



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
GREAT LAKES NATIONAL PROGRAM OFFICE  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

Joy Mulinex  
Executive Director  
Ohio Lake Erie Commission  
P. O. Box 1049  
Columbus, Ohio 43216

Dear Ms. Mulinex:

Thank you for your April 11, 2022 request to remove the *Restrictions on Dredging Activities* Beneficial Use Impairment (BUI) at the Black River Area of Concern (AOC). As you know, we share your desire to restore all the Great Lakes AOCs and to formally delist them. Based upon a review of your submittal and supporting data, the U.S. Environmental Protection Agency (EPA) hereby approves your request to remove this BUI from the Black River AOC. EPA will notify the International Joint Commission of this significant positive environmental change at this AOC.

We congratulate you and your staff as well as the many federal, state, and local partners who have been instrumental in achieving this environmental improvement. Removal of this BUI will benefit not only the people who live and work in the AOC, but all the residents of Ohio and the Great Lakes basin as well.

We look forward to the continuation of this productive relationship with your agency, the Ohio Environmental Protection Agency, and the Black River AOC Advisory Committee as we work together to delist this AOC in the years to come. If you have any further questions, please contact me at (312) 353-8320 or your staff can contact Leah Medley at (312) 886-1307.

Sincerely,

CHRISTOPHER  
KORLESKI

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CHRISTOPHER KORLESKI  
Date: 2022.04.26 15:20:26 -05'00'

Chris Korleski, Director  
Great Lakes National Program Office

cc: Tiffani Kavalec, OEPA  
Lynn Garrity, OLEC  
Raj Bejankiwar, IJC

April 11, 2022

Chris Korleski, Director  
U.S. Environmental Protection Agency  
Great Lakes National Program Office  
77 W. Jackson Boulevard (G-17J)  
Chicago, IL 60604-3511

RE: Black River Area of Concern Restrictions on Navigational Dredging Activities Beneficial Use Impairment  
Removal Action

Dear Director Korleski,

In a partnership between the Ohio Lake Erie Commission, Ohio EPA and many local entities, the State of Ohio has worked towards the restoration of the beneficial use impairments (BUI) identified for the Black River Area of Concern (AOC).

As a result of the partnership and progress made over the past two decades, the Ohio Area of Concern program is submitting its BUI removal recommendation for Restrictions on Navigational Dredging Activities in the Black River AOC. The Ohio Lake Erie Commission, in partnership with Ohio EPA and with the support of the Black River AOC Advisory Committee, requests your concurrence with the enclosed recommendation to remove the Restrictions on Navigational Dredging Activities BUI in the Black River AOC.

The Black River continues to improve and has been a part of the ongoing community revitalization. The improvements in the Black River AOC are a result of many efforts by local stakeholders and organizations as well as the state and federal AOC programs. We look forward to working with U.S. EPA and the local AOC Advisory Committee to continue restoration progress in the Black River Area of Concern.

Sincerely,



Joy Mulinex  
Director, Ohio Lake Erie Commission

Enclosure

cc: Tiffani Kavalec, OEPA-DSW  
Lynn Garrity, OLEC  
Leah Medley, USEPA-GLNPO

# **Removal Recommendation for the Restrictions on Navigational Dredging Activities Beneficial Use Impairment in the Black River AOC**



April 2022



Lake Erie  
Commission



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## **Purpose**

The purpose of this document is to recommend the removal of the Restrictions on Navigational Dredging Activities Beneficial Use Impairment (BUI) from the Black River Area of Concern (AOC). This document provides information and documentation of sediment quality assessments and measures the results of the assessments compared to applicable State of Ohio BUI Restoration Targets.

## **Background and History of the Black River**

The Black River, located in northeast Ohio, flows into Lake Erie's central basin at the city of Lorain (Figure 1). During industrial development in the early 20th Century, "the Black River, once majestic and teeming with life, became an inhospitable conduit of sewage, sediments, and toxic contaminants to the lake" (Black River Remedial Action Plan Coordination Committee [BRCC] 1994). In 1987, the International Joint Commission (IJC) designated the Black River as one of 43 AOCs in the Great Lakes basin. The original Black River AOC was limited to the lower 6.2 miles of the Black River mainstem due, in part, to the prevalence of fish tumors that were the result of "a legacy of contaminated sediments, mainly polynuclear aromatic hydrocarbons" (BRCC1994). Much of the environmental degradation that impaired the lower Black River was due to contaminants released from steel production in the City of Lorain. This was a predominant factor that led the IJC to list the Black River as an AOC (Lorain County Community Development Department [LCCDD] 2011). BRCC was formed in September 1991 to investigate the BUIs, developed strategies to remediate the causes and sources of BUIs, for the eventual removal of the BUIs and delist the AOC. In 1994, the Black River AOC was expanded to include the entire Black River watershed during the development of the Black River Stage 1 Report because the sources resulting in some BUIs were in the upper portions of the Black River watershed (BRCC 1994). The Stage 1 report was approved in 1994 and the Stage 2 report was approved in 2011.

Based on improvements documented in the upstream subwatershed areas and adjustments made to Ohio's BUI restoration targets, Ohio EPA and the Black River AOC Advisory Committee (BRAC) determined that the upper subwatershed areas no longer impacts conditions in the mainstem as these areas are more representative of the regional land use and not characteristics of the degree of environmental degradation that originally initiated the broader AOC boundary by the bi-national AOC program in the Great Lakes. In 2015, the Black River AOC was re-delineated into two 12-digit hydrologic units (HU) and two beaches: French Creek HU (HUC 04110001 06 01), Black River HU (HUC 04110001 06 02), Century Park Beach, and Lakeview Park Beach.

Nine of the 14 BUIs were identified as impaired for the Black River AOC. Six of the BUIs remain impaired.

- Restrictions on Fish Consumption – REMOVED 2016
- Degradation of Fish Populations
- Fish Tumors or Other Deformities
- Degradation of Benthos
- Restrictions on Navigational Dredging Activities
- Degradation of Aesthetics – REMOVED 2021
- Eutrophication or Undesirable Algae – REMOVED 2016
- Beach Closings (Recreational Use)
- Loss of Fish Habitat

## **BUI Listing Criteria and Impairment Listing for Restrictions of Dredging Activities**

Between 1989 and 1990, prior to the development of the BRCC and under a Consent Decree with U.S. EPA, sediment contaminant levels exceeded the U.S. EPA Heavily Polluted Classification for Great Lakes Harbor Sediments (U.S. EPA 1977), requiring all mainstem and harbor sediments dredged by USACE to be placed in the Lorain Harbor Confined Disposal Facility (CDF) (BRCC 1994). Sediment contaminated with elevated concentrations of polynuclear aromatic hydrocarbons (PAHs) were associated with the high incidence of external lesions and liver tumors documented in the fish populations. The BRCC listed the impairment for the Restrictions on Navigational Dredging Activities BUI in their 1991 Stage 1 Report, according to the listing criteria in effect at the time which came from the IJC and stated that an impairment “will be listed when contaminants in sediments exceed standards, criteria or guidelines such that there are restrictions on dredging or disposal activities.”

The Ohio Areas of Concern Program developed an AOC delisting guidance document, *Delisting Guidance and Restoration Targets for Ohio Areas of Concern*. This document states that the Restrictions on Navigational Dredging BUI shall be listed as impaired when “contaminants in sediment exceed sediment quality guidelines used by the State such that there are restrictions on navigational dredging or disposal activities” and under this criterion, the BUI has remained impaired. The State of Ohio Restoration Target and removal criteria is provided under Appendix A.

