mainline Pavement Description

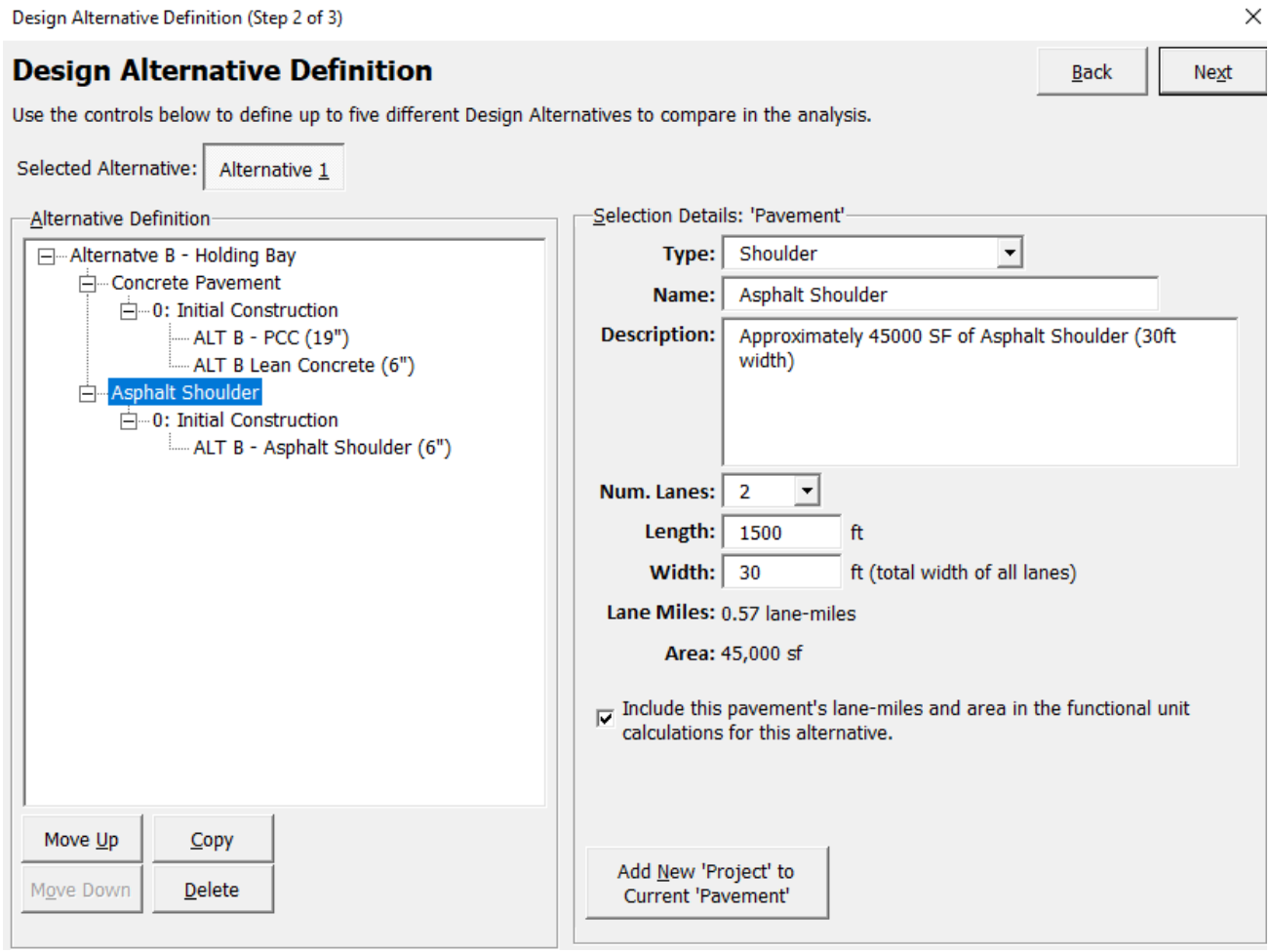

Figure 5. Alternative 1 Shoulder Pavement Description

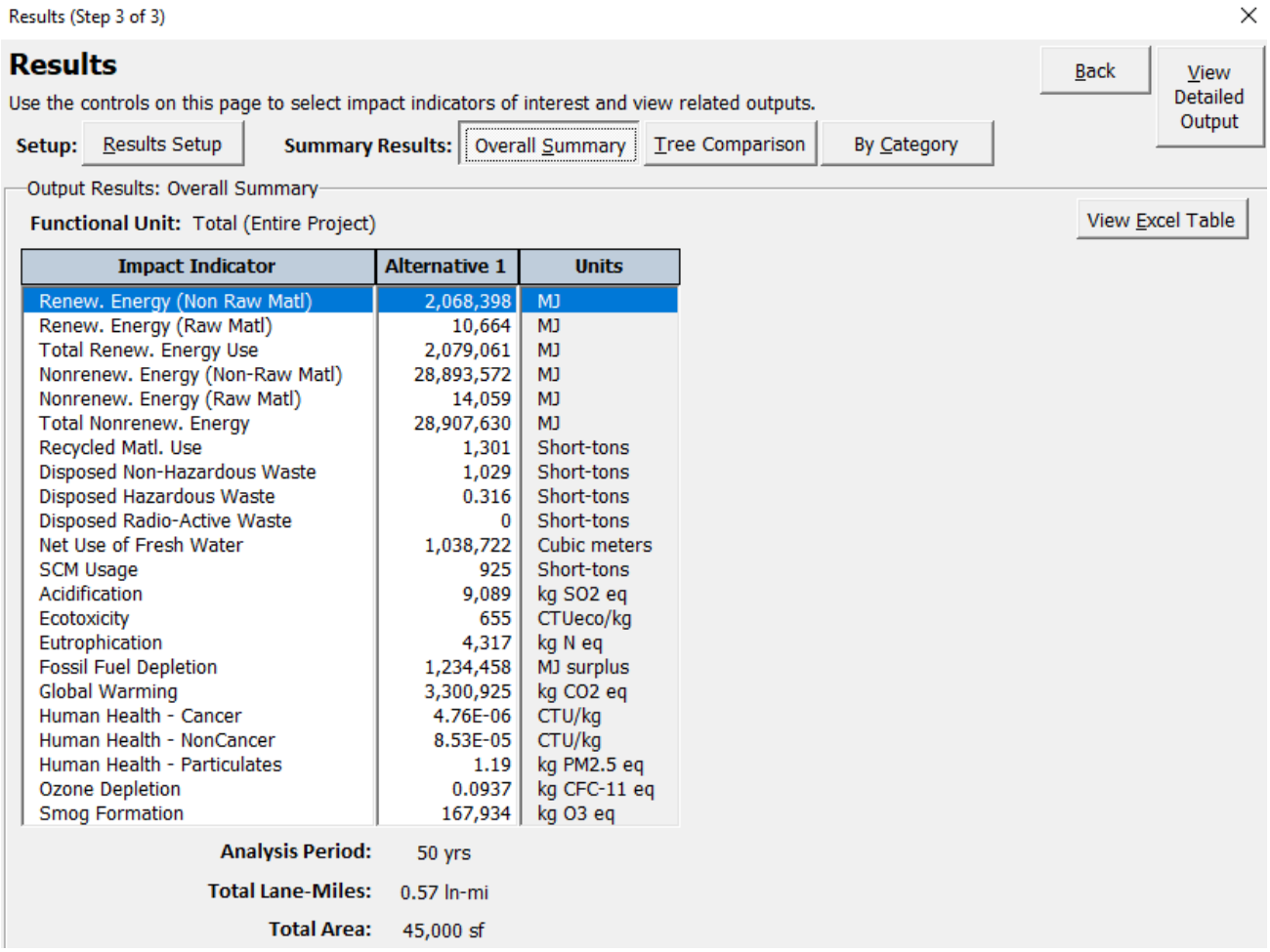

