RECORD OF DECISION

SYW-12 Site
Operable Unit of the Wastebed B/Harbor Brook Subsite of the Onondaga Lake Superfund Site

Syracuse, Onondaga County, New York

New York State Department of Environmental Conservation
and
United States Environmental Protection Agency
Region II
March 2023

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

SYW-12 Site, an Operable Unit of the Wastebed B/Harbor Brook Subsite of the Onondaga Lake Superfund Site
Syracuse, Onondaga County, New York
Superfund Site Identification Number: NYD986913580
Operable Unit: 28 (Operable Unit 2 of the Wastebed B/Harbor Brook Subsite)

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) documents the New York State Department of Environmental Conservation (NYSDEC) and U.S. Environmental Protection Agency's (EPA's) selection of a remedy for the SYW-12 Site (Site), an Operable Unit of the Wastebed B/Harbor Brook subsite of the Onondaga Lake Superfund site, chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300 (NCP). This decision document explains the factual and legal basis for selecting a remedy to address the contaminated soil/fill materials and groundwater associated with this Site. The attached index (Appendix III) identifies the items that comprise the Administrative Record upon which the selected remedy is based.

The New York State Department of Health (NYSDOH) was consulted on the proposed remedy in accordance with CERCLA Section 121(f), 42 U.S.C. § 9621(f), and concurs with the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances at this Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy includes the following components:

- Placement of a two-foot-thick soil cover where accessible and not detrimental to the environment (*i.e.,* avoiding mature tree removal, disturbance of bald eagles, etc.), and restoring wetlands in select non-forested wetland and upland areas of the Site. To restore the wetland areas, contaminated soil may be removed, and either reused on-Site or disposed off-Site, prior to cover placement to a depth necessary to preserve wetland conditions and functions. Reuse of material in

accordance with NYSDEC DER-10 (Table 5.4(e)4), which could include use of soil for future trail construction, will need to be compatible with wetland regulations and will be evaluated during design. Where cover material is placed, a demarcation layer will be evaluated during the remedial design to delineate the boundary between the contaminated soil/fill material and the soil cover. If a demarcation layer is necessary, it will be compatible with the wetland or tree growth, as appropriate. The targeted remedial footprint focuses on reducing ecological exposure while still retaining forested SYW-12 habitat to preserve areas currently used by bald eagles for winter roosting.

- Fill material brought to this Site will need to meet the requirements for the identified Site use as set forth in New York State regulations (6 NYCRR Part 375-6.7(d)). Native species will be used for the vegetative component of covers.
- A tree survey and surface soil pre-design investigation will be performed to evaluate whether additional areas should be included in the remediation footprint. Should surface soil sampling and the tree survey indicate that elevated surface soil/fill contaminant concentrations could be addressed without impacting large trees (*e.g.*, large trees and/or soils within their drip-zone would not need to be removed or disturbed), soil excavation and/or backfilling of these areas with clean material would be considered.
- Biota monitoring will be performed to evaluate remedy effectiveness and assess protectiveness for ecological receptors. A baseline sampling program consisting of two sampling events will be implemented, with subsequent sampling events following remedy implementation using an adaptive, data-driven approach (*e.g.,* years 3 and 5). A field assessment of Site vegetative community composition (*e.g.,* diversity, richness, invasive species evaluation) and qualitative wildlife community observations will be performed to support the biota monitoring program. The field assessment will also include an evaluation of Site trees, specifically trees that serve as roosts for bald eagles, for overall health and preservation. Specific sample locations, species, sampling and analytical methods, and sampling frequencies will be assessed and established during the remedial design. It is assumed that the monitoring program will consist of analysis of soil invertebrate and small mammal tissues, with collection of co-located surface soil/fill samples for laboratory analysis of chemical constituents. The details related to the scope of biota sampling will be developed during the remedial design phase.
- Periodic sampling and analysis of groundwater will be included as a means of monitoring changes in groundwater concentrations and natural attenuation of naphthalene. Natural attenuation of other groundwater contaminants may be evaluated, if necessary.
- Institutional controls (ICs) in the form of environmental easements and/or restrictive covenants will be used to limit land use to commercial (including passive recreational), as appropriate, prevent the use of groundwater without approved treatment, and require that any intrusive activities on the Site will be conducted in accordance with a NYSDEC-approved Site Management Plan, which will include the following:
  - Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls (ECs) for the Site and documents the steps and media-specific requirements necessary to ensure the following ECs and ICs remain in

place and effective:

- environmental easements and/or restrictive covenants described above
- Site cover described above
- future remediation/management in areas where no cover is present at the Site (*e.g.,* due to erosion or changes in vegetation)
- excavation plan that details the provisions for management of future excavations on the Site
- descriptions of provisions of the ICs, including any land use or groundwater use restrictions
- soil vapor intrusion evaluation to be completed, and appropriate actions implemented for any on-Site buildings (if they were to be constructed)
- provisions for management and inspection of the identified ECs
- protection measures to be implemented while conducting any needed subsurface soil disturbance activities, to prevent exposure to sheens or blebs (droplets) of nonaqueous phase liquids
- maintenance of Site access controls and NYSDEC notification (*e.g.,* change in Site use)
- steps necessary for periodic review and certification of the ECs and/or ICs.

- Monitoring Plan to assess performance and effectiveness of the remedy. Elements of the monitoring plan will include groundwater and biota monitoring, assessing restoration success (*e.g.,* wetland delineation, invasive species management), and repair of habitat and wetlands. The final monitoring program will be established during the design.

The cover system will require routine maintenance and inspections to maintain its integrity. Maintenance of the cover systems may consist of cover repair in areas of disturbance or reapplication of vegetation in areas of non-survival, as necessary.

Based on the investigations, geochemical conditions at the Site are favorable for natural attenuation of polycyclic aromatic hydrocarbons (PAHs), including naphthalene, to occur. The determination that natural attenuation is occurring is, in part, based upon detected concentrations of ferrous iron, sulfide, and methane in groundwater and oxidation-reduction potential data that suggests the presence of iron- and sulfate-reducing conditions in groundwater. Biodegradation of naphthalene can occur under anaerobic conditions, particularly under iron- or sulfate-reducing conditions. Further, the presence of methane and observed decreases in groundwater concentrations of PAHs over time (such as acenaphthene and naphthalene) indicate that natural attenuation is likely occurring.

Environmental benefits of the selected remedy may be enhanced by utilization of technologies and practices that are considered sustainable in accordance with EPA Region 2's Clean and Green Energy Policy and NYSDEC's Green Remediation Policy.[1]

[1] See http://epa.gov/region2/superfund/green_remediation/ and http://www.dec.ny.gov/docs/re-

This includes consideration of green remediation technologies and practices.

DECLARATION OF STATUTORY DETERMINATIONS

Part 1- Statutory Requirements

The selected remedy meets the requirements for remedial actions set forth in CERCLA in Section 121, 42 U.S.C. § 9621, because, as implemented, it (1) is protective of human health and the environment; (2) meets a level of standard of control of the hazardous substances, pollutants, and contaminants which at least attains the legally applicable or relevant and appropriate requirements under the federal and State laws; (3) is cost-effective, and (4) utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

Part 2- Statutory Preference for Treatment

CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous substances as a principal element (or provide a justification for not satisfying the preference). Based on a review of data collected at the Site and the evaluation of various remedial technologies and alternatives, combined with the presence of a mature forested area that supports the roosting of bald eagles at the Site, NYSDEC and EPA have determined that treatment of contaminated soil at the Site is not practicable or cost effective.

Part 3- Five-Year Review Requirements

Because this remedy is anticipated to result in hazardous substances, pollutants, or contaminants remaining on-Site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action and at five-year intervals thereafter to ensure that the remedy is, or will be, protective of human health and the environment.

ROD DATA CERTIFICATION CHECKLIST

This ROD contains the remedy selection information noted below. More details may be found in the Administrative Record file for the selection of this remedy.

- Contaminants of concern and their respective concentrations (see ROD, pages 5-9 and Appendix II, Tables 1-3);
- Potential land and groundwater use that will be available at this Site as a result of the selected remedy (see ROD, page 11);
- Baseline risk represented by the contaminants of concern (see ROD, pages 11-

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18);

- Cleanup levels established for contaminants of concern, and the basis for these levels (see ROD, pages 18-19 and Appendix II, Tables 1-3);
- Key factors used in selecting the remedy (*i.e.*, how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision) (see ROD, pages 40-41);
- Estimated capital, annual operation and maintenance, and present-worth costs; discount rate, and the number of years over which the remedy cost estimates are projected (see ROD, page 45 and Appendix II, Table 5); and
- Manner of addressing source materials constituting principal threats (see ROD, page 46).

AUTHORIZING SIGNATURES

Andrew Guglielmi

March 30, 2023

Andrew O. Guglielmi, Director
Division of Environmental Remediation
NYSDEC

Date

Pat Evangelista

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Date: 2023.03.31 13:50:11 -04'00'

Pat Evangelista, Director
Superfund and Emergency Management Division
EPA, Region 2

Date

DECISION SUMMARY

SYW-12 Site
Operable Unit of the Wastebed B/Harbor Brook Subsite
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Syracuse, Onondaga County, New York

New York State Department of Environmental Conservation
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Table of Contents

ATTACHMENTS

SITE NAME, LOCATION, AND DESCRIPTION

The SYW-12 site (Site), an Operable Unit (OU)[1] of the Wastebed B/Harbor Brook Subsite of the Onondaga Lake Superfund site, is located east of Onondaga Lake in Syracuse, New York (see Appendix I, Figure 1). The Site property is owned by Onondaga County and includes undeveloped land and a portion of Wetland SYW-12, a 45.5-acre Class I wetland. Portions of Wetland SYW-12 are located around the mouth of Ley Creek along the southeastern shoreline of Onondaga Lake in Syracuse, New York (see Appendix I, Figure 2, Site Location).

The Site is bounded by CSX railroad tracks to the north and east, Onondaga Creek to the south, and Onondaga Lake to the west. The Lower Ley Creek subsite of the Onondaga Lake site is also situated to the north but is being addressed as part of a separate remedy. A figure showing the Site layout is included as Appendix I, Figure 3. The Site encompasses approximately 23.5 acres, with 10.4 acres of upland (*i.e.,* non-wetland areas) and 13.1 acres of delineated wetland between Onondaga Lake and the CSX railroad tracks (based on a 2018 wetland delineation). Mature trees typical of floodplain forests occupy the central portion of the Site, which also serve as a roost site for wintering bald eagles (*Haliaeetus leucocephalus*).

SITE HISTORY

On June 23, 1989, the Onondaga Lake site was added to the New York State Registry of Inactive Hazardous Waste Disposal Sites. On December 16, 1994, Onondaga Lake, its tributaries, and the upland hazardous waste sites that have contributed or are contributing contamination to the lake (subsites) were added to the U.S. Environmental Protection Agency's (EPA's) National Priorities List (NPL). This NPL listing means that the lake system is among the nation's highest priorities for remedial evaluation and response under the federal Superfund law for sites where there has been a release of hazardous substances, pollutants, or contaminants as defined under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA or Superfund), as amended.

[1] Because many Superfund sites are complex and have multiple contamination impacts and/or geographic areas, they are often divided into OUs for managing the site-wide response actions. In the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300 (NCP), an OU is defined as "a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site may be divided into OUs, depending on the complexity of the problems associated with the site. OUs address geographical portions of a site, specific site problems, initial phases of an action, or consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site."

The New York State Department of Environmental Conservation (NYSDEC) and EPA have organized the work for the Onondaga Lake NPL site[2] into discrete subsites, which are considered by EPA to be OUs of the Onondaga Lake NPL site. Many of the Onondaga Lake NPL subsites are further subdivided into OUs to address specific geographical portions of a site or specific site problems. One of the subsites is the Wastebed B/Harbor Brook (WBB/HB) subsite. In 2000, Honeywell and NYSDEC entered into an administrative consent order to conduct a remedial investigation/feasibility study (RI/FS)[3] for this subsite. As documented in a July 2005 Record of Decision (ROD) issued by EPA and NYSDEC for the Onondaga Lake Bottom subsite, the SYW-12 Site, also known as Murphy's Island, was administratively included in the investigation of the WBB/HB subsite. The SYW-12 Site was investigated by Honeywell as reported in the 2015 *WBB/HB Revised RI Report*, 2009 *Revised Human Health Risk Assessm*ent (HHRA) Report and hazard calculation updates (Appendix 1 of the SYW-12 Site FS Report), 2011 *Revised Baseline Ecological Risk Assessm*ent (BERA) Report, 2014 *SYW-12 Sources of Contamination Investigation Report,* and 2020 *Revised SYW-12 Groundwater Investigation Report*.

Following NYSDEC's approval of the RI and risk assessments for the WBB/HB subsite, it was separated into two OUs. OU-1 includes the Lakeshore Area, the Penn-Can Property, the Railroad Area, and two "Areas of Study," AOS#1 and AOS#2 (see Appendix I, Figure 1). Following the issuance of an OU-1 FS Report in July 2018, a ROD was signed in October 2018. The SYW-12 Site (which is OU-2 of WBB/HB) was subsequently designated as New York State Inactive Hazardous Waste Site No. 734075A. The FS for the for the SYW-12 Site was completed in September 2022.

Prior to the early 1800s, the location of the future SYW-12 Site was partially under water, with the remaining portion being wetlands containing cedar and ash trees. Both Mud Creek (later renamed Ley Creek) and Onondaga Creek meandered across the northern portion of the Site before flowing into Onondaga Lake. In 1822, New York State lowered the level of Onondaga Lake by approximately 2 ft, resulting in the draining of wetlands along the lakeshore, including a portion of the Site. The newly created land was filled in and partitioned as building lots.

In 1873, the lower 0.75 mile of Onondaga Creek was rerouted and channelized slightly south of the present-day Barge Canal. A channel and harbor basin were also dredged at the mouth of Onondaga Creek as part of the construction of a large amusement complex known as the Iron Pier Resort (see Appendix I, Figure 4). The complex included a 600-ft pavilion that was built adjacent to the harbor. The pavilion contained venues for dining,

[2] The Onondaga Lake Superfund Site's Superfund Site Identification Number is NYD986913580. NYSDEC is the lead agency; EPA is the support agency.

[3] The purpose of an RI is to determine the nature and extent of the contamination at a site and evaluates the associated human health and ecological risks. An FS identifies and evaluates remedial alternatives to address the contamination at a site.

bowling, billiards, concerts, and a carousel. Steamboats from the harbor provided service to other resorts on the lake. The Iron Pier Resort was closed in 1906 and the pavilion was demolished by 1908.

Following closure and demolition of the pavilion, historical maps indicate that portions of the Site, the Iron Pier channel, and harbor basin may have been filled with refuse materials (*e.g.,* soda ash, waste fill) from various sources. Dredged materials were also potentially placed on the Site because of additional changes to the Onondaga Creek location and configuration, including dredging of the Barge Canal and harbor terminal in 1915, which relocated the channel between the pre-1873 Onondaga Creek channel and the 1873 relocated Onondaga Creek channel. The Barge Canal was reportedly dredged on several occasions between 1941 and 1954. The potential sources of contamination at the Site include dredge spoils from Onondaga Creek, historic dredge material from the southern portion of Onondaga Lake and possibly the former Marley property, the Oil City properties, the Niagara Mohawk Hiawatha Boulevard - Syracuse Former Manufactured Gas Plant (MGP) subsite, the Erie Boulevard former MGP site, and Ley Creek.

Based on a review of historic aerial maps, the Site has changed in shape and size over time as a result of dredge deposition and natural erosion but has remained undeveloped and vegetated with low-lying vegetation, brush, and trees since the early 1900s.

HIGHLIGHTS OF COMMUNITY PARTICIPATION

The RI/FS reports and a Proposed Plan detailing a proposed remedy were released to the public for comment on January 19, 2023. These documents were made available to the public via NYSDEC's website and at information repositories maintained at the Atlantic States Legal Foundation and the NYSDEC Region 7 office, all located in Syracuse, New York; and the NYSDEC Division of Environmental Remediation office, located in Albany, New York. A NYSDEC listserv bulletin notifying the public of the availability for the above-referenced documents, the comment period commencement and completion dates, and the date of the public meeting was issued on January 18, 2023. A public notice providing the same information was published in the *Syracuse Post-Standard* on January 19, 2023. The public comment period ran from January 19, 2023 to February 18, 2023.

On January 31, 2023, NYSDEC and EPA conducted a public meeting at the Salina Town Hall in Salina, New York to inform local officials and interested citizens about the Superfund process, to present the Proposed Plan for this Site, including the preferred remedy, to respond to questions, and accept comments. There were approximately 12 people, including residents and local government employees, in attendance. Responses to the questions and comments received at the public meeting and to comments submitted in writing during the public comment period are included in the

Responsiveness Summary (see Appendix V).

The Onondaga Nation reviewed the draft RI and FS reports and draft Proposed Plan, and NYSDEC and EPA communicated with representatives of the Onondaga Nation about these documents. NYSDEC and EPA will continue consultation with the Onondaga Nation and provide documents for their review throughout the design, construction and long-term management phases of the remedy.

SCOPE AND ROLE OF OPERABLE UNIT

As was noted above, Superfund sites are often divided into OUs for managing the site-wide response actions. NYSDEC and EPA have, to date, organized the work for the Onondaga Lake NPL site into 11 subsites. These subsites are also considered by EPA to be OUs of the Onondaga Lake NPL site. The following are the eleven subsites that are being addressed:

1. Onondaga Lake Bottom (which includes Geddes Brook/Ninemile Creek as an OU);
2. LCP Bridge Street;
3. Semet Residue Ponds;
4. Willis Avenue;
5. WBB/HB;
6. Solvay Wastebeds 1-8;
7. General Motors - Inland Fisher Guide;
8. Town of Salina Landfill;
9. Ley Creek PCB Dredgings;
10. Lower Ley Creek; and
11. Niagara Mohawk Hiawatha Boulevard - Syracuse Former MGP.

For the Onondaga Lake Bottom subsite, dredging activities and capping activities were performed from 2012 to 2014 and in 2016, respectively. Habitat restoration activities associated with the remedy were completed in 2017. The dredged material is being managed at a sediment consolidation area constructed on former Solvay Wastebed 13. Construction activities at the consolidation area, which included the placement of an engineered cap, were completed in 2017. Remedial construction has also been fully implemented at the Semet Residue Ponds, Wastebeds 1-8 OU-1, WBB/HB OU-1, LCP Bridge Street, Geddes Brook/Ninemile Creek, Niagara Mohawk Hiawatha Boulevard - Syracuse Former MGP, Salina Landfill, and the Ley Creek PCB Dredgings subsites. All the above-noted subsites/OUs are undergoing long-term maintenance and monitoring. Remedial actions at portions of, or environmental media (*e.g.,* soil, groundwater) at Wastebeds 1-8 OU-2, Willis Avenue, and General Motors - Inland Fisher Guide (OU-1 and OU-2) subsites have been completed or are in progress. Other portions of, or media at, these subsites are in the remedial design (RD) or RI/FS phase. The Lower

Ley Creek subsite is in the RD phase.

The response action documented in this ROD addresses the contaminated soil/fill material and groundwater at the SYW-12 Site. NYSDEC and EPA expect this remedy to be a final, comprehensive remedy. Because of the presence of forested areas on the Site that are winter roosting habitat for bald eagles, some of the alternatives evaluated in this ROD only include remediation in 8.2 to 10 acres of the 23.5-acre Site that are accessible and/or non-forested so that the mature trees used for roosting are not impacted. Additional discussion is provided in the alternatives described below.

SUMMARY OF SITE CHARACTERISTICS

The RI activities that were conducted at this Site included geological and hydrogeological investigations, a human health risk assessment, an ecological risk assessment, and the collection of samples from the shallow soil (top two ft of soil), subsurface soil (below two ft), and groundwater.

Based upon the results of the RI, the primary contaminants of concern (COCs) in soil were determined to be assorted polycyclic aromatic hydrocarbons (PAHs) (*e.g.,* benzo(a)pyrene), pesticides (*e.g.,* 4,4'-DDT), polychlorinated biphenyls (PCBs), and metals (*e.g.,* cadmium, chromium, mercury). Naphthalene was the only COC determined to be applicable for groundwater.

To delineate the nature and extent of the contamination, the analytical results from the RI sampling were compared to the respective New York State Soil Cleanup Objectives (SCOs) set forth at 6 NYCRR Part 375 Environmental Remediation Programs for each land use type, including Commercial-Use SCOs (which includes passive recreational uses, such as walking trails), Protection of Ecological Resources SCOs, and Unrestricted-Use SCOs. The Unrestricted-Use SCOs represent the concentrations of constituents in soil that, when achieved at a site, are sufficiently low that New York State imposes no use restrictions on the site for the protection of public health, groundwater, and ecological resources. Additional information can be found in the RI and FS reports. In Appendix II, Tables 1 and 2, there is a summary of the Unrestricted, Commercial- and Protection of Ecological Resource SCOs exceedances in shallow and subsurface soil/fill material for the Site. Groundwater was compared to the New York State Class GA Standards and Guidance Values (SGVs) and is included in Appendix II, Table 3. The results of the RI are summarized below.

Site Geology and Hydrogeology

The local geology for the Site consists of the following:

- unconsolidated deposits which consist of 2 to 15 feet (ft) of reworked fill consisting of sand, silt, gravel, shell material, and concretions below a thin layer of recently deposited wetland sediments;
- 15 to 25 ft of marl, which is a carbonate-rich sediment containing a significant amount of shells with variable amounts of clays and silt. The 15 to 25 ft marl unit becomes gradually finer grained with depth from a sandy, shell rich marl at the top of the unit to clayey silt marl with a trace of shell material at the bottom of the unit; and
- the geological units underlying the marl unit include silt and clay, silt and fine-grained sand/basal sand and gravel, till, and bedrock, based on regional geologic information and data collected from nearby locations.

The depth to groundwater beneath the Site ranges from approximately 3.3 to 9.2 ft below ground surface (bgs). The groundwater occurs in the unconsolidated unit and flows westward toward Onondaga Lake from the central and southern portions of the Site. Groundwater on the northern portion of the Site flows north toward Ley Creek.

Shallow Soil/Fill Materials (0- to 2-feet bgs)

Volatile organic compounds (VOCs), SVOCs, pesticides, PCBs, polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans (PCDD/Fs), and metals were detected in shallow soil/fill material on the Site as described below. The data were compared to the SCOs for Commercial Use, Protection of Ecological Resources, and Unrestricted Use (see Appendix II, Table 1).

VOCs, including chlorinated benzenes and benzene, toluene, ethylbenzene, and xylene (BTEX) compounds, were detected in the shallow soil/fill material, but they did not exceed the SCOs. The constituents that exceeded the SCOs for Unrestricted Use predominantly included seven SVOCs (assorted PAHs), five pesticides (4,4'-DDT, 4,4'-DDD, dieldrin, 4,4'-DDE, and endrin), PCBs (Aroclor 1254 and Aroclor 1260), and inorganic compounds/metals (mercury, zinc, lead, chromium, cadmium, copper, silver, and nickel).

Several of the above-mentioned constituents exceeded the following SCOs: (a) *Commercial Use SCOs*, for four SVOCs (assorted PAHs), including benzo(a)anthracene (maximum concentration of 7,300 micrograms per liter (µg/kg) [Commercial Use SCO of 1,000 µg/kg]), benzo(a)pyrene (maximum concentration of 9,100 µg/kg [Commercial Use SCO of 1,000 µg/kg]), benzo(b)fluoranthene (maximum concentration of 12,000 µg/kg [Commercial Use SCO of 5,600 µg/kg]), and dibenzo(a,h)anthracene (maximum concentration of 1,100 µg/kg [Commercial Use SCO of 560 µg/kg]); PCBs (Aroclor 1254 and Aroclor 1260) with the highest concentration at 3,470 µg/kg (Commercial Use SCO of 1,000 µg/kg); and three inorganics including mercury (maximum concentration of 8.6 mg/kg [Commercial Use SCO of 2.8 mg/kg]), copper (maximum concentration of 330 mg/kg [Commercial Use SCO of 270 mg/kg]), and cadmium (maximum concentration of

52 mg/kg [Commercial Use SCO of 9.3 mg/kg]); and (b) *Protection of Ecological Resources SCOs* were exceeded for one SVOC (benzo(a)pyrene at a maximum concentration of 9,100 µg/kg [Ecological Resource SCO of 2,600 µg/kg]); five pesticides including 4,4'-DDT (maximum concentration of 100 µg/kg [Ecological Resource SCO of 3.3 µg/kg]), 4,4'-DDD (maximum concentration of 73 µg/kg [Ecological Resource SCO of 3.3 µg/kg]), 4,4'-DDE (maximum concentration of 3.6 µg/kg [Ecological Resource SCO of 3.3 µg/kg]), dieldrin (maximum concentration of 30 µg/kg [Ecological Resource SCO of 6 µg/kg]), and endrin (maximum concentration of 26 µg/kg [Ecological Resource SCO of 14 µg/kg]); PCBs (Aroclor 1254 and Aroclor 1260) with the highest concentration at 3,470 µg/kg (Ecological Resource SCO of 1,000 µg/kg); and eight inorganic compounds including mercury (maximum concentration of 8.6 mg/kg [Ecological Resource SCO of 0.18 mg/kg]), zinc (maximum concentration of 780 mg/kg [Ecological Resource SCO of 109 mg/kg]), lead (maximum concentration of 390 mg/kg [Ecological Resource SCO of 63 mg/kg]), chromium (maximum concentration of 410 mg/kg [Ecological Resource SCO of 41 mg/kg]), cadmium (maximum concentration of 52 mg/kg [Ecological Resource SCO of 4 mg/kg]), copper (maximum concentration of 330 mg/kg [Ecological Resource SCO of 50 mg/kg]), silver (maximum concentration of 13 mg/kg [Ecological Resource SCO of 2 mg/kg]), and nickel (maximum concentration of 87 mg/kg [Ecological Resource SCO of 30 mg/kg]).

Subsurface Soil/Fill Material (at depths greater than 2-feet bgs)

VOCs, SVOCs, pesticides, PCBs, PCDD/Fs, and inorganic compounds were detected in subsurface soil/fill material on the Site as described below. The data were compared to the SCOs for Commercial Use, Protection of Ecological Resources, and Unrestricted Use (see Appendix II, Table 2).

SVOCs were detected throughout shallower subsurface soils (2 to 16 ft bgs) but were not detected in the deeper subsurface samples. PAHs were the most commonly detected SVOCs in the subsurface soil/fill material and accounted for most of the exceedances observed above the Commercial Use SCOs. Limited exceedances of pesticides and PCBs were observed with detections only between 2 and 10 ft bgs with two Commercial Use SCO exceedances. Inorganic compounds were detected throughout the subsurface, with Commercial Use SCO exceedances for arsenic, mercury, copper, and cadmium.

Coal tar/petroleum-like impacted soils, including blebs (droplets) of nonaqueous phase liquids (NAPLs),[4] were also identified in the location of the former Onondaga Creek channel. Stained soil and black stained sludge were found in subsurface soil in the central part of the Site. An evaluation of data and field observations determined that the presence of stained soils and NAPL does not necessarily correlate with elevated organics concentrations in soil and groundwater at proximate locations. This evaluation

[4] NAPLs are persistent organic liquid contaminants that do not dissolve in, or easily mix with, water (hydrophobic).

included a comparison of subsurface soil data exceeding SCOs for the Protection of Groundwater, exceedances of Class GA SGVs, and field observations of stained soils and NAPL.

Groundwater

The groundwater analytical data were compared to the New York State Class GA groundwater SGVs (see Appendix II, Table 3). As detailed in Appendix II, Table 3, there were a few VOC (ethylbenzene, isopropylbenzene and xylenes) and SVOC exceedances (4-methylphenol, 4-nitrophenol, acenaphthene, and naphthalene) of Class GA SGVs identified during the RI from data collected before 2015. A supplemental groundwater investigation conducted in 2019 indicated that naphthalene, at a concentration of 23 µg/L in one well, was the only organic compound that marginally exceeded the Class GA SGV (guidance value of 10 µg/L), with slightly lower concentrations than in historical detections (36 µg/L in 2012). Inorganic compounds/metals detected in Site groundwater include barium, iron, magnesium, manganese, sodium, and chloride, with Class GA SGV exceedances primarily observed for iron, manganese, sodium, and chloride, which may be ubiquitous in the area and/or naturally occurring as described in the *Revised SYW-12 2019 Groundwater Investigation Report*.

Polytetrafluoroethylene Sheen Net Samples

Polytetrafluoroethylene sheen net samples were collected as part of the sources of contamination investigation. Visual observations during the test trenching within or in the vicinity of the former Onondaga Creek channel footprint indicated that when soils were disturbed, a sheen formed on the groundwater within the excavated trench. Results of the sheen net sampling and PAH and petroleum biomarker analysis verified that the sheen had been mobilized from Site soils when disturbed. Results of the sheen net sampling and the corresponding groundwater sampling further indicate that the organic compounds remain bound to the soils when undisturbed.

Conclusions

Based on the results of the RI and supplemental groundwater investigation, the following conclusions have been drawn:

- The primary Site contaminants include assorted PAHs (*e.g.,* benzo(a)pyrene), PCBs, and metals;
- As shown on Appendix I, Figures 5 to 10, Site contaminants in soil/fill material are randomly distributed and are likely related to several sources, including historical placement of fill material in the former Onondaga Creek channel/Iron Pier area, dredge spoils from Onondaga Creek, historic dredge material from the southern

portion of Onondaga Lake, and other potential historical sources (*i.e.,* the former Marley property, the Oil City properties, the Niagara Mohawk Hiawatha Boulevard - Syracuse Former MGP subsite, the Erie Boulevard Former MGP site, and Ley Creek). The Marley and Oil City properties are believed to have impacted the Barge Canal sediment that was then dredged and placed on the Site during historical dredging operations. Contamination at these properties is currently being addressed by the potentially responsible parties for these sites under NYSDEC and EPA oversight; and

- There are few exceedances of the Class GA SGVs for organic constituents in RI groundwater samples, suggesting that organic constituents in shallow and subsurface soils are generally not mobilizing to groundwater; however, naphthalene concentrations in subsurface soil may be contributing to localized naphthalene being detected in groundwater in one monitoring well (HB-MW-29). The 2019 groundwater samples indicated that naphthalene was the only organic compound that marginally exceeded the Class GA SGV, with an overall decrease in organic constituent concentrations over time. Geochemical conditions at the Site are favorable for natural attenuation of naphthalene to occur.

The Site contaminants in surface soil identified during the RI were further evaluated during the FS to identify a targeted list of compounds *(i.e.,* benzo(a)pyrene, 4,4'-DDT, total PCBs, mercury, chromium and cadmium) that can serve as surrogates for other contaminants that are most likely to drive risk and remediation, and, therefore, will be representative chemicals for optimizing remedy protectiveness.

Contamination Fate and Transport

Natural attenuation is a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These *in-situ* processes include biodegradation, dispersion, dilution, sorption, volatilization, radioactive decay, and chemical or biological stabilization, transformation, or destruction of contaminants. As a remedial strategy, these conditions are monitored to ensure that natural attenuation is occurring. This strategy is known as monitored natural attenuation (MNA).

Natural attenuation of organic constituents in groundwater at the Site is discussed in the *Revised SYW-12 2019 Groundwater Investigation Report*. As summarized in that report, geochemical conditions at the Site are favorable for natural attenuation of PAHs, including naphthalene, to occur. The determination that natural attenuation is occurring is, in part, based upon detected concentrations of ferrous iron, sulfide, and methane in groundwater and oxidation-reduction potential data that suggest the presence of iron- and sulfate-reducing conditions in groundwater. Biodegradation of naphthalene can occur under anaerobic conditions, particularly under iron- or sulfate-reducing conditions.

Further, the presence of methane and observed decreases in groundwater concentrations of PAHs over time (such as acenaphthene and naphthalene) indicate that natural attenuation is likely occurring.

Bald Eagles

Over the past decade, occupation of the Site by bald eagles has increased significantly, particularly exhibited by winter roosting behavior of a large number of individuals. The Site is recognized as a winter roosting area for bald eagles by the United States Fish and Wildlife Service (USFWS) and NYSDEC. Bald eagles likely gather at the Site because of the warm water outflow from the nearby Metropolitan Syracuse Wastewater Treatment Plant which provides ice-free open water and the opportunity for eagles to forage during winter months. The large trees at the Site serve as roosts for wintering bald eagles. Location-specific applicable or relevant and appropriate requirements (ARARs) related to habitat protection, including the Federal Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq), USFWS National Bald Eagle Management Guidelines, Conservation Plan for Bald Eagles in New York State, and 6 NYCRR 182, provide requirements and guidance regarding the protection of bald eagle habitat, including the "take and disturbance" of bald eagles, and limiting activities that may alter communal roost sites and foraging areas.

As part of the FS development, USFWS provided location-specific recommendations related to soil/fill material to be addressed, that would also preserve trees that serve as roosts for bald eagles. The following measures were also recommended by USFWS to provide for the continued integrity of this roost site and enable bald eagles to feed and shelter during winter:

- Minimize tree clearing as part of remediation.
- Perform remedial activities outside the December 15 to March 15 winter roosting season to avoid disturbance to roosting bald eagles.

NYSDEC's March 2016 Conservation Plan for Bald Eagles in New York State cited above provides further guidelines and actions recommended for the conservation of New York's bald eagle population and recommends that work and activities disturbing trees be performed outside the December 1 to March 31 winter roosting season. These measures were considered as part of the development and evaluation of remedial alternatives, in particular when balancing potential risks with remedy elements potentially detrimental to valuable habitat.

CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USES

Land Use

The Site property is owned by Onondaga County and is zoned as parkland within the City of Syracuse. The surrounding area is commercial. As was noted above, CSX Railroad tracks are located immediately to the north and east of the Site. The land is currently undeveloped and, given the prevalent wetlands throughout the Site and proximity to the CSX Railroad tracks, future development for residential or industrial use is unlikely. Based on the land use evaluation, the reasonably anticipated current and future use of the Site is passive recreation as part of the Onondaga County's Loop the Lake Trail – Southeast Extension. Ecological receptors currently use the undeveloped areas of the Site and it is anticipated that they will continue to do so. An extension of the Onondaga County Loop the Lake Trail, a multi-use recreational trail, was constructed on the Site. In February 2019, NYSDEC issued a Freshwater Wetlands Permit and Section 401 Water Quality Certification for the project following an extended public comment period and a public hearing. In January 2021, Onondaga County requested a modification to a 2019 permit to replace a proposed steel pile boardwalk over Onondaga Lake with a 330 linear-foot berm trail from the City of Syracuse Lake Lounge to the wetland boundary. The multi-use recreational trail construction includes a wooden boardwalk within wetland areas and a minimum 1 ft of cover for passive recreational use within the trail footprint in non-boardwalk areas in addition to ICs and signage to keep trail users on the established trail.

SUMMARY OF SITE RISKS

As part of the RI, baseline quantitative risk assessments were conducted for this Site to estimate the risks to human health and the environment (under current and anticipated future land uses). A baseline human health risk assessment (BHHRA) evaluates potential risks to people, and a baseline ecological risk assessment (BERA) evaluates potential risks to the environment; both analyze the potential for adverse effects caused by hazardous substance releases from a site assuming no further action to control or mitigate exposure to these hazardous substances are taken.

Human Health Risk Assessment

A BHHRA was conducted to estimate current and future effects of contaminants on human health. A BHHRA is an analysis of the potential adverse human health effects caused by hazardous substance exposure in the absence of any actions to control or mitigate these exposures under current and future site uses. If it is determined that an unacceptable risk exists, the BHHRA provides the basis for taking an action and identifies the contaminants and exposure pathways that need to be addressed through implementation of a remedial action. This section of the ROD summarizes the results of

the BHHRA for this site.

A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios, as follows:

Hazard Identification – uses the analytical data collected to identify the contaminants of potential concern (COPCs) for each medium, with consideration of a number of factors explained below.

Exposure Assessment – estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (*e.g.*, ingesting contaminated soil) by which humans are potentially exposed.

Toxicity Assessment – determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of effect (response).

Risk Characterization – summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. The risk characterization also identifies contamination with concentrations that exceed acceptable levels, defined in the NCP as an excess lifetime cancer risk greater than 1 x 10^{-6} to 1 x 10^{-4} or a Hazard Index greater than 1.0 (discussed in more detail, below); contaminants at these concentrations are considered COCs and are typically those that will require remediation at a site. Also included in this section is a discussion of the uncertainties associated with these risks.

Hazard Identification

In this step, analytical data collected during the RI was used to identify COPCs in site media based on factors such as toxicity, frequency of detection, fate and transport of the contaminants in the environment, concentrations of the contaminants, as well as their mobility and persistence. The HHRA characterized the risk to human health from exposure to soil and groundwater at the Site. COPCs were determined for each exposure area and medium by comparing the maximum detected concentrations of each chemical identified with state and federal risk-based screening values.

Exposure Assessment

In this step, the different exposure scenarios and pathways through which people might be exposed to the contaminants identified in the previous step are evaluated. Consistent with Superfund policy and guidance, the BHHRA is a baseline assessment and therefore assumes a scenario where no remediation or institutional controls (ICs) to mitigate or remove hazardous substance releases occurs. Cancer risks and noncancer hazard indices are calculated based on an estimate of the reasonable maximum exposure (RME) expected to occur under current and potential future conditions at a site. The RME is defined as the highest exposure that is reasonably expected to occur at a site.

The exposure assessment identified potential human receptors based on a review of current and reasonably foreseeable future land use at this Site. Exposure scenarios were developed taking into account how receptors currently and potentially in the future might access these areas through reasonable activities. Receptors evaluated in the BHHRA include current and future child and adult recreational visitors, railroad workers, and utility workers, as well as future construction workers, commercial/industrial workers, and child and adult residents.

Recreational and railroad worker receptors were assumed to be exposed to surface soil via ingestion, dermal contact, and inhalation of fugitive dust or volatile emissions. Utility and construction worker exposure to surface and subsurface soil to a depth of less than or equal to 10 ft (*i.e.,* surface and subsurface soil) was based on ingestion, dermal contact, fugitive dust or volatile emissions, and groundwater present during excavations necessary for work. The resident and the commercial/industrial worker receptors were assumed to be exposed to surface soil via incidental ingestion, dermal contact, and inhalation of particulate dust or volatile emissions. Inhalation of vapors in the occupational workspace or residence from vapor intrusion was also evaluated as a viable exposure pathway. Exposure to groundwater in the future for residents via ingestion, dermal contact, and inhalation of vapors while showering was evaluated, as well. The specific exposure scenarios are presented in Appendix II, Table 4.

Toxicity Assessment

In this step, the types of adverse health effects associated with contaminant exposures and the relationship between the magnitude of exposure and the severity of adverse health effects were determined. Potential health effects are contaminant-specific and may include the risk of developing cancer over a lifetime or other noncancer health effects, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some contaminants are capable of causing both cancer and noncancer health effects.

Under current EPA guidelines, the likelihood of carcinogenic risks and noncancer hazards that are due to exposure to site chemicals are considered separately. Consistent with current EPA policy, it was assumed that the toxic effects of any site-related chemicals would be additive. Thus, cancer and noncancer risks associated with exposures to individual COPCs were summed to indicate the potential risks and hazards associated with mixtures of potential carcinogens and noncarcinogens, respectively.

Toxicity data for the HHRA were taken from the Integrated Risk Information System database, the Provisional Peer Reviewed Toxicity Database, or another source that is identified as an appropriate reference for toxicity values consistent with EPA's directive on toxicity values.

Risk Characterization

This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of Site risks. Exposures were evaluated based on the potential risk of developing cancer and the potential for noncancer health hazards.

For carcinogens, risks are generally expressed as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a carcinogen, using the cancer slope factor (SF) for oral and dermal exposures and the inhalation unit risk (IUR) for inhalation exposures. Excess lifetime cancer risk for oral and dermal exposures is calculated from the following equation, while the equation for inhalation exposures uses the IUR, rather than the SF:

Risk = LADD x SF

where: Risk = a unitless probability (1×10^{-6}) of an individual developing cancer
LADD = lifetime average daily dose averaged over 70 years (milligrams per kilogram [mg/kg]-day)
SF = cancer slope factor, expressed as 1/(mg/kg-day)

The likelihood of an individual developing cancer is expressed as a probability that is usually expressed in scientific notation (such as 1×10^{-4}). For example, a 1×10^{-4} cancer risk means a "one-in-ten-thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people as a result of exposure to site contaminants under the conditions described in the exposure assessment. Current Superfund guidelines for acceptable exposures are an individual lifetime excess cancer risk in the range of 10^{-4} to 10^{-6} (corresponding to a one-in-ten-thousand to a one-in-a-million excess cancer risk).

For noncancer health effects, a hazard index (HI) is calculated. The HI is determined based on a comparison of expected contaminant intakes and benchmark comparison levels of intake (reference doses, reference concentrations). Reference doses (RfDs) and reference concentrations (RfCs) are estimates of daily exposure levels for humans (including sensitive individuals) that are thought to be safe over a lifetime of exposure. The estimated intake of chemicals identified in environmental media (*e.g.*, the amount of a chemical ingested from contaminated drinking water) is compared to the RfD or the RfC to derive the hazard quotient (HQ) for the contaminant in the particular medium. The HI is determined by adding the hazard quotients for all compounds within a particular medium that impacts a particular receptor population.

The HQ for oral and dermal exposures is calculated as shown below.

HQ = Intake/RfD

where: HQ = hazard quotient
Intake = estimated intake for a chemical (mg/kg-day)

RfD = reference dose (mg/kg-day)

The intake and the RfD will represent the same exposure period (*i.e.,* chronic, subchronic, or acute).

The HQ for inhalation exposures is calculated using a similar model that incorporates the RfC, rather than the RfD.

The principal concept for a noncancer HI is that a "threshold level" (measured as an HI of less than 1.0) exists below which noncancer health effects are not expected to occur. The HI is calculated by summing the HQs for all chemicals for likely exposure scenarios for a specific population. An HI greater than 1 indicates that the potential exists for non-carcinogenic health effects to occur as a result of site-related exposures, with the potential for health effects increasing as the HI increases. When the HI calculated for all chemicals for a specific population exceeds 1, separate HI values are then calculated for those chemicals which are known to act on the same target organ. These discrete HI values are then compared to the acceptable limit of 1 to evaluate the potential for noncancer health effects on a specific target organ. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

Results

At this Site, the cancer risks and noncancer hazards were estimated for each of the exposure areas/media and the risk was evaluated for the specific populations identified in each unit under current and reasonably anticipated future use. The initial risk assessment for the Site was completed in 2009. Since that time, EPA reevaluated and updated toxicity information for PAHs and issued new guidance on the methodology for assessing risks associated with the inhalation pathway of exposure. To incorporate these updates, risk calculations for soil exposures were revised in 2018 and 2022. The conclusions of these evaluations indicate that the lifetime excess cancer risks and noncancer hazards for current/future utility workers, passive recreational users, and railroad workers, as well as future commercial/industrial workers and adult residents, are below the regulatory risk thresholds. Cancer risks are also within the target risk range for future construction workers and child residents. Elevated hazard was identified for future child residents exposed to highly chlorinated PCBs in surface soil and for construction workers by exposure to chromium and benzo(a)pyrene in groundwater. However, the anticipated future land use of the Site does not include residential use and the unacceptable hazard posed by chromium and benzo(a)pyrene to construction workers was based on the results obtained during the RI; sampling subsequent to the RI indicates the absence of chromium and benzo(a)pyrene in groundwater underlying the Site. A summary of the cancer risks and noncancer hazards above threshold levels for each population, along with the chemicals that contribute the most to the risk or hazard, or

COCs, can be found in Appendix II, Table 4.

The vapor intrusion screening in the BHHRA identified chemicals with a potential to migrate to indoor air, based on factors such as the chemical-specific vapor pressure. Because these factors apply to chemicals present in media, such as soil, fill material, and groundwater, all media with these chemicals have the potential for future vapor intrusion concerns. Naphthalene was identified and retained as a vapor intrusion COPC because of its maximum detected concentration in Site groundwater exceeded its groundwater vapor intrusion screening level. Based on the vapor intrusion screening, measures may be included in the design and construction of buildings at this Site to mitigate the potential for exposure to constituents that may be present in soil vapor. Such measures may include an active sub-slab depressurization system, use of a vapor barrier or the installation of a venting system. It should be noted that the anticipated future use does not include buildings in the predominantly wetland area.

Uncertainty in the Risk Assessment

The process of evaluating human health cancer risks and noncancer health hazards involves multiple steps. Inherent in each step of the process are uncertainties that ultimately affect the final risks and hazards. Important site-specific sources of uncertainty are identified for each of the steps in the four-step risk process below.

Uncertainties in Hazard Identification

Uncertainty is always involved in the estimation of chemical concentrations. Errors in the analytical data may stem from errors inherent in sampling and/or laboratory procedures. While the datasets for this Site are robust, because environmental samples are variable, the potential exists that these datasets might not accurately represent reasonable maximum concentrations. There is a low potential that the risks may be overestimated or underestimated.

Uncertainties in Exposure Assessment

There are two major areas of uncertainty associated with exposure parameter estimation. The first relates to the estimation of exposure point concentrations (EPCs). The second relates to parameter values used to estimate chemical intake (*e.g.,* ingestion rate, exposure frequency). The estimates of the EPCs are influenced on how likely the dataset fully characterizes the contamination at the Site. These datasets are robust, so the potential for overestimating or underestimating risk is low. Many of the exposure parameters used in the BHHRA are based on best professional judgement, but are meant to be health protective. Therefore, there is a low potential that the risks may be underestimated.

Uncertainties in Toxicity Assessment

A potentially large source of uncertainty is inherent in the derivation of the EPA toxicity criteria (*i.e.,* RfDs, RfCs, SFs, IURs) through extrapolating data from animals to humans and from high to low doses of exposure. Although these criteria have been extensively reviewed and peer-reviewed, there is a medium potential that uncertainty factors applied during their derivation may result in overestimation or underestimation of toxicity. Nevertheless, these uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the risk assessment. As a result, the risk assessment provides upper-bound estimates of risk and is unlikely to underestimate actual risks related to the Site. However, there are many contaminants for which no toxicity values are available and therefore they are not quantitatively evaluated in the BHHRA. For these chemicals, there is potential for underestimation because of this lack of toxicity information.

Uncertainties in Risk Characterization

When all of the uncertainties from each of the previous three steps are added, uncertainties are compounded. Because it is unknown whether many of the uncertainties result in an overestimation or underestimation of risk, the overall impact of these uncertainties is unquantifiable. However, some of the uncertainties, such as the lack of toxicity information, will likely result in an overall underestimation of risk.

Ecological Risk Assessment

The BERA for the Site identified current and future habitat use and potential ecological receptors. Based on the ecological receptors identified, potentially unacceptable risk was driven by the following constituents by receptor for the Site Exposure Area:

- Potential risk to terrestrial plants is driven by 11 metals via exposure to surface soil based on average concentrations throughout the exposure area exceeding screening criteria for the protection of plants.
- Potential risk to soil invertebrates is driven by five metals via exposure to surface soil based on exceedances of screening criteria for the protection of soil invertebrates and microfauna.
- Potential food chain bioaccumulation risks for insectivorous birds, as represented by the American robin (*Turdus migratorius*), exceeded the risk threshold (*i.e.,* hazard quotient [HQ] > 1.0) for lowest effect dose levels for six metals and four organic compounds in surface soil.
- Risks to insectivorous mammals from food chain exposure, as represented by the short-tailed shrew (*Blarina brevicauda*), exceeded 1.0 based on lowest effect level doses for five metals and five organic compounds in surface soil.
- Potential food chain risks to carnivorous mammals, as represented by the red fox

(*Vulpes vulpes*), are considered nominal for each constituent with the exception of chromium.

- Risks to carnivorous mammals from food chain exposure, as represented by the red-tailed hawk (*Buteo jamaicensis*), did not exceed 1.0 for any constituent based on lowest effect level doses.
- Potential risks to predatory mammals that may forage on terrestrial mammals and fish in the lake area abutting the Site, as represented by the mink (*Neovison vison*), are considered nominal given that no HQs based on lowest effect level doses exceeded 1.0.

In summary, the conclustions in the BERA indicate that select metals and organic compounds, namely chromium, cadmium and PCBs, pose a potential risk to communities or organisms and to bird and mammal populations with relatively restrictive home ranges (*e.g.,* American robin and short-tailed shrew). A full discussion of these evaluations and conclusions is presented in the BERA report.

Summary of Human Health and Ecological Risks

The results of the HHRA and post-HHRA evaluations indicate that exposure to contaminated soil, indoor air, and groundwater present current and/or potential future unacceptable risks, and the ecological risk assessment indicates that the contaminated soils pose an unacceptable risk.

Based upon the results of the RI and the risk assessments, EPA and NYSDEC have determined that actual or threatened releases of hazardous substances from the Site, if not addressed by the preferred remedy or one of the other active measures considered, may present a current or potential threat to human health and the environment.

Basis for Action

The selected remedy described in this ROD is necessary to protect public health and the environment from actual or threatened releases of hazardous substances.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are specific goals to protect human health and the environment based on conditions at a site. These objectives are based on available information and standards, such as ARARs, to-be-considered guidance, and site-specific risk-based levels established using the risk assessments. Based on consideration of potential chemical-specific ARARs, nature and extent of contamination, potentially unacceptable risks, the current, intended and reasonably anticipated future use of the Site and its surroundings, and the recognized value of and use of the forested areas of

the Site by the bald eagle, the following RAOs have been established for the Site:

Groundwater

RAO for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards and/or guidance values.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil above remedial goals and/or that result in unacceptable risk.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.
- Prevent or reduce the migration of contaminants that would result in sediment or surface water contamination.

Vapor Intrusion

RAO for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, vapor intrusion.

NYSDEC's SCOs for Commercial Use and the Protection of Ecological Resources have been identified as remediation goals for soil to attain these RAOs. SCOs are risk-based criteria that have been developed by the State following methods consistent with EPA's methods/protocols/guidance, and they are set at levels consistent with EPA's acceptable levels of risk that are protective of human health and ecological exposure depending upon the existing and anticipated future use of the Site. While the land use of the Site has historically been vacant, current and anticipated future uses of some areas could include commercial use (including passive recreational use such as a trail). Groundwater remedial goals are the New York State Ambient Water Quality Standards.

COCs identified for the Site include benzo(a)pyrene and other PAHs; 4,4'-DDT and other pesticides; PCBs; and cadmium, chromium, mercury and other metals.

DESCRIPTION OF REMEDIAL ALTERNATIVES

CERCLA Section 121(b)(1), 42 U.S.C. § 9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, and utilize

permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA Section 121(d), 42 U.S.C. § 9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA Section 121(d)(4), 42 U.S.C. § 9621(d)(4).

Based on the anticipated future development of this Site, expectations of the reasonably-anticipated future land use, as described above, were considered in the FS to facilitate the development of remedial alternatives. The reasonably-anticipated land use includes commercial use (*e.g*., passive recreational use) and ecological use.

For all the alternatives other than the no action alternative, all of the RAOs, except restoring the groundwater to levels that meet state and federal standards, would be met following construction and implementation of appropriate ICs (*e.g.,* estimated one to seven years). The estimated time to restore the groundwater to the New York State Class GA guidance value of 10 µg/L for naphthalene for all the alternatives, other than the no -action alternative, is approximately seven years. These estimates, which are discussed above, used available data for groundwater collected from the Site and were based on conservative assumptions. Additional data (*e.g.,* groundwater) would be collected to refine the estimated timeframe for restoration and long-term monitoring will be performed.

As presented in the FS Report, an evaluation of surface soil Area-Weighted Average Concentrations (AWACs) was conducted to further understand and evaluate surface soil concentrations pre- and post-remedy implementation relative to NYSDEC's SCOs. AWACs are calculated concentrations of select constituents representative of site-wide conditions that facilitate comparisons between existing conditions and future conditions following implementation of potential remedial alternatives. To develop AWACs, computer software is used to interpolate concentrations between sample locations from known sample data based on the premise that closer values are more similar than values farther away and therefore the closer values should have greater influence, or weight, in the averaging process. The result is a grid or an array of cells (2 ft x 2 ft) encompassing the entire site with each cell assigned a sample concentration. The calculated AWAC for a given constituent is equal to the average concentration of the interpolated grid and represents the pre-remediation AWAC for that constituent. Where remedial activities are proposed, the exercise is repeated using representative topsoil concentrations within the remedial footprint and the remaining surface soil concentration in undisturbed areas. The existing AWAC concentrations are then compared to the post-remediation AWAC results to assess improvement and protectiveness of remedial alternatives relative to existing

conditions. Appendix 8 of the FS Report presents additional details on the site-specific approach to calculating AWACs. Discussion of this evaluation is presented below under the Comparative Analysis of Alternatives heading.

The remedial alternatives are as follows:

Alternative 1 - No Action

The Superfund program requires that the "no action" alternative be considered as a baseline for comparison with the other alternatives. The no action remedial alternative would be that no measures would be taken to address the soil/fill material and groundwater contamination at this Site.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$0
Annual O&M Cost:	$0
Present-Worth Cost:	$0

Alternative 2 – Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and Monitored Natural Attenuation

This alternative includes the placement of a soil cover where accessible and not detrimental to the environment (*i.e.,* avoiding mature tree removal, disturbance of bald eagles, etc.) and restoring wetlands in select non-forested wetland and upland areas of the Site. The 2-ft-thick soil cover would be placed on an approximately 8.2-acre area, which includes 7.5 acres of non-forested wetland (perched wetland cover areas shown on Appendix I, Figure 11) and 0.7 acres of non-forested upland. The soil cover would control potential erosion of, and direct contact with, contaminated soil/fill material, as well as control the potential inhalation of dust in these areas. To restore wetland areas, contaminated soil may be removed, and either reused on-Site or disposed of off-Site, prior to cover placement with clean fill to a depth necessary to preserve wetland conditions and functions. Reuse of excavated material in accordance with NYSDEC DER-10 (Table 5.4(e)4), which could include use of soil for future trail construction, would need to be compatible with wetland regulations and would be evaluated during design. It is estimated that clean backfill would be transported to the Site, resulting in approximately 2,450 dump truck trips (*i.e.,* round-trip with a 10-yard dump truck). The remedial footprint is targeted to reduce ecological exposure while still retaining forested SYW-12 habitat to preserve areas currently used by bald eagles for roosting. Specifically, damage to root zones through the placement of soil cover material which would limit

oxygen supply to the tree roots and/or removal of mature trees used for eagle roosting would be avoided under this alternative. The remediated areas would be restored and biota monitoring would be performed. As described in the "Bald Eagles" section above, because of special considerations being given to the forested area that provides bald eagle habitat, surface soil in non-remediated areas may exceed Commercial Use and the Protection of Ecological Resources SCOs where cover would not be placed.

A surface soil pre-design investigation and tree survey would be performed to evaluate adding additional areas to the remediation footprint. The areas for consideration include two areas within the forested wetland characterized by scrub vegetation on the northern portion of the Site, four areas within the non-forested wetland on the western portion of the Site, and one upland forested area on the southern portion of the Site (purple outlined areas on Appendix I, Figure 11), although other areas could also be considered. Should surface soil sampling and the tree survey indicate that elevated surface soil/fill material contaminant concentrations could be addressed without impacting large trees (*i.e.,* large trees and/or soils within their drip-zone would not need to be removed or disturbed), soil excavation and/or backfilling of these areas with clean material would be considered.

To minimize loss of wetland acreage or function, wetland conditions and functions would be integrated into the areas where the cover would be placed within the current wetland footprint. To improve the success of the restored wetlands, the remedial design would consider excavation and/or grading to allow wetland functions and values. An evaluation would be conducted as part of the cover design to promote sufficient flooding and saturation to facilitate the development of wetland soils and hydrology appropriate for native plants and other habitat in conjunction with grading/soil profile design such that wetland conditions and functions are replaced. Where the water budget and/or grading cannot replace wetland conditions or functions, additional mitigation measures would be included during the design.

The soil covers would also be installed to support and preserve existing mature trees present proximate to the proposed cover to allow for future tree succession. Additional tree-planting may be performed as part of restoration. Where cover material is placed, a demarcation layer would be evaluated during the remedial design to delineate the boundary between the contaminated soil/fill material. If a demarcation layer is necessary, the soil cover would be compatible with the wetland or tree growth, as appropriate. The demarcation layer would provide evidence of cap erosion and provide a warning that contaminated material may exist below.

Excavated soil reuse options and limitations (*e.g.,* within wetland areas), impacts to the bald eagle habitat, and the final wetland restoration approach, including opportunities to improve wetland functions and values, planting of trees, and sustainable remediation principles would be further evaluated during the pre-design and design phases. Should reuse of excavated/graded/handled materials not be possible at the Site following

remedial design evaluations, the material would need to be managed off-Site.

Because of the Onondaga County trail construction, geotechnical concerns, and discussion and coordination with railroad operations, the boundaries of the remedy illustrated in Appendix I, Figure 11 are conceptual. It is anticipated that there would be no excavation in wetland areas adjacent to the railroad tracks based on stability concerns. Mitigation would be necessary where construction results in a loss of wetland acreage or function, and wetland conditions cannot be returned. The extent of the cover would be revisited during the design phase based on pre-design sampling and other activities and in consideration of the trail alignment. Onondaga County has included signage requiring recreational users to remain on the trail. The potential need for additional measures (*e.g.,* fencing/railing, maintaining dense vegetation along the trail, additional/improved signage, and/or sampling) would be reviewed during the design phase and based on management of the trail.

Biota monitoring would be performed to evaluate remedy effectiveness and assess protectiveness of ecological receptors. A baseline sampling program, consisting of two sampling events, would be implemented with subsequent sampling events following remedy implementation using an adaptive, data-driven approach (*e.g.,* years 3 and 5). A field assessment of Site vegetative community composition (*e.g.,* diversity, richness, invasive species evaluation) and qualitative wildlife community observations would be performed to support the biota monitoring program. The field assessment would also include an evaluation of Site trees, specifically trees that serve as roosts for bald eagles, for overall health and preservation. Specific sample locations, species, sample and analytical methods, and frequencies would be assessed and established during the remedial design. It is assumed that the monitoring program would consist of analysis of soil invertebrate and small mammal tissue, with collection of co-located surface soil/fill material samples for laboratory analysis of chemical constituents. The details related to the scope of biota sampling would be developed during the remedial design phase.