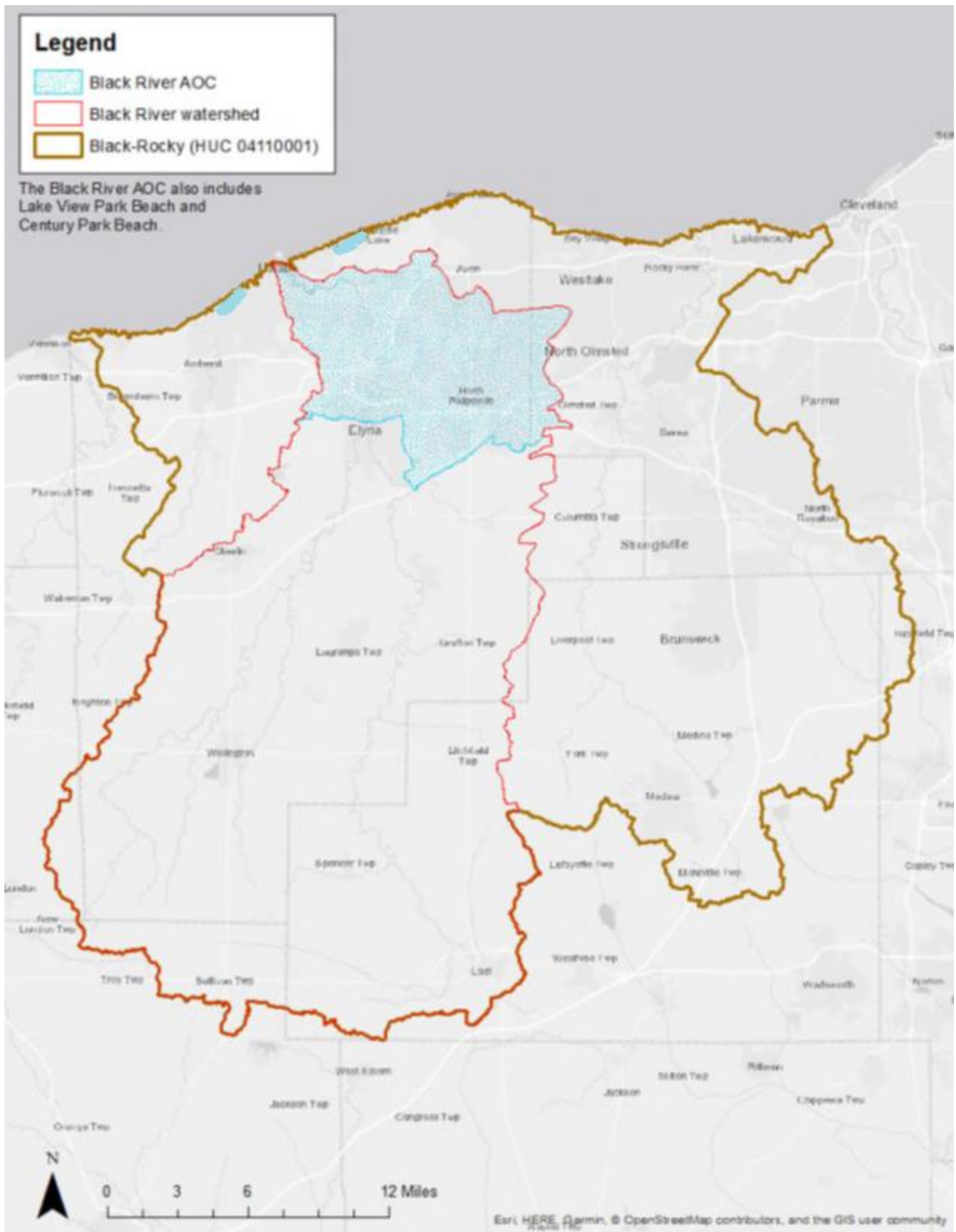


Figure 1. Black River AOC Boundary.

## **Summary of BUI Actions and Assessment**

### **Black River Sediment Remediation**

Black River sediment had been heavily contaminated with metals and PAHs by discharges predominately from steel production and the steel mill coking plant that ceased operations in the early 1980s. The elevated levels of PAHs severely impacted fish communities. Extensive studies over the years have established a link between high sediment PAH concentrations and liver cancers in bullhead and external deformities in other fish populations. Within the Great Lakes, the Black River was known as the “River of Fish Tumors” (IJC, 1997). Under a consent decree from U.S. EPA, U.S. Steel removed over 50,000 cubic yards of PAH-contaminated sediment, along with other contaminants, within a 0.8 mile stretch of the Black River near the company’s steel mill coking plant complex (Figure 2) (BRCC 1994, U.S. EPA 2021a).

Several post-remediation studies have been conducted on the Black River. The incidence of external lesions and fish tumors were reduced significantly post-remediation. U.S. EPA conducted sediment sampling at thirteen sites on the Black River mainstem in 1992. Sediment samples were analyzed for heavy metals, base-neutral-acid extractable compounds (BNAs) that include PAHs, volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and pesticides. The 1992 sediment sampling results revealed that most of the PAH contamination had been removed (BRCC 1994). Additional sediment sampling was conducted in the fall of 1997, and fish samples were collected in the spring of 1998. The results of the 1998 fish study, eight years after the sediment dredging took place, showed that liver cancers were at their lowest documented levels, and that the percentage of fish with normal healthy livers was almost seventy percent, as opposed to twenty percent in the early 1980s (Ohio EPA 1999).

### **Ford Road Industrial Landfill Site**

The Ford Road Industrial Landfill Site is a 15-acre inactive facility on the north edge of Elyria (Figure 2). The Black River runs east of the landfill. Several industries dumped municipal and industrial waste at the landfill until it closed in 1974. In the late 1970s, Ohio EPA found that contaminated liquid was seeping into the Black River from a localized area in the landfill’s northeastern corner. During an investigation of the site, it was determined that PCB-contaminated motor oil was migrating to the Black River. U.S. EPA, Ohio EPA, and the responsible party group worked together to complete a remedial investigation and to remediate the Site. Soil contaminated with PCBs and chlorinated solvents was removed from the northeast corner of the site near the Black River. Landfill waste was removed, and all remaining waste is contained under at least two feet of a clean clay soil cap material within the landfill. The remedy also improved surface water control and included installation of a sedimentation pond to catch stormwater runoff. The Site is under long-term operation and maintenance and U.S. EPA routinely completes five-year reviews to ensure remedy effectiveness (U.S. EPA, 2021b).

### **Republic Steel Corporation Quarry Superfund Site**

The Republic Steel Corporation Quarry Superfund Site is located near the Black River in Elyria, Ohio (Figure 2). It consists of a five-acre quarry containing water and seven acres of fenced land surrounding the quarry. From 1950 to 1975, Republic Steel Corporation (Republic Steel) discharged about 200,000 gallons per day of waste pickle liquor and rinse water into the quarry. Sampling later confirmed groundwater beneath the site was contaminated with heavy metals. In 1977, Republic Steel sold the quarry and surrounding land to the City of Elyria. U.S. EPA placed the site on its Superfund program National Priorities List (NPL) of hazardous waste sites in June 1986. U.S. EPA’s cleanup at the site consisted of removing contaminated soil and sediment, monitoring groundwater, and performing a fish study to determine health risks. As a result of a five-year review completed at the site in 1998 to verify the protectiveness of the remedy, the



cleanup was expanded to include groundwater monitoring, repairing, and inspecting the site fence, posting signs, and limiting the use and access to the Site. U.S. EPA removed this Site from the NPL in November 2002 and continues to perform five-year reviews of the Site remedy. These reviews ensure that the remedy remains protective of public health and the environment, and function as intended by Site decision documents. The next scheduled five-year review will be in 2023 (U.S. EPA 2020). This Site continues to be regulated by other programs at Ohio EPA and is not an AOC issue.



**Figure 2. Locations of BUI Actions and Assessment Areas.**

## **USACE Operation & Maintenance Dredging**

The federal navigation project at Lorain Harbor is designed to accommodate commercial navigation and is maintained by USACE. A series of authorized federal navigation channels are designed to accommodate safe deep-draft commercial navigation in the harbor. The Lorain Harbor federal navigation channels are generally divided into the Lake Approach Area protected by an outer breakwater, a 60-acre Outer Harbor area on Lake Erie protected by east and west breakwaters and the East and West Outer Harbor Mooring Areas, followed by 2.6 miles of the Black River channel through the mouth of the Black River as shown in Figures 2 and 3.

The USACE Buffalo District maintains the 27-foot depth of the federal navigation channel by periodic operation and maintenance dredging. USACE anticipates the need to dredge an estimated total of approximately 100,000 cubic yards of sediment from the Lorain Harbor federal navigation channels annually. Historically, dredged sediment was placed in the Lorain Harbor Confined Disposal Facility (CDF). More recently, dredged sediment was disposed of in the open lake placement area until Ohio banned open lake placement of Lake Erie dredge from federal navigation channels, effective July 1, 2020. USACE will dredge Lorain Harbor in 2022, with placement of the dredged sediment into the recently upgraded Lorain Harbor CDF.

