Public Draft
Environmental Impact Statement
for Disposal and Reuse of LRA Parcel 20
at Savanna Army Depot Activity
Carroll and Jo Daviess Counties, Illinois
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Abstract: This Environmental Impact Statement (EIS) considers the Department of the Army's (Army's) Proposed Action to dispose of a 132-acre parcel of land known as LRA Parcel 20 at Savanna Army Depot Activity (SVADA), Illinois. The purpose of the Proposed Action is for the Army to dispose of LRA Parcel 20 through transfer to the Jo-Carroll Depot Local Redevelopment Authority (the LRA) or other appropriate recipient(s). The need for the Proposed Action is to carry out the Base Realignment and Closure recommendation to close SVADA, which became law, by the Army disposing of LRA Parcel 20 and making the parcel available for reuse. Reuse would be a secondary action resulting from disposal. The EIS evaluates the effects of a No Action Alternative, an Accelerated Disposal Alternative, and three Reuse Alternatives: a recreation-only reuse alternative, a recreation and solar reuse alternative, and a reuse alternative that focuses on creating a port proposed by the LRA in their 2023 reuse plan.

Privacy Advisory

This Check Copy Draft Environmental Impact Statement (EIS) has been provided for public comment in accordance with the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code* [U.S.C.] §§ 4321–4370f) and the *Department of Defense National Environmental Policy Act Implementing Procedures* (DoD NEPA Procedures) issued by the Department of Defense (DoD) on June 30, 2025, which provide an opportunity for public input on the Department of the Army's (Army's) proposed action and on alternative ways for the Army to accomplish it, and solicits comments on the Army's analysis of environmental effects. Public input enables the Army to make better informed decisions. Letters and other written and verbal comments provided may be published in this EIS. Providing personal information is voluntary. Private addresses will be compiled to develop a stakeholders inventory; however, only the names of the individuals making comments and specific comments will be disclosed. Personal information, home addresses, telephone numbers, and email addresses will not be published in this EIS.

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Certification of NEPA Compliance Related to Page Limits and Deadline

In accordance with Part 2.4(e) of the DoD NEPA Procedures, this statement certifies that the EIS does not exceed the 150-page limit specified in DoD NEPA Procedures Part 2.4(a). NEPA, as amended by the Fiscal Responsibility Act of 2023 (42 U.S.C. § 4336a), defines a "page" as 500 words. This EIS has 65,140 words, not including citations or appendices, and is, therefore, 130 pages. The Army has considered the factors mandated by NEPA and the EIS represents the Army's good-faith effort to prioritize documentation of the most important considerations required by the statute within the congressionally mandated page limits. This prioritization reflects the Army's expert judgment, and any considerations addressed briefly or left unaddressed were, in the Army's judgment, comparatively unimportant or frivolous.

In accordance with DoD NEPA Procedures Part 2.5(e), this statement also certifies that the EIS represents the Army's good-faith effort to fulfill NEPA requirements within the congressional timeline specified in DoD NEPA Procedures Part 2.5(a). This effort is substantially complete and, in the Army's expert opinion, the EIS has thoroughly considered the factors mandated by NEPA. In the Army's judgment, the analysis contained in the EIS is adequate to inform and reasonably explain the Army's final decision regarding the Proposed Action.

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Thomas Lineer, BRAC Program Manager
HQDA/OAIEE/ESOH-BRAC

Date

PUBLIC DRAFT
ENVIRONMENTAL IMPACT STATEMENT FOR DISPOSAL AND REUSE OF LRA PARCEL 20 AT SAVANNA ARMY DEPOT ACTIVITY CARROLL AND JO DAVIESS COUNTIES, ILLINOIS

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SUMMARY

S.1 Introduction

The Department of the Army (Army) prepared this Environmental Impact Statement (EIS) to analyze the potential effects on the human and natural environments of the Army's Proposed Action of disposal of an approximately 132-acre land parcel at the Savanna Army Depot Activity (SVADA), IL. Under the Proposed Action, the Army would dispose of the parcel, known as LRA Parcel 20, through transfer to the Jo-Carroll Depot Local Redevelopment Authority (the LRA) or other appropriate recipient(s) for their reuse. The EIS analyzes the potential direct effects of the Army disposing of LRA Parcel 20 through conveyance and the potential indirect effects of reuse of the parcel by the recipient.

S.2 Content of the EIS

The Army prepared this EIS pursuant to the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code* [U.S.C.] §§ 4321–4370f) and its implementing procedures. The purpose and need for the Proposed Action and the scope of the EIS are described in Section 1.0. The Proposed Action is described in Section 2.0, and alternatives, including the No Action Alternative, are described in Section 3.0. Conditions for each evaluated resource area as of April 2025, considered the "baseline" conditions, are described in Section 4.0, "Affected Environment and Environmental Consequences." The expected effects of the Proposed Action and alternatives are presented immediately following the discussion of baseline conditions for each environmental resource addressed in the EIS. Resource areas addressed in the EIS are land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including protection of children), navigation, transportation, utilities, and hazardous and toxic materials. Section 4.0 also identifies mitigation measures where appropriate. It also addresses irreversible and irretrievable commitment of resources, the relationship between short-term use of the environment and maintenance and enhancement of long-term productivity, and unavoidable adverse environmental effects.

S.3 Background

The U.S. Department of Defense (DoD) 1995 Defense Base Closure and Realignment Commission made recommendations for realignment and closure of military installations in accordance with the Defense Base Closure and Realignment Act of 1990 (Public Law [P.L.] 101-510, as amended). The recommendations included closure of SVADA in northwestern Illinois along the Mississippi River in Carroll and Jo Daviess counties. The Army published the final *Environmental Impact Statement for BRAC 95 Disposal and Reuse of the Savanna Army Depot Activity, Savanna, Illinois* (the 1997 BRAC EIS) in July 1997. The Army officially closed SVADA in 2000. Following the Depot's closure, the Army proposed disposal of SVADA's 13,061 acres because the property was excess to the Army's needs.

Through the base realignment and closure (BRAC) process, as SVADA property parcels are certified as clean from environmental contaminants, the Army transfers the parcels to federal, state, or local agencies. A total of 5,343.9 acres have been transferred to those agencies to date. The agencies that have taken ownership of SVADA parcels are the U.S. Fish and Wildlife Service (USFWS), the U.S. Army Corps of Engineers (USACE), the Illinois Department of Natural Resources (IDNR), and the LRA. The LRA works to attract businesses to buy or lease land in its parcels, now collectively known as the Savanna Industrial Park (SIP).

The Army included LRA Parcel 20 (formerly known as "FWS Parcel 5") in a 2003 memorandum of agreement (MOA) with USFWS. The MOA granted USFWS management rights on the parcel. In 2016, USFWS withdrew interest in the parcel. The Army officially identified the parcel as surplus in 2018 and the LRA completed the notice of interest process for the parcel the same year. In 2023, the LRA submitted to the Army the *Jo-Carroll Depot Local Redevelopment Authority Final Reuse Plan for Parcel 20, Former Savanna Army Depot* (the 2023 LRA Reuse Plan). The parcel is in Carroll County at the southeastern end of SVADA and has undeveloped forested and open land and a waterbody known as Commander's Pond on it. The SIP, the Apple River, and Brickhouse Slough of the Mississippi River border the parcel. The Burlington Northern Santa Fe (BNSF) rail line bisects the parcel from northwest to southeast, and an Army sewage treatment plant is surrounded by LRA Parcel 20. The rail line and the sewage treatment plant, however, are not part of LRA Parcel 20.

S.4 Purpose and Need

The purpose of the Proposed Action is for the Army to dispose of LRA Parcel 20 through transfer to the LRA or other appropriate recipient(s). The Army determined the property to be excess to the Army's needs and surplus to all federal agency needs after screening in accordance with Army Regulation 405-90, *Disposal of Real Property*, and will dispose of it in accordance with applicable laws, regulations, and national policy. The need for the Proposed Action is to carry out the BRAC recommendation for the closure of SVADA, which became law, and to make the parcel available for reuse. Section 2.0 describes the Proposed Action in more detail.

S.5 Scope

The Army has developed this EIS in accordance with NEPA and the *Department of Defense National Environmental Policy Act Implementing Procedures* (DoD NEPA Procedures) issued by DoD on June 30, 2025. Its purpose is to inform decision-makers and the public of the likely environmental consequences of implementing the Proposed Action and alternatives. This EIS identifies, documents, and evaluates the potential environmental and socioeconomic effects of the Army's disposal of LRA Parcel 20 by transferring it to the LRA or other appropriate recipient(s) for their reuse. The EIS analyzes the potential direct effects of the Army conveying LRA Parcel 20 and the potential indirect effects of reuse of the parcel.

The 1997 BRAC EIS evaluated this parcel for transfer under a federal-to-federal conveyance to USFWS, but it did not evaluate it for disposal and transfer to and reuse by

the LRA or other appropriate recipient(s). In compliance with DoD NEPA Procedures in Part 1.8(e), this EIS tiers from the 1997 BRAC EIS.

S.6 Proposed Action and Alternatives

The Proposed Action is the Army's disposal of LRA Parcel 20 by transferring it to the LRA or other appropriate recipient(s) for their reuse. This EIS analyzes the potential direct effects of the Army conveying LRA Parcel 20 and the potential indirect effects of reuse of the parcel. Once the parcel is transferred, it would pass beyond the administrative control of the Army. All subsequent use of the land would be independent of the Army. The Army's Preferred Alternative is the Accelerated Disposal Alternative. The Army expresses no preference with respect to reuse because reuse is not an Army action.

The EIS analyzes five alternatives:

- Alternative 1: No Action Alternative
- Alternative 2: Accelerated Disposal Alternative
- Alternative 3: Recreation-Only Reuse Alternative
- Alternative 4: Recreation and Solar Reuse Alternative
- Alternative 5: LRA Reuse Alternative

S.6.1 Alternative 1: No Action Alternative

Analysis of Alternative 1, the No Action Alternative, is required by DoD NEPA Procedures in Part 2.3(a)(3) and serves as the baseline against which the Proposed Action and other alternatives are compared. Under Alternative 1, the Army would continue providing limited caretaking of LRA Parcel 20.

S.6.2 Alternative 2: Accelerated Disposal Alternative

Alternative 2, the Accelerated Disposal Alternative, is the Army's Proposed Action of disposal of LRA Parcel 20 by transferring it to the LRA or other recipient(s). Under Alternative 2, the Army would take advantage of various property transfer and disposal methods that allow reuse of the property before environmental remedial action has been completed. The Army would transfer or dispose of the parcel prior to completion of environmental remediation and other environmental clearance but committing to complete remediation or fund remediation to completion.

S.6.3 Alternative 3: Recreation-Only Reuse Alternative

Under Alternative 3, the Recreation-Only Reuse Alternative, the Army would transfer the parcel to a new owner who would implement only recreational improvements on LRA Parcel 20, such as an elevated, boardwalk-style walking trail; a canoe and kayak ramp on Commander's Pond (formerly known as Ordnance School Lake); and a recreational area atop the capped landfill on the parcel. The recreational area could include parking, recreational fields, a dog park, and picnic tables or gazebos.

S.6.4 Alternative 4: Recreation and Solar Reuse Alternative

Under Alternative 4, the Recreation and Solar Reuse Alternative, the Army would transfer the parcel to a new owner who would implement the recreational improvements on LRA Parcel 20 as described for Alternative 3, except for the recreational area atop the capped landfill. Instead, solar photovoltaic (PV) arrays would be installed on top of the landfill. The solar power produced could be used on-site, fed into the local power grid, or a combination of the two.

S.6.5 Alternative 5: LRA Reuse Alternative

For Alternative 5, the LRA Reuse Alternative, the Army would transfer the parcel to the LRA and the LRA would implement their 2023 LRA Reuse Plan to develop the parcel and adjacent land into a port with docks, wharves, conveyor systems, and roads, plus recreational facilities and potentially solar development. The LRA's proposed development would occur on LRA Parcel 20 and extend outside the boundary of the parcel into the Apple River, Brickhouse Slough, and along Apple River Island in the Mississippi River. To facilitate implementation, the LRA designed the reuse alternative in three sequential phases. Phase 1 would be implemented within a 5-year target completion window, while Phases 2 and 3 would follow, each having a 5-year-plus completion window. All three phases of Alternative 5 would require dredging: 1,273,899 cubic yards (yd^3) in Brickhouse Slough under Phase 1; 524,533 yd^3 in Commander's Pond under Phase 2; and another 313,689 yd^3 in Commander's Pond under Phase 3.

- Phase 1 of Alternative 5 prioritizes development of a barge fleeting area along Apple River Island with dredging in Brickhouse Slough, a dry bulk and liquid bulk wharf on Brickhouse Slough with a road connecting it to the SIP, and recreational and solar uses on LRA Parcel 20. The dredging in Brickhouse Slough would include a "long reach" in the slough that extends north from Commander's Pond to a partial turning basin at the northern end of Apple River Island and a "short reach" in the slough that extends south from Commander's Pond. The long and short reaches would provide access to the Mississippi River main navigation channel.
- Phase 2 adds dredging in Commander's Pond to accommodate an L-shaped lift-on/lift-off (LOLO) wharf on Commander's Pond to support the expansion of specialty and break-bulk cargos and dry-dock capacity, and travel lift piers would provide accessibility to the larger landside dry-dock area.
- Phase 3 would include additional dredging in Commander's Pond to accommodate another LOLO wharf to increase wharf handling capacity and a repair fleeting area as well as an aquatic habitat restoration area.

S.7 Major Conclusions of Environmental Analysis

The environmental consequences of the Proposed Action and the alternatives, discussed in Section 4.0 of the EIS, are summarized in this section and in Table S.7-1. The degree of effect has been based on whether the potential effects are short or long term and adverse or beneficial. The level of environmental adverse or beneficial effects is

characterized as no effects, negligible effects, less-than-significant effects, significant-but-mitigable effects, and significant effects. There could be adverse and beneficial effects on the same resource.

Implementing Alternative 1, the No Action Alternative, would result in no effects.

Implementing Alternative 2, Accelerated Disposal Alternative, would result in no effects on most resources. Beneficial effects would be expected on air quality, noise, and socioeconomics.

Implementing Alternative 3, the Recreation-Only Reuse Alternative, would result in adverse effects ranging from negligible to significant and in some beneficial effects. There may be adverse and beneficial effects on the same resource. Negligible-to-less-than-significant adverse effects would be expected on land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, transportation, and hazardous and toxic materials. Significant-but-mitigable adverse effects would be expected on biological resources. Significant adverse effects would be expected on cultural resources. Beneficial effects would be expected on land use and socioeconomics. No effects would be expected on navigation and utilities.

Implementing Alternative 4, the Recreation and Solar Reuse Alternative, would result in adverse effects ranging from negligible to significant and in some beneficial effects. There may be adverse and beneficial effects on the same resource. Negligible-to-less-than-significant adverse effects would be expected on land use, air quality, noise, geology and soils, water resources, transportation, and hazardous and toxic materials. Significant-but-mitigable adverse effects would be expected on aesthetics and visual resources and biological resources. Significant adverse effects would be expected on cultural resources. Beneficial effects would be expected on land use, socioeconomics, and utilities. No effects would be expected on navigation.

Implementing Alternative 5, the LRA Reuse Alternative, would result in adverse effects ranging from less than significant to significant and in some beneficial effects. There may be adverse and beneficial effects on the same resource. Less-than-significant adverse effects would be expected on air quality, noise, geology and soils, socioeconomics, transportation, and utilities. Significant-but-mitigable adverse effects would be expected on water resources, navigation, and hazardous and toxic materials. Significant adverse effects would be expected on land use, aesthetics and visual resources, biological resources, and cultural resources. Beneficial effects would be expected on socioeconomics, navigation, and utilities.

Table S.7-1. Summary of Potential Environmental and Socioeconomic Consequences

Resource area	Alternative 1: No Action	Alternative 2: Accelerated Disposal	Alternative 3: Recreation-Only Reuse	Alternative 4: Recreation and Solar Reuse	Alternative 5: LRA Reuse
Land use	None.	None.	Short-term, negligible adverse. Long-term beneficial.	Short-term, negligible adverse. Long-term beneficial.	Short- and long-term, significant adverse.
Aesthetics and visual resources	None.	None.	Short- and long-term, negligible adverse.	Short- and long-term, significant-but-mitigable adverse.	Short- and long-term, significant adverse.
Air quality	None.	Short-term beneficial.	Short-term, less-than-significant adverse. Long-term, negligible adverse.	Short-term, less-than-significant adverse. Long-term, negligible adverse.	Short- and long-term, less-than-significant adverse.
Noise	None.	Short-term beneficial.	Short-term, less-than-significant adverse. Long-term, negligible adverse.	Short-term, less-than-significant adverse. Long-term, negligible adverse.	Short- and long-term, less-than-significant adverse.
Geology and soils	None.	None.	Short- and long-term, less-than-significant adverse.	Short- and long-term, less-than significant adverse.	Short- and long-term, less-than-significant adverse.
Water resources	None.	None.	Short- and long-term, less-than-significant adverse.	Short- and long-term, less-than-significant adverse.	Short- and long-term, significant-but-mitigable adverse.
Biological resources	None.	None.	Short- and long-term, significant-but-mitigable adverse.	Short- and long-term, significant-but-mitigable adverse.	Short- and long-term, significant adverse.
Cultural resources	None.	None.	Short- and long-term, significant adverse.	Short- and long-term, significant adverse.	Short- and long-term, significant adverse.
Socioeconomics	None.	Long-term beneficial.	Short- and long-term beneficial.	Short- and long-term beneficial.	Short- and long-term beneficial. Short- and long-term, less-than-significant adverse.
Navigation	None.	None.	None.	None.	Short- and long-term, significant-but-mitigable adverse. Long-term beneficial.

Resource area	Alternative 1: No Action	Alternative 2: Accelerated Disposal	Alternative 3: Recreation-Only Reuse	Alternative 4: Recreation and Solar Reuse	Alternative 5: LRA Reuse
Transportation	None.	None.	Short- and long-term, negligible adverse.	Short- and long-term, negligible adverse.	Short- and long-term, less-than-significant adverse.
Utilities	None.	None.	None.	Long-term beneficial.	Short- and long-term, less-than-significant adverse. Long-term beneficial.
Hazardous and toxic materials	None.	None.	Short-term, less-than-significant adverse. Long-term, negligible adverse.	Short-term, less-than-significant adverse. Long-term, negligible adverse.	Short- and long-term, significant-but-mitigable adverse.

S.8 Summary of Mitigation Requirements

The potential effects resulting from disposal and reuse of LRA Parcel 20 include identified mitigation measures that could prevent, reduce, or compensate for predicted significant adverse effects. Upon disposal, and except as restricted by encumbrances, responsibility for implementing mitigation actions would rest with the LRA or other owner(s) of LRA Parcel 20.

Alternative 1 or 2 would not be expected to result in significant adverse effects, and, therefore, no mitigation would be required. Table S.8-1 lists mitigation measures that the Army considers would need to be implemented to avoid, compensate for, or minimize significant adverse environmental effects on particular resource areas from implementing Alternative 3, 4, or 5. Implementing mitigation measures applicable to reuse would be the responsibility of non-Army entities (i.e., the LRA or other future owner(s) of LRA Parcel 20), except for those related to Cleanup Site 20, Abandoned Landfill, and Cleanup Site 178, Ordnance School Lake, under Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 U.S.C. § 9601 *et seq.*). The Army would be responsible for cleanup of those sites under CERCLA. The LRA or other future owner(s) of LRA Parcel 20 would need to prepare a mitigation plan that includes all mitigation measures identified in this EIS. The mitigation plan would include how they would administer and monitor the measures. They would be responsible for implementing and meeting the commitments as described in this EIS and the mitigation plan.

Table S.8-1. Summary of Mitigation Measures for Alternative 3, 4, or 5

Resource area	Mitigation measures	Responsible party
Water resources	Cleanup of Cleanup Site 178, Ordnance School Lake (Commander's Pond) under CERCLA. The mitigation could include measures such as conducting targeted sampling and analysis as part of characterization of potential pollutant loading, with specific analytes (e.g., heavy metals, PCBs, pesticides, and volatile organic compounds [VOCs]) and protocols selected based on project-specific risk considerations.	Army
Water resources	▪ Conducting targeted sampling and analysis in Brickhouse Slough and the Mississippi River, as needed, as part of characterization of potential pollutant loading, with specific analytes (e.g., heavy metals, PCBs, pesticides, and VOCs) and protocols selected based on project-specific risk considerations. ▪ Dredge management planning to include coordination for handling potentially contaminated sediment exceeding standard compliance practices, including identification of contaminants and planning for disposal at permitted facilities. ▪ Developing mitigation measures through the permitting process, which may include preparing a Clean Water Act (CWA) Section 404 waters of the United States (WOTUS) mitigation plan outlining how the project would compensate for unavoidable impacts on wetlands and other aquatic resources from discharge of dredged or fill material into WOTUS and coordinating the mitigation with USACE as part of the Section 404 permitting process.	LRA

Resource area	Mitigation measures	Responsible party
Biological resources	Developing specific mitigation measures in coordination with federal and state regulatory agencies, to include measures of one or more of the following types in coordination with USFWS per their *Mitigation Policy* and *Endangered Species Act Compensatory Mitigation Policy* and IDNR per their Illinois Endangered Species Protection Act and Title 17 of the Illinois Administrative Code Part 1080, Incidental Taking of Endangered or Threatened Species: ▪ Avoidance • Design the timing, location, and operations of the action so specific resource impacts would not occur. • Add structural features to the action (e.g., fish and wildlife passage structures, water treatment facilities, or erosion control measures). • Adopt nonstructural alternatives (e.g., stream channel restoration with grading and vegetation in lieu of riprap). • Do not implement the action. ▪ Minimization (including rectifying and reducing over time) • Reduce the overall spatial extent or duration of the action. • Adjust the daily or seasonal timing of the action. • Retain the key habitat features within the affected area that would continue to support life-history processes for the evaluation species. • Adjust the spatial configuration of the action to retain corridors for species movement between functional habitats. • Apply best management practices to reduce water quality degradation. • Adjust the magnitude, timing, frequency, duration, or rate-of-change of water flow diversions and flow release to minimize the alteration of flow regime features that support life-history processes of evaluation species. • Install measures (e.g., screens) to reduce the entrainment/ impingement of aquatic life at water intake structures. • Install fences, signs, markers, and other measures necessary to protect resources from impacts. ▪ Compensatory measures • Develop mitigation measures through the consultation and permitting process, which may include a mitigation site where the proponent restores or creates wetlands, mussel beds, or other habitat in another area to offset losses from project impacts or relocating protected species. Measures would be developed with and agreed to by state and federal regulatory agencies to achieve conservation goals. • Use conservation/ mitigation banks. A conservation bank is a site or suite of sites that provides ecological functions and services expressed as credits that are conserved and managed in perpetuity for specific species and used to expressly offset impacts on the same species occurring elsewhere. A mitigation bank is established to offset impacts on aquatic habitats under CWA Section 404. • Establish in lieu fee sites to provide ecological functions and services expressed as credits that are conserved or managed for specific species or habitats and used to expressly offset impacts on the same species or habitats occurring elsewhere.	LRA

Resource area	Mitigation measures	Responsible party
Cultural resources	▪ Finalize the preservation covenant with the Advisory Council on Historic Preservation, Army, IL SHPO, and LRA. ▪ Developing specific mitigation measures in coordination with federal and state regulatory agencies. Measures that could be taken include but are not limited to the following: • Place temporary fencing around sites 11CA1, 11CA142, 11CA143, 11CA147, and 11CA148 during construction to delineate site boundaries and prevent construction activities in those areas. • Shorten the recreational elevated boardwalk to avoid intersecting with Site 11CA1. • Reroute the path of the liquid bulk pipeline, conveyor system, and wharf access road to avoid sites 11CA142 and 11CA143. • Per the preservation covenant for sites 11CA1 and 11CA142, consult with stakeholders including the IL SHPO regarding mitigation measures. • Shift the staging area for the container wheeled storage to avoid intersecting with Site 11CA147. • Conduct Phase I shovel test survey of sites 11CA44, 11CA60, 11CA143, 11CA147, and 11CA148 to evaluate site eligibility, delineate site boundaries, and mitigate adverse effects on each site, with potential for Phase II and III testing based on the results of the Phase I survey. Any archaeological testing on federal lands must be approved via an Archaeological Resources Protection Act of 1979 permit. • Use U.S. Secretary of the Interior-qualified archaeological monitors to oversee all earth-moving activities during construction to ensure the protection of cultural resources within the project area. • Stabilize and secure the shoreline and hillsides in areas of proposed development and dredging to mitigate erosion on sites 11CA44, 11CA60, 11CA142, 11CA143, and 11CA148.	LRA
Navigation	▪ Developing mitigation measures determined through the Section 408 Program that would be required for activities related to modifications of USACE civil works features. ▪ Developing mitigation measures determined through the section 10 and 404 permits for construction or performance of work within navigable waters. ▪ Using minimally invasive dredging practices, equipment, and applications most suitable to the substrate to be removed. ▪ Using dredging practices, equipment, and applications that would minimize extractions and dispose contaminated sediments in keeping with regulatory requirements.	LRA

Resource area	Mitigation measures	Responsible party
Hazardous and toxic materials	The Army's mitigation measures for cleanup of Cleanup Site 178, Ordnance School Lake (Commander's Pond) would need to include, at a minimum, the following: ▪ Overseeing and managing the remedial action in Commander's Pond. ▪ Preparing a comprehensive corrective measures feasibility study for Commander's Pond, including a remedial action plan for the remaining contaminated sediment. ▪ Conducting detailed and targeted sampling and analysis as part of characterization of potential pollutant loading, with specific analytes (e.g., heavy metals, munitions and explosives of concern, PCBs, pesticides, and VOCs) and protocols selected based on project-specific risk considerations. ▪ Defining contaminant transport modeling to predict dispersion. ▪ Delineating boundaries of contaminated zones to minimize over-dredging and for segregation the sediment. ▪ Establishing water quality monitoring baselines. ▪ Establishing engineering controls to prevent the release of contaminants. ▪ Conducting advance dredge management planning to include coordination for handling potentially contaminated sediment, including identification of contaminants and planning for disposal at permitted facilities, exceeding standard compliance practices. ▪ Incorporating proactive compliance with land disposal restrictions into project planning to ensure that any hazardous waste identified is managed in accordance with applicable treatment and disposal requirements. ▪ Reviewing progress reporting from the LRA to confirm criteria are being met. ▪ Conducting post-dredging contaminant confirmation surveys. ▪ Outlining restoration habitats (e.g., replanting submerged aquatic vegetation or benthic communities). ▪ Inspecting containment structures and implementing adaptive management as needed.	Army

Resource area	Mitigation measures	Responsible party
Hazardous and toxic materials	Planning mitigation measures for a dredging management plan for Commander's Pond and the Mississippi River would need to include, at a minimum, the following: ▪ Adherence to Army's remedial action planning, and corrective measures outlined in feasibility study. ▪ Dredging technique optimization • Select low-impact dredging methods (e.g., hydraulic cutterhead or environmental clamshell dredges). • Avoid open mechanical bucket dredging for contaminated sediment. • Use silt curtains, sheet piling, or cofferdams to isolate work areas. • Schedule work during low-flow conditions and avoid sensitive ecological windows. • Employ real-time turbidity and chemical monitoring (e.g., total suspended solids, PCBs, and metals). • Install sediment barriers (e.g., silt curtains and bubble curtains). • Use closed-loop dredging systems with integrated suction and filtration. • Minimize dredge head agitation and maintain slow movement to reduce resuspension. • Use geotextile tubes, filter presses, or settling basins to dewater dredged material. • Store and handle dredged sediment in contained areas with impermeable liners. • Monitor water and sediment quality to confirm contaminant reduction. • Manage runoff from sediment dewatering areas to prevent recontamination. • Use sealed containers or barges to transport contaminated sediment. • Avoid spills or leaks during transfer and loading operations. • Ensure disposal occurs at approved facilities (e.g., confined disposal facilities or hazardous waste landfills).	LRA

Notes: PCBs = polychlorinated biphenyls; IL SHPO = Illinois State Historic Preservation Office

S.9 Federal Permits, Licenses, and Other Entitlements

The Proposed Action and alternatives would require licenses, permits, and other entitlements. Table S.9-1 provides a potential list, which might not be all-inclusive. The property owner would need to obtain the required licenses, permits, and other entitlements prior to proposal implementation. For Alternative 2, the Army would be responsible for completing the requirements. For Alternative 3, 4, or 5, the LRA or other future owner(s) of LRA Parcel 20 would be responsible for completing the requirements before implementing their projects.

Table S.9-1. Summary of Licenses, Permits, and Other Entitlements

License, permit, or other entitlement	Alternative 2, 3, 4, or 5	Approving agency	Party responsible for obtaining or completing
EIS and Record of Decision	All	Army	Army
Finding of Suitability to Transfer	2, 3, 4, 5	Army	Army
Archaeological Resources Protection Act Permit	3, 4, 5	USFWS	LRA
Building Permit	3, 4, 5	Carroll County, IL	LRA
Clean Air Act Program Permit	5	IEPA, Bureau of Air	LRA
CWA Section 401 Certification or Waiver	3, 4, 5	IEPA, Bureau of Water	LRA
CWA Section 402 NPDES Permit	3, 4, 5	IEPA, Bureau of Water	LRA
CWA Section 404 Permit	5	USACE, Rock Island District	LRA
Easements/ROW	3, 4, 5	BNSF and local utilities	LRA
Excavation Permit	3, 4, 5	Carroll County, IL	LRA
Endangered Species Act Consultation	3, 4, 5	USFWS, IDNR	LRA
Fish and Wildlife Coordination Act Consultation	3, 4, 5	USFWS	LRA
Floodplain Compliance	3, 4, 5	Carroll County, IL; IDNR, Office of Water Resources; and IEMA	LRA
Landfill Development Permit for Installing Solar PV Array on Top of Capped Landfill	4, 5	IEPA, Bureau of Land	LRA
National Wildlife Refuge System Improvement Act of 1997 Finding of Appropriateness	5	USFWS	LRA
Real Estate Application, per ER 1130-2-550, Chapter 17: Non-Recreation Outgrant Policy	5	USACE, Rock Island District	LRA
Rivers and Harbors Appropriation Act of 1899 Section 10 Permit	5	USACE, Rock Island District	LRA
Rivers and Harbors Appropriation Act of 1899 Section 408 Permission	5	USACE, Rock Island District	LRA
Site Plan Review	3, 4, 5	Carroll County, IL	LRA
Spill Prevention, Control, and Countermeasures Plan	3, 4, 5	USEPA	LRA
Stormwater Management Plan	3, 4, 5	Carroll County, IL	LRA
Stormwater Pollution Prevention Plan	3, 4, 5	Carroll County, IL	LRA
Statewide Permit No. 3 for Authorizing Mooring Facilities Used Exclusively for Barge Fleeting Purposes	5	IDNR	LRA

Notes: CWA = Clean Water Act; ER = Engineering Regulation; IEMA = Illinois Emergency Management Agency; IEPA = Illinois Environmental Protection Agency; NPDES = National Pollutant Discharge Elimination System; ROW = right-of-way; USEPA = U.S. Environmental Protection Agency.

S.10 Compliance with Requirements of Other Federal Environmental Protection Laws and Executive Orders

The Army prepared this EIS, to the fullest extent possible, in compliance with the requirements of other federal environmental protection laws. Table S.10-1 lists the laws and executive orders (EOs) relevant to this Proposed Action and its alternatives.

Table S.10-1. Summary of Compliance Status with Relevant Authorities

Law, regulation, or policy	Requirements	Compliance status
American Indian Religious Freedom Act (42 U.S.C. § 21 *et seq.*)	Protects and preserves the inherent rights of freedom to believe, express, and exercise traditional religions of Native Americans, Alaska Native Groups, and Native Hawaiians. These rights include, but are not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremony and traditional rites.	Complies with this Act. Consultation with ACHP, IL SHPO, and tribes is ongoing. The Proposed Action would not limit access to sites, use or possession of sacred objects, or the freedom to worship through ceremony and traditional rites.
Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. § 470aa *et seq.)*	Requires federal agencies to protect archaeological resources and sites that are on public lands and Native American lands.	Will comply with this Act. The Army completed a Phase I archaeological survey of LRA Parcel 20. Consultation with ACHP, IL SHPO, and tribes is ongoing. Requirements to comply with this Act, the SVADA cultural 2000 PA, preservation covenant, stipulations for additional consultation with the IL SHPO and ACHP, and any mitigation measures to protect cultural resources would be conveyed to the future owner of LRA Parcel 20 through the transfer document. The LRA would be required to apply to USFWS for an ARPA permit prior to any work that is planned in the UMRNWFR.
Bald and Golden Eagle Protection Act (16 U.S.C. § 668 *et seq.*)	Prohibits the take, possession, or disturbance of any bald or golden eagle bird or their eggs, nests, or parts without a federal permit.	Will comply with this Act. No known bald or golden eagle nests are on the project site. The Army coordinated with USFWS throughout the NEPA process. The LRA Parcel 20 owner would be required to comply with the Act and coordinate with USFWS should their activities have the potential to result in take or disturbance of eagles or their nests.

Law, regulation, or policy	Requirements	Compliance status
Base Closure Community Redevelopment and Homeless Assistance Act of 1994 (P.L. 103-421)	Requires coordination with state and local governments, representatives of the homeless, and other interested parties to screen surplus property.	Complies with this Act. The LRA completed the required coordination under this Act, but no organizations that provide housing or services for the homeless submitted a notice of interest in the surplus property.
Carroll County, IL, Floodplain Ordinance	Regulates development in floodplains.	Will comply with this ordinance. The LRA or other future owner of LRA Parcel 20 will be required to obtain any necessary permits from Carroll County prior to construction and operation of facilities on LRA Parcel 20.
Clean Air Act (42 U.S.C. § 7401)	Requires compliance of stationary and mobile sources of hazardous air pollutants with emission standards.	Will comply with this Act. The project will comply with this Act as applicable based on detailed design of the Reuse Alternatives. The future owner of LRA Parcel 20 will be required to obtain any necessary permits prior to construction and operation of facilities on LRA Parcel 20.
Clean Water Act (33 U.S.C. § 1251)	Section 401 requires compliance with state water quality standards. Section 402 requires certification that any discharge into WOTUS be regulated by a NPDES permit. Section 404 regulates the discharge of dredged or fill material into WOTUS.	Will comply with this Act. The future owner of LRA Parcel 20 will be required to obtain Water Quality Certification from the State of Illinois and any required NPDES permits, prepare a dredge management plan, and obtain Clean Water Act Section 401 and 404 permits prior to any construction, dredging, or operation of facilities.
Community Environmental Response Facilitation Act (P.L. 102-426)	Requires federal agencies to expeditiously identify real property that offers the greatest opportunity for immediate reuse and redevelopment.	Complies with this Act. The Army officially identified LRA Parcel 20 as surplus in 2018, and the LRA completed the notice of interest process for the parcel that same year.

Law, regulation, or policy	Requirements	Compliance status
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. § 9601 *et seq.*)	Establishes requirements for closed and abandoned hazardous waste site cleanup.	Will comply with this Act. The Army is responsible for remediating contaminated sites on SVADA in accordance with applicable laws. This includes completing or funding the final cleanup of sites and conducting long-term monitoring. On LRA Parcel 20, the Army has either completed clean up and closure of all CERCLA sites or is in the process of doing so. Investigations related to per- and polyfluoroalkyl substances contamination are ongoing. The future owner of LRA Parcel 20 will be required to maintain the LUCs and comply with the LUCIPs as specified in the transfer document.
Emergency Planning and Community Right-to-Know Act (42 U.S.C. §§ 11001–11050)	Requires federal, state, and local governments, tribes, and industries to follow hazardous and toxic chemical inventory reporting requirements and to notify applicable state, tribal, and local officials of any reportable releases into the environment.	Will comply with this Act. The future owner of LRA Parcel 20 would be required to comply with the Act's inventory and reporting requirements.
Endangered Species Act (16 U.S.C. §§ 1531–1543)	Section 7 requires federal agencies to consult with USFWS regarding impacts on federally listed threatened and endangered species. Requires permits for take of listed species.	Will comply with this Act. The Army consulted with USFWS and IDNR for this EIS and prepared a BA. The future owner of LRA Parcel 20 will be required to consult with USWFS and IDNR prior to implementing their action and comply with any mitigation measures determined by this consultation to protect threatened or endangered species.
Fish and Wildlife Coordination Act (16 U.S.C. §§ 661–666(e))	Directs USFWS to investigate and report on proposed federal actions that affect any stream or other body of water and to provide recommendations to minimize impacts on fish and wildlife. Requires consult with USFWS whenever the waters of any stream or waterbody are proposed to be modified.	Will comply with this Act. The Army consulted with USFWS for this EIS and prepared a BA. The future owner of LRA Parcel 20 will be required to consult with USFWS prior to implementing their actions that would affect any stream or other body of water or fish and wildlife and to obtain a permit through the federal agency prior to project implementation.

Law, regulation, or policy	Requirements	Compliance status
Migratory Bird Treaty Act (16 U.S.C. §§ 703–712)	Prohibits the take, possession, or disturbance of any migratory bird, eggs, or nests without a federal permit from USFWS.	Will comply with this Act. The future owner of LRA Parcel 20 will be required to consult with USFWS on migratory birds and obtain a permit should the construction or operation of their proposed reuse project require or result in the take, possession, or disturbance of any migratory bird, eggs, or nests. Timing restrictions would be placed on construction activities to avoid construction during migratory bird breeding season.
National Historic Preservation Act (16 U.S.C. § 470 *et seq*., as amended)	Requires federal agencies to identify and protect cultural and historic resources. Section 106 requires federal agencies to consult with the ACHP and/or IL SHPO and consult with federally recognized Native American tribes regarding proposed actions.	Will comply with this Act. The Army completed a Phase I archaeological survey of LRA Parcel 20. The Army completed consultation with the ACHP, IL SHPO, and tribes per NEPA as part of this EIS. For any sites that would be affected by the Reuse Alternatives, whether they are on or off LRA Parcel 20, the IL SHPO requires the LRA (or other future LRA Parcel 20 owner) to consult with the IL SHPO. The IL SHPO has already advocated for a Phase I survey of any sites that have not been surveyed yet, identified a need for a Phase III survey of National Register of Historic Places-eligible sites, and identified the need for enactment of a preservation covenant per the PA. Requirements to comply with this Act, the SVADA cultural PA, preservation covenant, stipulations for additional consultation with the ACHP and IL SHPO, and any mitigation measures to protect cultural resources would be conveyed to the future owner of LRA Parcel 20 through the transfer document.

Law, regulation, or policy	Requirements	Compliance status
National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. § 668 *et seq.*)	Established national refuges with the mission to conserve fish, wildlife, plants, and their habitats. Requires management of these refuges through compatible use (i.e., wildlife-dependent recreational use or any other use of a refuge that will not materially interfere with or detract from the mission).	Will comply with this Act. The LRA will be required to submit to USFWS a finding of appropriateness that addresses the Act's statutory requirements to preclude the use of UMRNWFR federal lands for noncompatible uses, which include as port and fleeting facilities. USFWS has the authority under the Act to deny a permit. In such an occurrence, the LRA or other future owner of LRA Parcel 20 could not proceed with their proposed reuse and would be required to undergo further review with potential elimination or modification of their proposed use. The Army completed formal consultation with USFWS for this EIS.
Native American Graves Protection and Repatriation Act (25 U.S.C. § 3001 *et seq.*)	Protects Native American human remains and cultural items.	Will comply with this Act. The Army completed a Phase I archaeological survey of LRA Parcel 20. Consultation with the ACHP, IL SHPO, and tribes is ongoing. The SVADA cultural PA, preservation covenant, stipulations for additional consultation with the ACHP and IL SHPO, and any mitigation measures to protect cultural resources would be conveyed to the future owner of LRA Parcel 20 through the transfer document. Should any heretofore unknown Native American remains or cultural items be discovered in the course of site development, the future owner would be required to consult with the IL SHPO and appropriate tribes to address the law's requirements.
Noise Control Act (42 U.S.C. § 4901 *et seq.*)	Directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations.	Will comply with this Act. The Army determined through this NEPA EIS analysis that the noise associated with the proposed reuse of LRA Parcel 20 as a port would be localized and less than significant. The future owner of LRA Parcel 20 would be required to comply with federal, state, interstate, and local noise requirements and to implement effective noise reduction BMPs, such as scheduling, barrier placement, and equipment selection, as needed.

Law, regulation, or policy	Requirements	Compliance status
Resource Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901)	Requires coordination with USEPA on compliance with the Act on hazardous waste generation, transportation, treatment, storage, and disposal, including USTs, and the management of nonhazardous solid wastes.	Will comply with this Act. The new landowner will be required to comply with RCRA, including implementing appropriate Spill Prevention, Control, and Countermeasure and Strategic Preparedness and Response plans. These measures must be designed to prevent the accidental release of hazardous materials and ensure coordination and compliance with applicable USEPA, state, and local regulations governing hazardous waste management and USTs.
Rivers and Harbors Appropriation Act of 1899 (33 U.S.C. § 403)	Section 10 requires congressional approval for the creation of any obstruction to the navigation of any WOTUS. The Section 408 Program, authorized by Section 14, requires engineering, environmental, legal, and real estate review to ensure a proposed alteration, occupation, or use of a federal public works project is not injurious to the public interest and will not impair the usefulness of the project.	Will comply with this Act. The project will comply with this Act as applicable based on detailed design of the Reuse Alternatives. The LRA will be required to obtain any necessary review, permits, and permission from USACE prior to construction and operation.
Safe Drinking Water Act (42 U.S.C. § 300f *et seq*.)	Protects the quality of drinking water in the United States.	Will comply with this Act. The LUC and LUCIP for the sewage plant that prohibit the use of groundwater as a drinking water source would remain in place, even if LRA Parcel 20 is transferred out of Army control. Sediment in Commander's Pond would be required to be tested and a dredge management plan would need to be approved before USEPA would issue a federal permit for the project.
Toxic Substances Control Act (TSCA) (15 U.S.C. §§ 2601–2629)	Requires reporting, testing, and restrictions of specific chemicals and substances by the USEPA to protect human health and the environment.	Will comply with this Act. The future owner of LRA Parcel 20 would be required to comply with this Act and report to the USEPA should they use or produce any of the restricted chemicals or substances regulated under TSCA.

Law, regulation, or policy	Requirements	Compliance status
EO 11988, Floodplain Management	Requires federal agencies to consider alternatives to the use of floodplains and to avoid adverse effects and incompatible development in floodplains.	Will comply with this EO. The project will comply with this EO based on detailed design of the Reuse Alternatives. The Army has prepared a FONPA for Alternative 5. The LRA or other future owner of LRA Parcel 20 will be required to obtain any necessary permits prior to construction and operation. Property conveyance documents will notify property transferees of their obligations to adhere to applicable restrictions on the property imposed by federal, state, and local floodplain regulations as well as mitigation for unavoidable impacts on floodplains.
EO 11990, Protection of Wetlands	Requires federal agencies to avoid to the greatest extent possible adverse impacts associated with occupancy or modification of wetlands and to avoid direct and indirect support of wetland development wherever there is a practicable alternative.	Will comply with this EO. The project will comply with this EO as applicable based on detailed design of the Reuse Alternatives. The Army has prepared a FONPA for Alternative 5. The LRA or other future owner of LRA Parcel 20 will be required to obtain any necessary permits prior to construction and operation of new facilities. Obligations of the LRA or other future owner of LRA Parcel 20 to adhere to applicable restrictions on the property imposed by federal, state, and local regulations, as well as mitigation for unavoidable impacts on wetlands, will be conveyed to the future property owner via the transfer document.
EO 13045, Protection of Children from Environmental Health Risks and Safety Risk	Requires federal agencies to identify and assess environmental health risks and safety risks that may disproportionately affect children.	Complies with this EO. The Army determined through this NEPA EIS analysis that the Proposed Action and alternatives would have no disproportionate environmental health or safety risks to children.

Law, regulation, or policy	Requirements	Compliance status
EO 13112, Invasive Species, as amended by EO 13751, Safeguarding the Nation from the Impacts of Invasive Species	Requires federal agencies to identify actions that may affect the status of invasive species and use relevant programs and authorities to prevent the introduction of invasive species, detect and respond to control invasive species, monitor invasive species populations, provide for restoration of native species and habitat, conduct research on invasive species, and promote public education on invasive species.	Will comply with these EOs. The Army will require in the transfer document the LRA or other future owner of LRA Parcel 20 to conduct an aquatic and terrestrial invasive species survey prior to project implementation and to prepare and implement an invasive species plan with protocols and BMPs to prevent and minimize the introduction and spread of invasive species during construction and operation of the project.
EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds	Directs federal agencies to take certain actions to further implement the Migratory Bird Treaty Act.	Complies with this EO. The Army evaluated the effects of the Proposed Action and alternatives on migratory birds through the EIS environmental analysis as required by NEPA.