Periodic sampling and analysis of groundwater would be included as a means of detecting changes in groundwater concentrations and monitoring of the natural attenuation of naphthalene in groundwater. Natural attenuation of other contaminants may be evaluated, if necessary. Specific monitoring locations, parameters, and frequencies would be established during remedial design. For cost estimation purposes, it was assumed that the monitoring program would consist of semi-annual sampling of ten monitoring wells with analyses for VOCs, SVOCs (including PAHs), metals, mercury, cyanide, and cations/anions. However, the specific number of wells and analyses will be determined during remedial design or site management.

Fill material brought to this Site will need to meet the requirements for the identified Site use as set forth in New York State regulations (6 NYCRR Part 375-6.7(d)). Native species will be used for the vegetative component of covers.

The cover system would require routine maintenance and inspections to maintain its integrity. Maintenance of the cover systems may consist of cover repair in areas of disturbance or reapplication of vegetation in areas of non-survival, as necessary.

ICs in the form of environmental easements and/or restrictive covenants would be used to limit land use to commercial (including passive recreational), as appropriate, prevent the use of groundwater without approved treatment and require that any intrusive activities on the Site would be conducted in accordance with a NYSDEC-approved Site Management Plan (SMP), which would include the following:

- Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls (ECs) for the Site and documents the steps and media-specific requirements necessary to ensure the following ECs and ICs remain in place and effective:
    - environmental easements and/or restrictive covenants described above
    - Site cover described above
    - future remediation/management in areas where no cover is present at the Site (*e.g.,* due to erosion or changes in vegetation)
    - excavation plan that details the provisions for management of future excavations on the Site
    - descriptions of the provisions of the ICs, including any land use or groundwater use restrictions
    - soil vapor intrusion evaluation to be completed, and appropriate actions implemented for any on-Site buildings (if they were to be constructed)
    - provisions for the management and inspection of the identified ECs
    - protection measures to be implemented while conducting any needed subsurface soil disturbance activities, to prevent exposure to sheens or blebs of NAPL
    - maintenance of Site access controls and NYSDEC notification (*e.g.,* change in Site use)
    - steps necessary for periodic reviews and certification of the ECs and/or ICs.
- Monitoring Plan to assess the performance and effectiveness of the remedy. Elements of the monitoring plan will include groundwater and biota monitoring, assessing restoration success (*e.g.,* wetland delineation, invasive species management) and repair of habitat and wetlands. The final monitoring program would be established during the design.

Because this alternative would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the remedy for the Site be reviewed at least once every five years.

The estimated construction time of this alternative is one construction season.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$7,530,000
Annual O&M Costs:	$181,000
Present-Worth Cost:	$8,300,000

Alternatives 3A/3B – Surface Excavation with On-Site Reuse or Off-Site Disposal and Soil Cover/Wetland Restoration on Perimeter and Interior Areas, Biota Monitoring, and Monitored Natural Attenuation, with Limited Tree Removal

This alternative is similar to Alternative 2, except that it includes remediation in an additional 1.8 acres in not readily accessible non-forested wetland areas (perimeter and interior wetlands). Excavation of approximately 21,000 cubic yards (cy) of surface soil/fill material (up to 2 ft bgs) over 7 acres would be performed prior to placement of the soil cover. In addition to the 8.2 acres of perimeter wetlands addressed under Alternative 2 with a cover, this alternative also includes an additional 1.3 acres of cover to address interior wetland areas as indicated on Appendix I, Figure 12. Disturbance of approximately 0.5 acres of forested upland/wetlands, which would result in the removal of trees, would be needed to construct a road to access the 1.3 acres of non-forested wetlands, and the soil cover would be extended over these 0.5 acres. The total anticipated acreage of the soil cover is approximately 10 acres. Pre-design surface soil sampling and a tree survey would be performed to evaluate the potential need to address contaminated surface soil/fill material in approximately 1 acre of additional wetland and upland areas based on surface soil SCOs, including one upland forested area on the southern portion of the Site and two areas of forested wetland on the northern portion of the Site. However, because of the special considerations being given to the forested area that provides bald eagle habitat, surface soil in non-remediated areas may exceed Commercial Use and the Protection of Ecological Resources SCOs in areas where a soil cover is not being placed.

Excavated contaminated soil/fill material management options are included as variations of Alternative 3. Specifically, on-Site reuse and off-Site disposal options to a permitted facility are presented as Alternatives 3A and 3B, respectively. Alternative 3A is anticipated to result in approximately 2,650 dump truck trips, while Alternative 3B is anticipated to result in 4,200 dump truck trips because of the off-Site disposal of excavated soil/fill material. Because of the Onondaga County trail construction, geotechnical concerns, and discussion and coordination with railroad operations, the boundaries of the remedy illustrated in Appendix I, Figure 12 are conceptual.

Because this alternative would result in contaminants remaining above levels that allow

for unrestricted use and unlimited exposure, CERCLA requires that the remedy for the Site be reviewed at least once every five years.

The estimated construction time of this alternative is one to two construction seasons.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

	Alternative 3A (On-Site Reuse)	Alternative 3B (Off-Site Disposal)
Capital Cost:	$21,110,000	$26,150,000
Annual O&M Costs:	$185,000	$185,000
Present-Worth Cost:	$21,900,000	$27,000,000

Alternative 4 – Full Removal and Off-Site Disposal with Wetland Restoration and Monitored Natural Attenuation

Alternative 4 includes the mechanical excavation of soil/fill material within the forested and non-forested areas of the Site exhibiting concentrations above 6 NYCRR Part 375 Unrestricted Use SCOs (Appendix I, Figure 13). This is anticipated to require the removal of material as deep as 16 ft bgs. Approximately 400,000 cy of contaminated soil/fill material would be excavated and disposed off-Site under this alternative. The excavated areas would be backfilled with clean fill. Excavated wetland areas would be backfilled to existing grade using materials appropriate for wetland establishment. Appropriate wetland species would be planted to reestablish both forested and non-forested wetlands to include wetland vegetation, shrubs and trees.

Given the number of trees and larger organic debris (*e.g.,* chipped mature trees and brush) that would be generated from clearing, it is estimated that 900 tons of organic debris would also require off-Site transport and management. In addition, this alternative would include monitoring the natural attenuation of naphthalene in the groundwater. The timeframe for the naphthalene to achieve groundwater standards would be the same as for Alternative 2. Groundwater monitoring would be performed as part of site management.

It is estimated that 600,000 tons of excavated soil/fill material would be transported and disposed off-Site to a permitted facility. It is estimated that the soil/fill and organic debris would be transported off-Site over the course of four construction seasons, resulting in approximately 56,000 truck trips. Because of the required 30-ft setback from the adjacent CSX Railroad tracks, impacted material may need to remain on-Site. Therefore, ICs, a SMP, and periodic reviews, as described under Alternative 2, may be necessary.

ECs (*i.e.,* sheet piling and bulkhead) would be necessary along the perimeter of the Site to maintain stability of the excavation walls, prevent potential impacts to the railroad tracks, and to prevent inundation from Onondaga Lake, Onondaga Creek and Ley Creek. Further geotechnical evaluations would be necessary to evaluate sheet pile installation in the vicinity of the railroad.

It is assumed that the soil/fill material excavated below the groundwater table would need to be dewatered prior to off-Site transportation and disposal. Treatment of this construction water is anticipated to be necessary; a temporary water treatment facility would be utilized to treat this construction water. Treated construction water would be managed in a manner and in accordance with discharge requirements to be determined by NYSDEC during the remedial design phase.

Because additional geotechnical evaluations and discussion and coordination with Onondaga County and railroad operations would need to be conducted, the remedy depiction illustrated in Appendix I, Figure 13 is conceptual.

Because this alternative would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the remedy for the Site be reviewed at least once every five years.

The estimated construction time of this alternative is five to seven construction seasons.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$281,150,000
Annual O&M Costs:	$57,000
Present-Worth Cost:	$281,300,000

COMPARATIVE ANALYSIS OF ALTERNATIVES

The detailed analysis required under the NCP consists of an assessment of the individual alternatives against each of the nine evaluation criteria (see below) and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

The first two criteria are known as "threshold criteria" because they are the minimum requirements that an alternative must meet to be eligible for selection as a remedy. The next five criteria, criteria 3 through 7, are known as "primary balancing criteria." These criteria are applied as factors between response measures so that the best option will be chosen given site-specific data and conditions. The final two criteria, criteria 8 and 9,

are known as "modifying criteria." Community and support agency acceptance are factors that are assessed by reviewing comments received during the public comment period, including any new information that might be made available after publication of the proposed plan that significantly changes basic features of the remedy with respect to scope, performance, or cost.

The nine evaluation criteria are:

1. Overall protection of human health and the environment in which it is determined whether an alternative eliminates, reduces, or controls threats to public health and the environment through the implementation of remedial measures such as ICs, ECs, or treatment.
2. Compliance with ARARs in which it is evaluated whether the alternative would meet all of the applicable or relevant and appropriate requirements of federal and state environmental statutes and other requirements that pertain to this Site or provide grounds for invoking a waiver.
3. Long-term effectiveness and permanence is considered in the context of the ability of an alternative to maintain protection of human health and the environment over time.
4. Reduction of toxicity, mobility, or volume through treatment is the criterion by which an alternative's anticipated performance related to treatment technologies that an alternative may employ is gauged.
5. Short-term effectiveness is considered in the context of the duration needed to implement an alternative and the risks that the alternative may pose to workers, residents, and the environment during implementation.
6. Implementability is the technical and administrative feasibility of implementing the alternative, including the availability of materials and services.
7. Cost includes estimated capital and annual operation and maintenance costs, as well as present-worth costs. Present-worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.
8. State acceptance indicates if the State concurs with the selected remedy.
9. Community acceptance refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS reports.

A comparative analysis of these alternatives based upon the evaluation criteria noted above follows.

Overall Protection of Human Health and the Environment

Based on the reasonably anticipated future Site use, including a recreational trail, current human health hazards and risks associated with recreational use for all receptors are acceptable based on post-HHRA re-evaluations of hazard and risk (see Appendix II,

Table 4). Alternative 1, no action, would not be protective of human health and the environment because it would not actively address the contaminated soil/fill or groundwater, which pose unacceptable human health and ecological risks. Alternatives 2 through 4 would provide for human health protection relative to potential exposure to soil/fill material through ECs and ICs. ICs, a SMP, and monitoring the natural attenuation of naphthalene in groundwater included in Alternatives 2 through 4 would provide protection of human health relative to potential exposure to surface and subsurface soil/fill material, sheens that may develop during soil excavations, and groundwater for receptors such as construction or utility workers. The SMP would require special measures to address water during excavation activities. Alternative 2 would provide protectiveness through placement of clean cover material in 8.2 acres of non-forested wetland and non-forested upland areas, in addition to ICs and MNA for the groundwater. Alternative 3 would provide protectiveness over 10 acres through removal of surface soil/fill material within non-forested wetlands, restoration of non-forested wetlands, placement of a soil cover within non-forested upland areas, ICs, and MNA for the groundwater. Alternative 3 is anticipated to result in some disturbance to the eagle habitat, because it requires removal of an approximate half-acre area that includes mature trees. Alternatives 2 and 3 would also include the flexibility to provide added protection (as determined by pre-design soil sampling) through grading/handling of surface soil/fill material to address additional wetland and/or upland areas, provided that eagle habitat (*e.g.,* mature trees) is not significantly impacted. Alternative 4 would be the most protective but would also result in the greatest impact to forested habitat, including the eagle roosting areas, through Site-wide removal of trees.

The soil cover and/or targeted excavation of surface soil as presented in Alternatives 2 and 3 would address SCOs for Commercial Use and Protection of Ecological Resources where the cover is placed within the non-forested wetland and upland areas, while preserving as much of the forested bald eagle roosting habitat as possible. In order to consider contaminant concentrations on a Site-wide basis (including contamination that would remain in the undisturbed forested areas), an evaluation of Site-wide surface soil AWACs was performed to demonstrate the level of protectiveness that would be achieved for remedial alternatives relative to one another and to current conditions. Exceedances of Commercial Use SCOs in surface soil may be present in the forested areas where a soil cover is not being placed, although the AWACs calculated for the existing conditions and conditions following implementation of Alternatives 2 and 3 illustrate improvement in average surface soil concentrations as a result of these remedies. With respect to human health, based on this analysis the surface soil AWACs are below SCOs for Commercial Use for chromium, mercury, 4,4-DDT and total PCBs with no further remedy implementation (*i.e.,* under Alternative 1). Implementation of Alternatives 2 or 3 would further reduce AWACs for these representative risk and remedy drivers and reduce AWAC values for cadmium to below the corresponding Commercial Use SCO. Implementation of Alternatives 2 and 3 would also reduce AWAC values for benzo(a)pyrene to concentrations marginally exceeding the corresponding Commercial

Use SCO. Potential exposure risks for human receptors to residual contamination would be addressed through ECs (*e.g.,* soil cover, fencing/railing) and ICs (*e.g.,* signage, environmental easements).

In developing ecological remediation goals in sensitive habitats, consideration must be given to the intrusive nature of some remedial activities and the potential negative impacts resulting from implementation of such remedial activities, particularly in consideration of the forested habitat and the extensive utilization of the Site by bald eagles. Exceedances for Protection of Ecological Resources SCOs may be present in the forested areas where a soil cover is not being placed, although Alternatives 2 and 3 are expected to reduce average surface soil concentrations below the SCOs for benzo(a)pyrene. Average levels of total PCBs pre-remediation are below the Protection of Ecological Resources SCO for PCBs and would be further reduced after implementation of Alternatives 2 or 3. Post-remediation AWACs for cadmium, chromium, mercury, and 4,4-DDT would potentially exceed SCOs for the Protection of Ecological Resources within the top two ft of soil, though significant reductions are anticipated under Alternatives 2 and 3. More information on the AWACs are included in the FS.

Under Alternatives 2 and 3, a significant portion of the elevated concentrations of contaminants at the Site would be addressed, remaining concentrations would be expected to be protective of community impacts to ecological receptors when the Site is considered in its entirety, and significant habitat alteration and bald eagle disturbance would be avoided. As a result, Alternatives 2 and 3 are considered to improve protection of ecological exposures. Specifically, further examination of post-remedy exposure to constituents that would potentially exceed the SCOs for the Protection of Ecological Resources, indicates that Alternatives 2 and 3 would reduce lowest observed adverse effect level (LOAEL)-based HQs to below 1, or marginally above 1, for the most sensitive receptor (short-tailed shrew) evaluated in the BERA. Thus, Alternatives 2 and 3 address protectiveness of anticipated future use and ecological receptors while observing primary tenets of Ecological Risk Assessment Guidance for Superfund (ERAGS). Biota monitoring would also be performed under Alternatives 2 and 3 to monitor protectiveness of ecological resources and remedy effectiveness and to determine if additional remedial actions are necessary.

Consistent with 6 NYCRR-1.8(f) and DER-10.4.2(i), the current, intended, and reasonably anticipated future use of the Site was considered when selecting SCOs. Alternative 1 would not be consistent with current, intended, and reasonably anticipated future use of the Site. The soil cover in Alternative 2 would address at least 8.2 acres of non-forested wetland and upland area surface soil/fill material exceeding SCOs consistent with current, intended, and reasonable anticipated future use of the Site, while 15.3 acres would not be addressed. The soil cover with added removal of surface soil/fill material in Alternative 3 would support the current, intended, and reasonably anticipated future land use, and address at least 9.5 acres of non-forested wetland and upland areas

along with 0.5 acres of forested upland, while 13.5 acres would not be addressed. However, Alternative 3 would impact 0.5 acres of forested area that is important bald eagle habitat. Removal of soil/fill material in Alternative 4 would support the current, intended, and reasonably anticipated future land use and address 23.5 acres of Site area exceeding SCOs; however, it would remove and/or prevent use of the recreational trail at the Site during the 5-to-7-year construction period and would result in Site-wide clearing of valuable forested habitat and likely adversely affect the bald eagles that use the Site for winter roosting.

Alternative 1 would not address RAOs related to potential erosion and direct contact with soil/fill material. RAOs for protection of ecological receptors would be improved via AWACs for Alternatives 2 and 3, although SCOs at certain locations may still be exceeded. Alternatives 2 and 3 would improve protectiveness of the environment and would provide for additional protection of human health within non-forested wetland and upland areas and would meet RAOs through the use of soil covers, which would control potential erosion of, and direct contact with, soil/fill material as well as control the potential inhalation of dust in these areas. Alternative 3 would provide added protection of human health and the environment within non-forested wetland areas as compared to Alternative 2 and would meet RAOs through soil covers and the removal of surface soil/fill material for portions of the Site. ICs, a SMP, and monitoring would provide for continued protection of the environment and provide a means to evaluate continued protectiveness in Alternatives 2 through 4. Alternatives 2 and 3 also include biota monitoring for the purpose of assessing ecological protectiveness. Alternative 4 would be protective of human health and the environment within forested and non-forested wetland and upland areas through removal of accessible surface and subsurface soil/fill material and would allow for unrestricted use of the majority of the Site by addressing soil/fill material exceeding SCOs for Unrestricted Use. With the exception of Alternative 4, each of the alternatives would provide preservation of trees utilized seasonally by bald eagles for roosting.

In summary, because Alternative 1 does not provide protection of human health and the environment, this alternative does not satisfy this threshold criterion. Alternatives 2 through 4 would satisfy this threshold criterion by providing protection of human health and the environment. Alternatives 2 through 4 would provide varying degrees for protection of human health and the environment through ECs and ICs. Alternative 3 is anticipated to directly address more of the Site as compared to Alternative 2, however, this is at the expense of eliminating 0.5 acres of valuable forested habitat. Alternative 4 would provide the greatest protectiveness but would result in the most significant impact to forested habitat, including eagle roosting, through Site-wide removal of trees. Alternatives 2 and 3 are considered reasonably protective of human and ecological receptors by addressing elevated soil concentrations while preserving the forested habitat, critical to overall Site ecology and utilization by bald eagles.

Compliance with ARARS

SCOs are identified in 6 NYCRR Part 375, Environmental Remediation Programs, Subpart 375-6, effective December 14, 2006. New York State's Commercial Use and Protection of Ecological Resources SCOs at 6 NYCRR Section 375-6.3(b) have been identified as an ARAR, TBC, or other guideline to address contaminated surface and subsurface soil.[5] While surface soil at the Site contains contaminants at concentrations exceeding Commercial Use SCOs, potential exposure risks for human receptors to residual contamination would be addressed through ECs (*e.g.,* soil removal/cover, fencing/railing, etc.) and ICs (*e.g.,* signage, environmental easements). As discussed above under the HHRA and Overall Protection of Human Health and the Environment sections, the Revised HHRA and subsequent re-evaluation identified acceptable risks for the anticipated public use of the Site (*i.e.,* recreational trail).

Because the contaminated soil/fill material would not be actively addressed under Alternative 1, it would not achieve the SCOs. Under Alternative 2, soil/fill material exceeding SCOs would be addressed within a portion of the non-forested wetland and upland areas (8.2 of the 23.5-acres) through the installation of a soil cover, where accessible and not detrimental to the environment (*e.g.,* tree removal, disturbance of bald eagles, etc.). In Alternative 3, as compared to Alternative 2, the installation of a soil cover with the additional removal of surface soil/fill material within the western portion of the non-forested wetland areas and restoration with clean material would address soil exceeding SCOs within the additional non-forested wetland (10 of the 23.5-acres) although this would require the removal of some forested habitat. While some areas exhibiting soil concentrations greater than the Protection of Ecological Use SCOs may remain under Alternatives 2 and 3 they are expected to be protective of community impacts to ecological receptors throughout the Site, based on AWAC calculations, coupled with the avoidance of significant habitat alteration and bald eagle disturbance. For Alternatives 2 and 3A, should reuse of material be incorporated into the remedy, consideration for re-exposure and long-term management would be addressed in the remedial design and O&M requirements. Alternative 4 would address surface and subsurface soil exceeding Unrestricted Use SCOs within the footprint of the Site, including the forested and non-forested areas. Alternatives 2, 3 and 4 would address exceedances of New York State Class GA guidance value for naphthalene in groundwater through natural attenuation.

No location- or action-specific ARARs were identified for Alternative 1 (No-Action alternative). Construction methods and safety procedures would be implemented to adhere to the location- and action-specific ARARs, guidances, and To-Be-Considereds (TBCs) that are pertinent to Alternatives 2 through 4. Specifically, ICs would be

[5] Protection of Groundwater SCOs are not considered in this action because of provisions within NYCRR Part 375 (*e.g.,* an environmental easement would be utilized to restrict groundwater usage; contaminated groundwater at the Site is not migrating nor likely to migrate off-Site).

implemented in Alternatives 2 through 4 in general conformance with NYSDEC's guidance DER-33 (see https://www.dec.ny.gov/docs/remediation_hudson_pdf/der33.pdf) and EPA guidance (see https://www.epa.gov/superfund/superfund-institutional-controls-guidance-and-policy). Additionally, Alternatives 2 and 3 would mitigate potential erosion and exposure to soil/fill material where soil covers are installed and would be implemented in general conformance with NYSDEC's DER-10 (see https://www.dec.ny.gov/regulations/67386.html). Procedures would be implemented to adhere to the location-specific ARARs related to federal and state requirements, such as for the portion of the Site that is a designated wetland for cultural, archeological, and historical resources. Additionally, proposed actions would be conducted in a manner consistent with Fish and Wildlife Coordination Act requirements for the protection of Onondaga Lake and for areas proximate to Onondaga Lake. As necessary, actions under Alternatives 2 through 4 would be implemented in general conformance with state and federal wetland and floodplain assessment requirements in addition to navigable waterway and New York State Railroad Law. Specifically, wetland permitting and mitigation requirements, such as those in 6 NYCRR Part 663, Article 15 and 6 NYCRR Part 608 would be considered during the remedial design phase. With respect to action-specific ARARs, the soil cover, wetland restoration, and excavation related activities would be conducted consistent with applicable standards including RCRA Subtitle D, 40 CFR Part 358.60 – Closure Criteria, 40 CFR Part 257 - Criteria for Classification of Solid Waste Disposal Facilities and Practices, and 40 CFR Parts 264 and 265, Subpart N – Landfills and 6 NYCRR 360 - Solid Waste Management Facilities; earth moving/excavation activities would be conducted consistent with air quality standards including 6 NYCRR 200-203, 211-212 – Prevention and Control of Air Contamination and Air Pollution, and 40 CFR Part 50.1 - 50.12 – National Ambient Air Quality Standards; and transportation and disposal activities would be conducted in accordance with applicable state and federal requirements including 6 NYCRR 364 - Waste Transporter Permits and 49 CFR 107, 171-174 and 177-179 - Department of Transportation Regulations, by licensed and permitted haulers, with disposal at permitted facilities. Under Alternative 4, construction water would be managed in a manner and in accordance with discharge requirements to be determined by NYSDEC during the remedial design phase.

Location-specific ARARs related to habitat protection, including the Federal Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq), USFWS National Bald Eagle Management Guidelines, Conservation Plan for Bald Eagles in New York State, and 6 NYCRR 182, provide requirements and guidance regarding the protection of bald eagle habitat, including the "take and disturbance" of bald eagles, and limiting activities that may alter communal roost sites and foraging areas. Alternatives 2 and 3 can be implemented while preserving the valuable tree habitat, with minimal removal of low- to mid-story vegetation and retaining larger-scale vegetation at the Site, whereas Alternative 4 would require the Site-wide removal of trees providing valuable forested

habitat used by bald eagles for winter roosting.

Long-Term Effectiveness and Permanence

Alternative 1 would involve no active remedial measures and, therefore, would not be effective in eliminating the potential exposure to contaminants in the soil/fill material and groundwater. Unlike Alternative 1, Alternatives 2 through 4 would provide varying levels of long-term effectiveness and permanence. Alternative 4 provides the most reduction in residual risk, however, it requires removal of trees that enhance the overall value of Site habitat and provide eagle roosting habitat. Alternatives 2 and 3 would support the anticipated future use of the Site for a multi-use recreational trail while preserving trees utilized seasonally by bald eagles for foraging and roosting. Alternative 3 would provide some additional level of long-term effectiveness and permanence relative to Alternative 2 as it would result in a greater acreage of remediation although limited tree removal would be required. Potential human health risks associated with Alternatives 2 through 4 would be reliably addressed through ECs (*e.g.,* soil removal/cover, fencing/railing) and/or ICs (*e.g.,* signage, environmental easements). Each alternative would result in minimal long-term fuel/energy consumption, greenhouse gas emissions, and impacts to water, ecology, workers, or the community associated with long-term maintenance of the remedies.

The long-term performance of Alternatives 2, 3 and 4 could potentially be impacted as a result of erosion of the soil covers during severe storms/weather events and associated flooding that may be more frequent or severe as a result of climate change. These effects would be noted and documented as a result of inspections which would be conducted in accordance with the SMP, particularly after flood events, and mitigated as may be necessary and appropriate.

Reduction in Toxicity, Mobility, or Volume Through Treatment

Because none of the alternatives involve active treatment, there would be no reduction in toxicity, mobility, or volume in soil/fill material through treatment provided under Alternatives 1 through 4. Treatment technologies were evaluated and screened out in the FS because of implementability and/or compatibility limitations, heterogeneous conditions and proximity to the lake, and the variety of contaminant types could limit effectiveness. In addition, the presence of a mature forested area that supports the roosting of bald eagles at the Site makes the treatment of all the contaminated soil at the Site impracticable.

Short-Term Effectiveness

Alternative 1, the no-action alternative, does not include active remedial components, and, therefore, would not present any potential adverse impacts to workers and the

community. Alternatives 2 through 4 would be implemented and constructed using proper protective equipment to manage potential risks to on-Site workers, and proper precautions and monitoring to be protective of the general public and the environment.

Because no action would be performed under Alternative 1, there would be no implementation time. Alternative 2 is anticipated to be completed within one construction season, while Alternative 3 is anticipated to be completed within one to two construction seasons. Because of the volume of surface and subsurface soil/fill material exceeding Unrestricted Use SCOs, Alternative 4 would require a longer timeframe to attain RAOs in the forested and non-forested wetland, as excavation is estimated to take place over five to seven construction seasons.

Impacts to the community resulting from the implementation of Alternatives 2 and 3 would primarily be as a result of increased truck traffic and increased noise for the duration of construction of the soil cover under Alternative 2, and contaminated surface soil/fill material excavation and soil cover construction under Alternative 3. Additional truck traffic and noise is anticipated for the duration of Alternative 3B because of off-Site transport of excavated surface soil/fill material. Alternative 4 would have significantly increased truck traffic, noise, dust and emissions compared to Alternatives 2 and 3 because of the need to clear the Site of trees prior to surface and subsurface soil/fill material excavation for the five- to seven-year duration of construction. The implementation of the clearing, surface and subsurface soil/fill material excavation and off-Site disposal included in Alternative 4 would result in far greater impacts to the community, including substantially increased truck traffic, dust and emissions as well as increased noise, although mitigative measures would be implemented to the extent practicable to limit the impacts of noise, dust and traffic. Additionally, Alternative 4 would involve the addition of sheeting or other stabilization measures along the railroad tracks and bulkhead installation along the shoreline during construction.

As it relates to traffic, transportation of cover material to the Site is anticipated to result in approximately 2,450 truck trips under Alternative 2, while transport of cover material, excavation of surface soil/fill material, on-Site consolidation and wetland restoration under Alternative 3A (on-Site reuse of excavated material) is anticipated to result in approximately 2,650 truck trips. Alternative 3B (off-Site disposal of excavated material) is anticipated to result in an additional 1,550 truck trips for off-Site disposal of excavated soil/fill material when compared to Alternative 3A. Excavation of contaminated surface and subsurface soil/fill material, off-Site transportation and disposal and wetland restoration included in Alternative 4 would require approximately 56,000 truck trips over four years, resulting in the greatest impact on traffic and potentially adverse effects on local air quality. The increased traffic associated with construction of Alternatives 3 and 4 would result in a potential increase in safety-related risks and impacts to CSX Railroad operations that would be due to off-Site transport of excavated soil/fill material requiring additional crossing and coordination with railroad traffic proximate to the Site.

With respect to sustainability, there is an environmental footprint inherent in implementation of each alternative as it relates to construction and operation, as well as impacts to the community (as described above). The implementation of the excavation and off-Site disposal included under Alternative 4 would result in far greater direct emissions and fuel consumption, as compared to importing construction materials and construction of the soil cover included in Alternative 2 and soil cover, surface soil/fill material excavation and management of excavated material included in Alternative 3. Construction of Alternatives 2 and 3 would result in greater greenhouse gas impacts than Alternative 1 and construction of Alternative 4 would result in substantially greater greenhouse gas impacts than the other alternatives. Consistent with NYSDEC and EPA policies on green remediation, sustainability considerations will not be used to justify implementation of the no-action alternative or a less comprehensive alternative when a more comprehensive remedy is called for, appropriate, and feasible.

Worker and community risks during remedy implementation are significantly greater for Alternative 4 compared to Alternatives 2 and 3. Specifically, the added risks to workers and the community, the added duration to achieve RAOs, the significant truck traffic impacts to the community, and the significantly greater environmental footprint associated with Alternative 4 would present greater risk in the short-term relative to Alternatives 2 and 3.

Implementability

Alternative 1 would be the easiest alternative to implement, as there are no activities to undertake.

Alternatives 2 through 4 would employ technologies (soil covers and excavation) known to be reliable and that can be readily implemented. Equipment, services and materials needed for these alternatives are readily available. Monitoring the effectiveness of the soil covers under Alternatives 2 and 3 would be accomplished through inspections and maintenance to verify continued cover integrity, visual inspections for signs of erosion, and visual inspection of the soil cover condition. Areas of wetland restoration/mitigation under Alternatives 2 and 3 would be monitored for signs of erosion, condition of vegetation, and presence of invasive species. A SMP and periodic reviews would also be implemented under Alternatives 2 and 3 for the purpose of monitoring and documenting remedy effectiveness, managing remaining contamination, and implementing measures as needed to prevent human exposures, in addition to groundwater monitoring as a means to assess potential changes in groundwater concentrations.

The actions under Alternatives 2 through 4 would be administratively feasible. They would require access across the CSX Railroad tracks and work in proximity to the

railroad, Onondaga Lake, Onondaga Creek, and Ley Creek. Alternatives 2 through 4 would also require coordination with other agencies, including NYSDEC, New York State Department of Transportation, NYSDOH, EPA, USFWS, City of Syracuse, and CSX Railroad. Coordination with Onondaga County would also be necessary since it is the property owner and for maintenance of the multi-use recreational trail.

Alternative 3, which includes Alternatives 3A (on-Site reuse of excavated material) and 3B (off-Site disposal of excavated material), would be more difficult to implement than Alternative 2. Specifically, a geotechnical evaluation concluded that global stability associated with excavation in the vicinity of the railroad tracks under Alternative 3 is anticipated to limit implementability of this alternative. CSX Railroad concurrence with remedial design of the cover and excavation elements included in this alternative would be required. Thus, stability concerns may affect the implementability of this alternative. Additionally, Alternative 3A is less implementable than Alternative 2, because it is necessary to evaluate and identify on-Site reuses to manage the additional spoils anticipated during implementation of Alternative 3A. Alternative 3B is less implementable than Alternative 2 because off-Site transport and disposal included under Alternative 3B would result in impacts to CSX Railroad operations requiring additional crossing and coordination with railroad traffic proximate to the Site. In addition, landfill disposal capacity would require confirmation prior to implementation of Alternative 3B.

Alternative 4 would be the most difficult to implement in comparison to Alternatives 2 and 3 for the following reasons:

- There are significant implementability limitations associated with the excavation, transportation, and disposal (capacity) for approximately 400,000 cy of soil/fill material.
- There are challenging construction water management and greater slope stability concerns relative to the active CSX Railroad lines when compared to the shallow excavations included under Alternative 3, which would require CSX concurrence. Construction water management using a temporary treatment system is anticipated to be significant during the excavation, as large water volumes are anticipated as a result of the presence of heterogenous and permeable fill and excavations in proximity of the on-Site wetlands, Onondaga Lake, Onondaga Creek, and Ley Creek. Excavations in the vicinity of active railroads, subsurface utilities, and surface water bodies are anticipated to limit the implementability of excavations in certain areas and require the costly design, procurement, and installation of shoring. As part of the supporting geotechnical evaluations, installation of sheet piling would be evaluated and installed, if required, to support excavations in these areas.
- There are also significant transportation concerns related to Alternative 4. The estimated volume requiring disposal is 400,000 cy (estimated to be approximately 615,000 tons). Based on a daily production rate of 500 cy per day for 10 months

of the year, it is estimated that up to approximately 100,000 cy of material could be shipped off-Site each year in 7,000 truckloads (up to 35 truckloads per day) with an approximately equivalent number of trips being required for restoration, over a duration of 5 to 7 years. During a 10-hour workday, this would equate to approximately one truck entering or leaving the Site every 10 minutes. In addition to the potentially significant adverse effects on local air quality and community traffic patterns, traffic of this magnitude is anticipated to result in significant adverse effects on conditions of roadways.

- Ecological considerations limit the implementability of Alternative 4, including the removal of trees providing valuable forested habitat and that are utilized by bald eagles. The Site serves as a winter roost site and concentration area for a large number of bald eagles; a State-listed threatened species. Alternative 4 would require the disturbance of 23.5 acres, including 13.1 acres of wetland areas and 15.3 acres of forested areas, and the Site-wide removal of trees that serve as an important habitat, and it is anticipated it would take several decades to restore.

Cost

The estimated present-worth costs were calculated using a discount rate of seven percent and a thirty-year time interval for the post-construction monitoring and maintenance period (although O&M would likely need to continue beyond the 30-year period, this is the typical period used when estimating costs for a comparative analysis).

The estimated capital, annual O&M, and present-worth costs using a 7% discount factor for each of the alternatives are presented in the table below.

Alternatives	Capital Cost	Annual O&M Cost	Total Present Worth Cost
1 – No Action	$0	$0	$0
2 – Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and MNA	$7.5 million	$181,000	$8.3 million
3A – Surface Excavation with On-Site Reuse and Soil Cover/Wetland Restoration on Perimeter and Interior Areas, Biota Monitoring, MNA, with Limited Tree Removal	$21.1 million	$185,000	$21.9 million

3B – Surface Excavation with Off-Site Disposal and Soil Cover/Wetland Restoration on Perimeter and Interior Areas, Biota Monitoring, MNA, with Limited Tree Removal	$26.2 million	$185,000	$27.0 million
4 – Full Removal and Off-Site Disposal with Wetland Restoration and MNA	$281.2 million	$57,000	$281.3 million

State Acceptance

NYSDEC is the lead agency for the Site. EPA has determined that the selected remedy meets the requirements for a remedial action as set forth in CERCLA Section 121, 42 USC § 9621. As such, for the purpose of satisfying this remedy selection criterion of the NCP, NYSDEC, on behalf of New York State, supports the selected remedy. NYSDOH also supports the selection of this remedy; its letter of concurrence is attached (see Appendix IV).

Community Acceptance

Questions and feedback were received from the community during the public comment period. These included concerns regarding potential health risks, evaluation of other alternatives, requests for additional signage related to contamination that may be present off the trail, concerns with using the AWACs to evaluate alternatives, emerging contaminants and contaminant sources. Comments received during the public comment period are summarized and addressed in the Responsiveness Summary, which is attached as Appendix V to this document.

PRINCIPAL THREAT WASTE

The NCP establishes an expectation that the EPA will use treatment to address the principal threats posed by a site, wherever practicable (NCP Section 300.430 (a)(1)(iii)(A)). The principal threat concept is applied to the characterization of source materials at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for the migration of contamination to groundwater, surface water, or air, or act as a source for direct exposure. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or will present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of

alternatives, using those remedy-selection criteria that are described above. This analysis provides a basis for making a statutory finding that the remedy employs treatment as a principal element.

While stained soils and blebs of NAPL are present at the Site, they do not necessarily correlate with elevated organic contaminant concentrations in the soil and groundwater at proximate locations. NYSDEC and EPA have not identified material at the Site as principal threat wastes.

SELECTED REMEDY

Summary of the Rationale for the Selected Remedy

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and public comments, NYSDEC and EPA select Alternative 2, which includes a Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and MNA, because it best satisfies the requirements of CERCLA Section 121, 42 U.S.C. § 9621, and provides the best balance of tradeoffs among the remedial alternatives with respect to the NCP's nine evaluation criteria, set forth at 40 CFR § 300.430(e)(9).

Alternative 1 does not meet the RAOs for the Site. Alternative 2 would better meet the primary balancing criteria for implementability, short-term effectiveness, and cost, as Alternative 3 would potentially present geotechnical stability issues for the nearby railroad tracks that would limit its implementability and may require an additional construction season to implement, resulting in more potential community impacts. In addition to significantly impacting the bald eagle habitat at the Site, Alternative 4 would be extremely difficult to implement, presents significant short-term impacts, would take longer to implement compared to other alternatives, and is the least cost-effective means of achieving the objectives.

Based on information currently available, NYSDEC and EPA believe that the selected remedy, Alternative 2, best meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. NYSDEC and EPA expect the selected remedy to satisfy the following statutory requirements of CERCLA Section121(b): (1) it will be protective of human health and the environment; (2) it will comply with ARARs; (3) it will be cost-effective; (4) it will utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) it will satisfy the preference for treatment as a principal element (or justify not meeting the preference).

NYSDEC and EPA agree that the selected remedy is protective of human health and the environment, can be readily constructed and operated, presents minimal potential short-term impacts to workers and the community, and is cost-effective. The selected remedy

utilizes permanent solutions, alternative treatment technologies, and resource-recovery technologies to the maximum extent practicable.

Description of the Selected Remedy

The selected remedy, Alternative 2, is described in more detail, above, in the "Description of the Remedial Alternatives" section and includes the following components:

- Placement of a two-foot-thick soil cover where accessible and not detrimental to the environment (*i.e.,* avoiding mature tree removal, disturbance of bald eagles, etc.), and restoring wetlands in select non-forested wetland and upland areas of the Site. To restore the wetland areas, contaminated soil may be removed, and either reused on-Site or disposed off-Site, prior to cover placement to a depth necessary to preserve wetland conditions and functions. Reuse of material in accordance with NYSDEC DER-10 (Table 5.4(e)4), which could include use of soil for future trail construction, will need to be compatible with wetland regulations and will be evaluated during design. Where cover material is placed, a demarcation layer will be evaluated during the remedial design to delineate the boundary between the contaminated soil/fill material and the soil cover. If a demarcation layer is necessary, it will be compatible with the wetland or tree growth, as appropriate. The targeted remedial footprint focuses on reducing ecological exposure while still retaining forested SYW-12 habitat to preserve areas currently used by bald eagles for winter roosting.
- Fill material brought to this Site will need to meet the requirements for the identified Site use as set forth in New York State regulations (6 NYCRR Part 375-6.7(d)). Native species will be used for the vegetative component of covers.
- A tree survey and surface soil pre-design investigation will be performed to evaluate whether additional areas should be included in the remediation footprint. Should surface soil sampling and the tree survey indicate that elevated surface soil/fill contaminant concentrations could be addressed without impacting large trees (*e.g.*, large trees and/or soils within their drip-zone would not need to be removed or disturbed), soil excavation and/or backfilling of these areas with clean material would be considered.
- Biota monitoring will be performed to evaluate remedy effectiveness and assess protectiveness for ecological receptors. A baseline sampling program consisting of two sampling events will be implemented, with subsequent sampling events following remedy implementation using an adaptive, data-driven approach (*e.g.,* years 3 and 5). A field assessment of Site vegetative community composition (*e.g.,* diversity, richness, invasive species evaluation) and qualitative wildlife community observations will be performed to support the biota monitoring program. The field assessment will also include an evaluation of Site trees, specifically trees that serve as roosts for bald eagles, for overall health and preservation. Specific sample locations, species, sampling and analytical

methods, and sampling frequencies will be assessed and established during the remedial design. It is assumed that the monitoring program will consist of analysis of soil invertebrate and small mammal tissues, with collection of co-located surface soil/fill samples for laboratory analysis of chemical constituents. The details related to the scope of biota sampling will be developed during the remedial design phase.

- Periodic sampling and analysis of groundwater will be included as a means of monitoring changes in groundwater concentrations and natural attenuation of naphthalene. Natural attenuation of other groundwater contaminants may be evaluated, if necessary.
- Institutional controls (ICs) in the form of environmental easements and/or restrictive covenants will be used to limit land use to commercial (including passive recreational), as appropriate, prevent the use of groundwater without approved treatment, and require that any intrusive activities on the Site will be conducted in accordance with a NYSDEC-approved Site Management Plan, which will include the following:
  - Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls (ECs) for the Site and documents the steps and media-specific requirements necessary to ensure the following ECs and ICs remain in place and effective:
    - environmental easements and/or restrictive covenants described above
    - Site cover described above
    - future remediation/management in areas where no cover is present at the Site (*e.g.,* due to erosion or changes in vegetation)
    - excavation plan that details the provisions for management of future excavations on the Site
    - descriptions of provisions of the ICs, including any land use or groundwater use restrictions
    - soil vapor intrusion evaluation to be completed, and appropriate actions implemented for any on-Site buildings (if they were to be constructed)
    - provisions for management and inspection of the identified ECs
    - protection measures to be implemented while conducting any needed subsurface soil disturbance activities, to prevent exposure to sheens or blebs of NAPL
    - maintenance of Site access controls and NYSDEC notification (*e.g.,* change in Site use)
    - steps necessary for periodic review and certification of the ECs and/or ICs.
  - Monitoring Plan to assess performance and effectiveness of the remedy. Elements of the monitoring plan will include groundwater and biota monitoring, assessing restoration success (*e.g.,* wetland delineation, invasive species management), and repair of habitat and wetlands. The final monitoring

program will be established during the design.

The cover system will require routine maintenance and inspections to maintain its integrity. Maintenance of the cover systems may consist of cover repair in areas of disturbance or reapplication of vegetation in areas of non-survival, as necessary.

Based on the investigations, geochemical conditions at the Site are favorable for natural attenuation of PAHs, including naphthalene, to occur. The determination that natural attenuation is occurring is, in part, based upon detected concentrations of ferrous iron, sulfide, and methane in groundwater and oxidation-reduction potential data that suggests the presence of iron- and sulfate-reducing conditions in groundwater. Biodegradation of naphthalene can occur under anaerobic conditions, particularly under iron- or sulfate-reducing conditions. Further, the presence of methane and observed decreases in groundwater concentrations of PAHs over time (such as acenaphthene and naphthalene) indicate that natural attenuation is likely occurring.

Green remediation techniques, as detailed in NYSDEC's Green Remediation Program Policy-DER-31,[6] and EPA Region 2's Clean and Green Policy,[7] will be considered for the selected remedy to reduce short-term environmental impacts. Green remediation best practices such as the following may be considered such as:

- use of renewable energy and/or purchase of renewable energy credits to power energy needs during construction and/or O&M of the remedy;
- reduction in vehicle idling, including both on and off-road vehicles and construction equipment during construction and/or O&M of the remedy;
- design of the soil cover, to the extent possible, to be usable for alternate uses, require minimal maintenance (*e.g.*, less mowing), allow for infiltration of storm water and/or be integrated with the planned use of the property;
- maximizing habitat value and creating habitat when possible;
- reuse of material that would otherwise be considered a waste; and
- use of Ultra Low Sulfur Diesel.

Because this alternative will result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that this Site be reviewed at least once every five years after initiation of the remedy.

Summary of the Estimated Remedy Costs

The estimated capital cost of the selected remedy is $7.5 million; the annual O&M is $181,000; and the total present-worth cost (using a 7% discount rate) is $8.3 million.

[6] See http://www.dec.ny.gov/docs/remediation_hudson_pdf/der31.pdf.
[7] See http://epa.gov/region2/superfund/green_remediation

Appendix II, Table 5 provides the basis for the cost estimates for Alternative 2.

It should be noted that these cost estimates are expected to be within +50 to -30 percent of the actual project cost. These cost estimates are based on the best available information regarding the anticipated scope of the selected remedy. Changes to the cost estimate can occur as a result of new information and data collected during the design of the remedy.

Expected Outcomes of the Selected Remedy

The results of the HHRA indicate that the contaminated groundwater presents a potentially unacceptable noncancer hazard for receptors that would be involved in intrusive work, such as a utility or construction worker. The results of the BERA indicate that the Site, if not remediated, poses an unacceptable ecological exposure risk.

The State of New York, Onondaga County, and the City of Syracuse have jointly sponsored the preparation of a land-use master plan to guide future development of the Onondaga Lake area (Syracuse-Onondaga County Planning Agency, 1998). The primary objective of these land-use planning efforts is to enhance the quality of the Onondaga Lake area for recreational and commercial uses. Implementation of the remedy will aid this long-term planning effort by addressing concerns related to human exposure to contaminated sediments, soils, and surface water.

Under the selected remedy, potential risks to human health and the environment will be reduced to acceptable levels. Remediation goals for the COCs are presented in Appendix II, Tables 1 through 3. Remediation goals for surface soil will be met following construction and implementation of appropriate ICs (*e.g.,* approximately one year following the start of construction). The estimated time to attain remediation goals is approximately 7 years. These estimates are based on available data for groundwater at the Site and were based on conservative assumptions. Additional data (*e.g.,* groundwater) will be collected to refine the estimated timeframe for restoration and long-term monitoring will be performed.

STATUTORY DETERMINATIONS

Under CERCLA Section 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions that employ treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants, or contaminants at a site.

For the reasons discussed below, NYSDEC and EPA have determined that the selected remedy meets these statutory requirements.

Protection of Human Health and the Environment

The results of the risk assessment indicate that, if no action is taken, this Site poses an unacceptable ecological and human health risk.

The selected remedy will adequately protect human health and the environment. Placement of soil covers combined with ICs and ECs will provide protectiveness of human health while placement of soil covers combined with biota monitoring will be performed to evaluate remedy effectiveness and assess protectiveness of ecological receptors. Implementation of the Selected Remedy will not pose unacceptable short-term risks or adverse cross-media impacts.

Compliance with ARARs and Other Environmental Criteria

The selected remedy will comply with the location-, chemical- and action-specific ARARs identified. The ARARs, TBCs, and other guidelines for the selected remedy are provided in Appendix II, Table 6.

Cost-Effectiveness

A cost-effective remedy is one whose costs are proportional to its overall effectiveness (NCP Section 300.430(f)(1)(ii)(D)). Overall effectiveness is based on the evaluations of the following: long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness. Based on the comparison of overall effectiveness (discussed above) to cost, the selected remedy meets the statutory requirement that Superfund remedies be cost-effective and will achieve the cleanup levels in the same amount of time in comparison to the costlier alternatives.

Each of the alternatives underwent a detailed cost analysis. In that analysis, capital and annual O&M costs were estimated and used to develop present-worth costs. In the present-worth cost analysis, annual O&M costs were calculated for the estimated life of the alternatives and related monitoring using a seven percent discount rate and a 30-year interval. The estimated capital, annual O&M, and total present-worth costs for the selected remedy are $7.5 million, $181,000; and $8.3 million, respectively. Alternatives 2 through 4 would effectively achieve the RAOs. Alternative 2 is less costly than Alternatives 3 and 4 and best satisfies the threshold criteria. Alternative 2 also best satisfies the primary balancing criteria, as it is more implementable than Alternatives 3 and 4 and can be constructed with less short-term impacts to the community and to the CSX Railroad.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The selected remedy provides the best balance of tradeoffs among the alternatives with respect to the balancing criteria set forth in NCP Section 300.430(f)(1)(i)(B), such that it represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at this Site.

The soil cover will control potential erosion of, and direct contact with, contaminated soil/fill material, as well as control the potential inhalation of dust in areas where they are installed while ICs and Site Management Plans will be used to provide protection of human health.

Preference for Treatment as a Principal Element

CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity or mobility of hazardous substances as a principal element (or justify not satisfying the preference). The selected remedy does not include treatment. Treatment technologies were evaluated and screened out in the FS because of implementability and/or compatibility limitations, heterogeneous conditions and proximity to the lake, and the variety of contaminant types that could limit effectiveness. In addition, the presence of a mature forested area that supports the roosting of bald eagles at the Site, makes treatment of contaminated soil at the Site impracticable.

Five-Year Review Requirements

The selected remedy, once fully implemented, will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that would otherwise allow for unlimited use and unrestricted exposure. Consequently, a statutory review will be conducted within five years after initiation of the remedial action and at five-year intervals thereafter, to ensure that the remedy is, or will be, protective of human health and the environment.

DOCUMENTATION OF SIGNIFICANT CHANGES

The Proposed Plan, released for public comment on January 19, 2023, identified Alternative 2, Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and MNA, as the preferred alternative for this Site. Based upon its review of the written and verbal comments submitted during the public comment period, NYSDEC and EPA determined that no significant changes to the remedy, as originally identified in the Proposed Plan, were necessary or appropriate.

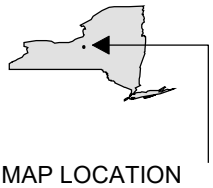
SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX I

FIGURES

FIGURE 1

HONEYWELL INTERNATIONAL INC.
WASTEBED B / HARBOR BROOK
GEDDES AND SYRACUSE, NY



MAP LOCATION

OU-1 LOCATION

N

0 1,000 2,000 4,000
Feet

SEPTEMBER 2018
1163.61858

1:24,000

O'BRIEN & GERE ENGINEERS, INC.

PLOTDATE: 06/13/18 12:52:23 PM RozwodBJ

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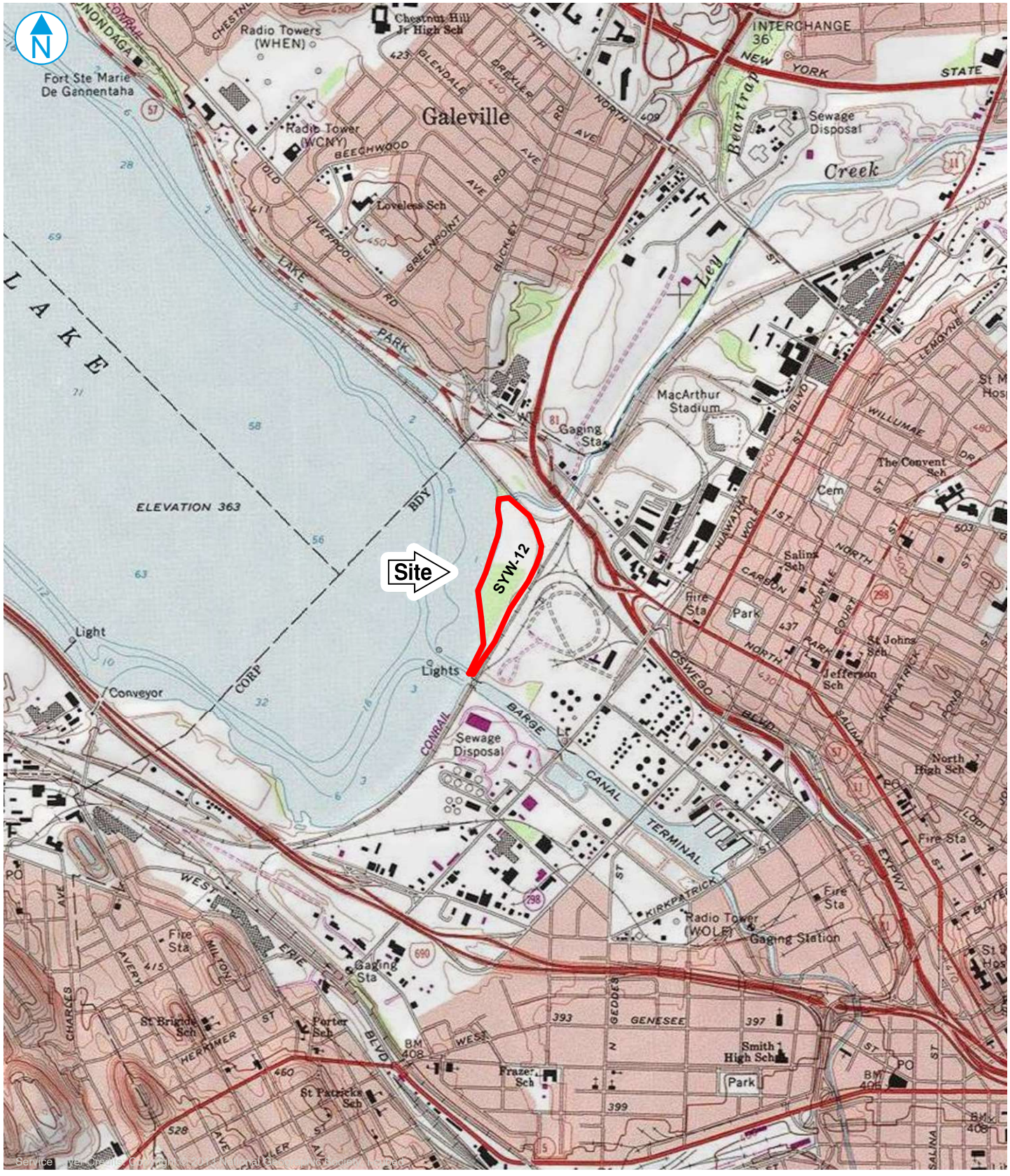

KEY MAP

Map Scale: 1:1:24,000;
Map Center: 76°10'33"W 43°4'17"N

0 1,000 2,000 Feet

SITE LOCATION

HONEYWELL INTERNATIONAL INC.
SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1940065696 | DATED: 3/1/2022 | DESIGNER: MONETANT

NOTE:
THE WETLAND DELINEATION IS BASED ON A 2018 DELINEATION TO REEVALUATE WETLAND BOUNDARIES BETWEEN CSX RAILROAD TRACKS AND ONONDAGA CREEK (ANCHOR QEA 2018).

- FORESTED UPLAND (7.4 AC)
- NONFORESTED UPLAND (3.0 AC)
- FORESTED WETLAND (6.6 AC)
- NONFORESTED WETLAND (6.5 AC)
- SITE BOUNDARY

0 125 250 Feet

SITE PLAN

HONEYWELL INTERNATIONAL INC.
SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 3

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

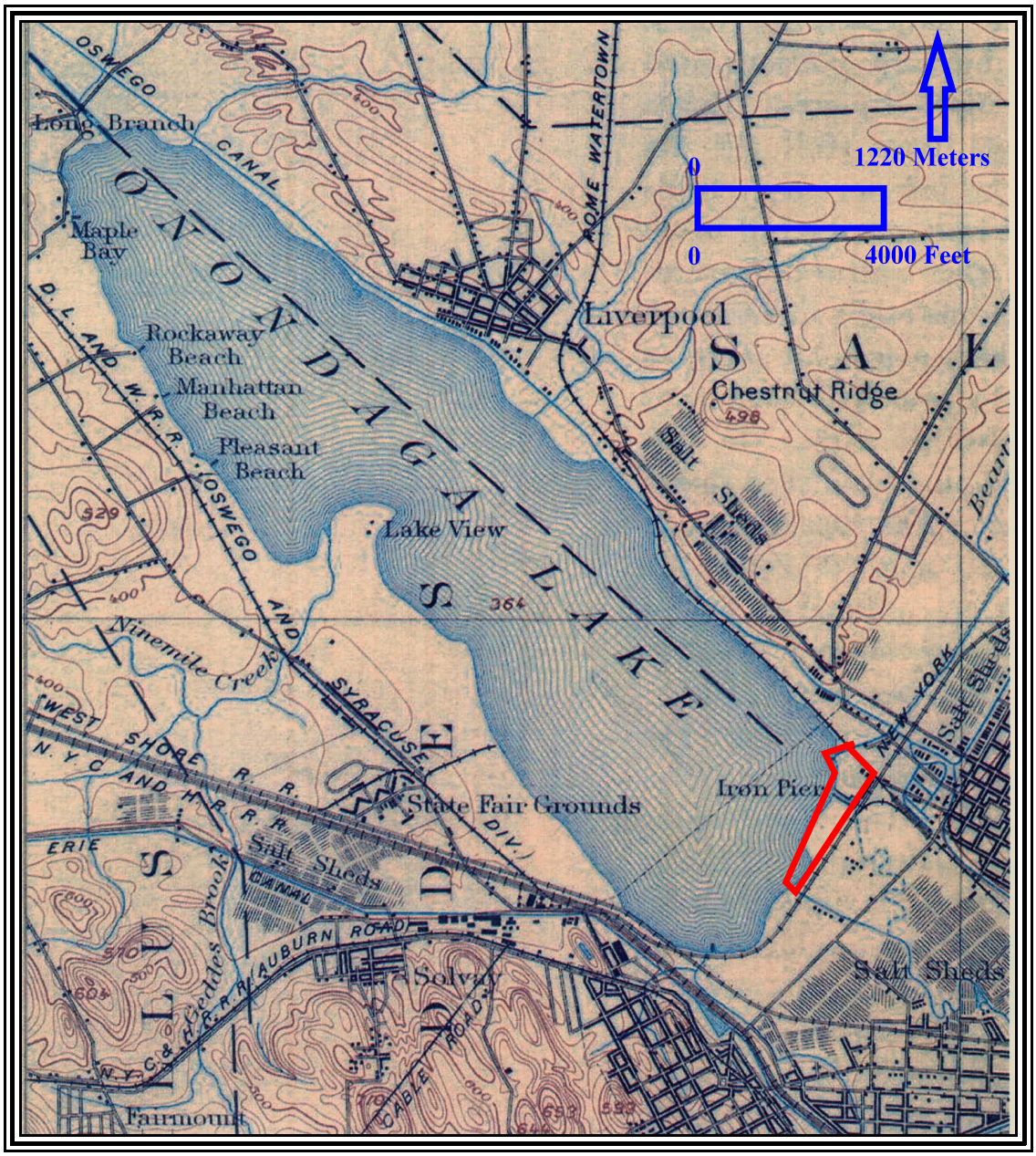

Figure 4. 1898 15-minute Syracuse East USGS quadrangle, with approximate area of the SYW-12 Site highlighted.