The City of Lorain is planning to construct the Black River Dredged Material Reuse Facility on city owned property located on the bluff upgradient of the federal navigation channel near the upper boundaries of the federal turning basin, adjacent to U.S. Steel and upgradient of the historical Black River sediment remediation area (Figures 2 and 5). Scows containing mechanically dredged sediments are expected to be hydraulically unloaded with the slurried dredged sediments pumped about one mile to for upland dewatering. The upland dewatering is expected to be performed using innovative dewatering devices called GeoPools and/or sediment sluiceways/basins where the sediment will dewater. Once sufficiently dewatered, the residual solids will be excavated and reused as marketable soil.

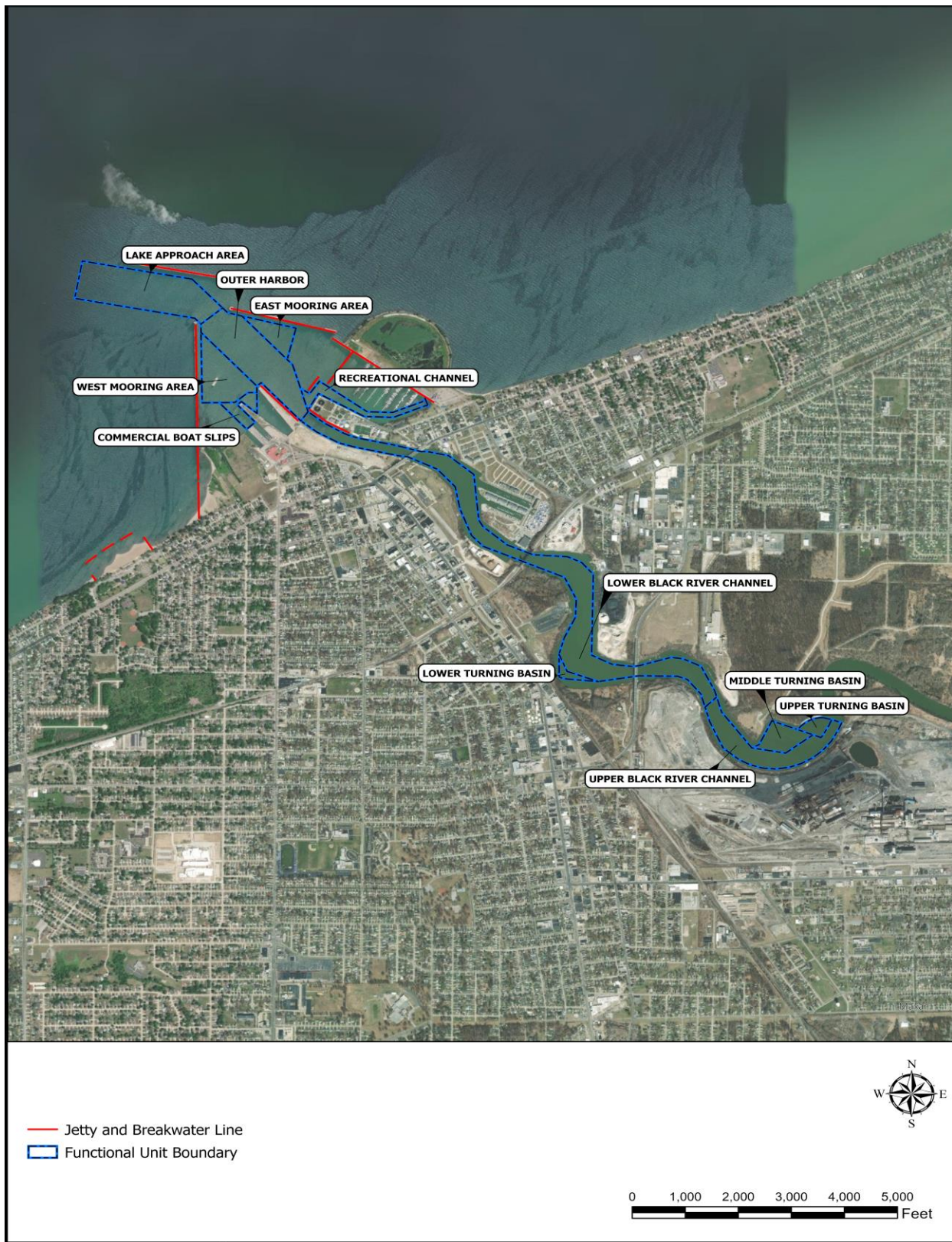


Figure 3. Lorain Harbor Federal Navigation Channel.

## **Sediment Data to Evaluate BUI**

To determine the status of the BUI, previous sediment data from 2013, 2015, and 2016 was reviewed. A sediment risk-based screening evaluation for upland beneficial use was completed using the recent USACE 2020 and limited 2018 sediment data and the City of Lorain GeoPool Pilot Study 2020 and 2021 sediment data. This sediment evaluation using recent data was conducted to demonstrate that the Restrictions on Navigational Dredging Activities BUI no longer applies, and the State of Ohio Restoration Target and rationale provided in Appendix A have been met.

### **A. Review of Previous Sediment Data – USACE, 2013, 2015, and 2016**

USACE previously completed sediment sampling and testing within the Lorain Harbor federal navigation channels from three separate sediment investigations that were conducted in 2013, 2015 and 2016 for the Upper River Channel, Lower River Channel, Outer Harbor and Lake Access Channel, and Outer Harbor Mooring Areas, shown in Figure 3. Sediments within maintained areas of the Lorain Harbor are periodically sampled, tested, and evaluated to determine whether there has been any change with respect to the contaminant determination per Clean Water Act (CWA) Section 404(b)(1) Guidelines (40 CFR 230.11[d]) regarding the open-water placement of dredged sediment. Sediment sampling included locations that are part of the Black River AOC. The results of this sediment sampling and testing are provided in the *Lorain Harbor Dredged Sediment Evaluation Lorain County, Ohio* (USACE 2018a). This report concluded that except for sediment from the Upper Turning Basin East Mooring Area, open-water placement of dredged material was not expected to cause unacceptable, adverse, contaminant-related impacts.

The sediment bulk chemistry data from 2013, 2015 and 2016 were also analyzed and evaluated by USACE for suitability for beneficial use for residential, industrial, and recreational land use scenarios. These sampling events were the basis for the Final 2018 *Lorain Harbor & Black River Channel Dredged Material Risk-Based Screening for Upland Beneficial Use Determination* (USACE, 2018b). The 2018 upland beneficial use determination concluded that the entire extent of Lorain Harbor and the Black River federal navigation channel sediment was suitable for upland beneficial use for industrial and recreational land uses. If the sediment data from one sediment core sample at a depth of about 14 feet below low water datum with elevated PAHs was excluded, then all remaining sediment would be suitable for residential land use. The upper turning basin has not required dredging in decades for shipping purposes due to a lack of steel operations and future dredging is not anticipated in the foreseeable future.

### **B. Recent Sediment Data – USACE, 2018 and 2020**

Recent sediment data collected by USACE in 2020, with limited data from 2018, were used to conduct a risk-based screening for upland beneficial use determination to support removal of the restrictions on navigational dredging BUI. USACE collected sediment samples from Lorain Harbor and Lake Erie vicinity as part of its routine O&M dredging activities in October 2020, as described in the *Sampling and Analysis Work Plan (FY20)* (USACE 2020). USACE also conducted limited sediment sampling in Lorain Harbor in 2018. Lorain Harbor sediment samples from 2018 and 2020 were collected at the locations shown in Figure 4, for a total of 36 locations. Each discrete sediment sample was analyzed for PAHs, PCBs (as Aroclor mixtures), pesticides, hydrocarbons (total oil & grease), TOC, metals, and anions (total cyanide, total kjeldahl nitrogen, ammonia nitrogen, total phosphorus). Physical analyses included grain size

and hydrometer, Atterberg Limits, water content (percent moisture), Engineering (USCS) Soil Classification, and organic matter. The risk-based screening process and results are described in subsequent sections below.



Figure 4. Lorain Harbor USACE Sediment Sampling Locations, 2018 and 2020.