Notes: ACHP = Advisory Council on Historic Preservation; BA = biological assessment; BMP = best management practice; FONPA = finding of no practicable alternative; LUC = land use control; LUCIPs = land use control implementation plans; NPDES = National Pollutant Discharge Elimination System; PA = programmatic agreement; ; IL SHPO = Illinois State Historic Preservation Office; UMRNWFR = Upper Mississippi River National Wildlife and Fish Refuge; USEPA = U.S. Environmental Protection Agency; USTs = underground storage tanks; WOTUS = waters of the United States.

S.11 Major Issues/Areas of Concern

Alternative 5 is expected to result in significant adverse effects on LRA Parcel 20 and outside the immediate project area. Dredging would be necessary in LRA Parcel 20, in Brickhouse Slough, along Apple River Island, and in the main channel of the Mississippi River. Areas of concern include aquatic and terrestrial wildlife, including threatened and endangered (T&E) species; bathymetry; cultural resources; navigation; sediment disturbance and transport; and water quality alterations. Construction and dredging activity would impact both aquatic and terrestrial wildlife, including T&E species, and wetlands. The activity could disrupt foraging, hunting, mating, nesting, or roosting activities and could displace wildlife from the area impacted by the noise, including wildlife within the Upper Mississippi River National Wildlife and Fish Refuge (UMRNWFR). Project elements proposed in the UMRNWFR include a wharf with a pipeline, wharf access road, and conveyor system near the confluence of the Apple River, Commander's Pond, and Brickhouse Slough, and a barge fleeting area along Apple River Island. Dredging would be necessary in Brickhouse Slough for a navigation channel with a partial turning basin at the northern end of Apple River Island for access to the Mississippi River main navigation channel, which would impact the existing closing structures and wing dams, and the barge fleeting area proposed along Apple River Island would narrow the navigable area available on the river in the slough and the main channel. Dredging would permanently alter the bathymetry of the riverbed and create more deep-water areas. Modifications and increased navigation of the Mississippi River have the potential to create forces that could increase the erosion rate of the bank and,

therefore, threaten archaeological resources. Disturbance of the pond sediments under this alternative could lead to the mobilization of hazardous constituents, posing risks to aquatic ecosystems. Water quality would be impacted by sediment disturbance from dredging and other in-water construction for port development, producing high turbidity levels in the construction area, impacting any aquatic species in the vicinity.

S.12 Unresolved Issues

The Army has addressed all known issues in this EIS.

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SECTION 1.0 PURPOSE, NEED, AND SCOPE

1.1 Introduction

The U.S. Department of the Army (Army) prepared this Environmental Impact Statement (EIS) to evaluate the environmental and socioeconomic effects of the disposal and reuse of a 132-acre parcel of land at the southeastern end of the Savanna Army Depot Activity (SVADA), Savanna, IL. Under the Proposed Action, the Army would dispose of the parcel, known as LRA Parcel 20, by transferring it to the Jo-Carroll Depot Local Redevelopment Authority (the LRA) or other appropriate recipient(s) for their reuse. The Army prepared this EIS pursuant to the National Environmental Policy Act of 1969 (NEPA) (Title 42 of the *United States Code* [U.S.C.] §§ 4321–4370f) and its implementing procedures. Appendix A provides a list of acronyms and abbreviations used in the EIS, and Appendix B provides a list of persons primarily responsible for preparing this EIS.

SVADA is in northwestern Illinois along the Mississippi River in Carroll and Jo Daviess counties (Figure 1.1-1). LRA Parcel 20 is in Carroll County. The parcel is bound by the Apple River to the east and south; Brickhouse Slough of the Mississippi River to the southwest; Vincent Road and Rofsteck Road to the west; and Crim Drive to the north (Figure 1.1-2). These rivers and roads form the boundaries of the parcel but are not part of the parcel. The largest nearby towns are Savanna, IL (about 9 miles southeast); Hanover, IL (about 8 miles north); and Bellevue, Iowa (about 10 miles northwest). Regionally, the Quad Cities area—composed of the Iowa cities of Bettendorf and Davenport and the Illinois cities of Moline and Rock Island—is about 50 miles south; Cedar Rapids, Iowa, is about 100 miles west; Dubuque, Iowa, is about 40 miles northwest; and Chicago, IL, is about 160 miles east.

SVADA was established in 1917 during World War I and initially supported a proof and test facility for artillery guns and howitzers produced at Rock Island Arsenal, IL. Operations were expanded to include storage of ordnance and the loading and renovation of shells and bombs. Levels of ammunition maintenance and supply operations were reduced in 1972. SVADA's mission before closure was the receipt, storage, issue, and demilitarization of conventional ammunition and general supplies.

1.2 Background

The proposed disposal and reuse of LRA Parcel 20 is the latest in a series of events related to the closure of SVADA. The 1995 Defense Base Closure and Realignment Commission (the 1995 Commission) made recommendations for realignment and closure actions for military installations in conformance with provisions of the Defense Base Closure and Realignment Act of 1990 (Base Closure Act) (Public Law [P.L.] 101-510, as amended). On July 13, 1995, the President approved the 1995 Commission's recommendations, which, following congressional review, became law on September 28, 1995. Among the actions recommended by the 1995 Commission was closure of SVADA. SVADA ceased operations and officially closed on May 20, 2000. Following closure, the Army proposed to dispose of SVADA's 13,061 acres because the property was excess to the Army's needs (DCSG9 2020).

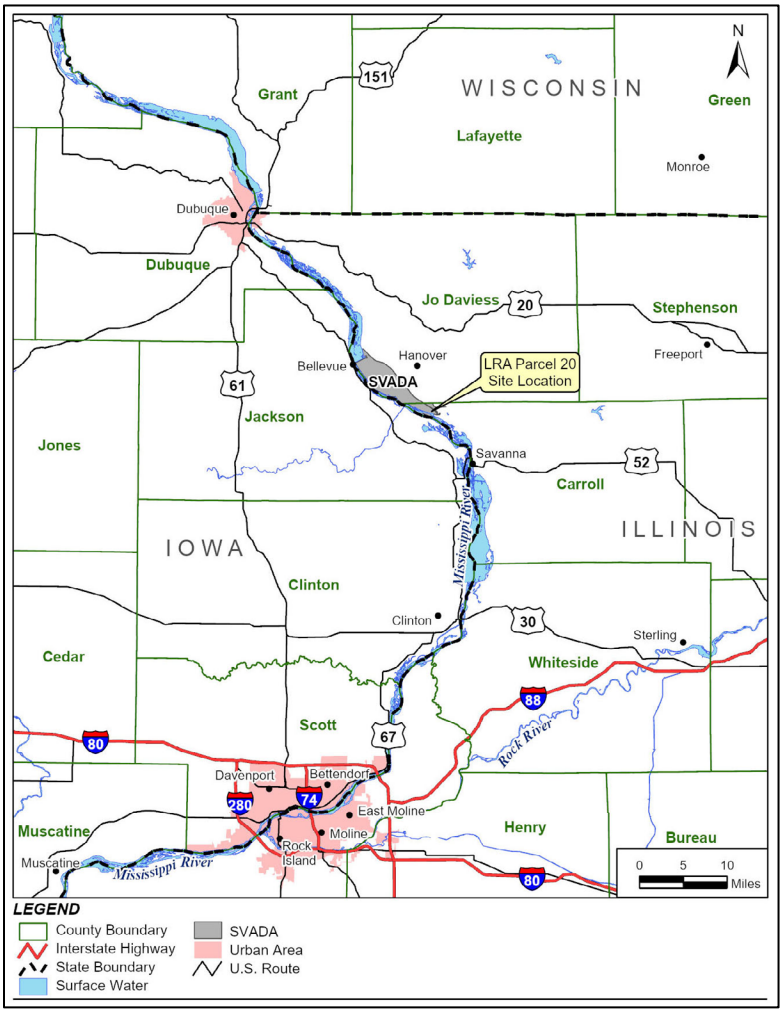


Figure 1.1-1. SVADA Location Map.

In preparation for disposal and transfer of its real property interests at SVADA, the Army has completed several environmental and cultural resources documents in compliance with federal laws and regulations, including the following:

- *Environmental Impact Statement for BRAC 95 Disposal and Reuse of the Savanna Army Depot Activity, Savanna, Illinois* (the 1997 BRAC EIS)
- *Savanna Army Depot Activity Environmental Baseline Survey* (the 1999 EBS)
- *Programmatic Agreement among United States Army, Illinois State Historic Preservation Officer, and Advisory Council on Historic Preservation* (the 2000 PA)
- *Technical Memorandum Background Characterization and Evaluation for Upland and Bottomland, Savanna Army Depot Activity, Savanna, Illinois* (February 2004)
- *Phase I Archaeological Resources Survey of LRA Parcel 20 on the Savanna Army Depot* (January 2021)

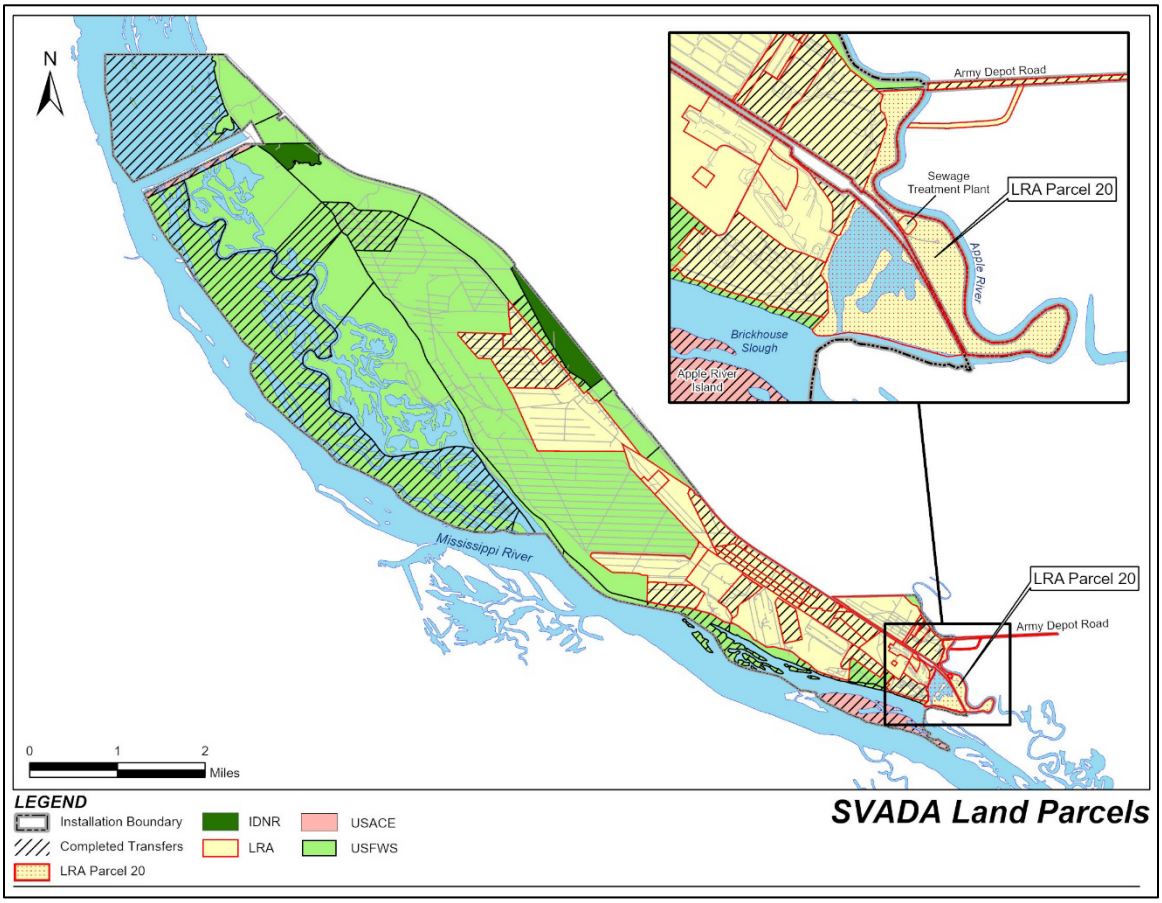
Figure 1.1-2. LRA Parcel 20 Area Map.

Through the base realignment and closure (BRAC) process, as former SVADA property parcels were certified as clean from environmental contaminants in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) (42 U.S.C. § 9601 *et seq.*), the Army transferred the property to federal, state, and local agencies. The agencies that have taken ownership of SVADA parcels are the U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), Illinois Department of Natural Resources (IDNR), and the LRA (see Table 1.2-1 and Figure 1.2-1). USFWS received most of the parcels and manages them as part of the Upper Mississippi River National Wildlife and Fish Refuge (UMRNWFR). The LRA received the next largest share of parcels, mostly in the lower half of SVADA in the former cantonment area. USACE has a parcel at the upper end of SVADA along Lock and Dam 12. USACE also owns Apple River Island, but USFWS manages it as part of the UMRNWFR under the General Plan Lands Agreement between USACE and USFWS (Britton 2025, personal communication; USACE and USFWS 2001). IDNR has two parcels in the upper half of SVADA. Lastly, the Army retained the sewage treatment plant that is bound by LRA Parcel 20.

Table 1.2-1. Savanna Army Depot Activity Property Conveyance

Receiving agency	Acres conveyed	Acres to be conveyed	Total acreage
IDNR	182.9	83.9	266.8
LRA	1,277.0	1,836.3	3,113.3
USACE	176.7	0.0	176.7
USFWS	3,734.9	5,768.1	9,503.0
U.S. Army (retaining a sewage treatment plant)	N/A	N/A	1.4
Total	***5,343.9***	***7,715.9***	***13,061.2***

Sources: DCSG9 2020; Knuth 2024a, 2025, personal communication.
Note: N/A = not applicable.



Source: DCSG9 2023.

Figure 1.2-1. Savanna Army Depot Activity Land Parcels Map.

The LRA was established in 1997 by an intergovernmental agreement between Carroll County and Jo Daviess County in Illinois to redevelop an approximately 3,113-acre portion of the SVADA property for commercial and industrial business use (DCSG9 2020; JCD LRA 2025a). One federal employee—the Base Environmental Coordinator (BEC)—remains at SVADA to provide caretaker services and oversee environmental cleanup and property conveyance (DCSG9 2020).

After the Depot closed in 2000, the Army transferred the first parcels to the LRA in 2003 under a no-cost economic development conveyance (EDC). The LRA and tenants lease the land until it is remediated, then title is conveyed. The Army's cleanup schedule is driven by the availability of federal funding. Transfer of property from the Army is ongoing (JCD LRA 2023). As of May 2025, the Army had transferred 1,277 acres and was in the process of completing the actions necessary to transfer the remaining 1,836.3 acres of property to the LRA (see Table 1.2-1) (DCSG9 2020; Knuth 2024a, 2025, personal communication). The LRA works to attract businesses to buy or lease land in their area, now known as the Savanna Industrial Park (SIP), which the Army has cleared for reuse (JCD LRA 2025a). The SIP consists of Army, LRA, and private property, the private property being land the LRA has sold to private individuals or organizations. Current business uses in the SIP include aerospace, agricultural products, electrical supply, railcar maintenance and repair, research and development, and short line rail service (JCD LRA 2025a).

The U.S. Department of Defense (DoD) included LRA Parcel 20 (formerly known as "FWS Parcel 5") in a 2003 memorandum of agreement (MOA) between the Army and USFWS. The MOA granted USFWS management rights on the parcel. In 2016, USFWS withdrew its interest in the parcel. The Army officially identified the parcel as surplus in January 2018.

Also in 2018, the LRA completed the notice of interest process for LRA Parcel 20, requesting that, if the parcel was transferred to them, their existing Lease in Furtherance of Conveyance be amended to add LRA Parcel 20. In 2023, the LRA submitted the *Jo-Carroll Depot Local Redevelopment Authority Final Reuse Plan for Parcel 20, Former Savanna Army Depot* (the 2023 LRA Reuse Plan) to the Army (JCD LRA 2023). The 2023 LRA Reuse Plan states that the LRA prefers parcel transfer through a no-cost EDC, similar to the previous EDC negotiated for the initial disposal of SVADA in 2000 (JCD LRA 2023). The 2023 LRA Reuse Plan proposes mixed uses of LRA Parcel 20 and adjacent lands, including commercial and industrial use (a port facility with barge fleeting, wharves, a road, and a conveyor system), recreational use (a walking trail, boat launch, and recreational field), and potentially solar photovoltaic (PV) arrays (groups of solar panels connected together). Other alternative uses of LRA Parcel 20 include only recreational facilities, or recreational facilities and solar development.

1.3 Purpose and Need

The purpose of the Proposed Action is for the Army to dispose of LRA Parcel 20 through transfer to the LRA or other appropriate recipient(s). The Army determined the property to be excess to the Army's needs and surplus to all federal agency needs after screening in accordance with Army Regulation 405-90, *Disposal of Real Property*, and will dispose of it in accordance with applicable laws, regulations, and national policy. The need for the Proposed Action is to carry out the BRAC recommendation for the closure of SVADA, which became law, and to make the parcel available for reuse. Section 2.0 describes the Proposed Action in more detail.

1.4 Scope of the EIS

The Army has developed this EIS in accordance with NEPA; the Fiscal Responsibility Act of 2023 (42 U.S.C. § 4336a); the *Department of Defense National Environmental Policy Act Implementing Procedures* (DoD NEPA Procedures) issued by DoD on June 30, 2025; the *Army Guidance – Department of Defense National Environmental Policy Act Implementing Procedures* memorandum issued by the Army on August 8, 2025; Executive Order (EO) 14148, *Initial Recissions of Harmful Executive Orders and Actions* (January 20, 2025); and EO 14173, *Ending Illegal Discrimination and Restoring Merit-Based Opportunity* (January 21, 2025). Its purpose is to inform decision-makers and the public of the likely environmental consequences of implementing the Proposed Action and alternatives. This EIS identifies, documents, and evaluates the potential environmental and socioeconomic effects of the Army's disposal of LRA Parcel 20 by transferring it to the LRA or other appropriate recipient(s) for their reuse. The EIS analyzes the potential direct effects of the Army conveying LRA Parcel 20 and the potential indirect effects of reuse of the parcel.

The 1997 BRAC EIS evaluated this parcel for transfer under a federal-to-federal conveyance to USFWS, but it did not evaluate it for disposal and transfer to and reuse by the LRA or other appropriate recipients. In compliance with the DoD NEPA Procedures in Part 1.8(e), this EIS tiers from the 1997 BRAC EIS.

The Base Closure Act specifies that NEPA does not apply to actions of the President, the 1995 Commission, or the DoD except:

> …(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated (P.L. 101-510, § 2905(c)(2)(A)).

The Base Closure Act further specifies in Section 2905(c)(2)(B) that, in applying the provisions of NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider:

> …(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission; (ii) the need for transferring functions to any military installation which has been selected as the receiving installation; or (iii) military installation alternatives to those recommended or selected.

The 1995 Commission's deliberations and decision and the need for closing or realigning a military installation also are exempt from NEPA (P.L. 101-510, § 2905(c)(2)). Accordingly, this EIS does not address the need for closure or realignment. NEPA analysis does, however, apply to disposal of surplus property as a direct Army action and the reuse of that property as an indirect effect of disposal; therefore, this document addresses those actions.

1.5 Lead and Cooperating Agencies

The Army is the lead agency for this EIS pursuant to Part 1.7 of the DoD NEPA Procedures. The EIS has no cooperating agencies as defined in Part 1.7(b) of the DoD NEPA Procedures.

1.6 Regulatory Framework for Disposal

Numerous factors contribute to Army decisions relating to disposal of installation property. The Base Closure Act triggers actions that must comply with several other federal statutes and regulations. In addition, the Army must adhere to specific rules and procedures pertaining to transfer of federal property as well as to executive branch policies. There also are administrative requirements, such as identifying the installation's assets, to allow for disposal in a manner most consistent with statutory and regulatory guidance. This section discusses those requirements.

1.6.1 BRAC Procedural Requirements

1.6.1.1 Statutory Provisions

The Base Closure Act and the Federal Property and Administrative Services Act of 1949 (FPASA) (40 U.S.C. § 471 *et seq.*, as amended) govern BRAC real property disposal. FPASA is implemented by the Federal Property Management Regulations in Title 41 of the *Code of Federal Regulations* (CFR) § 101-47, *Utilization and Disposal of Real Property*. The disposal process also is governed by 32 CFR Part 174, *Revitalizing Base Closure Communities and Addressing Impacts of Realignment*, a regulation issued by DoD to implement BRAC law as well as the President's Program to Revitalize Base Closure Communities and the Pryor Amendment, also discussed in this section.

1.6.1.2 Screening Process

As LRA Parcel 20 has been determined to be excess to Army needs and surplus to all federal agency needs; it is subject to specific procedures to identify potential subsequent public sector users. The property was offered to a hierarchy of potential users, including homelessness assistance programs, through a screening process. That process for the property disposal has ended and Section 2.2.4 discusses its results.

1.6.1.3 The President's Program to Revitalize Base Closure Communities

On July 2, 1993, President Bill Clinton announced a major new program to speed the economic recovery of communities near military installations being closed. The President pledged to give top priority to early use of each installation's most valuable assets. A principal goal of the initiative was to provide for rapid redevelopment and creation of new jobs.

Key components of the President's community revitalization plan included the following:

- Job-centered property disposal that put local economic redevelopment first
- Appointment of transition coordinators at installations slated for closure

- Easy access to transition and redevelopment assistance for workers and communities
- Larger economic development planning grants for base closure communities

The Army is fully committed to the President's Program to Revitalize Base Closure Communities. A BEC and a base transition coordinator have been appointed for the SVADA property, and the Army has taken an active role in assisting community officials.

1.6.1.4 The Pryor Amendment

Congress endorsed the President's plan by enacting the Base Closure Communities Assistance Act (in Title XXIX, P.L. 103-160), known as the Pryor Amendment. That Act, as amended, provides legal authority to carry out the President's plan by granting conveyances of real and personal property to LRAs at or below fair market value. Specifically, the Act created the EDC, a new federal property conveyance mechanism at the time. An EDC can help induce a market for the property and, thereby, enhance economic recovery and generate jobs. The military departments and the communities have the flexibility to negotiate the terms and conditions of the EDC. A detailed application, including the approved community redevelopment plan, serves as the basis for determining an LRA's eligibility for an EDC. DoD's regulations implementing the Pryor Amendment are provided in 32 CFR Part 174.

1.6.2 Relevant Statutes and Executive Orders

In addressing environmental considerations, the Army is guided by relevant statutes (and their implementing regulations) and EOs that establish standards and provide guidance on environmental and natural resources management and planning. The disposal action is required under BRAC, and the Army uses those statutes and EOs, listed in Appendix C, to guarantee that the disposal process follows federal guidelines. To further understand the content of the EIS, key provisions of these statutes and EOs are discussed in more detail in the text, as appropriate.

1.6.3 Other Reuse Guidance

DoD published its *Base Redevelopment and Realignment Manual* in March 2006 as a handbook to support DoD facilities in the disposal process (DoD 2006). In May 2006, the DoD Office of Economic Adjustment (now known as the Office of Local Defense Community Cooperation) published its *Base Redevelopment Planning for BRAC Sites*. The guide describes the base closure and reuse processes designed to support local communities in the reuse planning process and lists the many assistance programs administered by DoD and other agencies.

1.7 Public and Governmental Engagement

The Army provides for early engagement in the EIS environmental review process with other federal agencies; local, state, and tribal governments; and affected and interested communities, entities, and individuals. The Army conducts this engagement before a decision is made (DoD NEPA Procedures Part 1.8). Public participation in the NEPA

process promotes open communication between the public and the Army as well as better decision-making.

1.7.1 The Scoping Process

The scoping process aids in determining the scope of issues for analysis in an EIS, identifying substantive issues and eliminating from detailed consideration issues that are not substantive, making the analysis and documentation more efficient by providing focus on the effort (DoD NEPA Procedures Part 1.8(c)). During the scoping process, the Army seeks comments on alternatives and their effects as well as relevant information, studies, and analyses pertaining to the Proposed Action. The results of that process help to define the scope of issues and analyses addressed in the EIS. It is designed to involve the public early in the EIS process. Public comments are solicited through the mail, media advertisements, and both agency and public scoping meetings. Although informal comments are welcome at any time during the NEPA process, the scoping period and scoping meetings provide formal opportunities for public participation in and comment on the environmental impact analysis process.

The Army's public involvement requirements are identified in Part 1.8 of the DoD NEPA Procedures. The NEPA public involvement process is driven by required publication dates and public review periods. The Army observed an almost 60-day scoping period that began with publication of the notice of intent (NOI) to prepare the EIS on December 20, 2024, in the *Federal Register* (89 FR 104109, December 20, 2024) and on mycarrollcountynews.com, and on December 19, 2024, in the print edition of the *Savanna Times-Journal* (Appendix D). The NOI announced the Army's intention to prepare the EIS for the SVADA LRA Parcel 20 Proposed Action, solicited comments from the public, provided information on how and when comments could be submitted, and invited the public to attend a public scoping meeting.

The Army held the EIS public scoping meeting at West Carroll High School, 500 Cragmoor Street, Savanna, IL, on January 16, 2025, from 5:00 p.m. to 6:30 p.m. In addition to the public scoping meeting, the Army also held a scoping meeting for federal and state agencies and federally recognized Native American tribes on January 16, 2025, from 10:00 a.m. to about 1:00 p.m. at the USFWS UMRNWFR Ingersoll Wetlands Learning Center, 7071 River Road, Thomson, IL.

The Army developed a list of more than 300 stakeholders, including federal, state, and local politicians; federal, state, and local government agencies; federally recognized tribes; organizations in Carroll and Jo Daviess counties; businesses on the SIP; and nearby home- and landowners. The stakeholder list also includes nongovernment organizations that support underserved communities. Those agencies and organizations include health departments, housing authorities, mental health services, senior services, veterans services, and public and private charitable organizations. The Army mailed an invitation to the public scoping meeting to everyone on the stakeholder list. The Army also emailed invitations on December 19, 2024, to all for whom email addresses were available and sent reminder emails on January 9, 2025. The Army sent invitations to the agency and tribe scoping meeting on December 18, 2024, by Federal Express, and on December 19, 2024, by email. A total of 24 people attended the agency and tribe scoping meeting, and 38 people attended the public scoping meeting.

At the scoping meetings, the Army provided an overview of the Proposed Action and alternatives and the opportunity for government, organization, tribal, and public input. Comments could be provided orally during the public scoping meeting to a court reporter or in writing during the scoping period. Written comments could be provided on the comment card provided at the scoping meetings, by email to SVADAEIS@tetratech.com, or by U.S. Postal Service to SVADA EIS c/o Tetra Tech, 107 St. Francis Street, Suite 2370, Mobile, AL 36602. All written comments received in person at the scoping meetings or in writing during the scoping period were considered in developing the Draft EIS. Scoping is an iterative process, and comments are welcomed at any point during the development of the Draft EIS; however, the Army requested they be provided or postmarked by the end of the scoping period on February 15, 2025, to ensure their full consideration in the development of the Draft EIS.

1.7.2 Summary of Scoping Comments

During the scoping process, 55 stakeholders provided the Army with a total of 65 comment submissions by comment form, email, letter, or statements made to a court reporter for a total of 297 comments. Comments were provided by federal, state, and local agencies and elected officials, Native American tribes; businesses; and private citizens. Most of the comments pertained to the LRA Reuse Alternative.

Following is a list of issues commented on during the scoping period; it is not all inclusive. A scoping report about public scoping and the public scoping meetings, including the stakeholder distribution list, invitation letters and emails, and copies of all scoping comments received, are provided in the scoping report in Appendix E.

- Air emissions from construction equipment and dredging for, as well as operation and maintenance of, the proposed port
- Aquatic restoration implementation and management
- Breach of the landfill cover system
- Development in a floodway
- Development of and assigning responsibility for best management practices (BMPs) and mitigation measures
- Disturbance, alteration, or removal of aquatic and terrestrial habitat
- Disturbance of archaeological sites
- Disruption of habitat connectivity and ongoing restoration projects in the Mississippi River
- Disturbance of munitions and munitions constituents
- Dredged material characterization, management, and disposal
- Dredging impact on streams and wetlands
- Encroachment on areas outside the boundaries of LRA Parcel 20 (Apple River, Apple River Island, Brickhouse Slough, Mississippi River, and UMRNWFR); in particular, federal lands and waters in the UMRNWFR

- Impact on the navigation channel and river training structures (e.g., wing dams)
- Increase in commercial traffic on the Mississippi River
- Increase in noise and traffic (river and road) and effect on nearby residences
- Investigation and remediation of per- and polyfluoroalkyl substances (PFAS)
- Job development
- Land use compatibility with the existing natural and recreational land use
- Maintenance of land use controls (LUCs)
- Permits or permissions required under Section 10 of the Rivers and Harbors Appropriation Act of 1899 (Rivers and Harbors Act) (33 U.S.C. § 403), Section 401 of the Clean Water Act (CWA) (33 U.S.C. § 1251), Section 404 of the CWA, and Section 408 of the Rivers and Harbors Act, *Taking possession of, use of, or injury to harbor or river improvements* (33 U.S.C. § 408)
- Sediment transport
- Threatened and endangered (T&E) species
- Violation of federal law (e.g., Endangered Species Act (ESA) (16 U.S.C. §§ 1531–1543) and National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. § 668dd *et seq.*))

1.7.3 Draft EIS Public Review

The Draft EIS is available for public review and comment for 45 days, beginning on December 11, 2025, and ending on February 2, 2026. The Army is holding a public meeting for the Draft EIS on January 13, 2026, in Savanna, IL. The Army published on December 11, 2025, an invitation to comment on the Draft EIS and attend the public meeting in the *Savanna Times-Journal* and on mycarrollcountynews.com, and published notice of the Draft EIS on December 12, 2025, in the U.S. Environmental Protection Agency's (USEPA's) *Federal Register* Notice of Availability. The Army also sent an invitation via the U.S. Postal Service to the relevant federal, state, and local agencies; tribal governments; and other interested parties. Appendix F provides a distribution list.

The Draft EIS is available on the project website at https://www.lrd.usace.army.mil/Public-Notices/Programs/Article/3901394/base-realignment-and-closure-brac/.[1] The Draft EIS also is available at the Savanna Public Library District, 326 3rd Street, Savanna, IL 61074 and the Hanover Township Library, 204 Jefferson Street, Hanover, IL 61041. The public is invited to submit comments to the Army by email at SVADAEIS@tetratech.com or by the U.S. Postal Service to SVADA EIS c/o Tetra Tech, 107 Saint Francis Street, Suite 2370, Mobile, AL 36602. Comments should be submitted no later than February 2, 2026.

[1] The original project website address used from December 2024 to March 2025 was https://www.lrd.usace.army.mil/Submit-ArticleCS/Programs/Article/3901394/. USACE had to change the URL in March 2025, however, to comply with new directives from the White House.

The Army respectfully requests that input provided on the Draft EIS be substantive in nature. Generally, substantive comments are specific in (1) challenging the analysis, methodologies, or information in the EIS as being factually inaccurate or analytically inadequate; (2) identifying effects not analyzed or developed and evaluating reasonable alternatives or feasible mitigations not considered by the Army; or (3) offering specific information that might either have a bearing on the decision, such as differences in interpretations of significance or scientific or technical conclusions, or result in changes or revisions in the proposal. Non-substantive comments, which do not require a specific Army response, are generally considered to be those that (1) are nonspecific; (2) express a conclusion or an opinion; (3) agree or disagree with the proposal; (4) vote for or against the proposal itself, or some aspect of it; (5) state a position for or against a particular alternative; or (6) otherwise state a personal preference or opinion. All substantive comments, either written or verbal, received during the scoping period will be given full and equal consideration in the preparation of the Final EIS.

1.8 Interagency and Intergovernmental Coordination and Consultation

The Army encourages agency and tribal participation in the NEPA process and conducted interagency and intergovernmental coordination and consultation agencies and tribes in developing this EIS.

The Army originally initiated interagency and intergovernmental coordination and consultation for this project as an environmental assessment (EA) in early 2020. The project was put on hold, however, while the LRA developed its reuse plan for the parcel. After receiving the 2023 LRA Reuse Plan, the Army reinitiated consultation with agencies and tribes in November 2023. Based on information received during the EA scoping process, the Army determined preparation of an EIS would be appropriate.

Early coordination letters for the EIS were sent to agencies and federally recognized Native American tribes in August and September 2024. The Army sent two other letters to the agencies and tribes: one on February 27, 2025, to notify them of additional cultural archaeological sites that could be affected by reuse of LRA Parcel 20, and one on July 17, 2025, to notify them of additional dredging in the river proposed by the LRA. Correspondence related to interagency and intergovernmental consultation is included in Appendix G.

SECTION 2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 Proposed Action

The Proposed Action is the Army's disposal of LRA Parcel 20 by transferring it to the LRA or other appropriate recipient(s) for their reuse. This EIS analyzes the potential direct effects of the Army conveying LRA Parcel 20 and the potential indirect effects of reuse of the parcel. Once the parcel is transferred, it would pass beyond the administrative control of the Army. All subsequent use of the land would be independent of the Army. The Proposed Action Area is defined as the boundaries of LRA Parcel 20, as shown on Figure 1.1-2.

2.1.1 Primary Action—Disposal

The Army's primary action would be the disposal of the LRA Parcel 20 excess and surplus property generated by the BRAC-mandated closure of SVADA, including interim leases and cleanup of contaminated sites. Commander's Pond (formerly known as Ordnance School Lake) is located within LRA Parcel 20 and is part of the parcel to be transferred.[2] The Apple River borders the parcel but is not part of the parcel to be transferred. Also excluded from the parcel transfer will be the Burlington Northern Santa Fe (BNSF) Railway right-of-way (ROW) that bisects the parcel from northwest to southeast and a sewage treatment plant owned by the Army, which is surrounded by LRA Parcel 20 (Figure 1.1-2). The sewage treatment plant is located on 1.4 acres. The Army's disposal alternative is discussed in Section 3.2.

2.1.2 Secondary Action—Reuse

The Army's disposal of LRA Parcel 20 involves identifying potential recipients of the property based on expressions of interest submitted in response to the Army's Declaration of Excess Property and Determination of Surplus Property. As a result of the screening process detailed in Section 2.3.4.3, LRA Parcel 20 is available for transfer or conveyance to and subsequent reuse by the LRA or other appropriate recipient(s). Reuse of LRA Parcel 20 is a secondary, non-Army action resulting from the Army's primary action of disposal. Proposed Reuse Alternatives are discussed in detail in Section 3.3.

2.2 Predisposal Process

The BRAC process of disposing of LRA Parcel 20 has included contaminated site cleanup and caretaking of its vacated facilities. The Army identified encumbrances applicable to LRA Parcel 20 consistent with requirements of law, agency negotiation, and protection of environmental resources (see Section 3.2.1).

[2] Commander's Pond is alternatively referred to as "Ordnance School Lake" in various figures and prior analyses contained in this EIS.

2.2.1 Contaminated Site Cleanup

The Army's past use of LRA Parcel 20 resulted in the release of various types of contaminants at three CERCLA cleanup sites: Cleanup Site 20, Abandoned Landfill; Cleanup Site 73, Stables Landfill; and Cleanup Site 178, Ordnance School Lake. Cleanup Site 20 is in long-term management status. The Army will continue groundwater sampling at Cleanup Site 20 into 2026 to ensure that contaminant levels continue to decrease, no contaminant rebound occurs, and the landfill cap is functioning properly. Furthermore, groundwater sampling associated with the SVADA site-wide PFAS site investigations (SIs) that commenced in October 2023 detected PFAS constituents exceeding screening levels at Cleanup Site 20; therefore, the Army has recommended the site undergo a remedial investigation (RI) for PFAS based on the results of the SI (Knuth 2024b, personal communication).

Remedial action was completed at Cleanup sites 73 and 178. In accordance with the *Base Redevelopment and Realignment Manual*, DoD prefers that military department cleanup decisions be based on current use of the property. Current land use of LRA Parcel 20 is considered industrial and open space. Remedial actions at Cleanup sites 20, 73, and 178 were conducted to enable commercial/industrial land use of the sites (USACE, Louisville District 2019a, 2019b).

In preparing to dispose of LRA Parcel 20, the Army is following the provisions of Section 120(h)(3) of CERCLA, which require a covenant warranting that all remedial actions necessary to protect human health and the environment from any hazardous or toxic substances remaining on the property were taken before the date of transfer. In addition to the Army's obligations under CERCLA, SVADA, of which the subject parcel is a part, was identified under the Resource Conservation and Recovery Act (RCRA) (42 U.S.C. § 6901) as a Non-Generators/No Longer Regulated facility.

Under the Community Environmental Response Facilitation Act (CERFA) (P.L. 102-426), federal agencies are required to expeditiously identify real property that offers the greatest opportunity for immediate reuse and redevelopment. CERFA does not mandate that the Army transfer real property identified as available; rather, it is the first step in satisfying the objective of identifying real property where no CERCLA-regulated hazardous substances or petroleum products were disposed of or released. To that end, the Army is preparing an update to the 1999 EBS that will identify areas on the parcel where release or disposal of hazardous substances or petroleum products or their derivatives occurred (USACE, Mobile District 1999). The EBS also will identify non-CERCLA-related environmental or safety issues (e.g., the presence of asbestos-containing materials [ACM], lead-based paint, radon, polychlorinated biphenyls [PCBs], radionuclides, or unexploded ordnance [UXO]), which would potentially limit or preclude the transfer of property for unrestricted use; completed or ongoing removal or remedial actions taken at LRA Parcel 20; and possible sources of contamination on adjacent properties that could migrate to the LRA Parcel 20 property.

2.2.2 Caretaking of Property until Disposal

The BEC remains at SVADA to provide caretaker services, including oversight of facility maintenance and operation, property accountability, local interface with community

leaders and the LRA, and on-the-ground coordination of the environmental cleanup and property conveyance efforts (DCSG9 2020). Caretaker services also will include coordination and RI efforts related to PFAS detected at Cleanup Site 20.

Until the property title is transferred to the LRA or other appropriate recipient, the Army will continue as caretaker of the parcel, conducting minimal activities to ensure security, health, and safety and to avoid physical deterioration. The Army conducts maintenance at the minimum level for surplus government property, as required in 41 CFR § 102-75.945, *Management of Excess and Surplus Real Property*, and 32 CFR § 174.14, *Revitalizing Base Closure Communities and Addressing Impacts of Realignment, Maintenance and Repair*.

2.2.3 Interim Uses

Before disposal, the Army may execute interim leases to facilitate state and local economic adjustment efforts and to encourage economic redevelopment. The Army may enter into an interim lease after, but not before, the completion date of the NEPA analysis of disposal and reuse of the parcel. Before entering into the lease, the Army will consult with the lessee. An interim lease would allow limited use of the property and facilities to the extent that no reasonable reuse options would be foreclosed before the publication of the conclusions of the NEPA analysis. The LRA has proposed solar PV arrays atop the capped landfill within LRA Parcel 20 as an interim lease use.

2.3 Real Estate Disposal Process

This section describes the Army's real estate disposal process.

2.3.1 Disposal as a Package or in Parcels

Army policy provides that, upon completion of all required hazardous substance cleanup activities and cleanup that might be required for other environmental conditions (e.g., ACM, petroleum products, or other substances), surplus property subject to disposal under BRAC should generally be disposed of as a single parcel. Except for the PFAS RI at Cleanup Site 20, the Army has remediated environmental cleanup sites on LRA Parcel 20 to meet established regulatory cleanup requirements, which is required before the property can be transferred. The RI that will determine the extent of PFAS contamination and cleanup requirements is ongoing. The Army intends to dispose of LRA Parcel 20 in its entirety at one time and not to subdivide it.

2.3.2 Disposal Conveyance

The disposal of LRA Parcel 20 by the Army to the LRA or other appropriate recipient will be through a development conveyance, such as an EDC or a public benefit conveyance (PBC). The LRA prefers parcel transfer through a no-cost EDC.

2.3.3 Screening Process

DoD and Federal Agencies. The Army began the screening process by offering its excess property to other DoD agencies and federal agencies for their potential use. LRA Parcel 20 was originally managed by USFWS under an MOA beginning in 2003, but the

agency withdrew its interest in the property in 2016. No requests for LRA Parcel 20 have been made to the Army by any other federal agencies.

LRAs. Pursuant to the Base Closure Community Redevelopment and Homeless Assistance Act of 1994 (P.L. 103-421), LRAs coordinate with state and local governments, representatives of the homeless, and other interested parties to screen surplus property. LRA's outreach to potential users or recipients of the property includes working with the Department of Housing and Urban Development and other federal agencies that sponsor public benefit transfers under the FPASA. The 2023 LRA Reuse Plan considers the notices of interest submitted to the authority and reflects an overall reuse strategy for the parcel.

The required outreach to homeless providers began with the LRA publishing a notice in the *Federal Register* (83 FR 2430, January 17, 2018). The LRA also published a notice in local newspapers and sent letters to area agencies about a notice of interest workshop held on March 20, 2018. The notice of interest process ended on May 17, 2018. Salvation Army representatives attended the March 20, 2018, workshop and later sent a letter to the LRA stating they would not be submitting a notice of interest. The Freeport Area Church Cooperative expressed interest in selling or leasing the land to a business to create an income stream to spend on homeless initiatives but did not submit a notice of interest. No organizations that provide housing or services for the homeless submitted a notice of interest in the surplus property. Consequently, the LRA received no legally binding agreements for consideration or action.

Public Agencies. Consistent with the FPASA, the LRA completed the notice of interest process, sending screening notices to federal agencies that approve or sponsor PBCs and to appropriate state and local agencies in the vicinity of the property.

The LRA received one notice of interest from the Upper Mississippi River International Port District on May 2, 2018. The District formally withdrew its interest in pursuing a PBC on January 4, 2023.

SECTION 3.0 ALTERNATIVES

This section describes the No Action Alternative, the Disposal Alternative, and the Reuse Alternatives. The Army's Proposed Action is the Accelerated Disposal Alternative, which is the Army's Preferred Alternative. This EIS evaluates three Reuse Alternatives: a recreation-only reuse alternative, a recreation and solar reuse alternative, and a reuse alternative proposed by the LRA in its 2023 LRA Reuse Plan that focuses on creating a port. The Army expresses no preference with respect to reuse because reuse is not an Army action.

3.1 Alternative 1: No Action Alternative

Under Alternative 1, the No Action Alternative, the Army would continue to provide limited caretaking of LRA Parcel 20. The No Action Alternative is required by DoD NEPA Procedures Part 2.3(a)(3) and NEPA Section 102(2)(c)(iii). It serves as the baseline against which the Proposed Action and other alternatives are compared. Accordingly, the No Action Alternative is evaluated in detail in this EIS.

3.2 Alternative 2: Accelerated Disposal Alternative

Pursuant to the Base Closure Act and the Army surplus property notice pertaining to LRA Parcel 20 (Appendix H), continued use of excess property at SVADA is not practical for the Army because there is no alternative to excess property disposal without further legislative action.[3] The need for the action is to carry out the BRAC recommendation for the closure of SVADA, which became law, and make it available for reuse. Therefore, the Army considered no alternatives to excess property disposal, except the No Action Alternative prescribed in the DoD NEPA Procedures. Interim actions include caring for vacated facilities and, as circumstances arise, making interim leasing arrangements.

Under Alternative 2, the Accelerated Disposal Alternative, the Army would take advantage of various property transfer and disposal methods that allow reuse of the property before environmental remedial action has occurred. One method is to defer the requirement to complete environmental cleanup and allow an early transfer of the property. Such deferral requires concurrence of environmental authorities and the governor of the state. The property must be suitable for the new owner's intended use, and that use must be consistent with protection of human health and the environment. Another method is to transfer the property to a new owner who agrees to perform all environmental remediation, waste management, and environmental compliance activities required for the property under federal and state requirements (U.S. Army 2006). The Accelerated Disposal Alternative would transfer or dispose of the parcel prior to completion of environmental remediation and other environmental clearance but with a commitment by the Army to complete remediation or fund remediation to completion.

[3] The Army published a surplus property notice for a 132-acre portion of SVADA in January 2018 (80 FR 2430, January 17, 2018).

3.2.1 Encumbrances Applicable to the Accelerated Disposal Alternative

The Army has identified natural and man-made resources on LRA Parcel 20 that must be protected after ownership transfers out of federal control using environmental baseline information developed early in the NEPA process. These property reuse limitations are encumbrances that can affect the transferability of the property and restrict its future use. The 2023 LRA Reuse Plan considers the encumbrances.