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PROJECT: 1940065696 | DATED: 3/2/2022 | DESIGNER: MONETANT

NOTE:
COMMERCIAL SCO= 9.3 mg/kg
POGW SCO= 7.5 mg/kg
ECO SCO= 4.0 mg/kg
J = ESTIMATED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND
- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS
- < ECO SCO
- EXCEEDED ECO SCO
- EXCEEDED ECO AND POGW SCO
- EXCEEDED ECO, POGW AND COMMERCIAL SCO

DEPTH
- 0 - 6"
- 6" - 1'
- 1' - 2'

CADMIUM
RESULT IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 5

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1940065696| DATED: 3/2/2022 | DESIGNER: MONETANT

NOTE:
COMMERCIAL SCO= 1,500 mg/kg
POGW SCO= N/A
ECO SCO= 41 mg/kg
J = ESTIMATED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS .

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND

- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS

- < ECO SCO
- EXCEEDS ECO SCO
- EXCEEDS BOTH ECO AND COMMERCIAL SCO

DEPTH

- 0 - 6"
- 6" - 1'
- 1' - 2'

CHROMIUM
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 6

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1940065696 | DATED: 3/2/2022 | DESIGNER: MONETANT

NOTE:
COMMERCIAL SCO= 2.8 mg/kg
POGW SCO= 0.73 mg/kg
ECO SCO= 0.18 mg/kg
J = ESTIMATED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS .

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND

- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- ▲ SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS

- < ECO SCO
- EXCEEDED ECO SCO
- EXCEEDED ECO AND POGW SCO
- EXCEEDED ECO, POGW AND COMMERCIAL SCO

DEPTH

- 0 - 6"
- 6" - 1'
- 1' - 2'

MERCURY
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 7

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Honeywell.116\165696.Syw-12-FsiDocs\DWG\MXD\DEVELOPMENT OF ALTERNATIVES\FS ALTERNATIVES JULY 2021

PROJECT: 1940065696 | DATED: 3/2/2022 | DESIGNER: MONETANT

NOTE:
COMMERCIAL SCO= 1.0 mg/kg
ECO SCO= 2.6 mg/kg
POGW SCO= 22 mg/kg
J = ESTIMATED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND

- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS

- < COMMERCIAL SCO
- EXCEEDED COMMERCIAL SCO
- EXCEEDED ECO AND COMMERCIAL SCO
- EXCEEDED ECO, POGW AND COMMERCIAL SCO

DEPTH

- 0 - 6"
- 6" - 1'
- 1' - 2'

BENZO(A)PYRENE
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 8

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

NOTE:
COMMERCIAL SCO= 1.0 mg/kg
ECO SCO= 1.0 mg/kg
POGW SCO= 3.2 mg/kg
ND = NON-DETECT RESULT BELOW THE DETECTION LIMIT

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS .

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND
- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- ▲ SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS
- < ECO SCO
- EXCEEDED ECO AND COMMERCIAL SCO
- EXCEEDED ECO, COMMERCIAL AND POGW SCO

DEPTH
- 0 - 6"
- 6" - 1'
- 1' - 2'

TOTAL PCB
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 9

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

NOTE:
ECO SCO= 0.0033 mg/kg
COMMERCIAL SCO= 47.0 mg/kg
POGW SCO= 136 mg/kg
ND = NON-DETECT RESULT BELOW THE DETECTION LIMIT
J = ESTIMATED VALUE
JN = ESTIMATED, UNCONFIRMED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND
- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- ▲ SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS
- < ECO SCO
- EXCEEDED ECO SCO
- EXCEEDED ECO AND COMMERCIAL SCO
- EXCEEDED ECO, POGW AND COMMERCIAL SCO

DEPTH
- 0 - 6"
- 6" - 1'
- 1' - 2'

4-4-DDT
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 10

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Honeywell.116316\65696.Syw-12-FsDocs\DWG\MXD\DEVELOPMENT OF ALTERNATIVES\FS ALTERNATIVES JULY 2021

PROJECT: 1940065696 | DATED: 3/4/2022 | DESIGNER: MONETANT

ONONDAGA LAKE

ENGINEERED COVER IN NON-FORESTED AREA
- PERCHED WETLAND COVER (7.5 ACRES)

UNDISTURBED EAGLE ROOSTING HABITAT
- UNDISTURBED FORESTED HABITAT (15.3 ACRES)

ENGINEERED SOIL COVER IN NON-FORESTED AREA
- UPLAND VEGETATED SOIL COVER (0.7 ACRES)

CSX RAILROAD TRACKS

Park St

Onondaga Lake Pkwy

370

LEY CREEK

24B 24A

Harborside Dr

ONONDAGA CREEK

Service Layer Credits: NYS ITS GIS Program Office, Westchester County GIS

ALSO INCLUDES:
- WETLAND RESTORATION/MITIGATION
- GROUNDWATER MONITORING
- MONITORED NATURAL ATTENUATION
- ON-SITE REUSE AND/OR OFF-SITE DISPOSAL OF EXCAVATED SOIL/FILL MATERIAL
- INSTITUTIONAL CONTROLS
- BIOTA MONITORING
- PRE-DESIGN SOIL SAMPLING AND TREE SURVEY

POTENTIAL FUTURE TRAIL EXTENSION

PLANNED RECREATIONAL TRAIL ALIGNMENT

UPLAND VEGETATED SOIL COVER (0.7 AC)

PERCHED WETLAND COVER (7.5 AC)

SITE BOUNDARY

POTENTIAL ADDITIONAL REMEDIAL AREAS (E.G., BASED ON SOIL SAMPLING, TREE SURVEY)

0 125 250 Feet

SYW-12 ALTERNATIVE 2
ENGINEERED COVER ON PERIMETER AREA (8.2 ACRES), WETLAND RESTORATION / CREATION, BIOTA MONITORING, AND MNA

HONEYWELL INTERNATIONAL INC.
SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 11

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Honeywell.1163165696.Syw-12-FsiDocs\DWG\MXD\DEVELOPMENT OF ALTERNATIVESIFS ALTERNATIVES JULY 2021

UNDISTURBED HABITAT
- UNDISTURBED FORESTED HABITAT (13.5 ACRES)

SURFACE EXCAVATION / WETLAND RESTORATION IN PERIMETER AND INTERIOR AREAS
- RESTORED NON-FORESTED WETLAND (6.5 ACRES)
- REQUIRES LIMITED DISTURBANCE / RESTORATION OF FORESTED HABITAT (0.5 ACRES)

ENGINEERED SOIL COVER IN NON-FORESTED AREA
- UPLAND VEGETATED SOIL COVER (3 ACRES)

ALSO INCLUDES:
- WETLAND RESTORATION/MITIGATION
- GROUNDWATER MONITORING
- MONITORED NATURAL ATTENUATION
- ON-SITE REUSE OF EXCAVATED SOIL/FILL MATERIAL (ALTERNATIVE 4A: TEMPORARY ON-SITE CONSOLIDATION NOT SHOWN; LOCATION TO BE DETERMINED)
- OFF-SITE DISPOSAL OF EXCAVATED SOIL/FILL MATERIAL (ALTERNATIVE 4B)
- INSTITUTIONAL CONTROLS
- BIOTA MONITORING
- PRE-DESIGN SOIL SAMPLING AND TREE SURVEY

POTENTIAL FUTURE TRAIL EXTENSION

PLANNED RECREATIONAL TRAIL ALIGNMENT

UPLAND VEGETATED SOIL COVER (3 AC)

SURFACE EXCAVATION / WETLAND RESTORATION (6.5 AC)

ON-SITE CONSOLIDATION AREA (ALTERNATIVE 4A)

POTENTIAL ADDITIONAL REMEDIAL AREAS (E.G., BASED ON SOIL SAMPLING, TREE SURVEY)

SITE BOUNDARY

0 110 220 Feet

PROJECT: 1940065696 | DATED: 3/4/2022 | DESIGNER: MONETANT

SYW-12 ALTERNATIVE 3A/B

SURFACE EXCAVATION AND ENGINEERED COVER / RESTORATION ON PERIMETER AND INTERIOR AREAS (10 ACRES), BIOTA MONITORING, AND MNA, WITH LIMITED TREE REMOVAL

HONEYWELL INTERNATIONAL INC.

SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 12

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

ONONDAGA LAKE

FULL EXCAVATION
- REMOVAL OF ALL TREES AND EXISTING HABITAT TO FACILITATE EXCAVATION (23.5 ACRES)
- EXCAVATION (23.5 ACRES)

6-FT EXCAVATION
4.7 ACRES

8-FT EXCAVATION
3.9 ACRES

12-FT EXCAVATION
12.3 ACRES

16-FT EXCAVATION
2.6 ACRES

CSX RAILROAD TRACKS

Harborside Dr

Park St

Onondaga Lake Pkwy

370

248 24A

NOTE:
THIS ALTERNATIVE WOULD BE EXTREMELY DIFFICULT TO IMPLEMENT DUE TO STABILITY CONCERNS AND PROXIMITY TO ACTIVE RAILROAD TRACKS.

ALSO INCLUDES:
- RESTORATION
  - FORESTED UPLAND (7.4 ACRES)
  - NON-FORESTED UPLAND (3.0 ACRES)
  - FORESTED WETLAND (6.6 ACRES)
  - NON-FORESTED WETLAND (6.5 ACRES)
- MONITORED NATURAL ATTENUATION
- FULL EXCAVATION TO APPROXIMATELY 6 TO 16 FT BGS
- OFF-SITE DISPOSAL OF EXCAVATED SOIL/ FILL MATERIAL
- GROUNDWATER MONITORING
- INSTITUTIONAL CONTROLS

POTENTIAL FUTURE TRAIL EXTENSION

PLANNED RECREATIONAL TRAIL ALIGNMENT

FORESTED AND NON-FORESTED UPLAND (10.4 AC) | FORESTED AND NON-FORESTED WETLAND (13.1 AC)

EXCAVATION AREA (23.5 AC)

0 125 250 Feet

SYW-12 ALTERNATIVE 4
FULL REMOVAL (INCLUDING ALL TREES) AND OFF-SITE DISPOSAL (23.5 ACRES)

HONEYWELL INTERNATIONAL INC.
SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 13

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX II

TABLES

Table 1
SYW-12 Site
Surface Soils (0-2 ft bgs)
Summary of Detected Concentrations and Part 375 SCO Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Part 375 Unrestricted Use SCOS	Number of Unrestricted Use SCO Exceedances	NYSDEC Part 375 Restricted Use - Commercial SCOs	Number of Commercial SCO Exceedances	NYSDEC Part 375 Restricted Use - Ecological SCOs	Number of Ecological SCO Exceedances
Semivolatile Organic Compounds (µg/kg)										
BENZO(A)ANTHRACENE	63	63	140	7,300	1,000	48	5,600	6	NC	0
BENZO(A)PYRENE	63	63	130	9,100	1,000	49	1,000	49	2,600	20
BENZO(B)FLUORANTHENE	63	63	180	12,000	1,000	51	5,600	10	NC	0
BENZO(K)FLUORANTHENE	63	63	63	4,500	800	40	56,000	0	NC	0
CHRYSENE	63	63	140	9,200	1,000	49	56,000	0	NC	0
DIBENZO(A,H)ANTHRACENE	63	57	63	1,100	330	22	560	9	NC	0
INDENO(1,2,3-CD)PYRENE	63	62	52	2,800	500	35	5,600	0	NC	0
Pesticides (µg/kg)										
4,4'-DDD	63	9	6.5	73	3.3	9	92,000	0	3.3	9
4,4'-DDE	63	3	0.5	3.6	3.3	1	62,000	0	3.3	1
4,4'-DDT	63	21	2.5	100	3.3	20	47,000	0	3.3	20
DIELDRIN	63	10	4.9	30	5	9	1,400	0	6	9
ENDRIN	63	1	26	26	14	1	89,000	0	14	1
PCBs (µg/kg)										
AROCLOR-1254	63	58	31	2,110	NC	0	NC	0	NC	0
AROCLOR-1260	63	58	29.6	1,360	NC	0	NC	0	NC	0
Total PCBs	63	58	65.3	3,470	100	50	1,000	8	1,000	8
Metals (mg/kg)										
CADMIUM	63	63	1	52	2.5	55	9.3	34	4	53
CHROMIUM	63	63	7.3	410	30	55	1,500	0	41	49
COPPER	63	63	7.3	330	50	47	270	4	50	47
LEAD	63	63	9.1	390	63	51	1,000	0	63	51
MERCURY	63	63	0.07	8.6	0.18	60	2.8	13	0.18	60
NICKEL	63	63	3.4	87	30	28	310	0	30	28
SILVER	63	57	0.34	13	2	32	1,500	0	2	32
ZINC	63	63	37	780	109	56	10,000	0	109	56

NOTES
This table presents (1) RI Report and SCI data only, (2) the detected concentration data only and (3) only parameters that exceeded the Part 375 Unrestricted, Restricted-Commercial or Restricted-Protection of Ecological SCOs.
NC = No criteria available.
SCO = Soil Cleanup Objectives; NYSDEC = New York State Department of Environmental Conservation.

Table 2
SYW-12 Site
Subsurface Soils (>2 ft bgs)
Summary of Detected Concentrations and Part 375 SCO Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Part 375 Unrestricted Use SCOS	Number of Unrestricted Use SCO Exceedances	NYSDEC Part 375 Restricted Use - Commercial SCOs	Number of Commercial SCO Exceedances	NYSDEC Part 375 Restricted Use - Ecological SCOs	Number of Ecological SCO Exceedances
Volatile Organic Compounds (µg/kg)										
2-BUTANONE	40	22	3.1	220	120	1	500,000	0	100,000	0
ACETONE	40	15	14.2	730	50	9	500,000	0	2,200	0
ETHYLBENZENE	40	22	1.2	11,200	1,000	9	390,000	0	NC	0
METHYLENE CHLORIDE	40	2	5.3	80	50	1	500,000	0	12,000	0
XYLENES, TOTAL	40	24	0.96	15,300	260	9	500,000	0	260	9
Semivolatile Organic Compounds (µg/kg)										
4-METHYLPHENOL	21	8	84	1,800	330	4	500,000	0	NC	0
ACENAPHTHENE	40	33	53	210,000	20,000	4	500,000	0	20,000	4
BENZO(A)ANTHRACENE	40	34	161	53,000	1,000	31	5,600	15	NC	0
BENZO(A)PYRENE	40	34	307	46,000	1,000	31	1,000	31	2,600	28
BENZO(B)FLUORANTHENE	40	34	236	45,000	1,000	32	5,600	12	NC	0
BENZO(K)FLUORANTHENE	40	34	97	9,500	800	28	56,000	0	NC	0
CHRYSENE	40	34	201	59,000	1,000	31	56,000	1	NC	0
DIBENZO(A,H)ANTHRACENE	40	32	66.9	4,220	330	27	560	20	NC	0
FLUORENE	40	33	48	86,000	30,000	3	500,000	0	30,000	3
INDENO(1,2,3-CD)PYRENE	40	34	160	8,350	500	31	5,600	5	NC	0
NAPHTHALENE	40	33	43.2	380,000	12,000	6	500,000	0	NC	0
PHENANTHRENE	40	34	65.1	280,000	100,000	3	500,000	0	NC	0
PYRENE	40	34	279	140,000	100,000	2	500,000	0	NC	0
Pesticides (µg/kg)										
4,4'-DDD	21	1	4.4	4.4	3.3	1	92,000	0	3.3	1
4,4'-DDT	21	3	4.9	31	3.3	3	47,000	0	3.3	3
PCBs (µg/kg)										
AROCLOR-1248	40	1	1,110	1,110	NC	1	NC	1	NC	1
AROCLOR-1254	40	6	7.88	1,530	NC	3	NC	2	NC	2
AROCLOR-1260	40	6	12.2	853	NC	2	NC	0	NC	0
Total PCBs	40	6	18.3	2640	100	3	1,000	2	1,000	2
Metals (mg/kg)										
ARSENIC	40	37	1.5	19.7	13	3	16	2	13	3
CADMIUM	40	31	0.31	100	2.5	13	9.3	2	4	4
CHROMIUM	40	40	3	470	30	13	1,500	0	41	8
COPPER	40	40	2.8	450	50	27	270	1	50	27
LEAD	40	40	1.5	437	63	29	1,000	0	63	29
MERCURY	40	40	0.0069	6	0.18	29	2.8	4	0.18	29
NICKEL	40	40	3.6	116	30	21	310	0	30	21
SILVER	40	28	0.23	13	2	18	1,500	0	2	18
ZINC	40	40	11	1,200	109	27	10,000	0	109	27

NOTES
This table presents (1) RI Report and SCI data only, (2) the detected concentration data only and (3) only parameters that exceeded the Part 375 Unrestricted, Restricted-Commercial or Restricted-Protection of Ecological SCOs.
NC = No criteria available.
SCO = Soil Cleanup Objectives; NYSDEC = New York State Department of Environmental Conservation.

Table 3
SYW-12 Site
Shallow and Intermediate Groundwater
Summary of Detected Concentrations and Class GA SGV and EPA MCL Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Class GA SGVs	Number of Class GA Exceedances	EPA National Primary Drinking Water MCLs	Number of MCL Exceedances
Volatile Organic Compounds (µg/L)								
ETHYLBENZENE	26	3	0.48	14.8	5(S)	2	700	0
ISOPROPYLBENZENE	26	5	0.23	5.25	5(G)	1	NC	0
O-XYLENE	3	2	2.1	7.3	5(S)	1	NC	0
XYLENES, TOTAL	26	5	0.45	15.2	5(S)	2	10,000	0
Semivolatile Organic Compounds (µg/L)								
4-METHYLPHENOL	23	3	0.36	2	1(S)	1	NC	0
4-NITROPHENOL	26	1	1.1	1.1	1(S)	1	NC	0
ACENAPHTHENE	26	13	0.53	41	20(G)	1	NC	0
NAPHTHALENE	26	5	1.6	170	10(G)	4	NC	0
Pesticides (µg/L)								
Alpha-BHC	23	2	0.0087	0.027	0.01(S)	1	NC	0
Metals (mg/L)								
BARIUM	26	18	0.12	2	1(S)	6	2	2
CHROMIUM	26	4	0.0093	0.16	0.05(S)	1	0.1	1
IRON	26	25	0.34	62.3	0.3(S)	25	NC	0
LEAD	26	4	0.005	0.041	0.025(S)	1	0.015	2
MAGNESIUM	26	20	23	176	35(G)	15	NC	0
MANGANESE	26	26	0.086	2.1	0.3(S)	23	NC	0
SODIUM	26	26	250	3,400	20(S)	26	NC	0
Inorganics (mg/L)								
BROMIDE	17	11	1.6	16.6	2(G)	9	NC	0
CHLORIDE	26	26	380	9,940	250(S)	26	NC	0
NITROGEN, AMMONIA (AS N)	3	3	5.5	36	2(S)	3	NC	0
SULFIDE	14	4	2	17.6	0.05(G)	4	NC	0

NOTES
This table presents (1) RI Report and 2019 follow up data only, (2) the detected concentration data only and (3) only parameters that exceeded the NYSDEC Class GA SGVs or USEPA Drinking Water MCLs.
NC = No criteria available.
(S) = Standard; (G) = Guidance Value; MCL = Maximum Contaminant Level; EPA = Environmental Protection Agency; NYSDEC = New York State Department of Environmental Conservation.

Table 4 – Human Health Risk Re-Evaluation Summary

Timeframe	Receptor	Exposure Medium	Cancer Risk	Non-Cancer Hazard	Hazard/Risk Driving COCs
Current/Future	Utility Worker	Surface/Subsurface Soil	3×10^{-6}	0.07	--
		Outdoor Air	4×10^{-7}	0.006	--
		Shallow Groundwater	6×10^{-5}	0.6	--
		All Media	6×10^{-5}	0.6	--
Current/Future	Child Recreator	Surface Soil	6×10^{-5}	0.9	--
		Outdoor Air	2×10^{-7}	0.006	--
		All Media	6×10^{-5}	0.9	--
Current/Future	Adult Recreator	Surface Soil	3×10^{-6}	0.05	--
		Outdoor Air	9×10^{-7}	0.006	--
		All Media	4×10^{-6}	0.06	--
Current/Future	Railroad Worker	Surface Soil	1×10^{-5}	0.2	--
		Outdoor Air	2×10^{-6}	0.01	--
		All Media	1×10^{-5}	0.2	--
Future	Commercial/ Industrial Worker	Surface Soil	2×10^{-5}	0.3	--
		Outdoor Air	9×10^{-6}	0.07	--
		All Media	2×10^{-5}	0.3	--
Future	Construction Worker	Surface/Subsurface Soil	1×10^{-6}	0.8	--
		Outdoor Air	2×10^{-7}	0.07	--
		Shallow Groundwater	3×10^{-5}	7.1	Benzo(a)pyrene, chromium[1]
		All Media	3×10^{-5}	8.0	Benzo(a)pyrene, chromium[1]
Future	Child Resident[2]	Surface Soil	9×10^{-5}	7.6	Highly chlorinated PCBs
		Outdoor Air	5×10^{-6}	0.4	--
		All Media	1×10^{-4}	7.9	Highly chlorinated PCBs
Future	Adult Resident[2]	Surface Soil	1×10^{-5}	0.2	--
		Outdoor Air	3×10^{-5}	0.2	--
		All Media	4×10^{-5}	0.4	--

- Shaded cells indicate exceedance of the USEPA acceptable cancer risk or non-cancer hazard threshold.

1 Based on HHRA results using groundwater data collected during RI; chromium and benzo(a)pyrene were not detected in groundwater monitoring well samples collected subsequent to the RI.

2 While child and adult resident receptors were evaluated in the HHRA, residential use would not be consistent with the anticipated future land use of the SYW-12 Site.

Table 5. Alternative 2 Cost Estimate

Site: Honeywell Murphy's Island/SYW-12
Location: Syracuse, NY
Phase: Feasibility Phase (+50% / -25%)
Base Year: 2022

Conceptual Basis: Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and Monitored Natural Attenuation

Item	Unit	Estimated Quantity	Estimated Unit Cost	Estimated Cost	Notes
DIRECT CAPITAL COST					
General Conditions	WK	15	$15,000	$225,000	Trailer, fuel, small tools, consumables and safety; 1 week Mob
Mobilization	EA	1	$65,000	$65,000	One per 36-wk construction season; reflects winter condition and eagle roosting no-work periods
Air Monitoring	LS	1	$45,000	$45,000	
Surveys and Layouts	EA	2	$4,500	$9,000	Pre-construction, post-construction
Irrigation	WK	4	$5,000	$20,000	Following seeding, 4 weeks per season
Railroad Protection	WK	15	$16,000	$240,000	1 Construction Manager and 1 Flagman
Temporary Fencing	LF	6,000	$10	$60,000	
Truck Wash	WK	15	$7,500	$112,500	Wash rack and operation
Dust Suppression/Control	WK	15	$3,500	$52,500	5,000 gallon water truck and operation
Permits	LS	1	$15,000	$15,000	Railroad Access Permit/ Agreement
Pre-Design Survey	LS	1	$40,000	$40,000	Topographic and Tree Surveys and borings/geological eval
Additional Surface Soil Sampling	LS	1	$50,000	$50,000	3 samples from each of 14 loc (3 each of four forested wetland and 2 from one upland area). For potential remedial footprint expansion.
Site-Wide Surface Soil Pre-Design Investigation	LS	1	$70,000	$70,000	16 locations, 3 samples each. Part 375 analysis.
Baseline Biota Monitoring					
Sediment Sampling	LS	1	$9,500	$9,500	1 sample from each of 8 locations; one event
Invertebrate Sampling and Analysis	LS	1	$20,500	$20,500	8 samples from each of 2 Events (spring and summer)
Small Mammal Sampling and Analysis	LS	1	$25,000	$25,000	8 samples from each of 2 Events (spring and summer)
Workplan and Reporting	LS	1	$11,500	$11,500	
Site Preparation					
Clearing and Grubbing	AC	8.2	$11,000	$90,200	Non-forested wetlands and uplands only; no tree clearing. Chipped and left onsite.
Rough Grading	AC	8.2	$4,000	$32,800	Non-forested wetlands and uplands
Railroad Crossing	EA	3	$25,000	$75,000	
Construction Entrance	LS	1	$16,000	$16,000	6-inch stone entrance, 50ft x 24ft, from access road along Ley Creek.
Working Pad	CY	1,500	$90	$135,000	4-ft stone, mirafi, 100 x 100-ft
Access Roadways - Installation	LF	3,000	$130	$390,000	2-ft stone, mirafi, built to 35-ft width (assume 2 lanes)
Site Access - Crane Mats	LS	1	$75,000	$75,000	Rental; 500 LF crane mats
Materials QA/QC Testing - Topsoil	EA	6	$2,500	$15,000	chemical and physical testing of imported materials; includes emerging contaminants
Materials QA/QC Testing - Fill and stone	EA	9	$2,200	$20,790	chemical and physical testing of imported materials; includes emerging contaminants
Compaction Testing	WK	8	$1,000	$8,000	during backfill only
Erosion and Sediment Control	LF	15,000	$8	$120,000	Reinforced silt fence along access road and site perimeter, twice along lakefront
Perched Wetland Construction (5.9 AC)					
Import and place 12-in topsoil	CY	9,500	$53	$503,500	Placement by conventional equipment in 6-inch lifts; Infertile topsoil.
Import and place 12-in clay	CY	10,450	$54	$564,300	Placement by conventional equipment in 6-inch lifts; assumes variable grading.
Import and place internal clay berms	CY	900	$54	$48,600	1.5-ft tall berms with 3V:1H side slopes
Wetland elevation grading and shaping	AC	2.5	$70,000	$175,000	average deepening of 12-inches (max. of 24-inches); includes clearing and access improvements
Wetland seeding	AC	5.9	$26,000	$153,400	Cost includes installation; hand sown at 30 pounds per acre
Hand Plantings	AC	5.9	$5,000	$29,500	Assumes 8000 live stakes per acre
Wetland Berm and Grading Construction (1.6 AC)					
Fine grading berm	AC	1.6	$9,000	$14,400	Grading of berm subgrade prior to placement of topsoil
Import and place 6-in topsoil	CY	1,400	$53	$74,200	Placement by conventional equipment in 6-inch lifts; 6-in infertile topsoil.
Import and place subgrade material	CY	4,800	$46	$220,800	Placement by conventional equipment in 6-inch lifts to within 3.5-ft. Includes 18-in cover materia
Geogrid Stabilization	AC	1.6	$47,000	$75,200	Placed between subgrade and topsoil
Seeding	AC	1.6	$19,000	$30,400	Modified old field successional with fertilizer and hydromulch; total berm surface area

Table 5. Alternative 2 Cost Estimate

Site: Honeywell Murphy's Island/SYW-12
Location: Syracuse, NY
Phase: Feasibility Phase (+50% / -25%)
Base Year: 2022

Conceptual Basis: Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and Monitored Natural Attenuation

Item	Unit	Estimated Quantity	Estimated Unit Cost	Estimated Cost	Notes
Upland Engineered Vegetative Cover (0.7 AC)					
Import and place 6-in topsoil	CY	600	$53	$31,800	Placement by conventional equipment in 6-inch lifts
Import and place 18-in subgrade material	CY	1,800	$46	$82,800	Placement by conventional equipment in 6-inch lifts
Non-wetland seeding	AC	0.7	$19,000	$13,300	Modified old field successional with fertilizer and hydromulch
Transportation and Disposal					
T&D of Roadway Material - C&D	TON	11,700	$80	$936,000	1.7 tons per cy; disposal at C&D landfill. Includes equipment/labor for removal
			TOTAL ESTIMATED DIRECT CAPITAL COST:	**$5,000,000**	rounded
INDIRECT CAPITAL COST					
			Total Estimated Direct Capital Cost:	**$5,000,000**	
			Engineering / Management, Construction Oversight, OH&P	**$950,000**	6%, 8%, and 5% respectively
			Contingency	**$1,500,000**	Scope Contingency at 30%
Institutional Controls					
Environmental Easement	LS	1	$30,000	$30,000	
Site Management Plan	LS	1	$50,000	$50,000	
			TOTAL ESTIMATED CAPITAL COST:	**$7,530,000**	rounded
OPERATION AND MAINTENANCE COSTS					
Annual Years 1 - 5					
Reporting and Recordkeeping	EA	1	$20,000	$20,000	
Cover inspection	LS	1	$2,400	$2,400	Assumes 2 scientists/engineers, 1 days, 8 hours/day, twice annually
Groundwater Monitoring					
Well inspection and sampling labor	LS	1	$9,600	$9,600	Assumes 2 scientists/engineers, 8 hours/day, twice annually, 4 days
Groundwater samples	LS	1	$12,600	$12,600	Assumes 14 samples (10 wells + QA/QC) twice annually; 28 samples total
On-site Cover Maintenance					
Wetland/Non-Forest Vegetation Maintenance	AC	0.3	$26,000	$7,800	Spot seeding (5% of all areas annually) and handpulling invasive species
Cover maintenance and incidental repairs	AC	8.2	$325	$2,665	Topsoil repair, 5 cy/acre annually
Annual Years 1, 3, 5					
Baseline Biota Monitoring					
Sediment Sampling	LS	1	$9,500	$9,500	1 sample from each of 8 locations; one event
Invertebrate Sampling and Analysis	LS	1	$20,500	$20,500	1 sample from each of 8 locations; one event
Small Mammal Sampling and Analysis	LS	1	$25,000	$25,000	1 sample from each of 8 locations; one event
Workplan and Reporting	LS	1	$11,500	$11,500	

Table 5. Alternative 2 Cost Estimate

Site: Honeywell Murphy's Island/SYW-12
Location: Syracuse, NY
Phase: Feasibility Phase (+50% / -25%)
Base Year: 2022

Conceptual Basis: Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and Monitored Natural Attenuation

Item	Unit	Estimated Quantity	Estimated Unit Cost	Estimated Cost	Notes
Annual Years 6 - 30					
Reporting and Recordkeeping	EA	1	$20,000	$20,000	
Cover inspection	LS	1	$2,400	$2,400	Assumes 2 scientists/engineers, 1 days, 8 hours/day, twice annually
Groundwater Monitoring					
Well inspection and sampling labor	LS	1	$9,600	$9,600	Assumes 2 scientists/engineers, 8 hours/day, twice annually, 4 days
Groundwater samples	LS	1	$12,600	$12,600	Assumes 14 samples (10 wells + QA/QC) twice annually; 28 samples total
Years 5, 10, 15, 20, 25, 30					
Five Year Review	EA	1	$15,000	$15,000	

PRESENT WORTH ANALYSIS (YEARS 1-30)	Cost	DISCOUNT FACTOR Df=7	PRESENT WORTH (rounded)	
ESTIMATED CAPITAL COST - Year 0	$7,530,000	1.00	$7,530,000	
ANNUAL O&M - YEARS 1-5	$55,065	0.82	$226,000	Average discount factor for years 1-5
ANNUAL O&M - YEARS 1, 3, 5	$66,500	0.82	$164,000	Average discount factor for years 1, 3, 5
ANNUAL O&M - YEARS 6-30	$44,600	0.33	$371,000	Average discount factor for years 6-30
PERIODIC O&M - YEARS 5, 10, 15, 20, 25, 30	$15,000	0.36	$32,000	Average discount factor for years 5, 10, 15, 20, 25 and 30
TOTAL PRESENT WORTH ESTIMATED ALTERNATIVE COST:			**$8,300,000**	rounded

TABLE 6. POTENTIALLY APPLICABLE OR RELEVANT AND APPROPRITE REQUIREMENTS (ARARS) AND TO BE CONSIDERED (TBC) MATERIALS

Medium Location / Action	Citation	Requirements	Comments	Potential ARAR	Potential TBC
Potential Chemical-Specific ARARs and TBCs					
Soil / fill material	6 NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives (SCOs)	Promulgated state regulation that provides guidance for SCOs for various restricted property uses (industrial, commercial, restricted residential, and residential), for the protection of groundwater and ecological resources, and for unrestricted property use. Commercial use includes passive recreational use that refers to recreational uses with limited potential for soil contact, such as: (1) artificial surface fields; (2) outdoor tennis or basketball courts; (3) other paved recreational facilities used for roller hockey, roller skating, shuffle board, etc.; (4) outdoor pools; (5) indoor sports or recreational facilities; (6) golf courses; and (7) paved (raised) bike or walking paths [DER-10 (NYSDEC 2010)].	SCOs for restricted use (commercial, protection of ecological resources) are potentially relevant and appropriate to SYW-12 Site soil/fill material give the current and reasonably anticipated future land use for commercial purposes, including a passive recreational use, as well as consideration of the seasonal presence of eagles at the SYW-12 Site. SCOs for unrestricted use may not be applicable, relevant or appropriate given the current and reasonably anticipated future land use; however, were considered for the purpose of evaluating unrestricted conditions. SCOs for the protection of groundwater are also considered.	Yes	No[1]
	USEPA Soil Screening Guidance: User's Guide (1996)	Guidance that provides methodology for developing site-specific soil screening levels. Also provides generic soil screening levels based on default assumptions.	Potentially relevant and appropriate to SYW-12 Site soil/fill material.	No	Yes
	USEPA Regional Screening Levels	Guidance that provides human health risk-based screening values for soil at industrial sites. Screening levels are calculated based on human health exposure assumptions and toxicity data.	Industrial worker, outdoor worker and recreator soil screening levels are potentially applicable for the screening of soil/fill material.	No	Yes
	USEPA Ecological Screening Levels	Guidance that provides ecological risk-based screening values. Screening levels are based on ecological exposure assumptions and toxicity data.	To be considered. Ecological screening values are not promulgated cleanup levels.	No	Yes
Groundwater	6 NYCRR Part 703 – Class GA Groundwater Quality Standards	Promulgated water quality standards for fresh groundwater, including narrative and constituent-specific standards.	Potentially applicable for SYW-12 Site groundwater.	Yes	No
	NYS TOGS 1.1.1 – Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations	Guidance that summarizes groundwater standards and guidance values. Guidance values are provided where standards are not available.	Potentially applicable for SYW-12 Site groundwater.	Yes	No

[1] USEPA Region 2 considered 6 NYCRR Part 375-6 Remedial Program SCOs to be a TBC.

TABLE 6. POTENTIALLY APPLICABLE OR RELEVANT AND APPROPRITE REQUIREMENTS (ARARS) AND TO BE CONSIDERED (TBC) MATERIALS

Medium Location / Action	Citation	Requirements	Comments	Potential ARAR	Potential TBC
	40 CFR Part 141 – Drinking Water Standards	Promulgated federal regulation that establishes primary drinking water regulations applicable to public water systems.	Potentially applicable for SYW-12 Site groundwater. Groundwater is not used as a drinking water source as municipal water is available.	Yes	No
Potential Location-Specific ARARs and TBCs					
Construction of buildings	NYSDOH's October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York	Guidance document that provides thresholds for indoor air and sub-slab soil vapor above which vapor mitigation is required.	Not currently applicable, because no buildings are present on the SYW-12 Site. Potentially applicable if future buildings are constructed at the SYW-12 Site.	No	Yes
	OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air, OSWER Publication 9200.2-154, June 2015	Technical guidance that provides recommendations on assessment of vapor intrusion pathways that pose an unacceptable risk to human health.	Not currently applicable, because no buildings are present on the SYW-12 Site. Potentially applicable if future buildings are constructed at the SYW-12 Site.	No	Yes
Water bodies	6 NYCRR 608 – Use and Protection of Waters Program	Regulatory and permit requirements for work affecting New York State lakes, rivers, streams, and ponds.	Potentially applicable to remedial actions at the SYW-12 Site given the overlap of the 100-year floodplain, and potential actions below mean high water for Onondaga Lake, Ley Creek, and Onondaga Creek.	Yes	No
	Article 15 – Water Resources – New York Environmental Conservation Law	Regulatory and permit requirements for work affecting New York State lakes, rivers, streams, and ponds.	Potentially applicable to work affecting Onondaga Lake, Ley Creek, and Onondaga Creek.	Yes	No
	33 CFR 320 - 330 - Navigation and Navigable Waters	Regulatory policies and permit requirements for work affecting waters of the United States and navigable waterways.	Substantive, non-administrative requirements potentially applicable to work affecting Onondaga Lake, Ley Creek, and Onondaga Creek.	Yes	No
	16 USC 661 - Fish and Wildlife Coordination Act	Requires protection of fish and wildlife in a stream or other water body when performing activities that modify a stream or river.		Yes	No
Wetlands	6 NYCRR 663 - Freshwater wetland permit requirements	Actions occurring in a designated freshwater wetland (within 100 feet) must be approved by NYSDEC or its designee. Activities occurring adjacent to freshwater wetlands must: be compatible with preservation, protection, and conservation of wetlands and benefits; result in no more than insubstantial degradation to or loss of any part of the wetland; and be compatible with public health and welfare.	SYW-12 is a New York State-regulated wetland. Potentially applicable to remedial actions at the SYW-12 Site and within 100 feet of wetlands as designated freshwater wetlands regulated by NYSDEC.	Yes	No
	Clean Water Act Section 404 33 CFR Parts 320 - 330	Regulatory policies and permit requirements for work affecting waters of the United States, including wetlands.	Potentially applicable; the SYW-12 Site is a delineated wetland.	Yes	No
	Clean Water Act Section 404 40 CFR Parts 230-231	Provides for restoration and maintenance of integrity of waters of the United States, including wetlands, through the control of dredged or fill material discharge.		Yes	No
	Executive Order 11990 - Protection of Wetlands	Executive order requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the destruction or loss of wetlands if a practical alternative exists.		Yes	No

TABLE 6. POTENTIALLY APPLICABLE OR RELEVANT AND APPROPRITE REQUIREMENTS (ARARS) AND TO BE CONSIDERED (TBC) MATERIALS

Medium Location / Action	Citation	Requirements	Comments	Potential ARAR	Potential TBC
Wetlands & floodplains	Policy on Floodplains and Wetland Assessments for CERCLA Actions (OSWER Directive 9280.0-2; 1985)	Policy and guidance requiring Superfund actions to meet substantive requirements of Executive Orders 11988 and 11990. Describes requirements for floodplain assessment during remedial action planning.	To be considered during the remedial design. Potentially applicable to the SYW-12 Site, a delineated wetland. Potentially applicable as the SYW-12 Site is within the 100- and 500-year floodplains.	Yes	No
Potential Location-Specific ARARs and TBCs (continued)					
Wetlands & floodplains	40 CFR Part 6, Appendix A - Statement of Procedures on Floodplains Management and Wetlands Protection (January 5, 1979)	Policy and guidance for implementing Executive Orders 11988 and 11990. Requires federal agencies to evaluate the potential effects of action proposed in wetlands and floodplains to avoid, to the extent possible, adverse effects. Federal agencies are required to evaluate alternatives to actions in wetlands or floodplains and to avoid or minimize adverse impacts if not practical alternatives exist.	To be considered during the remedial design. Potentially applicable to the SYW-12 Site, a delineated wetland. Potentially applicable as the SYW-12 Site is within the 100- and 500-year floodplains. Requires a floodplain assessment if the selected alternative includes remedial activities that would potentially impact the floodplain.	Yes	No
Floodplains	6 NYCRR 373-2.2 - Location standards for hazardous waste treatment, storage, and disposal facilities -100-yr floodplain	Hazardous waste treatment, storage, or disposal facilities located in a 100-yr floodplain must be designed, constructed, operated and maintained to prevent washout of hazardous waste during a 100-year flood.	Not applicable or relevant and appropriate. The SYW-12 Site is within the 100-year floodplain; however, no hazardous waste treatment, storage, or disposal facilities are planned to be located on the SYW-12 Site.	No	No
	40 CFR Part 264.18(b) - Location Standards - Floodplains	Hazardous waste treatment, storage, or disposal facilities located in a 100-yr floodplain must be designed, constructed, operated and maintained to prevent washout of hazardous waste during a 100-year flood.	Not applicable or relevant and appropriate. The SYW-12 Site is within the 100-year floodplain; however, no hazardous waste treatment, storage, or disposal facilities are planned to be located on the SYW-12 Site.	No	No
	Executive Order 11988 - Floodplain Management	USEPA is required to conduct activities to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupation or modification of floodplains. The procedures also require USEPA to avoid direct or indirect support of floodplain development wherever there are practicable alternatives and minimize potential harm to floodplains when there are no practicable alternatives.	Potentially applicable or relevant and appropriate. The SYW-12 Site is located within the 100- and 500-year floodplains. Requires a floodplain assessment if the selected alternative includes remedial activities that would potentially impact the floodplain.	Yes	No
	Executive Order 13690 - Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input	Executive order establishes a Federal Flood Risk Management Standard (FFRMS), a Process for Further Soliciting and Considering Stakeholder Input, and amends Executive Order 11988. The FFRMS establishes a construction standard and framework for Federally funded projects constructed in, and affecting, floodplains, to reduce the risks and cost of floods. Under the FFRMS, federal agency management is expanded from the current base flood level to a higher vertical elevation and corresponding horizontal floodplain to address current and future flood risk to increase resiliency of projects funded with federal funds. The Executive Order also sets forth a process for solicitation and consideration of public input, prior to implementation of the FFRMS.	Potentially applicable or relevant and appropriate. The SYW-12 Site is location within the 100-year and 500-year floodplains. Requires a floodplain assessment if the selected alternative includes remedial activities that would potentially impact the floodplain.	Yes	No

TABLE 6. POTENTIALLY APPLICABLE OR RELEVANT AND APPROPRITE REQUIREMENTS (ARARS) AND TO BE CONSIDERED (TBC) MATERIALS

Medium Location / Action	Citation	Requirements	Comments	Potential ARAR	Potential TBC
	6 NYCRR 500 - Floodplain Management Regulations Development Permits	Promulgated state regulations providing permit requirements for development in areas of special flood hazard (floodplain within a community subject to a one percent or greater chance of flooding in any given year).	Requires remedial activities to be conducted in accordance with the local and state statutory requirements if conducted within the 100-year and/or 500-year floodplains as defined by FEMA. The 100-year and 500-year floodplains exist along the general lakeshore area immediately adjacent to Onondaga Lake and includes the SYW-12 Site.	Yes	No
Railroad	Article 3, Sections 90 – 95 - New York Railroad Law	Promulgated state regulation that provides requirements for the construction, operation and management of New York State railroads.	Potentially applicable or relevant and appropriate. The SYW-12 Site is bound by CSX railroad tracks to the north and east.	Yes	No
Potential Location-Specific ARARs and TBCs (continued)					
Within 61 meters (200 feet) of a fault displaced in Holocene time	40 CFR Part 264.18(a) - Location Standards - Seismic considerations	New treatment, storage, or disposal of hazardous waste is not allowed.	Not applicable or relevant and appropriate. SYW-12 Site is not located within 200 feet of a fault displaced in Holocene time, as listed in 40 CFR 264 Appendix VI. None listed in New York State.	No	No
Within salt dome or bed formation, underground mine, or cave	40 CFR Part 264.18 (c) - Location standards; salt dome formations, salt bed formations, underground mines and caves.	Placement of non-containerized or bulk liquid hazardous waste is not allowed.	Not applicable or relevant and appropriate. No salt dome formations, salt bed formations, underground mines or caves present at the SYW-12 Site.	No	No
Habitat of an endangered or threatened species	6 NYCRR 182	Promulgated state regulation that provides requirements to minimize damage to habitat of an endangered species.	Potentially applicable or relevant and appropriate. No rare, endangered or threatened wildlife species, rare plants or significant habitats were identified at the SYW-12 Site (Revised Baseline Ecological Risk Assessment, OBG 2011); however, the SYW-12 Site serves as a winter roost site and seasonal concentration area for bald eagles (currently listed as threatened pursuant to 6 NYCRR 182.5[b]6.iii). In accordance with 6 NYCRR 182.8, activities that are likely to result in a 'take' of listed species are generally prohibited, including any adverse modification of habitat or modification of essential behavior. The occupation of the SYW-12 Site by bald eagle is recognized by the US Fish and Wildlife Service and the NYSDEC. Measures to ensure the continued integrity of the roost site will be considered. One threatened plant within 2 miles of SYW-12 Site on north shore of Onondaga Lake not anticipated to be impacted by SYW-12 Site activities.	Yes	No
	Endangered Species Act	Provides a means for conserving various species of fish, wildlife, and plants that are threatened with extinction.		No	No
	50 CFR Part 17 - Endangered and Threatened Wildlife and Plants and 50 CFR Part 402 - Interagency Cooperation	Promulgated federal regulation that requires that federal agencies ensure authorized, funded, or executed actions will not destroy or have adverse modification of critical habitat.		No	No
	16 U.S.C. 668 et seq - Bald and Golden Eagle Protection Act	Promulgated federal regulation prohibiting take of bald eagles, unless otherwise permitted by USFWS. Take is further defined to include pursuit, hoot, shoot at, poison, wound, kill, capture, collect, molest, or disturb.	Potentially applicable or relevant and appropriate. The SYW-12 Site serves as a winter roost site and seasonal concentration area for bald eagles (currently State-listed as Threatened). Measures to ensure the continued integrity of the roost site will be considered.	Yes	No
	Migratory Bird Treaty Act of 1918	Promulgated federal regulation for protection of migratory birds.		Yes	No

TABLE 6. POTENTIALLY APPLICABLE OR RELEVANT AND APPROPRITE REQUIREMENTS (ARARS) AND TO BE CONSIDERED (TBC) MATERIALS

Medium Location / Action	Citation	Requirements	Comments	Potential ARAR	Potential TBC
	United States Fish and Wildlife National Bald Eagle Management Guidelines (2007)	Guidance that provides recommendations to minimize impacts to bald eagles, particularly related to human activities with the potential to disturb bald eagles and their ability to forage, nest and breed.		No	Yes
	Conservation Plan for Bald Eagles in New York State (March 2016)	Guidance that provides recommendations for long-term management and conservation of bald eagles in New York.		No	Yes
Historical property or district	National Historic Preservation Act 36 CFR 800- Preservation of Historic Properties Owned by a Federal Agency	Remedial actions are required to account for the effects of remedial activities on any historic properties included on or eligible for inclusion on the National Register of Historic Places.	Potentially applicable. A Phase 1A assessment identified the potential for historic resources at the SYW-12 Site.	Yes	No
	National Historic Preservation Act 36 CFR Part 65 - National Historic Landmarks Program	Promulgated federal regulation requiring that actions must be taken to preserve and recover historical/archeological artifacts found.		Yes	No
	New York State Historic Preservation Act of 1980 9 NYCRR Parts 426 - 428	State law and regulations requiring the protection of historic, architectural, archeological and cultural property.		Yes	No
Wilderness area	Wilderness Act 50 CFR Part 35 - Wilderness Preservation and Management	Provides for protection of federally-owned designated wilderness areas.	Not applicable or relevant and appropriate. SYW-12 Site not located in wilderness area.	No	No
Wild, scenic, or recreational river	Wild and Scenic Rivers Act	Provides for protection of areas specified as wild, scenic, or recreational.	Not applicable or relevant and appropriate. SYW-12 Site not located near wild, scenic or recreational river.	No	No
Coastal zone	Coastal Zone Management Act	Requires activities be conducted consistent with approved State management programs.	Not applicable or relevant and appropriate. SYW-12 Site not located in coastal zone.	No	No
Coastal barrier	Coastal Barrier Resources Act	Prohibits any new Federal expenditure within the Coastal Barrier Resource System.	Not applicable or relevant and appropriate. SYW-12 Site not located in coastal barrier.	No	No
Protection of waters	33 U.S.C. 1341 - Clean Water Act Section 401, State Water Quality Certification Program	States have the authority to veto or place conditions on federally permitted activities that may result in water pollution.	Potentially applicable to the SYW-12 Site.	Yes	Yes
Potential Action-Specific ARARs and TBCs					
Institutional controls	NYSDEC DER-33 Institutional Controls: A Guide to Drafting and Recording Institutional Controls, December 2010	Technical guidance document that provides guidelines for proper development and recording of institutional controls as part of a site remedial program.	Potentially applicable TBC when institutional controls are implemented as a component of the selected remedy.	No	Yes

TABLE 6. POTENTIALLY APPLICABLE OR RELEVANT AND APPROPRITE REQUIREMENTS (ARARS) AND TO BE CONSIDERED (TBC) MATERIALS

Medium Location / Action	Citation	Requirements	Comments	Potential ARAR	Potential TBC
Cover systems	NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, May 2010	Technical guidance document that provides guidelines for cover thicknesses as they relate to property use in areas where exposed surface soil exceeds NYCRR Part 375 SCOs. Specifically, where the exposed surface soil at the site exceeds the applicable soil cleanup objective for protection of human health and/or ecological resources, the soil cover for restricted residential use, is to be two feet; for commercial or industrial use, is to be one foot; or when an ecological resource has been identified is to be a minimum of two feet; and when such a concern is identified by NYSDEC, consideration should be given to supplementing the demarcation layer to serve as an impediment to burrowing.	Potentially applicable TBC for cover alternatives.	No	Yes
	RCRA Subtitle D, 40 CFR Part 358.60 – Closure Criteria	Regulations established under Subtitle D set federal closure requirements including installation of a final cover system that is designed to minimize infiltration and erosion, for owners and operators of municipal solid waste landfill units.	Not applicable or relevant and appropriate. The SYW-12 Site is not considered a Waste Management Area or municipal landfill for which closure criteria for final cover systems may be relevant.	No	No
Landfill	40 CFR Part 257 - Criteria for Classification of Solid Waste Disposal Facilities and Practices	Promulgated federal regulation that provides criteria for solid waste disposal facilities to protect health and the environment.	Landfilling of wastes may be applicable for the SYW-12 Site.	Yes	No
	40 CFR Parts 264 and 265, Subpart N – Landfills	Promulgated federal regulation that provides requirements for hazardous waste landfill units.		Yes	No
Principal threat and low level threat waste	A Guide to Principal Threat and Low Level Threat Wastes – Quick Reference Fact Sheet (OSWER Superfund Publication 9380.3-06FS, November 1991)	Guidance that outlines federal expectations, definitions, and documentation requirements related to waste considered principal or low level threat waste.	Potentially applicable TBC.	No	Yes
Generation and management of solid waste	6 NYCRR 360 - Solid Waste Management Facilities	Promulgated state regulation that provides requirements for management of solid wastes, including disposal and closure of disposal facilities.	Potentially applicable to alternatives including disposal of residuals generated by treatment processes as well as capping alternatives.	Yes	No
Land disposal	6 NYCRR 376 - Land Disposal Restrictions	Promulgated federal and state regulations that provide treatment standards to be met prior to land disposal of hazardous wastes.	Potentially applicable to residuals generated by treatment processes if found to be hazardous waste and disposed at a landfill. Applicable for off-site treatment and disposal if excavated soil/fill material does not meet land disposal restrictions.	Yes	No
	40 CFR Part 268 - Land Disposal Restrictions				
	62 CFR 25997 - Phase IV Supplemental Proposal on Land Disposal of Mineral Processing Wastes				

TABLE 6. POTENTIALLY APPLICABLE OR RELEVANT AND APPROPRITE REQUIREMENTS (ARARS) AND TO BE CONSIDERED (TBC) MATERIALS

Medium Location / Action	Citation	Requirements	Comments	Potential ARAR	Potential TBC
Potential Action-Specific ARARs and TBCs					
Green remediation	NYSDEC DER-31 Green Remediation Program Policy, January 2011	State and federal technical guidance documents that provide guidelines for the development of site remediation strategies in a manner that minimizes environmental impacts and applies green remediation concepts (e.*g.,* reduction in greenhouse gas emissions, energy consumption and resource use, promotion of recycling of materials and conservations of water, land and habitat).	Potentially applicable TBC.	No	Yes
	Superfund Green Remediation Strategy, September 2010				
General excavation	6 NYCRR 200-203, 211-212 - Prevention and Control of Air Contamination and Air Pollution	Provides requirements for air emission sources.	Portions potentially applicable to volatile emissions during excavation	Yes	No
	6 NYCRR 257 - Air Quality Standards	Promulgated state regulation that provides specific limits on generation of SO_2, particulates, CO_2, photochemical oxidants, hydrocarbons (non-methane), NO_2, fluorides, beryllium and H2S from point sources.	Not applicable or relevant and appropriate. Dust emissions would not be generated from a point source. Potential TBC during dust generating activities such as during earth moving, grading, and excavation.	No	Yes
	40 CFR Part 50.1 - 50.12 - National Ambient Air Quality Standards	Promulgated federal regulation that provides air quality standards for pollutants considered harmful to public health and the environment. The six principal pollutants are carbon monoxide, lead, nitrogen dioxide, particulates, ozone, and sulfur oxides.	Potentially applicable to alternatives during which dust generation may result, such as during earth moving, grading, and excavation.	Yes	No
	NYS TAGM 4031 - Dust Suppressing and Particle Monitoring at Inactive Hazardous Waste Disposal Sites	State guidance document that provides limitations on dust emissions.	To be considered material where more stringent than air-related ARARs.	No	Yes
Transportation	6 NYCRR 364 - Waste Transporter Permits	Promulgated state regulation requiring that hazardous waste transport must be conducted by a hauler permitted under 6 NYCRR 364.	Potentially applicable for off-site transport of hazardous waste.	Yes	No
	49 CFR 107, 171-174 and 177-179 - Department of Transportation Regulations	Promulgated federal regulation requiring that hazardous waste transport to off-site disposal facilities must be conducted in accordance with applicable Department of Transportation requirements.	Potentially applicable for off-site transport of hazardous waste to off-site treatment/disposal facilities.	Yes	No

Notes:

ARARs - Applicable or Relevant and Appropriate Requirements
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CFR - Code of Federal Regulations
DER - Division of Environmental Remediation
FEMA – Federal Emergency Management Agency
FS - Feasibility Study
NYCRR - New York Code of Rules and Regulations
NYS - New York State
NYSDEC - New York State Department of Environmental Conservation
NYSDOH - New York State Department of Health
OSWER - Office of Solid Waste and Emergency Response
RCRA – Resource Conservation and Recovery Act
SCOs - Soil Cleanup Objectives
TAGM - Technical and Administrative Guidance Memorandum (NYSDEC)
TBC - To be Considered
TOGS – Technical and Operational Guidance Series
USC - United States Code
USEPA or EPA - United States Environmental Protection Agency

SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX III

ADMINISTRATIVE RECORD INDEX

Administrative Record Index
SYW-12 Site

(New York State Inactive Hazardous Waste Disposal Site #7-34-075A)

RI/FS Activities	Documents
Pre-Remedial Investigation Information	Citizen Participation Plan for the Onondaga Lake National Priority List Site (January 1996) Summary of Onondaga Lake Wetland Subsurface Analytical Data (August 2000)
Remedial Investigation/Feasibility Study Work Plans	Wastebed B/Harbor Brook RI/FS Work Plan (September 2002) Wastebed B/Harbor Brook Site Supplemental RI Work Plan (September 2006) SYW-12 Sources of Contamination Investigation Work Plan (May 2012) SYW-12 Groundwater Sampling Work Plan (November 2018)
Remedial Investigation Reports	Wastebed B/Harbor Brook Human Health Risk Assessment (October 2009) Wastebed B/Harbor Brook Baseline Ecological Risk Assessment (August 2011) SYW-12 Sources of Investigation Report (March 2014) Wastebed B/Harbor Brook Revised Remedial Investigation Report (March 2015) Revised SYW-12 2019 Groundwater Investigation Report (December 2020)
Feasibility Study Report	SYW-12 Site Feasibility Study Report (September 2022) Naphthalene in Groundwater Memo (December 2022)

Proposed Plan Released Start of Public Comment Period	Proposed Plan and Listserv Notice (January 18, 2023) Notice of Public Meeting and Opportunity to Comment (January 19, 2023)
Public Meetings Held	Documentation and Transcript of January 31, 2023 Public Meeting (Attached to the Record of Decision as Appendix V-d) Written Comments on Proposed Plan (Attached to the Record of Decision as Appendix V-e)
Record of Decision Issued	SYW-12 Site Record of Decision and Responses to Comments (Responsiveness Summary) (March 2023)
Enforcement Documents	Wastebed B/Harbor Brook Consent Order (April 2000) Letter from Tracy Smith to John McAuliffe of Honeywell (November 2005) Letter from John McAuliffe of Honeywell to Tracy Smith (February 2014) Letter from Tracy Smith to John McAuliffe of Honeywell (February 2014)

SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX IV

NEW YORK STATE DEPARTMENT OF HEALTH LETTER OF CONCURRENCE

NEW YORK STATE | Department of Health

KATHY HOCHUL
Governor

JAMES V. McDONALD, M.D., M.P.H.
Acting Commissioner

MEGAN E. BALDWIN
Acting Executive Deputy Commissioner

January 13, 2023

Andrew Guglielmi, Director
Division of Environmental Remediation
NYS Department of Environmental Conservation
625 Broadway
Albany, New York 12233

Re: **Proposed Plan**
SYW-12
Site #734075A
Syracuse, Onondaga County

Dear Andrew Guglielmi,

We reviewed the New York State Department of Environmental Conservation and United States Environmental Protection Agency's January 2023 *Proposed Plan* for the referenced site to determine whether the proposed remedy is protective of public health. Based on that review, I understand that on-site soil and groundwater are contaminated with volatile organic compounds (groundwater, only), semivolatile organic compounds, metals, pesticides, and polychlorinated biphenyls above applicable standards, criteria, and guidance. Human exposures to contamination at this site will be addressed by the proposed remedy as outlined below.

- Soil: Contaminated surface soil/fill material that exceed 6 NYCRR Part 375 Commercial Soil Cleanup Objectives from approximately 8.2 acres of the site will be excavated, removed, and/or managed followed by the installation of a two-foot-thick cover system for ecological purposes which will also allow for commercial (including passive recreational) use in accordance with 6 NYCRR Part 375. A site management plan will be put in place and future excavations at the site will conducted in accordance with an approved excavation plan to properly manage human exposures to remaining contaminated soil. A surface soil pre-design investigation and tree survey will be performed on additional areas of the site, totaling 2.2 acres, to determine whether additional soil excavation and backfilling is needed.

- Groundwater: Use of groundwater at the site, without appropriate water quality treatment, will be restricted by an environmental easement placed on the site.

- Soil Vapor: A soil vapor intrusion evaluation will be completed, and appropriate actions implemented, for any buildings developed on the site.

Periodic reviews will be completed to certify that these elements of the remedy are being implemented and remain effective. Based on this information, I believe this remedy is protective of public health and concur with the *Proposed Plan*. If you have any questions, please contact Scarlett Messier-McLaughlin at (518) 402-7874.