### C. Recent Sediment Data – City of Lorain, Black River GeoPool Pilot Study, 2020 and 2021

Recent sediment data from the GeoPool Pilot Study were also used to conduct a risk-based screening for upland beneficial use determination to support removal of the restrictions on navigational dredging BUI. Through a Healthy Lake Erie grant administered by the Ohio Department of Natural Resources (ODNR) and in consultation with the Ohio EPA, the City of Lorain (City) is advancing the planning, design, and construction of the Black River Dredged Material Reuse Facility (BRDMRF). In 2019, the City began preparations for a pilot study to assess an innovative geotextile dewatering technology called a GeoPool for potential use in the design and construction of the Black River Dredged Material Reuse Facility, shown in Figure 5. As part of the GeoPool Pilot Study, the GeoPool was filled in August 2020 with approximately 5,000 cubic yards of dredged sediment. The material dredged for the GeoPool excluded deeper sediments within the federal upper turning basin that contain elevated concentrations of PAHs. ODNR hydraulically dredged sediment from within the Lorain Harbor federal turning basin near Black River Mile 2.7, shown in Figure 6, and delivered the dredge slurry into the GeoPool, which was located on City-owned lands at the Black River Reclamation Site, a legacy brownfield site, shown in Figure 5.

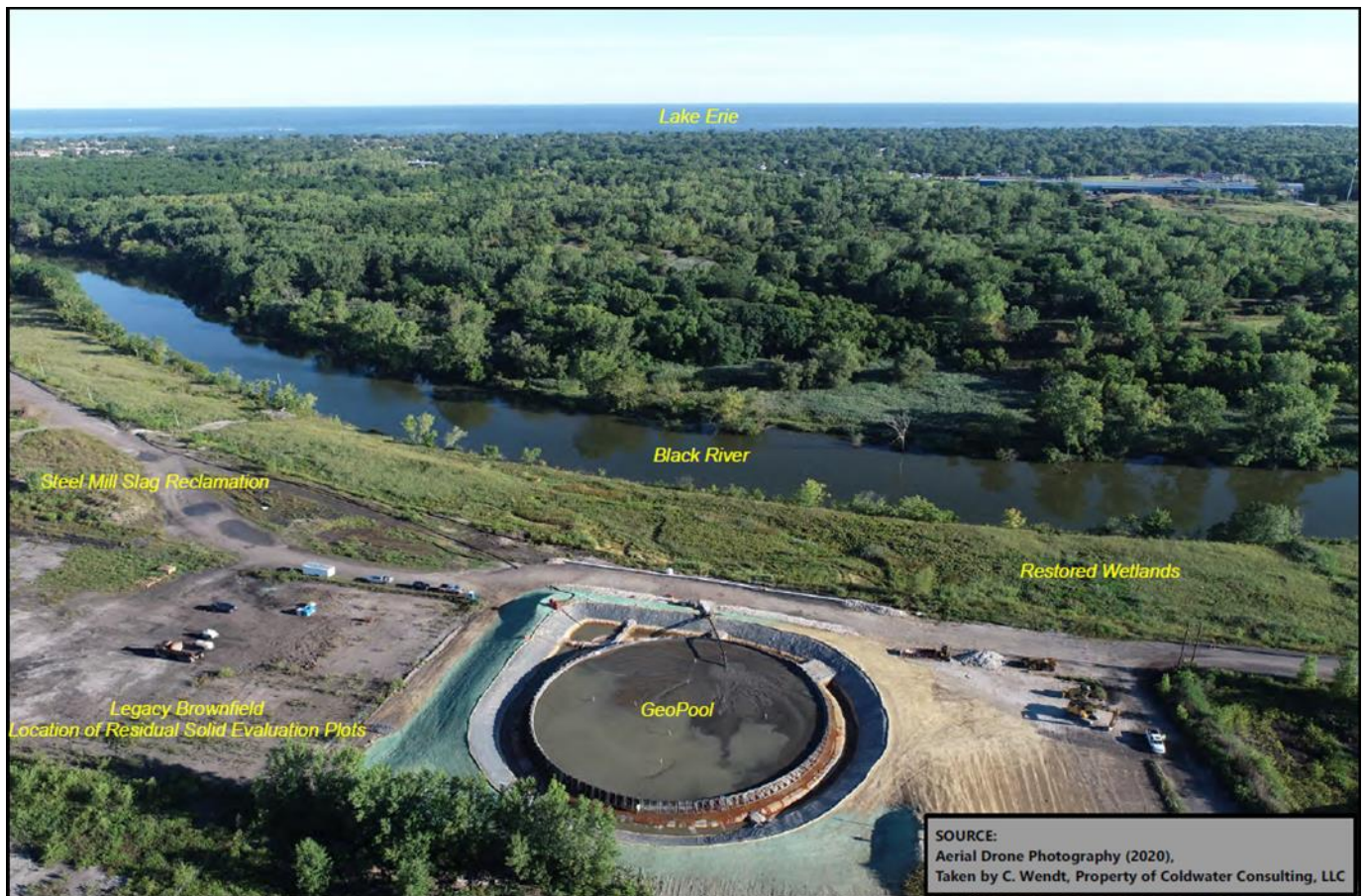


Figure 5. Black River GeoPool Pilot Study Location.

The GeoPool Pilot Study included a Residual Solids Evaluation to provide pertinent data to support beneficial use of the dewatered dredged material. Seven dewatered dredged sediment samples from within the GeoPool were collected and analyzed for agronomic parameters, geotechnical parameters and potential chemicals of concern including PAHs, PCBs (as Aroclor mixtures), pesticides, hydrocarbons (total oil & grease), TOC, metals, and anions (total cyanide, total kjeldahl nitrogen, ammonia nitrogen, total phosphorus). Geotechnical analyses included grain size and hydrometer, Atterberg Limits, water content (percent moisture), Engineering (USCS) Soil Classification, and organic matter. The risk-based screening process and results are described in subsequent sections below.

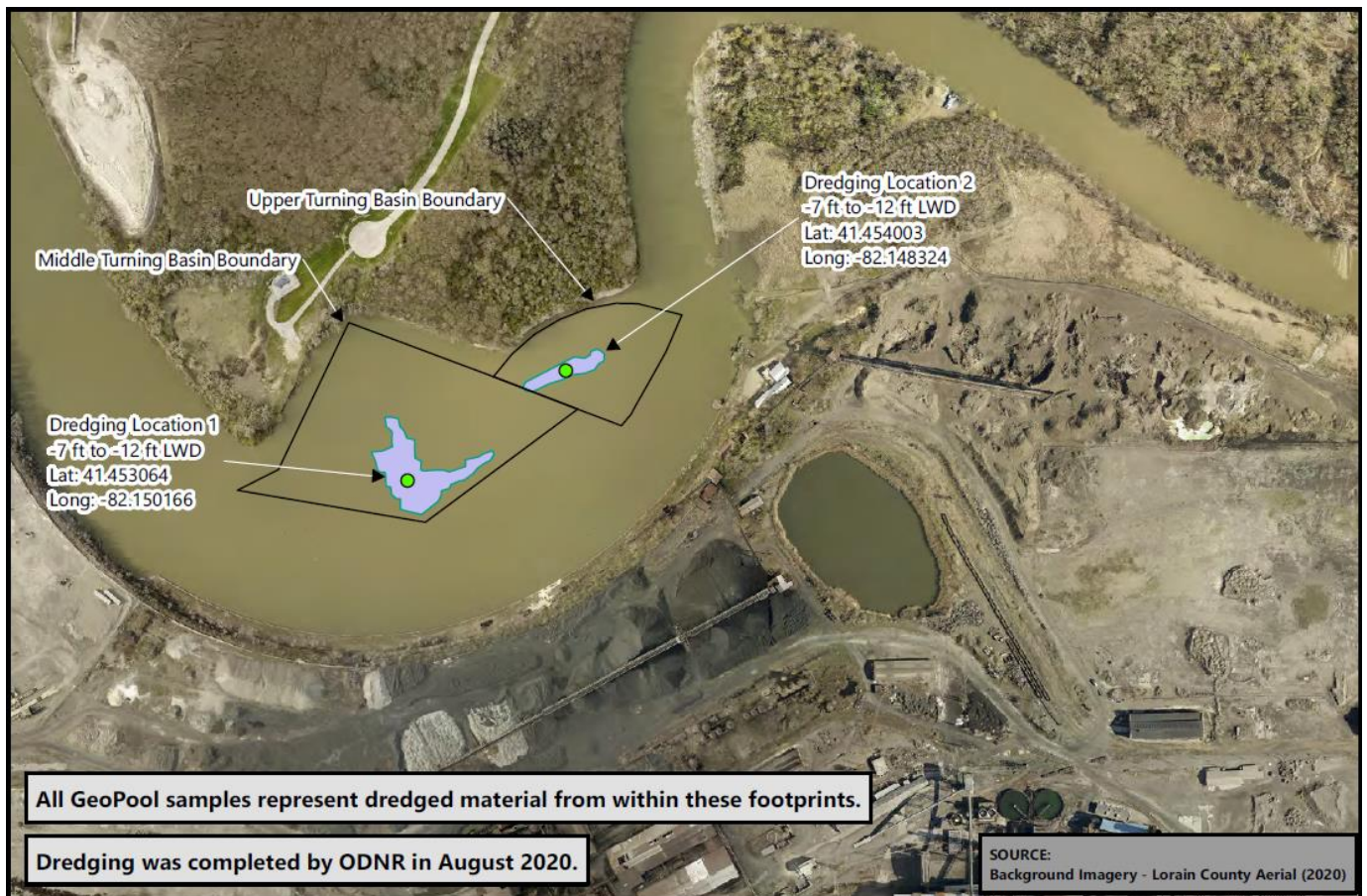


Figure 6. Black River GeoPool Pilot Study Sediment Dredging Locations, August 2020.