Figure 6. Summary Results Page

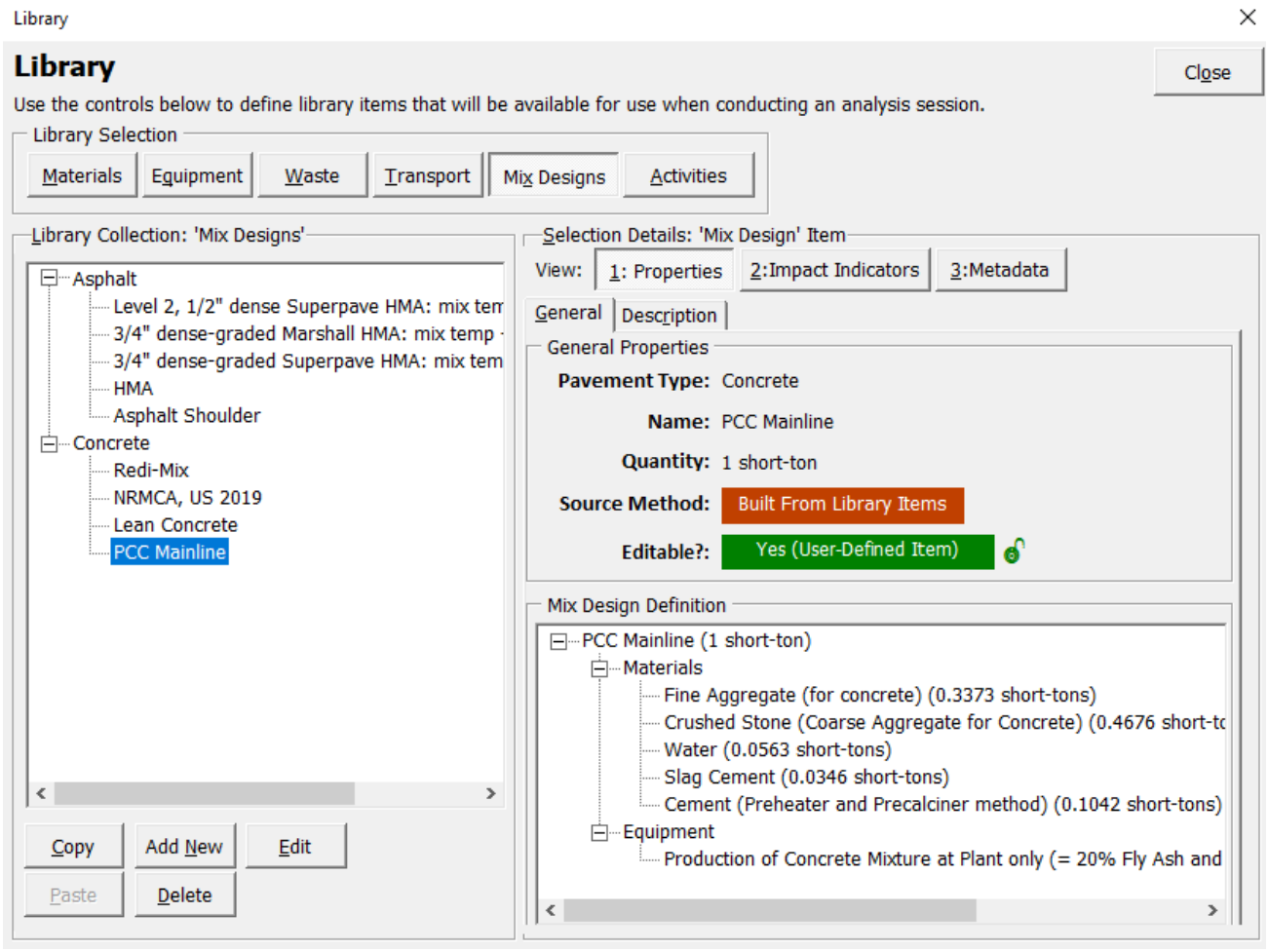

Figure 7. Assumed PCC (Concrete) Pavement Mix Design[2]