Sincerely,

Christine Vooris

Christine N. Vooris, P.E., Director
Bureau of Environmental Exposure Investigation

ec: E. Lewis-Michl / K. Malone / S. McLaughlin / M. Sergott / e-File
J. Strepelis - NYSDOH CRO
L. Letteney - OCHD
D. Harrington / J. Pelton / T. Smith - NYSDEC Central Office
G. Priscott - NYSDEC Region 7

SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY
FOR THE
RECORD OF DECISION
SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
CITY OF SYRACUSE, ONONDAGA COUNTY, NEW YORK

INTRODUCTION

This Responsiveness Summary provides a summary of the public's comments and concerns received during the public comment period related to the Proposed Plan for the SYW-12 Site (Site), an Operable Unit of the Wastebed B/Harbor Brook Subsite of the Onondaga Lake Superfund site, and provides the New York State Department of Environmental Conservation (NYSDEC) and U.S. Environmental Protection Agency's (EPA's) responses to those comments and concerns. All comments summarized in this document have been considered in NYSDEC and EPA's final decision in the selection of a remedy to address the contamination at the Site.

SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

Honeywell International, Inc., (Honeywell), under NYSDEC's oversight, conducted field investigations at the Site from 2006 through 2020, which culminated in the completion of a remedial investigation (RI)[1] report in March 2015 and a feasibility study (FS)[2] report in September 2022. NYSDEC and EPA's preferred remedy for the Site and the basis for that preference were identified in a Proposed Plan.[3] The Proposed Plan was released to the public for comment on January 19, 2023. These documents were made available to the public on NYSDEC's website at https://www.dec.ny.gov/data/DecDocs/734075A/http://www.dec.ny.gov/chemical/37558.html and at information repositories maintained at the Atlantic States Legal Foundation, 658 West Onondaga Street, Syracuse, New York; NYSDEC, Division of Environmental Remediation, 625 Broadway, Albany, New York; and NYSDEC Region 7, 615 Erie Boulevard West, Syracuse, New York. A NYSDEC listserv bulletin notifying the public of the availability of the above-referenced documents, the comment period commencement and completion dates, and the date and location of the planned public meeting was issued on January 18, 2023. A notice providing the same information was published in *The Syracuse Post-Standard* on January 19, 2023. The public comment period ended on February 18, 2023.

[1] The RI determines the nature and extent of the contamination at a site and evaluates the associated human health and ecological risks.
[2] An FS identifies and evaluates remedial alternatives to address the contamination.
[3] A Proposed Plan describes the remedial alternatives considered for a site and identifies the preferred remedy with the rationale for this preference.

On January 31, 2023, NYSDEC conducted a public meeting at the Salina Town Hall to inform local officials and interested citizens about the Superfund process, present the Proposed Plan for the Site, including the preferred remedy, and respond to questions and comments from the public. Approximately twelve people, including residents and local government employees, attended the public meeting.

SUMMARY OF COMMENTS AND RESPONSES

Comments were received at the public meeting and in writing. Written comments were received from:

- Diana Green at the public meeting
- Donna Muhs-McCarten, via a February 3, 2023 email
- Jessica Gorman, via a February 9, 2023 email
- Erica Roach, via a February 9, 2023 email
- Sue Eiholzer, via a February 9, 2023 email
- Tiffany Fotopoulos, via a February 9, 2023 email
- Paul Tobin, via a February 10, 2023 email
- Julie Gozan, via a February 10, 2023 email
- Jacob Eichten, via a February 10, 2023 email
- Arleen Lane, via a February 10, 2023 email
- Anthony Kratz, via a February 10, 2023 email
- Sarah Nahar, via a February 12, 2023 email
- Mary Anderson, via a February 14, 2023 email
- Julie Finch, via a February 15, 2023 email
- Onondaga County, via a February 15, 2023 letter from Jesse McMahon
- Bernadette Andaloro, via a February 16, 2023 email
- Maria Boemi, via a February 16, 2023 email
- City of Syracuse, Department of Engineering, via a February 17, 2023 letter from Mary Robinson
- Sharon Osika-Michales, via a February 17, 2023 email
- Andrew Bowes, via a February 17, 2023 email
- Sara Bollinger, via a February 17, 2023 email
- Maryanne Adams, via a February 18, 2023 email
- Hancock Estabrook, LLP, representing Buckeye Partners, L.P., via a February 17, 2023 letter from Wendy Marsh
- Alma Lowry, Of Counsel, Law Office of Joseph J. Heath (submitted on behalf of the Onondaga Nation), via a February 18, 2023 letter

The transcript from the public meeting can be found in Appendix V-d.

The written comments submitted during the public comment period can be found in Appendix V-e.

A summary of the comments provided at the public meeting and comments that were received from the public and the Onondaga Nation during the public comment period, as well as NYSDEC and EPA's responses to them, are provided below.

As detailed below, the comments that were received have been organized by category.

Care of Onondaga Nation Lands, Waters, and People

Comment #1: Several commenters opined that the preferred remedy affects the Onondaga Nation's ability to care for its lands, waters, and people.

Response #1: NYSDEC and EPA recognize and respect the Onondaga Nation's cultural and historic ties to Onondaga Lake and the sacred nature of the Lake to the Nation's people and its traditions. While the Onondaga Nation expressed some concerns about the selected remedy, the remedy, which is protective of human health and the environment, preserves the mature forested area utilized as a winter foraging and roosting area for bald eagles. The protectiveness of the implemented remedy will be periodically evaluated.

Additional Consultation with the Onondaga Nation

Comment #2: A commenter opined that additional consultation with the Onondaga Nation should be performed.

Response #2: NYSDEC and EPA consults with the Onondaga Nation on a regular basis and provide documents to the Nation for its review as part of an agreement for the Onondaga Lake National Priority List (NPL) Site and its subsites,[4] and under the EPA and NYSDEC Tribal Consultation Policies. Through consultation with NYSDEC and EPA, the Onondaga Nation had the opportunity to review and provide input on the documents related to the SYW-12 Site, including the RI/FS and a draft Proposed Plan. The Onondaga Nation's comments on the draft Proposed Plan and responses to those comments are included as an attachment to this Responsiveness Summary (see Appendix V-f). Additional comments that were received from the Onondaga Nation during the public comment period were considered and are addressed in this Responsiveness Summary.

[4] NYSDEC and EPA have organized the work for the Onondaga Lake NPL site into discrete units referred to as "subsites." A subsite is a previous or current source of contamination to Onondaga Lake.

Potential Health Risks

Comment #3: Several commenters stated that the preferred remedy is a partial remedy, is not fully protective of public or environmental health, the data indicates that concentrations of polycyclic aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), and metals (including mercury) are random, and there are exceedances of soil standards for "passive use" (*i.e.,* trail use) and ecological receptors (*e.g.,* birds, insects, and other animals) with risks to insectivorous birds and small mammals at unacceptable levels.

Response #3: Because of the special considerations being given to the mature forested area that provides bald eagle habitat, surface soil in areas where cover material will not be placed may exceed Commercial Use and the Protection of Ecological Resources Soil Cleanup Objectives (SCOs). Also, while the concentrations of contaminants vary, the available data indicates that many of the higher contaminant concentrations are present in the non-forested areas where cover will be placed under the selected remedy (see ROD Appendix I, Figures 5 through 10).

The selected remedy will avoid significant habitat alteration and bald eagle disturbances. While areas exhibiting soil concentrations greater than the Protection of Ecological Use SCOs may remain under the selected remedy, they are expected to be protective of community impacts to ecological receptors throughout the Site based on surface soil Area-Weighted Average Concentration (AWAC) calculations. AWACs are considered appropriate at evaluating potential contact with contamination throughout the site since the small mammals and insectivorous birds present are transient within their home range (*e.g.,* they do not spend all of their time foraging in one single location throughout their lifespan). Nevertheless, additional soil sampling and biota monitoring (*e.g.*, small mammals, earthworms) will be performed to evaluate remediation of additional areas (See Response to Comment #12), remedy effectiveness and assess protectiveness of ecological receptors.

The Human Health Risk Assessment (HHRA) concluded that lifetime excess cancer risk and noncancer hazards for current and/or future utility workers, passive recreational users, railroad workers, commercial/industrial workers and adult residents were below the regulatory risk thresholds. Elevated hazard associated with contaminants in soil was identified for future child residents exposed to PCBs in surface soil. However, the anticipated future land use of the Site does not include residential use (e.g., people living on the Site). Nevertheless, potential exposure to residual contamination will be addressed through soil cover and engineering controls (*e.g.*, fencing/railing) and institutional controls (ICs) (*e.g.*, signage, environmental easements). The potential need for additional measures will be reviewed following sampling during the design phase and based on management (*e.g.,* inspections) of the trail.

Comment #4: A commenter expressed concerns about the general methodology for calculating AWACs because it generally assumes that contaminant levels in unsampled locations are likely to be similar to nearby samples than more distant samples. Given the random distribution of site contaminants, this assumption does not seem reasonable.

Response #4: While Site contaminants are randomly distributed across the SYW-12 site, there is a pattern where higher concentrations are present (see Figures 1-6 in Appendix 3 and Figures 1-6 in Appendix 8 of the FS report). This data was used to evaluate remedial alternatives and select a remedy. The AWACs are used as a general basis of comparison to demonstrate, as would be expected, that remediation efforts will lower the average concentrations across the entire site. The AWACs are not meant to finely understand the distribution and concentrations of site contaminants, but to generally show that the remedy will improve the conditions across the entirety of the Site.

The HHRA determined that there are no unacceptable risks to trail users prior to remediation being performed. Although there may be SCO exceedances at specific sample locations, risks to trail users who will be exposed to various levels of contamination across a wider area that is represented by the AWACs are minimized by the trail cover (a minimum thickness of one foot of crushed stone or a wooden boardwalk), signage and dense vegetation present along the trail that is expected to deter the public from leaving the trail. In addition, the soil at the Site is directly overlain by a detritus layer consisting of leaf, wood, and other vegetative/organic matter. Furthermore, pre-design sampling that will be performed will help determine if additional controls (*e.g.*, fencing) may be needed. Pre-design soil sampling, which may result in additional remediation, will also be performed to update and refine the AWAC analysis and reduce uncertainties inherent in the spatial analysis techniques used in the FS by evaluating a higher density of sampling locations. The remedy also includes biota sampling to better evaluate impacts that may be present across the entire site and between the remediated and un-remediated areas.

Comment #5: Several commenters opined that NYSDEC should recalculate and publicize the risks to the public remaining in the un-remediated areas because much of the area that will not be covered is adjacent to the trail or between the trail and Onondaga Lake, where site visitors may be most likely to stray from the trail. In addition, the commenters opined that although the calculated risks for child recreators are below EPA's "acceptable risk" level of one additional cancer per 10,000 people, site users might not want to expose children to this risk. In addition, the commenters opined that potential visitors to the trail need to know the actual risks created by the Site, not simply whether NYSDEC and EPA considers those risks acceptable, so that they can make an informed decision about potential exposures of themselves and their children. Another commenter opined that the number of locations within the un-remediated areas where contaminant levels exceed established standards should be acknowledged.

Response #5: Although the risk calculated in the HHRA is closer to the upper end than the lower end of the acceptable risk range, they are based on reasonable maximum exposure scenarios and represent the highest level of exposure that could reasonably be expected to occur. To support this estimate of the reasonable maximum exposure, the exposure assumptions that are used to estimate the cancer risk typically represent the 95th percentile of the population. For example, EPA evaluates contact to residential children assuming the ingestion of 200 milligrams of soil 350 days per year for 6 years (ages 0-6). The calculated risks are, therefore, conservative (*i.e.*, health-protective) representations of potential human health risks. Children visiting and using the trail recreationally are highly unlikely to contact site-related chemicals at this elevated frequency since the Site will not be used for residential purposes. Passive recreational exposures for the Site in an un-remediated state were also evaluated, which did not indicate health concerns. With the construction of a trail that consists of one foot of crushed stone or a wooden boardwalk, potential risks have been further reduced.

Given that risks below thresholds were indicated in the HHRA and that the remedial measures, including the ICs, are likely to further reduce contact to contaminated soils located near the trails, occasional recreational exposure to soils off the trail is not likely to result in an elevated risk or hazard. Additionally, please refer to Response to Comment #7 below regarding trail users potentially straying from the trail.

Comment #6: A commenter opined that the NYSDEC failed to acknowledge that utility and construction workers or potential future child residents will be subject to unacceptable noncancer risks pre-remediation. In addition, the commenter opined that the noncancer risk to utility and construction workers is twice the acceptable level and the risk to child residents is eight times the acceptable level. Given that more than half of the contaminated soils will not be covered, it may continue to pose unacceptable human health risks after the remediation has been completed.

Response #6: Exceeding the noncancer hazard index (HI) threshold of 1 does indicate that an adverse health effect could be observed for the exposure scenario evaluated; however, the value associated with the HI does not necessarily equate to the severity of health effects. Rather, increases in the HI may be interpreted as having a greater potential to cause the adverse effect associated with the chemical being characterized. For example, an HI of 10 indicates there is a greater potential for adverse effects than an HI of 2, but it does not necessarily mean that the severity of those effects is five times higher. Therefore, it is important to note that an HI of 2 is not significantly greater than the acceptable level.

The HHRA concluded that noncancer hazards associated with soil for current and/or future utility workers, construction workers, railroad workers, and commercial/industrial workers were below the regulatory risk thresholds. Elevated hazard was identified for construction workers through exposure to chromium and benzo(a)pyrene in groundwater while performing subsurface work. However, the unacceptable hazard posed by each of

these chemicals to construction workers was based on the results obtained during the RI; sampling subsequent to the RI indicates the absence of chromium and benzo(a)pyrene in groundwater underlying the site. Thus, this exposure pathway no longer presents a health concern. Nonetheless, the selected remedy will be protective of future utility and construction workers. The selected remedy requires the development of a Site Management Plan (SMP) to limit exposure to remaining contaminants, even though they were not associated with risk or hazard in the HHRA, during future construction work at the Site.

The HHRA determined that there are no unacceptable risks to trail users prior to remediation being performed. While unacceptable risks were also identified for the future child resident, future residential use of the Site is not planned and will not be permitted as part of the selected remedy by the ICs that will be employed. ICs are commonly employed at Superfund sites to limit the use of sites. At the Site, ICs will be used to limit use of the Site to non-residential activities. Additionally, should a landowner of this property seek to change the use of the site in the future to residential use, additional remediation would be required.

Comment #7: Several commenters stated that the preferred remedy allows for public misperception of the level of cleanup that has occurred and the associated risks.

Response #7: As stated in Response #3, because of the special considerations being given to the mature forested area that provides bald eagle habitat, surface soil in non-remediated areas may exceed Commercial Use and the Protection of Ecological Resources SCOs where cover material will not be placed. Based on the current conditions, with no remediation performed, human health risks for anticipated future uses are acceptable, according to the HHRA. However, the potential need for additional measures (*e.g.*, fencing/railing, maintaining dense vegetation along the trail, improved signage, and/or sampling) will be reviewed and implemented, if appropriate, following sampling during the design phase and based on the management (*e.g.,* inspections) of the trail.

Safety of Remediation Workers

Comment #8: A commenter inquired about remediation worker safety and whether the remediation contractor's work plans could be accessed. The commenter also inquired as to who should be notified if remediation workers do not follow safety guidelines.

Response #8: Health and safety plans will be prepared for construction that is performed on the Site and during future construction activities. It will be the contractor's responsibility to develop and follow these plans. Site-related documents will be available online through the DECinfo Locator at https://www.dec.ny.gov/data/DecDocs/734075A/ and at the document repositories identified on page V-1 of the Responsiveness Summary. If there are concerns about worker safety, please contact the NYSDEC project manager or the

New York State Department of Health (NYSDOH) contact (see https://www.dec.ny.gov/data/der/factsheet/734075acuprop.pdf for contact information). Additional questions or concerns regarding the remedial activities at the Site or the Onondaga Lake NPL Site should be directed to the NYSDEC Region 7 (Syracuse) Citizen's Participation Specialist at (315) 246-7403 or the NYSDEC project manager.

Remedy Implementation and Post-Remediation Site Management

Comment #9: A commenter asked who will be responsible for implementing the remedy selected in the ROD. Another commenter opined that it is inappropriate to transfer the management of this heavily contaminated land to Onondaga County.

Response #9: Following the ROD, NYSDEC will negotiate with the potentially responsible parties (PRPs) to perform the design and construction of the remedy, as well as the long-term management of the implemented remedy. As the current property owner, the County will be responsible for following the requirements in the SMP.

Five-Year Reviews

Comment #10: A commenter opined that the preferred remedy should include frequent monitoring, but it is stated that monitoring will be performed only once every five years.

Response #10: The details of the monitoring at the Site will be provided in the SMP that will be approved by NYSDEC and will include more frequent monitoring, inspections, and maintenance of the cover (*e.g.,* topsoil repair and reseeding). The commenter may be confusing monitoring with five-year reviews. Because, under the selected remedy, contaminated soils will remain on-Site above levels that will allow for unrestricted use and unlimited exposure, CERCLA requires that the remedy be reviewed at least once every five years (*i.e.,* five-year reviews). The purpose of five-year reviews is to evaluate the implementation and performance of a remedy to determine if the remedy continues to perform as intended and is and will continue to be protective of human health and the environment. The five-year reviews will utilize the results of the monitoring that is performed during the preceding five years.

Consideration of Additional Alternatives

Comment #11: Several commenters opined that NYSDEC should consider additional remedial alternatives, such as staged remediation and replanting of the forested areas, to avoid disrupting the roosting eagles or remediation, which relies on scattered or less intrusive methods.

Response #11: Other remedial alternatives were considered in the FS. The selected remedy was chosen because of the special considerations being given to the mature forested area that provides bald eagle habitat. Staged remediation with replanting of

forested areas would take a significant timeframe to allow for mature trees to grow and would delay restoration and availability of bald eagle roosting habitat for several decades. As part of long-term site management, if there is an opportunity for cover placement in the currently forested areas, its addition will be evaluated in the future (*e.g.*, should a storm result in the loss of a large area of mature trees).

Targeted Soil Removal

Comment #12: A commenter opined that there was no consideration of targeted soil removal in areas with particularly high contamination levels within the forested areas and remediation was limited to areas beyond the drip line or root line of mature trees.

Response #12: The drip zone of the large trees covers the forested area, which limits where remediation can be performed without potentially damaging trees. Soil removal or cover placement within the forested areas could result in damage to trees by damaging or covering the roots, respectively. It could also result in the disturbance and/or loss of wetland area because many of the forest areas are delineated as wetland. Should pre-design surface soil sampling indicate that elevated contaminant concentrations are present in surface soil/fill material and large trees will not be disturbed (*e.g.*, within the drip-zone of the large trees), remediation of these areas will be considered during the design.

Assessment of the Needs of the Roosting Eagles

Comment #13: A commenter opined that NYSDEC has not required Honeywell to analyze or justify the specific forest sections or trees that are necessary to the eagles, simply assuming that the entire forested area must be maintained in its current state. The commenter further opined that NYSDEC should mandate that Honeywell conduct a more complete assessment of the needs of the roosting eagles and options for remediation measures that will meet those needs and not result in significant tree loss. Without this information, the commenter suggests that NYSDEC should not move forward with the selected remedy.

Response #13: The United States Fish and Wildlife Service, which was consulted during the remedial program for the Site, indicated that because of the importance of the trees at the Site as roosts for wintering bald eagles, tree clearing associated with remediation should be minimized to the extent possible. The Service also recommended that remediation should only be considered if tree removal can be avoided or restricted to smaller trees that are unlikely to be used by the eagles. These recommendations were considered during the evaluation of the alternatives.

Contaminated Soil Excavation

Comment #14: A commenter opined that the preferred remedy would relegate the Site and its natural resources to a permanent contaminated state and that natural resources on and around the Site will be prevented from returning to a functioning, healthy, sustainable ecosystem. For these reasons, opined the commenter, to ensure long-term environmental and public health protection, all or most of the contaminated soils should be removed.

Response #14: In addition to the potential to significantly impact the bald eagle habitat at the Site, the removal of approximately 400,000 cubic yards of contaminated material would have significant feasibility limitations associated with excavation (*e.g.*, stability, water management), transportation (*e.g.*, air quality, traffic), and disposal (*e.g.*, landfill capacity). NYSDEC and EPA believe that the selected remedy provides the best balance of tradeoffs among the remedial alternatives with respect to the evaluation criteria. The NYSDEC Division of Fish and Wildlife has been involved with the entire remedial program and will be involved with the remedial design to ensure that, as part of site restoration, this site continues to perform as a functioning wetland.

Invasive Species Eradication

Comment #15: A commenter encouraged the State to make more funding available for invasive species eradication, specifically, common reed (*Phragmites australis)*, which are present at the Site, and for Japanese knotweed (*Fallopia japonica*), which are present in Onondaga Creek.

Response #15: In areas on the Site where cover is placed and restoration is performed, native plant species will be planted/seeded and invasive species will be managed. For additional information regarding invasive species visit https://www.dec.ny.gov/animals/265.html#Terrestrial.

Signage

Comment #16: Several commenters stated that the current Onondaga County signs stating “Stay on the Trail: Environmentally Sensitive Area” are not effective and that clear and complete information about the health risks posed by this site to potential users must be available.

Response #16: The potential need for additional measures (*e.g.*, fencing/railing, maintaining dense vegetation along the trail, improved signage, and/or sampling) will be reviewed during the design phase and based on management (*e.g.,* inspections) of the trail. The NYSDEC would support revised and/or additional information being included on signs and/or in an informational kiosk. Additional signage will need to be coordinated with the property owner (*i.e.*, Onondaga County) and the NYSDEC will initiate these

discussions during the design based on concerns raised during the SYW-12 public comment period.

Comment #17: A commenter requested that at a minimum, informative signs that provide accurate information on the reasons that visitors should remain on the trail (*e.g.*, "Stay on the Trail/Contaminated Soils Present") or the NYSDEC could require the County to create an information kiosk at the trailhead with more detail about the contaminants on-site and the geographic scope of the remediation. With this more detailed information, the public can make an informed choice about the exposure risks and better protect themselves and their families.

Response #17: See Response to Comment #16. Also, please recognize that there are no exposure concerns for recreators that stay on the trail; additionally, as noted in Response to Comment #5, occasional recreational exposure to soils off the trail is not likely to result in an elevated risk or hazard.

Comment #18: Several commenters stated that people have been walking off the trail since it was constructed last year.

Response #18: As the trail was only opened for a limited time before it was closed for the winter due to the bald eagle roosting requirements and it is currently closed for the winter eagle roosting season, the off-trail usage is not known. Site management for the trail will be performed by Onondaga County and will include inspections for evidence of off-trail use. If evidence of off-trail use is observed, then additional signage and/or restrictions may be necessary. As detailed in Response to Comment #16, additional signage will need to be coordinated with the property owner (*i.e.*, Onondaga County).

Comment #19: A commenter recommended placing signs stating that the land belongs to the Onondaga Nation or acknowledging their contribution to the area.

Response #19: There is currently a sign that acknowledges the Haudenosaunee contributions and the relationship and cultural significance of Onondaga Lake to the Onondaga Nation, located on the Onondaga Creekwalk near the mouth of Onondaga Lake and the entrance to the trail on the Site.

Emerging Contaminants

Comment #20: Several commenters noted that the Site includes emerging contaminants, such as phenyl xylyl ethane (PXE) and phenyl toluyl ethane (PTE), and that because there are no NYSDEC or EPA standards for these emerging chemicals, they will not be monitored. Another commenter recommended consulting research published on PXE and PTE.

Response #20: While PXE/PTE were detected, there is very little scientific literature that has been published regarding their toxicity. EPA's Integrated Risk Information System

(IRIS) is the first tier of EPA's recommended hierarchy of sources of human health toxicity values used in HHRAs under the EPA Superfund program. Provisional Peer Reviewed Toxicity Values (PPRTVs) are the second tier of human health toxicity values. There is currently no information on PXE or PTE in IRIS, nor are there any PPRTVs for these chemicals. In January 2018, EPA Region 2 submitted a request to EPA's Office of Research and Development (ORD) to nominate PXE and PTE for development of PPRTVs by ORD's National Center for Environmental Assessment (NCEA) (now referred to as Center for Public Health and Environmental Assessment [CPHEA]). To date, PPRTVs for the compounds have not been developed. CPHEA is evaluating whether these chemicals are similar to other chemicals, and if so, if any comparisons can be made about the potential toxicity of either PXE or PTE. Due to a combination of contractual issues and the limited information on the target chemicals, it is not known at this time when or if the screening values for PXE and PTE will be developed. ORD continues to work on this issue.

Also, NYSDOH recently reviewed available toxicity information, performed a thorough search of the peer reviewed toxicological literature, and looked for any recent research from other sources for PXE and PTE. Based on its review, NYSDOH concluded that there are limited toxicity data for PXE and none for PTE. Consequently, there are no established toxicity values. As such, NYSDOH was not able to recommend a health-based soil guideline for either of these chemicals.

As with any emerging contaminants, if screening values are developed and additional investigation/action are warranted, this will be considered in the future and evaluated in the regular five-year reviews planned for this Site.

Construction Access and Coordination

Comment #21: A representative of Onondaga County inquired about construction access to the Site during remediation. Specifically, while Honeywell has crossed the CSX railroad tracks for investigations in the past, Honeywell has not signed an order to perform the remediation at this time and is not believed to have previously moved large/heavy equipment, vehicles, workers, etc. repeatedly across the railroad tracks. The County indicated that it believes that it is CSX's standard policy not to permit track crossings involving heavy equipment, especially with respect to reoccurring crossings. Given potential access issues and the landlocked nature of the Site, the County inquired as to how access to the Site will be obtained if CSX does not allow construction access across the railroad tracks for remediation. Also, the County inquired as to whether an increased cost contingency has been considered for the preferred remedy in the event that access across the CSX tracks is not granted.

Response #21: The NYSDEC will be working with PRPs to negotiate an order for performance of the remediation following the issuance of the ROD. NYSDEC anticipates that the performing PRPs will coordinate access to the Site with CSX and/or the County,

with NYSDEC and EPA providing assistance, if necessary. If access is ultimately not granted, alternative options to access the Site, including possible access orders and the cost impacts, will be evaluated.

Minimizing Trail Closures

Comment #22: The County inquired as to how trail closures will be prevented or minimized and how remediation in areas located under and adjacent to the existing trail (*e.g.*, in the wetland boardwalk area) will be performed.

Response #22: The County was notified in a March 20, 2018 letter from NYSDEC in response to the County's Change of Use for the trail that if the trail is constructed on the Site prior to selection of a remedy, then impacts to the trail (*e.g.*, trail relocation/removal, shutdowns of the trail) may be necessary to accommodate the implementation of the remedy. During the design, accessibility and sampling data will also determine if additional restrictions (*e.g.*, fencing) and/or cover placement are necessary in areas under and/or adjacent to the trail. In addition, similar to construction on other Onondaga Lake subsites (*e.g.*, Wastebeds 1-8, Wastebed B/Harbor Brook), coordination with the County for trail closures will occur, as necessary.

Comment #23: The County expressed an interest in the proposed timing of the remediation and suggested that there would be benefits from coordinating the remediation and access, trail closures, wetland mitigation, reuse of materials, etc. The County also mentioned potential issues regarding limitations (*e.g.*, space for equipment, staging of materials) if remediation and trail extension work overlapped.

Response #23: Coordination that may benefit both the remedy construction and County plans in accordance with the schedule will be evaluated during the design. This will include coordination regarding space for staging materials and equipment, as needed. Further evaluation and/or coordination with the railroad companies would be needed during design. It should be noted that throughout the entire process of investigating and cleanup of the Onondaga Lake subsites, NYSDEC and Onondaga County have maintained routine communications.

Reuse of Excavated Material

Comment #24: The County asked under what conditions will reuse of excavated material not be permitted.

Response #24: The ROD clarifies that reuse of material would need to be in accordance with NYSDEC DER-10 (Table 5.4(e)4). In addition, reuse of contaminated material will not be permitted in the delineated wetlands and the 100-foot wetland buffer areas and there may be limitations in stockpiling materials within floodplains and near the railroad tracks (*e.g.*, due to stability).

Floodplain Concerns

Comment #25: The City of Syracuse expressed concern that the preferred remedy will place fill within Federal Emergency Management Administration-delineated Special Flood Hazard Area (SFHA) flood zones and that to maintain flood storage, filling of materials must be offset by the same volume of excavation. The City asked that the amount of fill be calculated and the preferred remedy be either modified to remove an equal amount of soil, Alternative 3 be selected, or balance the site fill with an equal excavation outside the SYW-12 Site, but within the Onondaga Lake SFHA.

Response #25: Floodplain impacts will be considered during the design of the remedy. Coordination with the City and County will be performed, as appropriate.

Unaccounted for Contamination Sources

Comment #26: A commenter provided several aerial photographs that allegedly show Solvay waste on and in the vicinity of the Site and opined that Solvay waste, as well as spoils from in-lake dredging, may have been placed on SYW-12, and it is not clear whether these materials were considered as contaminant sources in developing the selected remedy. Noting discrepancies between possible Solvay waste contamination sources listed in the RI and FS reports and the Proposed Plan and excerpts, figures, and aerial photos from the draft *SYW-12 Source Attribution Report*, dated July 2016 ("Attribution Report"), prepared on behalf of Honeywell, a commenter expressed concern that all sources of waste and contamination pathways have not been accounted for, thereby undermining the selected remedy. The commenter stated that the Proposed Plan, FS report, and the Attribution Report improperly focus on PAH contamination and their potential sources and pathways to SYW-12, which is contrary to the ecological risk assessment and the determination that PCBs are an unacceptable future human health risk at the Site.

Response #26: The Attribution Report was not approved by NYSDEC and is not part of the administrative record (see Appendix III), on which the ROD is based. Because of the quality of the aerial photographs that were provided, it cannot be confirmed that Solvay waste is present on and in the vicinity of the Site. In addition, out of approximately 60 test pits and borings, only a thin layer of Solvay waste was observed in only one boring at the Site.

The ROD acknowledges that potential sources of contamination at the Site include dredge spoils from Onondaga Creek, historic dredge material from the southern portion of Onondaga Lake, and possibly the former Marley property, Oil City properties, former Hiawatha Boulevard Manufactured Gas Plant (MGP) subsite, former Erie Boulevard MGP site, and Ley Creek. The historic dredge material from the southern portion of Onondaga Lake likely contained material that was contaminated as a result of Honeywell discharges and/or sources. The ROD states that the primary contaminants at the Site include

benzo(a)pyrene and other assorted PAHs, PCBs, and metals. SCOs are exceeded for several PAHs, such as benzo(a)pyrene.

Loop-the-Lake Trail Construction

Comment #27: A commenter opined that the trail is not necessary around the whole of Onondaga Lake.

Response #27: Onondaga County is constructing the Loop-the-Lake trail and should be contacted (https://onondagacountyparks.com/contact/) with any questions or concerns. Trail construction is not related to the remediation of the SYW-12 Site.

Climate Change

Comment #28: A commenter inquired whether the level of Onondaga Lake is increasing due to climate change.

Response #28: While water levels in Onondaga Lake fluctuate as a result of weather conditions, the level is controlled by the New York State Canal Corporation. Therefore, increasing water levels are not anticipated to be a concern. Nevertheless, resiliency to climate change will be considered in the design of the selected remedy.

Debris Concern

Comment #29: A commenter expressed concern about the debris (*e.g.,* trash) that has accumulated along the shoreline.

Response #29: While the presence of the debris is of concern, the selected remedy addresses the contaminated materials related to the historic use of the Site. Onondaga County is aware of the accumulated trash in the shoreline areas and performs periodic cleanups.

SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-a

JANUARY 2023 PROPOSED PLAN

SYW-12 Site

Operable Unit of the Wastebed B/Harbor Brook Subsite of the Onondaga Lake Superfund Site

Syracuse, Onondaga County, New York

NEW YORK STATE | Department of Environmental Conservation

January 2023

EPA Region 2

PURPOSE OF THIS DOCUMENT

This Proposed Plan describes the remedial alternatives considered for contaminated soil/fill material and groundwater at a portion of Wetland SYW-12, referred to herein as the SYW-12 Site or the Site, which is an Operable Unit (OU) of the Wastebed B/Harbor Brook (WBB/HB) subsite of the larger Onondaga Lake Superfund site, and identifies the preferred remedial alternative with the rationale for this preference. For a map of the Site and a map of WBB/HB and the surrounding area, please see the attached figures.

This Proposed Plan was developed by the New York State Department of Environmental Conservation (NYSDEC) and the U.S. Environmental Protection Agency (EPA) in consultation with the New York State Department of Health (NYSDOH). NYSDEC and EPA are issuing this Proposed Plan as part of their public participation responsibilities under Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and Sections 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), as well as the New York State Environmental Conservation Law (ECL) and Title 6 of the New York Code of Rules and Regulations (NYCRR) Part 375. The nature and extent of the contamination at the Site is described in the *Wastebed B/Harbor Brook (WBB/HB) Revised Remedial Investigation Report* (RI), *the SYW-12 Sources of Contamination Investigation Report,* and *Revised SYW-12 Groundwater Investigation Report.* The remedial alternatives summarized in this Proposed Plan are described in the *SYW-12 Site Feasibility Study Report* (FS Report). These documents are contained in the Administrative Record file for this Site. NYSDEC and EPA encourage the public to review these documents to gain a more comprehensive understanding of the Site and the investigation activities that have been conducted at the Site.

This Proposed Plan is being provided as a supplement to the reports listed above to inform the public of NYSDEC's and EPA's preferred remedy and to solicit public comments related to the remedial alternatives evaluated, including the preferred alternative.

NYSDEC and EPA's preferred alternative includes the installation of a two-foot-thick soil cover in select areas of the Site, as well as biota monitoring to evaluate the protectiveness of ecological resources and remedy effectiveness. Monitored natural attenuation (MNA)[1] for Site contaminants in groundwater, development of a Site Management Plan (SMP), implementation of institutional controls (ICs), and long-term maintenance and monitoring are also components of the proposed remedy.

The remedy described in this Proposed Plan is the preferred remedy for the Site as proposed by NYSDEC and EPA. Changes to the preferred remedy, or a change from the preferred remedy to another remedy, may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the remedy will be made after NYSDEC and EPA have taken into consideration all public comments on the Proposed Plan.

MARK YOUR CALENDAR

January 19, 2023 - February 18, 2023*: Public comment period on the Proposed Plan.*

Public Meeting
Tuesday January 31, 2023 at 6:00 PM (snow date of Wednesday February 1, 2023)

Open House *from 5:00 - 6:00 PM*

Salina Town Hall - 201 School Road, Liverpool, NY 13088

Community Role in the Selection Process

NYSDEC and EPA rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, this Proposed Plan has been made available to the public for a public comment period which begins on January 19, 2023 and concludes on February 18, 2023.

As noted above, a public meeting and an open house will be held during the comment period to elaborate on the reasons for recommending the preferred remedy and to receive public comments. The public meeting will include a formal presentation by NYSDEC of the preferred remedy and other cleanup options for the Site.

[1] MNA is the process by which a natural system's ability to attenuate contaminant(s) at a specific site is confirmed, monitored, and quantified.

The open house will be less formal and will provide the public an opportunity to discuss the cleanup options with NYSDEC and EPA representatives on a one-on-one basis.

Comments received at the public meeting, and in writing during the comment period, will be documented and addressed in the Responsiveness Summary Section of the Record of Decision (ROD), the document that will formalize the selection of the remedy.

Written comments on this Proposed Plan should be addressed to:

Tracy A. Smith
NYS Department of Environmental Conservation
625 Broadway
Albany, NY 12233-7013
E-mail: tracy.smith@dec.ny.gov

INFORMATION REPOSITORIES

The administrative record file, which contains copies of the Proposed Plan and supporting documentation are available online through the DECinfo Locator at https://www.dec.ny.gov/data/DecDocs/734075A/ and at the following locations:

Atlantic States Legal Foundation
658 West Onondaga Street
Syracuse, NY 13204
315-475-1170

New York State Department of Environmental Conservation
615 Erie Boulevard, West
Syracuse, NY 13204
315-426-7400

New York State Department of Environmental Conservation
Attn.: Tracy A. Smith
625 Broadway
Albany, NY 12233-7013
518-402-9676

SITE BACKGROUND

On June 23, 1989, the Onondaga Lake site was added to the New York State Registry of Inactive Hazardous Waste Disposal Sites. On December 16, 1994, Onondaga Lake, its tributaries, and the upland hazardous waste sites that have contributed or are contributing contamination to the lake (subsites) were added to EPA's National Priorities List (NPL). This NPL listing means that the lake system is among the nation's highest priorities for remedial evaluation and response under CERCLA as amended, for sites where there has been a release of hazardous substances, pollutants, or contaminants.

As documented in the July 2005 ROD issued by EPA and NYSDEC for the Onondaga Lake Bottom subsite, the SYW-12 Site, also known as Murphy's Island, was administratively included in the investigation of the WBB/HB subsite. The SYW-12 Site was investigated by Honeywell as reported in the 2015 *WBB/HB Revised RI Report*, 2009 *Revised Human Health Risk Assessment (HHRA) Report* and hazard calculation updates (Appendix 1 of the *SYW-12 Site FS Report*), the 2011 *Revised Baseline Ecological Risk Assessment (BERA) Report*, the 2014 *SYW-12 Sources of Contamination Investigation Report* and the 2020 *Revised SYW-12 Groundwater Investigation Report*.

Following NYSDEC's approval of the RI and risk assessments for the WBB/HB subsite, it was separated into two OUs. Because many Superfund sites are complex and have multiple contamination impacts and/or geographic areas, they are often divided into OUs for managing the site-wide response actions. The NCP (Section 300.5) defines an OU as "a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site may be divided into OUs, depending on the complexity of the problems associated with the site. OUs address geographical portions of a site, specific site problems, or initial phases of an action, or consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site." OU-1 of the WBB/HB site includes the Lakeshore Area, the Penn-Can Property, the Railroad Area and two "Areas of Study", AOS#1 and AOS#2 (see Figure 1) Following the issuance of an OU-1 *FS Report* in July 2018, an OU-1 ROD was signed in October 2018. The SYW-12 Site (which is OU-2 of WBB/HB) was subsequently designated as New York State Inactive Hazardous Waste Site No. 734075A.

Site Description and History

Location: The Site is 23.5-acres in size and is owned by Onondaga County. The Site includes undeveloped land and a portion of Wetland SYW-12. Wetland SYW-12 is a 45.5-acre Class I wetland, portions of which are located around the mouth of Ley Creek along the southeastern shoreline of Onondaga Lake in Syracuse, New York. See Figure 2, Site Location.

Site Features: The Site is bounded by the CSX railroad tracks to the north and east, Onondaga Creek to the south, and Onondaga Lake to the west. The Lower Ley Creek subsite of the Onondaga Lake NPL site is also situated to the north but is being addressed as part of a separate remedy. A figure showing the Site layout is included as Figure 3. The Site encompasses a total of approximately 23.5 acres with 10.4 acres of upland (*i.e.,* non-wetland areas) and 13.1 acres of delineated wetland between Onondaga Lake and the CSX railroad tracks (based on a 2018 wetland delineation). Mature trees typical of floodplain forests occupy the central portion of the Site, which also serve as a roost site for wintering bald eagles (*Haliaeetus leucocephalus*).

Site Geology and Hydrogeology: The local geology for the Site consists of:

- unconsolidated deposits which consist of 2 to 15 feet (ft) of reworked fill consisting of sand, silt, gravel, shell material, and concretions below a thin layer of recently deposited wetland sediments;
- 15 to 25 ft of marl, which is a carbonate-rich sediment containing a significant amount of shells with variable amounts of clays and silt. The 15 to 25 ft marl unit becomes gradually finer grained with depth from a sandy, shell rich marl at the top of the unit to clayey silt marl with a trace of shell material at the bottom of the unit; and
- the geological units underlying the marl unit include silt and clay, silt and fine-grained sand/basal sand and gravel, till, and bedrock, based on regional geologic information and data collected from nearby locations.

The depth to groundwater beneath the Site ranges from approximately 3.3 to 9.2 ft below ground surface (bgs). The groundwater occurs in the unconsolidated unit and flows westward toward Onondaga Lake from the central and southern portions of the Site. Groundwater on the northern portion of the Site flows north toward Ley Creek.

History of the Site: Prior to the early 1800s, the SYW-12 Site was partially under water, with the remaining portion being wetlands containing cedar and ash trees. Both Mud Creek (later renamed Ley Creek) and Onondaga Creek meandered across the northern portion of the Site before flowing into Onondaga Lake. In 1822, New York State lowered the level of Onondaga Lake by approximately 2 ft, resulting in the draining of wetlands along the lakeshore, including a portion of the Site. The newly created land was filled in and partitioned as building lots.

In 1873, the lower 0.75 mile of Onondaga Creek was rerouted and channelized slightly south of the present-day Barge Canal. A channel and harbor basin were also dredged at the mouth of Onondaga Creek as part of the construction of a large amusement complex known as the Iron Pier Resort (see Figure 4). The complex included a 600-foot pavilion that was built adjacent to the harbor. The pavilion contained venues for dining, bowling, billiards, concerts, and a carousel. Steamboats from the harbor provided service to other resorts on the lake. The Iron Pier Resort was closed in 1906 and the pavilion was demolished by 1908.

Following closure and demolition of the pavilion, historical maps indicate that portions of the Site, the Iron Pier channel, and harbor basin may have been filled with refuse materials (*e.g.*, soda ash, waste fill) from various sources. Dredged materials were also potentially placed on the Site because of additional changes to the Onondaga Creek location and configuration, including dredging of the Barge Canal and harbor terminal in 1915, which relocated the channel between the pre-1873 Onondaga Creek channel and the 1873 relocated Onondaga Creek channel. The Barge Canal was reportedly dredged on several occasions between 1941 and 1954. The potential sources of contamination at the Site include dredge spoils from Onondaga Creek, historic dredge material from the southern portion of Onondaga Lake, and possibly the former Marley property, Oil City properties, former Hiawatha Boulevard Manufactured Gas Plant [MGP] subsite, former Erie Boulevard MGP site, and Ley Creek.

Based on a review of historic aerial maps, the Site has changed in shape and size over time as a result of dredge deposition and natural erosion but has remained undeveloped and vegetated with low-lying vegetation, brush, and trees since the early 1900s.

Current Zoning and Land Use: The Site is owned by Onondaga County and is zoned as parkland within the City of Syracuse. The surrounding area is commercial. As was noted above, CSX Railroad tracks are located immediately to the north and east of the Site. The land is currently undeveloped and, given the prevalent wetlands throughout the Site and proximity to the CSX Railroad tracks, future development for residential or industrial use is unlikely. Based on the land use evaluation, the reasonably anticipated current and future use of the Site is passive recreation as part of the Onondaga County's Loop the Lake Trail – Southeast Extension. Ecological receptors currently use the Site, and it is anticipated that they will continue to use the undeveloped area. An extension of the Onondaga County Loop the Lake Trail, a multi-use recreational trail, has been constructed on the Site. In February 2019, NYSDEC issued a Freshwater Wetlands Permit and Section 401 Water Quality Certification for the project following an extended public comment period and a public hearing. In January 2021, Onondaga County requested a modification to a 2019 permit to replace a proposed steel pile boardwalk over Onondaga Lake with a 330 linear-foot berm trail from the City of Syracuse Lake Lounge to the wetland boundary. The multi-use recreational trail construction includes a wooden boardwalk within wetland areas and a minimum one foot of cover for passive recreational use within the trail footprint in non-boardwalk areas in addition to ICs and signage to keep trail users on the established trail.

RESULTS OF REMEDIAL INVESTIGATION, 2012 SOURCES OF CONTAMINATION INVESTIGATION, AND 2019 GROUNDWATER INVESTIGATION

To evaluate the nature and extent of contamination at the Site, the analytical results from the RI sampling were compared to the respective soil cleanup objectives (SCOs) provided in 6 NYCRR Part 375 *Environmental Remediation Programs* for each

land use type, including Unrestricted-Use SCOs. Unrestricted-Use SCOs represent the concentration of a constituent in soil that, when achieved at a site, is sufficiently low such that there are no land use restrictions on the site for the protection of public health, groundwater, and ecological resources. Additional information can be found in the *Revised RI Report*. Analytical results presented in the *Revised RI Report* were compared during the feasibility study (FS) to the SCOs for Commercial Use, Protection of Ecological Resources, and Protection of Groundwater in consideration of anticipated future land use. Current Site groundwater conditions were also evaluated during an April 2019 groundwater elevation monitoring and sampling event. Tables 1 and 2 (attached) summarize the Unrestricted-Use SCOs, Commercial-Use SCOs, and Protection of Ecological Resources SCOs exceedances in shallow (0-2 ft bgs) and subsurface (deeper than 2 ft bgs) soil/fill material, respectively, for the Site. Table 3 summarizes the New York State Class GA groundwater standards and guidance values (SGVs) exceedances in groundwater for the Site. The primary contaminants at the Site include benzo(a)pyrene, a semi-volatile organic compound (SVOC), and assorted polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and metals.

It should be noted that the Site boundary described above does not include the portions of the 45.5-acre Wetland SYW-12 that are east of the rail lines or north of Ley Creek. These areas were investigated during the RI, and based on the results of the investigation, are not addressed in this Proposed Plan.

Shallow Soil/Fill Material (0 to 2 ft bgs)

Volatile organic compounds (VOCs), SVOCs, pesticides, PCBs, polychlorinated dibenzo-p-dioxins/polychlorinated dibenzofurans (PCDD/Fs), and metals were detected in shallow soil/fill material on the Site as described below. The data were compared to the SCOs for Commercial Use, Protection of Ecological Resources, and Unrestricted Use (see Table 1).

VOCs, including chlorinated benzenes and benzene, toluene, ethylbenzene, and xylene (BTEX) compounds, were detected in the shallow soil/fill material, but they did not exceed the SCOs. The constituents that exceeded the SCOs for Unrestricted Use predominantly included seven SVOCs (assorted PAHs), five pesticides (4,4'-DDT, 4,4'-DDD, dieldrin, 4,4'-DDE, and endrin), PCBs (Aroclor 1254 and Aroclor 1260), and inorganic compounds/metals (mercury, zinc, lead, chromium, cadmium, copper, silver, and nickel).

Several of the above-mentioned constituents exceeded the following SCOs: Commercial Use SCOs, for four SVOCs (assorted PAHs), including benzo(a)anthracene (maximum concentration of 7,300 µg/kg [Commercial Use SCO of 1,000 µg/kg]), benzo(a)pyrene (maximum concentration of 9,100 µg/kg [Commercial Use SCO of 1,000 µg/kg]), benzo(b)fluoranthene (maximum concentration of 12,000 µg/kg [Commercial Use SCO of 5,600 µg/kg]), and dibenzo(a,h)anthracene (maximum concentration of 1,100 µg/kg [Commercial Use SCO of 560 µg/kg]); PCBs (Aroclor 1254 and Aroclor 1260) with the highest concentration at 3,470 µg/kg (Commercial Use SCO of 1,000 µg/kg); and three inorganics including mercury (maximum concentration of 8.6 mg/kg [Commercial Use SCO of 2.8 mg/kg]), copper (maximum concentration of 330 mg/kg [Commercial Use SCO of 270 mg/kg]), and cadmium (maximum concentration of 52 mg/kg [Commercial Use SCO of 9.3 mg/kg]). The Protection of Ecological Resources SCOs were exceeded for one SVOC (benzo(a)pyrene at a maximum concentration of 9,100 µg/kg [Ecological Resource SCO of 2,600 µg/kg]); five pesticides including 4,4'-DDT (maximum concentration of 100 µg/kg [Ecological Resource SCO of 3.3 µg/kg]), 4,4'-DDD (maximum concentration of 73 µg/kg [Ecological Resource SCO of 3.3 µg/kg]), 4,4'-DDE (maximum concentration of 3.6 µg/kg [Ecological Resource SCO of 3.3 µg/kg]), dieldrin (maximum concentration of 30 µg/kg [Ecological Resource SCO of 6 µg/kg]), and endrin (maximum concentration of 26 µg/kg [Ecological Resource SCO of 14 µg/kg]); PCBs (Aroclor 1254 and Aroclor 1260) with the highest concentration at 3,470 µg/kg (Ecological Resource SCO of 1,000 µg/kg); and eight inorganic compounds including mercury (maximum concentration of 8.6 mg/kg [Ecological Resource SCO of 0.18 mg/kg]), zinc (maximum concentration of 780 mg/kg [Ecological Resource SCO of 109 mg/kg]), lead (maximum concentration of 390 mg/kg [Ecological Resource SCO of 63 mg/kg]), chromium (maximum concentration of 410 mg/kg [Ecological Resource SCO of 41 mg/kg]), cadmium (maximum concentration of 52 mg/kg [Ecological Resource SCO of 4 mg/kg]), copper (maximum concentration of 330 mg/kg [Ecological Resource SCO of 50 mg/kg]), silver (maximum concentration of 13 mg/kg [Ecological Resource SCO of 2 mg/kg]), and nickel (maximum concentration of 87 mg/kg [Ecological Resource SCO of 30 mg/kg]).

Subsurface Soil/Fill Material (at depths greater than 2 ft bgs)

VOCs, SVOCs, pesticides, PCBs, PCDD/Fs, and inorganic compounds were detected in subsurface soil/fill material on the Site as described below. The data were compared to the SCOs for Commercial Use, Protection of Ecological Resources, and Unrestricted Use (see Table 2).

SVOCs were detected throughout shallower subsurface soils (2 to 16 ft bgs) but were not detected in the deeper subsurface samples. PAHs were the most commonly detected SVOCs in the subsurface soil/fill material and accounted for most of the exceedances observed above the Commercial Use SCOs. Limited exceedances of pesticides and PCBs were observed with

detections only between 2 and 10 ft bgs with two Commercial Use SCO exceedances. Inorganic compounds were detected throughout the subsurface with Commercial Use SCO exceedances for arsenic, mercury, copper, and cadmium.

Coal tar/petroleum-like impacted soils, including blebs of nonaqueous phase liquids (NAPLs), were also identified in the location of the former Onondaga Creek channel. Stained soil and black stained sludge were found in subsurface soil in the central part of the Site. An evaluation of data and field observations determined that the presence of stained soils and NAPL does not necessarily correlate with elevated organics concentrations in soil and groundwater at proximate locations. This evaluation included a comparison of subsurface soil data exceeding SCOs for the Protection of Groundwater, exceedances of Class GA SGVs, and field observations of stained soils and NAPL.

Polytetrafluoroethylene Sheen Net Samples

Polytetrafluoroethylene (PTFE) sheen net samples were collected as part of the sources of contamination investigation. Visual observations during the test trenching within or in the vicinity of the former Onondaga Creek channel footprint indicated that when soils were disturbed, a sheen formed on the groundwater within the excavated trench. The results of the sheen net sampling verified that PAHs and petroleum biomarkers were detected in this sheen that had been mobilized from the Site soils when disturbed. The results of the sheen net sampling and the corresponding groundwater sampling indicate that the organic compounds remain bound to the soils when undisturbed.

Groundwater

The groundwater analytical data were compared to the New York State Class GA groundwater SGVs (see Table 3). As detailed in Table 3, there were a few VOC (ethylbenzene, isopropylbenzene and xylenes) and SVOC exceedances (4-methylphenol, 4-nitrophenol, acenaphthene, and naphthalene) of Class GA SGVs identified during the RI from data collected before 2015. A supplemental groundwater investigation conducted in 2019 indicated that naphthalene, at a concentration of 23 µg/L in one well, was the only organic compound that marginally exceeded the Class GA SGV (guidance value of 10 µg/L), with slightly lower detected concentrations than in historical detections (36 µg/L in 2012). Inorganic compounds/metals detected in Site groundwater include barium, iron, magnesium, manganese, sodium, and chloride, with Class GA SGV exceedances primarily observed for iron, manganese, sodium, and chloride, which may be ubiquitous in the area and/or naturally occurring as described in the *Revised SYW-12 2019 Groundwater Investigation Report*.

Natural attenuation of organic constituents in groundwater at the Site is discussed in the *Revised SYW-12 2019 Groundwater Investigation Report.* As summarized in that report, geochemical conditions at the Site are favorable for natural attenuation of PAHs, including naphthalene, to occur. The determination that natural attenuation is occurring is, in part, based upon detected concentrations of ferrous iron, sulfide, and methane in groundwater and oxidation-reduction potential data that suggest the presence of iron- and sulfate-reducing conditions in groundwater. Biodegradation of naphthalene can occur under anaerobic conditions, particularly under iron- or sulfate-reducing conditions. Further, the presence of methane and observed decreases in groundwater concentrations of PAHs over time such as acenaphthene and naphthalene indicate that natural attenuation is likely occurring.

Conclusions

Based on the results of the RI and supplemental groundwater investigation, the following conclusions have been drawn:

- The primary Site contaminants include assorted PAHs (*e.g.,* benzo(a)pyrene), PCBs, and metals;
- As shown on Figures 5 to 10, Site contaminants in soil/fill material are randomly distributed and are likely related to several sources, including historical placement of fill material in the former Onondaga Creek channel/Iron Pier area, dredge spoils from Onondaga Creek, historic dredge material from the southern portion of Onondaga Lake, and potential historical off-Site sources (*i.e.,* former Marley property, Oil City properties, former Hiawatha Boulevard MGP subsite, former Erie Boulevard MGP site, and Ley Creek). The Marley and Oil City properties are believed to have impacted the Barge Canal sediment that was then dredged and placed on the Site during historical dredging operations. Contamination at these properties is currently being addressed by the potentially responsible parties for these sites under NYSDEC and EPA oversight; and
- There are few exceedances of the Class GA groundwater SGVs for organic constituents in RI groundwater samples, suggesting that organic constituents in shallow and subsurface soils are generally not mobilizing to groundwater; however, naphthalene concentrations in subsurface soil may be contributing to localized naphthalene detected in one monitoring well (HB-MW-29). The 2019 groundwater samples indicated that naphthalene was the only organic compound that marginally exceeded the Class GA SGV (exceedance of the guidance value in only one well), with an overall decrease in organic constituent concentrations over time. Geochemical conditions at the Site are favorable for natural attenuation of napthalene to occur.

The Site contaminants in surface soil identified during the RI were further evaluated during the FS to identify a targeted list of compounds (*i.e.,* benzo(a)pyrene, 4,4'-DDT, total PCBs, mercury, chromium and cadmium) that can serve as surrogates for other contaminants that are most likely to drive risk and remediation, and, therefore, will be representative chemicals for optimizing remedy protectiveness.

SCOPE AND ROLE OF ACTION

As mentioned above, there are many subsites, that are part of the cleanup of the overall Onondaga Lake NPL site. The following are the eleven subsites that are being addressed:

1. Onondaga Lake Bottom (which includes Geddes Brook/Ninemile Creek as an OU);
2. LCP Bridge Street;
3. Semet Residue Ponds;
4. Willis Avenue;
5. WBB/HB;
6. Solvay Wastebeds 1-8;
7. General Motors - Inland Fisher Guide;
8. Town of Salina Landfill;
9. Ley Creek PCB Dredgings;
10. Lower Ley Creek; and
11. Niagara-Mohawk Hiawatha Boulevard.

For the Onondaga Lake Bottom subsite, dredging and capping activities were performed from 2012 to 2014 and 2016, respectively. Habitat restoration activities associated with the remedy were completed in 2017. The dredged material is being managed at a sediment consolidation area constructed on former Solvay Wastebed 13. Construction activities at the consolidation area, which included the placement of an engineered cap, were completed in 2017. Remedial construction has also been fully implemented at the Semet Residue Ponds, Wastebeds 1-8 OU-1, WBB/HB, LCP Bridge Street, Geddes Brook/Ninemile Creek, Niagara-Mohawk Hiawatha Boulevard, Salina Landfill, and the Ley Creek PCB Dredgings subsites. All the noted subsites/OUs are undergoing long-term maintenance and monitoring. Remedial actions at portions of, or environmental media (*e.g.,* soil, groundwater) at Wastebeds 1-8 OU-2, Willis Avenue, and General Motors - Inland Fisher Guide (OU-1 and OU-2) subsites have been completed or are in progress. Other portions of, or media at, these subsites are in the remedial design or RI/FS phase. The Lower Ley Creek subsite is in the remedial design phase.

The scope of the action outlined in this Proposed Plan is to address the contaminated soil/fill material and groundwater at the SYW-12 Site. NYSDEC and EPA expect this remedy to be a final, comprehensive remedy. Due to the presence of forested areas on the Site that are winter roosting habitat for bald eagles, some of the alternatives evaluated in this Proposed Plan include remediation in 8.2 to 10 acres of the 23.5-acre Site that are accessible and/or non-forested so the mature trees used for roosting are not impacted. Additional discussion is provided in the alternatives below.

Principal threat wastes are wastes that are considered source materials, *i.e.,* materials that include or contain hazardous substances, pollutants or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or as a source for direct exposure. While stained soils and blebs of NAPL are present at the Site, they do not necessarily correlate with elevated organic contaminant concentrations in soil and groundwater at proximate locations. NYSDEC and EPA have not identified material at the Site as principal threat wastes. In addition, sediment and surface water data from Onondaga Lake and Ley Creek indicate that contamination from the Site is not migrating off-Site.

Summary of Quantitative Site Risk Assessments

As part of the RI process, baseline quantitative risk assessments were conducted for the Site to estimate the potential risks to human health and the environment (see the "What is Human Health Risk and How is it Calculated?" and "What is Ecological Risk and How is it Calculated?" text boxes below). Baseline risk assessments, consisting of a HHRA, which evaluates potential risks to people, and a BERA, which evaluates potential risks to ecological receptors, have been performed to analyze the potential for adverse effects caused by hazardous substance releases from a site assuming no further actions to control or mitigate exposure to these hazardous substances are taken.

Human Health Risk Assessment

Because the Site is zoned as parkland, exposure scenarios were developed based on this current and likely future land use. Exposure to many different media were considered in the Baseline HHRA process through a number of current and future exposure scenarios for different potential receptors, including child and adult recreational visitors, railroad worker, utility worker, construction worker, commercial/industrial worker, and child and adult residents.

Exposure scenarios were developed for these populations. These scenarios were evaluated based on potential exposure through incidental ingestion and inhalation of and dermal contact with surface soil, subsurface soil, fugitive dust, or volatile emissions. In addition, exposure to groundwater was also evaluated.