### BUI Evaluation Process: Sediment Risk-Based Screening Evaluation for Upland Beneficial Use

The State of Ohio Restoration Target and rationale for the Restrictions on Navigational Dredging Activities is provided in Appendix A. It states that this beneficial use can be removed when “There are no restrictions on navigational dredging or disposal activities due to contaminants in sediment, such that there are suitable options available for reuse or disposal of the material.” To evaluate this BUI consistent with the target and rationale, Ohio EPA in partnership with USACE compared the recent USACE and GeoPool Pilot Study sediment data to a number of standards and screening levels, along with ambient background conditions for the upland beneficial use of dredged sediment. If the dredged sediment is determined to be

suitable for upland beneficial using these criteria, then the restoration target for this BUI will be met.

The sediment risk-based screening evaluation for upland beneficial use consisted of comparing the bulk sediment chemistry data summarized in Appendix B (Table 1) from the Lorain Harbor USACE 2020 and Black River GeoPool Pilot Study to U.S. EPA's Regional Screening Levels (RSLs) for residential direct contact with soil and industrial direct contact with soil, updated May 2021, and found at: <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables> (U.S.EPA 2021c). Ohio's Voluntary Action Program (VAP) residential, commercial, and industrial soil standards were also included for comparison purposes. An additional category of screening values was derived for recreational receptors. Screening levels for carcinogenic and non-carcinogenic human health effects were used. The initial screening compared maximum constituent concentrations detected and used criteria based on incremental lifetime cancer risks (ILCR) of one in a million (1E-06) and non-cancer health effects with a hazard quotient (HQ) of 0.1 (Table 2). Further screening was conducted on chemicals that were retained from the initial screening and to conduct a cumulative risk assessment. More refined screening involved using exposure point concentrations calculated as the 95% upper confidence limit on the mean (UCL95) and using the cumulative ILCR of one in 100,000 (1E-05) and non-cancer hazard quotient of 1.0 (Tables 3-5).

U.S. EPA's RSLs are based on default exposure parameters and factors that represent reasonable maximum exposure conditions for long-term, chronic exposures for residential and industrial soil land use. The residential soil RSLs are most protective human health criteria because they account for daily exposures by both children and adults in a residential setting. Residential exposure factors include living at the same residence 350 days per year for 26 years. The industrial screening levels account for exposures to adults throughout the workday, 250 days per year for 25 years. An additional category of screening was conducted for the recreational land use by adjusting the number of days, known as exposure frequency, to 90 days per year for recreational child and adult receptors, compared to 350 days per year for residential receptors.

Appendix B includes tables that contain the Lorain Harbor USACE 2020 and Black River GeoPool Pilot Study 2020-2021 sediment datasets screened against the upland beneficial use criteria. Sediment risk-based screening was completed separately on the following two sediment datasets:

1. Lorain Harbor USACE 2020 (with limited data from 2018) sediment data from within the lateral boundaries of the federal navigation channel and shallower than authorized navigation depth (Lorain Harbor USACE Sediment Data); and
2. Black River GeoPool Pilot Study 2020-2021 sediment data collected from within the GeoPool (Black River GeoPool Sediment Data).

The sediment risk-based screening for each dataset consists of a series of seven tables that contain the following information in Appendix B:

1. Table 1 – Summary of all sediment chemistry results;
2. Table 2 – Initial screen of maximum detected concentrations compared to risk-based screening levels and Ohio background values;
3. Table 3 – Screening of maximum detected and UCL95 concentrations compared to risk-based screening levels for residential land use and Ohio background values;



4. Table 4 – Same as Table 3 except for industrial land use;
5. Table 5 – Same as Table 3 except for recreational land use;
6. Table 6 – Screening of maximum detected and UCL95 concentrations compared to risk-based soil screening levels for ecological receptors and Ohio background values; and
7. Table 7 – Screening of maximum detected and UCL95 concentrations compared to risk-based sediment screening levels for ecological receptors and Ohio background values. This is representative of aquatic exposure and was provided for potential future aquatic beneficial use projects.

## Comparison to Background

Concentrations of metals in the Lorain Harbor USACE sediment and Black River GeoPool sediment were compared to concentrations established for background soils and sediment reference values (SRVs), as shown in Tables 2, 6 and 7. Background metal concentrations were obtained from Ohio EPA VAP for Lorain County (Ohio EPA 2019(b)). In addition, Ohio EPA developed specific sediment reference values (SRVs) available in the Ohio EPA Division of Environmental Response and Revitalization (DERR) *Ecological Risk Assessment Guidance Document* updated in 2018 (Ohio EPA 2018) and found at: <https://www.epa.ohio.gov/portals/30/rules/RR-031.pdf>. SRVs were developed from sediment sampling and analyses conducted at Ohio's biological reference sites. These reference sites were the same sites used in the development of biological criteria in Ohio and represent background sediment concentrations. Concentrations of metals detected below their respective background soils concentrations and/or SRVs (Table 2) were considered to be representative of background conditions and not contributors to the ILCR or non-carcinogenic health hazards. As a result, their individual risk ratios were removed when calculating cumulative risk ratios because metal concentrations below background levels do not contribute to additional risk associated with upland placement of dredged sediment.

## Comparison to Ecological Soil and Sediment Screening Levels

An ecological soil screening level evaluation of Lorain Harbor USACE dredged sediment data and Black River dredged sediment data was conducted to assess the protectiveness of upland use for areas with sufficient ecological habitat and resources (Table 6). U.S. EPA Soil Screening Levels ("Eco-SSLs") are concentrations of chemicals in soil that are protective of ecological receptors that commonly come into contact with and/or consume biota that live in or on soil. Eco-SSLs have been derived for four groups of ecological receptors: plants, soil invertebrates, birds, and mammals. Ohio EPA's 2018 ecological risk assessment guidance outlines a soil screening hierarchy using the Eco-SSLs and Oak Ridge National Laboratory preliminary remediation goals for ecological endpoints (Efroymson et al. 1997). Eco-SSLs, last updated in February of 2018, have been developed for sixteen metals, PAHs, PCBs, and some pesticides. Table 6 summarizes the maximum detected and UCL95 concentrations that were screened against available receptors for a particular chemical in soil.

An ecological sediment screening level evaluation was conducted to assess the protectiveness of aquatic beneficial uses of sediment (e.g., habitat restoration, wetland creation). Table 7 summarizes the maximum detected sediment concentrations that were screened against available sediment quality guidelines and the SRVs. The sediment quality guidelines are from MacDonald et. al. (2000). Threshold Effects Concentrations (TECs) are concentrations below which harmful effects are unlikely to occur and Probable Effects Concentrations (PECs) are concentrations above which harmful effects are likely to be observed.

## **BUI Evaluation Results for Lorain Harbor USACE Sediment Data**

The Lorain Harbor USACE sediment data evaluated consisted of 36 surficial sediment sample locations located within the federal navigation channel. All data for sediment located laterally outside of the federal navigation channels was excluded, including the lake placement site samples, lake reference site samples, and nearshore samples taken for characterizing potential aquatic beneficial use sites.