Encumbrances identified for LRA Parcel 20 include cultural resources protection, floodplain protection, groundwater use prohibition, land use restrictions, remedial activities, and wetlands protection. Subsections 3.2.1.1 through 3.2.1.6 discuss the specific encumbrances that would apply at the time of transfer or conveyance of LRA Parcel 20. Environmental constraints on and in the proximity of LRA Parcel 20 are shown on Figure 3.2-1. Environmental constraints adjacent to LRA Parcel 20 include flood zones, the UMRNWFR, wetlands, and a portion of the east shoreline of Brickhouse Slough south of LRA Parcel 20, which has been designated as an Environmentally Sensitive Area (Site 13-E-4) by USACE (see September 6, 2024, letter from USFWS UMRNWFR, in Appendix G3).

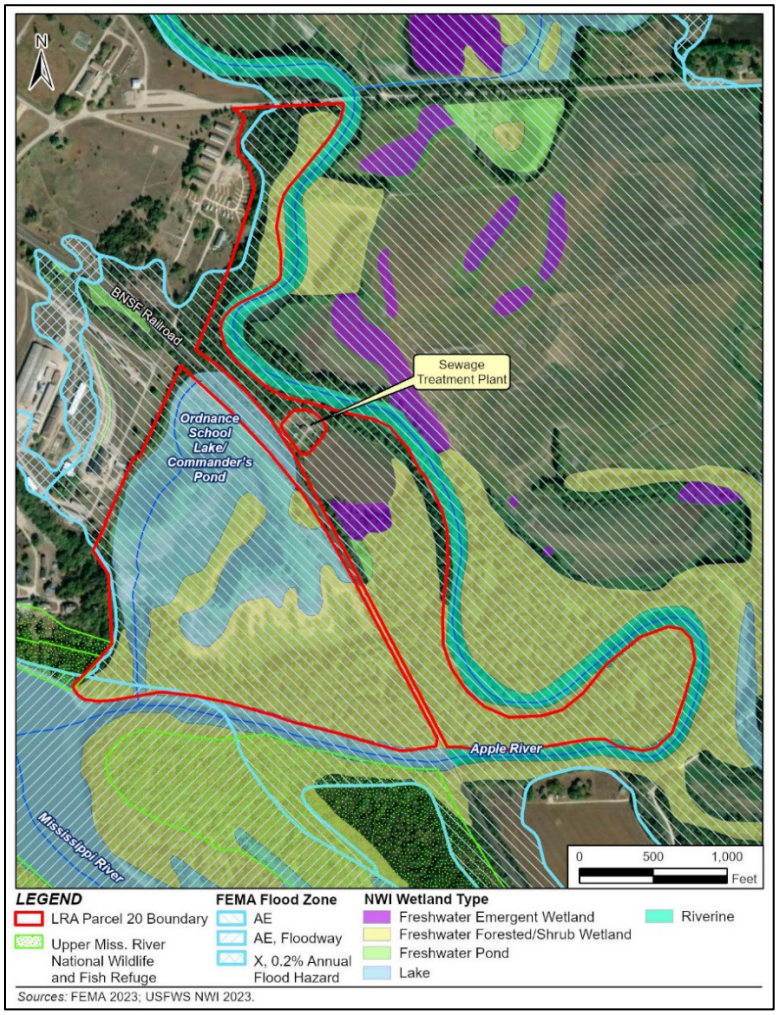


Figure 3.2-1. Environmental Constraints Map.

3.2.1.1 Cultural Resources Protection

The 2000 PA concerns the treatment of SVADA properties eligible for listing in the National Register of Historic Places (NRHP) during the disposal of installation land (AMC 2000; USACE, Mobile District 1997, 1999). In accordance with the 2000 PA (Appendix I), sites that are potentially eligible or are eligible for listing in the NRHP require land use restriction encumbrances in the form of a preservation covenant (AMC 2000). A complete Phase I archaeological survey of LRA Parcel 20 was conducted in 2020 to determine site eligibility. LRA Parcel 20 has no known buildings, structures, or traditional cultural properties currently listed in the NRHP. Two archaeological sites within LRA Parcel 20 (Site 11CA1 and Site 11CA142) are listed as eligible for the NRHP (Kruchten 2025, personal communication). The Illinois State Historic Preservation Office (IL SHPO) determined that a third archaeological site within LRA Parcel 20 (Site 11CA194) is not eligible for listing in the NRHP (IL SHPO 2020). Table 3.2-1 summarizes the two eligible sites requiring a preservation covenant.

Table 3.2-1. Eligible Archaeological Sites on LRA Parcel 20

Site number	Site type	Location on LRA Parcel 20	Survey status
11CA1	Prehistoric habitation area	Northern boundary	Phase I completed in 2020
11CA142	Prehistoric habitation area	Adjacent to Commander's Pond outlet confluence with the Apple River	Phase I completed in 2020

Sources: Kruchten 2025, personal communication; Perash and Sweeny 2021.

In a letter dated December 24, 2020, the IL SHPO concluded that the land transfer (disposal) as initially proposed would have no adverse effects on the two eligible sites. The letter stipulated that any plan modifications must include IL SHPO notification. The Army is consulting under the National Historic Preservation Act of 1966 (NHPA) (16 U.S.C. § 470 *et seq*., as amended) Section 106 for this EIS with the Advisory Council on Historic Preservation (ACHP), the IL SHPO, and the following federally recognized tribes: the Ho-Chunk Nation of Wisconsin, Kickapoo Tribe of Oklahoma, Little Traverse Bay Bands of Odawa Indians of Michigan, Menominee Indian Tribe of Wisconsin, Meskwaki Nation/Sac & Fox Tribe of the Mississippi in Iowa, Miami Tribe of Oklahoma, Osage Nation, Sac & Fox Nation of Missouri in Kansas and Nebraska, Sac & Fox Nation of Oklahoma, and Winnebago Tribe of Nebraska.

Before ground-disturbing activities at a site or final NRHP eligibility evaluations are conducted, the IL SHPO might require additional site testing and/or mutually agreeable mitigation actions in accordance with NHPA Section 106, the PA, and the preservation covenant.

3.2.1.2 Floodplain Protection

LRA Parcel 20 is in a 100-year floodplain (FEMA 2023). EO 11988, *Floodplain Management*, requires a federal agency to prepare a finding of no practicable alternative (FONPA) when there is no practicable alternative to construction in a floodplain. If Alternative 5 is implemented, it would be built in a floodplain because the proposed port would have to be on the water, and there would be no practicable alternative. The Army, therefore, has prepared a FONPA for Alternative 5 (Appendix J). In consideration of EO 11988, Army property conveyance documents will notify property transferees of their obligations to adhere to applicable restrictions on the property imposed by federal, state, and local floodplain regulations. For example, Carroll County adopted a floodplain ordinance in 2010 that regulates development in floodplains (Carroll County 2010).

3.2.1.3 Groundwater Use Prohibition

Transfer or conveyance of LRA Parcel 20 would include an environmental covenant that limits the use of groundwater at Cleanup Site 20, Abandoned Landfill (USACE, Louisville District 2016a). The restriction will be formally documented in the transfer document between the recipient(s) of LRA Parcel 20 and the Army and enforced by the State of Illinois as part of the Uniform Environmental Covenants Act (UECA) (Chapter 765 Illinois Compiled Statutes [ILCS] § 122 *et seq.*).

3.2.1.4 Land Use Restrictions

The Army's environmental restoration efforts will attempt to facilitate land use and redevelopment needs. The Army could restrict certain types of future land use (e.g., residential use), impose institutional controls, or take other actions affecting land use to protect human health and the environment. Such restrictions would be included in conveyance documents as restrictions on future land use. The Army has identified LUCs and land use restrictions that would continue indefinitely, even after transfer or conveyance of the property, through an environmental covenant for Cleanup Site 20, Abandoned Landfill, and Cleanup Site 178, Ordnance School Lake (USACE, Louisville District 2016a, 2016b). The LUCs and other encumbrances will be formally documented in the transfer document between the recipient(s) of LRA Parcel 20 and the Army. Remedial action was completed at Cleanup Site 73, and no LUCs or use restrictions were established for the site.

The LUCs for Cleanup Site 20 are the following:

- Maintaining environmental covenants prohibiting agricultural use, residential use, access to groundwater, and intrusive activities at the site to prevent exposure through contact and use of surficial aquifer groundwater, unless prior written approval is obtained from the Army, USEPA, and Illinois Environmental Protection Agency (IEPA).
- Protecting human receptors from contact with the soil contaminants of concern and landfill waste by maintaining the site in accordance with the landfill's operation and maintenance plan and as required by Title 35 of the Illinois Administrative Code (IAC) § 811.111, *Standards for New Solid Waste Landfills, Postclosure Maintenance*.

- Maintaining Army, USEPA, and IEPA review of LUC inspections and approval processes.
- Prohibiting unauthorized intrusive activity into or excavation of the landfill cap.
- Maintaining the vegetated, engineered landfill cap to prevent erosion gullies and localized settlement.
- Using the site boundaries to limit site access—the BNSF Railway ROW and fencing along the western boundary of the landfill site, and wetlands and the Apple River on the northeastern, eastern, and southern boundaries of the landfill site.
- Maintaining the signs and engineered cap delineation posts along the boundary of the landfill site (USACE, Louisville District 2016a, 2019a).

The LUC for Cleanup Site 178, Ordnance School Lake, is to maintain the environmental covenant for the nearshore ecological and health risk prohibiting residential use (USACE, Louisville District 2016b). The LUC at Cleanup Site 178 is considered permanent unless it can be demonstrated that contaminant concentrations have attenuated to a level at which land use restrictions are no longer required to be protective of human health and the environment (USACE, Louisville District 2016b).

3.2.1.5 Remedial Activities

The Army will retain responsibility for remedy integrity at Cleanup Site 20, Abandoned Landfill (USACE, Louisville District 2019a). The Army has recommended the site undergo an RI for PFAS (see Section 2.3.1) (Knuth 2024b, personal communication). In conjunction with remedial activities that might be required during an interim lease or upon conveyance, the Army would retain the right to conduct investigations and surveys; to have government personnel and contractors conduct field activities; and to construct, operate, maintain, or undertake any other response or remedial action as required.

3.2.1.6 Wetlands Protection

A 2024 wetland delineation identified 126.72 acres of wetlands on LRA Parcel 20 (about 96% of the parcel) (Tetra Tech 2024). Areas classified as wetlands are regulated under the CWA; EO 11990, *Protection of Wetlands*; and Illinois law. To assist future transferees in understanding their obligations under Section 404 of the CWA with respect to activities that might affect wetlands, the Army would notify prospective transferees of their responsibility to adhere to CWA Section 404 permitting requirements for activities in or related to wetlands. EO 11990 directs federal agencies to minimize the destruction, loss, and degradation of wetlands and requires preparation of a FONPA when there is no practicable alternative to construction in a wetland. If Alternative 5 is implemented, it would result in the destruction, loss, or degradation of wetlands because the proposed port would have to be on the water and there would be no practicable alternative. The Army, therefore, has prepared a FONPA for Alternative 5 (Appendix J).

3.3 Alternatives 3, 4, and 5: Reuse Alternatives

Under Part 2.3(b)(3) of the DoD NEPA Procedures, DoD may but is not required to analyze environmental effects from other projects separate in time or place, that fall outside DoD's regulatory authority, or that would be initiated by a third party, if doing so would assist in reasoned decision-making and if there is a reasonable line relating the effects of such projects to those of the proposed action. As the reuse of LRA Parcel 20 could not occur in the absence of the Army's Proposed Action to dispose of the parcel, property reuse is evaluated as an indirect, secondary action following the Army's direct, primary action of disposal. The Army expresses no preference with respect to reuse because reuse is not an Army action. This EIS evaluates three Reuse Alternatives (alternatives 3 through 5): Alternate 3, Recreation-Only Reuse Alternative; Alternative 4, Recreation and Solar Reuse Alternative; and Alternative 5, LRA Reuse Alternative. Sections 3.3.1, 3.3.2, and 3.3.3 describe the Reuse Alternatives.

3.3.1 Alternative 3: Recreation-Only Reuse Alternative

Alternative 3 would implement only recreational elements on LRA Parcel 20 (see Table 3.3-1 and Figure 3.3-1). The recreational elements would include an elevated, boardwalk-style, low-impact walking trail through the parcel; a concrete canoe and kayak ramp on Commander's Pond; and a grass-covered recreational area atop the capped Cleanup Site 20, Abandoned Landfill, which could include recreational fields, a dog park, and picnic tables or gazebos. The boardwalk and recreational area would be accessible at the entrance of the property from Sewage Plant Road, just south of the sewage treatment plant, where there is an existing, unpaved parking area, which would remain unpaved (JCD LRA 2023; Roche 2025, personal communication). The boardwalk would be elevated sufficiently to accommodate average annual flooding and changes in the terrain (Balcom 2023, personal communication; Davies 2023, personal communication; Roche 2023, personal communication). The boardwalk would cross the railroad tracks at grade (Roche 2025, personal communication). Visitors would carry their canoes and kayaks to the Commander's Pond boat launch access via the boardwalk (Roche 2023, personal communication). Alternatively, there might be a concession at the boat ramp or upstream on the Apple River at an existing privately owned campground just outside LRA Parcel 20 to the north, south of Crim Road, and adjacent to Rofsteck Road at its intersection with Robbe Road, where canoes and kayaks could be rented (Roche 2023, personal communication). A concession would not require any construction or hardstand (Roche 2023, personal communication). The construction staging area would be on the former SVADA parade ground now owned by the LRA, which is a dirt and grass area west of LRA Parcel 20.

Table 3.3-1. Alternative 3: LRA Parcel 20 Recreational Development Features

Development feature	Dimensions	Total area (acres / ft^2)	Impervious area (acres / ft^2)
Construction staging area	1,300 ft x 530 ft	16 acres / 689,000 ft^2	None (dirt and grass field)
Recreational area	675 ft x 755 ft	12 acres / 509,625 ft^2	None (grass field)
Recreational boat ramp for canoes and kayaks	75 ft x 70 ft	0.1 acre / 5,250 ft^2	0.1 acre / 5,250 ft^2
Recreational boat ramp access trail for canoes and kayaks	300 ft x 10 ft	0.07 acre / 3,000 ft^2	None (elevated boardwalk with gapped panels for water drainage)
Recreational trail (elevated boardwalk)	9,500 ft x 10 ft	2.2 acres / 95,000 ft^2	None (elevated boardwalk with gapped panels for water drainage)

Sources: JCD LRA 2023; Roche 2025, personal communication.
Notes: ft = feet; ft^2 = square feet.

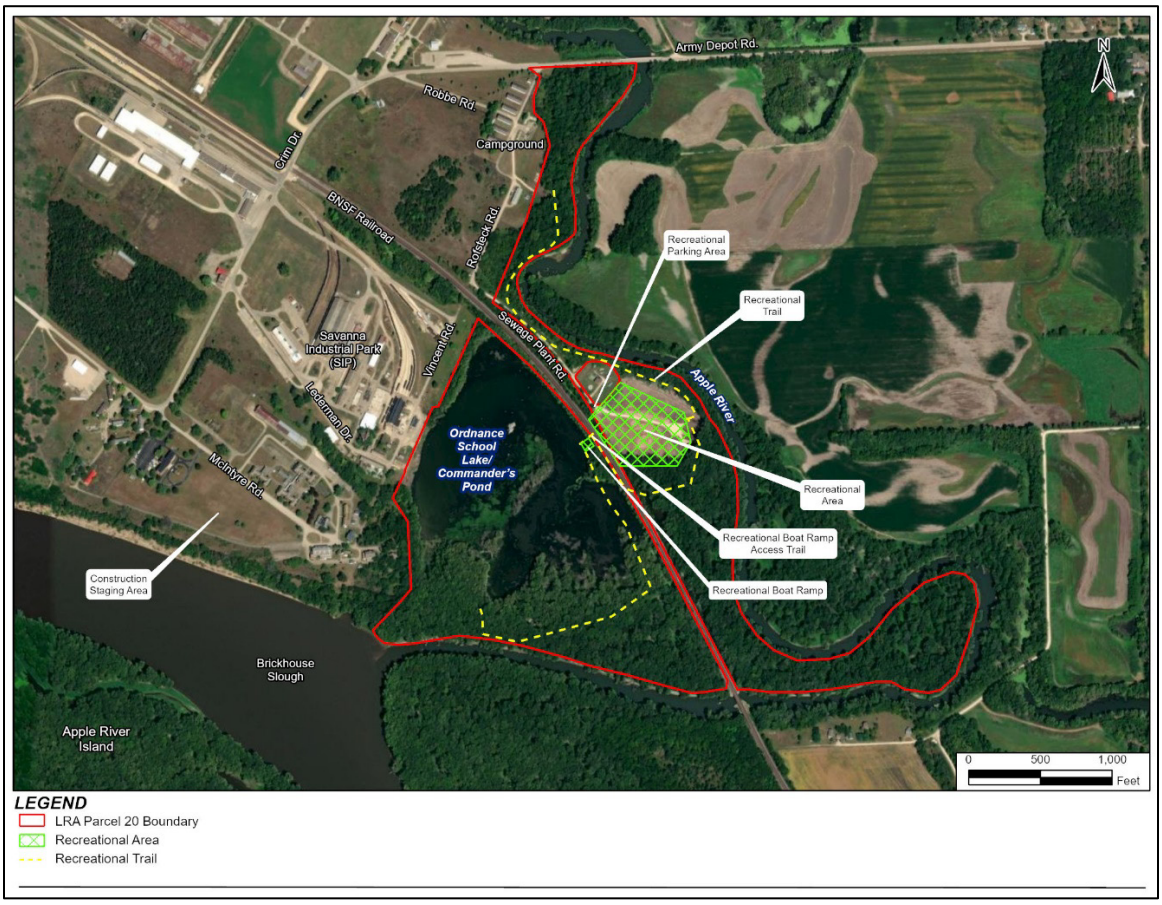


Figure 3.3-1. Alternative 3: Recreation-Only Reuse Alternative.

3.3.2 Alternative 4: Recreation and Solar Reuse Alternative

Alternative 4 would include the recreational development features of an elevated, boardwalk-style walking trail and a concrete canoe and kayak ramp as described for Alternative 3, but not the recreational area atop the capped Cleanup Site 20, Abandoned Landfill. Instead, solar PV arrays would be installed on top of the landfill (see Table 3.3-2 and Figure 3.3-2). The anchoring method for the solar PV arrays has not yet been determined, but it is assumed it would have a permeable base and it is acknowledged that it must be compliant with USEPA criteria for maintaining the integrity of the landfill cap (Roche 2025, personal communication). The power produced by the solar PV arrays could be used on-site, fed into the local power grid, or a combination of the two, depending on coordination with the local power utility (Davies 2025, personal communication). The boardwalk and solar PV arrays would be accessible at the entrance of the property from Sewage Plant Road, just south of the sewage treatment plant, where there is an existing, unpaved parking area that would remain unpaved (JCD LRA 2023; Roche 2025, personal communication). The construction staging area would be on the former SVADA parade ground now owned by the LRA, which is a dirt and grass area west of LRA Parcel 20.

Table 3.3-2. Alternative 4: LRA Parcel 20 Recreational and Solar Development Features

Development feature	Dimensions	Total area (acres / ft^2)	Impervious area (acres / ft^2)
Construction staging area	1,300 ft x 530 ft	16 acres / 689,000 ft^2	None (dirt and grass field)
Recreational boat ramp for canoes and kayaks	75 ft x 70 ft	0.1 acre / 5,250 ft^2	0.1 acre / 5,250 ft^2
Recreational boat ramp access trail for canoes and kayaks	300 ft x 10 ft	0.07 acre / 3,000 ft^2	None (elevated boardwalk with gapped panels for water drainage)
Recreational trail (elevated boardwalk)	9,500 ft x 10 ft	2.2 acres / 95,000 ft^2	None (elevated boardwalk with gapped panels for water drainage)
Solar PV arrays	675 ft x 755 ft	12 acres / 509,625 ft^2	None (would use permeable ground cover)

Sources: JCD LRA 2023; Roche 2025, personal communication.
Notes: ft = feet; ft^2 = square feet.

Figure 3.3-2. Alternative 4: Recreation and Solar Reuse Alternative.

Cleanup Site 20, Abandoned Landfill, is not closed yet. Because the landfill post-closure has not been completed and IEPA has not issued a certification of completion of post-closure care, the landfill owner/operator (whether it is the LRA or another recipient) would be required to obtain a Landfill Development Permit from the IEPA Bureau of Land (BOL) before installing an array. To receive a permit from BOL, the landfill owner/operator would have to demonstrate to BOL that development and operation of the solar PV arrays would not impair any of the landfill's environmental monitoring and control systems, including the landfill cap (IEPA 2024). The owner/operator also would need to maintain the LUCs established in the *Final Land Use Control Implementation Plan, Site 20 Abandoned Landfill, Savanna Army Depot Activity, Savanna, Illinois* (USACE, Louisville District 2019a).

The engineering design of the solar PV arrays would need to take into consideration the landfill characteristics, including cover system components, orientation of the cap, settlement potential, slope, stability, other landfill system components (e.g., stormwater management, and gas and leachate collection and treatment systems), weather (e.g., flooding potential, freeze-thaw, ice, and snowpack), and the anchoring system. The anchoring system is the foundation of the PV system and the interface between the PV system and landfill cap. Anchoring systems that do not involve deep foundations and, therefore, are more suitable for a landfill are ballasted systems, shallow poured concrete footers/prefabricated concrete footings, and concrete slabs. Ballasted systems are the

most common anchoring method for PV systems on landfills. They are typically composed of a flat tray or large concrete block placed on the landfill cap, with the array support structure attached to the tray or concrete block (USEPA 2022a). The solar PV array engineering design also must take into consideration landfill stability and settlement potential. As a landfill's trash decomposes, it can cause shifts in topography, which would affect the PV anchoring system and landfill cap. No design details for solar PV arrays on Cleanup Site 20 were available at the time of the preparation of this EIS.

3.3.3 Alternative 5: LRA Reuse Alternative

In its 2023 LRA Reuse Plan, the LRA proposes to develop LRA Parcel 20 primarily as a port, but with some recreational features and possibly solar development. The LRA proposes to implement port development in three phases (JCD LRA 2023). The LRA's proposed port development reuse would include activities outside the boundary of LRA Parcel 20 in the Apple River, Brickhouse Slough, and Mississippi River and along Apple River Island (which USACE owns but USFWS manages as part of the UMRNWFR). LRA Parcel 20 is adjacent to the UMRNWFR. Because Alternative 5 includes port features outside LRA Parcel 20 boundaries, the area of potential effects (APE) for Alternative 5 extends beyond LRA Parcel 20 to include those areas.

The Alternative 5 phases are listed in Table 3.3-3 and shown in Figures 3.3-3, 3.3-4, and 3.3-5. Phase 1 could be implemented within a target 5-year completion window, while Phase 2 and Phase 3 could follow, with both having 5-year-plus completion windows (JCD LRA 2023).

Brickhouse Slough of the Mississippi River lies between LRA Parcel 20 and Apple River Island, with access to the Apple River and the main channel of the Mississippi River (Figure 1.1-2). Phase 1 of Alternative 5 would require dredging in Brickhouse Slough and Mississippi River main channel. Phases 2 and 3 would require dredging in Commander's Pond. The LRA's estimated cost for dredging is listed in Table 3.3-4.

Although a dredged material management plan has not been developed, current LRA project planning provides that dredged material would be removed from Brickhouse Slough, Commander's Pond, and the Mississippi River and temporarily managed within the SIP on LRA parcel(s) in an engineered dewatering and temporary storage containment area. The methodology for removing dredged material, transporting it to temporary storage or its ultimate disposal has not been defined; however, it can be expected that some environmental effects may result. This will need to be addressed by the LRA as part of CWA Section 404 and Rivers and Harbors Act Sections 10 and 408 permitting actions. Final dredged material disposition—either reuse or disposal at an appropriate disposal facility—would depend on soil characterization and regulatory requirements. The LRA would have its dredging contractor screen and monitor the sediments, collecting sediment samples prior to material placement (Roche 2025, personal communication). Dredged material would be managed within the boundaries of the SIP in accordance with applicable federal, state, and local regulatory requirements. Current planning assumptions provide that such material would be staged within an engineered containment area for dewatering and interim storage. The duration and extent of temporary land disturbance would be proportional to the volume of material staged and the operational footprint necessary to support these activities. Following soil

characterization and determination of suitability under applicable regulatory standards, dredged material may be reused within the SIP for approved purposes such as grading, fill, or other site development activities. If dredged material is reused on-site, those areas would undergo permanent alteration of existing land conditions; however, because the SIP constitutes a previously developed brownfield site with a documented history of industrial and military uses, all activities would occur within disturbed or previously altered lands.

USACE and the U.S. Coast Guard (USCG) manage navigation features such as buoys, lights, revetments, and wing dams in the Mississippi River main channel and in Brickhouse Slough. The LRA had no plans for altering those structures at the time this EIS was being prepared but acknowledged that would be determined in future discussions between the fleet operator and USACE and USCG (Roche 2025, personal communication). LRA anticipates that access and egress to the port from the Mississippi River main channel would be from the north end of Apple River Island (Roche 2025, personal communication).

Table 3.3-3. Alternative 5: LRA Reuse Alternative Development Features and Dredging by Phase for LRA Parcel 20

Development features by phase

Development features by phase	Development features by phase	Development features by phase	Development features by phase
Barge fleeting area (Apple River Island)	X		
Bulk liquid transfer line, 10,980 LF (LRA Parcel 20 and Brickhouse Slough)	X		
Conveyor system, 10,500 ft x 2 ft (LRA Parcel 20 and Brickhouse Slough)	X		
Dry and liquid bulk wharf, 800 ft x 100 ft (Brickhouse Slough)	X		
Floating dry dock, 120 ft x 80 ft (Brickhouse Slough)	X		
LOLO wharf, 350 ft x 50 ft (this is also included in the L-shaped LOLO wharf listed below)			X
L-shaped LOLO wharf, 600 ft x 50 ft and 290 ft x 75 ft		X	
Recreational parking area (existing, unpaved)	X		

Development features by phase	Development features by phase	Development features by phase	Development features by phase
Recreational boat ramp for canoes/ kayaks, 75 ft x 70 ft	X		
Recreational boat ramp access trail for canoes/kayaks (elevated boardwalk), 300 ft x 10 ft	X		
Recreational trail (elevated boardwalk), 9,500 ft x 10 ft	X		
Recreational area or solar PV arrays atop capped landfill, 675 ft x 755 ft	X		
Repair fleeting area, 450 ft x 120 ft			X
Travel lift piers (two at 200 ft x 20 ft) with a landside dry dock (750 ft x 65 ft)		X	
Wharf access road, 425 ft x 40 ft (LRA Parcel 20 and Brickhouse Slough)	X		
Dredging (in Brickhouse Slough and Commander's Pond) by phase			
Dredging (estimated acreage)	414 acres	18 acres	42 acres[a]
Dredging volumes (estimated yd^3)			
Brickhouse Slough and Mississippi River	Long Reach: 1,080,533 Short Reach: 399,228 Overlap Area: (205,862) Total: 1,273,899		
Commander's Pond dredge cut		Contaminated:190,739 Noncontaminated:333,794[b] Total: 524,533	
Commander's Pond aquatic habitat restoration area			Contaminated:114,069 Noncontaminated:199,620[b] Total: 313,689
Cumulative dredge volume by phase (yd^3)	1,273,899	1,798,432	2,112,121

Sources: Balcom 2025a, 2025b, 2025c, personal communication; Gajjar 2023a, 2023b, 2023c, personal communication; JCD LRA 2023; Roche 2025, personal communication.
Notes: ft = feet; LF = linear feet; LOLO = lift-on/lift-off; yd^3 = cubic yards.
a. Includes 16 acres of aquatic habitat restoration area.
b. Managed as contaminated until sampling results determine otherwise.

Table 3.3-4. Alternative 5: LRA Estimated Dredging Cost by Dredge Area

Dredge area	Estimated cost
Brickhouse Slough	$12,783,000
Commander's Pond dredge cut	$14,782,000
Commander's Pond aquatic habitat restoration area	$8,840,000

Source: Balcom 2025a, personal communication.

Phase 1. Phase 1 of Alternative 5 prioritizes development of a barge fleeting area along Apple River Island, a dry bulk and liquid bulk wharf on Brickhouse Slough with a road connecting the wharf to the SIP, and recreational and solar uses on LRA Parcel 20. The LRA calculated they would need to dredge 1,273,899 cubic yards (yd^3) from Brickhouse Slough to allow access from the Mississippi River to the slough and enable both the fleeting and construction of the wharf in the slough. The dredging in Brickhouse Slough would include a "long reach" that would extend north from Commander's Pond and a "short reach" that would extend south from Commander's Pond (Figure 3.3-3). The long reach would be dredged to a depth of 12 feet (ft) and have a partial turning basin at the northern end of Apple River Island for access to the Mississippi River main navigation channel. The short reach also would be dredged to a depth of 12 ft.

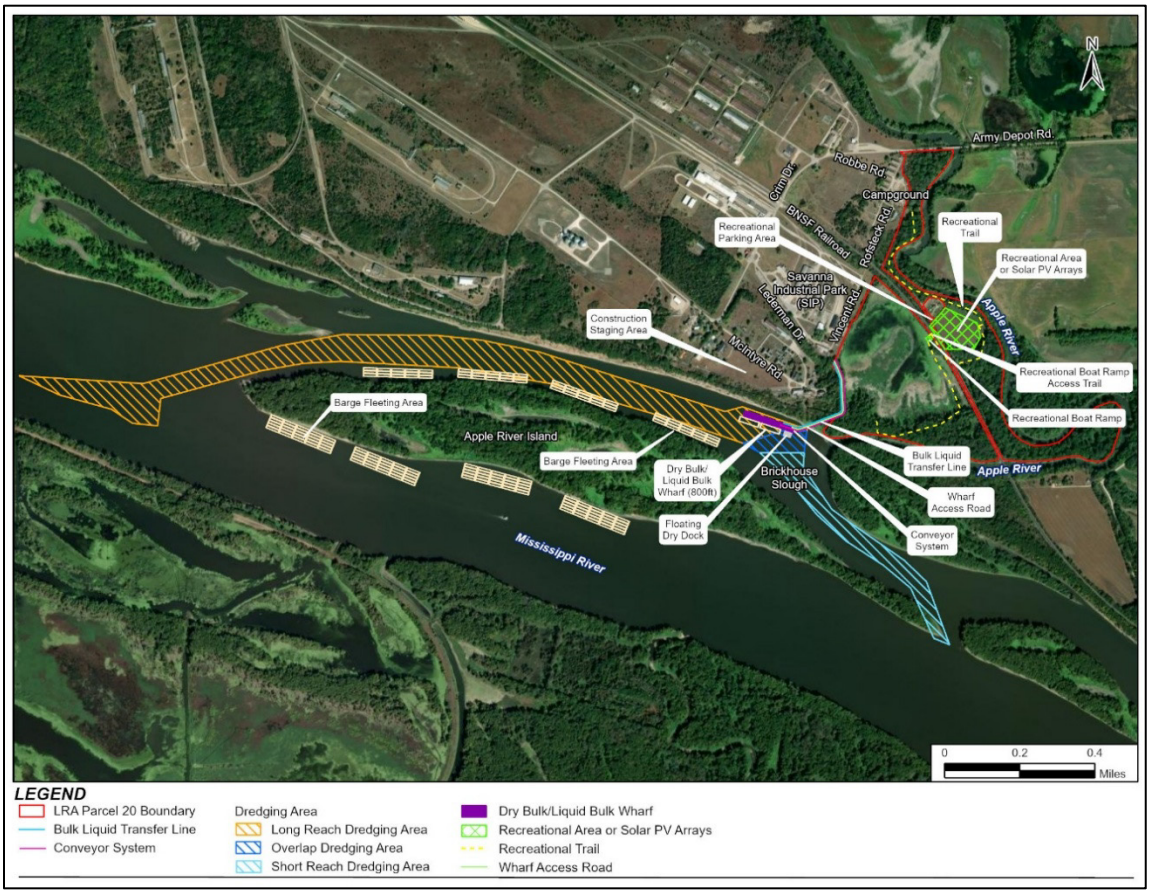


Figure 3.3-3. Alternative 5: LRA Reuse Alternative Phase 1.

A small portion of the proposed dredging area of the short reach at the southern end of Apple River Island—estimated at approximately 0.6 acre—is intermittently exposed or seasonally inundated land, as evidenced by the absence of mature vegetation such as trees. Depending on the timing of dredging activities, it could be submerged and treated as sediment removal or exposed during low water periods and thus more accurately classified as soil removal. In either case, that portion represents less than 0.5% of the total 414 acres of proposed dredging in Brickhouse Slough under Phase 1 of Alternative 5 and is not expected to significantly affect the overall scope or impact of the dredging project.

Key port infrastructure under Phase 1 includes the barge fleeting area, a conveyor system, a dry and liquid bulk wharf, a floating dry dock, a bulk liquid transfer line, and a wharf access road. Fleeting would provide barge "parking areas," where cargo is loaded and offloaded. The barge fleeting area is proposed for both the Mississippi River channel on one side of Apple River Island and Brickhouse Slough on the other side. At the time this EIS was prepared, the LRA had determined the barges would be secured with dolphins,[4] but the locations would be coordinated in the future with USACE as part of the fleeting and permitting approval process under Section 10 of the Rivers and Harbors Act (Roche 2025, personal communication).The fleeting area would be able to accommodate up to eight spud barges on both the channel and slough sides. The channel side could accommodate about 5,600 ft of fleeting, with 5-wide barge widths. The slough side could accommodate about 5,500 ft of fleeting, with 3-wide barge widths. The dry and liquid bulk wharf in Brickhouse Slough would support handling of two 300-ft barges simultaneously. The wharf also would have a floating dry dock for minor repair of barges and tugboats. The wharf would be the interface between the landside northeast of it and the waterside southwest of it for dry bulk and liquid bulk commodities via conveyor and transfer line, respectively. The wharf access road would be a new road that would run from the wharf in Brickhouse Slough, along Commander's Pond, and converge with Lederman Drive on the SIP at its intersection with Vincent Road. The LRA also refers to Lederman Drive as the "haul road."

Phase 1 of Alternative 5 also would include recreational features on LRA Parcel 20, as described under Alternative 3 in Section 3.3.1. The recreational features would include an elevated, boardwalk-style recreational trail leading to a concrete canoe and kayak ramp on Commander's Pond and possibly a recreational area atop the capped Cleanup Site 20, Abandoned Landfill (JCD LRA 2023). In place of the recreational area, the LRA also is considering solar PV arrays atop the capped landfill, as described under Alternative 4 in Section 3.3.2 (Balcom 2023; Balcom 2024, personal communication). The landfill owner/operator would be required to obtain a Landfill Development Permit from the IEPA BOL for the solar PV arrays, maintain the LUCs, and implement appropriate engineering design elements as described under Alternative 4. If the LRA decides on the solar PV arrays, the LRA may pursue an interim lease use that would allow it to construct the solar PV arrays after the NEPA documentation is finalized but before property transfer of LRA Parcel 20 to the LRA would be completed (Balcom 2023). The power produced by the solar PV arrays could be used on site, fed into the local power grid, or a

[4] Dolphins are a cluster of closely driven piles for mooring boats.

combination of the two, depending on coordination with the local power utility (Davies 2025, personal communication).

Phase 2. Phase 2 of the Alternative 5 includes additional dredging and elements of port development (Figure 3.3-4). It would require about 18 acres of dredging within Commander's Pond for the wharf and to provide access from the wharf to Brickhouse Slough. Phase 2 adds an L-shaped lift-on/lift-off (LOLO) wharf on Commander's Pond to support the expansion of specialty and break-bulk cargos and dry-dock capacity. The wharf would support handling of two 250-ft barges simultaneously. Travel lift piers would provide accessibility to the larger landside dry-dock area, an expansion of the capacity, and boat repair beyond the floating dry dock (JCD LRA 2023).

Figure 3.3-4. Alternative 5: LRA Reuse Alternative Phase 2.

Phase 3. Phase 3 of Alternative 5 adds additional dredging and port facilities (Figure 3.3-5). It would require about 42 acres of dredging within Commander's Pond, with 26 acres accounting for cargo activities and the remaining 16 acres dedicated to aquatic habitat restoration. The aquatic habitat restoration area would be actively managed (Roche 2025, personal communication). Port facilities would include another LOLO wharf of 350 ft to increase wharf handling capacity and a repair fleeting area. The LOLO wharf would support handling of two 250-ft barges simultaneously (JCD LRA 2023).

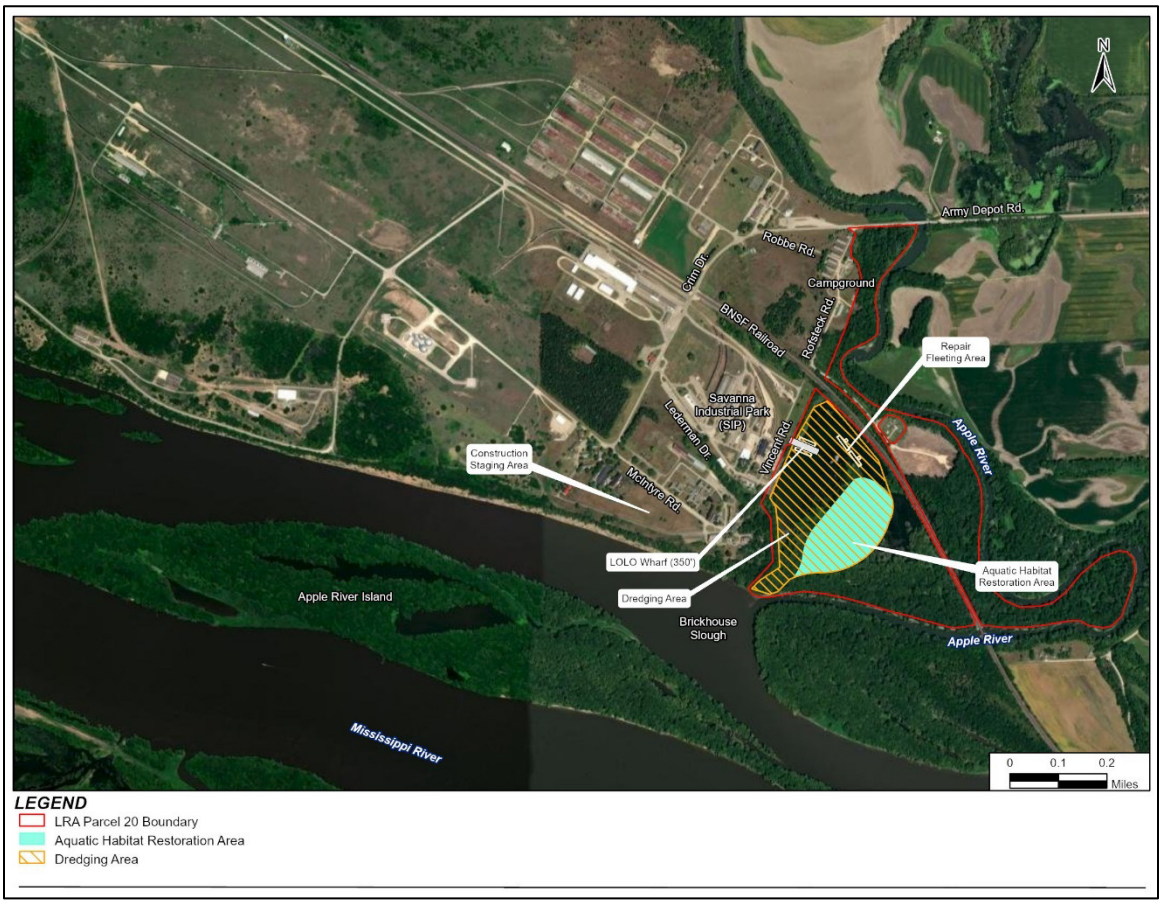


Figure 3.3-5. Alternative 5: LRA Reuse Alternative Phase 3.

Alternative 5 port, recreational, and solar development feature dimensions and acreage are listed in Table 3.3-5. Note that the LRA would implement either the recreational area or the solar PV arrays, not both. In total, Alternative 5 would result in facilities equal to about 1.6 million square feet (ft^2), or 37 acres, of built facilities at complete build-out, but only 151,650 ft^2, or 3.4 acres, would be impervious area (see Table 3.3-5). The construction staging area would be on the former SVADA parade ground now owned by the LRA, which is a dirt and grass area west of LRA Parcel 20 (Figure 3.3-5).

Table 3.3-5. Alternative 5: LRA Reuse Alternative Dimensions and Acreage of Land and Water Area Development Features

Development feature	Dimensions	Total area (acres / ft^2)	Impervious area (acres / ft^2)
Construction staging area	1,300 ft x 530 ft	16 acres / 689,000 ft^2	None (dirt and grass field)
Conveyor system	10,500 ft x 2 ft	0.5 acre / 21,000 ft^2	None (elevated)
Dry and liquid bulk wharf	800 ft x 100 ft	1.8 acres / 80,000 ft^2	1.8 acres / 80,000 ft^2
Floating dry dock	120 ft x 80 ft	0.2 acre / 9,600 ft^2	None (over water)
LOLO wharf (also included in L-shaped LOLO wharf listed below)	350 ft x 50 ft	0.4 acre / 17,500 ft^2	None (over water)
L-shaped LOLO wharf	600 ft x 50 ft and 290 ft x 75 ft	1.2 acres / 51,750 ft^2	None (over water)
Bulk liquid transfer line	10,980 LF	N/A	N/A
Recreational boat ramp for canoes/kayaks	75 ft x 70 ft	0.1 acre / 5,250 ft^2	0.1 acre / 5,250 ft^2
Recreational boat ramp access trail for canoes/kayaks	300 ft x 10 ft	0.07 acre / 3,000 ft^2	None (elevated boardwalk with gapped panels for water drainage)
Recreational trail (elevated boardwalk)	9,500 ft x 10 ft	2.2 acres / 95,000 ft^2	None (elevated boardwalk with gapped panels for water drainage)
Recreational area or solar PV arrays atop capped landfill	675 ft x 755 ft	12 acres / 509,625 ft^2	None (would use permeable ground cover)
Repair fleeting area	450 ft x 120 ft	1.2 acres / 54,000 ft^2	None (over water)
Travel lift piers with landside dry dock	Dry dock: 760 ft x 65 ft Piers: Two piers at 200 ft x 20 ft	Dry dock: 1.1 acres / 49,400 ft^2 Piers (two): 0.2 acre / 8,000 ft^2	Dry dock: 1.1 acres / 49,400 ft^2 Piers (two): None (over water)
Wharf access road	425 ft x 40 ft	0.4 acre / 17,000 ft^2	0.4 acre / 17,000 ft^2
Total	N/A	37 acres / 1.6 million ft^2	3.4 acres / 151,650 ft^2

Sources: JCD LRA 2023; Roche 2025, personal communication.
Notes: LF = linear feet; N/A = not applicable.

Port operations would create about 370 total jobs (direct, indirect, and induced) in Carroll and Jo Daviess counties (JCD LRA 2023). Port operations would include shipping and receiving commodities via barge, rail, and truck. Barges would be in tows of up to 15 each (Meyers 2025, personal communication). Port operations also would include the repair of barges and tugboats. Commodities that would be shipped and received would include various dry goods, grains, and liquids:

- Bulk dry goods: Clay, concrete, glass, metal products, nonmetallic minerals, and stone.
- Grains: Corn, distiller's dried grains with solubles (DDGS), sorghum, soybeans, and wheat.
- Bulk liquids: Chemicals, ethanol, fertilizers, and vegetable oil.

The estimated tonnages for commodities inbound (i.e., receiving and unloading at the proposed port) are listed in Table 3.3-6. The estimated tonnages for commodities outbound (i.e., loading and shipping out from the proposed port) are listed in Table 3.3-7. The following assumptions were made for truck, rail, and barge data presented in Tables 3.3-6 and 3.3-7.

- A maximum load truck, typically a semi-trailer, can carry up to 80,000 pounds of grain, in accordance with federal regulations, which is the legal gross vehicle weight limit on most U.S. roads (USACE, Walla Walla District, n.d.).
- A maximum railcar can carry up to 286,000 pounds, including the weight of the railcar itself. The exact capacity depends on the railcar type and size.
- For a barge, a size proportional to the waterway's median size was chosen.