Since the completion of the *Revised HHRA Report* in 2009*,* EPA has re-evaluated and updated toxicity information for PAHs and issued new guidance on the methodology for assessing risks associated with the inhalation pathway of exposure. To incorporate these updates, risk calculations for soil exposures for the most sensitive nonresidential receptor group and based on the anticipated site use (*i.e.*, recreators) were revised in 2018, and the risk calculations for soil exposures for the remaining receptor groups evaluated in the HHRA which were not addressed in the 2018 evaluation were revised in 2022. Updated risks and hazard tables resulting from all of the recalculations conducted since the 2009 HHRA are presented in Appendix 1 of the FS Report. A summary of the revised cancer risks and noncancer hazards above threshold levels for each population in each of the areas of the Site, along with the chemicals that contribute the most to the risk or hazard, or chemicals of concern (COCs), can be found in Table 4.

It should be noted that the lifetime excess cancer risks for utility workers, construction workers, and child residents are below the regulatory risk threshold based on the revised hazard and risk evaluation as a result of the incorporation of updated published cancer toxicity values for select PAHs in the evaluation. Noncarcinogenic hazards calculated for these receptors are essentially unchanged by the EPA updates to risk assessment methods and cancer-based toxicity values. As such, the unacceptable hazards posed to child residents by highly chlorinated PCBs in surface soil and to construction workers by chromium and benzo(a)pyrene in groundwater, as calculated in the 2009 *Revised HHRA Report*, remain potential threats to these receptor groups. However, it should be noted that the anticipated future land use of the Site does not include residential

WHAT IS HUMAN HEALTH RISK AND HOW IS IT CALCULATED?

A Superfund baseline human health risk assessment is an analysis of the potential adverse health effects caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current- and future-land uses. A four-step process is utilized for assessing site-related human health risks for reasonable maximum exposure scenarios.

Hazard Identification: In this step, the Contaminants of Potential Concern (COPCs) at the site in various media (*i.e.*, soil, groundwater, surface water, and air) are identified based on such factors as toxicity, frequency of occurrence, and fate and transport of the contaminants in the environment, concentrations of the contaminants in specific media, mobility, persistence, and bioaccumulation.

Exposure Assessment: In this step, the different exposure pathways through which people might be exposed to the contaminants in air, water, soil, etc. identified in the previous step are evaluated. Examples of exposure pathways include incidental ingestion of and dermal contact with contaminated soil and ingestion of and dermal contact with contaminated groundwater. Factors relating to the exposure assessment include, but are not limited to, the concentrations in specific media that people might be exposed to and the frequency and duration of that exposure. Using these factors, a "reasonable maximum exposure" (RME) scenario, which portrays the highest level of human exposure that could reasonably be expected to occur, is calculated.

Toxicity Assessment: In this step, the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response) are determined. Potential health effects are chemical-specific and may include the risk of developing cancer over a lifetime or other non-cancer health hazards, such as changes in the normal functions of organs within the body (*e.g.*, changes in the effectiveness of the immune system). Some chemicals can cause both cancer risks and non-cancer health hazards.

Risk Characterization: This step summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site risks for all COPCs. Exposures are evaluated based on the potential risk of developing cancer and the potential for non-cancer health hazards. The likelihood of an individual developing cancer is expressed as a probability. For example, a 10^{-4} cancer risk means a "one-in-ten-thousand excess cancer risk"; or one additional cancer may be seen in a population of 10,000 people because of exposure to site contaminants under the conditions identified in the Exposure Assessment. Current Superfund regulations for exposures identify the range for determining whether remedial action is necessary as an individual excess lifetime cancer risk of 10^{-4} to 10^{-6}, corresponding to a one-in-tenthousand to a one-in-a-million excess cancer risk. For non-cancer health effects, a "hazard index" (HI) is calculated. An HI represents the sum of the individual exposure levels compared to their corresponding reference doses. The key concept for a non-cancer HI is that a threshold (measured as an HI of less than or equal to 1) exists below which non-cancer health hazards are not expected to occur. The goal of protection is 10^{-6} for cancer risk and an HI of 1 for a non-cancer health hazard. Chemicals that exceed a 10^{-4} cancer risk or an HI of 1 are typically those that will require remedial action at the site and are referred to as COCs in the ROD.

use and that the unacceptable hazard posed by chromium and benzo(a)pyrene to construction workers was based on the results obtained during the RI; sampling subsequent to the RI indicate the absence of chromium and benzo(a)pyrene in groundwater underlying the Site[2], indicating there may not be an unacceptable risk attributable to chromium and benzo(a)pyrene in groundwater.

The vapor intrusion screening in the HHRA identified chemicals with a potential to migrate to indoor air, based on factors such as the chemical-specific vapor pressure. Because these factors apply to chemicals present in media, such as soil, fill material, and groundwater, all media with these chemicals have the potential for future vapor intrusion concerns. Naphthalene was identified and retained as a vapor intrusion COPC because its maximum detected concentration in Site groundwater exceeded its groundwater vapor intrusion screening level.

Consumption of groundwater was not quantitatively evaluated in the HHRA. As mentioned above, naphthalene is the only contaminant that is present in groundwater that exceeds the state guidance value. Naphthalene does not have a federal drinking water standard. It should be noted though that the maximum concentration of naphthalene in groundwater of 170 µg/L detected during the RI exceeds both the concentration associated with a noncancer hazard quotient of 1 (6 µg/L) and the concentration associated with the high end (10^{-4}) of the acceptable cancer risk range (11.7 µg/L). A memorandum was added to the Site file to document this finding.

The HHRA and post-HHRA evaluations concluded that potential risks associated with exposure to surface soil/fill material (0 to 2 ft bgs) assuming passive recreational use of the Site are acceptable under current and future conditions. Potential risks associated with exposure to surface soil/fill material (0 to 2 ft bgs) for a future child resident would not be acceptable, if such exposures were allowed to occur.

A full discussion of the HHRA evaluation and conclusions is presented in the HHRA report with post-HHRA evaluations presented in the FS Report.

Ecological Risk Assessment

The BERA for the Site identified current and future habitat use and potential ecological receptors. Based on the ecological receptors identified, potentially unacceptable risk was driven by the following constituents by receptor for the Site Exposure Area:

- Potential risk to terrestrial plants is driven by 11 metals via exposure to surface soil based on average concentrations throughout the exposure area exceeding screening criteria for the protection of plants.
- Potential risk to soil invertebrates is driven by five metals via exposure to surface soil based on exceedances of screening criteria for the protection of soil invertebrates and microfauna.
- Potential food chain bioaccumulation risks for insectivorous birds, as represented by the American robin (*Turdus migratorius*), exceeded the risk threshold (*i.e.,* hazard quotient [HQ] > 1.0) for lowest effect dose levels for six metals and four organic compounds in surface soil.
- Risks to insectivorous mammals from food chain exposure, as represented by the short-tailed shrew (*Blarina brevicauda*), exceeded 1.0 based on lowest effect level doses for five metals and five organic compounds in surface soil.
- Potential food chain risks to carnivorous mammals, as represented by the red fox (*Vulpes vulpes*), are considered nominal for each constituent with the exception of chromium.
- Risks to carnivorous mammals from food chain exposure, as represented by the red-tailed hawk (*Buteo jamaicensis*), did not exceed 1.0 for any constituent based on lowest effect level doses.
- Potential risks to predatory mammals that may forage on terrestrial mammals and fish in the lake area abutting the Site, as represented by the mink (*Neovison vison*), are considered nominal given that no HQs based on lowest effect level doses exceeded 1.0.

In summary, the Site BERA concluded that select metals and organic compounds, namely chromium, cadmium and PCBs, pose a potential risk to communities or organisms and to bird and mammal populations with relatively restrictive home ranges (*e.g.,* American robin and short-tailed shrew). A full discussion of the BERA's evaluation and conclusions is presented in the BERA Report.

[2] The RI data used in the 2009 HHRA included data from groundwater screening samples, which are more likely to have aquifer solids (*e.g.,* turbidity) present, and which could result in higher concentrations than the monitoring well samples collected in 2012 and 2019.

WHAT IS ECOLOGICAL RISK AND HOW IS IT CALCULATED?

A Superfund baseline ecological risk assessment is an analysis of the potential adverse health effects to biota caused by hazardous substance releases from a site in the absence of any actions to control or mitigate these under current and future land and resource uses. The process used for assessing site-related ecological risks includes:

Problem Formulation: In this step, the contaminants of potential ecological concern (COPECs) at the site are identified. Assessment endpoints are defined to determine what ecological entities are important to protect. Then, the specific attributes of the entities that are potentially at risk and important to protect are determined. This provides a basis for measurement in the risk assessment. Once assessment endpoints are chosen, a conceptual model is developed to provide a visual representation of hypothesized relationships between ecological entities (receptors) and the stressors to which they may be exposed.

Exposure Assessment: In this step, a quantitative evaluation is made of what plants and animals are exposed to and to what degree they are exposed. This estimation of exposure point concentrations includes various parameters to determine the levels of exposure to a chemical contaminant by a selected plant or animal (receptor), such as area use (how much of the site an animal typically uses during normal activities); food ingestion rate (how much food is consumed by an animal over a period of time); bioaccumulation rates (the process by which chemicals are taken up by a plant or animal either directly from exposure to contaminated soil, sediment or water, or by eating contaminated food); bioavailability (how easily a plant or animal can take up a contaminant from the environment); and life stage (*e.g.,* juvenile, adult).

Ecological Effects Assessment: In this step, literature reviews, field studies or toxicity tests are conducted to describe the relationship between chemical contaminant concentrations and their effects on ecological receptors, on a media-, receptor- and chemical-specific basis. To provide upper and lower bound estimates of risk, toxicological benchmarks are identified to describe the level of contamination below which adverse effects are unlikely to occur and the level of contamination at which adverse effects are more likely to occur.

Risk Characterization: In this step, the results of the previous steps are used to estimate the risk posed to ecological receptors. Individual risk estimates for a given receptor for each chemical are calculated as a hazard quotient (HQ), which is the ratio of contaminant concentration to a given toxicological benchmark. In general, an HQ above 1 indicates the potential for unacceptable risk. The risk is described, including the overall degree of confidence in the risk estimates, summarizing uncertainties, citing evidence supporting the risk estimates and interpreting the adversity of ecological effects.

Summary of Human Health and Ecological Risks

The results of the HHRA and post-HHRA evaluations indicate that exposure to contaminated soil, indoor air, and groundwater present current and/or potential future unacceptable risks, and the ecological risk assessment indicates that the contaminated soils pose an unacceptable risk.

Based upon the results of the RI and the risk assessments, EPA and NYSDEC have determined that actual or threatened releases of hazardous substances from the Site, if not addressed by the preferred remedy or one of the other active measures considered, may present a current or potential threat to human health and the environment.

Subsequent to publication of the *Revised BERA,* the occupation of the Site by bald eagles has increased significantly, particularly exhibited by winter roosting behavior of a large number of individuals and is recognized by the United States Fish and Wildlife Service (USFWS) and NYSDEC. Bald eagles likely gather at the Site because of the warm water outflow from the nearby Metropolitan Syracuse Wastewater Treatment Plant (Metro) which provides ice-free open water and the opportunity for eagles to forage during winter months. The large trees at the Site serve as roosts for wintering bald eagles. Location-specific applicable or relevant and appropriate requirements (ARARs) related to habitat protection, including the *Federal Bald and Golden Eagle Protection Act* (16 U.S.C. 668 *et seq*), USFWS *National Bald Eagle Management Guidelines*, *Conservation Plan for Bald Eagles in New York State*, and 6 NYCRR 182, provide requirements and guidance regarding the protection of bald eagle habitat, including the “take and disturbance” of bald eagles, and limiting activities that may alter communal roost sites and foraging areas.

As part of the FS development, USFWS provided recommendations related to soil/fill material locations to be addressed that would also preserve trees that serve as roosts for bald eagles. The following measures were also recommended by USFWS to provide for the continued integrity of this roost site and enable bald eagles to feed and shelter during winter:

- Minimize tree clearing as part of remediation.

- Perform remedial activities outside the December 15 to March 15 winter roosting season to avoid disturbance to roosting bald eagles.

The NYSDEC's March 2016 *Conservation Plan for Bald Eagles in New York State* cited above provides further guidelines and actions recommended for the conservation of New York's bald eagle population and recommends that work and activities disturbing trees be performed outside the December 1 to March 31 winter roosting season. These measures were considered as part of the development and evaluation of remedial alternatives, in particular when balancing potential risks with remedy elements potentially detrimental to valuable habitat.

New York State Soil Cleanup Objectives

For the SYW-12 Site, Commercial Use and Protection of Ecological Resources SCOs are applicable. SCOs are contaminant-specific remedial action objectives for soil based on a site's current, intended, or reasonably anticipated future use. Separate sets of SCOs were developed in consideration of public health, groundwater, and ecological resources. A brief summary of how the SCOs were developed is presented below. For more information on the development of the SCOs, see https://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf.

HOW WERE SCOs DEVELOPED?

Developing the health-based SCOs (*e.g.,* Commercial Use) required a number of exposure considerations including who might be exposed to soil contaminants, in what ways they might be exposed, and for how long the exposure might occur. Since these considerations can vary with the use of a site, health-based SCOs differ depending upon site use. Protection of Groundwater SCOs are estimated based on NYSDEC's experience with impacts on groundwater from soils at inactive hazardous waste sites. An approach was selected which estimates the amount of contamination that may be present in water when it is in direct contact with soil for a long time, and the amount of contaminant that may leach out of contaminated soil as water travels down through the soil column. The approach also accounts for the reduction in water contaminant concentrations as the water in the soil travels to groundwater. To develop the Ecological Resources SCOs the NYSDEC reviewed existing soil criteria available in the literature along with the corresponding derivation methodologies. After an extensive review, the NYSDEC chose to adopt many of the procedures and methods developed by the EPA Ecological Soil Screening Levels (Eco-SSL) program. In addition to protection of health, groundwater, and ecological resources, two other considerations, the levels of Priority List contaminants in rural soils of New York State and maximum acceptable soil contaminant concentrations, contributed to the basis of the final SCOs.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are specific goals to protect human health and the environment. These objectives are based on available information and standards, such as ARARs, to-be-considered guidance, and site-specific risk-based levels established using the risk assessments. Based on consideration of potential chemical-specific ARARs, nature and extent of contamination, potentially unacceptable risks, the current, intended and reasonably anticipated future use of the Site and its surroundings, and the recognized value of and use of the forested areas of the Site by the bald eagle, the following RAOs have been established for the Site:

Groundwater

RAO for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards and/or guidance values.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil above remedial goals and/or that result in unacceptable risk.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.
- Prevent, or reduce the migration of contaminants that would result in sediment or surface water contamination.

Vapor Intrusion

RAO for Public Health Protection

- Mitigate impacts to public health resulting from existing, or potential for vapor intrusion.

NYSDEC's SCOs for Commercial Use and the Protection of Ecological Resources have been identified as remediation goals for soil to attain these RAOs. SCOs are risk-based criteria that have been developed by the State following methods consistent with EPA's methods/protocols/guidance and they are set at levels consistent with EPA's acceptable levels of risk that are protective of human health and ecological exposure depending upon the existing and anticipated future use of the Site. While the land use of the Site has historically been vacant, current and anticipated future uses of some areas could include commercial use (including passive recreational use such as a trail). Groundwater remedial goals are the New York State Ambient Water Quality Standards.

COCs identified for the Site include cadmium, chromium, mercury and other metals, benzo(a)pyrene and other PAHs, 4,4'-DDT and other pesticides, and PCBs. As presented in the FS Report, an evaluation of surface soil Area-Weighted Average Concentrations (AWACs) was conducted to further understand and evaluate surface soil concentrations pre- and post-remedy implementation relative to NYSDEC's SCOs (for more information, see the textbox "What is an "AWAC" and How is it Calculated?"). Discussion of this evaluation is presented below under the Comparative Analysis of Alternatives heading.

WHAT IS AN "AWAC" AND HOW IS IT CALCULATED?

Area-Weighted Average Concentrations (AWACs) are calculated concentrations of select constituents representative of site-wide conditions that facilitate comparisons between existing conditions and future conditions following implementation of potential remedial alternatives. To develop AWACs, computer software is used to interpolate concentrations between sample locations from known sample data based on the premise that closer values are more similar than values farther away and therefore the closer values should have greater influence, or weight, in the averaging process. The result is a grid or an array of cells (2 ft x 2 ft) encompassing the entire site with each cell assigned a sample concentration. The calculated AWAC for a given constituent is equal to the average concentration of the interpolated grid and represents the pre-remediation AWAC for that constituent. Where remedial activities are proposed, the exercise is repeated using representative topsoil concentrations within the remedial footprint and the remaining surface soil concentration in undisturbed areas. The existing AWAC concentrations are then compared to the post-remediation AWAC results to assess improvement and protectiveness of remedial alternatives relative to existing conditions. Appendix 8 of the Site FS Report presents additional details on the site-specific approach to calculating AWACs.

SUMMARY OF REMEDIAL ALTERNATIVES

CERCLA § 121(b)(1), 42 U.S.C. § 9621(b)(1), mandates that remedial actions must be protective of human health and the environment, cost-effective, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. Section 121(b)(1) also establishes a preference for remedial actions which employ, as a principal element, treatment to permanently and significantly reduce the volume, toxicity, or mobility of the hazardous substances, pollutants and contaminants at a site. CERCLA § 121(d), 42 U.S.C. § 9621(d), further specifies that a remedial action must attain a level or standard of control of the hazardous substances, pollutants, and contaminants, which at least attains ARARs under federal and state laws, unless a waiver can be justified pursuant to CERCLA § 121(d)(4), 42 U.S.C. § 9621(d)(4).

Based on the anticipated future development of the Site, expectations of the reasonably anticipated land use, as described above, were considered in the FS to facilitate the development and evaluation of remedial alternatives. The reasonably-anticipated land use includes passive recreational use (which is encompassed by a commercial use) and ecological use. In addition, special consideration of the value provided by the Site's habitat and seasonal use of the Site by bald eagles was included during the development of the alternatives. This special consideration resulted in alternatives that would not address contamination in all areas of the Site and would leave areas with contaminant concentrations that may exceed SCOs within approximately 13.5 to 15.3 acres of the 23.5-acre Site.

The remedial alternatives are as follows:

Alternative 1 - No Action

The Superfund program requires that the "no action" alternative be considered as a baseline for comparison with the other alternatives. The no action remedial alternative would not include any remedial measures to address the soil/fill material and groundwater contamination at the Site.

Since the No Action alternative does not include any remedial measures there are no capital, annual, and present-worth costs for this alternative:

Capital Cost:	$0
Annual operation and maintenance (O&M) Cost:	$0
Present-Worth Cost:	$0

Alternative 2 – Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and Monitored Natural Attenuation

This alternative includes the placement of a soil cover where accessible and not detrimental to the environment (*i.e.,* avoiding mature tree removal, disturbance of bald eagles, etc.) and restoring wetlands in select non-forested wetland and upland areas of the Site. The 2-foot-thick soil cover would be placed on an approximately 8.2-acre area, which would include 7.5 acres of non-forested wetland (perched wetland cover areas on Figure 11) and 0.7 acre of non-forested upland. The soil cover would control potential erosion of, and direct contact with, contaminated soil/fill material, as well as control the potential inhalation of dust in these areas. To restore wetland areas, contaminated soil may be removed, and either reused on-Site or disposed off-Site, prior to cover placement to a depth necessary to preserve wetland conditions and functions. It is estimated that clean backfill would be transported to the Site, resulting in approximately 2,450 dump truck trips (*i.e.,* round-trip with a 10-yard dump truck). The remedial footprint is targeted to reduce ecological exposure while still retaining forested SYW-12 habitat to preserve areas currently used by bald eagles for roosting. Specifically, damage to root zones through the placement of soil cover material which would limit oxygen supply to the tree roots or removal of mature trees used for eagle roosting would be avoided under this alternative. The remediated areas would be restored and biota monitoring performed. As described in the "Results of Remedial Investigation" section above, because of special considerations being given to the mature trees and bald eagle population, surface soil in non-remediated areas may exceed Commercial Use and the Protection of Ecological Resources SCOs where cover would not be placed.

A surface soil pre-design investigation and tree survey would be performed to evaluate the addition of up to seven areas, totaling 2.2 acres, to the remediation footprint. The areas for consideration include two areas within the forested wetland characterized by scrub vegetation on the northern portion of the Site, four areas within the non-forested wetland on the western portion of the Site, and one upland forested area on the southern portion of the Site (purple outlined areas on Figure 11). Should surface soil sampling and the tree survey indicate that elevated surface soil/fill material contaminant concentrations are present and large trees would not need to be removed or disturbed (*e.g.,* within the drip-zone of the large trees), soil excavation and backfilling of these areas with clean material would be considered during the design.

To minimize loss of wetland acreage or function, wetland conditions and functions would be integrated into the areas where the cover would be placed within the current wetland footprint. To improve the success of the restored wetlands, the remedial design would consider excavation and/or grading to allow wetland functions and values. An evaluation would be conducted as part of the cover design to promote sufficient flooding and saturation to facilitate the development of wetland soils and hydrology appropriate for native plants and other habitat in conjunction with grading/soil profile design such that wetland conditions and functions are addressed. Where the water budget and/or grading cannot replace wetland conditions or functions, additional mitigation measures would be included during the design.

The soil covers would also be installed to support and preserve existing mature trees present proximate to the proposed cover to allow for future tree succession. Additional tree-planting may be performed as part of restoration. Where cover material is placed, a demarcation layer would be evaluated during the remedial design to delineate the boundary between the contaminated soil/fill material and the soil cover and would be compatible with the wetland or tree growth, as necessary. The demarcation layer would provide evidence of cap erosion and provide a warning that contaminated material may exist below the demarcation layer.

Excavated soil reuse options and limitations (*e.g.,* within wetland areas), impacts to the bald eagle habitat, and the final wetland restoration approach, including opportunities to improve wetland functions and values, planting of trees and sustainable remediation principles would be further evaluated during the pre-design and design phases. Should reuse of excavated/graded/handled materials not be possible at the Site following remedial design evaluations, the material would need to be managed off-Site.

Because of the Onondaga County trail construction, geotechnical concerns, and discussion and coordination with railroad operations, the boundaries of the remedy illustrated in Figure 11 are conceptual. It is anticipated that there would be no excavation in wetland areas adjacent to the railroad based on stability concerns. Mitigation would be necessary where construction results in a loss of wetland acreage or function and wetland conditions cannot be returned. The extent of the

cover would be revisited during the design phase based on pre-design sampling and other activities and in consideration of the trail alignment. Onondaga County has included signage requiring recreational users to remain on the trail in the design for the multi-use recreational trail. The potential need for additional measures (*e.g.,* fencing/railing, maintaining dense vegetation along the trail, improved signage, and/or sampling) would be reviewed during the design phase and based on management of the trail.

Biota monitoring would be performed to evaluate remedy effectiveness and assess protectiveness of ecological receptors. A baseline sampling program, consisting of two sampling events, would be implemented, with subsequent sampling events following remedy implementation using an adaptive, data-driven approach (*e.g.,* years 3 and 5). A field assessment of Site vegetative community composition (*e.g.,* diversity, richness, invasive species evaluation) and qualitative wildlife community observations would be performed to support the biota monitoring program. The field assessment would also include an evaluation of Site trees, specifically trees that serve as roosts for bald eagles, for overall health and preservation. Specific sample locations, species, sample and analytical methods, and frequencies would be assessed and established during the remedial design. It is assumed that the monitoring program would consist of analysis of soil invertebrate and small mammal tissue, with collection of co-located surface soil/fill material samples for laboratory analysis of chemical constituents. The details related to the scope of biota sampling would be developed during the remedial design phase.

Periodic sampling and analysis of groundwater would be included as a means of detecting changes in groundwater concentrations and monitoring the natural attenuation of naphthalene in groundwater. Natural attenuation of other contaminants may be evaluated, if necessary. Specific monitoring locations, parameters, and frequencies would be established during remedial design. For cost estimation purposes, it was assumed that the monitoring program would consist of semi-annual sampling of ten monitoring wells with analyses for VOCs, SVOCs (including PAHs), metals, mercury, cyanide, and cations/anions. However, the specific number of wells and analyses will be determined during remedial design or site management.

The cover would require routine maintenance and inspection to maintain integrity and proper function.

ICs in the form of environmental easements and/or restrictive covenants would be used to limit land use to commercial (including passive recreational), as appropriate, prevent the use of groundwater without approved treatment and require that any intrusive activities on the Site would be conducted in accordance with a NYSDEC-approved SMP, which would include the following:

- Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls (ECs) for the Site and documents the steps and media-specific requirements necessary to ensure the following ECs and ICs remain in place and effective:
    - environmental easements and/or restrictive covenants described above
    - Site cover described above
    - Future remediation/management in areas where no cover is present at the Site (*e.g.,* due to erosion or changes in vegetation)
    - excavation plan that details the provisions for management of future excavations on the Site
    - descriptions of the provisions of the ICs, including any land use or groundwater use restrictions
    - a soil vapor intrusion evaluation will be completed and appropriate actions implemented for any on-Site buildings, if they were to be constructed
    - provisions for the management and inspection of the identified ECs
    - protection measures to be implemented while conducting any needed subsurface soil disturbance activities, to prevent exposure to sheens or blebs of NAPL
    - maintaining Site access controls and NYSDEC notification
    - steps necessary for periodic reviews and certification of the ECs and/or ICs.
- Monitoring Plan to assess the performance and effectiveness of the remedy. Elements of the monitoring plan will include groundwater and biota monitoring, and success or repair of habitat and wetland restoration. The monitoring plan will include assessing restoration success and repair, wetland delineation, and invasive species management during restoration. The final monitoring program would be established during the design.

Because this alternative would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the remedy for the Site be reviewed at least once every five years.

The estimated construction time of this alternative is one construction season.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$7,530,000
Annual O&M Costs:	$181,000
Present-Worth Cost:	$8,300,000

Alternatives 3A/3B – Surface Excavation with On-Site Reuse or Off-Site Disposal and Soil Cover/Wetland Restoration on Perimeter and Interior Areas, Biota Monitoring, and Monitored Natural Attenuation, with Limited Tree Removal

This alternative is similar to Alternative 2, except that it includes remediation in an additional 1.8 acres in not readily accessible non-forested wetland areas (perimeter and interior wetlands). Excavation of approximately 21,000 cubic yards (cy) of surface soil/fill material (up to 2 ft bgs) over 7 acres would be performed prior to placement of the soil cover. In addition to the 8.2 acres of perimeter wetlands addressed under Alternative 2 with a cover, this alternative also includes an additional 1.3 acres of cover to address interior wetland areas as indicated on Figure 12. Disturbance of approximately 0.5 acres of forested upland/wetlands, which would result in the removal of trees, would be needed to construct a road to access the 1.3 acres of non-forested wetlands, and the soil cover would be extended over these 0.5 acres. The total anticipated acreage of the soil cover is approximately 10 acres. Pre-design surface soil sampling and a tree survey would be performed to evaluate the potential need to address contaminated surface soil/fill material in approximately 1 acre of additional wetland and upland areas based on surface soil SCOs, including one upland forested area on the southern portion of the Site and two areas of forested wetland on the northern portion of the Site. However, because of the special considerations being given to the mature trees and bald eagle population, surface soil in non-remediated areas may exceed Commercial Use and the Protection of Ecological Resources SCOs in areas where a soil cover is not being placed.

Excavated contaminated soil/fill material management options are included as variations of Alternative 3. Specifically, on-Site reuse and off-Site disposal options to a permitted facility are presented as Alternatives 3A and 3B, respectively. Alternative 3A is anticipated to result in approximately 2,650 dump truck trips, while Alternative 3B is anticipated to result in 4,200 dump truck trips due to the off-Site disposal of excavated soil/fill material. Because of the Onondaga County trail construction, geotechnical concerns, and discussion and coordination with railroad operations, the boundaries of the remedy illustrated in Figure 12 are conceptual.

Because this alternative would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the remedy for the Site be reviewed at least once every five years.

The estimated construction time of this alternative is one to two construction seasons.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

	Alternative 3A (On-Site Reuse)	Alternative 3B (Off-Site Disposal)
Capital Cost:	$21,110,000	$26,150,000
Annual O&M Costs:	$185,000	$185,000
Present-Worth Cost:	$21,900,000	$27,000,000

Alternative 4 – Full Removal and Off-Site Disposal with Wetland Restoration and Monitored Natural Attenuation

Alternative 4 includes the mechanical excavation of soil/fill material within the forested and non-forested areas of the Site exhibiting concentrations above 6 NYCRR Part 375 Unrestricted Use SCOs (Figure 13). This is anticipated to require the removal of material as deep as 16 ft bgs. Approximately 400,000 cy of contaminated soil/fill material would be excavated and disposed off-Site under this alternative. The excavated areas would be backfilled with clean fill. Excavated wetland areas would be backfilled to existing grade using materials appropriate for wetland establishment. Appropriate wetland species would be planted to reestablish both forested and non-forested wetlands to include wetland vegetation, shrubs and trees.

Given the number of trees and larger organic debris (*e.g.,* chipped mature trees and brush) that would be generated from clearing, it is estimated that 900 tons of organic debris would also require off-Site transport and management. In addition, this alternative would include monitoring the natural attenuation of naphthalene in the groundwater. The timeframe for the naphthalene to achieve groundwater standards would be the same as for Alternative 2. Groundwater monitoring would be performed as part of site management.

It is estimated that 600,000 tons of excavated soil/fill material would be transported and disposed off-Site to a permitted facility. It is estimated that the soil/fill and organic debris would be transported off-Site over the course of four construction seasons, resulting in approximately 56,000 truck trips. Because of the required 30-foot setback from the adjacent CSX Railroad tracks, impacted material may need to remain on-Site. Therefore, ICs, a SMP, and periodic reviews, as described under Alternative 2, may be necessary.

ECs (*i.e.*, sheet piling and bulkhead) would be necessary along the perimeter of the Site to maintain stability of the excavation walls, prevent potential impacts to the railroad tracks, and to prevent inundation from Onondaga Lake, Onondaga Creek and Ley Creek. Further geotechnical evaluations would be necessary to evaluate sheet pile installation in the vicinity of the railroad.

It is assumed that the soil/fill material excavated below the groundwater table would need to be dewatered prior to off-Site transportation and disposal. Treatment of this construction water is anticipated to be necessary; a temporary water treatment facility would be utilized to treat this construction water. Treated construction water would be managed in a manner and in accordance with discharge requirements to be determined by NYSDEC during the remedial design phase.

Because additional geotechnical evaluations and discussion and coordination with Onondaga County and railroad operations would need to be conducted, the remedy depiction illustrated in Figure 13 is conceptual.

Because this alternative would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the remedy for the Site be reviewed at least once every five years.

The estimated construction time of this alternative is five to seven construction seasons.

The estimated capital, annual, and present-worth costs of this alternative are as follows:

Capital Cost:	$281,150,000
Annual O&M Costs:	$57,000
Present-Worth Cost:	$281,300,000

COMPARATIVE ANALYSIS OF ALTERNATIVES

The detailed analysis consists of an assessment of the individual alternatives against each of the nine evaluation criteria (see box below) and a comparative analysis focusing upon the relative performance of each alternative against those criteria. The first two evaluation criteria are termed "threshold" criteria and must be satisfied for an alternative to be considered for selection. The next five criteria are "primary balancing" criteria. These are used to make comparisons and to identify the major tradeoffs between alternatives. The remaining two criteria are "modifying" criteria. These criteria are used in the final evaluation of the remedial alternatives after the formal comment period and may prompt modification of the preferred remedy that was presented in the Proposed Plan.

A comparative analysis of these alternatives based upon the evaluation criteria noted below follows.

NINE EVALUATION CRITERIA FOR FEDERAL SUPERFUND REMEDIAL ALTERNATIVES
Overall protection of human health and the environment addresses whether an alternative eliminates, reduces, or controls threats to public health and the environment through ICs, ECs, or treatment.
Compliance with ARARs evaluates whether the alternative would meet all the applicable or relevant and appropriate requirements of federal and state environmental statutes and other requirements that pertain to the site or provide grounds for invoking a waiver.
Long-term effectiveness and permanence considers the ability of an alternative to maintain protection of human health and the environment over time.
Reduction of toxicity, mobility, or volume through treatment is the anticipated performance of the treatment technologies an alternative may employ.
Short-term effectiveness considers the period of time needed to implement an alternative and the risks the alternative may pose to workers, residents, and the environment during implementation.
Implementability is the technical and administrative feasibility of implementing the alternative, including the availability of materials and services.
Cost includes estimated capital and annual O&M costs, as well as present-worth costs. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

State acceptance considers whether, based on its review of the RI/FS Reports and the Proposed Plan, the State supports, opposes, and/or has identified any reservations with the selected response measure.
Community acceptance will be assessed in the ROD and refers to the public's general response to the alternatives described in the Proposed Plan and the RI/FS Reports. Comments received on the Proposed Plan are an important indicator of community acceptance.

Overall Protection of Human Health and the Environment

Based on the reasonably anticipated future Site use, including a recreational trail, current human health hazards and risks associated with recreational use for all receptors are acceptable based on post-HHRA re-evaluations of hazard and risk (see Table 4). Alternative 1, no action, would not be protective of human health and the environment because it would not actively address the contaminated soil/fill or groundwater, which pose unacceptable human health and ecological risks. Alternatives 2 through 4 would provide for human health protection relative to potential exposure to soil/fill material through ECs and ICs. ICs, a SMP, and monitoring the natural attenuation of naphthalene in groundwater included in Alternatives 2 through 4 would provide protection of human health relative to potential exposure to surface and subsurface soil/fill material, sheens that may develop during soil excavations, and groundwater for receptors such as construction or utility workers. The SMP would require special measures to address water during excavation activities. Alternative 2 would provide protectiveness through placement of clean cover material in 8.2 acres of non-forested wetland and non-forested upland areas, in addition to ICs and MNA for the groundwater. Alternative 3 would provide protectiveness over 10 acres through removal of surface soil/fill material within non-forested wetlands, restoration of non-forested wetlands, placement of a soil cover within non-forested upland areas, ICs, and MNA for the groundwater. Alternative 3 is anticipated to result in some disturbance to the eagle habitat, since it requires removal of an approximate half-acre area that includes mature trees. Alternatives 2 and 3 would also include the flexibility to provide added protection (as determined by pre-design soil sampling) through grading/handling of surface soil/fill material to address additional wetland and/or upland areas, provided that eagle habitat (*e.g.,* mature trees) is not significantly impacted. Alternative 4 would be the most protective but would also result in the greatest impact to forested habitat, including the eagle roosting areas, through Site-wide removal of trees.

The soil cover and/or targeted excavation of surface soil as presented in Alternatives 2 and 3 would address SCOs for Commercial Use and Protection of Ecological Resources where the cover is placed within the non-forested wetland and upland areas, while preserving as much of the forested bald eagle roosting habitat as possible. In order to consider contaminant concentrations on a Site-wide basis (including contamination that would remain in the undisturbed forested areas), an evaluation of Site-wide surface soil AWACs was performed to demonstrate the level of protectiveness that would be achieved for remedial alternatives relative to one another and to current conditions. Exceedances of Commercial Use SCOs in surface soil may be present in the forested areas where a soil cover is not being placed, although the AWACs calculated for the existing conditions and conditions following implementation of Alternatives 2 and 3 illustrate improvement in average surface soil concentrations as a result of these remedies. With respect to human health, based on this analysis the surface soil AWACS are below SCOs for Commercial Use for chromium, mercury, 4,4-DDT and total PCBs with no further remedy implementation (*i.e.*, under Alternative 1). Implementation of Alternatives 2 or 3 would further reduce AWACs for these representative risk and remedy drivers and reduces AWAC values for cadmium to below the corresponding Commercial Use SCO. Implementation of Alternatives 2 and 3 would also reduce AWAC values for benzo(a)pyrene to concentrations marginally exceeding the corresponding Commercial Use SCO. Potential exposure risks for human receptors to residual contamination would be addressed through ECs (*e.g.,* soil cover, fencing/railing) and ICs (*e.g.,* signage, environmental easements).

In developing ecological remediation goals in sensitive habitats, consideration must be given to the intrusive nature of some remedial activities and the potential negative impacts resulting from implementation of such remedial activities, particularly in consideration of the extensive utilization of the Site by bald eagles and the forested habitat present. Exceedances for Protection of Ecological Resources SCOs may be present in the forested areas where a soil cover is not being placed, although Alternatives 2 and 3 are expected to reduce average surface soil concentrations below the SCOs for benzo(a)pyrene. Average levels of total PCBs pre-remediation are below the Protection of Ecological Resources SCO for PCBs and would be further reduced after implementation of Alternatives 2 or 3. Post-remediation AWACs for cadmium, chromium, mercury, and 4,4-DDT would potentially exceed SCOs for the Protection of Ecological Resources within the top two feet of soil, though significant reductions are anticipated under Alternatives 2 and 3.

Under Alternatives 2 and 3, a significant portion of the elevated concentrations of contaminants at the Site would be addressed, remaining concentrations would be expected to be protective of community impacts to ecological receptors when the Site is considered in its entirety, and significant habitat alteration and bald eagle disturbance would be avoided. As a result, Alternatives 2 and 3 are considered to improve protection of ecological exposures. Specifically, further examination of post-remedy exposure to constituents that would potentially exceed the SCOs for the Protection of Ecological Resources, indicates that Alternatives 2 and 3 would reduce lowest observed adverse effect level (LOAEL)-based HQs to below 1, or marginally above 1, for the most sensitive receptor (short-tailed shrew) evaluated in the BERA. Thus, Alternatives 2 and 3

address protectiveness of anticipated future use and ecological receptors while observing primary tenets of *Ecological Risk Assessment Guidance for Superfund* (ERAGS). Biota monitoring would also be performed under Alternatives 2 and 3 to monitor protectiveness of ecological resources and remedy effectiveness and to determine if additional remedial actions are necessary.

Consistent with 6 NYCRR-1.8(f) and DER-10.4.2(i), the current, intended, and reasonably anticipated future use of the Site was considered when selecting SCOs. Alternative 1 would not be consistent with current, intended, and reasonably anticipated future use of the Site. The soil cover in Alternative 2 would address at least 8.2 acres of non-forested wetland and upland area surface soil/fill material exceeding SCOs consistent with current, intended, and reasonable anticipated future use of the Site, while 15.3 acres would not be addressed. The soil cover with added removal of surface soil/fill material in Alternative 3 would support the current, intended, and reasonably anticipated future land use, and address at least 9.5 acres of non-forested wetland and upland areas along with 0.5 acres of forested upland, while 13.5 acres would not be addressed. However, Alternative 3 would impact 0.5 acres of mature trees that are important habitat for the bald eagle population. Removal of soil/fill material in Alternative 4 would support the current, intended, and reasonably anticipated future land use and address 23.5 acres of Site area exceeding SCOs; however, it would remove and/or prevent use of the recreational trail at the Site during the 5-to-7-year construction period and would result in Site-wide clearing of valuable forested habitat and likely adversely affect the local bald eagle population.

Alternative 1 would not address RAOs related to potential erosion and direct contact with soil/fill material. RAOs for protection of ecological receptors would be improved via AWACs for Alternatives 2 and 3, although SCOs at certain locations may still be exceeded. Alternatives 2 and 3 would improve protectiveness of the environment and would provide for additional protection of human health within non-forested wetland and upland areas and would meet RAOs through the use of soil covers, which would control potential erosion of, and direct contact with, soil/fill material as well as control the potential inhalation of dust in these areas. Alternative 3 would provide added protection of human health and the environment within non-forested wetland areas as compared to Alternative 2 and would meet RAOs through soil covers and the removal of surface soil/fill material for portions of the Site. ICs, a SMP, and monitoring would provide for continued protection of the environment and provide a means to evaluate continued protectiveness in Alternatives 2 through 4. Alternatives 2 and 3 also include biota monitoring for the purpose of assessing ecological protectiveness. Alternative 4 would be protective of human health and the environment within forested and non-forested wetland and upland areas through removal of accessible surface and subsurface soil/fill material and would allow for unrestricted use of the majority of the Site by addressing soil/fill material exceeding SCOs for Unrestricted Use. With the exception of Alternative 4, each of the alternatives would provide preservation of trees utilized seasonally by bald eagles for roosting.

In summary, since Alternative 1 does not provide protection of human health and the environment, this alternative does not satisfy this threshold criterion. Alternatives 2 through 4 would satisfy this threshold criterion by providing protection of human health and the environment. Alternatives 2 through 4 would provide varying degrees for protection of human health and the environment through ECs and ICs. Alternative 3 is anticipated to directly address more of the Site as compared to Alternative 2, however, this is at the expense of eliminating 0.5 acres of valuable forested habitat. Alternative 4 would provide the greatest protectiveness. but would result in the most significant impact to forested habitat, including eagle roosting, through Site-wide removal of trees. Alternatives 2 and 3 are considered reasonably protective of human and ecological receptors by addressing elevated soil concentrations while preserving the forested habitat, critical to overall Site ecology and utilized by bald eagles.

Compliance with ARARS

SCOs are identified in 6 NYCRR Part 375, Environmental Remediation Programs, Subpart 375-6, effective December 14, 2006. New York State's Commercial Use and Protection of Ecological Resources SCOs at 6 NYCRR Section 375-6.3(b) have been identified as an ARAR, TBC, or other guideline to address contaminated surface and subsurface soil[3]. While surface soil at the Site contains contaminants at concentrations exceeding Commercial Use SCOs, potential exposure risks for human receptors to residual contamination would be addressed through ECs (*e.g.,* soil removal/cover, fencing/railing, etc.) and ICs (*e.g.,* signage, environmental easements). As discussed above under HHRA and Overall Protection of Human Health and the Environment section, the *Revised HHRA* and subsequent re-evaluation identified acceptable risks for the anticipated public use of the Site (*e.g.*, recreational trail).

Because the contaminated soil/fill material would not be actively addressed under Alternative 1, it would not achieve the SCOs. Under Alternative 2, soil/fill material exceeding SCOs would be addressed within a portion of the non-forested wetland and upland areas (8.2 of the 23.5-acres) through the installation of a soil cover where accessible and not detrimental to the

[3] Protection of Groundwater SCOs are not applicable based on provisions within NYCRR Part 375 (*e.g.,* an environmental easement will be put in place which provides for a groundwater use restriction; contaminated groundwater at the site is not migrating, or likely to migrate, off-site).

environment (*e.g.*, tree removal, disturbance of bald eagles, etc.). In Alternative 3, as compared to Alternative 2, the installation of a soil cover with the additional removal of surface soil/fill material within the western portion of the non-forested wetland areas and restoration with clean material would address soil exceeding SCOs within the additional non-forested wetland (10 of the 23.5-acres) although this would require the removal of some forested habitat. While some areas exhibiting soil concentrations greater than the Protection of Ecological Use SCOs may remain under Alternatives 2 and 3 they are expected to be protective of community impacts to ecological receptors throughout the Site, based on AWAC calculations, coupled with the avoidance of significant habitat alteration and bald eagle disturbance. For Alternative 3, should reuse of material be incorporated into the remedy, consideration for re-exposure and long-term management would be addressed in the remedial design and O&M requirements. Alternative 4 would address surface and subsurface soil exceeding Unrestricted Use SCOs within the footprint of the Site, including the forested and non-forested areas. Alternatives 2, 3 and 4 would address exceedances of New York State Class GA guidance value for naphthalene through natural attenuation.

No location- or action-specific ARARs were identified for Alternative 1 (No-Action alternative). Construction methods and safety procedures would be implemented to adhere to the location- and action-specific ARARs that are pertinent to Alternatives 2 through 4. Specifically, ICs would be implemented in Alternatives 2 through 4 in general conformance with NYSDEC's guidance DER-33 (see https://www.dec.ny.gov/docs/remediation_hudson_pdf/der33.pdf) and EPA guidance (see https://www.epa.gov/superfund/superfund-institutional-controls-guidance-and-policy). Additionally, Alternatives 2 and 3 would mitigate potential erosion and exposure to soil/fill material where soil covers are installed and would be implemented in general conformance with NYSDEC's DER-10 (see https://www.dec.ny.gov/regulations/67386.html). Procedures would be implemented to adhere to the location-specific ARARs related to federal and state requirements, such as for the portion of the Site that is a designated wetland for cultural, archeological, and historical resources. Additionally, proposed actions would be conducted in a manner consistent with Fish and Wildlife Coordination Act requirements for the protection of Onondaga Lake and for areas proximate to Onondaga Lake. As necessary, actions under Alternatives 2 through 4 would be implemented in general conformance with state and federal wetland and floodplain assessment requirements in addition to navigable waterway and New York State Railroad Law. Specifically, wetland permitting and mitigation requirements, such as those in 6 NYCRR Part 663, Article 15 and 6 NYCRR Part 608 would be considered during the remedial design phase. With respect to action-specific ARARs, the soil cover, wetland restoration, and excavation related activities would be conducted consistent with applicable standards including RCRA Subtitle D, 40 CFR Part 358.60 – Closure Criteria, 40 CFR Part 257 - Criteria for Classification of Solid Waste Disposal Facilities and Practices, and 40 CFR Parts 264 and 265, Subpart N – Landfills and 6 NYCRR 360 - Solid Waste Management Facilities, earth moving/excavation activities would be conducted consistent with air quality standards including 6 NYCRR 200-203, 211-212 – Prevention and Control of Air Contamination and Air Pollution, and 40 CFR Part 50.1 - 50.12 – National Ambient Air Quality Standards, and transportation and disposal activities would be conducted in accordance with applicable state and federal requirements including 6 NYCRR 364 - Waste Transporter Permits and 49 CFR 107, 171-174 and 177-179 - Department of Transportation Regulations, by licensed and permitted haulers, with disposal at permitted facilities. Under Alternative 4, construction water would be managed in a manner and in accordance with discharge requirements to be determined by NYSDEC during the remedial design phase.

Location-specific ARARs related to habitat protection, including the Federal Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq*), USFWS National Bald Eagle Management Guidelines, Conservation Plan for Bald Eagles in New York State, and 6 NYCRR 182, provide requirements and guidance regarding the protection of bald eagle habitat, including the "take and disturbance" of bald eagles, and limiting activities that may alter communal roost sites and foraging areas. Alternatives 2 and 3 can be implemented while preserving the valuable tree habitat, with minimal removal of low- to mid-story vegetation and retaining larger-scale vegetation at the Site, whereas Alternative 4 would require the Site-wide removal of trees currently providing high-value forested habitat used as winter eagle roosting habitat.

Long-Term Effectiveness and Permanence

Alternative 1 would involve no active remedial measures and, therefore, would not be effective in eliminating the potential exposure to contaminants in the soil/fill material and groundwater. Unlike Alternative 1, Alternatives 2 through 4 would provide varying levels of long-term effectiveness and permanence. Alternative 4 provides the most reduction in residual risk, however, it requires removal of trees that enhance the overall value of Site habitat and provide eagle roosting habitat. Alternatives 2 and 3 would support the anticipated future use of the Site for a multi-use recreational trail while preserving trees utilized seasonally by bald eagles for foraging and roosting. Alternative 3 would provide some additional level of long-term effectiveness and permanence relative to Alternative 2 as it would result in a greater acreage of remediation although limited tree removal would be required. Potential human health risks associated with Alternatives 2 through 4 would be reliably addressed through ECs (*e.g.,* soil removal/cover, fencing/railing) and/or ICs (*e.g.,* signage, environmental easements). Each alternative would result in minimal long-term fuel/energy consumption, greenhouse gas emissions, and impacts to water, ecology, workers, or the community associated with long-term maintenance of the remedies.

The long-term performance of Alternatives 2, 3 and 4 could potentially be impacted as a result of erosion of the soil covers during severe storms/weather events and associated flooding that may be more frequent or severe as a result of climate

change. These effects would be noted and documented as a result of inspections which would be conducted in accordance with the SMP, particularly after flood events, and mitigated as may be necessary and appropriate.

Reduction in Toxicity, Mobility, or Volume Through Treatment

Since none of the alternatives involve active treatment, there would be no reduction in toxicity, mobility, or volume in soil/fill material through treatment provided under Alternatives 1 through 4. Reduction of mobility (*i.e.*, potential erosion) of contaminants in surface soil/fill material would be achieved through the installation of soil covers in select areas under Alternatives 2 and 3. Alternative 4 would provide the greatest reduction in toxicity, mobility, and volume through the excavation and off-Site management of contaminated surface and subsurface soil/fill material. Reduction of toxicity, mobility and volume of representative constituents in surface soil/fill material would not be due to treatment. Under each alternative, natural attenuation is expected to reduce groundwater naphthalene concentrations within a reasonable time frame.

Short-Term Effectiveness

Alternative 1, the no-action alternative, does not include active remedial components, and, therefore, would not present any potential adverse impacts to workers and the community. Alternatives 2 through 4 would be implemented and constructed using proper protective equipment to manage potential risks to on-Site workers, and proper precautions and monitoring to be protective of the general public and the environment.

Because no action would be performed under Alternative 1, there would be no implementation time. Alternative 2 is anticipated to be completed within one construction season, while Alternative 3 is anticipated to be completed within one to two construction seasons. Due to the volume of surface and subsurface soil/fill material exceeding Unrestricted Use SCOs, Alternative 4 would require a longer timeframe to attain RAOs in the forested and non-forested wetland, as excavation is estimated to take place over five to seven construction seasons.

Impacts to the community resulting from the implementation of Alternatives 2 and 3 would primarily be due to increased truck traffic and increased noise for the duration of construction for the soil cover under Alternative 2 and contaminated surface soil/fill material excavation and soil cover construction under Alternative 3. Additional truck traffic and noise is anticipated for the duration of Alternative 3B due to off-Site transport of excavated surface soil/fill material. Alternative 4 would have significantly increased truck traffic, noise, dust and emissions compared to Alternatives 2 and 3 due to the need to clear the Site of trees prior to surface and subsurface soil/fill material excavation for the five- to seven-year duration of construction. The implementation of the clearing, surface and subsurface soil/fill material excavation and off-Site disposal included in Alternative 4 would result in far greater impacts to the community, including substantially increased traffic, dust and emissions as well as increased noise, although mitigative measures would be implemented to the extent practicable to limit the impacts of noise, dust and traffic. Additionally, Alternative 4 would involve the addition of sheeting or other stabilization measures along the railroad tracks and bulkhead installation along the shoreline during construction.

As it relates to traffic, transportation of cover material to the Site is anticipated to result in approximately 2,450 truck trips under Alternative 2, while transport of cover material, excavation of surface soil/fill material, on-Site consolidation and wetland restoration under Alternative 3A (on-Site reuse of excavated material) is anticipated to result in approximately 2,650 truck trips. Alternative 3B (off-Site disposal of excavated material) is anticipated to result in an additional 1,550 truck trips for off-Site disposal of excavated soil/fill material when compared to Alternative 3A. Excavation of contaminated surface and subsurface soil/fill material, off-Site transportation and disposal and wetland restoration included in Alternative 4 would require approximately 56,000 truck trips over four years, resulting in the greatest impact on traffic and potentially adverse effects on local air quality. The increased traffic associated with construction of Alternatives 3 and 4 would result in a potential increase in safety-related risks and impacts to CSX Railroad operations due to off-Site transport of excavated soil/fill material requiring additional crossing and coordination with railroad traffic proximate to the Site.

With respect to sustainability, there is an environmental footprint inherent in implementation of each alternative as it relates to construction and operation, as well as impacts to the community (as described above). The implementation of the excavation and off-Site disposal included under Alternative 4 would result in far greater direct emissions and fuel consumption, as compared to importing construction materials and construction of the soil cover included in Alternative 2 and soil cover, surface soil/fill material excavation and management of excavated material included in Alternative 3. Construction of Alternatives 2 and 3 would result in greater greenhouse gas impacts than Alternative 1 and construction of Alternative 4 would result in substantially greater greenhouse gas impacts than the other alternatives. Consistent with NYSDEC and EPA policies on green remediation, sustainability considerations will not be used to justify implementation of the no-action alternative or a less comprehensive alternative when a more comprehensive remedy is called for, appropriate, and feasible.

Worker and community risks during remedy implementation are significantly greater for Alternative 4 compared to Alternatives 2 and 3. Specifically, the added risks to workers and the community, the added duration to achieve RAOs, the significant

traffic impacts to the community, and the significantly greater environmental footprint associated with Alternative 4 would be less effective in the short-term relative to Alternatives 2 and 3.

Implementability

Alternative 1 would be the easiest alternative to implement, as there are no activities to undertake.

Alternatives 2 through 4 would employ technologies (soil covers and excavation) known to be reliable and that can be readily implemented. Equipment, services and materials needed for these alternatives are readily available. Monitoring the effectiveness of the soil covers under Alternatives 2 and 3 would be accomplished through inspections and maintenance to verify continued cover integrity, visual signs of erosion, and condition of the soil cover. Areas of wetland restoration/mitigation under Alternatives 2 and 3 would be monitored for signs of erosion, condition of vegetation, and presence of invasive species. A SMP and periodic reviews would also be implemented under Alternatives 2 and 3 for the purpose of monitoring and documenting remedy effectiveness, managing remaining contamination, and implementing measures as needed to prevent human exposures, in addition to groundwater monitoring as a means to assess potential changes in groundwater concentrations.

The actions under Alternatives 2 through 4 would be administratively feasible. They would require access across the CSX Railroad tracks and work in proximity to the railroad, Onondaga Lake, Onondaga Creek, and Ley Creek. Alternatives 2 through 4 would also require coordination with other agencies, including NYSDEC, New York State Department of Transportation, NYSDOH, USEPA, USFWS, City of Syracuse, and CSX Railroad. Coordination with Onondaga County would also be necessary since it is the property owner and for maintenance of the multi-use recreational trail.

Alternative 3, which includes Alternatives 3A (on-Site reuse of excavated material) and 3B (off-Site disposal of excavated material), would be more difficult to implement than Alternative 2. Specifically, a geotechnical evaluation concluded that global stability associated with excavation in the vicinity of the railroad tracks under Alternative 3 is anticipated to limit implementability of this alternative. CSX Railroad concurrence with remedial design of the cover and excavation elements included in this alternative would be required. Thus, stability concerns may affect the implementability of this alternative. Additionally, Alternative 3A is less implementable than Alternative 2, because it is necessary to evaluate and identify on-Site reuses to manage the additional spoils anticipated during implementation of Alternative 3A. Alternative 3B is less implementable than Alternative 2 because off-Site transport and disposal included under Alternative 3B would result in impacts to CSX Railroad operations requiring additional crossing and coordination with railroad traffic proximate to the Site. In addition, landfill disposal capacity would require confirmation prior to implementation of Alternative 3B.

Alternative 4 would be the most difficult to implement in comparison to Alternatives 2 and 3 for the following reasons:

- There are significant implementability limitations associated with the excavation, transportation, and disposal (capacity) for approximately 400,000 cy of soil/fill material.
- There are challenging construction water management and greater slope stability concerns relative to the active CSX Railroad lines when compared to the shallow excavations included under Alternative 3, which would require CSX concurrence. Construction water management using a temporary treatment system is anticipated to be significant during the excavation, as large water volumes are anticipated due to the presence of heterogenous and permeable fill and excavations in proximity of the on-Site wetlands, Onondaga Lake, Onondaga Creek, and Ley Creek. Excavations in the vicinity of active railroads, subsurface utilities, and surface water bodies are anticipated to limit the implementability of excavations in certain areas and require the costly design, procurement, and installation of shoring. As part of the supporting geotechnical evaluations, installation of sheet piling would be evaluated and installed, if required, to support excavations in these areas.
- There are also significant transportation concerns related to Alternative 4. The estimated volume requiring disposal is 400,000 cy (estimated to be approximately 615,000 tons). Based on a daily production rate of 500 cy per day for 10 months of the year, it is estimated that up to approximately 100,000 cy of material could be shipped off-Site each year in 7,000 truckloads (up to 35 truckloads per day) with an approximately equivalent number of trips being required for restoration, over a duration of 5 to 7 years. During a 10-hour workday, this would equate to approximately one truck entering or leaving the Site every 10 minutes. In addition to the potentially significant adverse effects on local air quality and community traffic patterns, traffic of this magnitude is anticipated to result in significant adverse effects on conditions of roadways.
- Ecological considerations limit the implementability of Alternative 4, including the removal of trees providing valuable forested habitat and that are utilized by bald eagles. The Site serves as a winter roost site and concentration area for a large number of bald eagles; a State-listed Threatened species. Alternative 4 would require the disturbance of 23.5 acres and the Site-wide removal of trees that serve as an important habitat, and it is anticipated it would take several decades to restore.

Cost

The estimated capital, annual O&M, and present-worth costs for each of the alternatives are presented in the table below. The present-worth costs were calculated using a discount rate of seven percent and a 30-year time interval for post-construction monitoring and maintenance period (although O&M would continue as needed beyond the 30-year period, 30 years is the typical period used when estimating costs for a comparative analysis).

Alternative	Capital Cost	Annual O&M Cost	Total Present Worth Cost
1 – No Action	$0	$0	$0
2 – Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and MNA	$7.5 million	$181,000	$8.3 million
3A – Surface Excavation with On-Site Reuse and Soil Cover/Wetland Restoration on Perimeter and Interior Areas, Biota Monitoring, MNA, with Limited Tree Removal	$21.1 million	$185,000	$21.9 million
3B – Surface Excavation with Off-Site Disposal and Soil Cover/Wetland Restoration on Perimeter and Interior Areas, Biota Monitoring, MNA, with Limited Tree Removal	$26.2 million	$185,000	$27.0 million
4 - Full Removal and Off-Site Disposal with Wetland Restoration and MNA	$281.2 million	$57,000	$281.3 million

State Acceptance

NYSDOH has reviewed this Proposed Plan and concurs with the preferred remedy detailed below.

Community Acceptance

Community acceptance of the preferred alternative will be addressed in the ROD following review of the public comments received on the Proposed Plan.

PREFERRED REMEDY

Based upon an evaluation of the various alternatives, NYSDEC and EPA recommend Alternative 2 – Soil Cover in Select Areas, Wetland Restoration, Biota Monitoring, and MNA as the preferred alternative. The preferred alternative includes the installation of an 8.2-acre 2-foot-thick soil cover in select areas of the Site, as well as biota monitoring to evaluate the protectiveness of ecological resources and remedy effectiveness. To restore wetland areas, contaminated soil may be removed prior to cover placement to a depth necessary to preserve wetland conditions and functions. Monitoring the natural attenuation of naphthalene in the groundwater, development of a SMP, implementation of ICs, and long-term maintenance and monitoring are also components of the proposed remedy. A conceptual depiction of the preferred remedy is presented in Figure 11.