Four samples located below the authorized depth of the federal navigation channel were retained because these were surface samples taken to characterize sediment for regular operations and maintenance considerations, not subsurface samples taken to characterize legacy contamination at depth. The two samples from the lower river channel (20-LH-02-01 and -02) are each one foot below authorized depth, which is within typical over dredge allowance. As shown in Figures 2 and 3, the two samples from the recreational channel marina area (20-LH-07-01 and -02) are multiple feet below the federal navigation channel authorized depth (confirmed by 2018 bathymetry data), however provide the best available characterization for sediment potentially available for dredging of the recreational channel in the future.

Five discrete surficial sediment samples from the Upper Black River Channel, 20-UR-1 to 20-UR5, shown in Figure 2 and 3, were retained. These locations are from the non-maintained portion of the Upper Black River Channel that was sampled in 2013 through the GLRI. The 2013 sediment data had identified one sediment core sample with elevated PAHs. Except for this sample at a depth of about 14 feet below low water datum, all remaining sediment would be suitable for upland residential land use. The UTB has not required dredging in decades for shipping purposes due to a lack of steel operations. Future dredging of the UTB at depth is not anticipated in the foreseeable future.

The 2020 sediment data, although from surficial sampling, did not identify elevated PAHs in the Upper Black River Channel and future dredging is not anticipated in the foreseeable future.

Based on the risk-based screening evaluation of residential use for the Lorain Harbor USACE sediment data, it was determined that (Tables 2 and 3):

- Lorain Harbor sediment metals concentrations are below U.S. EPA's residential soil RSLs at 1E-06 ILCR or HI 1.0 or are similar to ambient background soil and sediment concentrations;
- Most semi-volatile organic compounds (SVOCs) were less than the detection limits or less than the residential soil RSLs, at the 1E-06 ILCR or noncancer hazard quotient of 0.1, with the exception of several carcinogenic PAHs. Carcinogenic PAHs were less than the cumulative ILCR of 1E-05 for residential soil RSLs;
- PCB concentrations were less than the detection limits or less than the residential RSL at the 1E-06 ILCR;
- Volatile organic compounds (VOCs) concentrations were less than the detection limits except for toluene that was detected at a concentration less than residential RSL at the HQ of 0.1; and

- Lorain Harbor sediment concentrations are below Ohio VAP residential soil standards or are similar to ambient background soil and sediment concentrations.

**The sediment results from the Lorain Harbor USACE are below U.S. EPA's residential soil RSLs and/or ambient soil and sediment background levels.** The residential RSLs are the most protective human health criteria because they account for daily exposures by both children and adults in a residential setting. The industrial soil RSLs and a recreational exposure scenario were also evaluated, and all risks were below the risk goals of ILCR of 1E-06 and HI of 0.1 (Tables 4 and 5, respectively). **Lorain Harbor sediment has been determined to be suitable for residential upland beneficial use, as well as industrial and recreational use, and the restoration target for this BUI has been met.**

Tables 6 and 7 compare the Lorain Harbor USACE sediment data to ecological soil and sediment screening values, respectively. Because some of the Eco-SSLs are low, comparison to ambient background levels is an important component and was conducted in the ecological soil and sediment risk-based screening. Overall, concentrations are below ecological screening levels or are similar to ambient background soil and sediment concentrations.

### **BUI Evaluation Results for Black River GeoPool Sediment Data**

Black River GeoPool sediment concentrations from dewatered dredged material are generally lower than the Lorain Harbor USACE sediment concentration which supports its upland residential beneficial use. Black River GeoPool dredged sediment concentrations are below the U.S. EPA residential soil RSLs at a ILCR of 1E-06 and HI of 1.0 and/or ambient soil and sediment background levels.

Based on the risk-based screening evaluation, it was determined that (Tables 2 and 3):

- Black River GeoPool sediment metals concentrations are below U.S. EPA's residential soil RSLs at 1E-06 ILCR or HI of 1.0 or are similar to ambient background soil and sediment concentrations;
- All SVOC concentrations were less than the detection limits or less than the residential soil RSLs, at the 1E-06 ILCR or noncancer hazard quotient of 0.1. Carcinogenic PAHs were less than the cumulative ILCR of 1E-06 for residential soil RSLs;
- PCB concentrations were less than the detection limits;
- Pesticide and herbicide concentrations were less than the detection limits; and
- Black River GeoPool sediment concentrations are below Ohio VAP residential soil standards or are similar to ambient background soil and sediment concentrations.

**The sediment results from the Black River GeoPool are below U.S. EPA's residential soil RSLs and/or ambient soil and sediment background levels.** The residential RSLs are the most protective human health criteria because they account for daily exposures by both children and adults in a residential setting. **The additional sediment data from the Black River GeoPool sediment has been determined to be suitable for residential upland beneficial use, and further demonstrates that the restoration target for this BUI has been met.**

The industrial soil RSLs and a recreational exposure scenario were also evaluated, and all risks were below the ILCR of 1E-06 and HI of 0.1 (Tables 4 and 5, respectively).

Tables 6 and 7 compare the Lorain Harbor USACE sediment data to ecological soil and sediment screening values, respectively. Because some of the Eco-SSLs are low, comparison to ambient background levels is an important component and was conducted in the ecological soil and sediment risk-based screening. Overall, concentrations are below ecological screening levels or are similar to ambient background soil and sediment concentrations.

## **Sediment Evaluation for Aquatic Beneficial Use**

An alternate evaluation method for achieving the restoration target for this BUI is related to the *aquatic* beneficial use of dredged sediment such as in-water habitat restoration projects. Placement of material into 'waters of the state' requires a Federal Water Pollution Control Act certification under section 401 from the state of Ohio. To evaluate this BUI, Ohio will evaluate applicable chemical and biological data in accordance with the 401-certification process, such that the dredged sediments would be suitable for in-water use. If the material would be permissible for *aquatic* beneficial use for dredged sediment based on the 401-certification process, then the restoration target for this BUI has been met.

Except for sediment at the bottom (-15 to -18 feet LWD) of the upper turning basin (authorized depth of -17 feet LWD) and the East Mooring Area, USACE concluded in its Lorain Harbor Dredged Sediment Evaluations (USACE 2018a, USACE 2022) that the open-water placement of sediment dredged from the federal navigation channels of Lorain Harbor at the existing, authorized open-water placement area is not expected to cause unacceptable, adverse, contaminant-related impacts. The areas that USACE has determined not to be suitable for open water placement are not frequently maintained for navigational needs. The USACE dredged sediment area scoped for in-water beneficial use placement in the Section 204 ecosystem restoration project would exclude these areas unless additional sediment data is collected to demonstrate they are also suitable for in-water placement. The USACE 2022 dredged sediment evaluation supports the proposed Section 204 ecosystem restoration project site located in Lake Erie near the Lorain Harbor Confined Disposal Facility (USACE, 2022). The results of the soil and sediment risk-based screening for ecological receptors summarized in Tables 6 and 7 demonstrate that the Lorain Harbor and Black River GeoPool dredge sediment may be permissible for aquatic beneficial use projects based on the 401-certification process.

## **Conclusions**

All dredged sediment from the Lorain Harbor Federal Navigation Channel has the potential to be beneficially used upland based on the evaluation of the sediment data to the U.S. EPA residential soil regional screening levels, information regarding ambient background conditions, and ecological screening levels. Most of the dredged sediment may be able to be used for aquatic beneficial uses such as in-water habitat restoration projects in accordance with the 401 water quality certification process.

## **Removal Statement**

Based upon the improvements over the years in the Black River, Black River sediment remediation, implementation of source control measures, routine federal navigation channel operation and maintenance dredging activities, associated management actions, and results

and findings of the Lorain Harbor 2020 and Black River GeoPool 2020-2021 sediment data, the Ohio EPA and Ohio Lake Erie Commission recommend the removal of the Restrictions on Navigational Dredging Activities BUI for the Black River AOC.

A 14-day public review period was issued by Ohio EPA and Ohio Lake Erie Commission on March 21, 2022. No public comments were received during the public comment period.

## References

BRCC (Black River Remedial Action Plan Coordinating Committee). 1994. *Black River Remedial Action Plan Stage 1 Report. Impairment of Beneficial Uses and Sources of Pollution in the Black River Area of Concern*. Elyria, Ohio. April 1994.

Brown, Tom. Executive Director of the Lorain Port Authority, electronic communication, December 13, 2018.