[2] Assumed PCC mix design determined through analyzing previous Wisconsin airport projects utilizing the FAA P-501 specification.

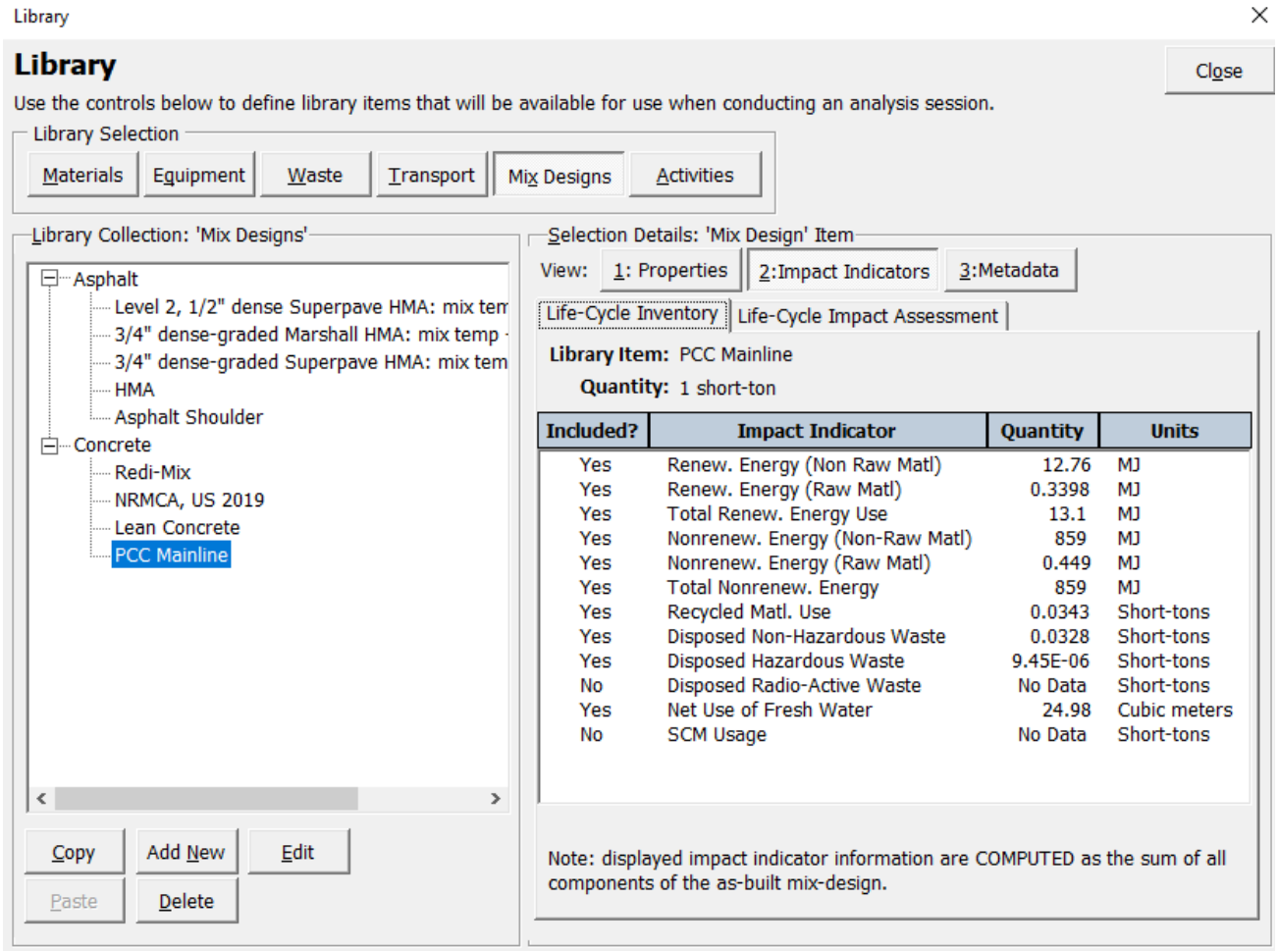

Figure 8. Assumed PCC (Concrete) Pavement Mix Design Impact Indicators for Life Cycle Inventory