The remedial footprint is targeted to reduce ecological exposure within the cover footprint and to defer remediation in the forested SYW-12 habitat to preserve current bald eagle habitat. Specifically, damage to root zones or removal of mature trees used for eagle roosting would be avoided under the preferred Alternative 2.

A surface soil pre-design investigation and tree survey would be performed to evaluate the addition of up to seven areas, totaling 2.2 acres, to the remediation footprint. The areas for consideration include two areas within the forested wetland characterized by scrub vegetation on the northern portion of the Site, four areas within the non-forested wetland on the western portion of the Site, and one upland forested area on the southern portion of the Site (purple outlined areas on Figure 11). Should surface soil sampling and the tree survey indicate that elevated surface soil/fill material contaminant concentrations are present and large trees would not need to be removed or disturbed (*e.g.,* within the drip-zone of the large trees), soil excavation and backfilling of these areas with clean material would be considered during the design.

To minimize loss of wetland acreage or function, wetland conditions and functions would be integrated into the areas where the cover would be placed within the current wetland footprint. To improve the success of the restored wetlands, the remedial design would consider excavation and/or grading to allow for continued wetland functions and values. An evaluation would be conducted as part of the cover design to promote sufficient flooding and saturation to facilitate the development of wetland soils and hydrology appropriate for native plants and other habitat in conjunction with grading/soil profile design such that wetland conditions and functions are addressed. Where the water budget and/or grading cannot replace wetland conditions or functions, additional mitigation measures would be included during the design.

The soil covers would also be installed to support and preserve existing mature trees present proximate to the proposed cover to allow for future tree succession. Additional tree-planting may be performed as part of restoration. Where cover material is placed, a demarcation layer would be evaluated during the remedial design to delineate the boundary between the contaminated soil/fill material and the soil cover and would be compatible with the wetland or tree growth, as necessary. The demarcation layer would provide evidence of cap erosion and provide a warning that contaminated material may exist below the demarcation layer.

Excavated soil reuse options and limitations (*e.g.,* within wetland areas), impacts to the bald eagle habitat, and the final wetland restoration approach, including opportunities to improve wetland functions and values, planting of trees and sustainable remediation principles would be further evaluated during the pre-design and design phases. Should reuse of excavated/graded/handled materials not be possible at the Site following remedial design evaluations, the material would need to be managed off-Site.

Because of the Onondaga County trail construction, geotechnical concerns, and discussion and coordination with railroad operations, the boundaries of the remedy illustrated in Figure 11 are conceptual. It is anticipated that there would be no excavation in wetland areas adjacent to the railroad based on stability concerns. Mitigation would be necessary where construction results in a loss of wetland acreage or function and wetland conditions cannot be returned. The extent of the cover would be revisited during the design phase based on pre-design sampling and other activities and in consideration of the trail alignment. Onondaga County has included signage requiring recreational users to remain on the trail in the design for the multi-use recreational trail. The potential need for additional measures (*e.g.,* fencing/railing, maintaining dense vegetation along the trail, improved signage, and/or sampling) would be reviewed during the design phase and based on management of the trail.

Biota monitoring would be performed to evaluate remedy effectiveness and assess protectiveness of ecological receptors. A baseline sampling program, consisting of two sampling events, would be implemented, with subsequent sampling events following remedy implementation using an adaptive, data-driven approach (*e.g.,* years 3 and 5). A field assessment of Site vegetative community composition (*e.g.,* diversity, richness, invasive species evaluation) and qualitative wildlife community observations would be performed to support the biota monitoring program. The field assessment would also include an evaluation of Site trees, specifically trees that serve as roosts for bald eagles, for overall health and preservation. Specific sample locations, species, sample and analytical methods, and frequencies would be assessed and established during the remedial design. It is assumed that the monitoring program would consist of analysis of soil invertebrate and small mammal tissue, with collection of co-located surface soil/fill material samples for laboratory analysis of chemical constituents. The details related to the scope of biota sampling would be developed during the remedial design phase.

Periodic sampling and analysis of groundwater would be included as a means of detecting changes in groundwater concentrations and monitoring the natural attenuation of naphthalene in groundwater. Natural attenuation of other contaminants may be evaluated, if necessary. Specific monitoring locations, parameters, and frequencies would be established during remedial design. For cost estimation purposes, it was assumed that the monitoring program would consist of semi-annual sampling of ten monitoring wells with analyses for VOCs, SVOCs (including PAHs), metals, mercury, cyanide, and cations/anions. However, the specific number of wells and analyses will be determined during remedial design or site management.

The cover would require routine maintenance and inspection to maintain integrity and proper function.

ICs in the form of environmental easements and/or restrictive covenants would be used to limit land use to commercial (including passive recreational), as appropriate, prevent the use of groundwater without approved treatment and require that any intrusive activities on the Site would be conducted in accordance with a NYSDEC-approved SMP, which would include the following:

- Institutional and Engineering Control Plan that identifies all use restrictions and ECs for the Site and documents the steps and media-specific requirements necessary to ensure the following ECs and ICs remain in place and effective:
    - environmental easements and/or restrictive covenants described above;

    - soil cover described above;
    - future remediation/management of areas where no cover is present at the Site (*e.g.,* due to erosion or changes in vegetation);
    - excavation plan that details the provisions for management of future excavations on the Site ;
    - descriptions of the provisions of the ICs, including any land use or groundwater use restrictions;
    - a soil vapor intrusion evaluation will be completed and appropriate actions implemented for any on-Site buildings, if they were to be constructed;
    - provisions for the management and inspection of the identified ECs;
    - protection measures to be implemented while conducting any needed subsurface soil disturbance activities to prevent exposure to sheens or blebs of NAPL;
    - maintaining Site access controls and NYSDEC notification; and
    - steps necessary for periodic reviews and certification of the ECs and/or ICs.
- Monitoring Plan to assess the performance and effectiveness of the remedy. Elements of the monitoring plan will include groundwater and biota monitoring, and success or repair of habitat and wetland restoration/mitigation. The monitoring plan will include assessing restoration success and repair, wetland delineation, and invasive species management during restoration. The final monitoring program would be established during the design.

Because this alternative would result in contaminants remaining above levels that allow for unrestricted use and unlimited exposure, CERCLA requires that the remedy for the Site be reviewed at least once every five years.

Green remediation techniques, as detailed in NYSDEC's Green Remediation Program Policy - DER-31 and EPA's Region 2 Clean and Green Policy, would be considered during remedy implementation to reduce short-term environmental impacts. Green remediation best practices such as the following may be considered:

- Use of renewable energy and/or purchase of renewable energy credits to power energy needs during construction and/or O&M of the remedy;
- Reduction in vehicle idling, including both on and off-road vehicles and construction equipment during construction and/or O&M of the remedy;
- Design of the soil cover, to the extent possible, to be usable for alternate uses, require minimal maintenance (*e.g.*, less mowing), allow for infiltration of storm water and/or be integrated with the planned use of the property;
- Maximizing habitat value and creating habitat when possible;
- Reuse of material that would otherwise be considered a waste; and
- Use of Ultra Low Sulfur Diesel.

BASIS FOR THE REMEDY PREFERENCE

Alternative 1 does not satisfy the threshold criteria, because it does not provide protection of human health or the environment or provide a means to attain ARARs. Alternatives 2 and 3 provide a balance between addressing the human health and ecological risks and protecting bald eagle habitat at the Site and addressing the ARARs. Alternative 4 satisfies the threshold criteria, however, this alternative would significantly impact the bald eagle habitat at the Site.

As described below, Alternative 2 is more effective at achieving the primary balancing criteria (long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; and cost) than would be achieved under Alternatives 3 or 4.

Alternatives 2 and 3 would provide similar degrees of protectiveness relative to potential exposure to contaminated soil/fill material and groundwater, although surface soil SCO exceedances may be present in areas where cover is not being placed. Alternatives 2 and 3 are also comparable in terms of the primary balancing criterion, reduction of toxicity, mobility, or volume through treatment (neither alternative employs treatment) and both would support the anticipated future use of the Site for a multi-use recreational trail, while preserving trees utilized seasonally by bald eagles for foraging and roosting. Alternative 3 would provide some additional long-term effectiveness and permanence relative to Alternative 2, as it would result in the remediation of a greater acreage of wetland area, though this would result in impacts to the valuable forested habitat. However, relative to Alternative 3, Alternative 2 would better meet the primary balancing criteria for implementability, short-term effectiveness, and cost, as Alternative 3 would potentially present geotechnical stability issues for the nearby CSX Railroad that limit its implementability, may require an additional construction season to implement resulting in more potential community impacts, and would require an additional cost expenditure of approximately $13-19 million.

Site-wide excavation of contaminated soil/fill material under Alternative 4 would present greater geotechnical stability concerns along the railroad tracks as compared to Alternative 3. When considering the primary balancing criteria, Alternative

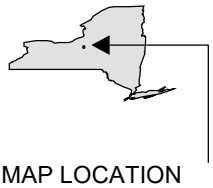
4 does not compare favorably because this alternative is significantly less implementable than Alternatives 2 and 3 and cannot be constructed without significantly impacting the forested habitat, including the bald eagle habitat. Furthermore, Alternative 4 would involve disturbing a substantial quantity of soil requiring significant water management and material transportation and would involve challenges with slope stability and would likely have impacts on nearby railroad operations. As a result of the additional construction challenges under Alternative 4, the alternative would take significantly longer to implement, and the Alternative 4 cost is more than an order of magnitude greater than the costs for Alternatives 2 and 3.

Overall, while satisfying the threshold criteria, Alternative 2 best satisfies the primary balancing criteria, as it is more implementable than Alternatives 3 and 4 and can be constructed with less short-term impacts to the community and to the CSX Railroad. In addition, Alternative 2 is less costly than Alternatives 3 and 4.

Based on information currently available, NYSDEC and EPA believe that the preferred alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. NYSDEC and EPA expect the preferred alternative to satisfy the following statutory requirements of CERCLA §121(b): 1) be protective of human health and the environment; 2) comply with ARARs; 3) be cost-effective; 4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and 5) satisfy the preference for treatment as a principal element (or justify not meeting the preference).

FIGURE 1

HONEYWELL INTERNATIONAL INC.
WASTEBED B / HARBOR BROOK
GEDDES AND SYRACUSE, NY



MAP LOCATION

OU-1 LOCATION

N

0 1,000 2,000 4,000
Feet

SEPTEMBER 2018
1163.61858

1:24,000

O'BRIEN & GERE ENGINEERS, INC.

PLOTDATE: 06/13/18 12:52:23 PM RozwodBJ

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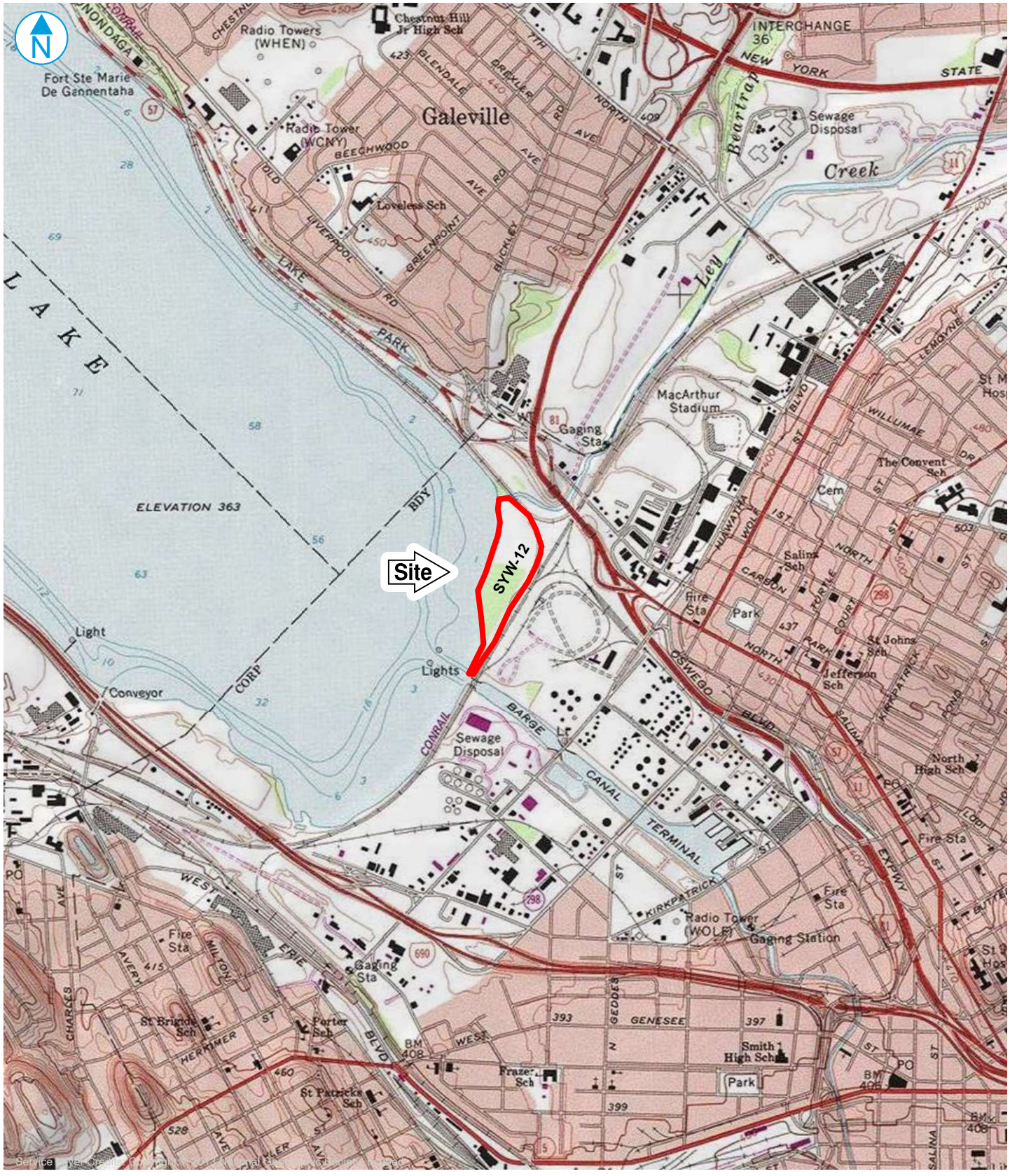

KEY MAP

Map Scale: 1:1:24,000;
Map Center: 76°10'33"W 43°4'17"N

0 1,000 2,000 Feet

SITE LOCATION

HONEYWELL INTERNATIONAL INC.
SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 2

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1940065696 | DATED: 3/1/2022 | DESIGNER: MONETANT

NOTE:
THE WETLAND DELINEATION IS BASED ON A 2018 DELINEATION TO REEVALUATE WETLAND BOUNDARIES BETWEEN CSX RAILROAD TRACKS AND ONONDAGA CREEK (ANCHOR QEA 2018).

- FORESTED UPLAND (7.4 AC)
- NONFORESTED UPLAND (3.0 AC)
- FORESTED WETLAND (6.6 AC)
- NONFORESTED WETLAND (6.5 AC)
- SITE BOUNDARY

0 125 250 Feet

SITE PLAN

HONEYWELL INTERNATIONAL INC.
SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 3

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

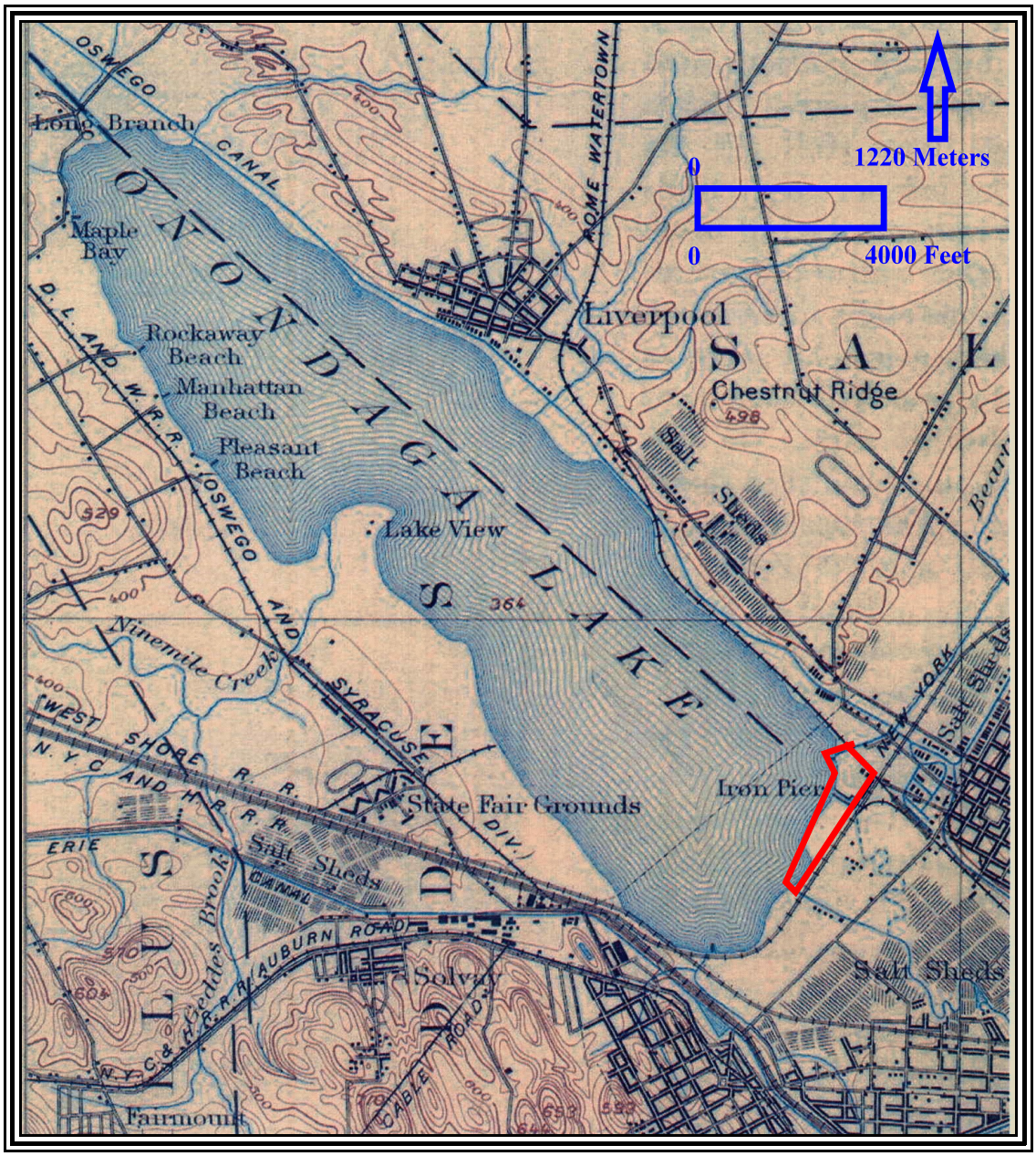

Figure 4. 1898 15-minute Syracuse East USGS quadrangle, with approximate area of the SYW-12 Site highlighted.

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PROJECT: 1940065696 | DATED: 3/2/2022 | DESIGNER: MONETANT

NOTE:
COMMERCIAL SCO= 9.3 mg/kg
POGW SCO= 7.5 mg/kg
ECO SCO= 4.0 mg/kg
J = ESTIMATED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND
- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS
- < ECO SCO
- EXCEEDED ECO SCO
- EXCEEDED ECO AND POGW SCO
- EXCEEDED ECO, POGW AND COMMERCIAL SCO

DEPTH
- 0 - 6"
- 6" - 1'
- 1' - 2'

CADMIUM
RESULT IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 5

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1940065696| DATED: 3/2/2022 | DESIGNER: MONETANT

NOTE:
COMMERCIAL SCO= 1,500 mg/kg
POGW SCO= N/A
ECO SCO= 41 mg/kg
J = ESTIMATED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS .

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND

- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS

- < ECO SCO
- EXCEEDS ECO SCO
- EXCEEDS BOTH ECO AND COMMERCIAL SCO

DEPTH

- 0 - 6"
- 6" - 1'
- 1' - 2'

CHROMIUM
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 6

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1940065696 | DATED: 3/2/2022 | DESIGNER: MONETANT

NOTE:
COMMERCIAL SCO= 2.8 mg/kg
POGW SCO= 0.73 mg/kg
ECO SCO= 0.18 mg/kg
J = ESTIMATED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS .

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND

- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- ▲ SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS

- < ECO SCO
- EXCEEDED ECO SCO
- EXCEEDED ECO AND POGW SCO
- EXCEEDED ECO, POGW AND COMMERCIAL SCO

DEPTH

- 0 - 6"
- 6" - 1'
- 1' - 2'

MERCURY
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 7

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1940065696 | DATED: 3/2/2022 | DESIGNER: MONETANT

NOTE:
COMMERCIAL SCO= 1.0 mg/kg
ECO SCO= 2.6 mg/kg
POGW SCO= 22 mg/kg
J = ESTIMATED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND

- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS

- < COMMERCIAL SCO
- EXCEEDED COMMERCIAL SCO
- EXCEEDED ECO AND COMMERCIAL SCO
- EXCEEDED ECO, POGW AND COMMERCIAL SCO

DEPTH

- 0 - 6"
- 6" - 1'
- 1' - 2'

BENZO(A)PYRENE
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 8

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

NOTE:
COMMERCIAL SCO= 1.0 mg/kg
ECO SCO= 1.0 mg/kg
POGW SCO= 3.2 mg/kg
ND = NON-DETECT RESULT BELOW THE DETECTION LIMIT

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS .

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND
- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- ▲ SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS
- < ECO SCO
- EXCEEDED ECO AND COMMERCIAL SCO
- EXCEEDED ECO, COMMERCIAL AND POGW SCO

DEPTH
- 0 - 6"
- 6" - 1'
- 1' - 2'

TOTAL PCB
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 9

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

NOTE:
ECO SCO= 0.0033 mg/kg
COMMERCIAL SCO= 47.0 mg/kg
POGW SCO= 136 mg/kg
ND = NON-DETECT RESULT BELOW THE DETECTION LIMIT
J = ESTIMATED VALUE
JN = ESTIMATED, UNCONFIRMED VALUE

COMMERCIAL, PROTECTION OF ECOLOGICAL RESOURCES (ECO), AND PROTECTION OF GROUNDWATER (POGW) SOIL CLEANUP OBJECTIVES (SCOS) ARE BASED ON 6 NYCRR PART 375-6.8(B) RESTRICTED USE SCOS

HUMAN HEALTH RISK ASSESSMENT (HHRA) ESTIMATED ACCEPTABLE RISKS TO HUMAN RECEPTORS UNDER ANTICIPATED SITE USE.

LEGEND
- FORESTED UPLAND
- DELINEATED FORESTED WETLAND
- DELINEATED NON-FORESTED WETLAND
- ▲ SOIL SAMPLE

0 75 150 Feet

SOIL ANALYTICAL RESULTS
- < ECO SCO
- EXCEEDED ECO SCO
- EXCEEDED ECO AND COMMERCIAL SCO
- EXCEEDED ECO, POGW AND COMMERCIAL SCO

DEPTH
- 0 - 6"
- 6" - 1'
- 1' - 2'

4-4-DDT
RESULTS IN SURFACE SOIL (MG/KG)

HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NY

FIGURE 10

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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PROJECT: 1940065696 | DATED: 3/4/2022 | DESIGNER: MONETANT

ONONDAGA LAKE

ENGINEERED COVER IN NON-FORESTED AREA
- PERCHED WETLAND COVER (7.5 ACRES)

UNDISTURBED EAGLE ROOSTING HABITAT
- UNDISTURBED FORESTED HABITAT (15.3 ACRES)

ENGINEERED SOIL COVER IN NON-FORESTED AREA
- UPLAND VEGETATED SOIL COVER (0.7 ACRES)

CSX RAILROAD TRACKS

Park St

Onondaga Lake Pkwy

370

LEY CREEK

24B 24A

Harborside Dr

ONONDAGA CREEK

Service Layer Credits: NYS ITS GIS Program Office, Westchester County GIS

ALSO INCLUDES:
- WETLAND RESTORATION/MITIGATION
- GROUNDWATER MONITORING
- MONITORED NATURAL ATTENUATION
- ON-SITE REUSE AND/OR OFF-SITE DISPOSAL OF EXCAVATED SOIL/FILL MATERIAL
- INSTITUTIONAL CONTROLS
- BIOTA MONITORING
- PRE-DESIGN SOIL SAMPLING AND TREE SURVEY

POTENTIAL FUTURE TRAIL EXTENSION

PLANNED RECREATIONAL TRAIL ALIGNMENT

UPLAND VEGETATED SOIL COVER (0.7 AC)

PERCHED WETLAND COVER (7.5 AC)

SITE BOUNDARY

POTENTIAL ADDITIONAL REMEDIAL AREAS (E.G., BASED ON SOIL SAMPLING, TREE SURVEY)

0 125 250 Feet

SYW-12 ALTERNATIVE 2
ENGINEERED COVER ON PERIMETER AREA (8.2 ACRES), WETLAND RESTORATION / CREATION, BIOTA MONITORING, AND MNA

HONEYWELL INTERNATIONAL INC.
SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 11

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

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UNDISTURBED HABITAT
- UNDISTURBED FORESTED HABITAT (13.5 ACRES)

SURFACE EXCAVATION / WETLAND RESTORATION IN PERIMETER AND INTERIOR AREAS
- RESTORED NON-FORESTED WETLAND (6.5 ACRES)
- REQUIRES LIMITED DISTURBANCE / RESTORATION OF FORESTED HABITAT (0.5 ACRES)

ENGINEERED SOIL COVER IN NON-FORESTED AREA
- UPLAND VEGETATED SOIL COVER (3 ACRES)

ALSO INCLUDES:
- WETLAND RESTORATION/MITIGATION
- GROUNDWATER MONITORING
- MONITORED NATURAL ATTENUATION
- ON-SITE REUSE OF EXCAVATED SOIL/FILL MATERIAL (ALTERNATIVE 4A: TEMPORARY ON-SITE CONSOLIDATION NOT SHOWN; LOCATION TO BE DETERMINED)
- OFF-SITE DISPOSAL OF EXCAVATED SOIL/FILL MATERIAL (ALTERNATIVE 4B)
- INSTITUTIONAL CONTROLS
- BIOTA MONITORING
- PRE-DESIGN SOIL SAMPLING AND TREE SURVEY

POTENTIAL FUTURE TRAIL EXTENSION

PLANNED RECREATIONAL TRAIL ALIGNMENT

UPLAND VEGETATED SOIL COVER (3 AC)

SURFACE EXCAVATION / WETLAND RESTORATION (6.5 AC)

ON-SITE CONSOLIDATION AREA (ALTERNATIVE 4A)

POTENTIAL ADDITIONAL REMEDIAL AREAS (E.G., BASED ON SOIL SAMPLING, TREE SURVEY)

SITE BOUNDARY

0 110 220 Feet

PROJECT: 1940065696 | DATED: 3/4/2022 | DESIGNER: MONETANT

SYW-12 ALTERNATIVE 3A/B

SURFACE EXCAVATION AND ENGINEERED COVER / RESTORATION ON PERIMETER AND INTERIOR AREAS (10 ACRES), BIOTA MONITORING, AND MNA, WITH LIMITED TREE REMOVAL

HONEYWELL INTERNATIONAL INC.

SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 12

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

ONONDAGA LAKE

FULL EXCAVATION
- REMOVAL OF ALL TREES AND EXISTING HABITAT TO FACILITATE EXCAVATION (23.5 ACRES)
- EXCAVATION (23.5 ACRES)

6-FT EXCAVATION
4.7 ACRES

8-FT EXCAVATION
3.9 ACRES

12-FT EXCAVATION
12.3 ACRES

16-FT EXCAVATION
2.6 ACRES

CSX RAILROAD TRACKS

Harborside Dr

Park St

Onondaga Lake Pkwy

370

248 24A

NOTE:
THIS ALTERNATIVE WOULD BE EXTREMELY DIFFICULT TO IMPLEMENT DUE TO STABILITY CONCERNS AND PROXIMITY TO ACTIVE RAILROAD TRACKS.

ALSO INCLUDES:
- RESTORATION
  - FORESTED UPLAND (7.4 ACRES)
  - NON-FORESTED UPLAND (3.0 ACRES)
  - FORESTED WETLAND (6.6 ACRES)
  - NON-FORESTED WETLAND (6.5 ACRES)
- MONITORED NATURAL ATTENUATION
- FULL EXCAVATION TO APPROXIMATELY 6 TO 16 FT BGS
- OFF-SITE DISPOSAL OF EXCAVATED SOIL/ FILL MATERIAL
- GROUNDWATER MONITORING
- INSTITUTIONAL CONTROLS

POTENTIAL FUTURE TRAIL EXTENSION

PLANNED RECREATIONAL TRAIL ALIGNMENT

FORESTED AND NON-FORESTED UPLAND (10.4 AC) | FORESTED AND NON-FORESTED WETLAND (13.1 AC)

EXCAVATION AREA (23.5 AC)

0 125 250 Feet

SYW-12 ALTERNATIVE 4
FULL REMOVAL (INCLUDING ALL TREES) AND OFF-SITE DISPOSAL (23.5 ACRES)

HONEYWELL INTERNATIONAL INC.
SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 13

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

Table 1
SYW-12 Site
Surface Soils (0-2 ft bgs)
Summary of Detected Concentrations and Part 375 SCO Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Part 375 Unrestricted Use SCOS	Number of Unrestricted Use SCO Exceedances	NYSDEC Part 375 Restricted Use - Commercial SCOs	Number of Commercial SCO Exceedances	NYSDEC Part 375 Restricted Use - Ecological SCOs	Number of Ecological SCO Exceedances
Semivolatile Organic Compounds (µg/kg)										
BENZO(A)ANTHRACENE	63	63	140	7,300	1,000	48	5,600	6	NC	0
BENZO(A)PYRENE	63	63	130	9,100	1,000	49	1,000	49	2,600	20
BENZO(B)FLUORANTHENE	63	63	180	12,000	1,000	51	5,600	10	NC	0
BENZO(K)FLUORANTHENE	63	63	63	4,500	800	40	56,000	0	NC	0
CHRYSENE	63	63	140	9,200	1,000	49	56,000	0	NC	0
DIBENZO(A,H)ANTHRACENE	63	57	63	1,100	330	22	560	9	NC	0
INDENO(1,2,3-CD)PYRENE	63	62	52	2,800	500	35	5,600	0	NC	0
Pesticides (µg/kg)										
4,4'-DDD	63	9	6.5	73	3.3	9	92,000	0	3.3	9
4,4'-DDE	63	3	0.5	3.6	3.3	1	62,000	0	3.3	1
4,4'-DDT	63	21	2.5	100	3.3	20	47,000	0	3.3	20
DIELDRIN	63	10	4.9	30	5	9	1,400	0	6	9
ENDRIN	63	1	26	26	14	1	89,000	0	14	1
PCBs (µg/kg)										
AROCLOR-1254	63	58	31	2,110	NC	0	NC	0	NC	0
AROCLOR-1260	63	58	29.6	1,360	NC	0	NC	0	NC	0
Total PCBs	63	58	65.3	3,470	100	50	1,000	8	1,000	8
Metals (mg/kg)										
CADMIUM	63	63	1	52	2.5	55	9.3	34	4	53
CHROMIUM	63	63	7.3	410	30	55	1,500	0	41	49
COPPER	63	63	7.3	330	50	47	270	4	50	47
LEAD	63	63	9.1	390	63	51	1,000	0	63	51
MERCURY	63	63	0.07	8.6	0.18	60	2.8	13	0.18	60
NICKEL	63	63	3.4	87	30	28	310	0	30	28
SILVER	63	57	0.34	13	2	32	1,500	0	2	32
ZINC	63	63	37	780	109	56	10,000	0	109	56

NOTES
This table presents (1) RI Report and SCI data only, (2) the detected concentration data only and (3) only parameters that exceeded the Part 375 Unrestricted, Restricted-Commercial or Restricted-Protection of Ecological SCOs.
NC = No criteria available.
SCO = Soil Cleanup Objectives; NYSDEC = New York State Department of Environmental Conservation.

Table 2
SYW-12 Site
Subsurface Soils (>2 ft bgs)
Summary of Detected Concentrations and Part 375 SCO Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Part 375 Unrestricted Use SCOS	Number of Unrestricted Use SCO Exceedances	NYSDEC Part 375 Restricted Use - Commercial SCOs	Number of Commercial SCO Exceedances	NYSDEC Part 375 Restricted Use - Ecological SCOs	Number of Ecological SCO Exceedances
Volatile Organic Compounds (µg/kg)										
2-BUTANONE	40	22	3.1	220	120	1	500,000	0	100,000	0
ACETONE	40	15	14.2	730	50	9	500,000	0	2,200	0
ETHYLBENZENE	40	22	1.2	11,200	1,000	9	390,000	0	NC	0
METHYLENE CHLORIDE	40	2	5.3	80	50	1	500,000	0	12,000	0
XYLENES, TOTAL	40	24	0.96	15,300	260	9	500,000	0	260	9
Semivolatile Organic Compounds (µg/kg)										
4-METHYLPHENOL	21	8	84	1,800	330	4	500,000	0	NC	0
ACENAPHTHENE	40	33	53	210,000	20,000	4	500,000	0	20,000	4
BENZO(A)ANTHRACENE	40	34	161	53,000	1,000	31	5,600	15	NC	0
BENZO(A)PYRENE	40	34	307	46,000	1,000	31	1,000	31	2,600	28
BENZO(B)FLUORANTHENE	40	34	236	45,000	1,000	32	5,600	12	NC	0
BENZO(K)FLUORANTHENE	40	34	97	9,500	800	28	56,000	0	NC	0
CHRYSENE	40	34	201	59,000	1,000	31	56,000	1	NC	0
DIBENZO(A,H)ANTHRACENE	40	32	66.9	4,220	330	27	560	20	NC	0
FLUORENE	40	33	48	86,000	30,000	3	500,000	0	30,000	3
INDENO(1,2,3-CD)PYRENE	40	34	160	8,350	500	31	5,600	5	NC	0
NAPHTHALENE	40	33	43.2	380,000	12,000	6	500,000	0	NC	0
PHENANTHRENE	40	34	65.1	280,000	100,000	3	500,000	0	NC	0
PYRENE	40	34	279	140,000	100,000	2	500,000	0	NC	0
Pesticides (µg/kg)										
4,4'-DDD	21	1	4.4	4.4	3.3	1	92,000	0	3.3	1
4,4'-DDT	21	3	4.9	31	3.3	3	47,000	0	3.3	3
PCBs (µg/kg)										
AROCLOR-1248	40	1	1,110	1,110	NC	1	NC	1	NC	1
AROCLOR-1254	40	6	7.88	1,530	NC	3	NC	2	NC	2
AROCLOR-1260	40	6	12.2	853	NC	2	NC	0	NC	0
Total PCBs	40	6	18.3	2640	100	3	1,000	2	1,000	2
Metals (mg/kg)										
ARSENIC	40	37	1.5	19.7	13	3	16	2	13	3
CADMIUM	40	31	0.31	100	2.5	13	9.3	2	4	4
CHROMIUM	40	40	3	470	30	13	1,500	0	41	8
COPPER	40	40	2.8	450	50	27	270	1	50	27
LEAD	40	40	1.5	437	63	29	1,000	0	63	29
MERCURY	40	40	0.0069	6	0.18	29	2.8	4	0.18	29
NICKEL	40	40	3.6	116	30	21	310	0	30	21
SILVER	40	28	0.23	13	2	18	1,500	0	2	18
ZINC	40	40	11	1,200	109	27	10,000	0	109	27

NOTES
This table presents (1) RI Report and SCI data only, (2) the detected concentration data only and (3) only parameters that exceeded the Part 375 Unrestricted, Restricted-Commercial or Restricted-Protection of Ecological SCOs.
NC = No criteria available.
SCO = Soil Cleanup Objectives; NYSDEC = New York State Department of Environmental Conservation.

Table 3
SYW-12 Site
Shallow and Intermediate Groundwater
Summary of Detected Concentrations and Class GA SGV and EPA MCL Exceedances

Parameter	Number of Samples	Number of Detects	Minimum Detected Conc.	Maximum Detected Conc.	NYSDEC Class GA SGVs	Number of Class GA Exceedances	EPA National Primary Drinking Water MCLs	Number of MCL Exceedances
Volatile Organic Compounds (µg/L)								
ETHYLBENZENE	26	3	0.48	14.8	5(S)	2	700	0
ISOPROPYLBENZENE	26	5	0.23	5.25	5(G)	1	NC	0
O-XYLENE	3	2	2.1	7.3	5(S)	1	NC	0
XYLENES, TOTAL	26	5	0.45	15.2	5(S)	2	10,000	0
Semivolatile Organic Compounds (µg/L)								
4-METHYLPHENOL	23	3	0.36	2	1(S)	1	NC	0
4-NITROPHENOL	26	1	1.1	1.1	1(S)	1	NC	0
ACENAPHTHENE	26	13	0.53	41	20(G)	1	NC	0
NAPHTHALENE	26	5	1.6	170	10(G)	4	NC	0
Pesticides (µg/L)								
Alpha-BHC	23	2	0.0087	0.027	0.01(S)	1	NC	0
Metals (mg/L)								
BARIUM	26	18	0.12	2	1(S)	6	2	2
CHROMIUM	26	4	0.0093	0.16	0.05(S)	1	0.1	1
IRON	26	25	0.34	62.3	0.3(S)	25	NC	0
LEAD	26	4	0.005	0.041	0.025(S)	1	0.015	2
MAGNESIUM	26	20	23	176	35(G)	15	NC	0
MANGANESE	26	26	0.086	2.1	0.3(S)	23	NC	0
SODIUM	26	26	250	3,400	20(S)	26	NC	0
Inorganics (mg/L)								
BROMIDE	17	11	1.6	16.6	2(G)	9	NC	0
CHLORIDE	26	26	380	9,940	250(S)	26	NC	0
NITROGEN, AMMONIA (AS N)	3	3	5.5	36	2(S)	3	NC	0
SULFIDE	14	4	2	17.6	0.05(G)	4	NC	0

NOTES
This table presents (1) RI Report and 2019 follow up data only, (2) the detected concentration data only and (3) only parameters that exceeded the NYSDEC Class GA SGVs or USEPA Drinking Water MCLs.
NC = No criteria available.
(S) = Standard; (G) = Guidance Value; MCL = Maximum Contaminant Level; EPA = Environmental Protection Agency; NYSDEC = New York State Department of Environmental Conservation.

Table 4 – Human Health Risk Re-Evaluation Summary

Timeframe	Receptor	Exposure Medium	Cancer Risk	Non-Cancer Hazard	Hazard/Risk Driving COCs
Current/Future	Utility Worker	Surface/Subsurface Soil	3×10^{-6}	0.07	--
		Outdoor Air	4×10^{-7}	0.006	--
		Shallow Groundwater	6×10^{-5}	0.6	--
		All Media	6×10^{-5}	0.6	--
Current/Future	Child Recreator	Surface Soil	6×10^{-5}	0.9	--
		Outdoor Air	2×10^{-7}	0.006	--
		All Media	6×10^{-5}	0.9	--
Current/Future	Adult Recreator	Surface Soil	3×10^{-6}	0.05	--
		Outdoor Air	9×10^{-7}	0.006	--
		All Media	4×10^{-6}	0.06	--
Current/Future	Railroad Worker	Surface Soil	1×10^{-5}	0.2	--
		Outdoor Air	2×10^{-6}	0.01	--
		All Media	1×10^{-5}	0.2	--
Future	Commercial/ Industrial Worker	Surface Soil	2×10^{-5}	0.3	--
		Outdoor Air	9×10^{-6}	0.07	--
		All Media	2×10^{-5}	0.3	--
Future	Construction Worker	Surface/Subsurface Soil	1×10^{-6}	0.8	--
		Outdoor Air	2×10^{-7}	0.07	--
		Shallow Groundwater	3×10^{-5}	7.1	Benzo(a)pyrene, chromium[1]
		All Media	3×10^{-5}	8.0	Benzo(a)pyrene, chromium[1]
Future	Child Resident[2]	Surface Soil	9×10^{-5}	7.6	Highly chlorinated PCBs
		Outdoor Air	5×10^{-6}	0.4	--
		All Media	1×10^{-4}	7.9	Highly chlorinated PCBs
Future	Adult Resident[2]	Surface Soil	1×10^{-5}	0.2	--
		Outdoor Air	3×10^{-5}	0.2	--
		All Media	4×10^{-5}	0.4	--

- Shaded cells indicate exceedance of the USEPA acceptable cancer risk or non-cancer hazard threshold.

1 Based on HHRA results using groundwater data collected during RI; chromium and benzo(a)pyrene were not detected in groundwater monitoring well samples collected subsequent to the RI.

2 While child and adult resident receptors were evaluated in the HHRA, residential use would not be consistent with the anticipated future land use of the SYW-12 Site.

SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-b

PUBLIC NOTICE PUBLISHED IN THE
SYRACUSE POST STANDARD
ON JANUARY 19, 2023

Ad Content Proof

THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION INVITES PUBLIC COMMENT ON THE PROPOSED PLAN FOR THE SYW-12 SITE The New York State Department of Environmental Conservation (NYSDEC) will hold an open house from 5:00 – 6:00 PM and a public meeting at 6:00 PM on January 31, 2023 (snow date of February 1, 2023) at the Salina Town Hall located at 201 School Road, Liverpool 13088 to discuss the Proposed Plan for the SYW-12 site (site). The site, also referred to as Murphy's Island, is an operable unit of the Onondaga Lake Superfund site and is located between Onondaga Lake and the Destiny USA mall in Syracuse, Onondaga County. The Proposed Plan provides a summary of the findings of the Remedial Investigation and Feasibility Study (RI/FS) conducted to determine the nature and extent of the contamination at the site, whether this contamination poses a threat to public health and the environment, and to identify and evaluate remedial alternatives. The Proposed Plan also identifies NYSDEC and EPA's preferred alternative to address contamination at the site and the basis for this preference. The primary objectives of this action are to minimize current and potential future human health and environmental impacts. The features of the preferred alternative include the installation of a two-foot-thick soil cover in select areas of the site (while preserving trees used for winter roosting by Bald Eagles), biota (e.g., soil invertebrate, small mammal) monitoring, monitored natural attenuation of groundwater, development of a Site Management Plan, implementation of institutional controls, and long-term maintenance and monitoring. NYSDEC and the U.S. Environmental Protection Agency (EPA) are issuing the Proposed Plan to encourage and receive input and comments from the public on the alternatives considered in the detailed and comparative analyses presented in the FS and the Proposed Plan. Changes to the preferred alternative or selection of a reme-

native or selection of a remedial alternative other than the preferred alternative may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action. The final decision regarding the selected remedy will be made after NYSDEC and EPA have taken into consideration all public comments. The Proposed Plan, RI report, and FS report are available at the following locations. Information is also available on DEC's website at https://www.dec.ny.gov/data/DecDocs/734075A/. Atlantic States Legal Foundation 658 West Onondaga Street Syracuse, New York 13204 315 475 1170 NYSDEC 615 Erie Boulevard, West Syracuse, New York 13204 2400 315 426 7400 Please call for an appointment NYSDEC, DER 625 Broadway, 12th Floor Albany, New York 12233 7013 518 402 9676 Please call for an appointment Written comments associated with the remedy for the site, received during the public comment period which ends on February 18, 2023, as well as oral comments received at the public meeting, will be documented and addressed in the Responsiveness Summary section of the Record of Decision, the document which formalizes the selection of the remedy. All written comments should be addressed to: Mr. Tracy A. Smith, Project Manager NYS Department of Environmental Conservation 625 Broadway, 12th Floor Albany, NY 12233 7013 tracy.smith@dec.ny.gov (Indicate "SYW-12 Proposed Plan Comments" in the subject line of the e-mail)

SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-c

PUBLIC MEETING SIGN-IN SHEET

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Public Meeting

Topic SYW-12 Superfund Site

Date 1/31/23

Name	Affiliation, if any	Contact Information
1. Sherri Plouff		315-466-9183
2. Mark Lafaver	Town of Salina	315-451-0492215
3. Rick Perotte		315-374-1839
4. Matt Marko	DEC	
5. Dale Crowls	O. County Parks	
6. Bri Kukenny	Onondaga County	
7. Mike Tezzno	—	585-813-8140
8. Jesse McMahon	Onondaga County	607-591-3399
9. Tom Paul		(315) 350-1330
10. Clare Leary		
11. Dana Coneen	FOLBE	315 492-8035
12. Hilary-Anne Coppola	BFOL	315 200-2634
13. Michalla Kenward	Parsons	585 297 2849
14. D Robinson	NSYR	315-885-7107
15. Hazel Powless	Onondaga Nation	3157155506

SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-d

JANUARY 31, 2023 PUBLIC MEETING TRANSCRIPT

NEW YORK STATE
DEPARTMENT OF CONSERVATION

In re:	*	
	*	
REMEDIATION SYW-12	*	Site: 734075A
SITE PROPOSED PLAN	*	Region 7
	*	

PUBLIC HEARING

of

SYW-12 PROPOSED PLAN

Town of Salina, New York

Tuesday, January 31, 2023

Reported by:

Mary Agnes Drury, RPR, NYACR, CLR

JOB NO. 922429

January 31, 2023
6:00 p.m.

PUBLIC HEARING, held at Town of Salina Town Hall, 201 School Road, Liverpool, New York before Mary Agnes Drury, RPR, NYACR, CLR, a Notary Public of the State of New York.

A P P E A R A N C E S:

NEW YORK STATE DEPART OF CONSERVATION
BY: TRACY ALAN SMITH, Project Manager

NEW YORK STATE DEPARTMENT OF HEALTH
BY: MARK SERGOTT, Health Advisor

PUBLIC MEMBERS SIGN-IN SHEET:

Sherri Plouff
Mark Lafaver
Rick Pelotte
Matt Marko
Dale Grinolds
Bri Kukemy
Mike Teeling
Jesse McMahon
Tom Paul
Clare Leary
Diana Green
Hilary-Anne Coppola
Michaela Kenward
D. Robinson

- o0o -

PROCEEDINGS

MR. PELCHECK: All right. I'm Jason Pelcheck (phonetic), Section Chief with New York State DEC in Albany.

First of all, I just wanted to welcome everybody. Thank you for coming here tonight to hear about our proposed plan for the SYW-12 site, also commonly referred to as the Murphy's Island site. It's actually one of the 11 subsites that are part of the overall larger Onondaga Lake cleanup.

So January 18th we released our proposed plan for all the proposed legal action plan to address the SYW-12 site. That started the 30-day comment period. So after that comment period ends, we're going to start preparing what we call our Record of Decision, which is the final collected remedy for the SYW-12 site. That recommendation will include a response that is a response to any of the comments that we receive during the 30-day comment period, and that includes any of the comments that we receive here tonight.

PROCEEDINGS

As Tracy will present here tonight, you're going to learn about our preferred remedy for the site, and it is really a culmination of a comprehensive investigation at the site, followed by the various cleanup options that work well for the site.

Given some of the unique characteristics of the site, you'll learn about the position next to the lake adjacent to a railroad, its use by Bald Eagles. So these are some of the factors that we had to look into as we evaluated different cleanup options, as well as at the site what remedial techniques work best for these types of game puts.

Tracy will also talk about the preferred remedy, and then I'll hand it over to Mark Sergott with the New York State Department of Health. He'll talk about their role in the process, and they are current with the remedy. And then Tracy will come back up and talk about the next steps and fast forward, and then we'll

PROCEEDINGS

open it up to the question-and-answer period.

Overall, I'd say we'll be here for about 15 minutes or so, and then we can have the rest of the evening to go through questions that you might have for us.

That's all I have.

MR. SMITH: All right. As Jason said, thank you for coming tonight. My name is Tracy Smith, I'm the Department of Environment Conservation Project Manager for the site.

As he said, this is the SYW-12 site or what's commonly referred to as "Murphy's Island."

So during the presentation Jason said we'll be discussing the remedial processes, the preferred and alternative site backgrounds, alternatives that were evaluated for the cleanup site, and then the next steps. Please hold any questions to the end and we'll get through them and try to answer them the best we can.

As you know, this meeting is to

discuss the preferred remediation alternatives for the site. I'm not going to be directly discussing or entertaining questions on the Bald Eagles or the county trail.

So this is the remediation process that we follow. As part of the remediation, we collect data and determine the nature and the extent of the contamination present.

We then perform a study to evaluate the cleanup options.

Following this evaluation, post-plans are released to the public for review, which we're at now.

And then after the proposed plan, the Record of Decision is made, which formalizes the remedy. As Jason said, that will be completed followed by design and construction.

So we evaluated four different alternatives for the site. Based on that evaluation, the preferred alternative we selected was Alternative 2. That includes

placement of two feet of cover material in selected areas of the site. Evaluations are covering an additional 2.2 acres of wetlands restoration with the goal of no loss of wetland area, the monitoring of animal and plant life, to evaluate and remedy contaminated groundwater to be performed.

And in addition to this alternative, this includes institutional controls and site management plan.

Institutional controls further reduce the potential for exposures at the site by using controls such as restricting the site's future use.

The site management plan until include maintenance and monitoring and the inspection of the covers and would address any future changes in use of the site.

Trees used by the eagles under this remedy will be protected and undisturbed by this remedy.

So the site includes undeveloped land in a portion of wetland shown in the

picture here. A total wetland at site SYW-12 extends beyond the boundary, it's a 45-and-a-half acre wetland. The south is bound by railroad tracks northeast, as you can see here.

Onondaga Creek itself is in the upper side of the picture, and Onondaga Lake to the west.

So the creek sub-site and the Onondaga Lake site is also located to the north, and that's being addressed as part of a separate remedy.

So this picture here shows the wetland and forest areas of the site. There is approximately 14 acres of forest areas with wetland forest shown in green located primarily adjacent to Onondaga Lake with the green portion there.

And then there is forested uplands, which are indicated by the green located more near the center of the site. These forested areas are where many of the eagles currently roost for the winter; you've probably seen the photos in newspapers and

online and stuff like that.

And then there is approximately nine-and-a-half acres of non-forest areas located away from the lake located along the railroad tracks, six-and-a-half acres of wetland shown in the orange located mostly along the track and some areas narrowing Onondaga Lake, and then three acres of non-forest with the orange hash located along closer to the railroad tracks.

So this figure shows the prior to the 1800s, the site was probably underwater. The lake level was higher and contained cedar and ash forest. The lake and Onondaga Creek sort of meandered through the site at that time. In the late 1800s the creeks were re-routed, so they came more directly into the lake. The lake area was also -- the lake level was also reduced with construction of the canal system.

So this area shows the site surrounded by railroad tracks, which were

then present for over a hundred years. There is also a music complex, the Iron Pier Resort, which operated on the site in the late 1800s until it closed in 1906.

Available information such as historic maps and aerial photos indicate various materials, this includes fill for places as the former Iron Pier channel and from the operation of the site.

Contaminants are likely related to several sources that could have been impacted Onondaga Lake. Those sediments placed on the site are shown in this photo here. The dredge operations in the lake and the barge canal, which is bumped to the site, that is where likely a lot of contamination came from in dredging operations.

So the current site use, I am sure many of you are familiar with this photo from Greg Craybas a couple of years ago which shows how the site is a roosting area for the Bald Eagles.

The county also recently opened a

trail extension, which closed for the winter on December 1st until April 1st due to the Eagles roosting. There is signs saying stay on the trail, you should remain on the trial. And also, the county is drafting a site management plan for the trail, and that's going to be reviewed by the DEC, with Department of Health to help manage the site, the trail, its use.

Here is site background. So several investigations have been performed at the site; investigations started as far back as 2006 for some of them. They are summarized in the field investigation report and several other documents. Alternatives to address the contamination that were evaluated in a study. Those documents and others are located online or at document repository site.

So the contaminates present at the site, surface soils that feeds the ecological plumes that are used for the site based on this use are polycyclic aromatic hydrocarbons or PAHs, the

polychlorinated biphenyls or PCBs and metals such as cadmium, copper and mercury.

Some stained soils and blebs of NAPLs, which are oil-like droplets are present at the site, that is about 8 to 12 feet under ground surface in some areas of the site. However, the impact from these are -- the groundwater are pretty minimal, with the groundwater pretty standard with only one well that's present at the site.

And then risk assessments were also performed. These include Human Health Risk Assessment HHRA and ecological risk assessment. These were based on no remedial activities that were performed.

The HHRA indicates they are acceptable due to construction work at the site; the PAH and groundwater if no remedial work was done.

Past recreational uses such as a trails are acceptable based on the current conditions and future conditions based on that health risk assessment.

PROCEEDINGS

Ecological risk assessment included several metals and organic compounds such as chromium, cadmium and PCBs with risk to birds and animal population and small animals with small home ranges such as Robins and short tails.

This figure shows most of the sample locations that were performed during the investigations. So this investigation included excavation test pits, soilcrete boring and collection of certain soil samples and groundwater wells.

Due to the proximity of the railroad, a geotechnical investigation was also performed. Many of the higher concentrations of the surface soil are located in the wetland area on the north part of the site in this general area in the circle.

So here are some photos of some of the test bits that were installed to collect soil samples and collected information during these investigations.

This photo here you can see some of

the wood that was part of the former Iron Pier channel, some of the materials that were encountered during the excavations.

So this list here, these are the objectives for the remediation were at the site that have been established. I'm not going to read through them, you can read them up there. But the main purpose is to prevent unacceptable human exposure, any ecological impacts and to prevent migration of contaminants to the lake.

These bullets are summaries in place for human health, and these bullets are a summary of the site's remedial action objectives for the protection of the environmental resources.

All right. These are the alternatives we considered during the evaluation of these study. These were considered to address the contamination at the site based on the remediation objectives and the best available technologies.

There were several factors that

limited the alternatives we evaluated; the primary one is the forest areas, the site that is used when roosting of the eagles, so that limits the work that can be performed on the site and cutting the trees.

Another factor is the railroad tracks which limit access to site and excavation due to the potential stability issues.

So Alternative 1 is the No Action Alternative. These required to evaluate that as a baseline for a basis of comparisons to other potential alternatives. That alternative just leaves the site in the current condition and it doesn't provide any additional protection to human health and the environment that I'll discuss in detail.

And alternatives 3A and 3B includes soilcrete excavation prior and it has a similar protectiveness, but it remediates approximately two more acres. The alternative 3A would need material

excavated on site for re-use or covering while alternative 3B would have taken the material to an off-site disposal area.

Alternative 4 is the real alternative that includes full removal of the contaminated materials in the wetland restoration. However, this alternative would result in removal of all the trees at the site.

So this figure shows Preferred Remedy Alternative 2. So the areas where cover would be placed is non-forest areas indicated in green and greenish-blue hashing, closer to the railroad tracks here.

There is additional areas that will be evaluated for cover placement outlined in pink. These additional areas will be evaluated based on results from soilcrete sampling that was formed as part of the redesign investigation.

And based on how accessible they are to ensure there is no lost wetland by the remedy, there could be removal of some of

the contaminated material prior to placement of the cover.

Based on the special conditions, as I said before, to preserve the trees and not disturb the bald eagle roosting areas, there may be contamination that could remain in some cleanup objectives in the areas where the covers cannot be placed, so those areas would still be potentially contaminated remaining above the cleanup objectives.

So this is the list of the criteria that we use to evaluate the remedial alternatives.

So all the remedial alternatives other than no action alternative we need to meet the first two criteria, and the protection of human health environment in compliance with the state and federal regulations.

Other criteria include long-term effectiveness, short-term effectiveness, how easy is it to implement, and how the remedy is accepted by the community.

PROCEEDINGS

Alternative 4, the Removal Alternatives has several implementability issues. This alternative assumes removal from ranges of 6 to 15 feet with approximately 400,000 cubic yards of material being transported off-site for disposal, and then backfill will be brought back to the site. Also, that will result in 35 truckloads of material a day for five to seven years of being moved, in addition to removing all the trees. There will be an increased truck traffic and additional worker and public safety issues due to the trucks and just handling the material.

Potential stability issues due to the railroad tracks and then water management issues, since we're right next to Onondaga Lake and the creek areas, and then the ability to find a disposal for that amount of materials.

So this table predicts the cost and the estimate and the construction timeframes. You can see here, Alternative 1, $0; Alternative 2, estimated

$8.3 million; Alternatives 3A and 3B are approximately $22 and $27 million, and Alternative 4 has the highest cost of $281 million.

So these costs also include operation remedies, so they're comprehensive remedies, not just the rule and the materials to manage the site for the long-term time period.

So for the years, Alternatives 2 and 3A and 3B are similar timeframe would take one to two years to implement, and Alternative 4 would take five to seven years.

So Alternative 2 is being proposed as the preferred remedy, because we think it best protects the public health and environment and it presents the best choice. Alternative 1 would not mediate any criteria for protection of human health and environment and compliance.

Alternatives 3A and 3B would remove more, but there could be stability issues near the railroad tracks, it would impact a

forest area maybe a half-acre to get to some of the areas, and then there would be work in the smaller wetland areas located in the forest areas that the eagles roost in.

And also, as discussed previously, Alternative 4 being very difficult and has significant short-term impact, it takes longer to implement as the alternative and is least cost-effective.

Now, I'll turn it over to Mark Sergott from the Department of Health; he has some slides on their role in the process and to discuss a potential.

MR. SERGOTT: All right. Hello Everybody, thank you for coming out tonight. As Tracy indicated, my name is Mark Sergott, I represent New York State Department of Health in the Bureau of Environmental Exposure Investigation.

Just a couple of quick slides to kind of go over a couple of quick points in terms of our role for this particular project and really show our sign of

approval and support to the proposed plan that Tracy has outlined tonight.

So really our objective here is to work with the New York State DEC on all of these particular remedial projects across the state. We're involved in the review and approval of all the various specification work plans, various remedial plans that we discussed here tonight. And really, we focus in on trying to identify the nature and the extent of the contamination with the particular sites, with the particular emphasis on evaluating the potential exposures to these particular plans.

And really, the focus that is to determine how in fact the public can get into contact with the various environmental contaminants that are associated with the sites that we're discussing tonight.

With the data that we collect and evaluate, we can make various recommendations in terms of how we can address the potential exposures and

identify data gaps along the way. We work collectively with all the agencies involved, with the EPA and DEC in gathering those tools with the information we need to assess the overall potential of exposures.

Ultimately, with any remedy, it's our focus from a health perspective to ensure that it's protective of the public health.