Efroymsen, R.A., G.W. Suter II, B.E. Sample, and D.S. Jones. 1997. Preliminary Remediation Goals for Ecological Endpoints. ES/ER/TM-162/R2. Oak Ridge National Laboratory, Oak Ridge, Tennessee 37831. URL:

<http://www.esd.ornl.gov/programs/ecorisk/documents/tm162r2.pdf>.

International Joint Commission. 1997. *Overcoming Obstacles to Sediment Remediation in the Great Lakes Basin. White Paper by the Sediment Priority Action Committee*. Sediment Priority Action Committee.

LoCo 'Yaks (Lorain County Kayak and Paddlesports Group). 2018. *LoCo 'Yaks: Leaders in Marine Debris Prevention*. <https://locoyaks.com/>. Accessed December 3, 2018.

Lorain County Community Development Department. 2011. *Black River Remedial Action Plan Stage 2 Report. Remedial Strategies for Area of Concern Restoration*. Elyria, Ohio. November 2011.

URL: <http://www.blackriveraoc.com/cms/files/File/Black%20River%20RAP%20Stage%202.pdf>. Accessed October 9, 2018.

Lorain County Community Development Department. 2011. *Black River Watershed Action Plan*. LCCDD and Coldwater Consulting LLC. December 11, 2011. Provided by Greg Nageotte (Ohio Department of Natural Resources) via electronic mail on January 27, 2014 and <https://www.loraincounty.us/platform/cms/files/Community%20Development/BlackR.pdf>, accessed February 15, 2019.

Lorain Port Authority. 2018a. *Black River Landing*. <https://www.lorainportauthority.com/facility-rentals/black-riverlanding/>. Accessed February 19, 2019

2018b. Black River Wharf Boat Launch. <https://www.lorainportauthority.com/facility-rentals/black-riverwharf-boat-launch/>. Accessed February 19, 2019.

MacDonald, D., C. Ingersoll and T. Berger. 2000. Development and evaluation of consensus-based sediment quality guidelines for freshwater ecosystems. *Archives of Environmental Contamination and Toxicology*. 39:20-31.

Ohio EPA. 1999. *Biological and Water Quality Study of the Black River Basin. Lorain and Median Counties*. OEPA Technical Report Number MAS/1998-11-4.

Ohio EPA. 2011. *OH0025003. 3PD00034\*LD*. April 4, 2011. <http://wwwapp.epa.ohio.gov/dsw/permits/doc/3PD00034.pdf>. Accessed November 16, 2018.

Ohio EPA. 2014. *Authorization for Small Municipal Separate Storm Sewers Systems to Discharge Stormwater under the National Pollutant Discharge Elimination System*. OHQ000003. Division of Surface Water, Columbus, Ohio. September 11, 2014.

Ohio EPA. 2018a. Ecological Risk Assessment Guidance Document. Division of Environmental Response and Revitalization. URL: <https://www.epa.ohio.gov/portals/30/rules/RR-031.pdf>

Ohio EPA. 2018b. Spills and Releases Reported to Ohio EPA (since May, 2017). <https://data-oepe.opendata.arcgis.com/datasets/spills-and-releases-reported-to-ohio-epa-since-may-2017-1>. Accessed December 2018.

Ohio EPA. 2019a. Ohio Administrative Code 3745-300-08. The Voluntary Action Program. URL: <https://epa.ohio.gov/Portals/30/rules/2019-Final-Filed/3745-300-08.pdf>

Ohio EPA. 2019b. Evaluation of background metal soil concentrations in Lorain County, Summary Report. Division of Environmental Response and Revitalization, Voluntary Action Program.

Ohio EPA. 2020. *Delisting Guidance and Restoration Targets for Ohio Areas of Concern*. Version 4.0. Division of Surface Water, Lake Erie Program. Columbus, Ohio. December 2020.

[https://epa.ohio.gov/portals/35/permits/SmallMS4\\_Final\\_GP\\_sep14.pdf](https://epa.ohio.gov/portals/35/permits/SmallMS4_Final_GP_sep14.pdf). Accessed November 15, 2018. 2016. OH0026093. 3PE000005\*LD. October 4, 2016.

<http://wwwapp.epa.ohio.gov/dsw/permits/doc/3PE00005.pdf>. Accessed November 16, 2018.

2017. OH0044512. 3PD00043\*ND. January 13, 2017.

<http://wwwapp.epa.ohio.gov/dsw/permits/doc/3PD00043.pdf>. Accessed November 16, 2018.

2018. Lorain County.xlsx [one Excel™ file] and Avon.pdf, Elyria.pdf, Lorain.pdf, Lorain County 1990-5.17.2017.pdf, North Ridgeville.pdf, and Sheffield Village.pdf [five PDF files]. Ohio EPA, Division of Environmental Response and Revitalization, Groveport, Ohio. Transmitted via electronic mail from Mardi Enderle (Ohio EPA) to William E. Carlson (Tetra Tech) on December 5, 2018.

Singh, A. and A. K. Singh. 2013. ProUCL Version 5.0.00 Technical Guide. Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations. Prepared for: U.S. Environmental Protection Agency, Office of Research and Development, Washington, DC. EPA/600/R-07/041.

USACE. 2018a. *Lorain Harbor Dredged Sediment Evaluation. Lorain County, Ohio*. July 2018.

USACE. 2018b. *Final 2018 Lorain Harbor & Black River Channel Dredged Material Risk-Based Screening for Upland Beneficial Use Determination*.

USACE. 2022. *Lorain Harbor Dredged Sediment Evaluation. Operations & Maintenance Dredging. Lorain County, Ohio. Final*. February 2022.

U.S. Coast Guard. 2018. *National Response Center*. <http://nrc.uscg.mil/>. Accessed November 27, 2018.

U.S. EPA and USACE. 1998. Great Lakes Dredged Material Testing and Evaluation Manual. URL: [www.epa.gov/glnpo/sediment/gltem/](http://www.epa.gov/glnpo/sediment/gltem/)

U.S. EPA and USACE. 1998. Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. (Inland Testing Manual). EPA-823-B-98-004.

URL: [www.epa.gov/waterscience/itm/pdf/cover.pdf](http://www.epa.gov/waterscience/itm/pdf/cover.pdf)

U.S. EPA. 1992. Supplemental Guidance to RAGs: Calculating the Concentration Term. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response, Washington DC. Publication 9285.7-081. Intermittent Bulletin Volume 1, Number 1. May 1992.

U.S. EPA. 2003a. Guidance for Developing Ecological Soil Screening Levels (Eco-SSL). U.S. Environmental Protection Agency, Office of Emergency and Remedial Response, OSWER Directive 92857-77. November 2003. Eco-SSLs last updated February 2018. URL: <http://www.epa.gov/ecotox/ecossil/>.

U.S. EPA. 2003b. RCRA Ecological Screening Levels. U.S. Environmental Protection Agency, Region 5. URL: <http://www.epa.gov/reg5rcra/ca/edql.htm>.

U.S. EPA. 2007. Ecological Soil Screening Levels for Polycyclic Aromatic Hydrocarbons (PAHs). Interim Final. OSWER Directive 9285.7-78. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. June 2007.

U.S. EPA. 2013. ProUCL software, version 5.0. U.S. Environmental Protection Agency. URL: <https://www.epa.gov/land-research/proucl-software>.

U.S. EPA. 2015. *U.S. EPA Awards \$15 Million Great Lakes Restoration Initiative Grant to Clean Up Black River Area of Concern on Lake Erie*. U.S. EPA, Region 5, Chicago, Illinois. September 22, 2015. <https://archive.epa.gov/epa/newsreleases/us-epa-awards-15-million-greatlakes-restoration-initiative-grant-clean-black-river.html>. Accessed February 15, 2019.

U.S. EPA. 2020. Superfund Site. Republic Steel Corp. Quarry, Elyria, Ohio, Cleanup Activities. <https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.cleanup&id=0504850> Accessed July 13, 2020.

U.S. EPA. 2021a. Great Lakes AOCs. URL: <https://www.epa.gov/great-lakes-aocs/black-river-aoc>

U.S. EPA. 2021b. U.S. EPA Superfund. URL: <https://cumulis.epa.gov/supercpad/SiteProfiles/index.cfm?fuseaction=second.scs&id=0504572&doc=Y&colid=30469&region=05&type=SC>

U.S. EPA. 2021c. Regional Screening Levels, May 2021. URL: <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>



## APPENDIX A

### 2020 Delisting Targets for Ohio Areas of Concern

#### BUI 7: Restrictions on Navigational Dredging Activities

##### IJC Listing Guideline

An impairment will be listed when contaminants in sediments exceed standards, criteria or guidelines such that there are restrictions on dredging or disposal activities.