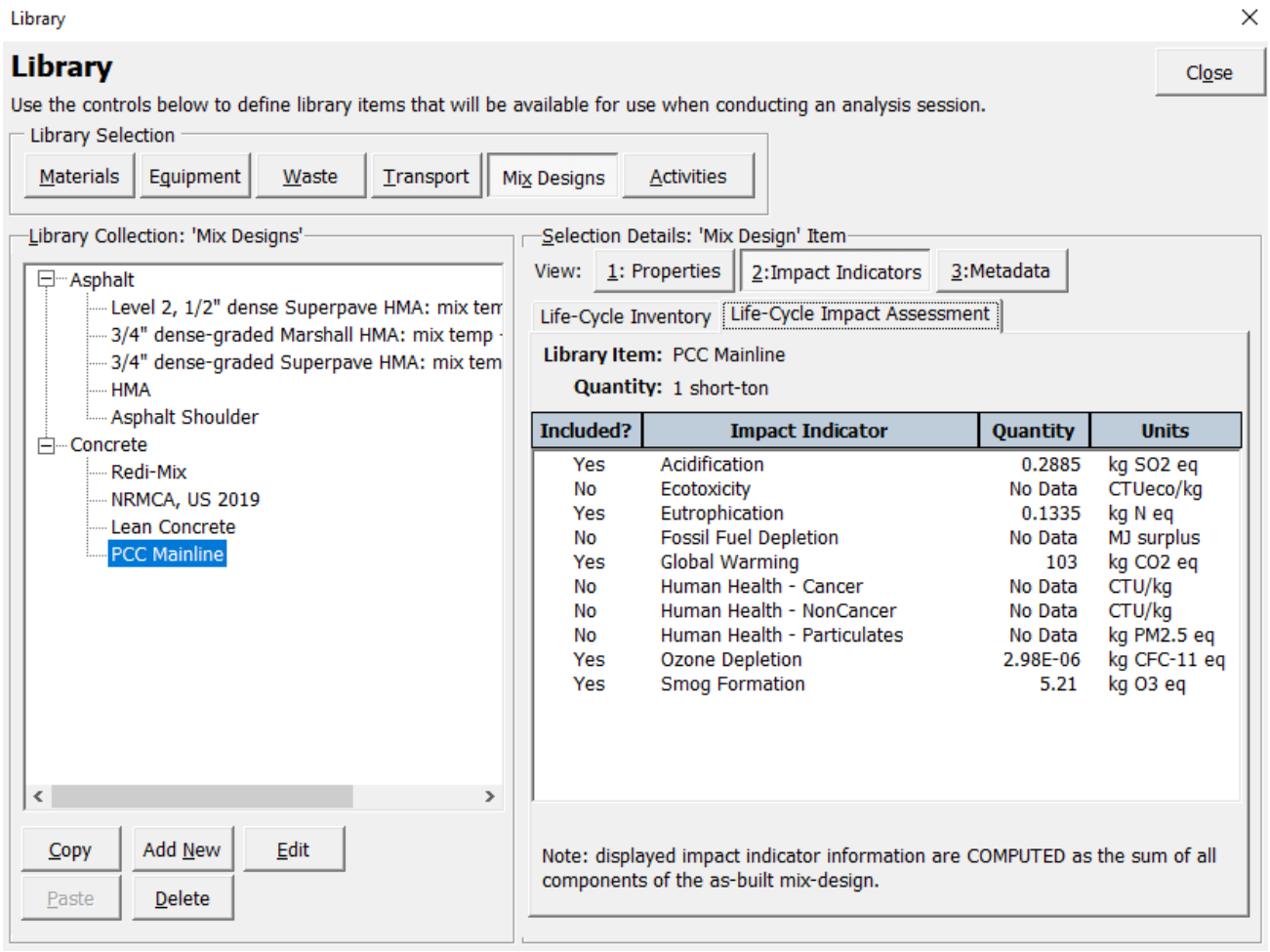

Figure 9. Assumed PCC (Concrete) Pavement Mix Design Impact Indicators for Life-Cycle Impact Assessment