So real quick points to go over. You know, what is exposure. When we talk exposure, we're talking about physical contact with the particular chemical substances, and we're trying to figure out how are people getting in touch with it.

And there are really three main exposure factors when we work on these particular sites.

One exposure, obviously, inhalation. Normal breathing, recreating in and out of trail, is it a concern or not.

We look at the potential of people coming in direct contact with the contaminants at the site.

PROCEEDINGS

Lastly, we go through ingestion; hand and mouth. People somehow ingesting in some way, shape or form or consuming contaminated groundwater from the water wells or the water supply that may exist at the site.

So it's important to know that one or more of these physical contacts must occur before a particular chemical has the ability or potential to harm us as a health problem, but it's also important to note just because there is a potential exposure, doesn't mean that you'll have a negative health consequence for that particular exposure that occurred.

The nuts and bolts of this is now going through all of these exposure scenarios.

Now, one is really kind of go over some specific components of the remedy that are adequate to address these various exposure concerns here.

Moving forward. I'm going to be quite honest, right now, the site's current

condition, there is minimum opportunities for people to be encountering a lot of the contaminants that we've been discussing here tonight.

And the reason being, a lot of it is really buried at depths, you know, there is nobody right now physically out at the site digging down to this particular.

Another property is that, you know, a lot of the chemical makeup and the chemical properties of the main contaminants, a lot of the compounds have a really good tendency of binding really tightly to soilcrete particles, so there is no concern at this point migrating and contamination on-going at the site.

So when we break down the exposure pathogens; again, we're looking at how in terms is it going to be protected in terms of preventing inhalation going forward.

Really as of now, no concern to be, but really the inhalation concern would come in is once the remedial operations begin, as Tracy indicated, there will be

some areas that will be excavated and other areas will be extensive in bringing in material and grading material. That would be an opportunity where you might have the possibility of, you know, contaminants getting up in the dust and migrating across.

Typically, when we're conducting remedial and implementing a remedy at particular sites, any sites across the state, including this one, we'll be monitoring the air to basically monitor, you know, levels of voluntary organic components, as well as particulates.

And really, the focus of this is to ensure that the remediation, you know, the operations are not negatively effecting the air quality in the surrounding community; based on the various guidelines and the levels that it's monitored for, monitoring guidelines that we look to achieve when conducting remedial operations. We'll take the necessary steps to halt the operations to take these issues down, because you

don't want to have material across the site. You don't want to have dust forming. You don't want to have the nuisance of bothering people recreating along the trail or shopping at the mall.

Moving forward, another aspect of the remedy would be as of now, I'm not aware of any particular plans going forward on any future construction on this particular property.

In the event, for whatever reason, if Onondaga County shows for whatever reason to construct some sort of a structure or some sort of gathering spot, there is a component within the remedy which calls for a soilcrete intrusion evaluation to be completed. And basically, soilcrete vapor instruction is the process in which we'll look in terms of -- and again, in the event that something were to be constructed, we'll take a look at the data and we'll get a sense for what residually is remaining at the site and soilcrete vapor is the contaminants, it has

the ability to volatilize through vapor, very similar to how radon, if you have a structure, a lot of those vapors tend to concrete and accumulate and slab on the principle and finding pathways of least resistance into the aerospace of the structure.

So we'll make sure in the event that anything is, we'll take the proper measures to ensure that whether or not soilcrete vapor intrusion is a concern or not, this will take the proper steps for the amount of that building is on to reduce that amount of exposure.

In terms of direct contact. Yeah, right now the existing trail design construction really does provide a good buffer to underlying residual contamination that may remain.

In the areas of the site where there will be excavation or grading operations, alternately, there will be an extensive cover system that will be in place, it will be with clean fill.

PROCEEDINGS

Moving forward, in the event, again, if there is any future construction and/or excavation planned in these particular areas as part of the site's management plan, there will be an excavation plan in place which will show proper measures and procedures to take in the event that you want to properly manage any residual materials in the event that we're moving that material.

And really, common sense approach which is, I think the biggest thing in terms of direct contact is, stay on the trial.

So Onondaga County has done a good job to provide buffer material in both sides of the trail. There is vegetation that still exists; it could be more, depending on going forward, but the various signs have been put up and extensive wildlife areas along the trail.

And as part of the site management practices, there will always be a routine inspection of the particular remedial plans

to ensure that the remedy is proven to be effective.

So in the event that Onondaga County as the site owner will be periodically notifying us that there is signs that people are migrating off the trail, that they're not supposed to, then we'll have a meeting of the minds and have a way to provide better fencing or railing or higher density vegetation. We'll work together to eliminate the concerns of people migrating off the trail; particularly, in the areas where we're not going to be allowed to move because of the sensitivity of the eagle habitats and the various spots.

In terms of the ingestion really; use good common sense, practice good hygiene. Stay on the trail. There should be no concern of encountering anything at the site. If you don't believe anything that we say tonight and you have soils on your hand, minimize the hand-to-mouth contact, wash your hands, keep your kids off, make sure the kids are keeping their

hands from the mouth.

And again, going forward, we understand there is minimal groundwater contamination. That being said, based on what we found, going forward there will still be a groundwater use restriction that is based on the property.

So in the event there is particular structures that are constructed, if there is a need for a portable water supply, we'll make the necessary accommodations available for a public water supply.

That's really it. I hope it makes sense and it's how we build the various components of the remedy that protect the public health, and it's proven to us that we fully support the DEC Preferred Remedy 2. Thank you.

MR. SMITH: Thank you, Mark.

All right. So we're near the end of the presentation here.

These are the next steps. So public comment period will close on February 18th. We're accepting comments up until that

date, so you can either mail in comments or e-mail or write your questions today, your comments on a card at this meeting, if you want to, or any questions you ask tonight will be incorporated.

Following the public comment period the ROD or the Record of Decision which is selected as the final remedy will be drafted and it will be issued and include any responses to questions that are asked during the public comment period.

And then following the Record of Decision, we will proceed with the remedial design. Design, construction and maintenance of the remedy is anticipated to be performed by a potentially responsible party or parties with DEC oversight.

The anticipated design may be later this year or next year, followed by construction, which in these times can change, depending on negotiations with parties and timeframes, we'll have to work around schedules for the eagles, probably no work between, like, with the period that

PROCEEDINGS

the trial is shut down from December to April timeframe, so there will be those restrictions incorporated into the construction timeframes.

So now I look forward to any questions and call upon people to please state your name so we can have it on the record, and we'll try to answer any questions that you have.

Thank you for coming tonight.

PUBLIC MEMBER MS. GREEN: Diana Green. I've got a couple of questions for you. Can I address one to Mark?

Mark, when you talked about public safety, you didn't mention construction workers, additional concerns about their exposures.

MR. SERGOTT: Sure. Yeah. Basically, when the remediation contractors are working on any of these sites, they are always going to be implementing their own site health safety plan; it's always a component of remedial construction, so basically, you know, in all likelihood, I'm

assuming much of the trail, not all of it would be closed off, or at least sections of it, to make sure that those operations aren't negatively effecting anybody that might be recreating on the trail. But in all likelihood, the site personnel would basically be implementing their own site health and safety plans and community air monitoring.

And really it falls on the site contractors to ensure that they're adhering to their own personalized health and safety plans. I hope that answers your question.

PUBLIC MEMBER MS. GREEN: Who is actually, you know, I guess responsible for it?

MR. SMITH: Yeah, to be determined. I mean, Honeywell was one of the parties that performed the investigations. As far as cleanup of the site, we'll have to negotiate with them and potentially other parties that could be used for contamination in that area of the lake. I mean, there is potential for several other

parties with discharges that we could go after. We'll have to look at those and have different parties at the southern end of the lake or parties as National Grid or Honeywell. We'll have to look at any options to any other parties that could be potentially responsible.

PUBLIC MEMBER MS. GREEN: Is there a court case that Honeywell is involved in on that or no?

MR. SMITH: Not for the site I believe right now. No, not for the site -- I mean, for the lake.

PUBLIC MEMBER: My understanding is they did kind of balk on taking responsibility. So it's just something that's decided between the DEC and Honeywell?

MR. SMITH: Yeah. We haven't reached out to Honeywell yet. We wait until the Record of Decision is completed, so this actually lays out the remedy.

And if we select a no action remedy, I think Honeywell will sign on. So we have

to wait until the Record of Decision is completed and then negotiate with Honeywell or any other parties.

PUBLIC MEMBER: That's typical, right?

MR. SMITH: That's typical.

PUBLIC MEMBER: You wait until then?

MR. SMITH: Right.

PUBLIC MEMBER MS. GREEN: So then my other question is PFTE that don't have any standards; what are your thoughts about that? I mean, do you plan to elaborate, like, what level of soilcrete that they were found and, you know, what if anything is being done?

MR. SMITH: Yeah. So I'm a supervisor of the PFTE issues. And compared to other sites around Onondaga Lake, the sites at SYW-12 are at lower concentrations than other sites around the lake.

PFTE isn't really a regulated chemical right now. We don't have a cleanup standard as the EPA hasn't really

investigated it. It's still kind of -- we can't really do a cleanup on it, because there is no cleanup levels for it.

PUBLIC MEMBER MS. GREEN: Right. Yeah, I understand. Yeah. And what level was found on Murphy's Island?

MR. SMITH: I can't tell you offhand; I've got numbers and other reports over there, but...

PUBLIC MEMBER MS. GREEN: I mean, we do have local experts at the university and people that have done studies on that and published, you know, that material, so I'm hoping that the DEC can take that into account.

MR. SMITH: Right. And in the future, if there is cleanup levels that are protected for as part of the long-term operation maintenance of the site, we have got five-year reviews that are performed by the EPA, and so there is numbers that come out in the future that would probably be incorporated, and we look at that and say okay, we've got a number now, and let's

compare to what we have at the site and see if anything needs to be done.

It would be evaluating more and more the number that some numbers were promulgated by that we can't cleanup in that, we don't have a number for.

PUBLIC MEMBER MS. COPPOLA: I had a couple of questions.

MR. SMITH: Can you state your name and stuff like that?

PUBLIC MEMBER MS. COPPOLA: Hilary-Anne Coppola.

So less than half of the area is being remediated, right? So after that, the averages of the contaminants will go down, which is misleading, and so I'm wondering what DEC's plan is to adequately portray the un-mediated sites to the public, the averages. That's my first question.

MR. SMITH: Yeah. So in the proposed plan we do mention how averages would be reused overall site-wide, it doesn't mean as we stated; also, the site

areas that will be cleaned up, a lot of it will be contamination removal remaining at the surface. We don't necessarily look at the averages. The averages are more to say okay, they have now been reduced, but we haven't cleaned enough, so I -- can you repeat your question a little more?

PUBLIC MEMBER MS. COPPOLA: Right. It would be misleading to the public and not having the scientific background to understand the data and the report, so they're seeing a simple reduced average for the proposed remediation, which is less than half the site. So I wonder if there is a way that you can communicate with the public that there is an un-mediated portion, so those averages, there are random places of contamination that are hotspots, and that's reflected in the random sampling and I'm curious about that at the end of the trail, it's important that the public know what the risks are.

MR. SMITH: Yeah. And so as stated in the proposed plan, in several areas that

we know we're not remediating the whole site, because of the eagle habitat, so there could be areas where there is contamination present.

We will perform additional sampling before the remedy is constructed. I think we want to get more information and find out if there are hotspots present. If we find something that's concerning to us, we would look to see if it is reachable without disturbing trees or something. We might look at performing some remediation there. If not, it is -- if it's not acceptable, then maybe it's something that we look at some preferred other actions such as Mark said, maybe we look at some fencing or something like that.

I think it would depend on a case-by-case basis what information you have. Of course, we might not get every piece of information on every part of the site as far as transmitting that to the public, I guess that's kind of a difficult issue, I guess.

PROCEEDINGS

I think we'd have to -- once again, that might depend on what we find when we do the additional samples. If we don't find a bunch of high levels, then maybe it's not a concern. If we do find a high area of contamination, then I think we'll try to make the public aware of that; so it would vary a lot on a case-by-case basis.

MR. SERGOTT: But in a sense that information is available to the public because of the proposed decision dock is showing the data across the site, and so does the remedial investigation. We include in the decision the document, the area weighted average is really just the basis of the comparison, just so it's relatively the magnitude of remediation of the overall site line average concentration. It's not meant to be misleading, it's just to say hey, the remedy will reduce consultation and also with the cap itself, it will be placed in the area where we have the highest concentrations, and we're trying to balance

the, you know, remedy with disturbances to the mature forest; we don't want to interfere with the eagle population, we don't want to disrupt the eagle population, and we don't want to damage the forest, impact the forest, we want to be able to maintain that. So that's why we're not removing the soil or covering the soilcrete in those areas.

And I would say just generally the figures that we do include aren't misleading in the sense that they do show that it is there, it's just not being remediated.

PUBLIC MEMBER MS. GREEN: For example, when you go on the trails, it just says environmental sensitive area, which is really not very forthcoming, it really should say environmentally dangerous area, at least, so if you want people to stay on the trails.

You really need, I think, a little bit more way of bringing up the issue to people that it is dangerous.

PROCEEDINGS

I mean, I was on the trail a few months ago and, you know, the trail is almost right on the shore, the beginning of it. I can just see so many kids being tempted to go right off the trail into the water. I mean, the county is the lead, so people think that the lake is okay, you know. It's like there is a lot that needs to be, you know, brought up to the public consciousness. There is a lot of people moving into the area that have no idea of the history of Onondaga Lake, some who fish still, you know, eat the fish that can't speak the language, you know. There is all kinds of ways that it has to be more publicly identified.

MR. SERGOTT: Yeah. It would have to be incorporated into some signage.

PUBLIC MEMBER MS. COPPOLA: Which leads to my second question, which maybe Mark can answer more fully.

So the DOH did collaborate on the great fish consumption signs that Onondaga County refuses to use, the City uses those.

PROCEEDINGS

I'm concerned about the signage in the area since the standards of childhood cancer has changed, and that information needs to be very prevalent on the site. And nowhere in the proposed plans is signage given, so I'm curious about what does that look like, when are we going to see that and, you know, are we going to see appropriate signage, because we do have children in our community who have extremely elevated mercury, because of inadequate signing.

And the fact that Onondaga Lake and the area is really polluted, there will be children on the trail and there will be people with families, and if they're not really made aware of that risk and making a choice, they might think they can let their kids go out on the trail.

And I know two-year olds can put dirt in their mouths very easily, so I say the current signage is not appropriate for those kids.

MR. SERGOTT: Sure, I can take a stab at it. I don't know if it's a

particular answer, but I can admit the issue of signage and what to put on signs is always a debate, it's always a challenge, because there are so many people that are coming to the table with various backgrounds and various interests, you know, and always want to include kind of what their focus is.

I mean, in terms of the signage that's in place right now, and this very same issue came up when they completed the recreation trail on the western portion, which is always, I understand, the signage that's is up, it's not the best suitable signage for everybody.

But really, I respect your question. I understand the concern. And really, it comes down to collectively working with the various entities that are involved with managing these trails. I've always, in addition to signage, say an information-type kiosk I always thought was a good idea, and I think we tried to do that with west points 1 to 8 when they

constructed the recreational trail on the amphitheater, but through time and through observation and see how the trail is being managed, and at least through the implementation of the site management plan, again, the county will be, you know, basically leading the way with ensuring that people are, in fact, staying on the trial.

And again, if it's found through when the trial is opened that it's not, we'll have to take the necessary precautions, and if we need to expand signage or provide some further information to help educate people on exactly what is there, that's something that we'll have to deal with that at that appropriate time.

PUBLIC MEMBER MS. COPPOLA: So regarding of the people going off the trail, that's up to the county to report instances, because it happens all the time. Where the no fishing signs are, you can see the trails down at the lakeshore where the people are fishing, and I'm assuming that

the county is aware of that.

MR. SERGOTT: Yeah, the county is the owner of the property and the county is in charge of the oversight of security. And in the event that this is becoming a bigger concern than what we're led to believe -- I mean, for the time or the period of time now that the trail has been opened, we haven't, me personally, I haven't been informed of these situations occurring, but these are very real discussions that I have had with the DEC and the county staff and the exact same concerns we had about the people migrating off the trail. With west beds 1 to 8, they're a little different, because we actually covered the entire west bed. Here, we understand that there is circumstance of that in the disturbance of the habitat, the wildlife, it's a challenge here to portray to the public to stay on the trail.

But again, even in the areas that aren't covered, we can appreciate the fact

over time Mother Nature has provided pretty dense vegetation for the areas and provide at least some sort of coverage, at least in overlaying areas.

MR. SMITH: Yeah, the signs regarding the fish are a little bit different; they're a similar issue, I mean.

PUBLIC MEMBER MS. COPPOLA: Right. I was just saying the contact is my concern, it is on-going. I've got you.

MR. SMITH: Thank you. Anymore questions?

Hopefully it sort of answers your question. We understand the question, but I think it's something we are aware of and we'll have to keep an eye on as part of the oversight management going forward.

Any other questions?

PUBLIC MEMBER MS. GREEN: Is the level of the lake going up in general because of, you know, the global warming and the weather changes and that kind of thing?

MR. SMITH: Right. The lake

fluctuates a lot, but the lake level is driven by the canal system, so they manage all that, so I don't think it should be dramatically.

We have instances where it will raise up to higher levels, but over time, it will recede back. But I think overall, this is not like an upward trend, just because it's managed by the canal system and the elevation will drain down to the Great Lakes and stuff, so I haven't seen any trends.

I mean, it's something that we'll have to keep an eye on for all the sides around the lake in general, but I don't think we've seen a general trend. It is managed. As long it is they're in place, there is no major issue.

Anybody else have any questions?

If not, I'll be available after, and if you want to come up, feel free. And like I said, my contact is up there and the information is available on the repository that is online, and I appreciate everybody

PROCEEDINGS

coming tonight.

Thank you.

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PROCEEDINGS

C E R T I F I C A T E

STATE OF NEW YORK)
) ss.:
COUNTY OF ONONDAGA)

I, Mary Agnes Drury, a Notary Public within and for the State of New York, do hereby certify that the within is a true and accurate transcript of the proceedings held on January 31, 2023.

That I am not related to any of the parties to the action by blood or marriage; and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 23rd of February, 2023.

Mary Agnes Drury

Mary Agnes Drury

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SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-e

WRITTEN COMMENTS RECEIVED DURING THE COMMENT PERIOD

NEW YORK STATE | Department of Environmental Conservation

Written Comment Form

RE: Proposed Remedy for SYW-12 State Superfund Site

Please use this form if you would like to provide written comments to the New York State Department of Environmental Conservation (DEC). This form can be returned at the registration table, mailed, or emailed using the information below and must be received by DEC by **February 18, 2023.** The proposed plan and other project documents can be found through the DECinfo Locator: https://www.dec.ny.gov/data/DecDocs/734075A/.

Mail or email to:

Tracy Alan Smith, Project Manager
NYSDEC
625 Broadway, 12th Floor
Albany, New York 12233-7013
tracy.smith@dec.ny.gov

(Please Print)

Name: Diana Green **Affiliation: (if any)** FoBE

Address: 4304 Abbey Rd. **E-mail / Phone** dgreen97@twcny.rr.com

****

1. How do I access contractor excavation work plans? Who should be notified if workers are not following safety guidelines?

2. Signage needs to be more explicit in mentioning Toxins danger if you get off trail

3. Please consult research published on PXE + PTE to be proactive on this danger.

NEW YORK STATE | Department of Environmental Conservation

Smith, Tracy (DEC)

From: donna muhs-mccarten <dmuhsmccarten@gmail.com>
Sent: Friday, February 3, 2023 7:08 PM
To: Smith, Tracy (DEC)
Subject: clean up

Please clean up the are and do it well and safely including protecting the robins and small animals and place signage there that this land belongs to the onondaga nation , or at the very least acknowledge their contribution to this area. Thanks

Smith, Tracy (DEC)

From: Jessica <jessica3llen@gmail.com>
Sent: Thursday, February 9, 2023 2:34 PM
To: Smith, Tracy (DEC)
Subject: Public Comment for Remediation of Murphys Island Plan

Hello,

My name is Jessica Gorman and I grew up in Liverpool with Onondaga Lake. I am concerned that this plan is at most a partial remedy and NOT fully protective of public or ecological health."

NYSDEC and Environmental Protection Agency (EPA) data show PAHs, pesticides, PCBs, and metals (including mercury) distributions are random with multiple, wide-spread exceedances of soil standards that regulate risks for "passive use" (ie. walkers, bikers) and birds, insects, and other animals. Risks to insectivorous birds and small mammals are at unacceptable levels.

The site also includes "emerging" chemicals, such as PXE and PTE. Since there are no EPA or DEC standards for these emerging chemicals, the DEC will not include these in monitoring.

NYSDEC should consider additional alternatives: DEC could mandate either staged remediation and replanting of the forested areas to avoid disrupting the roosting eagles or remediation which relies on scattered or less intrusive methods. Polluting companies should not be able to use habitat emergence to avoid their remediation responsibility.

NYSDEC should recalculate and publicize the risks remaining in the un-remediated areas.

Much of the un-remediated, forested area lies along the Murphy's Island Spur Trail or between the trail and Onondaga Lake, where site visitors may be most likely to stray off-trail. The risks posed by accessing these areas should be re-evaluated to ensure public safety. The calculated cancer risk for child recreators is 0.6 additional cancers for every 10,000 exposed children. Although this is below EPA's "acceptable risk" level of 1 additional cancer per 10,000 people exposed, site users might not want to expose children to this risk for the sake of a short walk.

NYSDEC must ensure adequate and appropriate signage: Current Onondaga County signs stating "Stay on the Trail: Environmentally Sensitive Area" is a highly ineffective control.

Clear and complete information about the health risks posed by this site to potential users must be available on-site. People have been walking off-trail at Murphy's Island since the trail was built in 2022.

NYSDEC's proposed plan impedes the Onondaga Nation's responsibility to take care of their lands, waters, people, and other beings by allowing toxic pollution to remain and pose a potential health risk to visitors. Murphy's Island is within unceded Onondaga territory.

The proposed plan, without modification, allows for public misperception of the level of clean-up that has occurred and the risks associated with recreating in and around Onondaga Lake.

--
Jessica Gorman

Smith, Tracy (DEC)

From: Erica Roach <erica_a08@outlook.com>
Sent: Thursday, February 9, 2023 4:34 PM
To: Smith, Tracy (DEC)
Subject: Onondaga Lake Cleanup

This is at most a partial remedy and NOT fully protective of public or ecological health.
• NYSDEC and Environmental Protection Agency (EPA) data show PAHs, pesticides, PCBs, and metals (including mercury) distributions are random with multiple, wide-spread exceedances of soil standards that regulate risks for "passive use" (ie. walkers, bikers) and birds, insects, and other animals. Risks to insectivorous birds and small mammals are at unacceptable levels.
• The site also includes "emerging" chemicals, such as PXE and PTE. Since there are no EPA or DEC standards for these emerging chemicals, the DEC will not include these in monitoring.

NYSDEC should consider additional alternatives: DEC could mandate either staged remediation and replanting of the forested areas to avoid disrupting the roosting eagles or remediation which relies on scattered or less intrusive methods. Polluting companies should not be able to use habitat emergence to avoid their remediation responsibility.

NYSDEC should recalculate and publicize the risks remaining in the un-remediated areas.
• Much of the un-remediated, forested area lies along the Murphy's Island Spur Trail or between the trail and Onondaga Lake, where site visitors may be most likely to stray off-trail. The risks posed by accessing these areas should be re-evaluated to ensure public safety. The calculated cancer risk for child recreators is 0.6 additional cancers for every 10,000 exposed children. Although this is below EPA's "acceptable risk" level of 1 additional cancer per 10,000 people exposed, site users might not want to expose children to this risk for the sake of a short walk.

NYSDEC must ensure adequate and appropriate signage: Current Onondaga County signs stating "Stay on the Trail: Environmentally Sensitive Area" is a highly ineffective control.

Clear and complete information about the health risks posed by this site to potential users must be available on-site. People have been walking off-trail at Murphy's Island since the trail was built in 2022.

NYSDEC's proposed plan impedes the Onondaga Nation's responsibility to take care of their lands, waters, people, and other beings by allowing toxic pollution to remain and pose a potential health risk to visitors. Murphy's Island is within unceded Onondaga territory.
• The proposed plan, without modification, allows for public misperception of the level of clean-up that has occurred and the risks associated with recreating in and around Onondaga Lake.

Thank you.

Erica Roach

Sent from my iPhone

Smith, Tracy (DEC)

From: Sue Eiholzer <rsue@twcny.rr.com>
Sent: Thursday, February 9, 2023 4:45 PM
To: Smith, Tracy (DEC)
Subject: NYS Department of Conservation (NYSDEC) proposed "clean up" of Murphy's Island.

Dear Ms Smith

This is at most a partial remedy and NOT fully protective of public or ecological health.

NYSDEC and Environmental Protection Agency (EPA) data show PAHs, pesticides, PCBs, and metals (including mercury) distributions are random with multiple, wide-spread exceedances of soil standards that regulate risks for "passive use" (ie. walkers, bikers) and birds, insects, and other animals. Risks to insectivorous birds and small mammals are at unacceptable levels.
The site also includes "emerging" chemicals, such as PXE and PTE. Since there are no EPA or DEC standards for these emerging chemicals, the DEC will not include these in monitoring.

NYSDEC should consider additional alternatives: DEC could mandate either staged remediation and replanting of the forested areas to avoid disrupting the roosting eagles or remediation which relies on scattered or less intrusive methods. Polluting companies should not be able to use habitat emergence to avoid their remediation responsibility.

NYSDEC should recalculate and publicize the risks remaining in the un-remediated areas. Much of the un-remediated, forested area lies along the Murphy's Island Spur Trail or between the trail and Onondaga Lake, where site visitors may be most likely to stray off-trail. The risks posed by accessing these areas should be re-evaluated to ensure public safety. The calculated cancer risk for child recreators is 0.6 additional cancers for every 10,000 exposed children. Although this is below EPA's "acceptable risk" level of 1 additional cancer per 10,000 people exposed, site users might not want to expose children to this risk for the sake of a short walk.

NYSDEC must ensure adequate and appropriate signage: Current Onondaga County signs stating "Stay on the Trail: Environmentally Sensitive Area" is a highly ineffective control. Clear and complete information about the health risks posed by this site to potential users must be available on-site. People have been walking off-trail at Murphy's Island since the trail was built in 2022.

NYSDEC's proposed plan impedes the Onondaga Nation's responsibility to take care of their lands, waters, people, and other beings by allowing toxic pollution to remain and pose a potential health risk to visitors. Murphy's Island is within unceded Onondaga territory.

The proposed plan, without modification, allows for public misperception of the level of clean-up that has occurred and the risks associated with recreating in and around Onondaga Lake.

Sue Eiholzer
Neighbors of the Onondaga Nation
4178 Coye Rd, Jamesville, NY 13078

Smith, Tracy (DEC)

From: Tiffany F <tiff.fotopoulos@gmail.com>
Sent: Thursday, February 9, 2023 9:41 PM
To: Smith, Tracy (DEC)
Subject: Murphy's Island Public Comment

Dear Tracy Alan Smith,

My name is Tiffany Fotopoulos and I reside at 315 Comstock Avenue, Apartment 11, Syracuse NY. My email is tiff.fotopoulos@gmail.com. My phone number is 862-373-9065.

I am writing to comment on the proposed clean-up of Murphy's Island. I believe that the clean-up does not go far enough to decontaminate the site, nor warn public visitors of the risks of being in areas that are not remediated. The clean-up may also disrupt the eagles in the area, so alternatives like staged remediation and replanting of forested areas should be considered.

Thank you,
Tiffany Fotopoulos

Smith, Tracy (DEC)

From: paul tobin <coyotesong1@hotmail.com>
Sent: Friday, February 10, 2023 7:57 AM
To: Smith, Tracy (DEC)
Subject: Murphy's Island Onondaga Lake

NYSDEC and Environmental Protection Agency (EPA) data show PAHs, pesticides, PCBs, and metals (including mercury) distributions are random with multiple, wide-spread exceedances of soil standards that regulate risks for "passive use" (ie. walkers, bikers) and birds, insects, and other animals. Risks to insectivorous birds and small mammals are at unacceptable levels.
The site also includes "emerging" chemicals, such as PXE and PTE. Since there are no EPA or DEC standards for these emerging chemicals, the DEC will not include these in monitoring. We feel a closer look needs to be taken and a more permeant solution found.

Thanks for your consideration
Paul Tobin Care Taker Society
215 Moonhaw Rd
West Shokan NY 12494
845 657 6818

Smith, Tracy (DEC)

From: Julie Gozan <gozanj@hotmail.com>
Sent: Friday, February 10, 2023 8:13 AM
To: Smith, Tracy (DEC)
Subject: Public Comment: Clean Up of Murphy's Island and Onondaga Lake

I am writing to comment on the NYSDEC's proposed clean up of Murphy's Island on the shore of Onondaga Lake. The proposed plan is not fully protective of public of ecological health, and allows for public misperception of the level of clean-up that has occurred to date and the risks associated with recreating in and around Onondaga Lake. NYSDEC and EPA data show that that toxins exceed soil standards that regulate risks for humans who will be walking or biking on the site, as well as wildlife. Risks to insectivorous birds and small mammals are at unacceptable levels. DEC should mandate another solution, such as staged remediation and replanting of the forested areas to avoid disrupting the eagles that roost on Murphy's Island.

Much of the un-remediated area lies along the Murphy's Island Spur Trail or between the trail and Onondaga Lake, where site visitors may be most likely to stray off-trail. The risks posed by accessing these areas should be re-evaluated to ensure public safety. Current Onondaga County signs stating "Stay on the Trail: Environmentally Sensitive Area" is a highly ineffective control. Clear and complete information about the health risks posed by this site to potential users must be available on-site.

Murphy's Island is within unceded Onondaga Nation territory. Therefore it is imperative to work with the Onondaga to make sure all plans are aligned with the Nation's appraoch to caretaking for the land, waters, animals and humans.

Thank you for your attention.

Sincerely,

Julie Gozan
828 Maryland Avenue
Syracuse, NY 13210
gozanj@hotmail.com
315-477-7507

Smith, Tracy (DEC)

From: Jacob Eichten <jake.eichten@gmail.com>
Sent: Friday, February 10, 2023 11:33 AM
To: Smith, Tracy (DEC)
Subject: Onondaga Lake - Murphy's Island

Rev. Jacob L Eichten
327 Robinson St. / Syracuse NY 13203
(315) 412-1229

Greetings Tracy,

There is a moral obligation to care for the land we live with, and the current plans as outlined for Murphy's Island fall short of reasonable good faith efforts to meet that responsibility.
Fortunately, the Onondaga Nation remains with the land, their unceded territory, and they take seriously this obligation. Their perspective and experience is a tremendous asset to stakeholders in seeing this process through, and their leaders must be central to all decisions made about the land. Their guidance will ensure that we are collectively taking the care needed to heal the water and land so damaged by previous actions on this most polluted lake in the country.
Too much of what's gone on at the lake has been to hide from reality. The risks of ignoring or low-balling the situation are too great. Let's do our best to take care of what lies before us.

Sincerely,

JACOB L. EICHTEN
Future ancestor.
PHONE +1 (315) 412-1229
(*he/him/his)

Smith, Tracy (DEC)

From: Amala Lane <laneamala@gmail.com>
Sent: Friday, February 10, 2023 11:47 AM
To: Smith, Tracy (DEC)

Dear Ms. Smith,

Since the NYS Department of Conservation (NYSDEC) is inviting public comments on their proposed "clean up" of Murphy's Island, land on the shore of Onondaga Lake, here are my comments.

Murphy's Island is a roosting site for bald eagles, whose numbers can increase to nearly 100 individuals in the winter. And that's just the start.

This is at most a partial remedy and NOT fully protective of public or ecological health.
- NYSDEC and Environmental Protection Agency (EPA) data show PAHs, pesticides, PCBs, and metals (including mercury) distributions are random with multiple, wide-spread exceedances of soil standards that regulate risks for "passive use" (ie. walkers, bikers) and birds, insects, and other animals. Risks to insectivorous birds and small mammals are at unacceptable levels.
- The site also includes "emerging" chemicals, such as PXE and PTE. Since there are no EPA or DEC standards for these emerging chemicals, the DEC will not include these in monitoring.

NYSDEC should consider additional alternatives: DEC could mandate either staged remediation and replanting of the forested areas to avoid disrupting the roosting eagles or remediation which relies on scattered or less intrusive methods. Polluting companies should not be able to use habitat emergence to avoid their remediation responsibility.

NYSDEC should recalculate and publicize the risks remaining in the un-remediated areas.
- Much of the un-remediated, forested area lies along the Murphy's Island Spur Trail or between the trail and Onondaga Lake, where site visitors may be most likely to stray off-trail. The risks posed by accessing these areas should be re-evaluated to ensure public safety. The calculated cancer risk for child recreators is 0.6 additional cancers for every 10,000 exposed children. Although this is below EPA's "acceptable risk" level of 1 additional cancer per 10,000 people exposed, site users might not want to expose children to this risk for the sake of a short walk.

NYSDEC must ensure adequate and appropriate signage: Current Onondaga County signs stating "Stay on the Trail: Environmentally Sensitive Area" is a highly ineffective control.

Clear and complete information about the health risks posed by this site to potential users must be available on-site. People have been walking off-trail at Murphy's Island since the trail was built in 2022.

NYSDEC's proposed plan impedes the Onondaga Nation's responsibility to take care of their lands, waters, people, and other beings by allowing toxic pollution to remain and pose a potential health risk to visitors. Murphy's Island is within unceded Onondaga territory.
- The proposed plan, without modification, allows for public misperception of the level of clean-up that has occurred and the risks associated with recreating in and around Onondaga Lake.

Links to NYSDEC information

- Fact sheet for site SYW-12:

https://www.dec.ny.gov/data/der/factsheet/734075acuprop.pdf

- Proposed Plan:

https://www.dec.ny.gov/data/DecDocs/734075A/PRAP.HW.734075A.2023-01-19.SYW-12%20Proposed%20Plan.pdf

For questions or concerns about Onondaga Lake issues, contact A Better Future for Onondaga Lake (BFOL): onondagalakefuture@gmail.com

For information regarding the bald eagles, contact Friends of the Onondaga Lake Bald Eagles (FOLBE): friends.ol.baldeagles@gmail.com

For learning resources related to the Onondaga Nation, contact Neighbors of the Onondaga Nation (NOON): noon@peacecouncil.net

Sincerely,

Arleen (aka Amala) Lane
501 N. Tioga St. 4A
Ithaca, NY 14850

Smith, Tracy (DEC)

From: Anthony K <anthony0895@gmail.com>
Sent: Friday, February 10, 2023 7:36 PM
To: Smith, Tracy (DEC)
Subject: Feedback about Murphy's Island - Onondaga Lake

Hello,

My name is Anthony Kratz and I live at 104 Sunrise Terrace in Liverpool, NY. This is regarding feedback for the proposed plans for Murphy's Island @ Onondaga Lake in Syracuse. I believe that the plan to put a trail through a heavily contaminated site that has such a long history of dumping toxic and carcinogenic chemicals on it is not sound. I do not think putting a layer of soil with signs that say not to go off the path is adequate as a short or long term solution. Short term, people will go off the trail anyway and be exposed to potentially harmful chemicals. Long term, it's a band-aid to not remediate the root of the issue with Murphy's Island.

The transfer of the management of this heavily polluted land to a municipality will make it the problem of the landowners if and when people get sick because of this (if that will ever even be realized that exposure there was the cause of their illness). I am in favor of developing the land around the lake to be used as recreation so that private interests don't have the chance to, but I think the ultimate decision should lie with the Onondaga Nation who have been calling Onondaga Lake a sacred area for hundreds of years. Please be sure to include a representative from the Onondaga when making decisions about this plan. The environment is very interconnected and decisions affect all of us, as well as animals and plants.

Thank you,

Anthony Kratz
Mobile: 315-412-2881

Smith, Tracy (DEC)

From: Sarah Nahar <sarah.e.nahar@gmail.com>
Sent: Sunday, February 12, 2023 7:33 AM
To: Smith, Tracy (DEC)
Subject: Please consider fully protecting Onondaga Lake

Greetings Tracy,
My name is Sarah Nahar and I am a PhD student at Syracuse University, and a visiting instructor at SUNY-ESF. My mailing address is 2507 E Genesee St, Syracuse, NY 13224. My email address is sarah.e.nahar@gmail.com, and phone number is 574-612-0340.

Regarding Murphy's Island, this is at most a partial remedy and NOT fully protective of public or ecological health. Your and the Environmental Protection Agency (EPA) data show PAHs, pesticides, PCBs, and metals (including mercury) distributions are random with multiple, wide-spread exceedances of soil standards that regulate risks for "passive use" (ie. walkers, bikers) and birds, insects, and other animals. Risks to insectivorous birds and small mammals **are at unacceptable levels.** The site also includes "emerging" chemicals, such as PXE and PTE. Since there are no EPA or DEC standards for these emerging chemicals, the DEC will not include these in monitoring.

NYSDEC should consider additional alternatives: DEC could mandate either staged remediation and replanting of the forested areas to avoid disrupting the roosting eagles or remediation which relies on scattered or less intrusive methods. Polluting companies should not be able to use habitat emergence to avoid their remediation responsibility.

NYSDEC should recalculate and publicize the risks remaining in the un-remediated areas. Much of the un-remediated, forested area lies along the Murphy's Island Spur Trail or between the trail and Onondaga Lake, where site visitors may be most likely to stray off-trail. The risks posed by accessing these areas should be re-evaluated to ensure public safety. The calculated cancer risk for child recreators is 0.6 additional cancers for every 10,000 exposed children. Although this is below EPA's "acceptable risk" level of 1 additional cancer per 10,000 people exposed, site users might not want to expose children to this risk for the sake of a short walk.

NYSDEC must ensure adequate and appropriate signage: Current Onondaga County signs stating "Stay on the Trail: Environmentally Sensitive Area" is a highly ineffective control. **Clear and complete information about the health risks posed by this site to potential users must be available on-site.** People have been walking off-trail at Murphy's Island since the trail was built in 2022.

NYSDEC's proposed plan impedes the Onondaga Nation's responsibility to take care of their lands, waters, people, and other beings by allowing toxic pollution to remain and pose a potential health risk to visitors. Murphy's Island is within unceded Onondaga territory. There must be more consultation with the Onondaga, before proceeding.

In sum, the proposed plan, without modification, allows for public misperception of the level of clean-up that has occurred and the risks associated with recreating in and around Onondaga Lake.

Thank you for your attention to this matter.

Sarah Nahar

Smith, Tracy (DEC)

From: Mary Anderson <savicki7@gmail.com>
Sent: Tuesday, February 14, 2023 11:18 AM
To: Smith, Tracy (DEC)
Subject: Murphy's Island Clean-Up

Tracy,
I live in Liverpool and frequent Onondaga Park. I heard about the issue of cleaning only part of the Island and not letting the public know the risks of the polluted areas. I am hoping the DEC will listen to concerned citizens and readjust their plans for Murphy's Island. So much time and money has been put into restoring this sacred lake for generations to come. Let's not fall short on the full restoration.
Thank you for your time and attention.
Rev. Mary Anderson

Smith, Tracy (DEC)

From: parkerhead@earthlink.net
Sent: Tuesday, February 14, 2023 4:21 PM
To: Smith, Tracy (DEC)
Cc: rebekahrrice@gmail.com
Subject: Onondaga Lake contamination

Tracy Alan Smith, Project Manager
NYSDEC
625 Broadway, 12th floor
Albany, NY 12233-7013

Murphy's Island, on the shore of Onondaga Lake, is a roosting site for bald eagles, whose numbers can increase to nearly 100 individuals in the winter.

Murphy's Island and Onondaga Lake harbors toxins at levels that pose threats to public and ecological helath.

NYSDEC and Environmental Protection Agency (EPA) data show PAHs, pesticides, PCBs, and metals (including mercury) distributions are random with

multiple, wide-spread exceedances of soil standards that regulate risks for "passive use" ie walkers, etc. and birds, insects and other animals. The site also

includes "emerging" chemicals, such as PXE and PTE.

NYSDEC should consider additional alternatives: DEC could mandate either staged remediation and replanting of the forested areas to avoid disrupting

the roosting eagles or remediation which relies on scattered or less intrusive methods.

NYSDEC should ensure more adequate and more appropriate signage.

Thank you,
Julie M Finch
co-clerk Indian Affairs Committee
165 West 26th st,, 5E
NY, NY 10001
parkerhead@earthlink.net (mailto:parkerhead@earthlink.net)
917-613-3788

Smith, Tracy (DEC)

From: Bernadette Andaloro <bandaloro2020@gmail.com>
Sent: Thursday, February 16, 2023 3:11 PM
To: Smith, Tracy (DEC)
Subject: NYSDEC Murphy's Island "Clean Up" Plan

Dear Ms. Smith,

As a member of the Friends of the Onondaga Lake Eagles, I would like to submit my comments during the official comment period open until February 18, 2023.

Let me just ask, are you kidding? This is it? I must balk at the part of your mission statement that states "to prevent, **abate**, and control water, **land**, and air pollution, in order to enhance the health, **safety and welfare**, of the people of the state..."

The proposed plan to "clean up " Murphy's Island leaves:

- More than half of the site un-remediated. Where partial remedies are proposed, the data shows that risks are still too high for the public, birds, and small mammals.

-Emerging chemicals such as PXE and PTE are still not even monitored.

-There are no plans to even warn visitors of the risks remaining from exposure to un-remediated areas. Don't people even have the right to decide for themselves whether they want to take the risk or not?

-Where there are signs, they need to be clear and complete. The current "Stay on the Trail: Environmentally Sensitive Area" signage is laughable. People have been walking off the trail, vandalizing the property, and disturbing the eagles since the trail has been built.

In summary, I feel that the current "clean up" plan or lack thereof, encourages the public to believe that the risks associated with recreating on Murphy's Island are much lower than they really are. It's shameful.

Respectfully Submitted,

Bernadette Andaloro
143 Watertree Drive
East Syracuse, NY 13057
315-664-1398

Smith, Tracy (DEC)

From: Maria Boemi <mbwdimarco@gmail.com>
Sent: Thursday, February 16, 2023 3:12 PM
To: Smith, Tracy (DEC)
Subject: Public comment on Murphy Island clean up

Hi Tracy,

Thank you for accepting public comments on the Murphy Island clean up initiative.

It concerns me to learn that the NYSDEC's plan leaves 50% of the contaminated site untouched and allows a public trail through the un-remediated area, with no mandated signs that warn visitors of the risks.

Clear and complete information about the health risks posed by this site to potential users must be available on-site. People have been walking off-trail at Murphy's Island since the trail was built in 2022.

Additionally and critically, NYSDEC's proposed plan **impedes the Onondaga Nation's responsibility to take care of their lands, waters, people, and other beings by allowing toxic pollution to remain and pose a potential health risk to visitors.** Murphy's Island is within unceded Onondaga territory. The proposed plan, without modification, allows for public misperception of the level of clean-up that has occurred and the risks associated with recreating in and around Onondaga Lake.

NYSDEC should consider additional alternatives: DEC could mandate either staged remediation and replanting of the forested areas to avoid disrupting the roosting eagles or remediation which relies on scattered or less intrusive methods. Polluting companies should not be able to use habitat emergence to avoid their remediation responsibility.

I look forward to NYSDEC's careful attention to this important matter.

Respectfully,
Maria

Name: Maria Boemi
Affiliation: NOON (Neighbors of the Onondaga Nation)
Mailing Address: 238 Greenwood Pl, Syracuse, NY 13210
Email Address: mbwdimarco@gmail.com
Phone Number: 315-663-4881

Smith, Tracy (DEC)

From: Sharon Osika-Michales <osikamis@yahoo.com>
Sent: Friday, February 17, 2023 10:45 AM
To: Smith, Tracy (DEC)
Subject: Comments on SYW-12 Site Clean Up Plans

Tracy Alan Smith, Project Manager

NYS Department of Environmental Conservation

625 Broadway, 12th Floor

Albany, NY 12233-7013

Tracy.smith@dec.ny.gov

Dear Mr. Smith:

The number of toxic substances in the area behind Destiny Mall is shocking. There is a smorgasbord of contaminated material in the soil and wetland. A Superfund site must be remediated regardless whether the area is used by the public or not. Humans are not the only species harmed by pollution, as noted in the DEC report. It is absolutely not necessary for a public walking trail to be placed through a Superfund site if that site has not or will not be completely remediated. This is said with the exception of the eagles' roosting area along the lake, which we should preserve. We should not disturb the birds or their habitat as best possible.)

Keep the public out of the area for their safety, period, if there is no intention of truly cleaning it up. True remediation means removing the tainted soil, taking it off site, then replacing with "clean" fill. Reusing contaminated soil on-site is unacceptable. It must be removed, as suggested in Alternative 3B, which is the best of the four alternatives listed, and less expensive than Alternative #4.

It is not a necessity that a trail be around the whole of Onondaga Lake. Pedestrians can simply turn around and continue walking in the opposite direction when they reach the Superfund site. They can view the lake, the eagles, etc. from several locations along the already made trail. This would also mean no additional disturbance of land or avian/other species habitat on the north side of Onondaga Lake. A large area of wildlife habitat/wetland has already been taken from the south side of Onondaga Lake with the construction of the Amphitheatre grounds. There is already a long, well used walking area along the lake in Onondaga Lake Park. We should and must preserve lake areas used by wildlife.

An additional reason this area should be truly remediated is the fact that Murphy's Island is unceded land. It belongs to our local indigenous people, who had no part in polluting it. The land was promised to be returned to them and Onondaga County reneged on that promise. I doubt that it is in the DEC's jurisdiction to change "ownership" of Murphy's Island, but it is the DEC's and/or EPA's duty to ensure the area is safe. Stating that "all is well and safe" by covering up the contaminated areas is disingenuous.

With Alternative #2, the end result should not be labeled as "the area has been cleaned up and is safe" when it would be neither.

Comments on the Alternatives:

Alternative 1 is not an option.

Alternative 2 is not sufficient, leaving an unsafe area that would need continual monitoring, and only monitoring every five years does not seem often enough. If Alternative 2 is used, the Superfund site should not be open to the public to walk near or through.

Alternative 3B is more acceptable and safer option than Alternative 2.

Alternative 4 is too costly and invasive, and would involve too much truck traffic.

Suggestions:

1) Implement Alternative 3B.

2) Stop plans to extend the trail past Destiny Mall, and sufficiently clean up the site, while protecting the eagles' habitat.

3) Remove as few trees as possible. Leave a large buffer area of trees around where the eagles roost.

4) Plant more shrubs, bushes, trees after the land is restored.

5) Remove all contaminated soil off site. Do not reuse it. Replace with clean fill.

6) Post clear, understandable signage to the general public. Most won't know what an "Environmentally Sensitive Area" is, nor will they care. Kids especially wonder everywhere. (The same signage issue goes for immigrants, i.e., those who fish in Onondaga Lake a lot, who cannot read English on signs that warn of fish limits that will be eaten. Signs must be written in English and in their languages, if this has not already been done.)

7) Don't inform the public that the Superfund Site is "cleaned up" until it is truly remediated and contaminated soil is removed from the site.

Thank you for the opportunity to comment on the SYW-12 Site Clean Up plans.

Sincerely,

Sharon Osika-Michales

4411 Vinegar Hill Rd.

Skaneateles, NY 13152

315-685-5057

osikamis@yahoo.com

Smith, Tracy (DEC)

From: Andrew Bowes <abowes31@gmail.com>
Sent: Friday, February 17, 2023 12:53 PM
To: Smith, Tracy (DEC)
Subject: SYW-12
Attachments: carp cemetary.jpg; flotsam 2.jpg; binky.jpg

Tracy
I am submitting comments relative to the Murphy Island project. As the DEC is more or less committed to capping just a portion of the site to protect the public from contaminants that have existed for decades, I applaud the State in taking this action. The area proposed at this time is about only 25% of the whole area. It leaves unaddressed the majority of the site. Now given the site is being made publicly accessible and with a transient and resident Bald Eagle population making it a very high-profile area (just search bald eagles Onondaga lake on Facebook) I encourage the State to be proactive with addressing other areas on the site.
Specifically, the shoreline.
Attached are some photos of a trip I made last summer by canoe and had a picnic dinner at sunset with my wife and at least one eagle who landed directly above us. I term this area as an Urban Wilderness. The massive trees that exist here must be at least 75 years old. The shoreline is a unique area that has a vibrant ecosystem that has evolved over time mostly due to being inaccessible. That is now changing. The walkway and the addition of a boat launch in the inner Harbor will being more humans into contact with this area. There has much been said about the chemical pollutants on the island, but I would like to speak to accumulated trash and plastics that in some areas 2 feet thick. The presence of the Bald Eagles has really raised the awareness of this location. I urge the State to start considering a plan to mitigate this area as well. A barge mounted vacuum truck would be effective in suctioning up the debris that has been broken down into smaller particles without disturbing the plants and trees that are established. Humans on the shoreline are inevitable. The new trail will introduce more people who will be naturally attracted to water, and they will find a way. I will be encouraging the county to create an access area that can be controlled rather just informal, one from people travelling off the beaten path. There is an existing homeless encampment at the mouth of Ley Creek at this time. With the number is visitors coming from outside the area attracted by the ever-popular eagles there will be more people in canoes and kayaks venturing out along this stretch of shoreline. I also encourage the State to make more funding available for invasive species eradication. specifically, Phragmites (which abound in the site) and for Japanese Knotweed. There are several infestations on Onondaga creek at this time. They will make their further down the watershed. Just look along the Delaware River in Hancock.

I am attaching some photos of the shoreline. None of the photos are staged. The amount of refuse is staggering in the way it has melded into the landscape. Of particular interest is the carp graveyard. Easily a dozen carcasses. I suggest they are dragged in from the nearby shoals by the Eagles for a feast. Also of note is a large, overturned tree that has a bunch of burrows. I am thinking kingfisher birds.

If you have an opportunity to follow up I would greatly appreciate a conversation

Andrew Bowes
Syracuse NY
31-952-3832

Smith, Tracy (DEC)

From: Bollinger, Sara <sbollinger@townofmanlius.org>
Sent: Friday, February 17, 2023 11:24 PM
To: Smith, Tracy (DEC)
Cc: caseyclearyham@gmail.com
Subject: Murphy's Island Onondaga Lake

Hello Tracy

I am Sara Wall Bollinger, Deputy Supervisor, Town of Manlius. My personal address is 99 Thompsons St, Fayetteville 13066. 315-447-7937.
The Town has not taken a stand on Murphy's Island. I submit this email as a private person.

I support salvaging the roosting areas for bald eagles. Please note that bald eagles also roost at Delta Lake. This area may need protection as well.

The proposed partial remedy for Murphy's Island is inadequate to protect human and animal health. Unfortunately, this island is a cesspit of unregulated toxic waste from a previous era. At a minimum, DEC should require warning signage so that walkers understand that the site is toxic, even after partial remediation.

I also support the ultimate plan for the Onondaga Nation, Firekeepers of the Haudenosaunee, to assume control of the health of Onondaga Lake, as is their ancestral right. The DEC should develop all plans with regard to Onondaga Lake and its shores in collaboration with the Onondaga Nation.

Thank you
Sara

Sara Bollinger (she/her)
Deputy Supervisor

Smith, Tracy (DEC)

From: go <goldtailedhermit@aol.com>
Sent: Saturday, February 18, 2023 3:38 PM
To: Smith, Tracy (DEC)
Subject: Comments about remediation options for Murphy's Island - SYW-12 Site #734075A (Syracuse, Onondaga County)

Tracy Alan Smith, Project Manager
NYS Department of Environmental Conservation
625 Broadway, 12th Floor
Albany, NY 12233-7013
Tracy.smith@dec.ny.gov

Dear Mr. Smith:

After looking over the alternative solutions proposed for the remediation of Murphy's Island, I prefer Alternative 2 over the other choices. I am in favor of that one because it preserves more trees than the others (except for #1, obviously) and will disturb the Bald Eagle roost area less than the others would.

It is also important to provide adequate signage so that people will not venture off the trail and expose themselves to any toxins that remain in the area. It's unfortunate that the trail was approved when most of the lake shore is already accessible for recreational activities.

Thank you for considering my opinion.

Sincerely,
Maryanne Adams
10757 State Route 34
Cato, NY 13011

COUNTY OF ONONDAGA
OFFICE OF THE ENVIRONMENT

JOHN H. MULROY CIVIC CENTER
421 MONTGOMERY STREET – 14TH FLOOR
SYRACUSE, NEW YORK 13202
TELEPHONE: 315-435-2647

J RYAN McMAHON II
County Executive

JESSE McMAHON
Director

February 15, 2022

Tracy A. Smith
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation, Remedial Bureau D
625 Broadway, 12th Floor, Albany, NY 12233-7013

Dear Mr. Smith,

Onondaga County (the "County") appreciates the opportunity to submit written comment on the remedy being proposed in the Proposed Remedial Action Plan ("PRAP") by the New York State Department of Environmental Conservation (NYSDEC) and United States Environmental Protection Agency (EPA) in consultation with the New York State Department of Health (NYSDOH) to address contamination related to the SYW-12 site ("site") located in the east corner of Onondaga Lake between the lake and railroad tracks in Syracuse, Onondaga County.

The County agrees with the NYSDEC and NYSDOH selected Alternative 2 based on feasibility, timing, ecological value, habitat preservation, and disturbances to existing uses, while still being protective of human health. All subsequent comments submitted below are to be considered under Alternative 2.

Comment #1: *Implementability.* The PRAP concludes that Alternative 2 "would require access across the CSX Railroad tracks and work in proximity to the railroad, Onondaga Lake, Onondaga Creek, and Ley Creek." While there is precedent for Honeywell to have access to CSX property/rights of way, and potentially including access over CSX tracks, for work on other Operable Unit remedial actions in this general area in the past, Honeywell has not signed a Remedial Action Order at this time and is not believed to have previously moved large/heavy equipment, vehicles, workers, etc. repeatedly across CSX tracks. The County is of the understanding that it is CSX's standard policy not to permit track crossings involving heavy equipment, especially with respect to re-occurring crossings. Understanding that this access is not assumed and given the landlocked nature of the site, how is access to the site to be obtained if CSX is not agreeable? Additionally, has a contingency of cost been considered in the proposed amount for Alternative 2 in the event of no access across CSX tracks?

Comment #2: *Trail Closure and Layout.* "Alternative 2 is anticipated to be completed within one construction season." As noted at the Public Hearing on January 31st, 2023, the remedial work will take place with adherence to the current Article 24 permit. This implies that remedial activities will occur concurrent to peak trail usage (May through October), as the trail is closed December through April per the Article 24. How will the involved parties work to prevent trail closures during construction? If trail closures become necessary, how will the involved parties work to minimize the occurrence of such closures, and what will be the procedure for communication and timing of them?

Additionally, two potential remedial areas noted in Figure 11 “SWY-12 Alternative 2” are located under and adjacent to the existing trail. Any area that is located within the boundaries of the existing trail was previously studied, received a change of use, and is being managed under the current draft Interim Site Management Plan (ISMP). Therefore, the additional investigation efforts in these potential areas seem to only lead to disturbance and possible closures in the existing trail system.

Comment #3 – *Remedial Action and Trail Work Timing.* The County is interested in the proposed timing of the Remedial work especially with regards to the additional trail construction planned for SWY-12. Benefits that should occur from coordinating these efforts are more convenient access to the worksites; a decrease in the occurrence of trail closures and, because joint efforts should lead to a reduction in the need for hauling and equipment use, emissions would decrease overtime. Additional benefits that might be realized are wetland mitigation and the opportunity to cut down on waste by re-using materials. These benefits are explained more fully below:

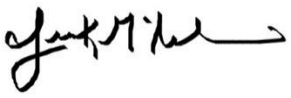
Wetland Mitigation. The County contends that mitigation may be required where water budget and/or grading cannot replace wetland conditions or functions during trail construction. If the timing of both activities were to be coordinated, the appropriate scope changes can ensure mitigation at the time of the Remedial Action.

Material Re-use. If the Remedial Action and trail construction are not on overlapping or have compatible schedules, then the ability to re-use excavated material for trail construction becomes less of an immediate solution and more discussion will be needed around the ability to stockpile onsite. Alternative 2 suggests "…should re-use of . . . materials not be possible at the Site following remedial design evaluations, the material would need to be managed off-site." Regardless of timing, under what conditions would re-use not be permitted?

Potential issues to be considered associated with overlapping construction activities may include limited space for material and equipment storage, staging, the possibility of insufficient space on site and the accommodation of two overlapping construction projects/schedules.

We appreciate the consideration of the enclosed comments and look forward to the Agency’s response.

Thank you,



Jesse McMahon
Director, Onondaga County Office of the Environment

cc: Benjamin Yaus, Onondaga County
Marty Voss, Onondaga County
Brian Kelley, Onondaga County
Mark Sergott, NYSDOH

DEPARTMENT OF ENGINEERING

CITY OF SYRACUSE, MAYOR BEN WALSH

Mary E. Robison, PE
City Engineer

John Kivlehan
Design & Construction

Kelly Haggerty
Public Buildings

Marc Romano
Mapping & Surveying

To: **Tracy A. Smith**
NYS Dept. of Environmental Conservation
625 Broadway
Albany, NY 12233-7013

Re: **SYW-12 Site**
Operable Unit of Wastebed B/Harbor Brook Subsite of
Onondaga Lake Superfund Site
Comments on Proposed Plan

Date: **February 17, 2023**

The City of Syracuse Dept. of Engineering has reviewed the Proposed Plan for Onondaga Lake Superfund Site SYW-12. The City appreciates the investigation and design efforts, as well as the funding directed for the remediation of contaminated soil/groundwater along the Onondaga Lake shoreline. We believe this effort will result in further long-term improvements to Onondaga Lake and foster increased lake usage.

We recognize that this project is led by the New York State Department of Environmental Conservation which supersedes the floodplain management jurisdiction of the City of Syracuse. However, as the 23.5-acre SYW-12 site is located within the city and almost entirely within the FEMA-delineated Special Flood Hazard Area (SFHA) Zone AE for Onondaga Lake, the City believes that the floodplain parameters of the project must be considered to avoid potential adverse impacts from the preferred remedial alterative. The City has recently enforced floodplain regulations for the Onondaga County Loop the Lake trail project which is adjacent to this site. Also, high lake levels within the last several years have caused flooding along the lake shoreline with minor damages.