##### State of Ohio Listing Guideline

This beneficial use shall be listed as impaired if:

Contaminants in sediment exceed sediment quality guidelines used by the State such that there are restrictions on navigational dredging or disposal activities.

##### State of Ohio Restoration Target

There are no restrictions on navigational dredging or disposal activities due to contaminants in sediment, such that there are suitable options available for reuse or disposal of the material.

##### Notes

- Navigational dredging refers to dredging of a federally designated ship channel and historically dredged stretches of a river to enable the passage of commercial and/or recreational vessels. Restrictions to disposal activities refer to the prohibition of disposal or re-use of dredged materials due to chemical contamination or biological toxicity of the sediment.
- This does not include the maintenance dredging of private marinas, slips, docks, etc. However, if sediment contaminant concentrations in these areas are a source of contamination that precludes attainment of remedial dredging goals of federally designated ship channels and historically dredged stretches of a river, then dredging of private marinas, slips, docks, etc. may be necessary.

##### Potential Data Sources

- Ohio EPA and U.S. Army Corps of Engineers sediment characterization studies
- Other sediment characterization studies

#### Rationale

This BUI specifically addresses areas within the boundaries of AOCs that are historically dredged to maintain navigable depths for commercial and/or recreational vessels. While this beneficial use addresses restrictions on dredging or disposal activities:

- 1) Precautionary seasonal restrictions on dredging to prevent real or anticipated impacts to spawning fish, avian or macroinvertebrate species is not considered to be a cause for impairment;
- 2) Local restrictions due to local detrimental effects of the dredging operation (increased turbidity, noise, channel restrictions, etc.) are not considered to be a cause for impairment for this BUI; and
- 3) If sediment reuse or disposal is restricted solely due to volume, this beneficial use would not be considered to be impaired.

In previous versions of this Guidance, Ohio relied on suitability of dredged sediments for open lake disposal as the BUI restoration target. The suitability for open lake disposal was selected as a measure of sediment quality since Ohio did not have sediment criteria and open lake disposal was considered the

least restricted form of disposal at the time. Since this target was originally drafted and implemented back in 2005, Ohio has developed alternative options for Lake Erie dredged sediment beneficial use. In 2015, Ohio prohibited the practice of open lake disposal (effective July 1, 2020) with a few limited exceptions.

In 2017, Ohio developed beneficial use rules authorizing the upland beneficial use of Lake Erie dredge sediment (Ohio Administrative Code (OAC) Chapter 3745-599, effective March 31, 2019). The rules address individual and general beneficial use permit requirements including the establishment of screening levels, restrictions, or standards (OAC 3745-599-200, -310 and -320). To evaluate this BUI, Ohio will compare dredged sediment data to a number of standards and screening levels, including 1) the residential and/or industrial soil U.S. EPA Regional Screening Levels (RSLs) and 2) information regarding ambient background conditions for the upland beneficial use of dredged sediment. If the material would be found suitable for upland beneficial use of the dredged sediment based on the two above evaluation methods, then the restoration target for this BUI will be met.

An alternate evaluation method for achieving the restoration target for this BUI is related to the aquatic beneficial use of dredged sediment such as in-water habitat restoration projects. Placement of material into 'waters of the state' requires a Federal Water Pollution Control Act certification under section 401 from the state of Ohio. To evaluate this BUI, Ohio will evaluate applicable chemical and biological data in accordance with the 401-certification process, such that the dredged sediments would be suitable for in-water use. If the material would be permissible for aquatic beneficial use for dredge sediment based on the 401-certification process, then the restoration target for this BUI has been met.

Additional conditions that may be considered in determining the status of this BUI include:

- Effectiveness and extent of improvements from remedial activities that have been completed and/or,
- Ecological screening levels and any associated restrictions and/or,
- Associated dredge material management plans and navigation dredging permitting that will continue to monitor navigational dredging activities, if applicable.

## Appendix B

### Tables for Lorain Harbor USACE and Black River GeoPool Sediment Risk-Based Screening for Upland Beneficial Use

Lorain Harbor USACE 2020 and Black River GeoPool Pilot Study 2020-2021 sediment sampling results were screened against upland beneficial use criteria. The sediment risk-based screening evaluation consisted of comparing the bulk sediment chemistry data to U.S. EPA's Regional Screening Levels (RSLs) for residential direct contact with soil and industrial direct contact with soil, updated May 2021, and found at: <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>. Ohio's Voluntary Action Program (VAP) residential, commercial, and industrial soil standards were also included for comparison purposes. Screening levels for carcinogenic and non-carcinogenic human health effects were used. The initial screening compared maximum constituent concentrations detected and used criteria based on incremental lifetime cancer risks (ILCR) of one in a million (1E-06) and non-cancer health effects with a hazard quotient (HQ) of 0.1. Further screening was conducted on chemicals that were retained from the initial screening. More refined screening involved using exposure point concentrations calculated as the 95% upper confidence limit on the mean (UCL95) and using the cumulative ILCR of one in 100,000 (1E-05) and non-cancer hazard quotient of 1.0.

Sediment risk-based screening was completed separately on the following two sediment datasets:

1. [Lorain Harbor USACE 2020 sediment data from within the lateral boundaries of the federal navigation channel and shallower than authorized navigation depth \(Lorain Harbor USACE Sediment Data\)](#); and
2. [Black River GeoPool Pilot Study 2020-2021 sediment data collected from within the GeoPool \(Black River GeoPool Sediment Data\)](#).

The sediment risk-based screening for each dataset consists of a series of seven tables that contain the following information in Appendix B:

1. Table 1 – Summary of all sediment chemistry results;
2. Table 2 – Initial screen of maximum detected concentrations compared to risk-based screening levels and Ohio background values;
3. Table 3 – Screening of maximum detected and UCL95 concentrations compared to risk-based screening levels for residential land use and Ohio background values;
4. Table 4 – Same as Table 3 except for industrial land use;
5. Table 5 – Same as Table 3 except for recreational land use;
6. Table 6 – Screening of maximum detected and UCL95 concentrations compared to risk-based soil screening levels for ecological receptors and Ohio background values; and
7. Table 7 – Screening of maximum detected and UCL95 concentrations compared to risk-based sediment screening levels for ecological receptors and Ohio background values. This is representative of aquatic exposure and was provided for potential future aquatic beneficial use projects.

# Appendix C

## Black River Area of Concern Advisory Committee Letter of Support



**Black River Advisory Committee**  
LoCo 'Yaks | Facilitating Organization  
138 Alabama Avenue  
Lorain, OH 44052  
(440) 249-0590

April 7, 2022

Laurie Stevenson, Director  
Ohio Environmental Protection Agency  
P. O. Box 1049  
Columbus OH 43216-1049

Joy Mulinex, Executive Director  
Ohio Lake Erie Commission  
P.O. Box 1049  
Columbus OH 43126-1049

**RE: Removal of Beneficial Use Impairment for Restrictions on Navigational Dredging Activities in the Black River Area of Concern**

Dear Directors Stevenson and Mulinex,

The Black River Area of Concern (AOC) Advisory Committee has reviewed available data, materials, and documents for the removal of the beneficial use impairment for Restrictions on Navigational Dredging Activities.

The Advisory Committee has determined that all applicable data meets the State of Ohio removal criteria for this BUI. The Black River AOC Advisory Committee supports the Ohio AOC program through the Ohio Lake Erie Commission and Ohio EPA in recommending the removal of this BUI and its submittal to U.S. EPA's Great Lakes National Program Office (GLNPO) for their approval.

With the removal of this BUI, the following impairments will remain in the Black River AOC.

- BUI #3: Degradation of Fish Populations
- BUI #4: Fish Tumors or Other Deformities
- BUI #6: Degradation of Benthos
- BUI #10a: Beach Closings (Recreational Contact)
- BUI #14: Loss of Fish Habitat

The Black River AOC Advisory Committee looks forward to continuing to work in coordination with the Ohio AOC program with these remaining BUIs and the work necessary for their removal.

Sincerely,



Don Romancak  
Chair, Black River AOC Advisory Committee

cc: Lynn Garrity, OLEC

## **Appendix D - Public Comment**

No public comments were received during the public comment period that occurred March 21 through April 4, 2022.