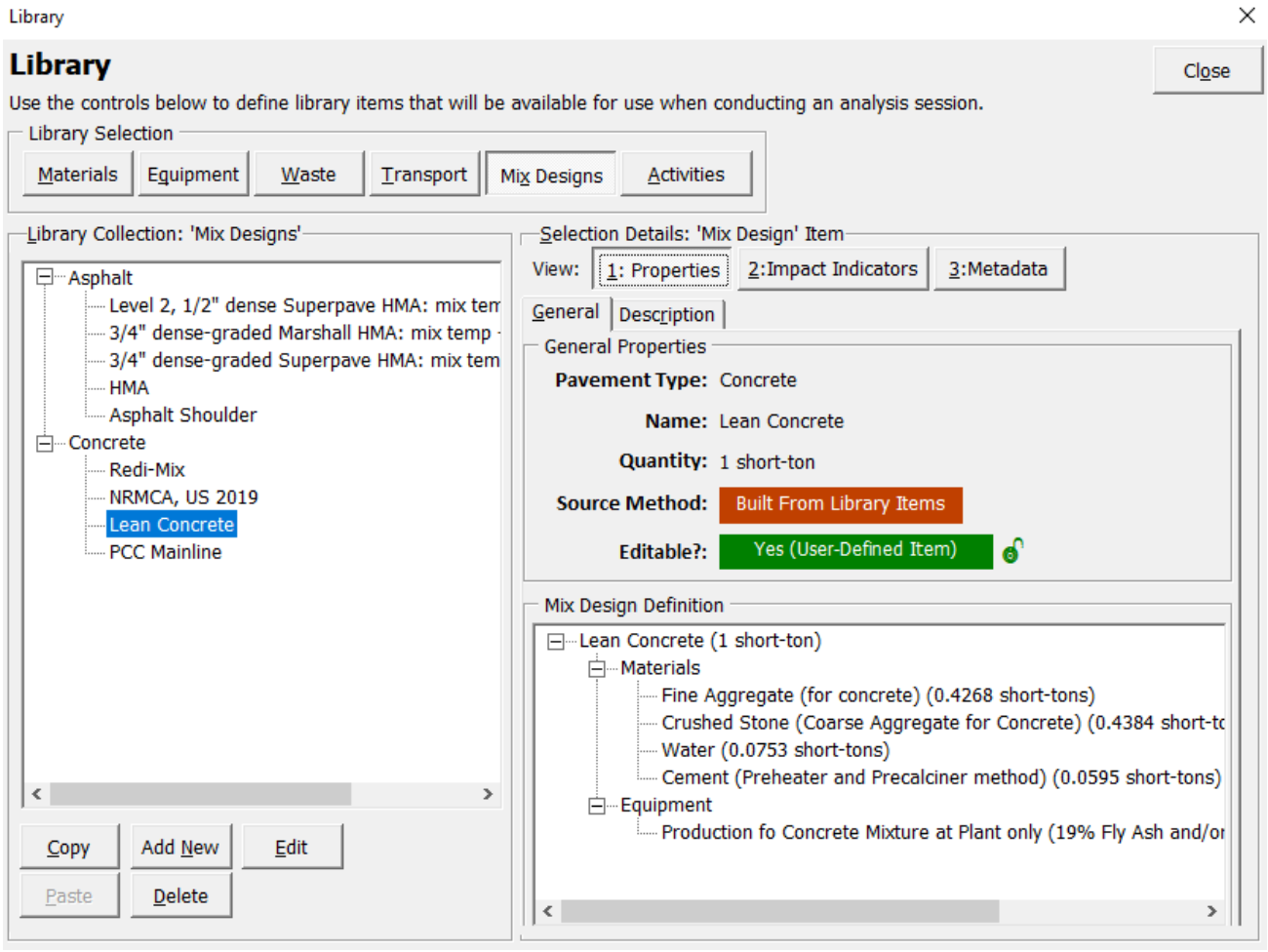

Figure 10. Assumed Lean Concrete Pavement Mix Design[3]

[3] Assumed lean concrete mix design determined through analyzing previous Wisconsin airport projects utilizing the FAA P-306 specification.

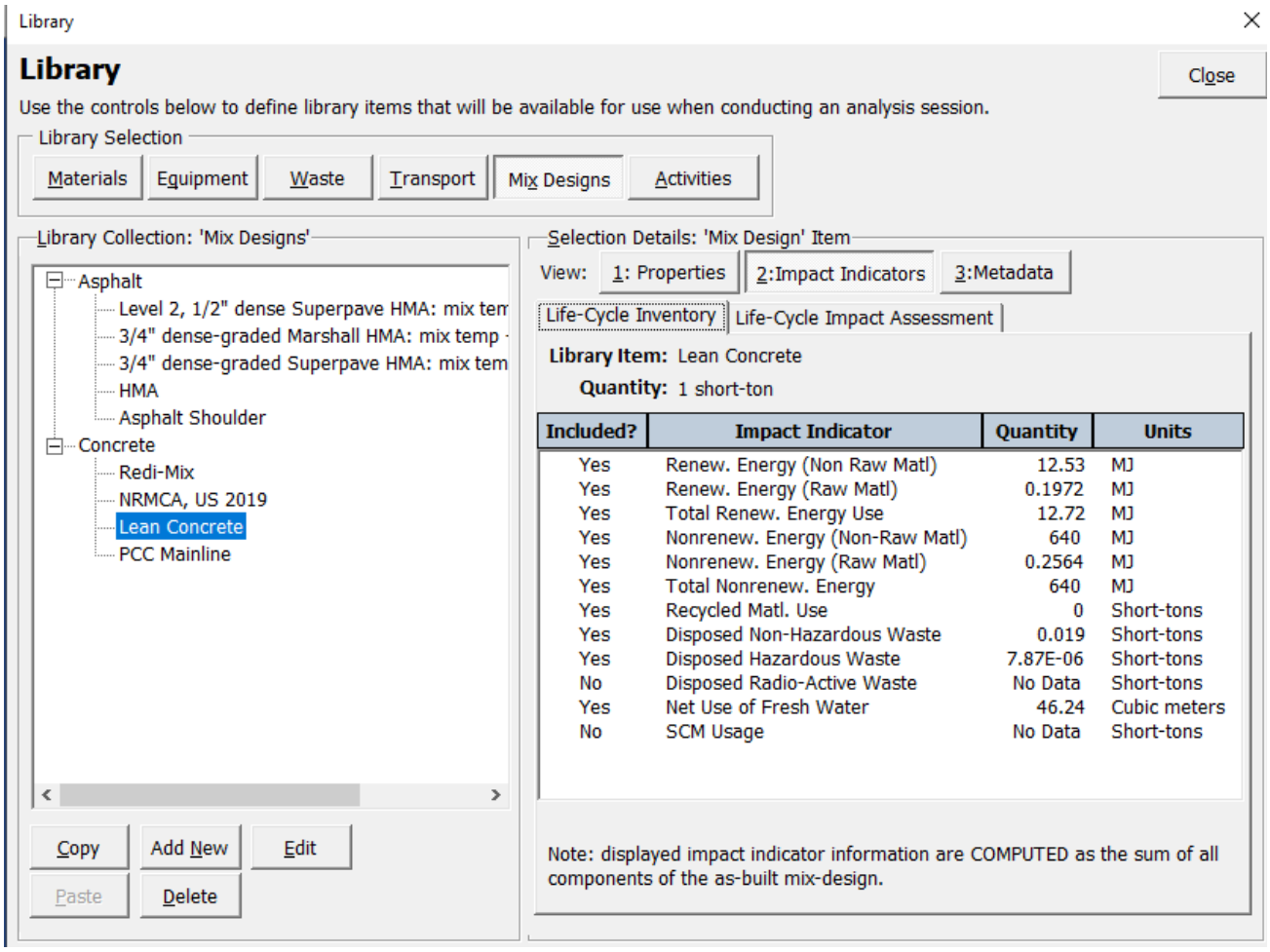

Figure 11. Assumed Lean Concrete Pavement Mix Design Impact Indicators for Life Cycle Inventory