Table 3.3-6. Alternative 5: LRA Reuse Alternative Estimated Annual Inbound Commodity Tonnages for the LRA Parcel 20 Port

Transport mode (SCC)	Grains (tpy / receiving load)	Bulk dry goods (tpy / receiving load)	Bulk liquids (gal / receiving load)	Average inbound loads per year (number)
Straight Truck (SCC 3-02-005-51)	--	--	900,000 / 150	150
Hopper Truck (SCC 3-02-005-52)	80,000 / 2,000	--	--	2,000
Railcar (SCC 3-02-005-53)	4,280 / 30	11,000 / 75	900,000 / 30	135
Barge (SCC 3-02-005-54)	87,500 / 25	175,000 / 50	1,740,000 / 2	77

Sources: Meyers 2025, personal communication; JCD LRA 2023; USACE, Walla Walla District, n.d.
Notes: gal = gallons; SCC = source classification code; tpy = tons per year.

Table 3.3-7. Alternative 5: LRA Reuse Alternative Estimated Annual Outbound Commodity Tonnages for the LRA Parcel 20 Port

Transport mode (SCC)	Grains (tpy / shipping load)	Bulk dry goods (tpy / shipping load)	Bulk liquids (gal / shipping load)	Average outbound loads per year (number)
Straight Truck (SCC 3-02-005-51)	--	--	900,000 / 150	150
Hopper Truck (SCC 3-02-005-52)	--	96,000 / 2,400	--	2,400
Railcar (SCC 3-02-005-53)	42,900 / 300	20,770 / 155	--	455
Barge (SCC 3-02-005-54)	350,000 / 100	3,500 / 10	1,740,000 / 2	112

Sources: Meyers 2025, personal communication; JCD LRA 2023; USACE, Walla Walla District, n.d.
Notes: gal = gallons; SCC = source classification code; tpy = tons per year.

3.4 Alternative 6: Caretaker Status Alternative

The Army has maintained LRA Parcel 20 in caretaker status since USFWS returned it to the Army in 2016, conducting minimal activities to prevent physical deterioration of the property and ensure security, health, and safety. Typical maintenance activities conducted on the parcel while it has been in caretaker status include maintaining fences to ensure adequate security, mowing and weed control for aesthetics and fire protection, and trimming and maintaining trees and brush to avoid interference with fences, rail lines, and roadways. The caretaker status alternative is typically analyzed in BRAC NEPA documents when it is evident the Army will not be able to dispose of surplus property or when there are no plans for reuse. The caretaker status alternative has not been carried forward for analysis in this EIS because the LRA has developed a reuse plan for LRA Parcel 20. Instead, the caretaker status alternative has been captured under the No Action Alternative as an existing function of depot operations and as a transitional role in Alternative 2.

3.5 Alternative 7: Traditional Disposal Alternative

Under the Traditional Disposal Alternative, the Army would transfer or dispose of property as environmental remediation and other environmental clearance of individual parcels on the installation have been completed. Environmental remediation actions, however, have not been completed for LRA Parcel 20. Cleanup Site 20, Abandoned Landfill, is undergoing an RI for PFAS.

3.6 Alternatives Analyzed in the EIS

The Army carried forward the following alternatives for detailed study:

- Alternative 1: No Action Alternative
- Alternative 2: Accelerated Disposal Alternative
- Alternative 3: Recreation Only Reuse Alternative
- Alternative 4: Recreation and Solar Reuse Alternative
- Alternative 5: LRA Reuse Alternative.

3.7 Alternatives Eliminated from Detailed Study

Alternative 6, the Caretaker Status Alternative, is equivalent to the No Action Alternative and, therefore, was not carried forward as a separate alternative.

Under Alternative 7, Traditional Disposal Alternative, the Army disposes of or transfers property as environmental remediation and other environmental clearance of individual parcels on an installation have been completed. The Army eliminated the Traditional Disposal Alternative because of the ongoing RI for PFAS on Cleanup Site 20, Abandoned Landfill.

The EIS does not consider removal of the BNSF Railway line from LRA Parcel 20 as it would violate BNSF Railway's ROW and disrupt national rail transportation, disconnecting the rail line from northern and southern points, rendering it and the short-line rail on the SIP inoperable. Such an alternative is not feasible or reasonable and, therefore, was eliminated from detailed study.

The EIS does not consider landfill reclamation (i.e., the complete removal of all contents of a landfill) of Cleanup Site 20. Landfill reclamation involves the risks of uncovering hazardous waste, releasing methane (CH_4) and other gases generated by decomposing waste, and the sink or collapse of adjacent areas into the excavated area (USEPA 1997). The BNSF Railway line is adjacent to the landfill and could be jeopardized. Landfill reclamation also would require finding another method and location for recycling or disposing of the removed waste. These risks, combined with a potentially high cost, make this alternative not feasible or reasonable. It was, therefore, eliminated from detailed study.

SECTION 4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 Introduction

This section describes the current environmental and socioeconomic conditions of LRA Parcel 20 and the surrounding area, and the consequences of implementing the alternatives. Descriptions of the affected environment of LRA Parcel 20 represent baseline, or "as-is," conditions as of April 2025. This baseline has been used to identify by comparison any changes in conditions that would result from implementing the alternatives.

This section addresses the following resource areas of concern in this order: land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics (including protection of children), navigation, transportation, utilities, and hazardous and toxic materials. Each resource area has a dedicated subsection that describes the affected environment and environmental consequences associated with implementing the alternatives in relation to that resource.

In accordance with DoD NEPA Procedures Part 1.2(b), the Army analyzed the affected environment and degree of the potential effects of the alternatives to determine whether they would be significant. The degree of effect is determined by whether the potential effects are short or long term, adverse or beneficial, or direct or indirect. These terms as used in this EIS are defined below:

- Short-term effects–Effects of the action would last only as long as the action is being implemented. For example, the short-term effects of a construction project would cease once construction was completed.
- Long-term effects–Effects of the action would last beyond the implementation phase. For example, conversion of a wooded area to impervious ground would affect habitat availability well after construction was completed.
- Adverse effects–The action would have a negative effect on or be detrimental to the resource.
- Beneficial effects–The action would have a positive effect on or improve the resource.
- Direct effects–Effects that are caused by the action and occur at the same time and place (USAEC 2007). Direct effects would include those occurring on LRA Parcel 20 from the Army's action of disposal of the parcel. The direct effects APE is LRA Parcel 20.
- Indirect effects–Effects that are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable, and may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (USAEC 2007). Indirect effects would include those occurring from the LRA's or other recipient's proposed reuse of LRA Parcel 20. The APE for indirect effects would include LRA Parcel 20 as well as the Apple River, Brickhouse Slough, Mississippi River, and Apple River Island because Alternative 5 has proposed port features or activity (e.g., dredging) that would affect those areas.

The level of environmental adverse and beneficial effects is characterized as no effects, negligible effects, less-than-significant effects, significant-but-mitigable effects, and significant effects, as defined below:

- No effects–No effects on a resource would be expected. An action would have no causal link with the resource area.
- Negligible effects–Effects would be expected but would not be perceptible or apparent. An environmental or socioeconomic resource could be affected but it would be difficult to attribute the effect causally to the action.
- Less-than-significant effects–Effects would not be significant but would be perceptible and readily apparent. Additional care in following standard procedures or applying precautionary measures to minimize adverse impacts from an action could be required.
- Significant-but-mitigable effects–Effects would be significant, but measures proposed to be implemented would reduce the adverse effects of an action to less than significant.
- Significant effects–Adverse effects would be obvious and short or long term and would seriously impair a resource. Mitigation measures would not be able to reduce the level of effect to less than significant.

4.2 Post-Disposal Property Management

Army disposal of the LRA Parcel 20 surplus property would result in management of the property by the LRA or other new owner. Except as encumbrances might affect reuse upon transfer or conveyance, the Army would no longer manage or control activities that occur on the property. Elimination of the Army from land use decision-making would have several ramifications, as discussed in this section.

4.2.1 Proponency Transfer

The Army would not be the proponent for future activities on the LRA Parcel 20 surplus property; proponency responsibilities and obligations would transfer to the new owner. The range of possible outcomes that could follow, including capital improvements, economic development, land use planning, managing facilities, and further transfer or conveyance, would be at the discretion of future managers and owners working with applicable federal, state, and local authorities.

4.2.2 Change in Applicable Controls

Transfer or conveyance of the LRA Parcel 20 surplus property to nonfederal entities would result in losing applicability of some federal policies and adding the applicability of LUCs and state laws and regulations for managing lands and facilities under the ownership of successor entities.

4.2.3 Magnitude of Redevelopment

Upon transfer or conveyance of the LRA Parcel 20 surplus property, the new owner would be solely responsible for planning the redevelopment of the property. The

magnitude of redevelopment would be a function of several factors, all of which (except applicable encumbrances) would be beyond the Army's control.

4.2.4 Mitigation and Best Management Practices

Per DoD NEPA Procedures Part 2.3(a)(6), the Army will identify means to mitigate expected adverse environmental effects in the EIS. Mitigation measures are practices a proponent can implement to avoid or minimize environmental harm and include the following:

- Avoiding an adverse effect by not taking a certain action or parts of an action.
- Minimizing the adverse effect by limiting the degree or magnitude of the action.
- Rectifying the adverse effect by repairing, rehabilitating, or restoring the adverse effect on the affected environment.
- Reducing or eliminating the adverse effect over time by preservation and maintenance activities during the life of an action.
- Compensating for the adverse effect by replacing or providing substitute resources or environments (USACE, New Orleans District 2025).

Examining the potential effects resulting from disposal and reuse of LRA Parcel 20 includes identifying mitigation measures that could prevent, reduce, or compensate for any predicted significant adverse effects. Mitigation generally does not include legal, policy-driven, or regulatory environmental protections, including BMPs that are required to comply with federal, state, or local laws, policies, or regulations. These are considered to be part of the proposed action, rather than mitigation to be selected. Upon disposal, and except as restricted by encumbrances, responsibility for implementing mitigation actions and BMPs would rest with the LRA or other owner of LRA Parcel 20. Mitigation measures and BMPs are addressed under each resource area in sections 4.3 through 4.15.

4.3 Land Use

4.3.1 Affected Environment

Land use describes the human use of land. It represents current use and plans and programs that guide the future use and development of an area. Categories of land use include agricultural, commercial, industrial, military, mixed-use, natural, recreational, and residential.

This section evaluates the existing on-site land uses at LRA Parcel 20 and addresses adopted land use designations, ownership, and management of SVADA and the surrounding areas. Owners and managers of land in the region of influence (ROI) include federal and local governments as well as private organizations and individuals.

Land uses in the vicinity of SVADA are identified through a review of existing federal, state, county, and community-level land use plans. There are no comprehensive federal regulations that address all land use categories. Communities limit allowable land uses in certain areas by implementing general plans and zoning codes. Land use planning ensures compatible land uses and predictable future development. City or county organizations have no existing planning jurisdiction over the LRA Parcel 20 because it is a federally

owned parcel. Nevertheless, the Army incorporates and engages with local planning policies as practicable in its land use decisions. This approach aims to align shared land use goals, address cross-jurisdictional challenges, and support the future conveyance or transfer of parcels.

4.3.1.1 Regional Context: Carroll County, City of Savanna, and the Mississippi River

SVADA spans two Illinois counties: Jo Daviess County to the north and Carroll County to the south. The subject property, LRA Parcel 20, is situated entirely within the jurisdiction of Carroll County. Accordingly, this analysis focuses on land use planning considerations specific to Carroll County to provide relevant regional context. SVADA is located approximately 7 miles north of the nearest population center, the city of Savanna, IL. The broader regional landscape is significantly shaped by the presence of the Mississippi River, which serves as a defining geographic feature. The Mississippi River forms part of the boundary of LRA Parcel 20, the city of Savanna, and Carroll County. As the biggest river in the county,[5] the Mississippi River has a significant influence over regional land use planning and, therefore, is incorporated into this analysis. In terms of broader regional connectivity, the Quad Cities Metropolitan Statistical Area is located approximately 70 miles south of LRA Parcel 20.

Carroll County. Carroll County, located in the far northwest corner of Illinois, spans approximately 467 square miles and is defined by its diverse geography and proximity to the Mississippi River, which forms its western boundary (Figure 1.1-1). The county is split between the glaciated Rock River Hill Country of the Till Plains Section, characterized by rolling hills and prairie soils, and the unglaciated Wisconsin Driftless Section in the northwest, known for its rugged terrain, steep valleys, and tributaries feeding into the Mississippi River. Elevations range from 1,070 ft in the uplands near Shannon, IL, to less than 590 ft along the Mississippi lowlands, highlighting the region's varied topography. More than 90% of the county's land area is devoted to agriculture, including grain and hay farming and livestock production (Appendix K, Figure K-1) (CCRPC 2008).

The Carroll County Comprehensive Plan emphasizes sustainable growth while preserving the county's agricultural and natural resources. Development efforts are designed to maintain the county's rural character and agricultural productivity while supporting infrastructure and regional connectivity. Recreational opportunities in Carroll County encompass a variety of assets, including a state park, riverfront access zones, and multiuse trails such as the Great River Trail.[6] These assets collectively serve as critical components of regional land use (CCRPC 2008).

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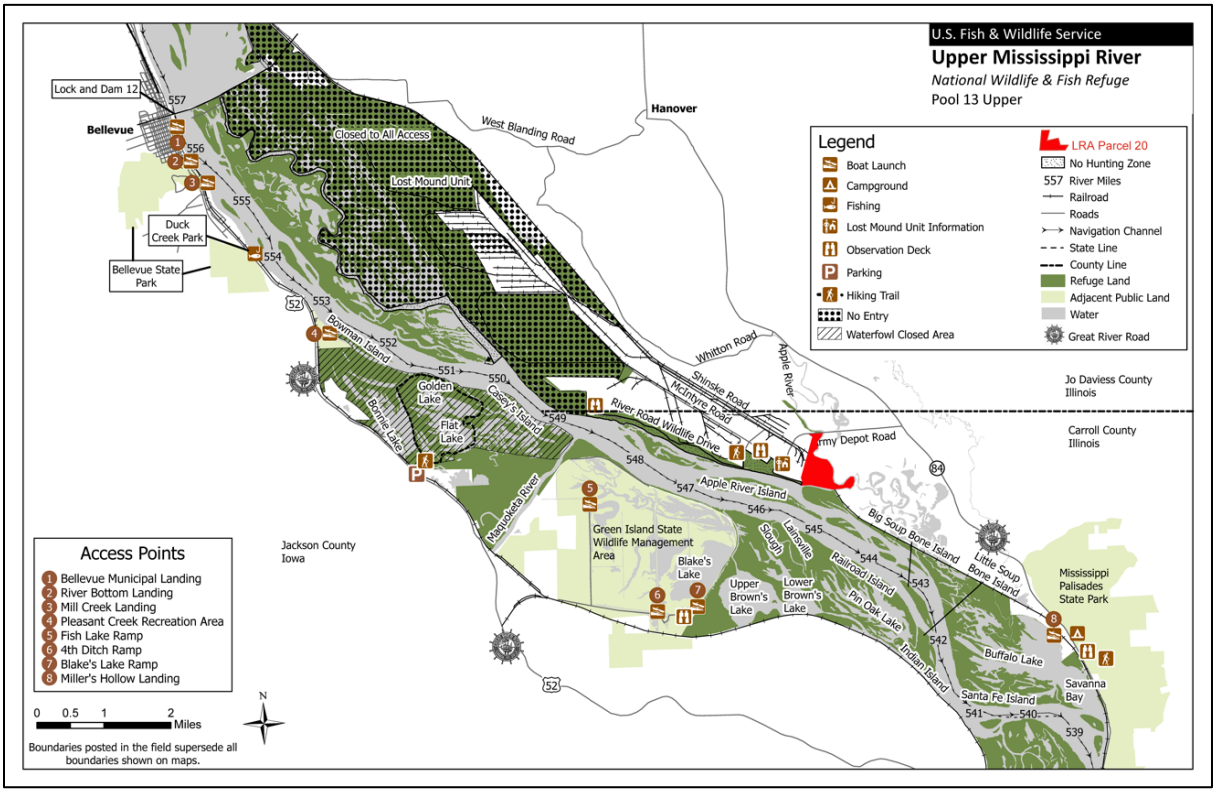
[5] The Mississippi River has the third largest drainage basin in the world. It drains 41% of the 48 contiguous states of the United States. The basin covers more than 1,245,000 square miles, including all or parts of 31 states and two Canadian provinces. Waters from as far east as New York and as far west as Montana contribute to the river's flows.

[6] The Great River Trail is a 66-mile trail that runs beside the Mississippi River from Savanna, IL, to Rock Island, Illinois (QC Trails 2025).

The county is home to the Mississippi Palisades State Park (Figure 4.3-1). The 2,500-acre park is a National Natural Landmark located north of Savanna, IL, in the Driftless Area of the Upper Midwest. The Driftless Area is a unique physiographic region characterized by rugged terrain and a lack of glacial deposit. This protected area features unglaciated terrain, dramatic cliffs, caves, and diverse ecosystems at the confluence of the Mississippi and Apple rivers, serving as both a critical conservation site and a driver of regional tourism and recreation. Mississippi Palisades State Park is located approximately 3 miles downriver from LRA Parcel 20.



Source: USFWS 2024a.

Figure 4.3-1. UMRNWFR in Proximity to LRA Parcel 20.

City of Savanna. Further downriver from LRA Parcel 20 and Mississippi Palisades State Park is the city of Savanna, a rural community in an agriculturally dominant region of Illinois. The city lies along the Mississippi River near its confluence with the Plum River and serves as a key local hub. Covering approximately 2.7 square miles with a population of 2,800 as of the 2020 census, Savanna balances its rural character with its role as a center for commerce, industry, and transportation. Land use within the city is regulated through a structured zoning framework that includes three residential districts, one mixed-use district, four business districts, and one general manufacturing district (City of Savanna 2023).

Savanna lacks direct access to the interstate highway system but is served by major roadways, including U.S. Route 52 and IL 64, which run east-west through the city, and Illinois State Route (IL) 84, the primary north-south arterial along the Mississippi River's eastern bank. The nearest river crossing to LRA Parcel 20 is the Dale Gardner Veterans Memorial Bridge (locally known as the New Savanna-Sabula Bridge) about 7 miles south of the parcel, connecting Savanna to Sabula, Iowa. The area also is supported by two key rail lines: the BNSF Railway, which runs north-south along the Mississippi River and serves the SIP, and the Canadian Pacific Railway, which operates an east-west line crossing the river just south of Savanna into Sabula.

Mississippi River. The Mississippi River significantly influences land use in western Illinois, particularly in Carroll County, through its impact on agriculture, transportation, recreation, and conservation efforts. As a major geographic and economic feature, the river shapes the region's topography and provides fertile soils, particularly in the bottomlands and terraces along its banks, which are ideal for agriculture. Consequently, much of Carroll County's land use is dedicated to farming, with grain and hay crops as well as livestock production benefiting from the river's resources and associated microclimate.

The UMRNWFR spans more than 375 square miles (240,000 acres) along the Mississippi River, from Wabasha, MN, to Rock Island, IL. It serves as a critical land use feature for conservation and habitat protection, encompassing wetlands, forests, and riverine habitats, safeguarding ecosystems for migratory birds, fish, and wildlife while restricting commercial and industrial development. The refuge restricts development within its boundaries while encouraging activities aligned with conservation goals, such as wildlife observation, environmental education, and controlled recreational use, including boating, fishing, and hunting. The refuge also plays a role in floodplain management by allowing the river to flow naturally in many areas, reducing downstream flood risks and preserving water quality. The UMRNWFR is depicted in relation to LRA Parcel 20 in Figure 4.3-1 (USFWS 2024a).

Across the border in Iowa and depicted in light green in Figure 4.3-1 is the Green Island State Wildlife Management Area (WMA). It is located approximately 1.3 miles from LRA Parcel 20 and encompasses approximately 4,000 acres of wetlands, bottomland forests, and prairies. Managed by the Iowa Department of Natural Resources, the WMA supports diverse wildlife habitats; offers opportunities for hunting, fishing, and birdwatching; and plays a vital role in floodplain management and conservation (USACE 2024).

4.3.1.2 Savanna Army Depot Activity and Savanna Industrial Park

Section 1.0 provides a description and background of SVADA, outlining the cradle-to-grave life cycle of the base from establishment to closure, along with the subsequent property disposition process. To avoid redundancy, that information is not reiterated here. The SIP, developed as a direct outcome of this transition, is located adjacent to LRA Parcel 20 on lands previously part of SVADA.

The SIP comprises approximately 3,000 acres of the former 13,000-acre SVADA installation. Administered by the LRA, the SIP is zoned for industrial, commercial, and mixed-use redevelopment. The remaining approximately 10,000 acres of the former SVADA have been or will be conveyed to USFWS, USACE, and IDNR for conservation and resource management (see Table 1.2-1). Appendix K, Figure K-2 outlines the zoning in the SIP in the vicinity of LRA Parcel 20. Upon transfer of ownership of LRA Parcel 20 from the Army to the LRA and subsequent acceptance for redevelopment, the proposed zoning for the parcel will likely include a mix of recreational, industrial, and commercial uses, aligning with the broader development goals of the SIP. The SIP is identified as an "enterprise zone" in the *2014-2015 Development Guide* for northwest Illinois (BHRC 2014).

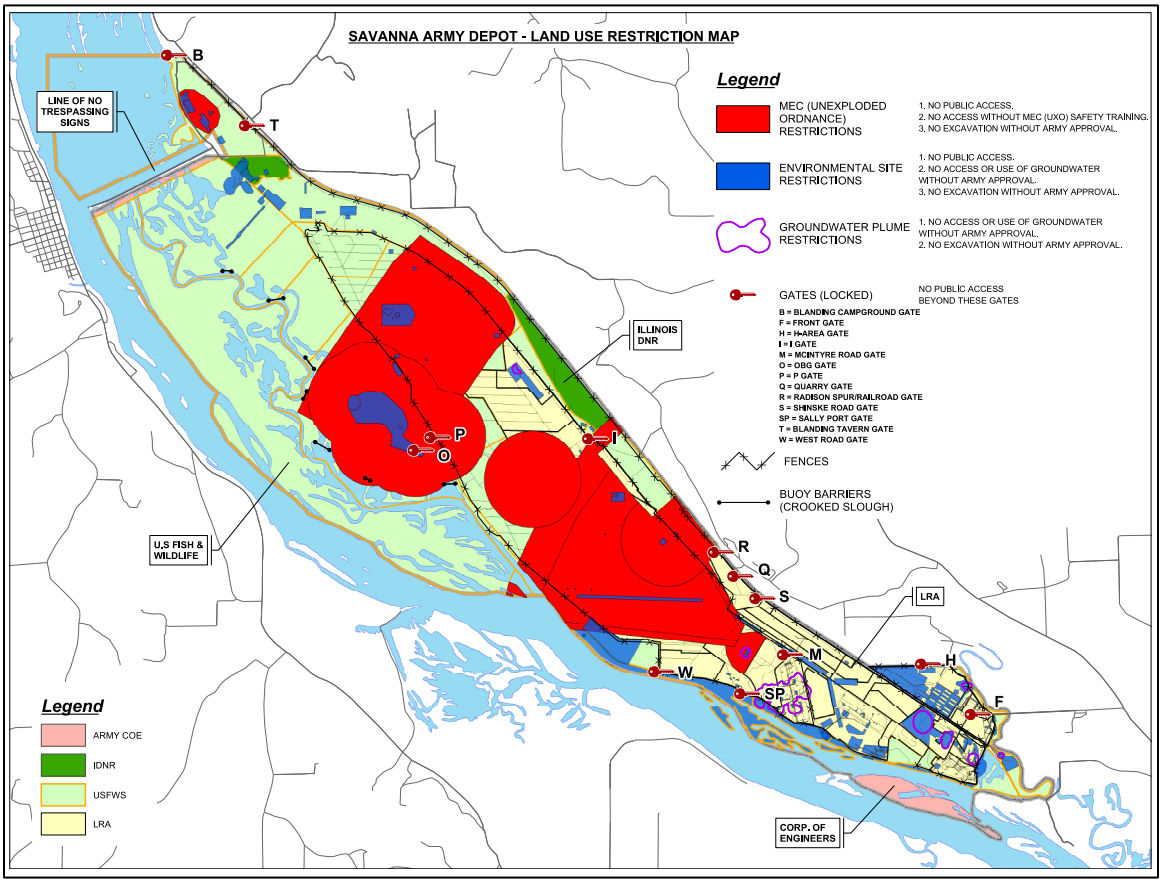
USACE prepared a CERFA report for LRA Parcel 20 and nearby properties on SVADA in 1999 (USACE, Rock Island District 1999). A CERFA report is prepared by USACE under the guidelines of CERCLA (or Superfund) to evaluate federal properties, specifically BRAC military installations, undergoing transfer, sale, or disposal. The report classifies parcels of property into categories 1 through 7, which indicate the types of releases that might have historically occurred on the parcels. Table 4.3-1 describes each of the categories. Areas of Category 1, Category 5, Category 6, and Category 7 exist on LRA Parcel 20.

Table 4.3-1. CERFA Categories

Category	Description
Category 1	Areas where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of those substances from adjacent areas).
Category 2	Areas where only release or disposal of petroleum products has occurred.
Category 3	Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial response.
Category 4	Areas where release, disposal, and/or migration of hazardous substances has occurred and all removal or remedial actions to protect human health and the environment have been taken.
Category 5	Areas where release, disposal, and/or migration of hazardous substances has occurred and removal or remedial actions are underway, but all required remedial actions have not yet been taken.
Category 6	Areas where release, disposal, and/or migration of hazardous substances has occurred, but required actions have not yet been implemented.
Category 7	Areas that are unevaluated or require additional evaluation.

Note: A type category in **boldface** indicates the CERFA category was identified on LRA Parcel 20.

Upon closure and prior to the disposition, transfer, or conveyance of properties at SVADA, land use restrictions were established to ensure enduring safety and environmental compliance. These restrictions fall into three critical categories: (1) munitions and explosives of concern (MEC) (UXO) restrictions; (2) environmental site restrictions; and (3) groundwater plume restrictions (Figure 4.3-2). MEC (UXO) restrictions are implemented to prevent unauthorized excavation, construction, or any activity that might disturb subsurface areas where UXO may remain. Environmental site restrictions address areas where residual contamination from hazardous substances exists, limiting land use to activities that do not compromise the integrity of remediation systems or expose humans or the environment to contaminants. Groundwater plume restrictions are applied to areas where contaminated groundwater plumes persist, prohibiting the use of groundwater for drinking, irrigation, and other purposes until remediation objectives are achieved and ensuring that no actions exacerbate the spread of contamination. Environmental site restrictions exist on LRA Parcel 20 at Cleanup Site 20, Abandoned Landfill.[7]



Source: SVADA 2006.

Figure 4.3-2. SVADA Land Use Restriction Map.

[7] A groundwater plume restriction site also exists at the sewage treatment facility, but that area is not part of LRA Parcel 20.

Given SVADA's past ordnance mission, ordnance and explosives (OE) contamination is known to exist on the property. The OE Archive Search Report identified three impact areas and three previously unrecorded sites contaminated with explosives, estimating 10,239 acres as potentially contaminated and 2,402 acres confirmed contaminated with UXO and OE (USACE, Rock Island District 1999). They are considered hazardous substance sites, requiring investigation and potential remediation under CERCLA to address risks to human health and the environment. Subsequent revisions in 2002 by the Strategic Management, Analysis, Requirements and Technology (SMART) Team reduced the potentially contaminated area to 5,590 acres.[8]

4.3.1.3 LRA Parcel 20

LRA Parcel 20 is in the southernmost portion of the Depot. The parcel encompasses 132 acres of undeveloped forested and open land adjacent to the SIP. It is bounded on the north by Army Depot Road, its eastern and southern extent is the Apple River, and the western boundary includes LRA parcels in the SIP, the sewage treatment plant, and a USFWS parcel. The area includes the low-lying areas associated with the Apple River as well as Commander's Pond. LRA Parcel 20 was previously identified for conservation under USFWS management; however, no formal zoning designation currently applies to the parcel as it remains under federal ownership. LRA Parcel 20 has no airspace restrictions. The Federal Aviation Administration revoked the airspace restriction over the former SVADA (Restricted Area 3302) effective October 5, 2000 (65 FR 49483).

LRA Parcel 20 has no documented history of munitions training activities; however, Commander's Pond and CERCLA Cleanup sites 20 and 73 are located within the boundaries of the parcel. LRA Parcel 20 has undergone investigation and remediation in accordance with the CERCLA process and is not designated as a MEC restrictive area, as illustrated in Figure 4.3-2. The parcel is situated outside areas of the installation historically associated with MEC-related activities. Nonetheless, historical evidence of waste disposal activities within the parcel indicates the potential that munitions disposal may have occurred on LRA Parcel 20 (JCD LRA 2023). Figure 4.3-3 identifies the CERCLA sites located on LRA Parcel 20 and in the vicinity within the SIP.

[8] The SMART Team is a collaborative body established to facilitate the safe and efficient transfer of SVADA property containing OE or UXO. Comprising senior representatives from key decision-making agencies, including the installation, USEPA, the Army Training and Doctrine Command, and the Army Secretariat for Installations and Environment, the SMART Team focuses on developing innovative solutions to regulatory and technological challenges that may impede the property transfer process.

Source: SVADA, n.d.

Figure 4.3-3. LRA Parcel 20 and CERCLA Cleanup Sites.

4.3.2 Environmental Consequences

Effects on land use would be considered significant if an alternative substantially conflicts with existing land use plans, disrupts or replaces existing land uses, or alters zoning or land management designations in a way that affects community planning, public access, public health and safety, or resource management. This includes converting prime agricultural land, open space, or protected areas to incompatible uses.

Alternative 1: No Action Alternative. No effects would be expected. The No Action Alternative would be a continuation of the current state of LRA Parcel 20, with the Army continuing as the caretaker of the parcel. There would be no change in land use.

Alternative 2: Accelerated Disposal Alternative. No effects would be expected. The disposal action consists of transferring or conveying title of real estate for LRA Parcel 20 to the LRA. The Army would transfer the parcel with restrictions in the transfer document for the man-made encumbrances (see Section 3.2.1.4). There would be no change in land use.

Alternative 3: Recreation-Only Reuse Alternative. Short-term, negligible adverse indirect effects and long-term, beneficial indirect effects would be expected. Alternative 3 consists of three interconnected components: (1) an elevated, boardwalk-style walking trail; (2) a canoe and kayak ramp on Commander's Pond; and (3) a recreational area atop the closed and capped landfill. Those projects would result in land disturbances of 2.2 acres for the boardwalk, 0.2 acre for the canoe and kayak access trail and ramp, and 12 acres of disturbed land for the recreational area. There would be additional land disturbances of 16 acres for a construction staging area.[9] Collectively, Alternative 3 would permanently disturb 14.4 acres of the total 132.2-acre LRA Parcel 20. Although LRA Parcel 20 is currently partially forested and largely undeveloped, it is considered a brownfield site for the purposes of this analysis because of the previous activities the Army conducted at SVADA.[10] As a result, no alternative analyzed would result in the conversion of greenfield sites.

Implementing Alternative 3 would not result in the conversion of previously undeveloped land; however, it would introduce both temporary and permanent land disturbances. In total, 11% of the parcel would be permanently impacted to accommodate the three project components described above. Construction activities under Alternative 3 would have short-term, negligible adverse effects, primarily due to land clearing, grading, and construction on previously disturbed areas, including temporary construction laydown areas and parking facilities. Upon completion, land use within LRA Parcel 20 would transition from unused surplus land to recreational use. From a land use perspective, the Proposed Action would have minimal impacts, as all project activities would be confined to previously developed areas and would not alter existing land use designations or zoning classifications. Additionally, Alternative 3 would provide a long-term beneficial impact by expanding public recreational opportunities on lands currently inaccessible for public use.

Alternative 4: Recreation and Solar Reuse Alternative. Short-term, negligible adverse indirect effects and long-term beneficial indirect effects would be expected. The land use impacts of Alternative 4 would be largely consistent with those of Alternative 3, as both alternatives involve three interconnected components and comparable levels of land

[9] Alternatives 3, 4, and 5 all feature 16 acres of temporary land disturbance from construction staging/laydown areas. Construction staging areas are classified as temporary land disturbances rather than permanent alterations, as they are used exclusively for the duration of construction activities. Upon project completion, these areas would be restored to their preexisting conditions in accordance with applicable regulations and site restoration requirements.

[10] "Brownfields" are lands that were previously developed and whose expansion, redevelopment, or reuse may be complicated by the presence (or potential presence) of a hazardous substance, pollutant, or contaminant. In contrast, "greenfields" are raw land, unconstrained and uncontaminated by previous development activity.

disturbance. In Alternative 4, however, the recreational area atop the closed landfill would be replaced by a solar array, altering the long-term land use of that portion of LRA Parcel 20. Total temporary and permanent land disturbances under Alternative 4 would be the same as described for Alternative 3.

As with Alternative 3, construction activities would result in temporary land disturbances, including land clearing, grading, and the establishment of temporary laydown areas and parking facilities, leading to short-term, negligible adverse effects. Over the long term, land use would transition from unused surplus land, but with a reduction in public recreational opportunities due to the presence of the solar array instead of a dedicated recreational area. Consequently, the overall level of recreational use within LRA Parcel 20 would be lower under Alternative 4 than under Alternative 3. Because all activities would remain within previously developed areas, however, Alternative 4, like Alternative 3, would not convert greenfield sites and would not alter existing land use designations or zoning classifications. Long-term impacts would be negligible.

Alternative 5: LRA Reuse Alternative. Short- and long-term, significant adverse indirect effects would be expected. Alternative 5 would result in the greatest extent of both temporary and permanent land use disturbances within LRA Parcel 20 compared to the other alternatives. These impacts also would extend beyond the subject parcel into adjacent aquatic and riparian zones within the project area, as shown on Figures 3.3-3 through 3.3-5. Alternative 5 would result in the same 16 acres of temporary ground disturbance for construction laydown areas as alternatives 3 and 4. It would increase permanent ground disturbance within LRA Parcel 20 by an additional 7 acres beyond the levels described for alternatives 3 and 4, however, resulting in a total of 21.4 acres of permanent land disturbance. Beyond these ground disturbances, Alternative 5 includes a three-phase implementation plan that would result in aquatic disturbance from dredging to an additional 60 acres on-site and 414 acres off-site, within the channel located between LRA Parcel 20 and Apple River Island (i.e., Brickhouse Slough) and extending into the main channel of the Mississippi River. In total, dredging in Alternative 5 would disturb 474 acres.

Following full implementation of Alternative 5, a total of 97 acres would be subject to ground and aquatic disturbances on-site. Of these, 16 acres are classified as temporary impacts related to laydown and staging areas. Additionally, 16 acres of the 60-acre dredging area within the site would be restored and maintained as aquatic habitat restoration and, therefore, are not considered to represent permanent impacts. In total, 65.4 acres of LRA Parcel 20 would be classified as permanently disturbed as a result of implementing Alternative 5, representing approximately 49% of the parcel.

The proposed dredging of 414 acres within the adjacent slough and Mississippi River is anticipated to have a significant effect on land use within LRA Parcel 20 and the broader SIP, as further detailed in the accompanying qualitative analysis.

Alternative 5 would result in both short-term and long-term, significant adverse effects on existing land uses within LRA Parcel 20 and the surrounding area. In the short term, implementation would involve construction and dredging activities affecting an estimated 511 acres, triggering considerable ground and aquatic disturbance across areas that have largely remained undeveloped since the operational period of SVADA. This transition

would represent a substantial increase in construction intensity within a currently underutilized area. Off-site from LRA Parcel 20, the adjacent SIP would also experience short-term adverse impacts from staging of dredged material. The total land area needed on the SIP is currently undefined; however, it is anticipated to scale commensurately with the total dredged material volume, its physical characteristics (e.g., moisture content and dewatering requirements), and the production rate of dredging operations. Land use impacts from this area would be temporary, resulting in a short-term conversion of existing uses to material handling and storage functions. These impacts would cease once dredging and associated reuse or disposal activities are complete, and the containment area is restored or transitioned to its planned post-project condition.

In the long term, implementing Alternative 5 would permanently alter the land use character of LRA Parcel 20, transitioning it from a dormant or passive open space into an active industrial port facility, including wharf infrastructure and associated supporting features and facilities. While these changes represent a substantial departure from the parcel's current land use condition, the significance of the impacts is context dependent. When considered solely within the confines of LRA Parcel 20, the impacts are substantial due to the high proportion of permanent land disturbance, the removal of existing vegetative cover, and the conversion of a previously undeveloped parcel into an active industrial facility centered around a dry and liquid bulk wharf. When evaluated within the broader context of the adjacent 3,000-acre SIP, which has been designated for industrial, commercial, and mixed-use redevelopment; however, the proposed changes are generally consistent with regional land use planning objectives. The long-term redevelopment goals for the SIP envision the transformation of the former military base into an economic development zone that supports intensified industrial and commercial activity. Nonetheless, although the local impacts on LRA Parcel 20 align with the larger strategic vision for the area, they still yield adverse effects.

Despite being mostly confined to lands adjacent to the UMRNWFR, Alternative 5 would extend onto refuge lands. Project elements proposed on USFWS fee-title lands (i.e., the UMRNWFR) include the pipeline, wharf access road, conveyor system, and barge fleeting area near the confluence of the Apple River/Commander's Pond and Brickhouse Slough (see Figure 3.3-5). Activities on refuge lands would require preparation of a finding of appropriateness under the National Wildlife Refuge System Improvement Act and concurrence from USFWS before they are initiated. While USFWS cannot directly regulate land uses on adjacent non-refuge parcels, it may provide guidance or recommend mitigation measures to ensure that activities near the refuge do not impair its purposes, such as protecting wildlife habitat, water quality, and public access. Compliance with these requirements and coordination with USFWS would help minimize land use conflicts with the refuge.

There would be no conflicts with historically established land uses on-site. Portions of the project could potentially conflict with UMRNWFR resources, requiring coordination with USFWS and adherence to the finding of appropriateness process. No land acquisition would be required, and the Proposed Action would be implemented in compliance with existing LUCs. While the increase in land disturbance and the total disturbed area is substantial, it remains consistent with historic and ongoing adjacent land uses. Accordingly, the resulting land use impacts, although significant, are considered

foreseeable and consistent with the planned land use trajectory for the area. Table 4.3-2 lists the temporary and permanent disturbances in acres for each alternative.

Table 4.3-2. Land/Aquatic Disturbances per Alternative (in acres)

Alternatives	Temporary Disturbances	Permanent Disturbances	Dredging Disturbances	Total	Total Permanent
Alternative 1	None	None	None	None	None
Alternative 2	None	None	None	None	None
Alternative 3	16.0	14.4	None	30.4	14.4
Alternative 4	16.0	14.4	None	30.4	14.4
Alternative 5 – On site	16.0	21.4	60.0[a]	97.4	65.4
Alternative 5 – Off site			414.0[b]	414.0	414.0
Alternative 5 – Total	16.0	21.4	474.0	511.4	479.4

Notes: [a] Includes 16 acres for an aquatic habitat restoration area, which is not counted toward permanent disturbances.
[b] Acreage calculations exclude land required for the dredged material containment area to be located on the SIP, which is treated as off-site for the purposes of this analysis.

4.3.3 Mitigation Measures and BMPs

Mitigation. No formal mitigation measures were identified for implementation under any of the Proposed Action Alternatives.

BMPs. A range of BMPs has been identified to minimize adverse effects on land use from the Reuse Alternatives and could be implemented during construction and long-term operation of the project. The following BMPs are applicable to Alternative 5, although they also could be applied to alternatives 3 and 4 where appropriate.

Construction

- USFWS Coordination. Coordinate with USFWS for activities affecting the UMRNWFR and obtain a finding of appropriateness under the National Wildlife Refuge System Improvement Act before they are initiated.
- File a Real Estate Application. File a real estate application with the USACE, Rock Island District Real Estate Division detailing all known work or future work concerning Apple River Island, as the island is District-administered land. The District Real Estate Division would have to approve the application before issuing an outgrant in accordance with Engineer Regulation 1130-2-550, *Chapter 17: Non-Recreation Outgrant Policy*, and other applicable policies.
- Maintain Ongoing Interagency Coordination. Continue coordination with the LRA, local governments, and regulatory bodies to ensure current and future land use decisions remain consistent with regional planning and community objectives.
- Adhere to LUCs and Institutional Guidelines. Ensure all development activities conform to existing LUCs and institutional requirements, especially in areas under environmental remediation or pending property transfer.
- Coordinate with Local Planning Authorities. Engage with local agencies to ensure consistency with zoning regulations, LUCs, and future development frameworks throughout planning and implementation.

- Ensure Compatibility with Waterfront Plans. Align wharf activities with broader waterfront development or revitalization plans to prevent conflicts with commercial, ecological, or recreational land uses along the shoreline.
- Minimize Construction Footprint. Limit construction-related disturbances to the smallest practical area. Use designated laydown and staging areas located on previously disturbed or developed land to avoid impacts on sensitive features.
- Restore Temporary Disturbance Areas. Restore areas affected by temporary construction activities—such as laydown areas and access roads—to their preconstruction condition or convert them to compatible long-term uses.
- Site Structures for Compatibility. Design and locate permanent infrastructure to align with local land use compatibility standards and broader regional development objectives, minimizing long-term conflicts.

Operations

- Maintain Ongoing Interagency Coordination. See above.
- Adhere to LUCs and Institutional Guidelines. See above.
- Limit Operational Hours. Restrict wharf operating hours, particularly for high-noise activities (e.g., cargo handling and loading/unloading), to minimize impacts on nearby land uses, especially on sensitive environmental areas.
- Manage Traffic and Access Routes. Designate and maintain clear traffic routes for trucks and barges to minimize congestion and avoid routing through incompatible or sensitive use areas.
- Maintain Clear Operational Boundaries. Clearly delineate operational areas through fencing, signage, and mapping to prevent encroachment onto adjacent parcels or into incompatible land use zones.

4.4 Aesthetics and Visual Resources

4.4.1 Affected Environment

The visual ROI encompasses the boundaries of LRA Parcel 20, the viewshed from LRA Parcel 20,[11] and public viewpoints with sightlines to the parcel. Special consideration is given to actions within visually sensitive locations and viewpoints from visually sensitive locations.[12]

[11] A "viewshed" is the geographical area visible from a specific vantage point, encompassing all surrounding terrain, features, and elements that can be seen from that location under normal conditions.
[12] A "visually sensitive location" is an area or site where the visual quality of the landscape holds significant ecological, cultural, recreational, or aesthetic value and is particularly sensitive to changes in visual character. These locations include state and national parks, protected natural areas, wildlife refuges, scenic byways, historic landmarks, and other areas where preserving visual integrity is critical for environmental stewardship, tourism, or public enjoyment.

Visual resources are natural and man-made features that give a particular "landscape" (visible features of an area of land) or viewshed its character and aesthetic quality. The scenic quality or character of an area consists of the landscape features and social environment from which they are viewed. The landscape features that define an area of high visual quality may be natural, such as mountain views, or man-made, such as a city skyline. To assess the quality of visual resources in the project area, this section describes the overall visual character and distinct visual features on and in the viewshed of LRA Parcel 20.

To rate the scenic quality of LRA Parcel 20 and the surrounding areas, the Army used the Bureau of Land Management (BLM) Visual Resource Management (VRM) Classification System. Although this classification system is designed for undeveloped and open land managed by BLM, the system is valid in the analysis of VRM and planning activities. Selecting the VRM system as the basis for this analysis is an established means for determining visual values based on a set of objectives. Table 4.4-1 outlines the objectives of the four VRM classes.

Table 4.4-1. Visual Resource Management Class Objectives

Class	Objective	Change allowed (relative level)	Relationship of activities to the casual observer
I	Preserves the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity.	Very low	Activities should not be visible and must not attract attention.
II	Retains the existing character of the landscape. Management activities may be seen but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.	Low	Activities may be visible but should not attract attention.
III	Partially retains the existing character of the landscape. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.	Moderate	Activities may attract attention but should not dominate the view.
IV	Provides for management activities that require major modification of the existing character of the landscape. These management activities may dominate the view and be the major focus of viewer attention. Every attempt should be made to minimize the impact of these activities, however, through careful location, minimal disturbance, and repeating the basic elements.	High	Activities may attract attention and may dominate the view but are still mitigated.

Source: BLM 1986.

The degree to which development affects the aesthetic quality of a landscape depends on the contrast created between the project elements and the existing landscape. This EIS uses the BLM's degree of contrast criteria to assess the level of contrast between the proposed or existing element and the landscape in which it would sit or sits (see Table 4.4-2). The four levels of contrast (i.e., none, weak, moderate, and strong) correspond to

VRM class objectives I, II, III, and IV, respectively. For example, a "moderate" contrast rating is generally acceptable in a Class III area but also may meet the VRM objectives for a Class IV area when there are accumulating elements.