Please see the attached NFIP Firmette which shows the extent of the SFHA in this section of Onondaga Lake. The Base Flood Elevation (BFE) is 371.2 feet NAVD88, which reaches close to the CSX railroad embankment. Preferred Alternative 2 includes adding a 2-foot-thick soil cap over 8.2 acres of contaminated soils (perched wetland cover and upland vegetated soil). Fill under this alternative is estimated to be approximately 26,500 CY. This alternative indicates that existing soils could be removed to assist in wetland restoration, but no amount or depth is specified.

Dept. of Engineering
233 E. Washington St.
City Hall, Room 401
Syracuse, N.Y. 13202
Office 315 448-8200
Fax 315 448-8488

www.syrgov.net

Per our local floodplain management law (enacted with the guidance of the NYSDEC in 2016), in order to maintain flood storage, filling within the SFHA must be offset by the same volume of excavation. Proposed Plan Figure 11 shows the extent of the planned fill areas. A more detailed topo map is needed (CAD program best) to determine how much fill would actually be placed within the SFHA. Fill between existing grade and the BFE of 371.2 NAVD88 counts as fill within the floodplain. Fill above 371.2 feet would be above the BFE and not within the floodplain.

Adding fill to the SFHA would raise lake elevations above existing conditions under higher lake levels. The amount of lake level rise may not be great from any one project, but multiple and future projects that fill the floodplain will increase adverse effects. We ask that the NYSDEC calculate the fill within the SFHA using CAD software. The city believes that Alternative 2 should be modified to remove a volume of existing soil equal and prior to placement of the proposed soil cap within the SFHA. Removed soils would need to be placed in upland areas off site or could be placed above the SFHA on site, in accordance with state environmental regulations. Alternative 3 could also be implemented with a no-net fill scenario as it includes soil removal prior to soil cap placement.

To maintain flood storage, the NYSDEC could also consider balancing site fill with equal excavation outside of the SYW-12 site but within the Onondaga Lake SFHA. Onondaga County recently utilized this off-site in-floodplain storage method for projects within the Onondaga Lake SFHA. Coordination with Onondaga County for floodplain storage could be considered by NYSDEC.

We appreciate the NYSDEC's review and consideration of the city's comments. We recognize the environmental benefits of this project and will work with the NYSDEC to avoid any potential adverse floodplain impacts. If you have any questions on these comments, please reach out to Russell Houck, PE in the City Engineering Department at rhouck@syr.gov, phone 315-448-8059.

Sincerely,

Mary E. Robison

Mary Robison, PE

Attachments

1. FEMA Firmette
2. NYSDEC Proposed Plan Figure 11

cc: Shannon Harty, Commissioner, Onondaga County Water Environment Protection

National Flood Hazard Layer FIRMette

FEMA

76°10'52"W 43°4'35"N

76°10'15"W 43°4'9"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/14/2023 at 12:57 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

I:\Honeywell.116365696.Syw-12-FsDocs\DWG\MXD\DEVELOPMENT OF ALTERNATIVES\FS ALTERNATIVES JULY 2021

PROJECT: 1940065696 | DATED: 3/4/2022 | DESIGNER: MONETANT

ONONDAGA LAKE

ENGINEERED COVER IN NON-FORESTED AREA
- PERCHED WETLAND COVER (7.5 ACRES)

UNDISTURBED EAGLE ROOSTING HABITAT
- UNDISTURBED FORESTED HABITAT (15.3 ACRES)

ENGINEERED SOIL COVER IN NON-FORESTED AREA
- UPLAND VEGETATED SOIL COVER (0.7 ACRES)

CSX RAILROAD TRACKS

Park St

Onondaga Lake Pkwy

370

LEY CREEK

24B 24A

Harborside Dr

ONONDAGA CREEK

ALSO INCLUDES:
- WETLAND RESTORATION/MITIGATION
- GROUNDWATER MONITORING
- MONITORED NATURAL ATTENUATION
- ON-SITE REUSE AND/OR OFF-SITE DISPOSAL OF EXCAVATED SOIL/FILL MATERIAL
- INSTITUTIONAL CONTROLS
- BIOTA MONITORING
- PRE-DESIGN SOIL SAMPLING AND TREE SURVEY

Service Layer Credits: NYS ITS GIS Program Office, Westchester County GIS

- POTENTIAL FUTURE TRAIL EXTENSION
- PLANNED RECREATIONAL TRAIL ALIGNMENT
- UPLAND VEGETATED SOIL COVER (0.7 AC)
- PERCHED WETLAND COVER (7.5 AC)
- SITE BOUNDARY
- POTENTIAL ADDITIONAL REMEDIAL AREAS (E.G., BASED ON SOIL SAMPLING, TREE SURVEY)

0 125 250 Feet

SYW-12 ALTERNATIVE 2
ENGINEERED COVER ON PERIMETER AREA (8.2 ACRES), WETLAND RESTORATION / CREATION, BIOTA MONITORING, AND MNA

HONEYWELL INTERNATIONAL INC.
SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 11

RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

- POTENTIAL FUTURE TRAIL EXTENSION
- PLANNED RECREATIONAL TRAIL ALIGNMENT
- UPLAND VEGETATED SOIL COVER (3 AC)
- SURFACE EXCAVATION / WETLAND RESTORATION (6.5 AC)
- ON-SITE CONSOLIDATION AREA (ALTERNATIVE 4A)
- POTENTIAL ADDITIONAL REMEDIAL AREAS (E.G., BASED ON SOIL SAMPLING, TREE SURVEY)
- SITE BOUNDARY

0 110 220 Feet

SYW-12 ALTERNATIVE 3A/B

SURFACE EXCAVATION AND ENGINEERED COVER / RESTORATION ON PERIMETER AND INTERIOR AREAS (10 ACRES), BIOTA MONITORING, AND MNA, WITH LIMITED TREE REMOVAL

HONEYWELL INTERNATIONAL INC.

SYW-12 PROPOSED REMEDIAL ACTION PLAN
SYRACUSE, NEW YORK

FIGURE 12

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

WENDY A. MARSH
DIRECT DIAL: 315-565-4536
wmarsh@hancocklaw.com

February 18, 2023

VIA E-MAIL: tracy.smith@dec.ny.gov

Tracy Alan Smith, Project Manager
New York State Department of
Environmental Conservation
625 Broadway, 12th Floor
Albany, NY 12233-7013

Re: SYW-12 Site / Site No. 734075A
302 Hiawatha Blvd. West, Rear
Syracuse (Onondaga County), New York
NYSDEC Region 7

Dear Mr. Smith:

Hancock Estabrook represents Buckeye Partners, L.P. ("Buckeye"). Buckeye offers the following comments to the New York State Department of Environmental Conservation's (hereinafter "NYSDEC's") January 2023 Proposed Remedial Action Plan ("PRAP") for the remediation of the SYW-12 Site: Operable Unit of the Wastebed B/Harbor Brook Subsite of the Onondaga Lake Superfund Site No. 734075A ("SYW-12").

I. The Failure to Account for All Sources of Waste and Contamination Pathways Undermines the PRAP

The record appears to demonstrate that one of the primary PRPs—Honeywell International, Inc.("Honeywell")—conducted the investigation work and presented conclusions to NYSDEC, which were then adopted as the basis for the PRAP. Omissions and potential inaccuracies in those conclusions undermine the PRAP. Specifically, the SYW-12 Source Attribution Report dated July 2016 ("Attribution Report"), prepared on behalf of Honeywell concludes "the chemical constituents and the associated impacts noted at the SYW-12 Property are from non-Honeywell sources and are unrelated to Honeywell or its predecessor companies." As this fact is demonstrably inaccurate, it calls into the question the legitimacy of the PRAP.

We note that Honeywell, the source for these conclusions, is currently engaged in litigation over, in relevant part, responsibility for the remediation of SYW-12. Such an economic interest presents a strong incentive to tailor the investigation and present results that minimize the contribution of it and its predecessors to SYW-12, and emphasize the potential contribution of

others. We respectfully submit that the remedial action plan must be based on an even-handed and impartial assessment of the nature of the contamination on SYW-12, as well as its potential sources. Only then will there be a reasonable assurance that the remedial and regulatory objectives have been uniformly and comprehensively addressed.

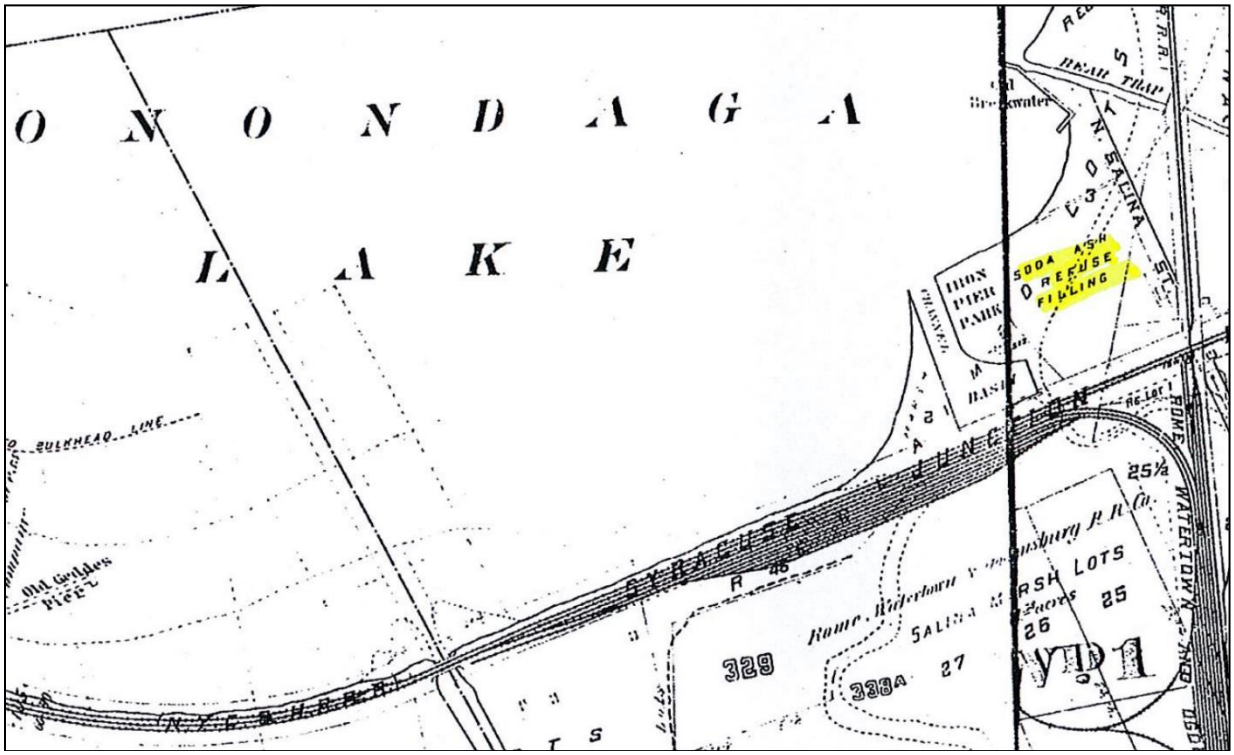
For example, the Remedial Investigation Report ("RI") dated March 30, 2015 reports possible SYW-12 contamination sources that are not included in either the Feasibility Study ("FS") or PRAP. These include:

- Materials used to fill the former Onondaga Creek channel/Iron Pier area;
- Upgradient Solvay waste found during the construction of Carousel center; and
- Potential influence from Solvay Semet material as evidence by the presence of PXE and PTE in SYW-12 soils. (Harbor Brook RI pg. 27).

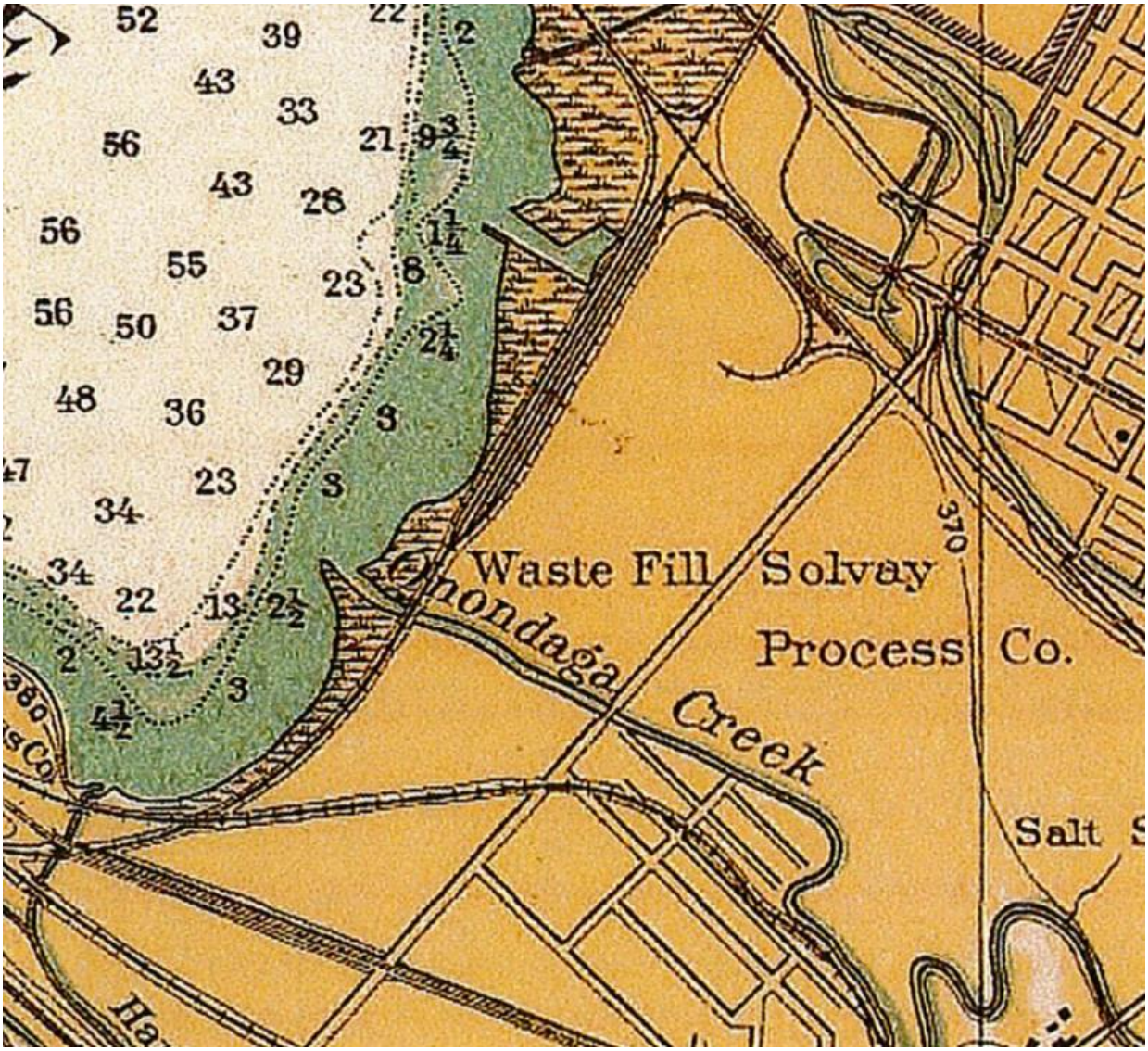
It is not clear why the 'Conceptual Site Model' in the Feasibility Study (SYW-12 FS, 2022, p. 20), and the 'History of the Site' section in PRAP (PRAP, 2023, p.3) fail to include these sources, especially when there is not only physical evidence that Solvay waste came to be located on SYW-12, but also the contaminants driving the remedy were found in Solvay waste. Because the impacts of Solvay waste on SYW-12 were not discussed in either the FS or the PRAP, a legitimate question arises as to whether the proposed remedy adequately addresses those contaminants.

There are several sources that describe the pathways for Solvay waste materials to have contaminated SYW-12, which are all taken from the Attribution Report, which are briefly summarized below.

The below excerpt of the 1912 Syracuse Plate Map of Southern Onondaga Lake taken from the SYW-12 Attribution Report (OBG, 2016), below specifically states “Soda Ash Refuse Filling”.



The below excerpt of the 1915 Canal Map of Southern Onondaga Lake taken from the Attribution Report (OBG, 2016), specifically lists "Waste Fill Solvay Process Co." Additionally, it shows that Onondaga Creek was straightened, potentially by relocating and filling from the adjacent Waste Fill from Solvay Process Co.



The below excerpt from the 1938 Aerial Photograph from the Attribution Report (OBG, 2016) shows what appears to be white Solvay waste on SYW-12.

The below excerpt from the 1951 Aerial Photograph from the Attribution Report (OBG, 2016) appears to show white Solvay Waste on the adjacent Carousel center property that may have become an upgradient source of contamination for SYW-12.

The below excerpt from the 1958 Aerial Photograph from the Attribution Report (OBG, 2016), appears to show the continued filling of upgradient properties which may be a source of contamination for SYW-12.

The below excerpt from the 1966 Aerial Photograph from the Attribution Report (OBG, 2016), appears to show the white Solvay waste upgradient of and around SYW-12.

The below Figure in the Onondaga Lake RI/FS Site History Report, 1992 PTI Environmental Services, confirms that Solvay Waste Beds, including Waste Bed H, were located on SYW-12, which is consistent with the above aerial photographs and drawings. Given the location of Waste Bed H surrounding Onondaga Creek, it seems likely that this waste would have been used to fill and straighten and fill the former Onondaga Creek.

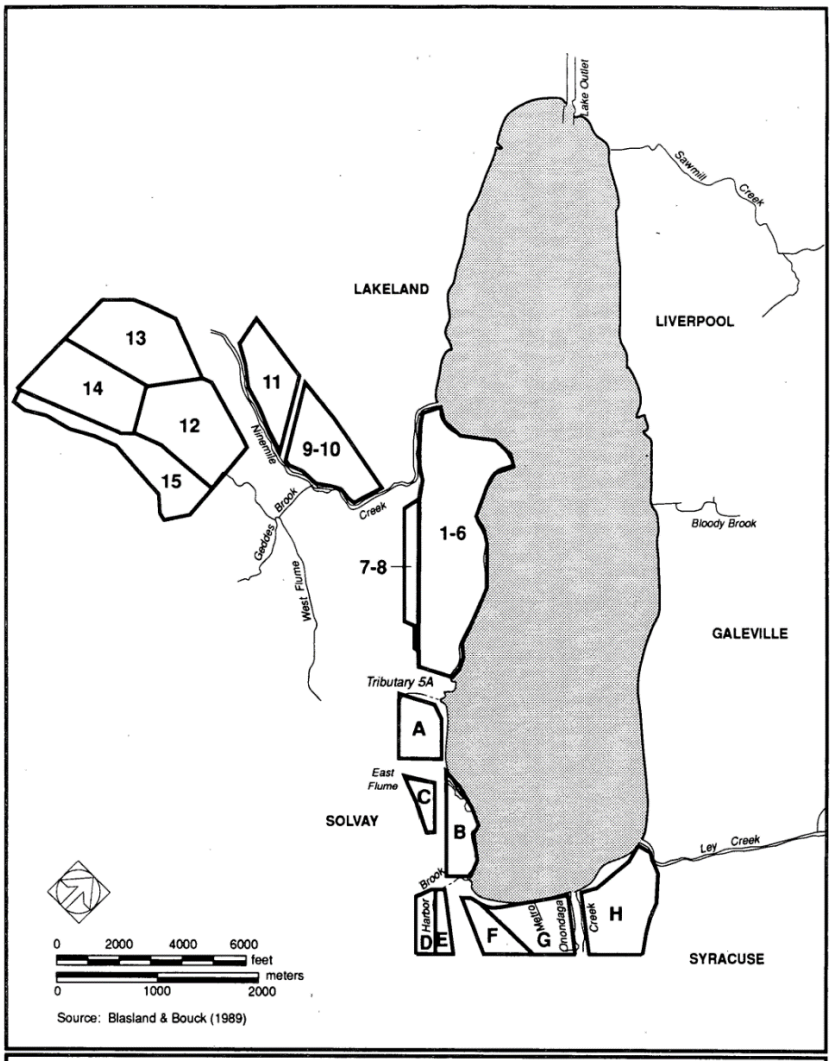


Figure 21. Locations of Solvay waste beds.

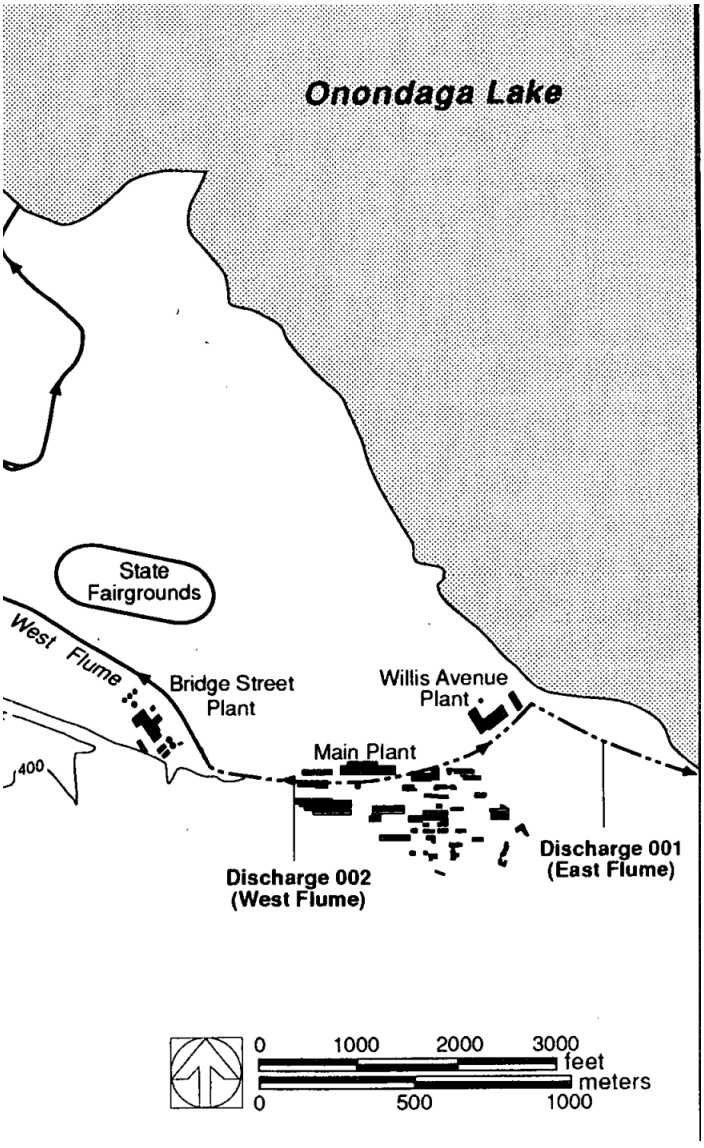
74

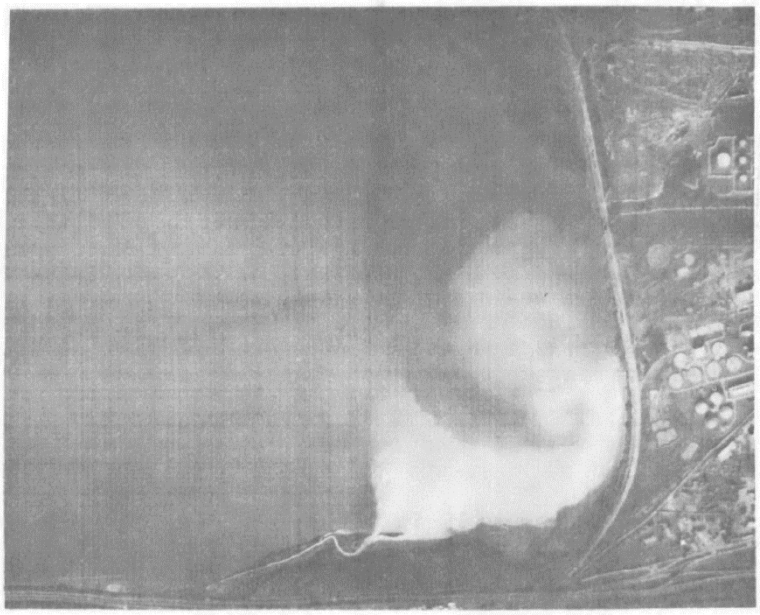
C313-02 0792

Finally, the Phase 1B Cultural Resource Survey produced May 7, 2013, confirms that parts of SYW-12 were filled with Solvay waste up to 4 feet in depth in order to build up the land in front of the Iron Pier. (OBG, 2013, p. 15).

II. Discharges Into Onondaga Lake May Have Come to Be Located at SYW-12

Honeywell operated multiple facilities since the early 1900s that discharged wastewater contaminants into Onondaga Lake. One such facility was the Syracuse Works complex, which operated soda ash, sodium bicarbonate, ammonium chloride, and power plants and the Willis Avenue chlorinated benzene and chlor-alkali plants. A detailed description of the operational histories of these plants, as well as their contribution of contaminants to Onondaga Lake, can be found in the 2002 TAMS Onondaga Lake Remedial Investigation Chapter 4, and in the Onondaga Lake RI/FS Site History Report, 1992 PTI Environmental Services. The effluent contents and flow of the east flume discharge from the Syracuse Works complex, which is depicted in an excerpt from Figure 22 of the 1992 RI/FS (PTI) and Figure 9-1 from an EPA Onondaga Lake Study conducted in 1971 below, is another potential source of contamination of SYW-12.





NOTE:
DEGREE OF LIGHT CORRESPONDS TO DEGREE OF HEAT

SOUTH END OF ONONDAGA LAKE
"EAST FLUME" THERMAL DISCHARGE

FIGURE 9-1

The velocity and direction of the east flume discharge point, as depicted in the EPA heat discharge photograph above, pushed the Solvay/Allied/Honeywell mixed wastewater effluent across the southern basin of Onondaga Lake and likely onto the shores of SYW-12. During seasonal flooding of SYW-12 wetland areas, this waste likely deposited in the sediments at SYW-12.

By way of summary, it appears Waste Bed H, as well as spoils from in-lake dredging, may have been placed on SYW-12 for the Onondaga Creek channelization. It is not clear from the FS and/or PRAP whether this was considered as contaminant sources in developing the proposed remedy.

III. Contaminants in the Solvay Waste

Early contents of Solvay waste sent to waste beds include mixed refuse from multiple production facilities. In fact, from 1884 to 1940, the Solvay waste beds primarily received solids from the soda ash and ammonia caustic soda operations, but also received some wastes from the chlor-alkali plant "one of two major sources of mercury, as well as a major source of chlorinated compounds, to Onondaga Lake" (TAMS, 2002, p 4-9). The mixed effluent from these plants placed in the waste beds potentially contained naphthalene, mercury, and chlorinated benzenes,

which are some of the remediation drivers for SYW-12. For a more complete description of the contaminants found in Solvay waste beds see the 2002 Onondaga Lake RI (Section 4.3).

Specifically, the east flume discharge was sampled in 1971, and it was found to contain several of the SYW-12 remediation drivers, including cadmium, chromium, and mercury, as well as significant daily discharges of oil and grease likely containing PAHs. (Onondaga Lake RI/FS Site History Report, 1992 PTI Environmental Services, p 79-80). The following is the effluent mass loading characteristics of the east flume discharge.

TABLE 19. EFFLUENT MASS LOADING CHARACTERISTICS FOR ALLIED-SIGNAL IN 1970 (LB/DAY)

	East Flume (Discharge 001)		West Flume (Discharge 002)		Solvay Waste Bed Overflow (Discharge 003)	
Substance	Maximum	Average	Maximum	Average	Maximum	Average
Total organic carbon	6,700	4,200	1,600	850	1,160	440
Nitrite (N)	220	120	--[a]	--	--	--
Nitrate (N)	--	--	--	--	124	68.9
Organic nitrogen	2,200	180	1,400	440	545	187
Sulfate	132,000	85,700	47,000	30,000	80,600	35,400
Sulfide	75	A[b]	A	A	A	A
Chloride	1,720,000	1,079,000	660,000	457,000	5,270,000	2,960,000
Cyanide	22	A	11.4	6.8	5.0	2.0
Fluoride	370	276	97.6	69.8	34.7	19.3
Aluminum - total	745	520	570	240	83	33
Arsenic - total	A	A	A	A	A	A
Barium - total	--	--	--	--	500	220
Cadmium - total	<30	<24	<9	<7	<3.3	<2.0
Calcium - total	448,500	355,400	166,000	113,000	2,480,000	1,100,000
Chromium - total	22.4	<8	6.8	<3.1	4.1	<1.2
Copper - total	--	--	--	--	33	2.2
Iron - total	1,300	700	320	190	410	66
Lead - total	22	18	9.1	5.1	50	17
Manganese - total	--	--	--	--	165	17
Mercury - total[c]	0.63	0.27	0.524	0.245	0.3	0.025
Potassium - total	14,200	9,600	--	--	31,400	14,300
Sodium - total	560,000	398,000	352,000	231,000	1,070,000	609,000

79

TABLE 19. (cont.)

Substance	East Flume (Discharge 001) Maximum	East Flume (Discharge 001) Average	West Flume (Discharge 002) Maximum	West Flume (Discharge 002) Average	Solvay Waste Bed Overflow (Discharge 003) Maximum	Solvay Waste Bed Overflow (Discharge 003) Average
Titanium - total	22	<3.6	9.1	3.4	1.7	0.55
Zinc - total	149	60	45.4	34.0	16.5	<0.55
Oil and grease	1,500	600	--	--	670	50
Phenols[d]	--	--	--	--	--	--
Algicides (chlorine)	750	60	20,000	18,500	A	A
Chlorinated hydrocarbons (except pesticides)[e]						

Source: 1899 Refuse Act Permit Application, Part B Permit Description, U.S. Corp of Engineers (Campbell 1971, pers. comm.).

80

[a] -- indicates not reported.

[b] A - absent; equivalent to not detected.

[c] Mercury - daily analysis on a 24-hour continuous, composite sample.

[d] Phenols reported at 13.4 lb/day (maximum) and 6.6 lb/day (average) in earlier submittal for Discharge 001.

[e] Chlorinated hydrocarbons (except pesticides) were indicated as present in Discharges 001 and 002; however, there was no method available at the time for analyzing these substances.

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IV. The Primary Remediation Drivers Appear to be PCBs and Metals

Our review of the PRAP Site History (PRAP, 2023), Feasibility Study (FS, 2022, p. 20), and Attribution Report (2016) indicates that they improperly place primary focus on the PAH contamination and their potential sources and pathways to SYW-12. This is contrary to the ecological risk assessment presented in the PRAP which notes on p. 8 that "select metals and organic compounds, namely chromium, cadmium and PCBs, pose a potential risk to communities or organisms and to bird and mammal populations" (PRAP, 2023, p. 8). This prior assessment indicates that the primary remediation drivers include chromium, cadmium, and PCBs. PCBs are a noted as an unacceptable future human health risk at the site (p.7).

The following maps from the FS display the fact that PCBs and metals are widely distributed over large portions of the site.


ONONDAGA LAKE
CSX RAILROAD TRACKS
ONONDAGA CREEK
POTENTIAL FUTURE TRAIL EXTENSION
PLANNED RECREATIONAL TRAIL ALIGNMENT
SITE BOUNDARY
CHROMIUM 0-2 FT AVERAGE SOIL RESULTS
HIGHEST CONCENTRATION (320 mg/kg)
LOWEST CONCENTRATION (12.7 mg/kg)
Notes
Concentration surface developed using analytical data and inverse distance weighting techniques.
SYW-12 0-2 FT INTERPOLATED CONCENTRATION SURFACE
CHROMIUM
APPENDIX-8
HONEYWELL INTERNATIONAL INC.
SYW-12 FEASIBILITY STUDY
SYRACUSE, NEW YORK
FIGURE 02
O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY
RAMBOLL

V. Conclusion

By way of summary, because the FS and PRAP do not fully address and discuss all of the sources of contamination of SYW-12, including the impact of Solvay waste and the associated remediation drivers, we respectfully submit that the preferred alternative may not fully meet the required threshold criteria.

Thank you for your consideration of these comments as NYSDEC finalizes the remedy for SYW-12.

Very truly yours,

HANCOCK ESTABROOK, LLP

Wendy Marsh

Wendy A. Marsh

WAM/slp

cc: Mark Sergott, P.G., NYS Department of Health (beei@health.ny.gov)

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February 18, 2023

Tracy Smith
New York State Department of Environmental Conservation
625 Broadway
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tracy.smith@dec.ny.gov

Re: Proposed Plan for Murphy's Island/SYW-12

Dear Mr. Smith:

On behalf of the Onondaga Nation, I am submitting these comments on the Proposed Remedial Action Plan ("the Plan" or the PRAP) for Murphy's Island, also known as SYW-12. Although these comments are being submitted within the time frame for public review of the Plan, the Nation submits these comments in its sovereign status and under its government-to-government relationship with New York State, not simply as a member of the general public.

In its government-to-government role, the Onondaga Nation has been engaged with the assessment of and remedial plan development for Murphy's Island for several years. In October 2021, the Nation reviewed and provided comments on a draft Feasibility Study ("FS") for Murphy's Island, which included a similar site analysis and proposals for remediation. In July 2022, the Nation reviewed and commented on a draft version of the Plan. In both documents, the Nation raised concerns about the DEC's failure to consider a wider range of remedial alternatives, the minimization of continuing risks on this site, and the very limited efforts to protect trail users from the contaminated surface soils that will not be covered, removed, or otherwise remediated under the preferred alternative. Unfortunately, these concerns have not been addressed by the current Plan.

I. The Proposed Plan Should Consider a Wider Range of Alternatives to Protect Public Health and the Environment.

The Plan considers four options for remediation – no action, the preferred alternative which covers contaminated soils in slightly less than half of the site with two feet of clean top soil, an alternative that adds three small areas of soil cover to the preferred alternative, and complete removal of all contaminated soils on the site. Because of the strong interest in preserving certain forested areas on this property, limiting the alternatives in this way unfairly favors the DEC's preferred alternative and it very limited, partial remediation.

Murphy's Island poses unique remediation challenges because it has emerged as a significant roosting site for bald eagles on Onondaga Lake. During the winter months, bald eagles are drawn to the location because of the presence of open water just off-shore and, at times, more than 100 bald eagles have been counted roosting in mature trees on Murphy's Island.

The bald eagle has a special place in the history and culture of the Onondaga Nation and the Nation is committed to protecting spaces claimed by eagles. We recognize that the removal of a foot or more of soil or placement of thick soil covers near the base of a tree may damage roots and result in tree death. Accordingly, the Nation has not insisted on full removal of all contaminated soil from Murphy's Island, as it has for other contaminated sites in and around Onondaga Lake. However, the remedial alternatives assessed by Honeywell and evaluated by DEC fail to consider a sufficient range of options between full remediation and no remediation and do not properly balance the goals of protecting human health and the environment and preserving eagles.

Over the past two years, the Nation has repeatedly requested evaluation of alternatives that would maximize remediation within the forested areas while maintaining a healthy stand of roost trees. Specifically, the Nation asked for consideration of targeted soil removal in areas with particularly high contamination levels within the forested areas and limited soil removal or remediation beyond the drip line or root line of mature roost trees. A staged removal process where sections of the forested area are remediated and replanted over time could also be a reasonable

alternative to consider. Any of these options could meaningfully expand the area of remediation on this site without destroying the bald eagle roost.

Unfortunately, DEC has not required Honeywell to consider any targeted or staged remediation alternatives that could maximize remediation of contaminated surface soil contamination while maintaining adequate forest cover to support roosting bald eagles. DEC has not even required Honeywell to analyze or justify the specific forest sections or trees that are necessary to this population, simply assuming that the entire forested area must be maintained in its current state. DEC should mandate that Honeywell conduct a more complete assessment of the needs of the roosting eagles and options for remediation measures that would meet those needs and not result in significant tree loss. Without this information, DEC should not move forward with its preferred alternative

II. The Plan minimizes lingering human health and environmental risks in its discussion of post-remediation contaminant levels.

Historically, Murphy's Island was used as an unregulated dump for industrial wastes, contaminated soils, and sediments dredged from polluting waterbodies, which were deposited haphazardly across the property. As a result, contaminants are randomly and widely distributed across the site. Dangerously elevated levels of contaminants may crop up in an area surrounded by less contaminated soils. In addition, there is no reason to suppose that the forested (and untouched) areas are less contaminated than the non-forested (and remediated) areas.

A detailed review of soil contamination data for the unremediated areas of Murphy's Island finds multiple exceedances of applicable human health-related and ecological protection standards at various locations. Cadmium, PCB, and benzo(a)pyrene levels exceeded applicable human health related standards a total of 14 times across seven sampling locations. PCB levels exceeded ecological protection standards in at least eight samples across five locations and both mercury and DDT exceeded ecological protections standards in almost every soil sample taken with the unremediated area. Additional contaminated sites can be anticipated within the unsampled areas of the property.

Most concerning, the unremediated area surrounds the hiking and biking trail recently opened by Onondaga County on the property. Site visitors who stray off the trail, perhaps to venture closer to eagles or to Onondaga Lake or to find a spot to sit and watch the water (there are no benches along the trail) are risking exposure to this lingering contamination.

DEC responds to these concerns in two ways: first, it notes that pre-remediation health risks to most site users fall within an "acceptable" range. Second, it points to a drop in average contaminant levels across the site post-remediation. Neither argument is persuasive.

First, DEC fails to acknowledge that site visitors engaged in intrusive work on the site (utility workers, construction workers) or long-term exposures (potential future child residents) will be subject to unacceptable non-cancer risks pre-remediation. In fact, the non-cancer risk to utility and construction workers was twice the acceptable level and the risk to child residents was eight times the acceptable level. Given that more than half of the site remains unremediated, there is no reason to assume that this risk has disappeared. In other words, Murphy's Island may continue to pose unacceptable human health risks.

In addition, for other critical groups, the human health risks of the unremediated site hover just below "safe" levels. Specifically, the cancer and non-cancer risks created by the unremediated site (and presumably the unremediated portion of the site) for child recreators is quite high. The calculated cancer risk for child recreators is 0.6 additional cancers per 10,000 visitors (with unacceptable risk is defined as 1 additional cancer per 10,000 visitors) and the calculated non-cancer risk had a rating of 0.9 (a non-cancer risk rating of 1 is considered unacceptable).

This information is especially important because the only reason to access the site is to engage in entirely discretionary recreational activities which can easily be relocated to many, many other sites around Onondaga Lake and the general Syracuse area. Potential visitors need to know the actual risks created by the site, not simply whether DEC considers those risks acceptable, to make an informed decision about potential exposures of themselves and their children.

Second, DEC points to the "Area Weighted Average Concentrations" (AWACs) and the fact that post-remediation AWACs are estimated to be lower than pre-remediation AWACs for all contaminants. Setting aside the fact that this assertion is a simple truism (the average of any set of numbers will always be lower if any one of those numbers is reduced or dropped to zero), lower post-remediation AWACs for the site as a whole says nothing about whether the unremediated portions of the site are safe, even as defined by EPA and DEC regulations. Again, this is important because, as noted above, site visitors are far more likely to be drawn to areas near the trail or between the trail and Onondaga Lake – areas that will not be remediated – than to areas adjacent to railroad tracks or more distant from the trail – the areas that will be remediated.

Rather than continuing to present the entire site as a unit, despite its disparate treatment in terms of remediation, DEC should assess the residual exposure risk created by the unremediated areas of the site separately. This would provide a clearer picture of on-going exposure risks. Alternatively, if DEC believes that some unremediated portions of the site are unlikely to be accessed by the public, it could assess exposure risks within a defined buffer along the planned trail or between the trail and the lakeshore – areas where visitors are most likely to be exposed to surface soils. At minimum, DEC should acknowledge the number of locations within the unremediated areas where contaminant levels exceed established standards.

Finally, the Nation continues to have concerns about the general methodology for calculating AWACs. This assessment methodology assumes that contaminant levels to unsampled locations are likely to be more similar to closer samples than more distant samples. Given the random distribution of site contaminants, this assumption does not seem reasonable.

III. The Plan does not include adequate institutional or engineering controls to protect site visitors from the unaddressed site contamination.

Although DEC's preferred alternative leaves more than half of the contaminated site untouched, Onondaga County has been allowed to build a public hiking and biking trail through the site. This trail is surrounded by and runs directly through the unremediated areas of Murphy's Island. Surface soils just off the trail may exceed health-based standards for cadmium, PCBs, or benzo(a)pyrene or contain mercury,

pesticides, and other contaminants at levels that pose risks to ecological resources or groundwater.

Despite these on-going risks, DEC has not required any institutional or engineering controls geared toward properly informing site visitors of this risk or ensuring that they remain on the trail. There is no fencing or barrier along the trail, other than the typical bollards or low railings which are easily crossed. The Plan references signs posted by Onondaga County "requiring visitors to remain on the trail" (Proposed Plan, p. 22). However, as described in DEC's June 23, 2021 Response to Public Comments for the construction permits for trail itself, those signs will read "THIS AREA IS ENVIRONMENTALLY SENSITIVE/Visitors must stay on the trail and in designated areas at all times." This language does not convey the risk to site visitors themselves of straying off-trail. While one may hope that trail users are as concerned about protecting sensitive environments as they are about protecting their own health, the reality is that the latter is likely to be a greater concern and a stronger motivation to stay on the trail and away from contaminated soils.

At minimum, DEC must require clear and informative signs that provide accurate information on the reasons that visitors should remain on the trail. For example, signs might read "Stay on the Trail/Contaminated Soils Present." Even better, DEC could require the County to create an information kiosk at the trailhead with more detail about the contaminants on site and the geographic scope of the remediation. With this more detailed information, the public can make an informed choice about the exposure risks and better protect themselves and their families.

Thank you for your attention to these comments.

Sincerely,

Alma L. Lowry

Alma L. Lowry, Of Counsel

cc: Onondaga Nation Council of Chiefs
Jeanne Shenandoah, Onondaga Nation
Hazel Powless, Onondaga Nation/HETF

SYW-12 SITE
OPERABLE UNIT OF THE WASTEBED B/HARBOR BROOK SUBSITE
OF THE ONONDAGA LAKE SUPERFUND SITE
RECORD OF DECISION

APPENDIX V-f

ONONDAGA NATION COMMENTS ON THE DRAFT SYW-12 PROPOSED PLAN
DATED JULY 5, 2022 AND NYSDEC/EPA RESPONSES

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July 5, 2022

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Re: Draft Proposed Plan for Murphy's Island/SYW-12

Dear Mr. Smith:

On behalf of the Onondaga Nation, I submit these comments on the Draft Proposed Plan ("the Plan") for Murphy's Island, also known as SYW-12. The Nation submits these comments as part of its government-to-government relationship with New York, not as part of the general public or the public comment period on the Plan.

On October 21, 2021, the Nation provided comments on a draft Feasibility Study ("FS") for Murphy's Island, which included a similar analysis of the site and proposed remediation options discussed in the Plan. The Nation raised concerns about many issues, including the minimization of continuing risks posed by this site, the failure to consider a wider range of remedial alternatives, the use of unjustified analytic choices, and the reliance on trail signs to be designed and placed by Onondaga County as institutional controls for the site. The Nation incorporates these comments by reference here. In addition, we are concerned about misleading descriptions of the scope of and rationale for the preferred remediation alternative ("the Preferred Alternative"), the continued reliance on AWACs to characterize the risks posed by the site, and the minimization of the human health risks posed by the unremediated site.

I. The Remedy Descriptions Inaccurately Suggest that Cover Placement Was Designed to Minimize Exposure to Surface Soil Contaminants.

In several key sections of the Plan, including the overview of the remedy on the first page of the Plan, the initial description of the Proposed Alternatives, and the final summary of the Preferred Alternative, all suggest that the preferred remedy of placing a two-foot soil cover in limited locations was designed specifically to cover documented contaminant exceedances and prevent visitor exposures to these soils. This is inaccurate and misleading. A plainer explanation of the reasons for cover placement should be provided.

Exceedances of the relevant standards for the six representative contaminants analyzed in the Draft Plan and the FS are widespread across the site (*see* FS, Appendix 3). The placement of the proposed soil cover in Alternative 2 (the Preferred Alternative) and Alternative 3 was, in fact, driven by the absence of mature trees or forested areas that create roosting habitat for bald eagles, not simply the presence of contaminants in surface soil above applicable safety criteria. The Plan should be more transparent about this rationale, particularly since the unremediated areas in Alternatives 2 and 3 are closest to the planned Onondaga County hiking/biking spur trail and most likely to be encountered by visitors to the site.

On the first page of the Plan, DEC asserts that the proposed remediation of the site "includes the installation of a two-foot-thick soil cover that would be protective for current and/or reasonably anticipated future land uses <u>where shallow soil contaminant concentrations are above the 6 NYCRR Part 375 Soil Cleanup Objectives (SCOs) for Commercial Use and the Protection of Ecological Resources</u>. . . ." (p. 1, emphasis added). In the body of the Plan, Alternative 2 is described as including "the construction of a soil cover over select non-forested wetland and upland areas of SYW-12 <u>based on exceedances of 6 NYCRR Part 375 SCOs for Commercial Use and the Protection of Ecological Resources</u>. . . ." (p. 11, emphasis added). Again, in the Preferred Remedy section, DEC states that "[t]he preferred alternative includes the installation of a 8.2 acre 2-foot thick soil cover that would be protective for current and/or reasonably foreseeable future land uses <u>where shallow soil contaminations are above the 6 NYCCR Part 375 SCOs for Commercial Use and the Protection of Ecological Resources</u>. . . ." (p. 20, emphasis added).

These descriptions suggest that these areas were singled out to receive a soil cover because the exceedances of commercial use or protection of ecological resources standards were highest or posed the greatest risks here. This is simply untrue. While the soil cover as proposed will address many exceedances of applicable standards, including one area with particularly high contaminant levels (the area adjacent to the railroad tracks on the eastern edge of the site), contaminant levels did not drive this selection and there are many exceedances in the unremediated areas.

Specifically, the data shows exceedances of Commercial Use standards for three of the six representative contaminants in the surface soils left uncovered under the preferred alternative ("the unremediated area") and exceedances of Ecological Protection standards for all six. Within the unremediated area, there are 14 exceedances of Commercial Use standards across 7 sampling locations and 27 exceedances of Ecological Standards across 10 sampling locations. In fact, the average cadmium level within the unremediated area exceeds Commercial Use standards. For PCBs, 8 samples exceeded both Commercial Use and Ecological Protection standards across 5 locations within the unremediated area. For benzo(a)pyrene, average levels were more than double the applicable Commercial Use standard and were higher in the unremediated areas than in the remediated areas. For DDT and mercury, almost every sample in the unremediated area exceeded Ecological Protection standards. This data does not support the suggestion that the soil cover in the Preferred Alternative was driven by contaminant exceedances.

DEC does not fully explain the choice of remediated vs unremediated areas until the Comparative Analysis of Alternatives section. There, DEC plainly states that, under the Preferred Alternative, "soil/fill material exceeding SCOs would be addressed <u>within a portion</u> of the non-forested wetland and upland area through installation of a soil cover <u>where accessible and not detrimental to the environment</u> (i.e., tree removal, disturbance of bald eagles)" (p. 16, emphasis added). This is the first complete, accurate, and not misleading description of the Preferred Alternative in the Plan. This description emphasizes that the location of the soil cover is driven by tree cover and not contaminant location. This description should be incorporated into the introduction and the earliest description of proposed remedies rather than being relegated to the last third of a relatively long document. In addition, the Plan should include maps showing contaminant exceedances across the site to allow the public to make its own

assessment of the adequacy of proposed remediation and the residual risks posed by the site.

II. The Plan inappropriately relies on an "Area Weighted Average Concentration" to minimize the residual contamination on site.

As noted in the Nation's comments on the Draft FS for this site, the reliance on an "area weighted average concentration" (AWAC) is inappropriate. The Nation incorporates its earlier comments by reference, but highlights three key points here.

First, the AWAC methodology assigns likely contaminant levels to areas between sampled sites by assuming that contaminant levels are likely to be more similar to closer samples than to samples that are more distant. That assumption does not appear to be justified on this site. DEC itself notes that "site contaminants are randomly distributed across the SWY-12 site" (p. 5). While the middle of the site tends to have lower contaminant levels than the eastern section adjacent to the railroad, at least two sampling locations at the western end of the site had at least some extremely elevated contaminant levels and contaminant levels do not consistently rise or fall across adjacent sample locations. Given that there is no clear pattern of contaminant distribution among the sample locations, it seems unreasonable and inaccurate to assume that the unsampled areas present such a pattern.

Second, DEC's assertion that the AWAC for the site was lower post-remediation says nothing about whether the site is safe or whether visitors to the site might be exposed to contaminant levels above state-established safety standards. The critical information is whether visitors to the site are likely to be exposed to contaminants that exceed regulatory standards. This is particularly important here, since the unremediated areas are closest to the proposed trail location where recreational visitors are most likely to be exposed to surface soils. The remediated areas are more distant from the trail and are less likely to be encountered by site visitors.

The Nation believes that DEC should assess the residual exposure risk created by the unremediated areas of the site or, alternatively, by the areas within a reasonable buffer along the planned trail or between the trail and the lakeshore – areas where visitors are most likely to be exposed to surface soils. At minimum, DEC should acknowledge the number of locations within the unremediated areas where contaminant levels exceed established standards.

III. The Plan does not properly characterize the human health risks presented by the unremediated site and minimizes documented health risks without adequate justification.

As discussed in many previous reports, the unremediated Murphy's Island site presents unacceptable human health risks. Specifically, non-carcinogenic risks to future utility workers, construction workers, and child residents are higher than are considered "safe" by regulatory agencies. In fact, the non-cancer risk to utility and construction workers was twice the acceptable level and the risk to child residents was eight times the acceptable level. However, the Plan minimizes this risk without sufficient justification and ignores the fact that other human health risks hover just below "safe" levels.

First, the Plan tries to explain away the risks faced by utility and construction workers by preferencing one set of test results over another with no justification for this choice. DEC notes that a recent round of groundwater sampling did not find the same dangerous levels of chromium documented in the original data and seems to simply accept the recent data and ignore the original data. This is unacceptable.

If DEC believes that the recent groundwater data, which showed lower chromium levels in groundwater, is more likely to be accurate than the original data, which had higher chromium results, it should explain and provide support for that assertion. Otherwise, all of the data should stand on its own without qualification, which means that there may still be unacceptable risks to construction workers at the site. DEC then goes on to state that the absence of chromium also means that there is no benzo(a)pyrene-related health risk to workers. However, since DEC does not recalculate overall health risks without a chromium contribution, the basis for this characterization is unclear. DEC must better support its assertions.

Second, the Plan fails to acknowledge that the health risks posed to child recreators on the unremediated site are very close to, although not over, the acceptable risk levels chosen by regulatory agencies. Specifically, the cancer and non-cancer risk created by the site for child recreators is quite high. The calculated cancer risk for child recreators is 0.6 additional cancers per 10,000 visitors (unacceptable risk is defined as 1 additional cancer per 10,000 visitors) and the calculated non-cancer risk had a rating of 0.9 (a non-cancer risk rating of 1 is considered unacceptable). The public should

know the actual risks created by the site, not simply whether DEC or EPA consider those risks to be acceptable.

Again, we direct the DEC to the Nation's October 2021 comments on the Revised Feasibility study, which remain relevant to the Plan. Thank you for your attention to these comments.

Sincerely,

Alma L. Lowry

Alma L. Lowry, Of Counsel

cc: Onondaga Nation Council of Chiefs
Jeanne Shenandoah, Onondaga Nation
Hazel Powless, Onondaga Nation/HETF

Smith, Tracy (DEC)

From: Smith, Tracy (DEC)
Sent: Monday, December 12, 2022 1:26 PM
To: Alma Lowry
Cc: Jeanne Shenandoah; Joe Heath; Powless, Hazel; Nunes, Bob; Sheen, Margaret A (DEC); 'Argie Cirillo (Cirillo.Argie@epamail.epa.gov); Singerman, Joel; Pelton, Jason M (DEC); Harrington, David (DEC); Ransom, Beynan T (DEC); Shuman, Claudia
Subject: RE: draft SYW-12 Proposed Plan (734075A)

Alma,

Thank you for sending comments on the draft SYW-12 Proposed Plan on behalf of the Onondaga Nation. Sorry for the delay in responding. Based on our review of the comments we have the following responses:

I. The Remedy Descriptions Inaccurately Suggest that Cover Placement Was Designed to Minimize Exposure to Surface Soil Contaminants.

Alternatives 2 and 3 state that the "remedial footprint is ecologically focused to enhance protection to ecological receptors by reducing ecological exposure while balancing remedial activities with habitat disruption, particularly in consideration of the extensive utilization of the Site by the bald eagle and the overall high value of the forested SYW-12 habitat." However, we agree that additional clarification should be included in the Proposed Plan for Alternatives 2 and 3 to clarify that the soil cover (e.g., an 8.2- or 10-acre cover) will be placed where accessible and not detrimental to the environment (i.e., avoiding mature tree removal, disturbance of bald eagles, etc.). With large, mature trees present in the forested habitat, there are areas that are not accessible for placement of the cover system, and as such, these areas may contain site contaminants in surface soil that exceed soil cleanup objective (SCOs). The Proposed Plan will be revised to clarify this and will include maps from the feasibility study (FS) which include the SCO exceedances (i.e., Figures 1-6 from Appendix 3).

II. The Plan inappropriately relies on an "Area Weighted Average Concentration" to minimize the residual contamination on site.

While the Proposed Plan does state that "site contaminants are randomly distributed across the SYW-12 site," there is a pattern where higher concentrations are present (as shown on Figures 1-6 in Appendix 3 and Figures 1-6 in Appendix 8 of the FS) and we are using the data we currently have to evaluate remedial alternatives. The AWACs are used as a general basis of comparison to demonstrate, as would be expected, that remediation efforts will lower the average concentrations across the entire site. The AWACs are not meant to finely understand the distribution and concentrations of site contaminants, but to generally show that the remedial program will improve the conditions across the entirety of the site.

The human health evaluation has determined that there are no unacceptable risks to human health for trail users prior to any remediation being performed and Area Weighted Average Concentrations (AWACs) for the site would be lower post-remediation. Although there may be SCO exceedances at specific sample locations, risks to trail users who would be exposed to various levels of contamination across a wider area that is represented by the AWACs are minimized by the trail cover (a minimum thickness of 1-foot or a wooden boardwalk), institutional controls (e.g., signage) and dense vegetation present along the trail that is expected to deter the public from leaving the trail. In addition, pre-design sampling is included under Alternatives 2 and 3 which would be used to determine if additional controls (e.g., fencing) may be needed. Pre-design soil sampling will also be performed to update and refine the AWACs analysis and reduce

uncertainties inherent in the spatial analysis techniques used in the FS by evaluating a higher density of sampling locations.

III. The Plan does not properly characterize the human health risks presented by the unremediated site and minimizes documented health risks without adequate justification.

The text regarding risks to utility and construction workers, and groundwater samples will be revised/clarified as necessary. Note that the Proposed Plan states that "chromium and benzo(a)pyrene in groundwater, as calculated in the 2009 Revised HHRA Report, remain potential threats to these receptor groups"; unacceptable risks to workers are included in Table 4; and in the Overall Protection of Human Health and the Environment analysis, it is indicated that under Alternatives 2 and 3, risks to workers would be addressed by institutional controls, a Site Management Plan and monitored natural attenuation of groundwater relative to potential exposure to surface and subsurface soil/fill material, sheens and groundwater for receptors such as construction or utility workers. It should also be noted that for the child recreator, cancer risks are within the acceptable risk range and non-cancer hazards are below the hazard threshold. Although the calculated risk is closer to the upper end than the lower end of the acceptable risk range and the calculated hazard is just below the hazard threshold for the child recreator, the calculated risks and hazards are based on reasonable maximum exposure scenarios and represent the highest level of exposure that could reasonably be expected to occur. To support this estimate of the reasonable maximum exposure, the exposure assumptions that are used to estimate the cancer risk and the non-cancer hazard typically represent the 95th percentile of the population. The calculated risks are, therefore, conservative (i.e., health-protective) representations of potential human health risks.

Your letter also referenced the October 2021 Onondaga Nation comments based on review of the draft Feasibility Study. Please note that the Department responded to these comments in an email to you dated November 23, 2021. If you have any questions or would like to discuss, please do not hesitate to contact me. Thanks.

Tracy A. Smith
Project Manager, Division of Environmental Remediation

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From: Alma Lowry <alma.lowry@gmail.com>
Sent: Tuesday, July 5, 2022 9:25 PM
To: Smith, Tracy (DEC) <tracy.smith@dec.ny.gov>
Cc: Jeanne Shenandoah <Jessicajshenandoah@gmail.com>; Joe Heath <jjheath1946@gmail.com>; Powless, Hazel <powlessh1@gmail.com>; Witt, David E (DEC) <david.witt@dec.ny.gov>; Nunes, Bob <Nunes.Robert@epa.gov>; Sheen, Margaret A (DEC) <margaret.sheen@dec.ny.gov>; 'Argie Cirillo (Cirillo.Argie@epamail.epa.gov) <Cirillo.Argie@epamail.epa.gov>; Singerman, Joel <Singerman.Joel@epa.gov>; Pelton, Jason M (DEC) <jason.pelton@dec.ny.gov>; Harrington, David (DEC) <david.harrington@dec.ny.gov>; Ransom, Beynan T (DEC) <Beynan.Ransom@dec.ny.gov>
Subject: Re: draft SYW-12 Proposed Plan (734075A)

Dear Tracy:

Attached are the comments being submitted for the Nation related to the Murphy's Island Proposed Plan. Please let me know if you have any questions.

Best,

Alma

On Thu, Jun 2, 2022 at 3:55 PM Smith, Tracy (DEC) <tracy.smith@dec.ny.gov> wrote:

> Attached for the Onondaga Nation's review is the draft SYW-12 Proposed Plan and associated figures and tables. Please provide any comments on this Proposed Plan by July 5th. If you have any questions, please contact me. Thanks.
>
> Tracy Alan Smith
> NYSDEC
> 625 Broadway
> Albany, NY 12233-7013
> (518) 402-9796

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Alma Lowry, Of Counsel
Law Office of Joseph Heath
General Counsel to the Onondaga Nation