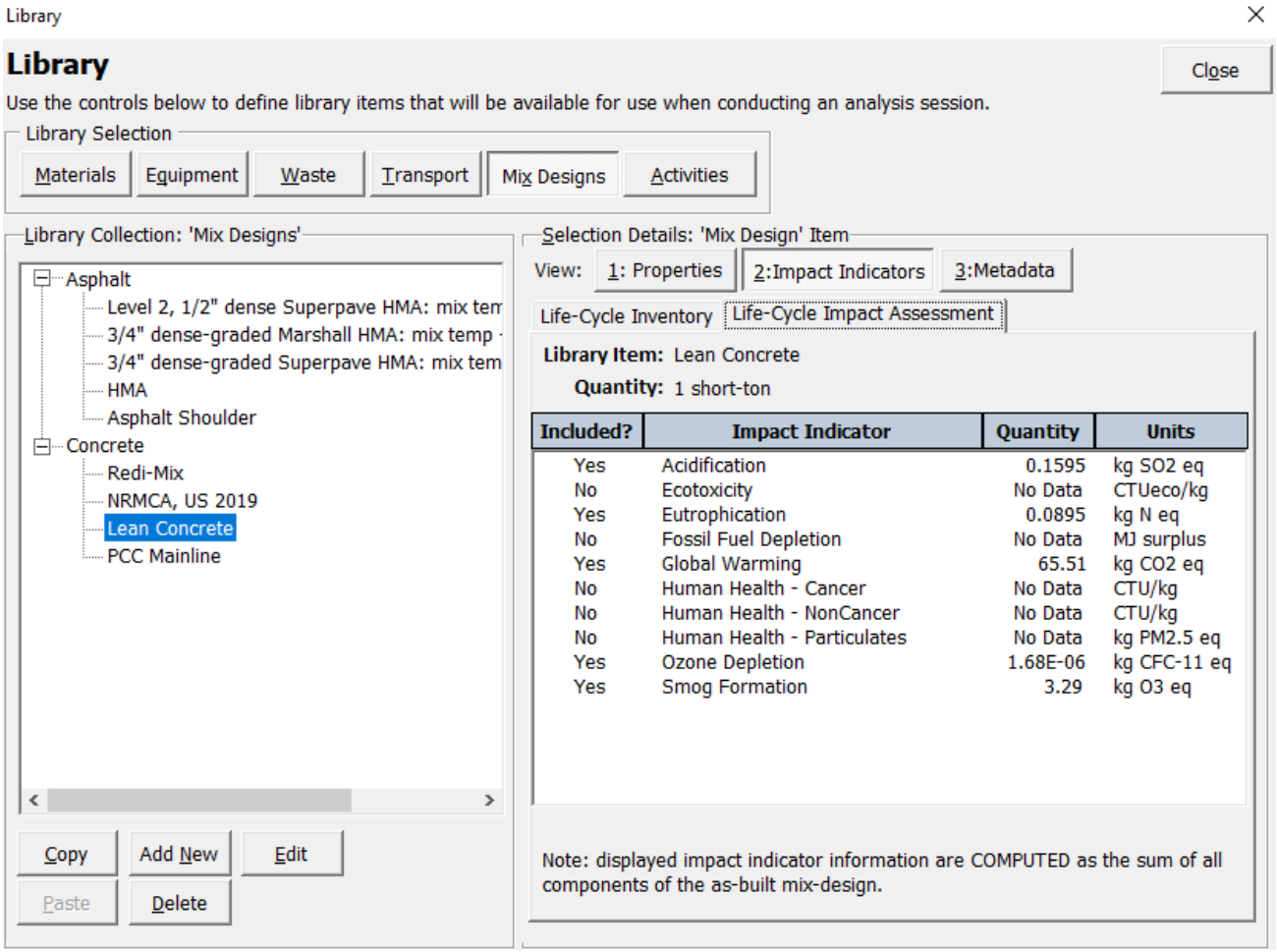

Figure 12. Assumed Lean Concrete Pavement Mix Design Impact Indicators for Life-Cycle Impact Assessment