Table 4.4-2. Visual Resource Management Degree of Contrast Criteria

Degree of contrast	Criteria
None	The element contrast is not visible or perceived.
Weak	The element contrast can be seen but does not attract attention.
Moderate	The element contrast begins to attract attention and begins to dominate the characteristic landscape.
Strong	The element contrast demands attention, will not be overlooked, and is dominant in the landscape.

Source: BLM 1986.

A sensitivity level analysis is an important component of VRM. Sensitivity levels are a measure of public concern, and lands are assigned high, medium, or low sensitivity levels. A sensitivity analysis is conducted by evaluating the following factors: types of users, amount of use, public interest, adjacent land use, special areas, distance zones (foreground to midground, background, and seldom seen), and other dynamics.

4.4.1.1 Regional Context

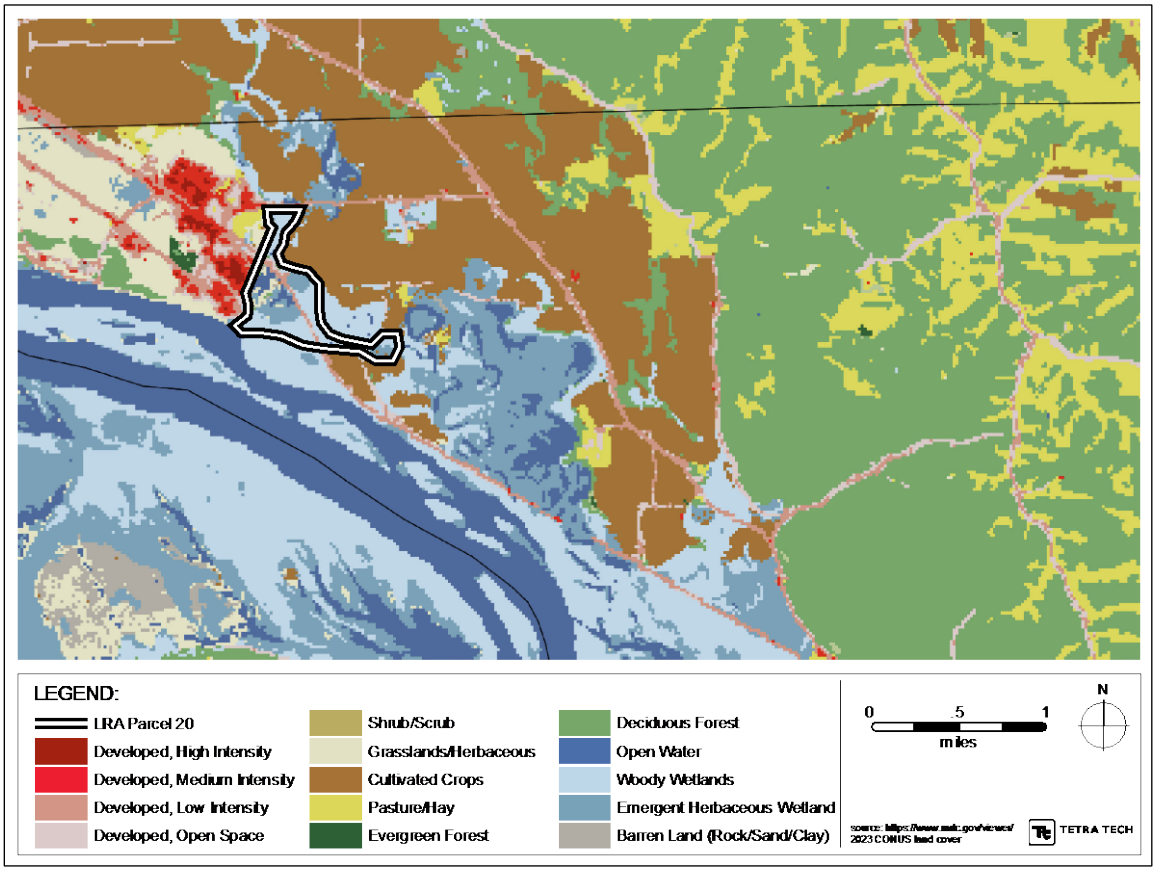
The broader visual area surrounding SVADA is located along the Mississippi River within the Driftless Area. Surrounded by dramatic limestone bluffs and expansive floodplains of the Mississippi, the area exhibits a rich tapestry of geological, hydrological, and ecological features. The most prominent natural elements are the river bluffs that define the eastern edge of the Mississippi River, offering steep cliffs, narrow ravines, and broad views of the river valley. The Apple River and its tributaries also carve through the landscape, adding to the region's diverse network of waterways and habitats.

Land cover is a critical component of visual resources, influencing the landscape's character, development patterns, and visual contrast. The U.S. Geological Survey (USGS) maintains the National Land Cover Database (NLCD), which inventories the existing character of a landscape, level of development, and degree of contrast (USGS 2024).[13] The NLCD data categorizes land cover types to reflect the landscape's existing character, enabling an assessment of the visual contrast in the region. Within the broader region, NLCD data highlights the presence of open water and a scattered patchwork of natural landscapes, including forests and wetlands, interspersed with small, isolated areas of development, which contribute to the visual environment's natural and diverse quality (USGS 2024).

Figure 4.4-1, derived from the NLCD, illustrates the land cover composition of LRA Parcel 20 and its broader surroundings. The parcel itself is dominated by woody wetlands with a minor presence of shrublands, consistent with the region's natural features. To the south and east, open water and wetlands prevail, while the northern areas feature a mix of cultivated crops, pastures, and forested lands. The SIP introduces pockets of high-,

[13] The NLCD data is current as of 2021.

medium-, and low-intensity development, depicted in varying shades of red, that contrast with the surrounding natural areas. Overall, the low density of developed land within the region suggests a predominantly natural, undeveloped landscape of enhanced scenic quality and visual cohesion.



Source: USGS 2024.

Figure 4.4-1. Land Cover in and around LRA Parcel 20.

In addition to the data provided by the NLCD, Carroll County maintains its own inventory of land cover. The predominant land cover type within Carroll County is cropland, accounting for approximately 47% of the total area, primarily used for row crop production (CCRPC 2008). An additional 29% of the county's land is classified as rural grasslands, which are primarily used for livestock grazing (CCRPC 2008). Appendix L, Table L-1 provides a detailed breakdown of the county's land cover categories, including their respective percentages.

The lands surrounding the project site encompass the full spectrum of VRM classes. To the south, the adjacent areas include the Mississippi River and shorelands within the UMRNWFR, as detailed in Section 4.3. Those areas are managed to maintain their pristine, undisturbed qualities consistent with the visual characteristics of VRM Class I. To the north and east, the surrounding lands are primarily used for agricultural purposes. Those areas are characterized by open spaces and landscapes reflective of traditional Midwest prairie environments. Agricultural management practices, while generally in harmony with the surrounding vistas, occasionally introduce elements that draw visual

attention, aligning the areas predominantly with VRM classes II and III. To the west lies the SIP, which features both the idle properties and infrastructure remnants of the former SVADA as well as contemporary facilities and infrastructure supporting ongoing industrial redevelopment. Those lands exhibit significant visual modifications, including structural elements and industrial activity that create strong contrasts with the natural environment. Consequently, the SIP is classified as VRM Class IV because of the visual dominance of the built environment.

4.4.1.2 LRA Parcel 20

LRA Parcel 20 is an extension of the broader regional landscape featuring many of the visual elements described for the ROI. It is largely undeveloped but does bear the marks of past development activities associated with SVADA. Appendix L, Figure L-1 shows six photos representing the various landscapes of the parcel.[14] Key visual elements of the parcel are the capped landfill, Commander's Pond, the forested areas, and the transitional interface between the forested areas and the Apple River.

In accordance with the BLM VRM contrast criteria, much of the land within the parcel has either remained in or reverted to a natural state. The degree of visual contrast would be classified as "none" for most of the area, with "weak" contrast noted in locations where ongoing management activities occur, such as vegetation control and maintenance at Cleanup Site 20, Abandoned Landfill. LRA Parcel 20 would be assigned a VRM Class I designation, signifying an area that preserves the existing character of the landscape with minimal ecological changes and few permissible management activities.

4.4.1.3 Visually Sensitive Locations

No visually sensitive locations were identified within LRA Parcel 20; however, three off-site locations in the immediate vicinity were identified as having visually sensitive attributes: (1) the UMRNWFR; (2) Mississippi Palisades State Park, IL; and (3) the Green Island State WMA, Iowa. Section 4.3.1 describes the land use in these areas in detail and they share similar visual and ecological characteristics.

Each of the three areas is contiguous with and functionally integrated into the Mississippi River ecosystem. They encompass features such as wooded islands, sloughs, and hardwood forests, which collectively support a diverse array of flora and fauna. While the Mississippi River is recognized as one of the most engineered and controlled waterways in the United States, it continues to exhibit natural hydrological dynamics (i.e., flooding and course adjustments). These areas are instrumental in accommodating the river's natural cycles, offering critical flood control functions, and serving as vital habitats for wildlife. The upper Mississippi River is one of the most striking visual environments in the Midwest. All three visually sensitive locations have been designated as VRM Class I.

[14] Although the sewage treatment facility is a distinct entity from LRA Parcel 20, it has been included in Figure L-1 in Appendix L and the analysis because of its status as a landlocked area completely enclosed within LRA Parcel 20.

4.4.2 Environmental Consequences

Effects on aesthetic and visual resources may occur when an alternative introduces land alterations, lighting, or structures that substantially degrade the visual character of the landscape, especially in areas with high scenic value. These types of alterations would typically be captured as a change to the BLM's VRM Class, such as downgrading from Class II (which retains the existing character of the landscape) to Class III or IV, thereby indicating a lower level of visual resource preservation. The level of effect – classified as none, negligible, less than significant, significant but mitigable, and significant – depends on the severity and combination of those factors and is evaluated on a case-by-case basis.

Alternative 1: No Action Alternative. No effects would be expected. The No Action Alternative would be a continuation of the current state of LRA Parcel 20, with the Army continuing as the caretaker of the parcel and no change in aesthetic or visual resources occurring. LRA Parcel 20 would retain its VRM Class 1 designation.

Alternative 2: Accelerated Disposal Alternative. No effects would be expected. Alternative 2 consists of transferring or conveying title of real estate for LRA Parcel 20 to the LRA. There would be no change in aesthetic or visual resources. The parcel would retain its VRM Class 1 designation.

Alternative 3: Recreation-Only Reuse Alternative. Short- and long-term, negligible adverse indirect effects would be expected. As outlined in Section 4.3, Land Use, Alternative 3 comprises an elevated, boardwalk-style walking trail; a canoe and kayak ramp on Commander's Pond; and a recreational area atop the closed and capped landfill. Collectively, these components would result in new land disturbances totaling 30.4 acres. Although LRA Parcel 20 is classified as a brownfield due to its past military use and history, visually, the 132-acre site presents as undeveloped greenfield. The proposed projects would be located within the interior of the site, where existing vegetation along the perimeter and the site's physical distance from public vantage points would effectively screen construction activities and minimize visual impacts from off-site locations. As a result, short-term adverse visual impacts from construction equipment, partially completed structures, and potential dust generation would be negligible to imperceptible beyond the site boundary.

The proposed improvements would be designed to integrate with the site's natural surroundings. Each component would be a low-profile, non-massive structure, effectively ensuring it remains subordinate to the broader landscape. Moreover, while the proposed improvements would introduce new visual elements and involve the conversion of some previously undeveloped land, the changes would align with the broader context of the nearby SIP and remain consistent with existing site conditions. Consequently, the long-term VRM class designation would experience a moderate change from Class I to Class II. This shift reflects the fact that, while the new developments would introduce some visible elements, they would neither dominate the viewshed nor detract from the area's natural character. The proposed projects are consistent with VRM Class II objectives, as they would largely preserve the existing visual character while accommodating appropriate management activities. Alternative 3 would have long-term, negligible adverse visual impacts.

Alternative 4: Recreation and Solar Reuse Alternative. Short-term, significant-but-mitigable adverse indirect effects and long-term, significant-but-mitigable adverse effects would be expected. The visual impacts associated with Alternative 4 would be largely consistent with those described for Alternative 3, as both alternatives involve three interconnected components and comparable levels of land disturbance. Under Alternative 4, however, the recreational area atop the closed landfill would be replaced with a solar array, resulting in a distinct change to the long-term visual character of that portion of LRA Parcel 20. Total land disturbances would mirror those detailed for Alternative 3.

Short-term visual impacts would be similar to those anticipated under Alternative 3, including the presence of construction equipment, partially completed structures, and potential dust generation. Those impacts would be minimal to imperceptible beyond the site boundary due to the project's location within the interior of the site and the presence of existing perimeter vegetation.

In the long term, the visual impacts of the proposed solar array would differ from those of the recreational field under Alternative 3. Utility-scale solar installations can introduce distinct visual contrasts due to their large size, strong geometric patterns, highly reflective surfaces, and contrast with the surrounding landscape's natural tones. While these effects would be partially mitigated by the array's location within the site's interior, the installation would be more visually prominent than the recreational area proposed under Alternative 3.

Consequently, the site's VRM class designation would increase from Class I to Class III. This change reflects that the solar array would likely attract attention and detract from the site's natural visual character for on-site viewers. Due to the project's location within the interior of the site and the presence of perimeter vegetation, however, visual impacts from off-site locations would remain negligible.

Alternative 5: LRA Reuse Alternative. Short- and long-term, significant adverse indirect effects would be expected. Under Alternative 5, LRA Parcel 20 would be subject to the highest intensity of construction, development, and operational activity among the evaluated alternatives. As outlined in Section 4.3, total land disturbance – both on-site and off-site – would encompass approximately 511.4 acres. Of this total, dredging activities would account for 474 acres, representing approximately 93% of the total area subject to land disturbances.

From a visual perspective, those activities would generate short-term impacts primarily during the initial phases of dredging. Construction of the wharf and associated support facilities – including roads, utilities, and staging areas – would introduce temporary visual intrusions due to the deployment of heavy construction equipment, material stockpiling, and increased dust generation. The construction laydown area is expected to experience intensive short-term use, further contributing to visual degradation during the development phase. The presence of cranes and heavy machinery, both terrestrial and aquatic, would be readily visible and may alter the immediate visual character of the site. While such elements are not atypical of existing SIP operations, their introduction to LRA Parcel 20 would represent a significant departure from existing site conditions.

Development activities could be visible from areas within the UMRNWFR, an identified off-site visually sensitive location, and portions of the alternative that extend onto refuge lands. Those activities could potentially affect scenic and recreational experiences within the refuge. Any activities on refuge lands would require preparation of a finding of appropriateness under the National Wildlife Refuge System Improvement Act and concurrence from USFWS before they are initiated. Coordination with USFWS would be required for areas affecting refuge resources to ensure that the natural and scenic qualities of the UMRNWFR are considered as part of project planning and implementation.

In the long term, visual impacts at the dredging sites would be minimal because most activities occur below the waterline; however, more prominent, albeit temporary, visual disturbances would result from dredging equipment and material staging on the SIP. Staging the dredged material on the SIP would create temporary visual changes to the existing landscape, including noticeable alterations in landform, color, contrast, and an industrialized construction appearance, as well as the presence of heavy equipment, stockpiled sediment, and potential nighttime lighting. These impacts would persist for the duration of dredging, staging, and any on-site reuse activities, after which the containment area would be stabilized or restored, and residual visual effects would be negligible.

Permanent visual alterations, however, would result from the operation of the wharf and associated infrastructure. As with land use impacts, visual effects are highly dependent on context. Viewed in isolation, the transformation of LRA Parcel 20 would constitute a substantial change in visual character and land use. Conversely, when evaluated in the broader context of the SIP, the changes may be perceived as a logical extension of ongoing industrial development.

Both short- and long-term actions under Alternative 5 would necessitate a reclassification of the VRM designation for LRA Parcel 20 from Class I to Class IV. The introduction of large-scale industrial infrastructure – most notably the wharf – would establish a new, dominant visual element within the landscape. Given the scale and nature of the proposed operations, visual effects would be apparent beyond the project boundaries, introducing levels of form, line, color, and texture contrast that are visually prominent, draw attention, and are inconsistent with the site's existing visual baseline.

Table 4.4-3 lists the projected change in LRA Parcel 20 VRM classification under each alternative.

Table 4.4-3. VRM Classification of LRA Parcel 20 by Alternative

Alternative	Existing	Short term	Long term
Alternative 1	I	No change	No change
Alternative 2	I	No change	No change
Alternative 3	I	III	II
Alternative 4	I	III	III
Alternative 5	I	IV	IV

4.4.3 Mitigation Measures and BMPs

Mitigation. No formal mitigation measures were identified for implementation under any of the Proposed Action Alternatives.

BMPs. The following BMPs were identified to minimize potential effects on visual resources. They are applicable to Alternative 5, although they could be applied to alternatives 3 and 4 where appropriate. To minimize adverse effects on visual resources from the Reuse Alternatives, a range of BMPs could be implemented during construction and long-term operation of the project.

Construction

- USFWS Coordination. Coordinate with USFWS for activities affecting the UMRNWFR and obtain a finding of appropriateness under the National Wildlife Refuge System Improvement Act before they are initiated.
- Limit Visibility of Staging Areas. Place staging, laydown, and equipment storage areas away from public view corridors and screen them with temporary fencing, vegetation, or opaque materials where feasible.
- Minimize Lighting Impacts during Construction. Use fully shielded, downward-facing lighting fixtures that focus illumination and reduce glare visible from nearby sensitive areas.
- Preserve Existing Vegetation Where Possible. Retain existing vegetation around the construction site to serve as a natural buffer and reduce visual exposure of construction activities from nearby roads and properties.
- Use Neutral or Nonreflective Temporary Structures. Ensure that temporary trailers, fencing, and other structures use nonreflective, muted colors to reduce contrast with the surrounding environment.
- Maintain Clean and Orderly Work Zones. Keep the construction site well organized and regularly remove debris and unused materials to minimize visual clutter visible from surrounding viewpoints.

Operations

- Install Vegetative Buffers or Berms. Establish permanent vegetative screening or landscaped berms along site boundaries to visually soften the appearance of industrial structures and equipment.
- Use Context-Sensitive Colors and Materials. Apply neutral, non-glossy finishes to permanent buildings, cranes, and infrastructure to reduce visual contrast with the surrounding landscape.
- Minimize Lighting Impacts from Operations. Use fully shielded, downward-facing lighting fixtures that focus illumination and reduce glare visible from nearby sensitive areas.
- Screen Equipment and Storage Areas. Use architectural screening, walls, or landscaping to obscure views of long-term equipment storage areas and reduce industrial visual presence from off-site viewpoints.

4.5 Air Quality

4.5.1 Affected Environment

USEPA Region 5 and the IEPA Bureau of Air Quality regulate air quality in Illinois. The Clean Air Act (CAA) (42 U.S.C. § 7401), as amended, assigns USEPA the responsibility to establish the primary and secondary National Ambient Air Quality Standards (NAAQS) (see Appendix M) (40 CFR Part 50). Although each state has the authority to adopt standards stricter than those established under the federal program, Illinois has accepted the federal standards (35 IAC § 243.102, *Air Quality Standards, Scope*).

Federal regulations designate air quality control regions (AQCRs) in violation of the NAAQS as "nonattainment areas" and AQCRs with pollutant levels below the NAAQS as "attainment areas." Carroll County, where LRA Parcel 20 is located, is in AQCR 069–Metropolitan Quad Cities (Illinois-Iowa) (40 CFR § 81.102), which is designated as being in attainment for all criteria pollutants (USEPA 2024b).

4.5.2 Environmental Consequences

Effects on air quality would be considered significant if an alternative were to (1) generate emissions that would exceed the General Conformity Rule (GCR) insignificant threshold values or (2) contribute to a violation of any federal, state, or local air regulation. The GCR mandates that a federal agency cannot take any action in a nonattainment area that interferes with a state's ability to maintain the NAAQS. The requirements of the GCR do not apply to any actions associated with the Proposed Action because Carroll County is designated as an attainment area for all six NAAQS criteria pollutants. . None of the estimated net emissions from this action would exceed insignificance indicators annually; therefore, the action would not cause or contribute to a GCR conformity exceedance.

The Army applied a variety of models and tools to analyzing criteria air pollutants and greenhouse gas (GHG) emissions. GHG emissions are being considered because a 2009 USEPA determination concluded, under Section 202(a) of the CAA, that six GHGs from new motor vehicles contribute to air pollution that could endanger public health, or welfare, thereby allowing USEPA regulation. In 2025, the USEPA began rulemaking to rescind that finding. Until that recission becomes final, the EIS will be prepared with GHG emission estimates. The methods for GHG analysis were selected based on the source of the air emissions, available data, and regulatory guidance.

The Air Conformity Applicability Model (ACAM) developed by the Department of the Air Force was used to calculate emissions from constructing facilities, excavation, and personnel commutes when information was available. Construction activities from the proposed project alternatives would generate emissions from various sources, including heavy machinery, material transport, and site operations. Those emissions primarily consist of particulate matter, oxides of nitrogen (NO_x), carbon monoxide (CO), volatile organic compounds (VOCs), and GHGs.

Alternative 1: No Action Alternative. No effects would be expected. The No Action Alternative would be a continuation of the existing state of LRA Parcel 20, with the

Army continuing as the caretaker of the property. There would be no change in the air quality environment.

Alternative 2: Accelerated Disposal Alternative. Short-term beneficial effects on air quality would be expected. The short-term effects would be primarily caused by decreases in emissions associated with caretaker activities at LRA Parcel 20. Actions under this alternative also would result in no increase in emissions that would be expected to exceed GCR *de minimis* (of minimal importance) threshold values, including transfers of ownership, interests, and titles in land, facilities, and real and personal properties (40 CFR § 93.153(c)(2)(xiv)); routine maintenance and repair activities (40 CFR § 93.153(c)(2)(iv)); and emissions from remedial and removal actions carried out under the CERCLA (40 CFR § 93.153(c)(5)). Appendix N provides a record of non-applicability to the GCR.

Alternative 3: Recreation-Only Reuse Alternative. Short-term, less-than-significant adverse indirect effects and long-term, negligible adverse indirect effects would be expected. Short-term, less-than-significant adverse effects from Alternative 3 would be expected because of airborne dust and other pollutants being generated during construction. There would be long-term negligible effects over a projected 36-year lifespan of changes in operational emissions from the transit of the public to and from the recreational area on the site. Air emissions would not (1) exceed the significance indicators or (2) contribute to a violation of any federal, state, or local air regulation.

Construction and operations emissions were estimated using ACAM for fugitive dust, on- and off-road diesel equipment and vehicles, worker trips, architectural coatings, and paving off-gases (see Table 4.5-1). Significance indicators were carried forward to determine the level of effects under NEPA. The estimated emissions from Alternative 3 would be below the significance indicators; therefore, the level of effects would be less than significant. Detailed emission calculations are provided in Appendix N.

Table 4.5-1. Estimated Emissions from Alternative 3

Pollutant	*de minimis* threshold (tpy)	Construction (tpy)	Operations (tpy)	Exceeds *de minimis* thresholds? (Yes/No)
CO	250	1.495	0.325	No
NH_3	250	0.006	0.004	No
NO_x	250	0.911	0.014	No
Pb	25	0.000	0.000	No
$PM_{2.5}$	250	0.037	0.000	No
PM_{10}	250	3.225	0.001	No
SO_x	250	0.002	0.000	No
VOCs	250	0.129	0.024	No

Source: DAF 2023.
Notes: NH_3 = ammonia; Pb = lead; $PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns; PM_{10} = particulate matter with diameter less than or equal to 10 microns; SO_x = sulfur oxides; tpy = tons per year.

GHGs produced by fossil-fuel combustion are primarily carbon dioxide (CO_2), CH_4, and nitrogen dioxide. These three GHGs represent more than 97% of all U.S. GHG emissions. Emissions of GHGs are typically quantified and regulated in units of carbon dioxide equivalent (CO_2e). The CO_2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO_2. The Army derived all GHG emissions estimates from various emission sources using the methods, algorithms, emission factors, and GWPs from the most current USEPA *Compilation of Air Emissions Factors from Stationary Sources (AP-42)*, *Air Emissions Guide for Air Force Stationary Sources*, *Air Emissions Guide for Air Force Mobile Sources*, and/or *Air Emissions Guide for Air Force Transitory Sources* (AFCEC 2024a, 2024b, 2024c; USEPA 2024c). The GHG emissions were compared with Illinois and U.S. emissions to understand the effects of implementing Alternative 3 (see Table 4.5-2). The analyses in Table 4.5-2 were performed over a projected 36-year lifespan to include construction and operations sequentially. A longer period was assumed for the recreational area. The Alternative 3 effects on air quality would be negligible compared to state and U.S. total emissions. Appendix N details the results.

Table 4.5-2. Comparison of the Alternative 3 GHG Emissions in Metric Tons

Total GHG Relative Significance (mtpy)

Years	Region	CO_2	CH_4	N_2O	CO_2e[a]
2026–2062	State total	5,089,471,905	17,467,988	1,951,510	5,108,891,403
2026–2062	U.S. total	133,547,808,654	666,299,704	39,018,399	134,253,126,756
2026–2062	Action area	963	0.043276	0.015587	969
Percent of State Totals		0.00001892%	0.00000025%	0.00000080%	0.00001896%
Percent of U.S. Totals		0.00000072%	0.00000001%	0.00000004%	0.00000072%

Notes: mtpy = metric tons per year; N_2O = nitrous oxide.
[a] CO_2e accounting for the GWP of each GHG

Alternative 4: Recreation and Solar Reuse Alternative. Short-term, less-than-significant adverse indirect effects and long-term, negligible adverse indirect effects would be expected. Short-term, less-than-significant adverse effects from Alternative 4 would be expected because of airborne dust and other pollutants being generated during construction. There would be long-term negligible changes over a projected 36-year lifespan in operational emissions from the transit of the public to and from the recreational area on the site and the maintenance required for the solar panels. Operational carbon emissions are offset, however, by the integration of solar panels, which generate renewable energy to reduce the project's overall carbon footprint. Air emissions would not (1) exceed the significance indicators or (2) contribute to a violation of any federal, state, or local air regulation.

Construction and operations emissions were estimated for fugitive dust, on- and off-road diesel equipment and vehicles, worker trips, ground disturbance, architectural coatings, and paving off-gases (see Table 4.5-3). The estimated emissions from Alternative 4 would be below the significance indicators; therefore, the level of effects would be less than significant. Detailed emission calculations are provided in Appendix N.

Table 4.5-3. Estimated Emissions from Alternative 4

Pollutant	*de minimis* threshold (tpy)	Construction (tpy)	Operations (tpy)	Exceeds *de minimis* thresholds? (Yes/No)
CO	250	3.254	0.730	No
NH_3	250	0.014	0.009	No
NO_x	250	2.086	0.031	No
Pb	25	0.000	0.000	No
$PM_{2.5}$	250	0.082	0.001	No
PM_{10}	250	3.272	0.001	No
SO_x	250	0.004	0.000	No
VOCs	250	0.292	0.055	No

Source: DAF 2023.
Notes: NH_3 = ammonia; Pb = lead; $PM_{2.5}$ = particulate matter with diameter less than or equal to 2.5 microns; PM_{10} = particulate matter with diameter less than or equal to 10 microns; SO_x = sulfur oxides; tpy = tons per year.

The GHG emissions and were compared with Illinois and U.S. emissions to understand the effects of implementing Alternative 4 (see Table 4.5-4). The analyses in Table 4.5-4 were performed over a projected 36-year lifespan to include construction and operations sequentially. A longer period was assumed for the recreational and solar farm areas. The effects on air quality would be negligible compared to state and U.S. total emissions. Appendix N details the results.

Table 4.5-4. Comparison of the Alternative 4 GHG Emissions in Metric Tons
Toal GHG Relative Significance (mtpy)

Years	Region	CO_2	CH_4	N_2O	CO_2e[a]
2026–2062	State total	5,089,471,905	17,467,988	1,951,510	5,108,891,403
2026–2062	U.S. total	133,547,808,654	666,299,704	39,018,399	134,253,126,756
2026–2062	Action area	2,165	0.09715	0.036212	2,178
Percent of State Totals		0.00004253%	0.00000056%	0.00000186%	0.00004263%
Percent of U.S. Totals		0.00000162%	0.00000001%	0.00000009%	0.00000162%

Source: DAF 2023.
Notes: mtpy = metric tons per year; N_2O = nitrous oxide.
[a] CO_2e accounting for the GWP of each GHG.

Emission Reduction from Solar PV Arrays. Alternative 4 also proposes solar PV arrays on top of the closed landfill. The solar PV arrays would be expected to reduce operational emissions by offsetting the generation of electricity from fossil fuels. The potential for solar power generation is based on a variety of factors, including the number of hours of sunlight each day and system efficiencies. Table 4.5-5 provides the reductions that would be expected in GHG emission from solar PV arrays constructed on 6 acres, equal to the area of the existing landfill. The National Renewable Energy Laboratory estimates a solar PV array covering 8.3 acres would produce roughly 1 megawatt (MW) (Ong et al. 2013). Emissions factors of 265 and 28 were applied to projected emissions of nitrous oxide (N_2O) and CH_4, respectively, and added to CO_2 to calculate the total CO_2e.

These emissions factors were defined by the Fifth Intergovernmental Panel on Climate Change based on the GWP over 100 years compared to CO_2 (IPCC 2014).

Table 4.5-5. Potential Reduction in Emissions from a 0.7-MW Solar PV Array

		Net Emissions Offset (mtpy)					
MW	**MWhr/yr**	**NO_x**	**SO_2**	**CO_2**	**CH_4**	**N_2O**	**GHG**
0.7	952	0.13	0.31	282	0.03	0.00	284

Sources: NREL 2023; USEPA 2023.
Notes: mtpy = metric tons per year; MWhr/yr = megawatt hours per year; SO_2 = sulfur dioxide.

Alternative 5: LRA Reuse Alternative. Short- and long-term, less-than-significant adverse indirect effects would be expected on air quality. Short-term construction impacts would be minor, and long-term operational emissions over a projected 36-year lifespan are expected to have minor adverse effects on air quality, similar to those anticipated under alternatives 3 and 4. For Alternative 5, the additional dredging (excavation) and wharf construction were added to the activities proposed in alternatives 3 and 4 as inputs to ACAM. Table 4.5-6 presents the air quality emissions from construction and operation of Alternative 5. The LRA must include construction BMPs and emission controls under operations to adhere to these minor effect determinations. A list of these practices can be found in Appendix N.

Construction assumptions analyzed for emissions against conformity include the following:

- On-site equipment: Excavators, bulldozers, loaders, cranes, and generators contribute to emissions through fuel combustion.
- Material transport: Heavy-duty trucks and railcars moving construction materials generate emissions from diesel engines.
- Site preparation and earthwork: Land clearing, grading, and excavation produce dust (particulate matter with diameter less than or equal to 10 microns [PM_{10}] and particulate matter with diameter less than or equal to 2.5 microns [$PM_{2.5}$]), which might require mitigation.
- Concrete and asphalt operations: Mixing, pouring, and curing release dust and VOCs, contributing to air pollution.
- Worker transportation: Light-duty and heavy-duty vehicles used for personnel transport add to overall emissions.

Operations of reuse activities, including all stationary, mobile, and area sources of emissions associated with the property after it is transferred, would not be under an ongoing program of control from the Army. GHG emissions were analyzed for the GWP. The calculated emissions were compared with 2022 state emissions183.7 million metric tons (mmt) of energy-related CO_2 from Illinois and U.S. emissions 4,934.4 mmt of energy-related CO_2 (EIA 2024).

Table 4.5-6. Estimated Emissions from Alternative 5

Pollutant	*de minimis* threshold (tpy)	Construction (tpy)	Operations (tpy)	Exceeds *de minimis* thresholds? (Yes/No)
CO	250	2.0116	15.88	No
NH_3	250	0.0294	0.11	No
NO_x	250	2.11	3.59	No
Pb	25	0	0.00	No
$PM_{2.5}$	250	0.07	3.97	No
PM_{10}	250	89.7816	2.27	No
SO_x	250	0.0042	0.85	No
VOCs	250	0.6442	6.44	No

Source: DAF 2023.
Notes: NH_3 = ammonia; Pb = lead; SO_x = sulfur oxides; tpy = tons per year.

The construction will be phased with approximately 20% of the construction annually for 5 years. The LRA assumes this 20% of total construction because it would not be feasible to implement all phases of the project in a single year. The emissions for all criteria pollutants would be below the *de minimis* thresholds; therefore, the GCR would not apply regardless of any changes in the attainment status of the region for any criteria pollutant.

Operational emissions were calculated for grain and other bulk dry goods handled during receiving and shipping via truck, railcar, barge, and ship. Materials would be unloaded using pits, augers, or conveyors into storage bins or silos, with aeration systems preserving grain quality. All bulk dry goods—including nonmetallic minerals, clay, concrete, glass, stone, corn, wheat, sorghum, soybeans, DDGS, and others—are assumed to be enclosed and equipped with particulate control devices. Emission controls are required to remain below significance thresholds. Calculations were based on USEPA's AP-42 (USEPA 2024c). Barge emissions account for vessel activity near the facility, including berthing and maneuvering. Estimates incorporate engine types, load factors, and operating modes (e.g., reduced speed, maneuvering, and hoteling), per USEPA's 2022 *Port Emissions Inventory Guidance* (USEPA 2022c). Heavy-duty trucks accessing the facility via terminal and public roads are typically tractor-trailers, supplemented by light-duty and contractor vehicles. Emissions for these sources were derived from Bureau of Transportation Statistics 2020 data (BTS 2020). Bulk liquid transfers from various transport modes into on-site tanks were assessed using ethanol as a worst-case material. Emission estimates were derived from USEPA's AP-42 (USEPA 2024c). Locomotive emissions (line-haul and switching) were estimated using USEPA's 2022 *Port Emissions Inventory Guidance* (USEPA 2022b), based on anticipated operations.

GHG emissions were evaluated for Alternative 5 and compared to Illinois and national totals under Alternative 5 (see Tables 4.5-6 and 4.5-7). Emissions were assessed over a 15-year construction and operations period, and Alternative 5's contribution to air quality impacts would be negligible. Results are detailed in Appendix N.

Table 4.5-7. Comparison of the Alternative 5 GHG Emissions in Metric Tons

Total GHG Relative Significance (mtpy)

Years	Region	CO_2	CH_4	N_2O	CO_2e[a]
2026–2062	State total	3,914,978,388	13,436,914	1,501,162	3,929,916,464
2026–2062	U.S. total	102,729,083,580	512,538,234	30,014,153	103,271,635,966
2026–2062	Action area	137,135	5.647751	2.180288	137,950
Percent of State Totals		0.00350282%	0.00004203%	0.00014524%	0.00351026%
Percent of U.S. Totals		0.00013349%	0.00000110%	0.00000726%	0.00013358%

Sources: DAF 2023; EIA 2024.
Notes: mtpy = metric tons per year.
[a] CO_2e accounting for the GWP of each GHG.

4.5.3 Mitigation Measures and BMPs

Mitigation. No mitigation measures would be required for air quality as effects would not be significant.

BMPs. The LRA must effectively control particulate emissions using BMPs during construction and operations. Controlling dust during construction is essential for worker safety, environmental compliance, and minimizing community impact. Effective measures include using water sprays, misting systems, and dust suppressants to prevent airborne particles. Installing barriers, covering stockpiles, and enforcing speed limits on unpaved surfaces also can reduce dust generation.

The LRA must adhere to standard operational practices for emission control for material-handling facilities by using technologies such as baghouses and cyclones. Baghouses employ fabric filter systems to capture fine particulates, ensuring compliance with regulatory limits and minimizing air pollution. Cyclones, meanwhile, use centrifugal force to remove larger particulates from gas streams before they reach finer filtration systems. To maintain efficiency and permit compliance, regular maintenance, monitoring, and proper operation of these control devices are essential.

4.6 Noise

4.6.1 Affected Environment

Sound is energy transferred through the air that our ears detect as small changes in air pressure; the more energy put into making a sound, the louder it will be (FAA 2022). Sound varies by both intensity and frequency. Sound pressure level, measured in decibels (dB), is used to quantify sound intensity. The decibel is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz (Hz) is a unit of measure used to quantify sound frequency. The human ear responds differently to different frequencies. “A-weighing,” measured in A-weighted decibels (dBA), approximates a frequency response expressing the perception of sound by humans. Common sound levels are listed in Table 4.6-1.

Table 4.6-1. Common Sounds and their Levels

Outdoor sound	Sound level (dBA)	Indoor sound
Jet flyover at 1,000 ft	100	Rock band
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringing telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator

Source: Harris 1998.

Noise is sound that is unwanted (FAA 2022). The A-weighted decibel noise metric describes steady noise levels, although very few noises are, in fact, constant. As a result, day-night average sound level (DNL) was developed. DNL is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to the nighttime levels (10:00 p.m. to 7:00 a.m.). DNL is a useful descriptor for noise because it (1) averages ongoing yet intermittent noise and (2) measures total sound energy over a 24-hour period. In addition, equivalent sound level (L_{eq}) is often used to describe the overall noise environment. L_{eq} is the average sound level in decibels.

The Noise Control Act (42 U.S.C. § 4901 *et seq.*) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1974, USEPA provided information suggesting continuous and long-term noise levels above DNL 65 dBA are normally unacceptable for noise-sensitive receptors, such as residences, schools, churches, and hospitals. Carroll County has a nuisance noise ordinance—Carroll County Zoning Code Article 10, Section 700-15.02, but it does not outline specific not-to-exceed noise levels.

Because of the caretaker nature of activities on LRA Parcel 20, typical noise sources found on Army installations, such as artillery, explosive ordnance detonation, military aircraft, and tanks are not present. Noise at LRA Parcel 20 is comparable to a typical rural environment, and there are no nearby noise receptors. Existing sources of noise around LRA Parcel 20 include high-altitude aircraft overflights, rail traffic, vehicular traffic, and natural noises, such as leaves rustling and bird vocalizations. The parcel is relatively quiet except for noise from the railroad. The Army estimated existing noise levels (L_{eq} and DNL) using the techniques specified in the *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements with an observer present* (ANSI 2013). The estimated background average sound levels (L_{eq}) are 48 dBA in the daytime and 42 dBA at night, with an estimated overall level of 49 dBA DNL. Noise levels may increase to near 90 dBA at the railroad track when trains are traveling through LRA Parcel 20 (USDOT 2020).

4.6.2 Environmental Consequences

Noise impacts would be considered significant if construction or operational activities of an alternative exceeded federal, state, or local noise regulations; created an environment incompatible with existing land uses; or generated sound levels capable of endangering individuals, even those equipped with safety gear.

Alternative 1: No Action Alternative. No effects would be expected. The No Action Alternative would be a continuation of the existing state of LRA Parcel 20, with the Army continuing as the caretaker of the property. There would be no change in the noise environment.

Alternative 2: Accelerated Disposal Alternative. Short-term beneficial effects on the noise environment would be expected. The short-term effects would be caused by decreases in a small number of area and mobile sources of noise on LRA Parcel 20—primarily noise associated with caretaker activities.

Alternative 3: Recreation-Only Reuse Alternative. Short-term, less-than-significant adverse indirect effects and long-term, negligible adverse indirect effects on the noise environment would be expected. Short-term effects would primarily occur during construction activities for trails and public-use river activities. Long-term noise impacts are expected to remain negligible during operations, with public site visitation for recreational activities modeled at approximately 20 visits per week. Given this projection, it is reasonable to infer that the public access areas would receive fewer visitors than national and state parks. Noise modeling results indicate that contributions would remain at background levels.

Alternative 4: Recreation and Solar Reuse Alternative. Short-term, less-than-significant adverse indirect effects and long-term, negligible adverse indirect effects on the noise environment would be expected. Short-term effects would primarily occur during construction activities for trails and public-use river activities. Long-term noise impacts are expected to remain negligible during operations, similar to Alternative 3. There is approximately a 1,000-ft-wide natural buffer consisting of dense vegetation such as trees and shrubs around LRA Parcel 20, which would reduce noise by attenuating and reducing sound levels by 5–8 dBA for every 100 ft of natural buffer (USDA 2025).

Alternative 5: LRA Reuse Alternative. Short-term, less-than-significant adverse indirect effects and long-term, less-than-significant adverse indirect effects on the noise environment would be expected. Short-term effects would be expected during construction of the wharf and dredging activities. Construction would be distributed over a 5-year period, reducing the intensity of activity at any one time. To further mitigate noise impacts, a comprehensive suite of BMPs would be implemented. They include equipment maintenance, mufflers, and adherence to designated work hours. Natural attenuation is also a significant factor: A dense forested buffer can reduce noise levels by 5–10 dB over 100 ft, and the nearest sensitive receptor (a residential neighbor) is located at a minimum distance of 800 ft from the closest construction zone. On-site personnel are classified as industrial workers, and occupational noise exposure will be managed in compliance with Occupational Safety and Health Administration (OSHA) Standard in 29 CFR § 1910.95, *Occupational Noise Exposure*. Per this standard, the permissible exposure limit (PEL) is 90 dBA over an 8-hour time-weighted average. At close range,

noise from pile driving can be substantial. Precautions would need to be taken to reduce the effects of noise on aquatic and avian species and construction personnel. Potential measures could include cofferdams with an insulating sleeve to dampen noise in the water column and personal protective equipment consistent with OSHA requirements (URI and INSPIRE 2023).

Long-term, less-than-significant effects on the noise environment would be expected during operations. Noise would be expected to be comparable in intensity to the historic and existing use of the property. Future sources of noise could include loading and unloading barges, transporting goods, emergency generators, and the use of private motor vehicles. Those noise sources would be expected to be consistent with noise from other areas of the SIP and attenuated to near background levels at distances greater than 800 ft from the LRA Parcel 20. The nearest residence is located approximately 2,700 ft (about one-half mile) from the current active operation on LRA Parcel 20, and the proposed port facilities would maintain a similar separation from the home. This distance provides a substantial buffer for nearby residents for protection from noise pollution, increased traffic, and other environmental effects associated with operations at the site.

LRA Parcel 20 is classified as Class C land for the noise assessment. Class C land refers to areas with higher ambient noise tolerance, such as industrial, manufacturing, utility, or certain commercial zones. These areas typically do not contain noise-sensitive receptors like homes, schools, or hospitals and are therefore subject to less stringent noise impact standards compared to residential or mixed-use areas. Sound pressure level measurements as mandated under 35 IAC § 910.105 must be taken at least 25 ft from the property line of the noise source, based on its octave band. Construction-related noise primarily falls within the audible range of 30–300 Hz, with occasional instances exceeding 300 Hz, although these instances would be brief and intermittent. As shown in Table 4.6-2, even when using a conservative estimate of a 500 Hz octave band center frequency, there would be no violation of the IAC. Figure 4.6-1 illustrates radius noise contours, confirming that noise emissions do not exceed the property boundary. This does not, however, preclude the LRA from conducting the required monitoring. These calculations are the worst-case scenario and assume all construction activities are taking place at one time and likely are greatly overestimated.

Table 4.6-2. Allowable Octave Band Sound Pressure Levels (dB) of Sound Emitted to any Receiving Class C Land

Octave band center frequency (Hz)	Class C land
31.5	80
63	79
125	74
250	69
500	63
1000	57
2000	52
4000	48
8000	45

Figure 4.6-1 illustrates construction noise contours as a function of distance and attenuation, representing the expected sound levels at various distances from the noise source. These contours help assess the potential noise impact on surrounding areas and evaluate compliance with noise regulations. In the worst-case scenario depicted, up to 23 pieces of construction equipment are operating simultaneously. This scenario assumes peak noise emissions, with all equipment contributing to the overall sound levels. The contours reflect the combined noise output, factoring in attenuation due to distance, terrain, and potential barriers.

Figure 4.6-2 presents operational noise contours as a function of distance and attenuation, illustrating anticipated sound levels at varying distances from the source during peak operational conditions. The modeled worst-case scenario assumes simultaneous operation of up to 66 pieces of equipment, representing the maximum potential noise emissions from the project area. These contours reflect cumulative noise levels, accounting for attenuation factors such as distance, terrain, and intervening structures or barriers. As with construction, as distance from the operational area increases, sound levels are expected to decrease due to geometric spreading, atmospheric absorption, and ground effects. Nonetheless, localized hotspots may occur, particularly in zones with hard reflective surfaces or limited natural or artificial sound barriers. Identification and analysis of these contours are essential for assessing potential impacts on surrounding sensitive receptors, including residential communities, and for developing effective noise mitigation measures such as operational scheduling, equipment selection, and the strategic placement of noise barriers.