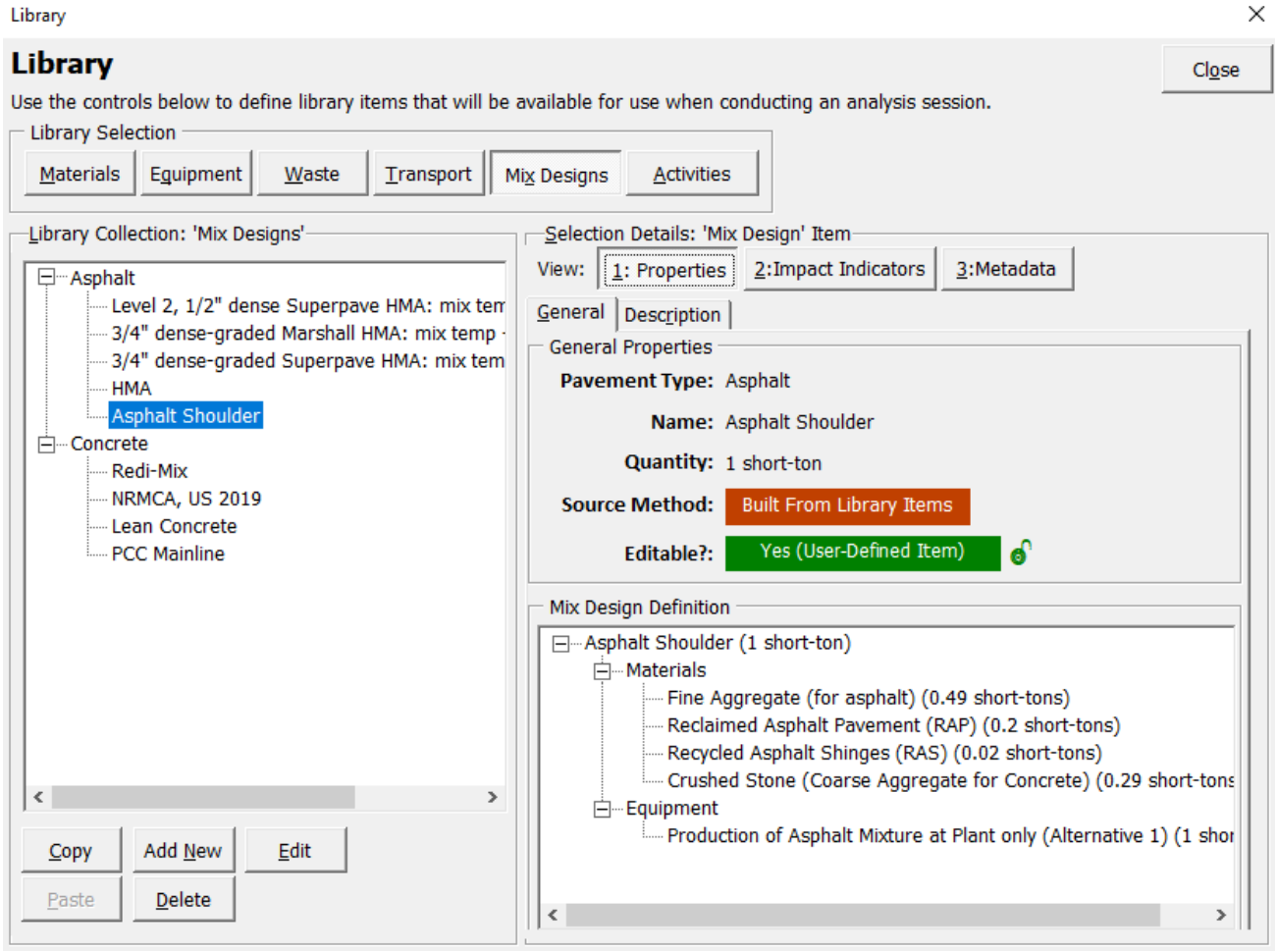

Figure 13. Assumed Asphalt Pavement Mix Design[4]

[4] Assumed asphalt mix design determined through analyzing previous Wisconsin airport projects utilizing the WisDOT Highway specification for 4MT 58-28H Asphaltic Surface.

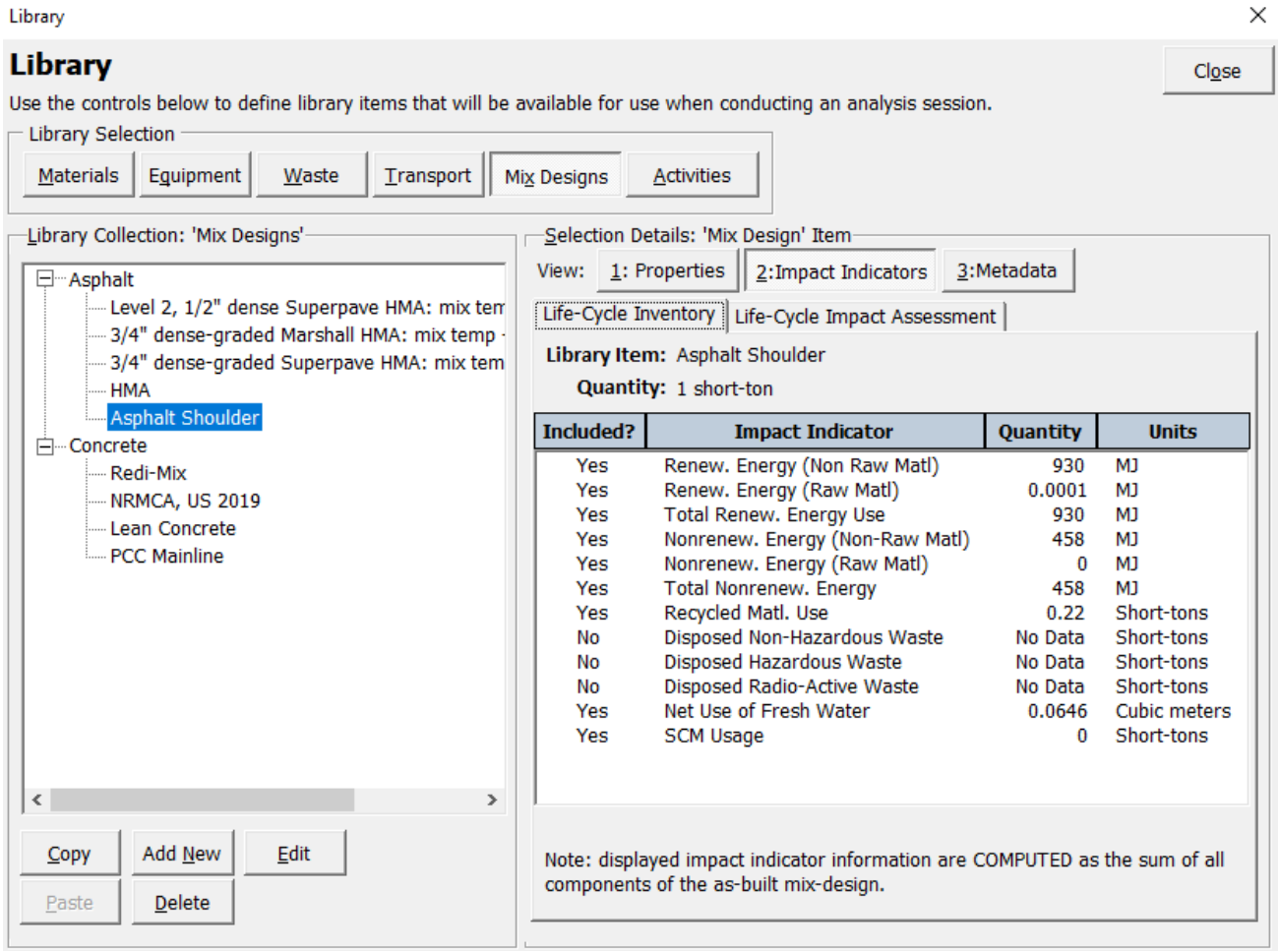

Figure 14. Assumed Asphalt Pavement Mix Design Impact Indicators for Life Cycle Inventory

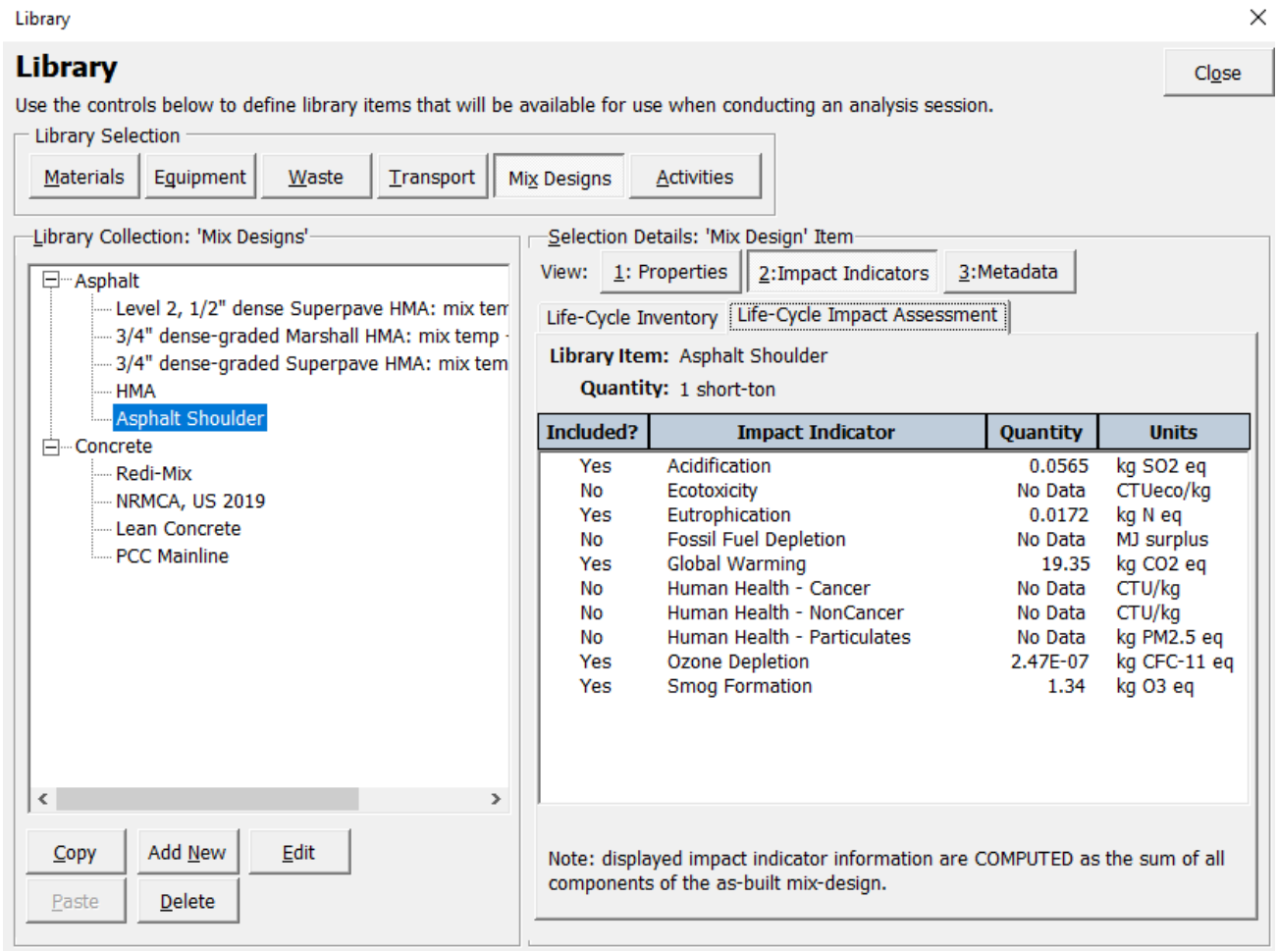

Figure 15. Assumed Asphalt Pavement Mix Design Impact Indicators for Life-Cycle Impact Assessment