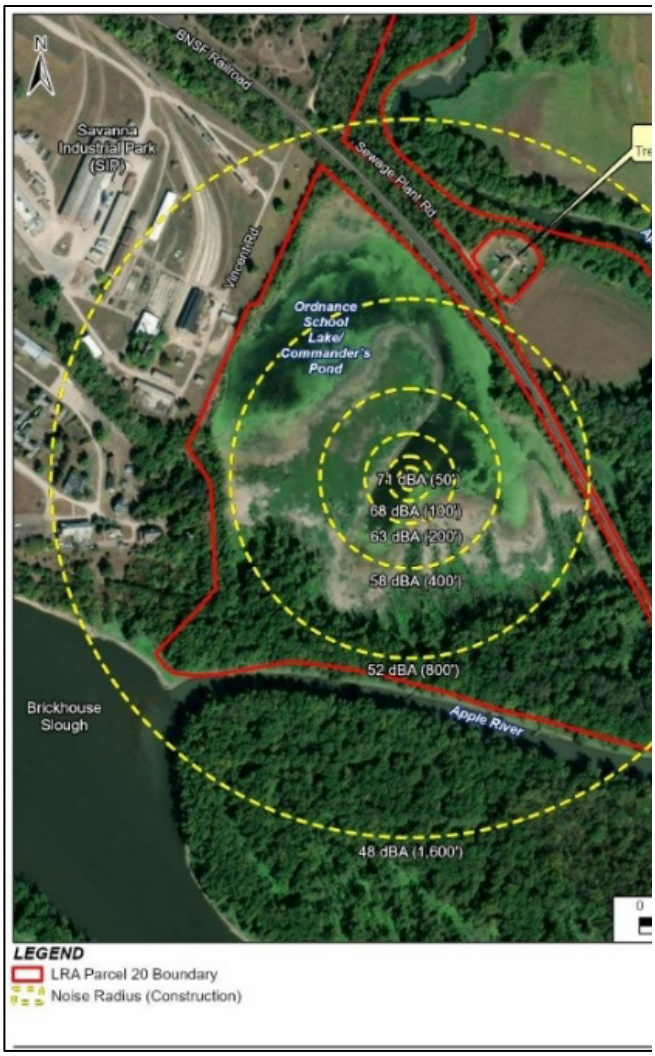


Figure 4.6-1. Construction Sound Pressure Levels (in dBA).

Figure 4.6-2. Operational Sound Pressure Levels (in dBA).

4.6.3 Mitigation Measures and BMPs

Mitigation. No mitigation measures would be required for noise as effects would not be significant.

BMPs. Under Alternative 5, the LRA would need to complete the noise monitoring required under 35 IAC § 901.103 for both construction and operations. The LRA must phase their construction and leave the natural buffers in place to reduce noise from the construction on LRA Parcel 20. To further manage noise impacts, a comprehensive suite of BMPs would be implemented. These include equipment maintenance, mufflers, and adherence to designated work hours. On-site personnel are classified as industrial workers, and occupational noise exposure will be managed in compliance with OSHA Standard in 29 CFR § 1910.95. All construction activities will follow OSHA protocols to mitigate noise exposure and protect worker hearing. Given the implementation of BMPs, natural sound attenuation by forested areas, and adherence to regulatory standards, construction-related noise is not expected to result in significant impacts on either the environment or human health.

4.7 Geology and Soils

4.7.1 Affected Environment

The geology of LRA Parcel 20 is designated as the Cahokia Formation, which is a Holocene Hudson Episode Unit. The Cahokia Formation is made up of alluvium composed primarily of silt or fine sand reworked from older Wisconsin episode material. The Cahokia Formation is underlain by the Henry Formation, which consists of stratified sands and gravels up to 2,000 ft thick along the Mississippi River. Some eolian dunes are found on the surface of terraces, two levels of which are included in this formation (Johnson et al. 2008).

The Henry Formation is underlain by the Platteville Group and Galena Group dolomites, which are brown and gray dolomites with some cherty, argillaceous beds and clay beds. The Platteville Group is finer grained and thinner bedded than the Galena Group (McGarry 1997).

Most of the soils in LRA Parcel 20 are identified as Dorchester silt loam, with minor amounts of Dickinson sandy loam and Coloma sand (NRCS 2023).

Along the shore of Brickhouse Slough and the Mississippi River, the soil in the area is the Orion silt loam. Soils in the areas above water in Brickhouse Slough and the Mississippi River consist of Algansee-Kalmarville complex, river valleys, and similar soils. Soils below the water are considered sediments and not identified as soils.

Both the Dorchester silt loam and the Dickinson sandy loam are designated by the Natural Resources Conservation Service (NRCS) as prime farmland soils, and there are minor amounts of soils classified as farmland of statewide importance (see Table 4.7-1). Table 4.7-1 includes the soils ratings for favorability for construction. The limitations can be overcome or minimized by special planning, design, or installation (NRCS 2023).

Table 4.7-1. LRA Parcel 20 Soils

Map unit name	Rating	Construction limitations	Percent of AOI
Dorchester silt loam, 0%–2% slopes, occasionally flooded	All areas are prime farmland	Very limited	59.4%
Dickinson sandy loam, 0%–2% slopes	All areas are prime farmland	Not limited	11.0%
Coloma sand, 20%–30% slopes	Not prime farmland	Very limited	3.5%
Sparta loamy sand, 1%–6% slopes	Farmland of statewide importance	Not limited	1.1%
Ade loamy fine sand, 7%–15% slopes	Farmland of statewide importance	Very limited	0.5%
Otter silt loam, 0%–2% slopes, frequently flooded	Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season	Very limited	0.3%
Littleton silt loam, 2%–5% slopes	All areas are prime farmland	Somewhat limited	0.0%
Pits, sand	Not prime farmland	Not rated	0.1%
Water	Not prime farmland	Not rated	24.0%

Source: NRCS 2023.
Note: AOI = area of interest. The AOI for soils is LRA Parcel 20.

4.7.2 Environmental Consequences

Effects would be considered significant if an alternative resulted in conversion of prime farmland to nonagricultural use or impacts on unique surface soil features. In addition, effects would be considered significant if altered topography and stormwater drainage resulted in excessive erosion within the site and adjacent area or excessive entrainment of sediment in stormwater leading to degradation of receiving waters.

Alternative 1: No Action Alternative. No effects on geology or surface soils would be expected. The No Action Alternative would be a continuation of the existing state of LRA Parcel 20, with the Army continuing as the caretaker of the parcel. There would be no change in the geology or soils of the site.

Alternative 2: Accelerated Disposal Alternative. No effects on surface soils or geology would be expected. No ground disturbance would occur under Alternative 2, which consists of transferring or conveying title of real estate for LRA Parcel 20 to the LRA.

Alternative 3: Recreation-Only Reuse Alternative. Short- and long-term, less-than-significant adverse indirect effects would be expected on surface soils. Short-term effects would include those expected from constructing recreational resources and include temporary disturbance of the previously disturbed former SVADA parade ground west of LRA Parcel 20 for use as a construction staging area. Long-term effects would result from recreational use on LRA Parcel 20. A small amount of soil erosion would be expected. No effects on geology would be expected.

Alternative 4: Recreation and Solar Reuse Alternative. Short- and long-term, less-than-significant adverse indirect effects on soils would be expected. Short-term effects would be from constructing recreational resources and the solar arrays, including use of the previously disturbed former SVADA parade ground west of the LPA Parcel 20 as a construction staging area. Site LUCs would apply to installing solar PV arrays on top of the landfill. Anchoring or foundation systems suitable for a landfill—those that do not involve deep excavations or penetrations—would likely be required. Only the surface soils emplaced as part of the landfill cap, therefore, would be disturbed. A small amount of soil erosion would be expected during construction for both recreational facilities and solar array installation. No impacts on geology would be expected.

Alternative 5: LRA Reuse Alternative. Short- and long-term, less-than-significant adverse indirect effects on soils would be expected. The dredging of underwater sediments would temporarily affect soils adjacent to LRA Parcel 20 for construction of the infrastructure and roads associated with the dredging and within the SIP for the dewatering and temporary storage containment area. The dredging of Commander's Pond and construction of the LOLO wharf and travel lift piers would include a small amount of additional long-term disturbance of surface soils within the LRA Parcel 20.The temporary effects on soils under Alternative 5 would essentially be the same as those under Alternative 4. No impacts on geology would be expected.

4.7.3 Mitigation Measures and BMPs

Mitigation. No mitigation measures for geology and soils would be required. No significant effects on geology or soils would be expected.

BMPs. BMPs include encumbrances applicable to alternatives 4 and 5 that protect the landfill cap—prohibition on unauthorized intrusive activity into or excavation of the landfill cap and a requirement to maintain the vegetated, engineered landfill cap intact. Standard BMPs include use of sediment fences to prevent runoff to nearby water features; minimizing grading and vegetation removal; and use of erosion control blankets, mulch, and staked sod. Temporary access roads and paths should be graveled to prevent ruts. Additional site-specific BMP requirements would be included in Illinois construction stormwater permits, a site-specific stormwater pollution prevention plan (SWPPP), and those measures undertaken by the LRA or other future owner to limit shoreline erosion.

4.8 Water Resources

4.8.1 Affected Environment

A primary goal of the Federal Water Pollution Control Act (also known as the CWA) is to restore and maintain the chemical, physical, and biological integrity of waters (lakes, rivers, streams, wetlands, estuaries, and coastal zones) throughout the nation. The CWA establishes the basic structure for regulating discharges of pollutants into waters of the United States (WOTUS) and regulating water quality standards for surface waters. Pertinent sections of the CWA include, but are not limited to, the following:

- Section 301 prohibits the discharge of pollutants into WOTUS without authorization under specific CWA provisions.
- Section 401 gives states and authorized tribes the authority to grant, deny, or waive water quality certification of proposed federally licensed or permitted activities that might result in discharges into WOTUS.
- Section 402 requires that all construction sites on 1 acre or more of land as well as commercial, industrial, and municipal facilities discharging wastewater or stormwater directly from a point source (a channel, ditch, or pipe) into a surface WOTUS (a lake, river, and/or ocean), must obtain permission under the National Pollutant Discharge Elimination System (NPDES) (40 CFR Part 122) permit.
- Section 404 regulates development activities in WOTUS, including wetlands. It requires a permit from USACE for dredging and filling of WOTUS, including wetlands.

Construction projects in Illinois waterways, floodplains, and wetlands often require both state and federal authorization. Projects requiring a federal permit for discharge of fill or dredged material into a WOTUS may require a state-issued CWA Section 401 water quality certification or a waiver (IEPA 2025).

EO 11990 is intended to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. Federal agencies are required to consider alternatives to the use of wetland sites and to limit potential damage if an activity affecting a wetland cannot be avoided.

EO 11988 requires federal agencies to avoid to the greatest extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

The federal Coastal Zone Management Act of 1972, as amended (16 U.S.C. § 1451 *et seq*.) requires projects involving federal activities, federal licenses or permits, and federal assistance programs that affect coastal resources to be consistent with enforceable policies of approved state management programs to the maximum extent practicable.

This section presents surface water, groundwater and hydrogeology, floodplains, coastal zone conditions, and wetlands.

4.8.1.1 Surface Water

Surface water hydrology of LRA Parcel 20 is influenced primarily by the Apple River and backwater (bottomland) areas of the Mississippi River. The Apple River forms the eastern and southern boundary of LRA Parcel 20 and flows into the Mississippi River at the parcel's southwestern corner. Near the mouth of the Apple River is a backwater complex that consists primarily of Commander's Pond and a smaller impoundment. Commander's Pond is approximately 60 acres in size and is bounded on the north and east by a BNSF Railway line and on the west by the SIP (USACE, Louisville District 2020b). To the south is the Apple River. Commander's Pond is an oxbow feature of the Apple River and is connected to it by a drainage channel at its southern end. Runoff from

the southeastern SIP flows into the pond. The smaller impoundment is about 1 acre in size and is located next to the BNSF Railway line, approximately 400 ft north of where the railroad crosses the Apple River (USACE, Mobile District 1997).

In 2024, Tetra Tech conducted a delineation on the approximately 132-acre LRA Parcel 20. Results of the field investigation indicated the presence of approximately 126.72 acres of jurisdictional wetlands within the project area (Tetra Tech 2024).

"Jurisdictional waters" means wetlands, ponds, streams, and other waterways regulated by federal, state, or regional agencies. Wetlands with "jurisdictional status" are WOTUS as defined by Section 404 of the CWA. These types of wetlands are regulated by USACE and USEPA. Several classes of waterbodies are subject to federal jurisdiction under the CWA, including traditional navigable waters (TNWs); non-navigable tributaries of TNWs that are relatively permanent waters (RPWs); and wetlands that directly abut RPWs (USACE 2007).

Stormwater from upland areas of LRA Parcel 20 drains into the Mississippi River, the Apple River, and on-site wetlands (USACE, Mobile District 1997).

4.8.1.2 Groundwater and Hydrogeology

Shallow groundwater in the LRA Parcel 20 area is present in the sandy deposits of the Cahokia Formation. Those aquifers have the greatest potential to be affected by the Proposed Action. This shallow groundwater is generally unconfined. In the LRA Parcel 20 area, groundwater generally flows in a radial pattern northeast toward the Apple River and southeast toward the Mississippi River but is influenced by the variable low and high stages of the Mississippi River. Numerous groundwater discharge seeps occur along land/water interfaces (USACE, Mobile District 1997).

4.8.1.3 Floodplains

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map panel 17015C0050C for Carroll County, IL, effective December 17, 2010, the entire LRA Parcel 20 is in a 100-year floodplain, an area with a 1% annual chance of flood hazard (FEMA 2025). The parcel is designated as Zone AE, an area with a 1% annual chance of flood hazard with base flood elevations determined. A small area in the southwestern portion of the parcel also is designated as a regulatory floodway, defined by FEMA as the channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Development in a regulatory floodway is regulated to ensure there are no increases in upstream flood elevations (Figure 3.2-1).

4.8.1.4 Coastal Zone

LRA Parcel 20 is not within the coastal zone of the Illinois Coastal Management Program, which is limited to the Lake Michigan coastal area and land corridors along the North and South branches of the Chicago River in the Chicago area.

4.8.1.5 Wetlands

LRA Parcel 20 is minimally developed with wetland habitat covering approximately 96% of the area (126.72 acres) according to the 2024 wetland delineation (Tetra Tech 2024). See Figure 3.2-1.

4.8.2 Environmental Consequences

Effects on water resources would be considered significant if an alternative would reduce water availability or supply; exceed safe annual yield of water supplies; adversely affect water quality; damage or threaten hydrology; or violate water resources laws, regulations, or permit conditions.

Alternative 1: No Action Alternative. No effects on water resources would be expected. The Army would continue providing limited caretaking of LRA Parcel 20, and wetlands and floodplains on the parcel would change over time through natural processes.

Alternative 2: Accelerated Disposal Alternative. No effects on water resources would be expected from transferring or conveying title of the real estate for LRA Parcel 20 to the LRA. The Army would transfer the parcel with restrictions in the transfer document for the man-made encumbrances from the former landfill sites and Commander's Pond and Carroll County would require compliance with its floodplain ordinance for the natural encumbrance of the property being in a floodplain. These encumbrances would limit the type and extent of impacts that would be allowed within floodplains for LRA Parcel 20.

Alternative 3: Recreation-Only Reuse Alternative. Short- and long-term, less-than-significant adverse indirect effects would be expected on water resources. Short-term, minor adverse effects would be caused by site-specific temporary changes in surface hydrology, the potential for soil erosion and transport resulting from ground surface disturbance by construction and demolition activities; the potential for increased turbidity and contamination suspension from sediment excavation; and the potential for construction equipment to leak petroleum, oil, and lubricants, which also could be transported via stormwater. These effects would be temporary and would end with the construction phase. Long-term, minor adverse effects would be due to an increase in impervious surfaces from new construction. Proposed activities would not reduce water availability or supply; exceed safe annual yield of water supplies; adversely affect water quality; damage or threaten hydrology; or violate water resources laws, regulations, or permits. Implementing the General NPDES Permit for Construction Site Activities, a SWPPP, and low impact development controls and coordinating with regulatory agencies for required permits prior to groundbreaking activities would minimize potential erosion, impacts on stormwater quality from sediment, and alteration of existing drainage patterns during construction.

Alternative 4: Recreation and Solar Reuse Alternative. Short- and long-term, less-than-significant adverse indirect effects would be expected on water resources similar to those discussed under Alternative 3. Short-term effects would primarily occur during construction activities of recreational resources and solar panel installation at Cleanup Site 20, Abandoned Landfill. Long-term water resource impacts would be expected from increases in impervious surface, similar to those discussed for Alternative 3.

Alternative 5: LRA Reuse Alternative. Short- and long-term, significant-but-mitigable adverse indirect effects on water resources would be expected. Short-term adverse effects would be expected from sediment disturbance and heavy equipment operation during construction. Dredging activities would result in elevated turbidity levels under all phases, and elevated concentrations of contaminants in the water under phases 2 and 3 (see section 4.15.2 for further information). The LRA or other future owner would need to prepare a dredge management plan, obtain CWA Section 401 and 404 permits, and implementing substantial mitigation measures, possibly including sediment barriers, low-impact construction techniques, and other BMPs, would be required to reduce construction impacts.

Long-term adverse effects would be expected from the addition of an 80,000-ft^2 dry and liquid bulk wharf and a 17,000-ft^2 access road, resulting in the addition of 97,000 ft^2 of impervious surfaces, and barge traffic to and from the wharfs, which would impact aquatic habitat. Structural pilings would alter water flow and sediment dynamics in the area, and the infrastructure could affect the FEMA-designated floodplain or floodway. The LRA would need to conduct a floodplain study that will determine if and by how much proposed development would increase flood elevations and if it would decrease the 100-year floodplain storage capacity in the project area. Wetlands could be dredged or filled to accommodate development. Deeping of Brickhouse Slough could impact current water flow in the vicinity of dredging activities. Dredging depths should be analyzed to ensure scouring or diversion from the main channel would not occur. Runoff from commercial/industrial operations at the port facilities would degrade water quality within Commander's Pond and the Mississippi River. Dredging 1,273,899 yd^3 of sediment from 414 acres of Brickhouse Slough would permanently impact the aquatic habitat near LRA Parcel 20, necessitating mitigation. Long-term adverse effects would be due to any permanent loss of wetland from new construction and dredging. The future owner of LRA Parcel 20 would obtain all required permits and develop specific mitigation measures in coordination with state and federal regulatory agencies. In consideration of EO 11988 and EO 11990, the Army has prepared a FONPA (Appendix J).

Additional short- and long-term, significant-but-mitigable adverse effects from the phased dredging and port development would be expected from construction of a 51,750-ft^2 L-shaped wharf covering aquatic habitat with impervious surfaces and dredging 524,533 yd^3 of sediment from 18 acres of Commander's Pond. These activities would permanently impact aquatic habitat within and adjacent to LRA Parcel 20, necessitating mitigation. The future owner of LRA Parcel 20 would develop specific mitigation measures in coordination with state and federal regulatory agencies.

Additional short- and long-term, significant-but-mitigable adverse effects from the final phase of dredging and port development would be expected from dredging 313,689 yd^3 of sediment from 42 acres of Commander's Pond and restoration of 16 acres of aquatic habitat. These activities would permanently impact aquatic habitat within LRA Parcel 20, necessitating mitigation. The future owner would develop specific mitigation measures in coordination with state and federal regulatory agencies. Overall, dredging and port development would involve a total dredge volume of 2,112,121 yd^3 and add 151,650 ft^2 of impervious surface covering aquatic habitat. Section 4.15.2 discusses the impacts on water quality due to contaminants in sediments to be dredged in Commander's Pond.

4.8.3 Mitigation Measures and BMPs

Mitigation. Dredging activities would require compensatory mitigation. The LRA or other future owner of LRA Parcel 20 would develop specific mitigation measures in coordination with state and federal regulatory agencies. Beyond regulatory requirements, mitigation measures are measures that would be tailored to the specific conditions and risks from implementing Alternative 5. These measures would anticipate potential contaminants and reflect best practices in environmental management, exceeding baseline legal obligations.

The Army would be responsible for cleanup of Commander's Pond under CERCLA. The mitigation could include such measures as:

- Conducting targeted sampling and analysis as part of characterization of potential pollutant loading, with specific analytes (e.g., heavy metals, PCBs, pesticides, and VOCs) and protocols selected based on project-specific risk considerations.

The LRA's mitigation measures could include the following:

- Conducting targeted sampling and analysis in Brickhouse Slough and the Mississippi River, as needed, as part of characterization of potential pollutant loading, with specific analytes (e.g., heavy metals, PCBs, pesticides, and VOCs) and protocols selected based on project-specific risk considerations.
- Dredge management planning to include coordination for handling potentially contaminated sediment exceeding standard compliance practices, including identification of contaminants and planning for disposal at permitted facilities.
- Developing mitigation measures through the permitting process, which may include preparing a CWA Section 404 WOTUS mitigation plan outlining how the project would compensate for unavoidable impacts to wetlands and other aquatic resources from discharge of dredged or fill material into WOTUS and coordinating the mitigation with USACE as part of the Section 404 permitting process.

BMPs. In consideration of EOs 11988 and 11990, the Army prepared a FONPA for Alternative 5 (Appendix J).

The LRA would employ structural and nonstructural BMPs to reduce impacts from construction, including the use of sediment barriers, inlet protection, low-impact construction techniques, and the implementation of other BMPs to protect water quality as recommended by the IEPA.

Management of water resources and potential pollution from runoff and disturbance of sediment in Commander's Pond and Brickhouse Slough would be subject to federal environmental laws, including the CWA (33 U.S.C. § 1251). The LRA would need to comply with the following federal and state regulations to ensure environmental compliance and protect public health:

- File a CWA Section 401 permit application that includes the following:
  - Characterization of the potential pollutant loading
  - Extensive sediment chemical analyses

  - Extensive resuspension testing
  - Identification of the Least Environmentally Damaging Practicable Alternative (LEDPA)
- File a CWA Section 404 permit application that contains the following:
  - Dredge management plan, including:
    - Dredging cost estimate
    - Dredging volume estimate
    - Cost estimates for the characterization and disposal of dredged sediments
    - Identification of the location where contaminated and uncontaminated dredged material would be placed
    - Dredged volume and cost estimates for annual maintenance required to maintain a 9-ft-deep channel leading into and within Brickhouse Slough and Commander's Pond
    - Safety precautions for handling contaminated versus uncontaminated dredged sediments
  - Final development plans
  - Hydraulic modeling
  - Identification of impacts on wetlands
  - Sediment transport modeling
  - Wetland delineation
- Conduct a floodplain determination study to determine if and by how much proposed development would increase flood elevations and if there would be a decrease in the 100-year floodplain storage capacity in the project area
- Prepare a floodplain management plan
- Prepare a SWPPP
- Prepare a stormwater management plan

4.9 Biological Resources

4.9.1 Affected Environment

This section describes existing conditions for vegetation, wildlife, invasive species, and T&E species known or suspected to occur on LRA Parcel 20.

To identify agency concerns related to the disposal or reuse of LRA Parcel 20 with respect to biological resources, the Army sent early consultation letters to IDNR, IEPA, NRCS, USACE, USEPA, and USFWS. Appendix G has copies of the referenced coordination letters and responses.

4.9.1.1 Vegetation

SVADA, including LRA Parcel 20, is listed as an Illinois Natural Areas Inventory (INAI) Category I site, meaning it contains high-quality natural community and natural community restorations (IDNR 2024).

LRA Parcel 20 is minimally developed with large areas of wetland habitat. Vegetation on CERCLA cleanup sites 20, 73, and 178 was characterized in 2016 as part of the wetland delineation and T&E species surveys and is summarized in the following paragraphs. These three sites contain plant communities representative of the parcel. The fact that a particular vegetation species was not documented during the surveys means only that it was not observed during the effort, not necessarily that it does not occur at the site.

Cleanup Site 20, Abandoned Landfill, consists of a central plateau surrounded by a floodplain to the east and north. Habitat on the higher elevation area consists of early-to-mid-successional upland forest and shrub species dominated by black walnut (*Juglans nigra*), eastern cottonwood (*Populus deltoides*), fox grape (*Vitis labrusca*), garlic mustard (*Alliaria petiolata*), and Tatarian honeysuckle (*Lonicera tatarica*). The lower elevation is a mature forested wetland and floodplain forest habitat dominated by Canadian wood-nettle (*Laportea canadensis*), eastern cottonwood, and silver maple (*Acer saccharinum*) (USACE, Louisville District 2016c).

Cleanup Site 73, Stables Landfill, has two distinct areas: bottomland floodplain adjacent to the Apple River and an upland plateau. Habitat on the plateau consists of early successional upland forest and shrub species, including common hackberry (*Celtis occidentalis*), garlic mustard, and red elm (*Ulmus rubra*). The bottomland consists of mature forested wetland and floodplain forest habitat containing bristly greenbrier (*Smilax tamnoides*), green ash (*Fraxinus pennsylvanica*), pin oak (*Quercus palustris*), and silver maple (USACE, Louisville District 2015a).

Cleanup Site 178, Ordnance School Lake, is in the Apple River and Mississippi River floodplain. The site consists of a disturbed steep slope into Commander's Pond dominated by mid-successional upland forest species, including honey locust (*Gleditsia triacanthos*), pin oak, shagbark hickory (*Carya ovata*), and Tartarian honeysuckle. Commander's Pond covers the remainder of the site. Due to icy weather conditions, aquatic flora or fauna in Commander's Pond were not observable during the survey (USACE, Louisville District 2015a).

Based on the 2024 wetland delineation, the vegetation found in the project area consists of tree and shrub species. The uplands are dominated by black oak (*Quercus velutina*) while the wetlands are dominated by common hackberry, mulberry (*Morus rubra*), roughleaf dogwood (*Cornus drummondii*), and silver maple (Tetra Tech 2024). The wet areas without canopy cover primarily consist of mulberry and numerous other herbaceous wetland species. Dominant species found in the project area include Canadian wood-nettle, black oak, bristly greenbrier, poison ivy (*Toxicodendron radicans*), and riverbank grape (*Vitis riparia*) (Tetra Tech 2024).

4.9.1.2 Wildlife

LRA Parcel 20 is within the Mississippi Flyway–a bird migration route that generally follows the Mississippi, Missouri, and Lower Ohio rivers. It also is adjacent to the approximately 240,000-acre Globally Important Bird Area and Ramsar site, UMRNWRF. The 1997 BRAC EIS noted several biological surveys of SVADA. The species identified in those surveys could potentially be present on LRA Parcel 20 and are identified and described in this section. The fact that a particular fauna species was not documented during the surveys means only that it was not observed during the effort, not necessarily that it does not occur at SVADA.

Mammals. Thirty-one mammalian species are documented at SVADA (Mankowski 1994, cited in USACE, Mobile District 1997). Large mammals include the bobcat (*Felis rufus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*), and white-tailed deer (*Odocoileus virginianus*). Observed small mammal species include the beaver (*Castor canadensis*), deer mouse (*Peromyscus maniculatus*), masked shrew (*Sorex cinereus*), meadow vole (*Microtus pennsylvanicus*), muskrat (*Ondatra zibethica*), prairie vole (*M. ochrogaster*), short-tailed shrew (*Blarina brevicauda*), western harvest mouse (*Reithrodontomys megalotis*), and white-footed mouse (*Peromyscus leucopus*).

Birds. One-hundred and twelve bird species were identified by a 1995 avian survey conducted in the SVADA bottomlands (McKay et al. 1995, cited in USACE, Mobile District 1997). Sixteen species were determined to be year-round residents, 38 species were North American migrants, and 58 species were neotropical migrants. The bald eagle (*Haliaeetus leucocephalus*), double-crested cormorant (*Phalacrocorax auritus*), northern oriole (*Icterus galbula*), pileated woodpecker (*Dryocopus pileatus*), tree swallow (*Tachycineta bicolor*), warbling vireo (*Vireo gilvus*), and wild turkey (*Meleagris gallopavo*) were among the birds observed (McKay et al. 1995, cited in USACE, Mobile District 1997). In past years, great blue heron (*Ardea herodias*) and great egret (*Casmerodius albus*) rookeries existed in the bottomlands (USFWS 1996, cited in USACE, Mobile District 1997).

Reptiles and Amphibians. Thirteen species of reptiles and 11 species of amphibians are documented on SVADA (USFWS 1996, cited in USACE, Mobile District 1997). Reptiles observed include the blue racer (*Coluber constrictorfoxii*), false map turtle (*Graptemys pseudogeographic*), garter snake (*Thamnophis sirtalis*), map turtle (*G. geographica*), ornate box turtle (*Terrepene ammo*), spiny softshell turtle (*Apalone spinifera*), and western painted turtle (*Chrysemys picta bellii*). Amphibians observed include the American toad (*Bufo americanus*), gray treefrog (*Hyla versicolor*), northern leopard frog (*Rana pipiens*), spring peeper (*Pseudacris crucifer*), and wood frog (*Rana sylvatica*) (Moll and McCallum 1994a, 1994b, cited in USACE, Mobile District 1997).

Fish. A SVADA fish species list was compiled from electrofishing data collected by the IDNR and the commercial harvest records from a single fisherman. These records identified several species including the bigmouth buffalo (*Ictiobus cyprinellus*), bowfin (*Amia calva*), emerald shiner (*Notropis atherinoides*), gizzard shad (*Dorosoma cepedianum*), largemouth bass (*Micropterus salmoides*), river carpsucker (*Carpiodes carpio*), and white bass (*Morone chysops*). The area of SVADA located along the main

channel of the Mississippi River and northwest of LRA Parcel 20 is recognized as an important spawning site for resident walleye (*Stizostedion vitreum vitreum*) and sauger (*Stizostedion canadense*) populations due to the combination of suitable substrate, the presence of a large mussel bed, and the protected backwater conditions of Crooked Slough (Pitlo 1989, 1996, cited in USACE, Mobile District 1997). In 1991, USFWS undertook a more comprehensive fish survey of the upper Mississippi River as part of a wildlife inventory for the adjacent UMRNWFR (USFWS 1991, cited in USACE, Mobile District 1997).

Invertebrates. Two freshwater mussel beds exist in Pool 13 of the Mississippi River adjacent to SVADA and northwest of LRA Parcel 20. The first mussel bed located just downstream of Lock and Dam 12 is regarded as the largest and best developed bed in Pool 13. It supports at least 10 species of native mussels, including the federally endangered Higgins eye pearlymussel (*Lampsilis higginsi*), which was documented there in 1990 (Gent and Griffin 1996 and Pitlo 1996, cited in USACE, Mobile District 1997). The second mussel bed is a state-designated mussel refuge. It spans from Lock and Dam 12 (at River Mile [RM] 556.7) upstream to a line extending from RM 558.4 to Blandings Landing boat ramp (Cottrell 1997, cited in USACE, Mobile District 1997).

In a survey conducted by EcoAnalysts in 2018, three endangered Higgins eye pearlymussel individuals were collected from a relatively diverse and dense mussel bed in Pool 13 located on the Illinois bank between Mississippi River RMs 545.2 and 546.7, including an area adjacent to LRA Parcel 20 where the Apple River flows into the Mississippi River (see Figure 4.9-1) (EcoAnalysts 2018). A total of 22 species were collected; however, approximately 95% of live unionids were identified as one of six species:[15] threeridge (*Amblema plicata* [35.4%]), pimpleback (*Cyclonaias pustulosa* [8.0%]), Wabash pigtoe (*Fusconaia flava* [14.3%]), threehorn wartyback (*Obliquaria reflexa* [13.5%]), hickorynut (*Obovaria olivaria* [6.7%]), or mapleleaf (*Quadrula quadrula* [16.7%]). The other 16 species were each less than 2% of the total live unionids (EcoAnalysts 2018).

In 1995 and 1996, a survey of insects on SVADA identified 242 species, representing eight orders and 49 families. The majority of these were determined to be wide-ranging generalists and 37 species were identified as uncommon or rare, remnant-dependent species (Panzer and Stillwaugh 1995, 1996, cited in USACE, Mobile District 1997). Rare species identified in the survey included Haldeman's grasshopper (*Pardalophora haldemanii*); leadplant flower moth (*Schinia lucens*); leafhopper species (*Prairiana sp.*); long-winged toothpick grasshopper (*Mermeria bivatatta*); prairie katydid (*Conacephalus saltans*) (known from fewer than 20 sites and considered an uncommon, prairie-requiring species); velvet-striped grasshopper (*Eritettix simplex*) (seldom encountered in Illinois and considered regionally rare); and western walking stick (*Diapheromera velii*) (a rare species in Illinois). Records of three leafhopper species—the rye grass leafhopper (*Commellus colon*), *Flexamia abbreviata*, and *F. gramica*—represented the first to be reported in Illinois in 50 years at that time.

[15] The Unionidae are a family of freshwater mussels, the largest in the order Unionida, the bivalve mollusks sometimes known as river mussels, or simply as unionids.

4.9.1.3 Invasive Species

According to the IDNR, an invasive species is any species not native to a particular ecosystem the introduction of which is likely to cause economic or environmental harm.

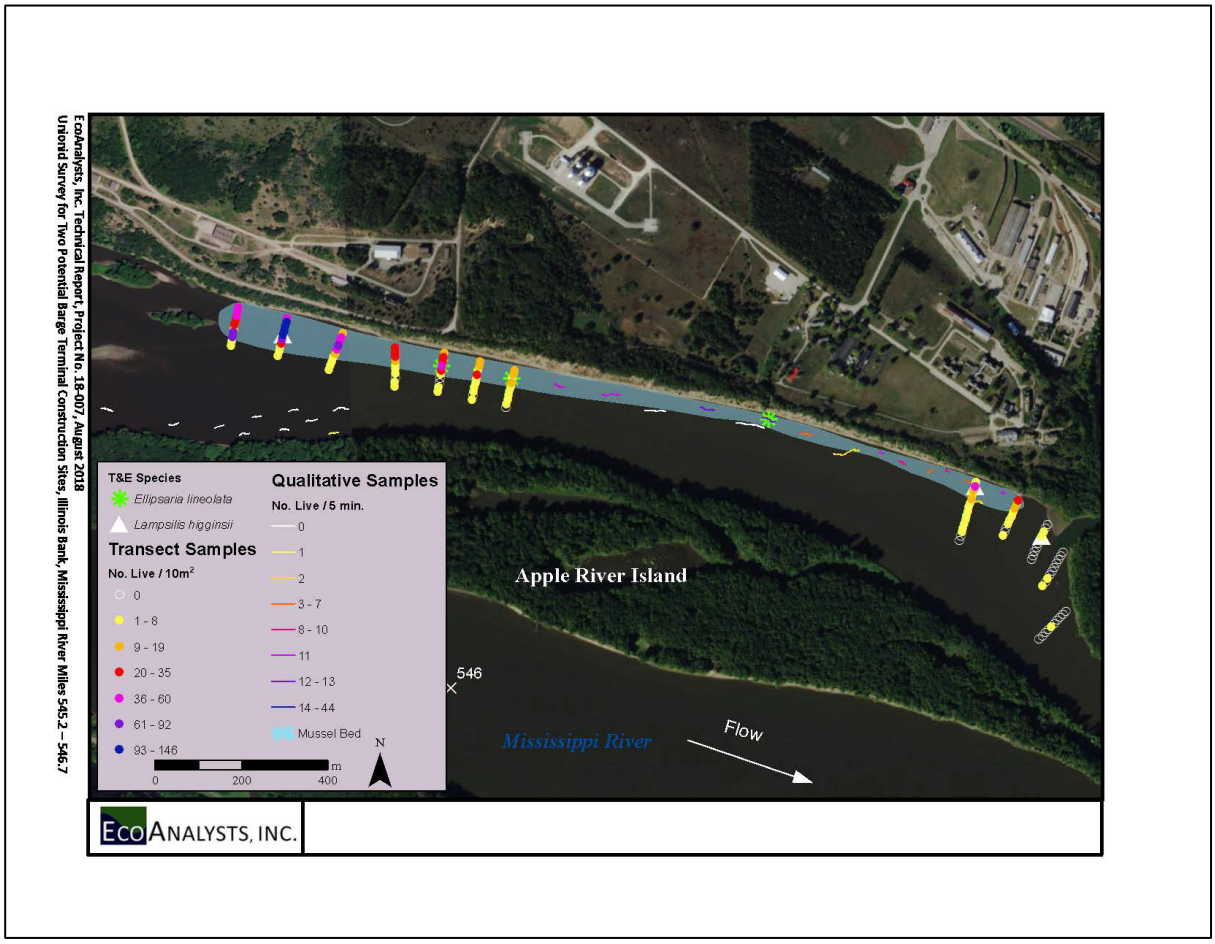


Figure 4.9-1. Unionid Distribution, RM 545.2 – 546.7, June 2018 (EcoAnalysts 2018).

EO 13112, *Invasive Species*, aims to prevent the introduction, establishment, and spread of invasive species as well as to eradicate and control populations of invasive species that are established. EO 13751, *Safeguarding the Nation from the Impacts of Invasive Species* (which amended EO 13112), directs federal agencies to continue coordinated federal prevention and control efforts related to invasive species.

The invasive plant Tatarian honeysuckle is documented at CERCLA Cleanup Site 20, Abandoned Landfill, and Cleanup Site 178, Ordnance School Lake (USACE, Louisville District 2015a, 2016c).

4.9.1.4 Threatened and Endangered Species

The ESA established measures to protect plant and animal species federally listed as threatened or endangered and to conserve habitats critical to their survival. Under the ESA, an "endangered species" is "any species in danger of extinction throughout all or a

significant portion of its range" and a "threatened species" is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." In addition, USFWS maintains a list of species considered candidates for possible listing under the ESA (50 CFR § 17.11(h)). The ESA also allows the designation of geographic areas as critical habitat for threatened or endangered species.

No federally endangered or threatened species are known to occur on LRA Parcel 20 and there are no designated critical habitats (USFWS 2025). Habitat for other federally listed species and state species of concern might occur in areas adjacent to LRA Parcel 20. SVADA is listed as an INAI Category I site and INAI Category II site, meaning it has specific suitable habitat for state-listed species or state-listed species relocations (IDNR 2024). Bald eagles were observed in a 1995 bird survey; therefore, potential habitat for the bald eagle, federally protected under the Bald and Golden Eagle Protection Act (16 U.S.C. § 668 *et seq.*), may be located adjacent to LRA Parcel 20 (McKay et al. 1995, cited in USACE, Mobile District 1997).

The Army used the USFWS Information for Planning and Conservation, the IDNR Ecological Compliance Assessment Tool, and a 2015 study to identify federal and state-protected resources in the vicinity of LRA Parcel 20 (IDNR 2023; Nyboer and Ambroz 2015; USFWS 2025). Table 4.9-1 lists each of the protected species with its federal and state statuses. There are no critical habitats within the parcel.

Table 4.9-1. Protected Species That Might Occur on LRA Parcel 20

Common name	Scientific name	Federal status	State status
Mammals			
Indiana bat	*Myotis sodalis*	E	E
Northern long-eared bat	*Myotis septentrionalis*	E	T
Tricolored bat	*Perimyotis subflavus*	PE	—
Birds			
Whooping crane	*Grus amaericana*	EXPN	—
Reptiles			
Lined snake	*Tropidoclonion lineatum*	—	T
Plains hog-nosed snake	*Heterodon nasicus*	—	T
Fish			
Pallid shiner	*Hybopsis amnis*	—	E
Weed shiner	*Notropis texanus*	—	E
Western sand darter	*Ammocrypta clarum*	—	E
Clams (mussels)			
Butterfly	*Ellipsaria lineolate*	—	T
Higgins eye pearlymussel	*Lampsilis higginsii*	E	E
Sheepnose mussel	*Plethobasus cyphyus*	E	E
Insects			
Eastern regal fritillary	*Argynnis idalia idalia*	PE	E
Monarch butterfly	*Danaus Plexippus*	PT	—
Western regal fritillary	*Argynnis idalia occidentalis*	PT	—

Common name	Scientific name	Federal status	State status
Flowering plants			
Eastern prairie fringed orchid	*Platanthera leucophaea*	T	E
False heather	*Hudsonia tomentosa*	—	E
James's clammyweed	*Polanisia jamesii*	—	E

Sources: IDNR 2020, 2023; USFWS 2025; Nyboer and Ambroz 2015.
Notes: E = endangered; EXPN = experimental population, nonessential; PE = proposed endangered; PT = proposed threatened; T = threatened.

Bat surveys were conducted at SVADA in 2015 to determine if the federally listed Indiana bat or northern long-eared bat were present during maternity season (CEC 2015). Acoustic surveys confirmed the presence of both species and mist net surveys confirmed the presence of northern long-eared bats by capturing three juveniles and tracking them. These three bats were radio-tracked to three different roost sites, two within SVADA boundaries and the third west of SVADA on islands within the Mississippi River. None of the survey locations are on LRA Parcel 20, but the wooded areas, wetland areas, and riparian corridors on LRA Parcel 20 provide suitable habitat for Indiana and northern long-eared bats.

In a separate 2015 study, a summer and winter habitat assessment for Indiana bats and northern long-eared bats was conducted at three sites within LRA Parcel 20 where remedial actions were planned, CERCLA cleanup sites 20, 73, and 178 (Apogee 2015). The assessment identified potential Indiana bat and northern long-eared bat summer habitat consisting of forest and other lands with snags and 15 potential roost trees were identified within the survey boundaries. No potential winter habitat was observed during the survey efforts.

Surveys for state- and federally listed plant and animal species were conducted in 2015 at SVADA (Nyboer and Ambroz 2015). Five Illinois-listed species were observed during the surveys of four monitoring sites. The surveys identified two Illinois-endangered plant species—false heather (Hudsonia tomentosa) and James's clammyweed (Polanisia jamesii); two Illinois-threatened reptile species—plains hog-nosed snake (Heterodon nasicus) and lined snake (Tropidoclonion lineatum); and one Illinois-threatened invertebrate species—the eastern regal fritillary butterfly (Argynnis idalia idalia). None of the monitoring sites were located on LRA Parcel 20, but the property might contain suitable habitat for those species. A unionid study conducted in Pool 13 of the Mississippi River in 2018 identified the butterfly mussel (*Ellipsaria lineolata)*, a state-listed threatened freshwater mussel species, and the federally listed endangered Higgins' eye pearlymussel (EcoAnalysts 2018).

4.9.2 Environmental Consequences

Effects on biological resources would be considered significant if an alternative resulted in substantial permanent conversion or net loss of habitat, long-term loss or impairment of local habitat (species-dependent), loss of populations of species, or unpermitted or unlawful "take[16]" of federally protected species.

[16] This analysis uses the current definition of harm and take, but there is a proposed revision.

Alternative 1: No Action Alternative. No effects on biological resources would be expected. The Army would continue providing limited caretaking of LRA Parcel 20, and there would be no changes that would affect flora, fauna, federally protected species or their habitats, or migratory birds.

Alternative 2: Accelerated Disposal Alternative. No effects on biological resources would be expected from transferring or conveying title of real estate for LRA Parcel 20 to the LRA. The Army would transfer the parcel with restrictions in the transfer document for the man-made encumbrances from the former landfill sites and Commander's Pond and Carroll County would require compliance with its floodplain ordinance for the natural encumbrance of the property being in a floodplain, which would limit land-use development options for LRA Parcel 20 and protect biological resources. Alternative 2 would not involve activities that would affect federally listed T&E species, their designated critical habitat, or migratory birds.

Alternative 3: Recreation-Only Reuse Alternative. Short- and long-term, significant-but-mitigable adverse indirect effects would be expected on biological resources. Short-term, significant adverse effects would be expected from site-specific temporary disturbance of vegetation, wildlife, and T&E species by construction and demolition activities. Sediment disturbance from in-water construction of recreational resources would produce high turbidity levels in the construction area, impacting any aquatic species in the vicinity. Construction noise, as described in Section 4.6.2, would impact both aquatic and nonaquatic wildlife, including T&E species, in the vicinity of the construction site. It could disrupt foraging, hunting, mating, roosting, or nesting activities and could displace wildlife from the area impacted by the noise. Ground disturbance from construction activities without revegetation could increase the presence of noxious weeds and invasive plant species, which often outcompete native vegetation, resulting in a decline of habitat quality. These effects would be temporary and would end with the construction phase. Long-term, less-than-significant adverse effects would be due to any permanent loss of wetland or other habitat from new construction. Long-term, significant adverse effects would occur if any permanent loss of T&E habitat resulted from new construction; although no known T&E species habitat is located on LRA Parcel 20, suitable summer habitat for Indiana and northern long-eared bats was identified in the 2015 survey effort.

Formal consultation with USFWS is required to comply with ESA Section 7 if the project "may affect and is likely to adversely affect" federally listed threatened or endangered species. The LRA or other future owner of LRA Parcel 20 would be required to consult with USFWS before implementing Alternative 3, and site-specific mitigation measures would be developed to minimize impacts on biological resources based on coordination with state and federal regulatory agencies.

Alternative 4: Recreation and Solar Reuse Alternative. Short- and long-term, significant-but-mitigable adverse indirect effects would be expected. Effects would include the effects expected under Alternative 3, with additional short- and long-term, significant-but-mitigable adverse effects from construction activities of recreational resources and solar panel installation at Cleanup Site 20, Abandoned Landfill. In addition to the impacts described for Alternative 3, Alternative 4 includes solar panel installation on 12 acres at Cleanup Site 20. Those activities would impact vegetation, wildlife, and

T&E species in a manner similar to that of Alternative 3, with the addition of increased impervious surfaces. As with Alternative 3, the owner of LRA Parcel 20 would be required to consult with USFWS before implementing Alternative 4 to develop site-specific mitigation measures, as needed, to minimize impacts on biological resources.

Alternative 5: LRA Reuse Alternative. Short-and long-term, significant adverse indirect effects on biological resources would be expected. In the short term, adverse effects would be expected from construction and dredging activities. Dredging and sediment disturbance from dredging and other in-water construction for port development would affect mussels in the sediments and produce high turbidity levels in the construction area. Both the turbidity and the suspension of contaminants in the sediment would impact aquatic species in the vicinity and at downstream locations. Construction noise, as described in Section 4.6.2, would impact both aquatic and nonaquatic wildlife, including T&E species, in the vicinity of the construction site. It could disrupt foraging, hunting, mating, nesting, or roosting activities and could displace wildlife from the area impacted by the noise, including wildlife within the UMRNWFR, which is immediately adjacent to the proposed dredging activities and the area where a wharf and wharf access road would be constructed.

In the long term, the proposed port development along the western boundary of Commander's Pond would remove vegetation and replace it with the commercial/industrial features of the wharf along that western edge of the pond. The addition of a wharf and a wharf access road over the water adjacent to LRA Parcel 20 would result in covering aquatic habitat with impervious surfaces. That habitat alteration could benefit some species, like fish that like to seek refuge under docks, but could negatively impact others, such as waterfowl that hunt and forage along riverbanks. The construction of the wharf and the dredging of sediment from 186 acres of Brickhouse Slough in Phase 1 would essentially remove or bury any freshwater mussels within the construction area, resulting in a take of federally protected species if the species is present. Those activities also would permanently alter the bathymetry of the riverbed and create more deep-water areas. Although some aquatic wildlife might benefit from the change, the dredging would alter the habitat to a more disturbed state, which would negatively impact the more sensitive species. Additional LOLO wharfs, travel lift piers, and dredging of 18 acres within Commander's Pond under Phase 2 and 42 acres in the pond under Phase 3 would impact vegetation, wildlife, and T&E species in a manner similar to that of Phase 1, with a greater impact on freshwater forested/shrub wetland and on aquatic species in Brickhouse Slough and downstream locations. Noise, trash, and runoff from commercial/industrial operations of the port would degrade the quality of aquatic habitat and could deter wildlife from using the area of UMRNWFR adjacent to LRA Parcel 20. The LRA or other future owner of LRA Parcel 20 would be required to conduct formal consultation with USFWS before implementing Alternative 5 to comply with ESA Section 7 if the project "may affect and is likely to adversely affect" federally listed threatened or endangered species. They would need to prepare a Biological Assessment for instream construction impacts and coordinate with IDNR and USFWS; prepare an aquatic habitat restoration plan for Commander's Pond and coordinate with IDNR and USFWS; conduct surveys to determine the presence or probable absence of federally or state-listed protected species; and prepare a Finding of Appropriateness per

the National Wildlife Refuge System Improvement Act and would need to receive concurrence from USFWS to proceed with reuse implementation. If applicable, the property owner would need to develop specific mitigation measures to minimize impacts on biological resources based on coordination with federal and state regulatory agencies.

4.9.3 Mitigation Measures and BMPs

Mitigation. Mitigation measures would need to be employed to reduce impacts from construction and operation under Alternative 3, 4, or 5. Beyond regulatory requirements, mitigation measures are measures that would be tailored to the specific conditions and risks from implementing Alternative 3, 4, or 5. These measures would reduce potential significant impacts on biological resources and reflect best practices in environmental management, exceeding baseline legal obligations. The LRA would coordinate with USFWS and IDNR to develop mitigation measures for impacted biological resources following USFWS *Mitigation Policy* and *Endangered Species Act Compensatory Mitigation Policy* , the Illinois Endangered Species Protection Act, and 17 IAC Part 1080, *Incidental Taking of Endangered or Threatened Species* (USFWS 2023a, 2023b). Illinois guidelines allow the IDNR to authorize the "taking" of endangered and threatened species, if that taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. The goal of these policies is to achieve no net loss of resources and their values, services, and functions from proposed actions. USFWS mitigation measures, in order of preference, are (USFWS 2023a, 2023b):

- Avoidance
  - Design the timing, location, or operations of the action so that specific resource impacts would not occur.
  - Add structural features to the action (e.g., fish and wildlife passage structures, water treatment facilities, erosion-control measures).
  - Adopt nonstructural alternatives (e.g., stream channel restoration with grading and vegetation in lieu of riprap).
  - Do not implement the action.
- Minimization (including rectify and reduce over time)
  - Reduce the overall spatial extent or duration of the action.
  - Adjust the daily or seasonal timing of the action.
  - Retain the key habitat features within the affected area that would continue to support life-history processes for the evaluation species.
  - Adjust the spatial configuration of the action to retain corridors for species movement between functional habitats.
  - Apply BMPs to reduce water quality degradation.
  - Adjust the magnitude, timing, frequency, duration, or rate-of-change of water flow diversions and flow release to minimize the alteration of flow regime features that support life-history processes of evaluation species.
  - Install measures (e.g., screens) to reduce the entrainment/impingement of aquatic life at water intake structures.

    - Install fences, signs, markers, and other measures necessary to protect resources from impacts.
- Compensatory measures
    - Develop mitigation measures through the consultation and permitting process. Possible measures may include a mitigation site where the proponent restores or creates wetlands, mussel beds, or other habitat in another area to offset losses from project impacts, or relocating protected species. Measures would be developed with and agreed to by state and federal regulatory agencies to achieve conservation goals.
    - Use conservation/ mitigation banks. A conservation bank is a site or suite of sites that provides ecological functions and services expressed as credits that are conserved and managed in perpetuity for particular species and used to expressly offset impacts occurring elsewhere to the same species. A mitigation bank is established to offset impacts to aquatic habitats under CWA Section 404.
    - Establish in-lieu fee sites to provide ecological functions and services expressed as credits that are conserved or managed for particular species or habitats and used to expressly offset impacts occurring elsewhere to the same species or habitats.

BMPs. BMPs could include the use of sediment barriers and low-impact construction techniques. Timing restrictions would be placed on construction activities to avoid migratory bird breeding season, to avoid tree removal during the pup season for federally protected bat species, and to limit construction noise to certain hours of the day, as appropriate. To comply with invasive species-related executive orders, the LRA or other future owner of LRA Parcel 20 would conduct aquatic and terrestrial invasive species surveys prior to project implementation and prepare and implement an invasive species plan. Revegetating areas disturbed by construction would help maintain habitat quality by reducing opportunities for noxious weeds and invasive plants to establish.

Management of biological resources and potential impacts on habitat, protected species, and the UMRNWFR would be subject to federal environmental laws, including the ESA (16 U.S.C. §§ 1531–1543), Fish and Wildlife Coordination Act (16 U.S.C. §§ 661–666(e)), and National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. § 668dd *et seq.*). The LRA would have to take the following actions required under federal and state regulations to ensure environmental compliance and protect public health:

- Conduct consultation with the USFWS and IDNR in accordance with the Fish and Wildlife Coordination Act concerning the conservation of wildlife resources where the water or any stream or other waterbody is proposed to be controlled or modified.
- Conduct ESA Section 7 consultation with USFWS to identify federally listed threatened and endangered species.
- Conduct Illinois Endangered Species Protection Act (520 ILCS § 10) consultation with IDNR to identify state-listed threatened and endangered species.
- Conduct the following surveys to determine the presence or probable absence of federally or state-listed protected species, and, if present, develop mitigation measures through consultation with USFWS and IDNR to avoid or minimize impacts:

  - Avian
  - Bat
  - Fish
  - Flora
  - Herpetological
  - Mussel
- Prepare a biological assessment for instream construction impacts and coordinate with IDNR and USFWS.
- Prepare an aquatic habitat restoration plan for Commander's Pond and coordinate with IDNR and USFWS.
- Prepare a Finding of Appropriateness per the National Wildlife Refuge System Improvement Act and coordinate with USFWS. The LRA would need to receive concurrence from USFWS to proceed with reuse implementation.

4.10 Cultural Resources

4.10.1 Affected Environment

The NHPA established a national preservation program that implements the federal government's policy on the protection of historic properties (36 CFR Part 800). A "historic property" is any prehistoric or historic district, site, building, structure, or object listed in or eligible for listing in the NRHP in accordance with uniform standards specified in 36 CFR § 60.4 (CEQ and ACHP 2013). A "cultural resource" is a prehistoric or historic district, site, structure building, object, and/or sacred site that is not eligible for listing in the NRHP. Throughout this EIS, cultural resources in which a determination on eligibility has not been made will be treated as historic properties. Through Section 106 of the NHPA, agencies conducting federally affiliated projects must assess the impact an undertaking has on historic properties and consult with stakeholders for comments on the identified impacts. The proposed disposal and reuse of LRA Parcel 20 at the SVADA has been determined to be an undertaking and, therefore, requires an assessment as part of this EIS on the impact the proposed undertaking would have on historic properties and cultural resources.

4.10.1.1 NHPA Section 106 Consultation

In response to stakeholder comments received in 2023 and 2024, the Army expanded the APE for the Proposed Action to include all areas of development considered for each alternative and, therefore, to include cultural resources outside of LRA Parcel 20. The Army sent an additional consultation letter on February 26, 2025, informing all stakeholders of the newly extended APE and detailing the historic properties potentially affected by the Proposed Action. The USFWS UMRNWFR Savanna District Office responded to the letter on March 31, 2025, expressing the need for the EIS and/or the 2023 LRA Reuse Plan to identify a site protection plan for the cultural resources that would be affected by the disposal and reuse of LRA Parcel 20. The USFWS UMRNWFR Savanna District Office also informed the Army that the LRA would need to apply for an Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. § 470aa *et seq.*)

permit before conducting work on USFWS lands. For a complete summary of all Section 106 consultation correspondence, see Appendix O.

4.10.1.2 Cultural Resources Literature Review

Between November 2024 and February 2025, the Army conducted searches of the Illinois Inventory of Archaeological Sites (IIAS) and the Iowa Site Files (I-Sites) to identify recorded cultural resources and previously conducted cultural resource surveys within 5 kilometers (km) (3.1 miles) of LRA Parcel 20. The IIAS search showed that there are 60 recorded archaeological sites, no historic structures, and 21 previous cultural resource surveys conducted in Carroll and Jo Daviess counties within the designated study area. The I-Sites search revealed that, while there have been four cultural resource surveys, no cultural resources have been identified within the study area. For a complete summary of the identified cultural resources within the study area, see Appendix O, Table O-1. To summarize:

- The identified archaeological sites range in date from the Early Archaic Period to the 20th century.
- The sites include eight mound sites, three mound and habitation sites, 29 habitation sites, nine camp sites, seven artifact scatter sites, and four unspecified sites.
- The IL SHPO determined sites 11CA1, 11CA2, and 11CA142 to be eligible for the NRHP.
- Site 11CA44 was determined to be potentially eligible for the NRHP.
- The IL SHPO also determined an additional seven cultural resources (sites 11CA139, 11CA143, 11CA147, 11CA148, 11CA149, 11CA150, and 11CA162) required further assessment before any determination regarding eligibility was made.
- Sixteen of the archaeological sites (sites 11C140, 11CA141, 11CA144, 11CA145, 11CA146, 11CA151, 11CA152, 11CA153, 11CA161, 11CA163, 11CA172, 11CA173, 11CA174, 11CA194, 11JD111, and 11JD140) within the 5-km (3.1-mile) study area have been determined not to be eligible for the NRHP for various reasons.
- The remaining identified cultural resources have yet to be reviewed by the IL SHPO for eligibility.
- Eleven cultural resources (sites 11CA3, 11CA44, 11JD11, 11JD40, 11JD72, 11JD73, 11JD74, 11JD89, 11JD90, 11JD111, and 11JD825) also are protected under the Illinois Human Remains Protection Act (20 ILCS 3440).
- Three of the identified cultural resources (sites 11CA1, 11CA142, and 11CA194) are either entirely or partially within LRA Parcel 20.
- The other 57 resources are entirely outside the parcel (IIAS 2025).

4.10.1.3 SVADA Cultural Setting

The cultural development of northwestern Illinois is complex and the result of approximately 16,000 years of interaction and evolution. An exhaustive study of the prehistoric and historic is beyond the scope of the body of this EIS. The major cultural

periods associated with northwestern Illinois include the Paleoindian Period, Archaic Period, Woodland Period, Mississippian Period, and the Historic Period. The Archaic, Woodland, Mississippian, and Historic Periods are further divided into sub-phases or local phases based on regionally specific cultural characteristics present within the archaeological and historical record. Descriptions of each sub-period and local phase are provided in Table 4.10-1. A more comprehensive summary of the prehistory and history of SVADA is provided in Appendix O.

Table 4.10-1. Summary of Northwestern Illinois Cultural Periods

Cultural period	Subperiod	Phase/Culture	Approximate time range
Paleoindian	-	-	14000 – 8000 BC
Archaic	Early	-	8000 – 6000 BC
Archaic	Middle	-	6000 – 3000 BC
Archaic	Late	-	3000 – 1000 BC
Woodland	Early	-	1000 BC – AD 100
Woodland	Middle	-	AD 100 – 650
Woodland	Late	-	AD 650 – 1050
Mississippian	-	Bennett	AD 1050 – 1200
Mississippian	-	Mills	AD 1200 – 1300
Mississippian	-	Post-Mills	AD 1300 – 1650
Historic	-	Exploration	AD 1650- 1800
Historic	-	Euro-American Settlement	AD 1800 – 1917
Historic	-	SVADA	AD 1917 – present

Notes: BC = Before Contact; AD = Anno Domini.

4.10.1.4 Affected Environments within LRA Parcel 20

Previous cultural resources surveys revealed the presence of two archaeological sites within the bounds of LRA Parcel 20: sites 11CA1 and 11CA142. Following the 2020 consultation, Brockington and Associates (Brockington) conducted a Phase I archaeological survey of LRA Parcel 20 as requested by the IL SHPO. The survey included evaluation of the two known archaeological sites within LRA Parcel 20 and the discovery of a third archaeological site, Site 11CA194. Because these sites are partially or entirely located within LRA Parcel 20, the ACHP and IL SHPO have determined each site has the potential to be affected by the disposal and reuse of the parcel. The Phase I archaeological report provided no further management consideration of sites 11CA1 and 11CA142 within LRA Parcel 20, noting that the portions of the sites within the parcel are non-contributing elements to the overall eligibility (Perash and Sweeny 2021). A records search conducted on October 16, 2023, indicated that the IL SHPO made no changes to the eligibility status of sites 11CA1 and 11CA142 based on Brockington's recommendations; both archaeological sites were listed as potentially eligible. These two potentially eligible sites retain their importance to the archaeological record based on location and recorded prehistoric cultural practices in the immediate area, despite known site disturbances. During an April 2025 telephone conversation, the IL SHPO, however, determined sites 11CA1 and 11CA142 to be NRHP-eligible (Kruchten 2025, personal communication). Following Brockington's recommendation, the IL SHPO determined

that the third archaeological site (11CA194) located within LRA Parcel 20 is not eligible for listing in the NRHP (ILSHPO 2020). As the Army's proposed disposal of LRA Parcel 20 will result in a transfer of land from a federal entity (the Army) to a nonfederal entity (the LRA), the disposal of the parcel will have an immediate impact on the historic properties (sites 11CA1 and 11CA142) within the area.

Archaeological Site 11CA1 is a multicomponent site primarily consisting of a Mississippian habitation component on the northern boundary of LRA Parcel 20 that extends west onto an adjacent LRA parcel and covers an approximately 500-meter (-m) by 230-m (1,640-ft by 755-ft) area. Site 11CA1 was originally identified in 1932 and has subsequently been relocated and resurveyed in 1945, 1997, 1998, and 2020 (Bennett 1945; Miller et al. 1999; Perash and Sweeny 2021). During a phone conversation on April 10, 2025, the IL SHPO determined that Site 11CA1 is eligible for the NRHP (Kruchten 2025, personal communication). As stipulated in the PA (see Section 3.2.1.1 and Appendix I), land use covenants were placed on the transferred portion of Site 11CA1 (i.e., outside of LRA Parcel 20) and a preservation covenant will be placed on the remaining portions of the site within LRA Parcel 20 pending conveyance negotiations with the LRA. Appendix P contains the draft preservation covenant.

Archaeological Site 11CA142 is a multicomponent site with a primarily Woodland habitation area on a terrace upslope from the Mississippi River, immediately adjacent to the outlet of Commander's Pond and the confluence of the Apple River. The site extends over an approximately 65-m by 76-m (213-ft by 249-ft) area. The site is in the southwestern extent of LRA Parcel 20, although a portion of it extends west outside the parcel boundary onto land already transferred to the LRA. Site 11CA142 was first identified during a 1998 Phase I survey and was resurveyed in 2020 (Miller 1999; Perash and Sweeny 2021). During a phone conversation on April 10, 2025, the IL SHPO determined that Site 11CA142 is eligible for the NRHP (Kruchten 2025, personal communication). As stipulated in the PA (see Section 3.2.1.1 and Appendix I), land use covenants were placed on the transferred portion of Site 11CA142 (i.e., outside of LRA Parcel 20) and a preservation covenant will be placed on the remaining portions of the site within LRA Parcel 20 pending conveyance negotiations with the LRA or other future owner of the parcel. Appendix P contains the draft preservation covenant.

4.10.1.5 Affected Environments Outside of LRA Parcel 20

To assess the direct and indirect effects on cultural resources of the proposed alternatives for the disposal and reuse, the Army identified all cultural resources within a 5-km (3.1-mile) radius of LRA Parcel 20. Appendix O, Table O-1 contains a summary table of the 60 cultural resources identified within the study area. Comparing the results of the site search to each proposed alternative revealed five additional archaeological sites (sites 11CA44, 11CA60, 11CA143, 11CA147, and 11CA148) that would potentially be affected by the disposal and reuse of LRA Parcel 20. As the IL SHPO has not provided an eligibility determination for any of the identified cultural resources, each resource is treated as a historic property that will be impacted by the disposal and reuse of LRA Parcel 20. The remaining 52 cultural resources within the identified study area have been assessed as not being affected by the plan.

Archaeological Site 11CA44 (Webster Village and Mounds) is a Late Woodland habitation and mounds site located approximately 1.7 km (1 mile) southeast of LRA Parcel 20. The site is situated on the sandy Savanna Terrace on the eastern bank of a side channel of the Mississippi River (Benn 1994). The parcel on which Site 11CA44 is situated is owned by USFWS and considered an Environmentally Sensitive Area due to the presence of sites 11CA44 and 11CA60. Researchers have surveyed the site in 1974, 1989, and 1994. The three surveys of Site 11CA44 revealed the presence of four mounds (one oval, one conical with a tail, and two conical) and intact midden and habitation features containing artifacts dating to the Late Woodland Period that extended across a 425-m by 61-m (1,394-ft by 200-ft) area (Benn 1994). The IL SHPO determined the site was potentially eligible for the NRHP.

Archaeological Site 11CA60 (Refuge Site) is a Mississippian habitation site located approximately 0.30 km (0.2 mile) south of LRA Parcel 20. The site is situated on Brickhouse Slough on the eastern bank of a side channel of the Mississippi River. The site is bordered by the Apple River to the northwest and a section of the BNSF Railway to the northeast. The parcel is owned by USFWS and has been identified as an Environmentally Sensitive Area due to the presence of sites 11CA60 and 11CA44. Site 11CA60 was identified during a 1974 pedestrian survey; however, the surveyors could not determine the extent of the site due to low ground visibility. As of April 2025, Site 11CA60 had yet to be reviewed for eligibility by the IL SHPO.

Archaeological Site 11CA143 is a Late Woodland habitation site located approximately 0.1 km (0.06 mile) west of LRA Parcel 20. The site is situated downslope of the Commanding Officer's quarters on LRA Parcel 1. Site 11CA143 is located approximately 50 m (164 ft) northwest of Site 11CA142 and 23 m (75 ft) northeast of Site 11CA144. The site was the subject of a larger 212-acre Phase I survey of SVADA performed by Gray and Pape, Inc. in 1998 (Miller et al. 1999). Results of the survey indicated the extent of Site 11CA143 was 15 m by 7.5 m (4 ft by 24 ft). Miller et al. (1999) determined most of the site's integrity was relatively poor due to its location on a slope and the presence of redeposited wash in some shovel test pits. There also was a shovel test pit at the crest of the slope, however, that appeared to have intact deposits and 44 large Late Woodland Grant cord-impressed sherds. The IL SHPO recommends that Site 11CA143 undergo additional testing before an NRHP determination is made.

Archaeological Site 11CA147 is a Woodland habitation site located approximately 0.65 km (0.4 mile) from LRA Parcel 20. The site is located parallel to the bluff on the eastern bank of the Mississippi River and north of a bike path and within LRA Parcel 1. Site 11CA147 is located approximately 71 m (232 ft) northwest of Site 11CA146 and 21 m east of Site 11CA148. The site was identified in 1998 as part of a larger Phase I survey for SVADA performed by Gray and Pape. During the survey, the archaeological crew noted the presence of a single, intact soil layer and the site extending over an approximately 7.5-m by 35-m (24.6-ft by 114.8-ft) area. The IL SHPO recommends that Site 11CA147 undergo additional testing before an NRHP determination is made.

Finally, Archaeological Site 11CA148 is a Woodland habitation site located approximately 0.7 km (0.4 mile) from LRA Parcel 20. The site is north of a bike path and parallel to the bluff on the eastern bank of the Mississippi River and on land owned by

USFWS. Site 11CA148 is located approximately 21 m west of 11CA147 and 30 m southeast of 11CA149. The site was identified in 1998 by Gray and Pape during a larger 212-acre Phase I survey of SVADA. The survey crew noted the presence of a probable intact, buried A-horizon and that the site extended over an approximately 7.5-m by 30-m (24.6-ft by 98.4-ft) area. The IL SHPO recommends that Site 11CA148 undergo additional testing before an NRHP determination is made.

Table 4.10-2 is a summary list of potentially affected historic properties.

Table 4.10-2. Summary of Potentially Effected Historic Properties

Site number	Site type	Time period	Site size (m)	Surveys	NRHP eligibility	Within LRA Parcel 20
11CA1	Habitation	Mississippian and Woodland	500 x 230	1932, 1945, 1997, 1998, 2020	Eligible	Yes
11CA44	Habitation and mounds	Late Woodland	425 x 61	1974, 1989, 1994	Potentially eligible	No
11CA60	Habitation	Mississippian	Undetermined	1974	Not reviewed	No
11CA142	Habitation	Woodland and Mississippian	65 x 76	1998, 2020	Eligible	Yes
11CA143	Habitation	Late Woodland	15 x 7.5	1998	Further review	No
11CA147	Habitation	Woodland	7.5 x 35	1998	Further review	No
11CA148	Habitation	Woodland	7.5 x 30	1998	Further review	No

4.10.2 Environmental Consequences

Effects on cultural resources would be considered significant if implementing an alternative resulted in adverse effects, as defined by the NHPA as when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion in the NRHP. This includes effects on the traditional use of sacred or ceremonial sites or resources by Native American Tribes.

Alternative 1: No Action Alternative. No effects on cultural resources would be expected because of the No Action Alternative. LRA Parcel 20 contains portions of two known NRHP-eligible archaeological sites (sites 11CA1 and 11CA142). If this alternative is to be selected, the Army would be required through the PA to continue preserving the sites by maintaining existing vegetation cover and ensuring they are protected from external actions, such as vandalism and surface disturbances.

Alternative 2: Accelerated Disposal Alternative. No adverse effects on cultural resources would be expected. LRA Parcel 20 contains portions of two known NRHP-eligible sites (sites 11CA1 and 11CA142). According to the PA, the Army's disposal of LRA Parcel 20 to the LRA or other future owners would result in a preservation covenant being enacted. Appendix P contains the draft preservation covenant, which would be finalized among the relevant parties following the Record of Decision (ROD) being signed. The

legal obligations set forth in the preservation covenant would apply to all property recipients in perpetuity and would be formally recorded in the transfer document between the Army and the property recipient(s). The relevant parties who would review and agree on the preservation covenant would include the Army, the property recipient(s), the ACHP, and the IL SHPO. Under 36 CFR § 800.5, the disposal of the LRA Parcel 20 would not be considered an adverse effect because:

> … transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance… (36 CFR § 800.5(a)(2)(vii).

To mitigate potential adverse effects before the disposal, the Army conducted a Phase I archaeological survey of LRA Parcel 20 to identify and evaluate cultural resources. The Army would conduct environmental clearance through the preservation covenant or mitigation, as necessary. Mitigation conducted by the Army would include any measures determined to be needed to preserve potential unknown cultural resources during the environmental remediation completed following the disposal of the property to the LRA. Following the disposal, the preservation covenant will hold the LRA or other future owner to federal standards for Section 106 compliance, including the completion of Section 106 effects assessments for any undertaking and consultation with the IL SHPO that might consist of applying potential mitigation measures. The preservation covenant conveyance instrument ensures that no adverse effects would occur to the potentially eligible sites within LRA Parcel 20, pending negotiated terms of traditional property disposal.

Alternative 3: Recreation-Only Reuse Alternative. Short- and-long-term, significant adverse indirect effects would be expected. The short-term impacts (development) and long-term impacts (use of the recreational park) of Alternative 3 have the potential to significantly affect historic properties, specifically Site 11CA1, within the proposed project area. The location of Site 11CA142 within LRA Parcel 20 would allow the resource to remain more removed from the actions proposed for this alternative.

The short-term impacts of Alternative 3 on Site 11CA1 consist of the construction efforts needed to establish the proposed recreational area (Table 3.3-1). The staging area for the construction of the recreational area would be located west of LRA Parcel 20 on the former SVADA parade ground. While outside of LRA Parcel 20 and owned by the LRA at the time this EIS was prepared, the use of the former parade ground as a staging area has the potential to impact the integrity of Site 11CA1 by repeated instances of vehicles driving over portions of the site outside of the parcel. Additional vegetation removal will likely be required for the creation of the walking trail, boat ramp, and parking lot. The elevated, boardwalk-style design of the walking trail also would require excavation for posts to support the structure. Finally, Alternative 3 proposes that the walking trail cut into the southeast corner of Site 11CA1 and continue north for approximately 165 m (541 ft). The ground-disturbing activities proposed in the LRA's Alternative 3 would be expected to have an adverse effect on Site 11CA1 as those activities could disturb any intact soil deposits and, thus, threaten the resource's integrity.

The long-term impacts of Alternative 3 include the long-term effects of development and the increased and continued use of the property by the public. The development and increased use of the property increases the risk of sediment erosion. In addition, opening LRA Parcel 20 to the public would allow visitors to access the cultural resources within the property. This increased access to the property would increase the risk of looting and vandalism of archaeological sites.

The Army's disposal and transfer of LRA Parcel 20 would require the enacting of a preservation covenant that would maintain and preserve sites 11CA1 and 11CA142. Appendix P contains the draft preservation covenant, which would be finalized among the relevant parties following the ROD being signed. The legal obligations set forth in the preservation covenant would apply to all property recipients in perpetuity and would be formally recorded in the transfer document between the Army and the property recipient(s). The relevant parties who would review and agree on the preservation covenant would include the Army, the property recipient(s), the ACHP, and the IL SHPO. To proceed with Alternative 3, the LRA or other future property owner would be required to complete an NHPA Section 106 assessment review and consult with the IL SHPO and additional stakeholders to establish preservation measures for each site to avoid, lessen, or mitigate the adverse effects resulting from this alternative. The IL SHPO has stated that a Phase III survey of sites 11CA1 and 11CA142 would be required as a mitigation measure before the Army's disposal of the property (primary action) or before the development of LRA Parcel 20 (secondary action).

Alternative 4: Recreation and Solar Reuse Alternative. Short- and long-term, significant adverse indirect effects would be expected. The short-term impacts (development) and long-term impacts (use of the recreational park) of Alternative 4 have the potential to significantly affect historic properties, specifically Site 11CA1, within the proposed project area. The Army's initial disposal and transfer of LRA Parcel 20 would be expected to have no adverse effects on cultural resources. The proposed development and continued use of the property, however, poses the potential of there being both short- and long-term impacts that result in an adverse effect on cultural resources, specifically Site 11CA1. The terms in the established PA dictate that the Army's disposal and transfer of the property to the LRA or other future property owner would lead to the enacting of a preservation covenant. Appendix P contains the draft preservation covenant, which would be finalized among the relevant parties following the ROD being signed. The legal obligations set forth in the preservation covenant would apply to all property recipients in perpetuity and would be formally recorded in the transfer document between the Army and the property recipient(s). The relevant parties who would review and agree on the preservation covenant would include the Army, the property recipient(s), the ACHP, and the IL SHPO. To proceed with Alternative 4, the owner would be required complete an NHPA Section 106 assessment review and consult with the IL SHPO and additional stakeholders to establish preservation measures for each site to avoid, lessen, or mitigate the adverse effects resulting from this alternative. The IL SHPO has stated that a Phase III survey of sites 11CA1 and 11CA142 would be required as a mitigation measure before the Army's disposal of the property (primary action) or before the development of LRA Parcel 20 (secondary action).

Alternative 5: LRA Reuse Alternative. Short- and long-term, significant adverse indirect effects would be expected. The short-term impacts (development) and long-term impact (use of recreational park and erosion) of Alternative 5 have the potential to significantly affect historic properties within the proposed project area. Alternative 5 is expected to have adverse effects on historical properties located both within and outside the property, including sites 11CA1, 11CA142, 11CA44, 11CA60, 11CA143, 11CA147, and 11CA148. Like alternatives 2, 3, and 4, there would be no adverse effect expected because of the Army's initial action of disposal and transfer of the parcel to the LRA because the two cultural resources affected (sites 11CA1 and 11CA142) would be maintained and preserved under a preservation covenant. Appendix P contains the draft preservation covenant, which would be finalized among the relevant parties following the ROD being signed. The legal obligations set forth in the preservation covenant would apply to all property recipients in perpetuity and would be formally recorded in the transfer document between the Army and the LRA. The relevant parties who would review and agree on the preservation covenant would include the Army, the LRA, the ACHP, and the IL SHPO. The 2023 LRA Reuse Plan proposed in Alternative 5 for LRA Parcel 20 and additional parcels, however, would have short- and long-term impacts that would result in these cultural resources being adversely affected.

Site 11CA1 exclusively intersects with the proposed recreational area. As discussed with Alternative 3, the ground-disturbing activities necessary to create the recreational area on LRA Parcel 20 would impact Site 11CA1 by threatening potentially intact soil deposits at the site.

Site 11CA142 is encompassed in an area of proposed dredging and the construction of a liquid bulk pipeline, conveyor system, and wharf access road. Due to the geography, each of the identified components would require a staging area and vegetation removal to be completed. The proposed dredging would require complete sediment removal from the site. The construction of the liquid bulk pipeline and conveyor system would include excavation of trenches, installation of the pipeline, and redistribution of soils to shore up the pipeline. Finally, the creation of a wharf access road would consist of soil-disturbing activities, including soil grading and laying pavement. The soil disturbances resulting from these activities would be expected to fundamentally alter the integrity of Site 11CA142 by eliminating any potential intact soil deposits associated with the site.

Like Site 11CA142, Site 11CA143 would be expected to be adversely affected by Alternative 5 due to its location in relation to the proposed dredging area, liquid bulk pipeline and conveyor system, and wharf access road. While none of these proposed project components directly intersect with Site 11CA143, it is probable the staging and construction of the proposed project elements would result in similar ground disturbances as described in association with Site 11CA142.

The proposed location for a container wheeled storage area intersects with the northern portion of Site 11CA147 and is adjacent to Site 11CA148. The construction and placement of large storage units would require a staging area that would include heavy equipment needed to move and position the storage units. Movement of the staging equipment and placement of the large storage units, and any construction of any additional structures to maintain the position of the storage units would potentially lead to

ground disturbance that could threaten the intact soil layers present within each archaeological site.

Site 11CA44 is included as a historic property potentially impacted by Alternative 5 due to the side channel modifications and later side channel use for the proposed terminal port. The site is currently situated along a highly erosional terrace. Archaeologists surveying the site in 1989 noted that the western portion of the site already was eroding into the Mississippi River at the time of their visit. Following his emergency Phase II survey of the site, Benn (1994) recommended that measures to stabilize the shoreline be taken to protect the site; however, no such measures have been taken yet. Modifications and later increased navigation of the channel have the potential to create forces that could increase the erosion rate of the bank and, therefore, threaten the archaeological site.

Site 11CA60 would potentially be affected by Alternative 5 due to its location in relation to extensive modifications to, and increased navigation on, the side channel of the Mississippi River, which are proposed to occur. As it is unclear where the site boundaries are located, it is possible the activities could increase erosion along the banks of the Mississippi River side channel and the Apple River and, therefore, threaten the site.

As discussed with Alternative 3, establishing a recreational area through a portion of Site 11CA1 would have long-term effects on the integrity of the site. The development and increased use of the property would increase the risk of sediment erosion over time. Providing the public with greater access to the area also increases the risk of looting and vandalism of cultural resources within and surrounding LRA Parcel 20.

Finally, while sites 11CA147 and 11CA148 would potentially be subjected to continued soil disturbances as large storage units are wheeled over the sites, Site 11CA148 also has the potential to be highly impacted by erosional activities. The site consists of Coloma sand, which is classified as having a 20%–30% slope. As USACE, Rock Island District commented by letter on January 16, 2024 (Appendix G2), and October 10, 2024 (Appendix G3), the presence of a fleeting barge off Apple River Island would require modifications to the river and promote continual maritime traffic. The increase in riverine use and continued pressure atop the site from wheel storage containers could significantly increase erosion rates for an archaeological site that is already susceptible to erosion. These impacts over time could adversely affect Site 11CA148 by eliminating previously intact soil stratigraphy.

The Army's disposal and transfer of LRA Parcel 20 to the LRA would activate a preservation covenant that would require the LRA to maintain and preserve the integrity of sites 11CA1 and 11CA142. Appendix P contains the draft preservation covenant, which the Army, LRA, ACHP, and IL SHPO would finalize following the ROD being signed. As a result, the LRA would be required to undergo a Section 106 review and consult the IL SHPO and additional stakeholders to avoid, lessen, or mitigate any adverse effects on these sites resulting from implementing Alternative 5. The IL SHPO has stated that it will require a Phase III survey to mitigate any adverse effects on these sites before the LRA can proceed with Alternative 5. As stated earlier, while the IL SHPO would prefer the Phase III to occur before the Army disposes of LRA Parcel 20, it would accept the survey being delayed until after the disposal, but before Alternative 5 is implemented.

Sites 11CA44, 11CA60, and 11CA148 are located on USFWS lands and, therefore, are automatically protected under NHPA Section 106. As a result, the LRA will be required to consult with relevant stakeholders to lessen or mitigate the impact Alternative 5 would have on the sites. In addition, according to IL SHPO requirements, the eligibility for Site 11CA60 should be determined before the LRA begins development, which has the potential to adversely affect the site. The IL SHPO cannot require additional archaeological surveys to be performed on federal lands. The IL SHPO would strongly advocate for a Phase I shovel test pit survey, however, to determine the site boundaries and eligibility of Site 11CA60 to take place before the development of the LRA's terminal port. The LRA would be required to apply and receive an ARPA permit from USFWS as a preservation measure before being granted access to excavation Site 11CA60.

The two remaining affected cultural resources, sites 11CA143 and 11CA147, are owned by the LRA. Illinois Statue 20 ILCS 3420 identifies a historic resource as:

> …any property which is publicly or privately held and which… (3) has been nominated by the Director and the Illinois Historic Sites Advisory Council for listing in the National Register; (4) meets one or more criteria for listing in the National Register, as determined by the Director… (20 ILCS 3420).

As the IL SHPO has determined that sites 11CA143, 11CA147, and 11CA148 are potentially eligible for the NRHP, each site is considered a historic resource under 20 ILCS 3420. In addition, because the LRA would require state permits to complete Alternative 5, which would take place within "500 yards of the adjoining bluffline crest" of the Mississippi River, the project would be considered an undertaking (20 ILCS 3420). In accordance with 20 ILCS 3420 Section 4, the LRA would be required to consult with the IL SHPO before developing the proposed terminal port. As Alternative 5 would likely result in adverse effects on historic resources, the IL SHPO would require the LRA to eliminate, minimize, or mitigate the effects of the proposed plan on sites 11CA143, 11CA147, and 11CA148.

The conveyance of the parcel to the LRA and the associated potential for additional disturbances, including vandalism, looting, or "low impact" activities such as laydown yards, grubbing, or parking, would be mitigated by the stipulations in the PA and the preservation covenant. The adverse effects on cultural resources outside of LRA Parcel 20, specifically sites 11CA44, 11CA60, 11CA143, 11CA147, and 11CA148, have the potential to be avoided or mitigated through the LRA's compliance with state and federal preservation laws.

4.10.3 Mitigation Measures and BMPs

Mitigation. Two NRHP-eligible archaeological sites are present on LRA Parcel 20. The PA stipulates that NRHP-eligible properties require a preservation covenant, which, in turn, stipulates additional consultation with the IL SHPO and ACHP prior to additional development that would potentially affect those resources. Following the ROD being signed, the preservation covenant would be finalized among the relevant parties and the legal obligations set forth in the preservation covenant would apply to all property recipients in perpetuity and would be formally recorded in the transfer document between

the Army and the LRA or other future property owner(s). Appendix P contains the draft preservation covenant.

The proposed Reuse Alternatives might require additional mitigation measures. Mitigation requirements may include rerouting the conceptual reuse construction activities outside archaeological site boundaries, archaeological monitoring, additional excavations evaluating NRHP eligibility, and salvage excavations and/or maintaining the status quo of protected cultural resources as outlined in the provisions of the protection covenant.

Measures that could be taken to avoid or mitigate the adverse effects the proposed alternatives would have on cultural resources include the following:

- As a general mitigation measure, temporary fencing could be placed around sites 11CA1, 11CA142, 11CA143, 11CA147, and 11CA148 during construction to delineate site boundaries and prevent construction activities in those areas.
  - The elevated boardwalk proposed for the recreational area could be shortened to avoid intersecting with Site 11CA1.
  - The path of the liquid bulk pipeline, conveyor system, and wharf access road could be rerouted to avoid sites 11CA142 and 11CA143.
  - The staging area for the container wheeled storage could be shifted to avoid intersecting with Site 11CA147.

While federal and state laws would require additional consultation and possible site testing and evaluation before the proposed development of LRA Parcel 20 and the terminal port could begin, these proposed mitigation measures would assist in lessening the effect of the Proposed Action on cultural resources. U.S. Secretary of the Interior-qualified archaeological monitors could be deployed to oversee all earth-moving activities during construction to ensure the protection of cultural resources within the project area. Finally, efforts to stabilize and secure the shoreline and hillsides in areas of proposed development and dredging should occur to mitigate additional erosion. These stabilization efforts would include the shoreline/ hillsides associated with sites 11CA44, 11CA60, 11CA142, 11CA143, and 11CA148. These mitigation measures are all suggestions and would require further consultation with relevant stakeholders, including the IL SHPO, USFWS, and USACE, before the proposed development of LRA Parcel 20 and the terminal port could begin.

BMPs. A series of BMPs is suggested for the continued maintenance of the identified cultural resources to lessen the long-term effects resulting from the development of LRA Parcel 20 under the Reuse Alternatives.

First, the LRA should create a site protection plan to protect cultural resources within the project area. The site protection plan should be developed in consultation with the IL SHPO, interested Native American Tribes, and consulted federal agencies.

Second, a permanent fence should be placed around Site 11CA1 to protect the resource from potential looters and vandals. A Phase I shovel test pit survey is recommended to determine the extent of the site and evaluate its eligibility.

Third, permanent fencing should be placed surrounding sites 11CA147 and 11CA148 to prevent future disturbance from the transport of the proposed container wheeled storage units. The LRA should consult with relevant stakeholders, including the IL SHPO, USFWS, and USACE, before the development of LRA Parcel 20 and the terminal port can begin to adapt suggested BMPs and implement additional BMPs recommended by the stakeholders.

Fourth, a Phase I shovel test pit survey of sites 11CA44, 11CA60, 11CA143, 11CA147, and 11CA148 should be conducted to evaluate site eligibility, delineate site boundaries, and mitigate adverse effects on each site. There should be potential for Phase II and III testing based on the results of the Phase I survey. Any archaeological testing on federal lands must be authorized under an ARPA permit.

4.11 Socioeconomics (including protection of children)

4.11.1 Affected Environment

The ROI for the socioeconomic environment is defined as Carroll and Jo Daviess counties, IL. The two-county ROI covers a land area of 1,046 square miles (USCB 2025). For comparison, socioeconomic data also is presented for the state of Illinois and the United States.

Employment, Industry, and Income. The ROI's 2023 labor force was 7,234, which included 6,917 people employed and 317 people unemployed (Appendix Q, Table Q-1). The labor force decreased by 0.2% between 2020 and 2023. During the same period, Illinois's labor force increased by 2.7% and the U.S. labor force increased by 4%. The 2023 annual unemployment rate for the ROI was 4.2%; for Illinois, it was 4.5%; and for the United States, it was 3.6% (BLS 2025).

The Illinois Department of Employment Security (IDES) reports that a high percentage of the people working in Carroll and Jo Daviess counties also live in the counties. In Carroll County, 70% of the people working in the county also live in the county. The top three commuting locations from which people commute to Carroll County to work are Whiteside County, IL (8%); Iowa (7%); and Stephenson County, IL (4%). The IDES reports that 77% of the people working in Jo Daviess County also live in the county. The top three commuting locations from which people commute to Jo Daviess County to work are Iowa (9%); Wisconsin (7%); and Stephenson County, IL (5%) (IDES 2025).

Employment by industry was consistent between 2018 and 2023, based on each industry's percent of total employment (Appendix Q, Table Q-2). The top three industries in the ROI in 2018 and 2023, based on employment, were educational services and health care and social assistance, which accounted for about 20% of the ROI's total employment; manufacturing, which accounted for about another 20% of total employment; and retail trade, which accounted for about 11% of total employment (USCB 2018, 2023a).

Shipping on the Mississippi River falls under the transportation and warehousing industry sector. This industry grew in employment in the ROI between 2018 and 2023. The U.S. Department of Transportation's Freight Analysis Framework (FAF) is a national-level tabulation of estimated commodity flows compiled from federal data sources. In 2024,

the commodities with the largest tonnage moving through the Remainder of Illinois FAF zone (which includes Savanna) were cereal grains and other agricultural products (USDOT 2024). Other noteworthy commodities included animal feed, coal, fuel oils, gasoline, and gravel.

The LRA reports that about a dozen businesses with about 70 employees total are operating in the SIP, including aerospace, agriculture, commercial sales and service, research and development, and rail transportation-related businesses (JCD LRA 2025a, 2025b). The Army has one employee at the SIP.

ROI per capita personal income (PCPI) and household income levels were lower than state and national levels (Appendix Q, Table Q-3). The ROI's average PCPI of $37,859 was 84% of the state PCPI of $45,104 and 87% of the national PCPI of $43,289. The ROI's average median household income of $67,913 was 83% of Illinois's median household income of $81,702 and 86% of the U.S. median household income of $78,538 (USCB 2025). The cost of living in the ROI, however, is lower than the United States as a whole. The cost-of-living index is based on a U.S. average of 100. A figure below 100 means it is less expensive to live in a place than in the United States on average, and above 100 means it is more expensive. As of December 2024, the cost-of-living index for Carroll County was 83.8, and, for Jo Daviess County, it was 84.5 (City-Data.com 2025a, 2025b).

Population. The ROI is a rural area with a low population density of 36 people per square mile, compared to 226 people per square mile for Illinois and 95 people per square mile for the United States (Appendix Q, Table Q-4) (USCB 2025). The ROI's population decreased by 1.2% (468 people) from 2020 to 2023. With domestic outmigration from rural areas, smaller family sizes, and barriers to immigration, the region's population is expected to stagnate or decline in the coming years (BHRC 2024).

Housing. There are no residential units on LRA Parcel 20. There are four occupied residences in the SIP, two occupied full-time and two occupied seasonally (Roche 2023, personal communication). Within a 1-mile radius of LRA Parcel 20, there are 10 housing units, and, within a 2-mile radius, there are 60 housing units (USEPA 2024d).

The ROI had 21,615 housing units, of which 4,752 were vacant (Appendix Q, Table Q-5) (USCB 2023a). Of those vacant units, 238 units were for rent and 212 units were for sale (USCB 2023b). A large portion of the ROI's vacant housing units (69%, or 3,293 units) were for seasonal, recreational, or occasional use (USCB 2023b). ROI homeowner and rental vacancy rates, which are the percentage of homes available for sale and for rent, were a little higher than the rates for the state and the nation. ROI median home value and housing costs (mortgage and rent) were lower compared to Illinois and the United States.

Law Enforcement, Fire Protection, and Medical Services. Law enforcement in the ROI is provided by the Carroll County and Jo Daviess County Sheriff's Offices, in coordination with municipal police departments and the Illinois State Police, as needed. Trespassing on LRA Parcel 20 has not been an issue for SVADA because its location and topography limit access (Collins 2020, personal communication). The Carroll County Sheriff's Office is the first law enforcement responder to the parcel.

The Savanna Fire Department and Savanna Ambulance Department are the first fire and emergency services responders to LRA Parcel 20 (Collins 2020, personal communication). Both departments are about 10 miles south of LRA Parcel 20.

The nearest medical clinic to LRA Parcel 20 is the FHN Family Healthcare Center, about 12 miles south in Savanna. The nearest hospital to LRA Parcel 20 is the Midwest Medical Center, about 30 miles north in Galena.

Recreation. LRA Parcel 20 is not available for recreational use. Several parks and recreation areas are within about 10 miles of LRA Parcel 20, including Bellevue State Park, Hanover Bluff Nature Preserve (former SVADA land that was transferred to IDNR), Marquette Park, Mississippi Palisades State Park, Old Mill Park, Palisades Golf Course, Rall Woods State Natural Area, and the UMRNWFR. The UMRNWFR provides opportunities for biking, birding, boating, fishing, hiking, and hunting with cycling, walking, and water trails (USFWS 2024b).

Boating is a popular recreation activity on the Mississippi River. Five boat launches are near LRA Parcel 20 (City of Savanna 2025).

A 2000 USACE study estimated the number of annual recreational boat trips in Pool 13 would increase by 17% from 2000 to 2050: from 70,922 in 2000 to 83,035 in 2050. That percentage is on par with the average percentage increase for the 26 pools in the Upper Mississippi River included in the study. The peak months for recreational boating in Pool 13 are May through September. The most common types of boats used in Pool 13 are medium power boats, followed by large cruisers, then fishing boats (Carlson et al. 2000).

Schools. The ROI has nine public school districts: three in Carroll County and six in Jo Daviess County. For the 2023–2024 school year, the nine districts had a total of 24 schools, 421 teachers, 5,021 students enrolled, and a student/teacher ratio of 11.9/1 (NCES 2025). The student enrollment was down from the 2018–2019 school year count of 5,531 students, a decrease of 510 students (NCES 2020, 2025). There are no primary or secondary schools on or near LRA Parcel 20. The public schools located closest to LRA Parcel 20 are West Carroll Primary and Middle School (about 12 miles south in Savanna in Carroll County) and River Ridge High School (about 12 miles north in Hanover in Jo Daviess County).

Protection of Children. EO 13045 seeks to protect children from disproportionately incurring environmental health or safety risks that might arise as a result of federal policies, programs, activities, or standards. It recognizes scientific knowledge that demonstrates children might suffer disproportionately from environmental health and safety risks. Those risks arise because children's bodily systems are not fully developed; children breathe, drink, and eat more in proportion to their body weight than adults; their size and weight might diminish protection from standard safety features; and their behavior patterns might make them more susceptible to accidents than adults.

USEPA's *Memorandum Addressing Children's Health through Reviews Conducted Pursuant to the National Environmental Policy Act and Section 309 of the Clean Air Act* recommends that an EIS:

> …describe the relevant demographics of affected neighborhoods, populations, and/or communities and focus exposure assessments on children who are likely to be present at schools, recreation areas, childcare centers, parks, and residential areas in close proximity to the project area, and other areas of apparent frequent and/or prolonged exposure (USEPA 2012).

Table 4.11-1 lists population by age for several age cohorts. The percent of children under 5 years of age and under 18 years of age is similar among all geographies, with the ROI having a slightly lower percentage of children than the state and the nation.

Table 4.11-1. Population by Age, 2023

Location	Persons under 5 years, %	Persons under 18 years, %	Persons between 18 and 65 years, %	Persons 65 years and over, %
Carroll County	4.2%	18.2%	56.9%	24.9%
Jo Daviess County	3.8%	17.8%	51.4%	30.8%
ROI	4.0%	18.0%	53.7%	28.3%
Illinois	5.3%	21.6%	60.8%	17.6%
United States	5.5%	21.7%	60.6%	17.7%

Source: USCB 2025.

LRA Parcel 20 is 1 mile west of IL 84, bound by rivers on two sides, and fenced and gated. The nearest residences are the four homes in the SIP occupied full or part time. These homes are within less than 1 mile of the parcel. Outside of the SIP, the nearest residences to LRA Parcel 20 are to the north along Army Depot Road and to the east along Diehl Road. Those residential areas are within 1 mile of the parcel but are separated from it by the Apple River and wooded areas.

At the time this EIS was prepared, three children were living within a 1-mile radius of LRA Parcel 20; 23 children were living within a 2-mile radius; and 124 children were living within a 5-mile radius (USEPA 2024d). The nearest childcare centers to LRA Parcel 20 are a home-based childcare provider and the West Carroll Head Start, both of which are about 10 miles south in Savanna (Winnie.com 2025). The nearest school is about 11 miles south in Savanna. The nearest park or recreation area to LRA Parcel 20 is the Hanover Bluff Nature Preserve, about 8.5 miles north of the parcel.

4.11.2 Environmental Consequences

Socioeconomic resources would be significantly affected if implementing an alternative would cause (1) substantial gains or losses in population or employment; (2) disequilibrium in the housing market, such as severe housing shortages or surpluses; or (3) project-related demands on public infrastructure or services triggering the need for expanded capacity or resulting in discernible reductions in the service level provided.

Protection of children would be significantly affected if implementing an alternative would result in disproportionately high and adverse environmental health or safety risks to an identified population of children, such as the increase in a child's risk of exposure to an environmental hazard (through contact, ingestion, or inhalation) or the risk of potential substantial harm to the safety of children.

Alternative 1: No Action Alternative. No effects would be expected. There would be no change in employment, industry, income, or population and no change in the demand for housing or public services. There would be no disproportionate environmental health risks or safety risks to children.

Alternative 2: Accelerated Disposal Alternative. Long-term beneficial effects would be expected. The Army's disposal of the parcel would result in new property tax revenue for the ROI.

Alternative 3: Recreation-Only Reuse Alternative. Short- and long-term beneficial effects would be expected. Construction of the recreational facilities would generate short-term expenditures in the ROI for materials and labor. In the long term, this study estimates that the operation of the facilities would create one full-time job and potentially a few seasonal jobs during the peak summer season. Long-term, less-than-significant beneficial effects also would be expected from the additional recreational opportunities provided to residents of and visitors to the ROI. No effects would be expected on population, demand for housing or public services, or the protection of children. The recreational trail would cross the railroad tracks at grade. The owner of LRA Parcel 20 would have to coordinate the rail crossing with the BNSF Railway, the Illinois Commerce Commission, and the Federal Railroad Administration and in compliance with the Illinois Commercial Transportation Law (625 ILCS 5/Chapter 18C) (IDOT 2025a). The parcel property owner would need to coordinate with the BNSF Public Projects team on implementing the appropriate safety measures and maintenance at the crossing for the protection of recreational visitors and train crews (BNSF 2025). Safety measures could include electrical or mechanical signals and barriers with lights and/or sound. Recreational visitors would be expected to obey railroad crossing signals in accordance with 625 ILCS 5/11-1011.

Alternative 4: Recreation and Solar Reuse Alternative. Short- and long-term beneficial socioeconomic effects would be expected. Effects from recreational facilities would be similar to those for Alternative 3, with the same safety requirements for the walking trail at the rail crossing. Construction of the solar PV arrays would generate short-term expenditures for materials and labor. Operation and maintenance of the solar PV arrays would generate long-term benefits for local employment and income.

Alternative 5: LRA Reuse Alternative.

Employment, Industry, and Income. Short- and long-term beneficial effects on the regional economy would be expected. Alternative 5 would result in short-term benefits to the ROI construction industry and long-term benefits to the region's transportation and warehousing industry. Table 4.11-2 summarizes the estimated economic benefits from construction and operations expenditures, employment, employment earnings, and taxes. The LRA identified potential market opportunities at the proposed port for the following commodities: construction materials (cement, sand, and gravel), DDGS, fertilizer products, recycled wind blades, salt, scrap, and steel products (JCD LRA 2023). These commodities include, but also expand upon, the largest tonnage commodities moving through the Remainder of Illinois FAF zone.

Table 4.11-2. LRA Parcel 20 Reuse Economic Impact

Impact metric	Impact
Direct construction expenditures	$71.4 million
Direct construction employment	267
Direct operations employment earnings	$16.9 million
Total operations employment	370
Total operations employment earnings	$21.6 million
Total operations value added	$50.8 million
Total operations impact on economic activity	$93.9 million
Total operations sales tax	$5.7 million
Total operations labor income tax	$1.1 million

Source: JCD LRA 2023.

Population, Housing, Public Services, and Recreation. Short- and long-term, less-than-significant adverse and long-term beneficial effects would be expected. Short-term adverse effects would result as the region adjusts to additional demand for housing and public services. Long-term adverse effects would result from an increase in boat traffic on the river. Long-term beneficial effects would result from an increase in business sales, employment, income, and population.

The jobs created under this alternative could increase the local population, which would be a long-term beneficial effect for a region that has been experiencing population decline. Employees could be drawn from the ROI or commute from surrounding communities, especially for short-term construction jobs. In the long term, some employees could be hired for permanent jobs from outside the region, especially if the jobs required specialized skills.

Because of the ROI population and labor force declines and ROI low unemployment rate, this study estimated that about one-third (33%) of the people filling the 370 total new jobs could relocate from outside the ROI. This would result in a long-term population increase of about 317 people using the U.S. average household size of 2.5 (0.33 * 370 * 2.5 = 305), a 0.8% increase over the current ROI population (USCB 2023a). The population increase would not occur all at once but over about 15 years as each project phase is completed.

The local housing market should be able to absorb new housing demand based on the number of vacant housing units in the ROI. Workers also could commute from outside the ROI if suitable housing is not available or if they choose not to relocate to the ROI but commute from their current home. Likely places from which workers would commute are Stephenson County, IL; Whiteside County, IL; Iowa; and Wisconsin. In the long term, new housing could be built in the ROI if there is the demand. The new employees and facilities at LRA Parcel 20 and increase in ROI population would result in a less-than-significant increase in demand for public services. Additional emergency services personnel and equipment could be required. Public schools could see a less-than-significant increase in student population; however, with the recent population decline, schools should have capacity for additional students. Additional teachers might need to be hired to maintain student-to-teacher ratios. In the long term, public support services would adapt to the demand of a larger population base, funded by new income, property,

and sales tax revenues. Proposed recreational development on LRA Parcel 20 would provide a long-term benefit to the area.

The port would increase barge traffic on the Mississippi River main channel and introduce barge traffic to Brickhouse Slough. This would have a long-term, less-than-significant adverse effect on recreational boating safety. The USACE, Rock Island District maintains the navigation channel buoys and markers and publishes a boater's safety guide *Locks and the River* for the Upper Mississippi River (USACE, n.d.-a). If barges and recreational boats are to share the Commander's Pond access to Brickhouse Slough, the port owner would need to coordinate with USACE to establish navigation aids for vessels to safely operate. Boaters are required to meet IDNR boating safety requirements (IDNR 2025).

Safety requirements for the walking trail at the rail crossing would be the same as for Alternative 3.

Protection of Children. No effects would be expected. Alternative 5 would not involve activities that would pose disproportionate adverse environmental or health or safety risks to children. Because construction sites can be enticing to children, the construction contractor would place barriers and signage around the perimeter of the sites to deter children from entering. Safety requirements for the walking trail at the rail crossing would be the same as for Alternative 3. IDNR boater safety requirements and ILCS railroad pedestrian crossing safety practices would be expected observed by adult parents, guardians, or designees for themselves and for the children they are supervising.

4.11.3 Mitigation Measures and BMPs

Mitigation. No mitigation measures would be required for socioeconomics as effects would not be significant. Mitigation measures that would be implemented to reduce effects on environmental resources for the benefit and protection of the human and natural environments are addressed in the respective resource sections for water resources, biological resources, and hazardous and toxic materials.

BMPs. BMPs that would be implemented for environmental resources for the benefit and protection of the human and natural environments are addressed in the sections on air quality, water resources, biological resources, and hazardous and toxic materials. The BMPs would protect the local community, including the more vulnerable populations of children and the elderly, from adverse environmental effects. Rail crossing safety measures would be established and operated per the port owner's coordination with the BNSF Railway. Rail crossing safety measures could include electrical or mechanical signals and barriers with lights and/or sound. Boater safety measures and procedures would be established and navigation aids would be installed per the port owner's coordination with USACE. BMPs for boater safety and rail crossing safety would be expected to be observed by users of the recreational area per state and federal safety practices. Adult supervision of minors is recommended for the recreational area.

4.12 Navigation

4.12.1 Affected Environment

This section describes inland commercial navigation features in the project region that would be affected by disposal of LRA Parcel 20 and its subsequent reuse. USACE navigation infrastructure and USCG aids to navigation are indicators characterizing the ROI that would be most affected by disposal of LRA Parcel 20 and its subsequent reuse. The ROI includes the Mississippi River, Brickhouse Slough, and Apple River Island located adjacent to Carroll and Jo Daviess counties and to LRA Parcel 20. The ROI for the navigation environment is the segment of the Upper Mississippi River Navigation Project from RM 544 to RM 547.2 (Figure 4.12-1) (USACE, Mississippi Valley Division 2020).

USACE maintains navigable WOTUS under the Rivers and Harbors Act. Section 10 of the Act prohibits the obstruction or alteration of navigable WOTUS without a permit from USACE. The general definition provided in 33 U.S.C. § 329.4 for "navigable waters of the United States" is:

> ... those waters…presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce…

The Mississippi River and Brickhouse Slough flowing past LRA Parcel 20 are defined as navigable WOTUS.

Inland navigation is a waterborne freight transport system with supporting infrastructure. The primary component is the USACE-maintained navigation channel that, through regular dredging to maintain the navigation channel's depth and width; clearing and snagging of obstructions such as submerged trees; and navigation aids, allows vessels to safely and reliably use inland waterways.

A primary USACE mission is providing efficient, reliable, safe, and environmentally sustainable waterborne transportation systems (USACE IWR 2025). The USACE, Rock Island District maintains the navigation channel and civil works navigation infrastructure of the Upper Mississippi River. The USCG maintains navigation aids.

Section 14 of the Rivers and Harbors Act, commonly referred to as Section 408, , provides USACE with authority to grant permission for temporary or permanent alterations to federal public works projects navigation infrastructure such as wing dams and revetments. The USACE Section 408 Program ensures alteration, occupation, or use of a civil works infrastructure does not significantly, negatively affect the public interest and will not impair the public works project's usefulness.

4.12.1.1 Navigation Channel

The Upper Mississippi River 2020 Navigation Charts (USACE, Mississippi Valley Division 2020, Sheet D) states:

> …The Mississippi River forms the western border of Illinois for the state's entire length…The federally authorized navigation channel starts at Cairo, IL, and ends at RM 866 in Minneapolis, MN. The Upper Mississippi River has a minimum 9-ft depth, with varying widths by reach….

The Upper Mississippi River navigation channel follows the Mississippi River's approximate channel center line for the length of the navigation environment ROI and abuts Apple River Island.

Brickhouse Slough, while defined as navigable waters, does not have a federally maintained navigation channel.

4.12.1.2 Navigation Features

The following USACE and USCG navigation features are present in the navigation ROI and are likely to be affected by the LRA's proposed redevelopment (see Figure 4.12-1):

- USACE wing dam located at approximately RM 544.3
- USACE wing dam located at approximately RM 544.4
- USCG unlit lateral buoy located at approximately RM 544.5
- USACE wing dam located at approximately RM 544.5 on an unnamed island south of Apple River Island
- USACE wing dam located at approximately RM 544.6 on an unnamed island south of Apple River Island
- USACE wing dam located at approximately RM 544.7 on an unnamed island south of Apple River Island
- USACE wing dam located at approximately RM 544.8 on an unnamed island south of Apple River Island
- USACE submerged revetment located on Apple River Island's Mississippi River side (left descending bank) from approximately RM 544.8 to RM 545.8
- USCG Apple River Island No. 257 lighthouse (lateral beacon) at approximately RM 545.2
- USACE closing dam located at approximately RM 546 in Brickhouse Slough
- USACE wing dam located at approximately RM 546.25 on Apple River Island
- USACE wing dam located at approximately RM 546.8 on Island No. 256
- USACE wing dam located at approximately RM 547.2 on Island No.256

Other civil works navigation features within the navigation ROI are on the western (right descending bank) of the Mississippi River and are unlikely to be affected by the LRA's proposed redevelopment. They are listed in Appendix R, which also describes the types of navigation features.

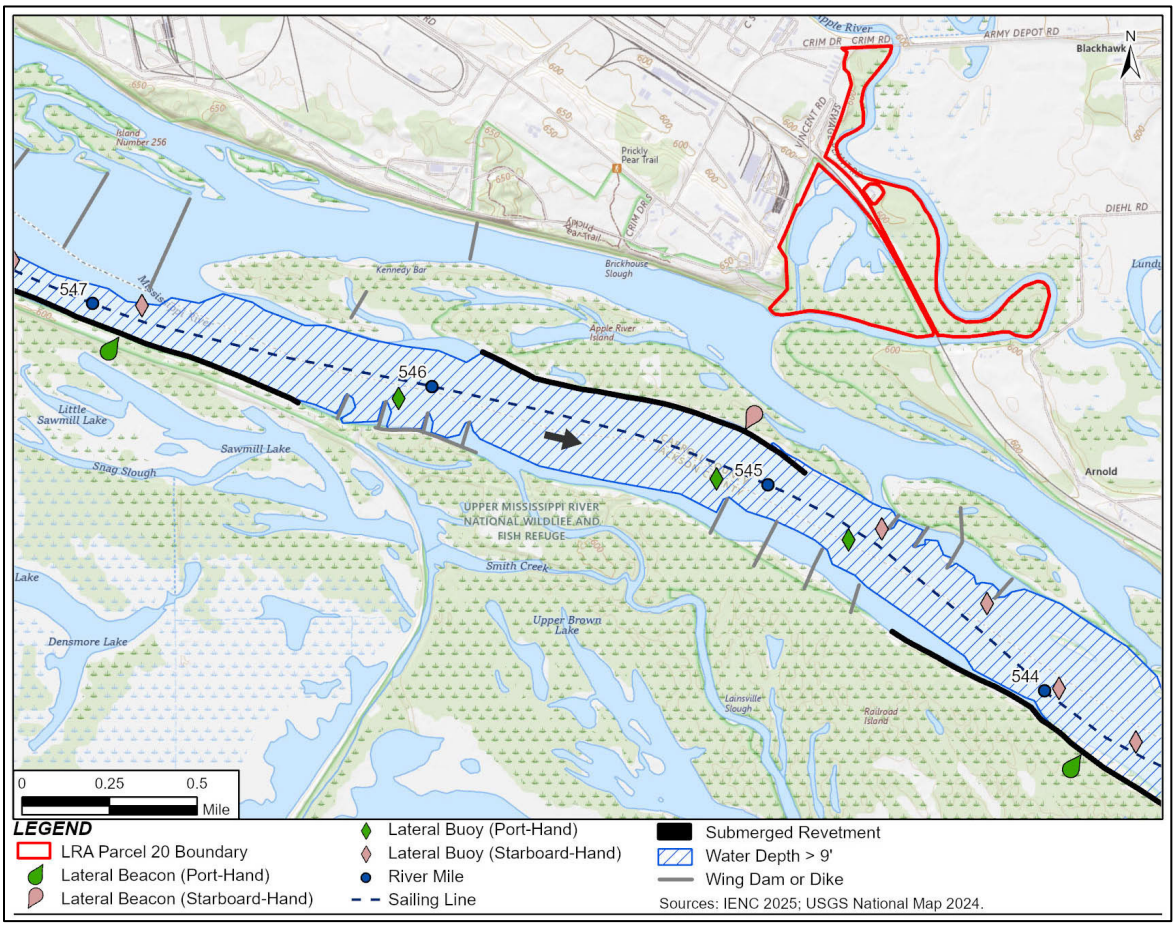


Figure 4.12-1. Navigation Channel Features in the Project Area.

4.12.2 Environmental Consequences

Navigation would be significantly affected if an alternative would interrupt, impede, or prevent navigation in or through the project area, or permanently impair civil works navigation features or aids or their function.

Alternative 1: No Action Alternative. There would be no change in or effects on navigation or navigation features and aids. The No Action Alternative would continue the current state of LRA Parcel 20, with the Army remaining as the caretaker of the parcel.

Alternative 2: Accelerated Disposal Alternative. No effects on navigation or navigation features and aids would be expected from transferring or conveying title of real estate for LRA Parcel 20 to the LRA prior to completion of environmental remediation.

Alternative 3: Recreation-Only Reuse Alternative. No effects on navigation or navigation features and aids would be expected from development of passive recreation features on LRA Parcel 20 and Commander's Pond.

Alternative 4: Recreation and Solar Reuse Alternative. No effects on navigation or navigation features and aids would be expected from development of passive recreation features on LRA Parcel 20 and Commander's Pond. Construction and operation of a solar

PV area atop the LRA Parcel 20 closed landfill would not impact Mississippi River navigation, navigation aids, or civil works navigation features.

Alternative 5: LRA Reuse Alternative. Short- and long-term, significant-but-mitigable adverse indirect effects and long-term beneficial effects on navigation in local waterways would be expected from construction and operation of the LRA Reuse Alternative.

Short- and long-term, significant-but-mitigable adverse effects from construction activities and operations include new sources of erosion and transfer and deposition of sediments in the Mississippi River navigation channel and other downstream areas. Approximately 1,273,899 yd^3 of dredging would be required for construction of the fleeting area and wharf in Brickhouse Slough adjacent to LRA Parcel 20 and access channels (long and short reaches) between Commander's Pond and the Mississippi River, as well as additional dredging to remove materials and deepen Commander's Pond (Balcom 2025a, 2025b, 2025c, personal communication; JCD LRA 2023).

Excavation to connect the Mississippi River navigation channel and Brickhouse Slough/ Commander's Pond access channels, and channel maintenance activities through the lifespan of the project could interrupt vessel traffic.

Long-term, significant-but-mitigable adverse effects include ongoing erosion that could change the channel characteristics and dimensions, changes in Brickhouse Slough water currents, and tugboats and barge traffic prop wash resuspending sediments.

USACE navigation features, including the submerged revetment on Apple River Island's western edge and submerged wing dam at RM 546 in Brickhouse Slough would be permanently affected by the proposed reuse plan. It is reasonable to assume the submerged wing dams at RM 547.2, RM 546.8, and RM 546; the lateral unlit buoy at RM 544.5; the submerged wing dam at RM 544.5; and possibly the submerged wing dam at RM 544.4 would be affected by construction and maintenance of the turning basin and 12-ft navigation channel to Commander's Pond (JCD LRA 2023). As of July 2025, no plans detailing existing navigation features' alterations had been identified.

The LRA would be required to coordinate with USACE for a Section 408 permit to address proposed modifications to the Mississippi River navigation channel and civil works navigation features within Brickhouse Slough and the Mississippi River. A Rivers and Harbors Act Section 10 permit for construction of any structures or the performance of any work in navigable waters is required. A Section 404 permit for discharge of dredged or fill material into WOTUS also might be required. The LRA needs a dredge management plan to address frequency of dredging, potential sediment contamination, and dredged material storage and disposal before initiating construction.

Significant-but-mitigable adverse effects include permanent reconfiguration of the Brickhouse Slough water bottom and Apple River Island's eastern and western edges for barge mooring areas. The barge fleeting area proposed on Apple River Island's eastern bankline would narrow Brickhouse Slough. The submerged revetment on Apple River Island's western bankline, located on the eastern boundary of the Mississippi River federally maintained navigation channel, is the location of a proposed barge fleeting area. Barge fleeting at that location would encroach on the federal navigation channel. The LRA or other future owner of LRA Parcel 20 would develop mitigation measures to

compensate for unavoidable impacts on the navigation channel and civil works navigation features in coordination with USACE through the sections 10 and 404 permitting processes and the Section 408 Program.

Long-term beneficial effects could include increased navigation and navigation support facilities in the local vicinity.

4.12.3 Mitigation Measures and BMPs

Mitigation. Beyond regulatory requirements, mitigations are measures tailored to specific conditions and risks from implementing Alternative 5. These measures would anticipate potential impacts on navigation and reflect best practices in environmental management, exceeding baseline legal obligations. The mitigation could include measures such as the following:

- Develop mitigation measures determined through the Section 408 Program that would be required for activities related to modifications of USACE civil works features.
- Develop mitigation measures determined through the sections 10 and 404 permits for construction or performance of work within navigable waters.
- Using minimally invasive dredging practices, equipment, and applications most suitable to the substrate to be removed.
- Using dredging practices, equipment, and applications that would minimize extractions and dispose of contaminated sediments in keeping with regulatory requirements.

BMPs. BMPs applicable to Alternative 5 could include the following:

- Coordinating sections 10 and 404 permits and Section 408 Program with USACE by taking the following actions:
  - Bank stabilization measures to minimize erosion.
  - Minimizing suspended silts and sediments migration through use of turbidity barriers, such as silt curtains, settling basins, and other acceptable methods.
  - Employing dredged material for beneficial uses, such as land reclamation, where appropriate.
  - Using hydraulic and hydrologic modeling to forecast changes and effects of constructing and operating the proposed reuse plan.
  - Coordinating and implementing a detailed plan of any alterations or activities that affect river training structures, including drawings of any proposed modifications to the existing wing dams.
  - Coordinating and implementing detailed plans for Apple River Island fleeting areas, including fleeting appurtenances, analysis of prop wash on the existing revetment and banklines, analysis of prop wash on unprotected banklines, and proposed traffic patterns.

  - Establishing a layout of traffic patterns for the entrance and exit of the proposed port, including hydrographic survey of existing conditions, proposed final conditions, plans for identification and preservation of river training structures, and a barge turning analysis for entering and exiting the port from the main channel.
  - Developing site-specific details and drawings mapping and cross-sections depicting the location, elevations, and quantities of proposed dredging, including locations of proposed placement of the dredged materials and other material disposal.
- Coordinating with relevant agencies to plan and schedule dredging and other maintenance activities to avoid disruption of other resources, such as threatened or endangered species, critical habitat, and cultural or historical resources.
- Minimizing the construction footprint to the smallest practicable area, using previously disturbed areas for staging and laydown and avoiding sensitive resources.

4.13 Transportation

4.13.1 Affected Environment

Parcel Roads. LRA Parcel 20 has one road—Sewage Plant Road—that leads from Rofsteck Road on the SIP to the sewage treatment plant, with an extension to the landfill on LRA Parcel 20. LRA Parcel 20 has no other transportation resources. The Apple River, on which recreational boating might occur, is excluded from LRA Parcel 20, as is the BNSF Railway line that bisects the property.

Regional Roads. The only access to LRA Parcel 20 is from the SIP. IL 84 and Army Depot Road provide access to the SIP (Figure 4.13-1). IL 84 is a 95-mile route from the Quad Cities area, about 60 miles south of the SIP, into Jo Daviess County and toward the Wisconsin state line (AA Roads 2018). IL 84 is part of the Great River Road National Scenic Byway, which follows the course of the Mississippi River for 3,000 miles from northern Minnesota to southern Louisiana (EMR 2023). The state route carries an annual average daily traffic (AADT) count of 1,400 vehicles south of Army Depot Road and 1,200 vehicles north of Army Depot Road (IDOT 2025b). This many vehicle trips evenly spread throughout a 16-hour day would equal about two vehicles passing along IL 84 per minute. With an estimated 7%–8% of AADT occurring during the morning peak traffic period and 6%–7% of AADT occurring during the afternoon peak traffic period (Sabre 2005), estimates of these peak traffic periods are about 84–112 vehicles passing SVADA during the morning peak traffic and 72–98 vehicles passing SVADA during the afternoon peak traffic along IL 84.

Table 4.13-1 provides further details on AADT along IL 84 and Army Depot Road (which becomes Crim Drive once on the SIP) as well as along three tertiary roads that provide access to South Whitton Road, off which was the former Whitton Gate, which provided access to the northern section of the SIP before it was closed. Army Depot Road is a Carroll County road. It is in a deteriorated condition and continues to worsen because of its use and age (see comment letter 28 in Appendix O of the Public Scoping Report in Appendix E). It has limited width, and rutting has occurred along its edges. The Carroll

County Highway Department maintains the road but has not been able to improve it beyond placing rock along the shoulders and patching the pavement due to limited funding. Also, note that although the Illinois Department of Transportation (IDOT) does not list any single-unit or multi-unit trucks as passing along Army Depot Road, semi-trailers and delivery trucks do use the road to access active business areas of the SIP.

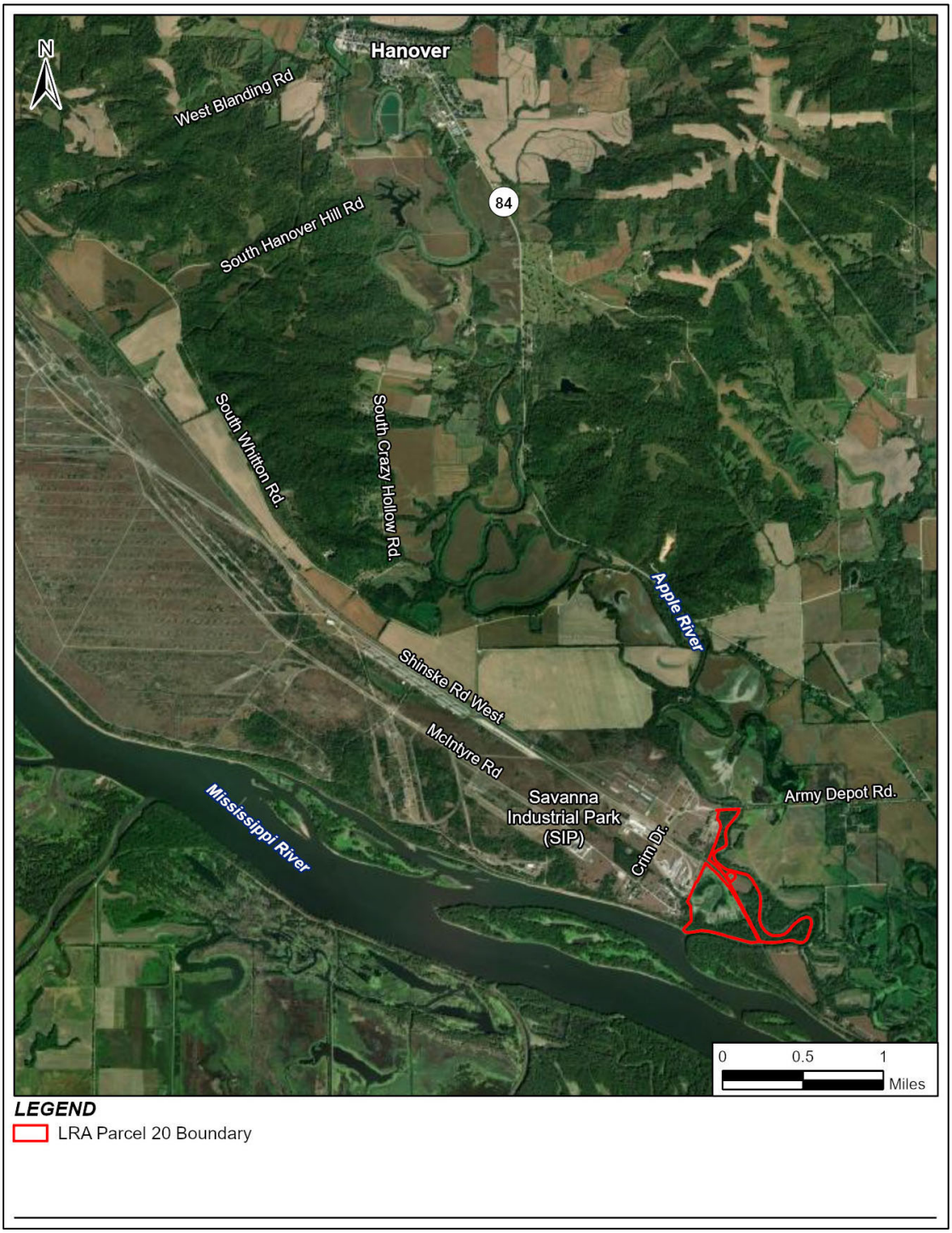


Figure 4.13-1. Regional Roads near LRA Parcel 20.

Table 4.13-1. Average Annual Daily Traffic and Vehicle Use on Roads Serving and Near LRA Parcel 20

Road segment	County	AADT (vpd)	Heavy commercial volume (vpd)	Multiunit truck[a] (vpd)	Single-unit truck[b] (vpd)
IL 84, south of Army Depot Road/Crim Drive	Carroll	1,400	260	160	100
IL 84, north of Army Depot Road/Crim Drive	Carroll, Jo Daviess	1,200	170	100	70
Army Depot Road/Crim Drive	Carroll	350	0	0	0
West Blanding Road	Jo Daviess	100	0	0	0
South Hanover Hill Road	Jo Daviess	75	0	0	0
South Crazy Hollow Road	Jo Daviess	50	0	0	0

Source: IDOT 2025b.
Notes: vpd = vehicles per day.
[a] The body of a multiunit truck (the engine and cab) is separate and detachable from a trailer for hauling cargo (USDOT 2023).
[b] The cargo element of a single-unit truck is integral to the body of the vehicle (i.e., the cargo is not carried in an attached trailer) (USDOT 2023).

Rail Transportation. The BNSF Railway line parallels the northern boundary of the SIP and bisects LRA Parcel 20. No railroad bridges or trestles are on the portion of the BNSF Railway line that bisects LRA Parcel 20. The BNSF Railway continues north to Minneapolis/St. Paul, MN, and northwestern states and south to Galesburg, IL, from which runs to the Great Plains, southwest, and western states (BNSF 2023). BNSF Railway has the largest railroad network in the United States and transports primarily automobiles, chemicals, coal, consumer goods, forest products, grain, intermodal containers, and metals and minerals. Riverport Railroad operates a short-line railroad that serves the SIP (Riverport Railroad 2023).

Public Transportation. The closest passenger rail service to LRA Parcel 20 is at Kewanee, IL, along Amtrak lines from Chicago to California. Bus service is available from Kewanee to Moline, IL, 80 miles by car south of LRA Parcel 20.

Water Transportation. The Mississippi River is a vital waterway for the U.S. economy, especially for the agriculture sector. Eleven of the top 12 agriculture-exporting states in the country are in the Mississippi River basin (Peterson 2023). The river basin, which includes 32 states and two Canadian provinces, produces 92% of U.S. agricultural exports and 78% of the world's exports in feed grains and soybeans. Millions of barrels of crude oil and other petroleum products move on the river monthly, as does 35% of U.S. exports of thermal coal. From 2015 to 2024, barge traffic through locks 12 and 13 averaged 13,012 barges and 13,327 barges, respectively (USACE 2025). The 5-year average through the locks (2020–2024) was 11,072 barges through Lock 12 and 5,705 barges through Lock 13. Over the last 10 years, barge traffic through Lock 12 was highest in 2016, with 18,746 barges passing through it. The highest number of barges also passed through Lock 13 in 2016, with 19,179 barges transiting it. Barge traffic through the two locks has steadily decreased over the past 5 years (since 2020), with 7,999 passing through Lock 12 in 2024 and 8,188 passing through Lock 13 in 2024. The navigation season on the Mississippi River in Illinois lasts 10 months, although the length

of the season varies with ice conditions and the need to transport materials. LRA Parcel 20 has no access to the Mississippi River.

The Mississippi River—and commerce that depends on it—faces threats from coastal dead zones, diminishing river sediment, drought, ground subsidence, hurricanes, rising seas, and decades of dredging (Dryfoos 2023). These factors caused the river to drop to record lows in 2023 for the second year in a row, affecting the navigation and shipping capabilities of barges and boats. In response, USACE is working to deepen its channels and maintain the river flow through dredging. USACE has launched a 5-year study to examine the issues facing the river.

Air Transportation. The closest airport to LRA Parcel 20 is the Tri-Township Airport, a small civil airport south of Savanna, IL. Many other small airports are in the area, but the closest major airport is Quad Cities Airport, 60 miles south in Moline, IL. Chicago O'Hare International Airport is about 130 miles east of the Depot.

4.13.2 Environmental Consequences

Effects would be considered significant if an alternative created a safety hazard for motorists, bicyclists, or pedestrians; caused a reduction by more than two levels of service on roads or at intersections within the ROI; substantially degraded traffic flow during peak hours; or substantially exceeded road capacity and design.

Alternative 1: No Action Alternative. No effects on the Illinois transportation system would result under the No Action Alternative.

Alternative 2: Accelerated Disposal Alternative. No effects on transportation would result under Alternative 2. A transfer of property title would not affect road conditions or transportation resources.

Alternative 3: Recreation-Only Reuse Alternative. Short- and long-term, negligible adverse indirect effects on transportation and traffic would be expected. Short-term effects would result from traffic to and from the site while recreational trails are established, interpretive signage installed, and other tasks to modify the site for recreational use are accomplished. Long-term effects would result from traffic to and from the site by recreational users and occasional trips to the site to manage the recreation resources. This study estimated public site visitation for recreational activities at approximately 20 visits per week. Army Depot Road would be able to support this level of additional use. No effects would be expected on air, public, or rail transportation.

Alternative 4: Recreation and Solar Reuse Alternative. Short- and long-term, negligible adverse indirect effects on transportation and traffic would be expected. The effects expected for Alternative 3 also would be expected for Alternative 4, although additional short-term traffic would result from trips to and from the site to construct the solar PV arrays and additional long-term traffic would result from trips to and from the site to maintain the solar PV arrays.

Alternative 5: LRA Reuse Alternative. Short- and long-term, less-than-significant adverse indirect effects on transportation would be expected under Alternative 5. The effects on transportation under Alternative 5 would result from construction traffic to and from the site to build the port, recreational facilities, and solar PV arrays. Additional

truck traffic, estimated at 100 trips per day, would be required to remove dredged sediment from the site. Traffic on Army Depot Road and IL 84 would increase substantially during construction and could be expected to deteriorate and require resurfacing or surface repairs. The construction staging area would be in the SIP on the former parade ground, so construction traffic moving between the staging area and LRA Parcel 20 would not affect roads outside of those areas. Long-term, less-than-significant effects on traffic would result from trips by dockhands, solar PV maintenance workers, and recreational visitors and workers.

Short-term employee and construction vehicle trips during construction are estimated to be 60 peak-hour daily trips (60 trips in both the morning and the evening) and approximately 12–20 trips per hour during nonpeak hours trips. Increasing the AADT by 240would not exceed the IL 84 capacity of 1,900 vehicles per day (vpd). Long-term trips generated once operations had begun would be trips attributable to a portion of the 370 jobs created (see Table 4.11-7). Assuming (conservatively) that half of the jobs created are direct jobs at the SIP, 185 peak-hour daily trips would be added to IL 84. The AADT would increase by 370, or to a maximum of 1,770 (using the latest IDOT AADT data), which would not exceed the IL 84 capacity of 1,900 vpd.

Barge traffic through locks and dams 12 and 13 would increase almost imperceptibly. The LRA estimated that Alternative 5 would generate approximately 250 barge trips (120 inbound and 130 outbound) annually, which equates to an average of less than one barge trip per day added to the Mississippi River barge traffic (JCD LRA 2023).

4.13.3 Mitigation Measures and BMPs

No mitigation measures would be required.

BMPs. BMPs typically employed for construction projects (e.g., signage for detours, lowered speed limits, and so forth) would be required during construction. No BMPs would be required once normal operations on LRA Parcel 20 were underway.

4.14 Utilities

4.14.1 Affected Environment

Except for connections to the sewage treatment plant, there are no utilities on LRA Parcel 20. Utilities west of LRA Parcel 20 serve the SIP. This section discusses those utilities—potable water, wastewater, stormwater, energy, and communication systems—as any future development would have to connect to them.

Potable Water. The SIP west of LRA Parcel 20 is served by a potable water system, referred to as the Lower Post Area water system, consisting of three water supply wells, a storage reservoir, and distribution mains. The water from the supply wells receives minimal treatment at each location through the addition of chlorine. Altogether the three water supply wells have a capacity of 1,800 gals per minute. Because of a low water demand, only the well closest to LRA Parcel 20 in Building 107 is currently active. The water is pumped to a 250,000-gal elevated storage tank. The Lower Post Area is served quite comprehensively by approximately 140,000 linear feet of water mains ranging from 4 inches to 12 inches in diameter. Smaller mains are used as laterals/service lines, ranging

in diameter from 2 inches to 3 inches. Potable water lines run east-west along Crim Road/Army Depot Road and north-south along Rofsteck Road and Vincent Road near the western border of LRA Parcel 20. A water line runs from those lines into LRA Parcel 20 along Sewage Plant Road to service the sewage treatment plant (RKG 2018).

Wastewater. The SIP is serviced by the Lower Post Area collection system, a gravity collection system located in the south half of the former SVADA that flows to the sewage treatment plant. While the 1.4-acre sewage treatment plant site is surrounded by LRA Parcel 20, it is not part of LRA Parcel 20 and would not be transferred. The collection system contains a little less than 6 miles of pipe with approximately 5 miles of sewer mains and 1 mile of sewer services. Other than the sewer main from the developed area to the sewage treatment plant, there is no sewer service on LRA Parcel 20 (RKG 2018).

The sewage treatment plant was originally constructed in 1942 and included manual screening, primary sedimentation, primary and secondary trickling filters, secondary sedimentation, anaerobic digestion, and sludge drying beds. Upgrades and modifications at the facility since its original construction have included the addition of a comminutor, an effluent chlorine disinfection system and contact tank, sampling equipment, and groundwater pumps and the conversion of the anaerobic digester to an aerobic digester. The facility is reportedly designed to treat an average flow of 0.30 million gallons per day, although an evaluation in 2011 pointed out two locations in the plant where pump capacity and gate operation would limit the plant's treatment capacity under peak hourly loads. The sewage treatment plant is over 75 years old, and, while it has been repaired and maintained well, it has degraded in its overall efficiency (RKG 2018).

Stormwater. A small portion of the SIP is served by a storm sewer system that primarily discharges into Commander's Pond (JCD LRA 2023). There are approximately 17 storm sewer catch basins in the SIP. The balance of the property is surface drained into creeks and sloughs of the Apple and Mississippi rivers and into low areas where the stormwater infiltrates into the ground. The sandy nature of the soils on the property promotes rapid infiltration of the runoff (RKG 2108). There is no stormwater system in LRA Parcel 20. All stormwater drainage in LRA Parcel 20 is through surface runoff.

Energy. Jo-Carroll Energy supplies electric power via a 35-kilovolt (-kV) sub-transmission line to a main substation where it is transformed to 13.2 kV. The switchgear, which includes six 1,200-ampere breakers, then distributes the power throughout the SIP. There are four 3-phase distribution lines throughout the SIP. The system in the former SVADA Lower Post Area is in fair condition and provides good coverage for that area. The 3.5-MW substation is underutilized and has the capacity to provide 2.5 MW of capacity to potential users (RKG 2018). There is no natural gas service available on the SIP. Other than the powerline along Sewage Plant Road, which supplies the sewage treatment plant, there is no energy infrastructure on LRA Parcel 20.

Communications. The SIP has an extensive system of copper cables and a high-speed broadband fiber network with ring redundancy at a 40-gigabyte capacity. The LRA has privatized the copper cable and fiber network; currently iFiber Communications maintains these systems. A separate fiber optic cable system owned by Illinois Information Management/Dejavue Properties has been installed at the SIP (RKG 2018). Broadband services are provided by Aero Group, Inc. (SIP 2023). The only

communication lines on LRA Parcel 20 are those along Sewage Plant Road that service the sewage treatment plant.

There are no utilities on Apple River Island in the Mississippi River. Stormwater runoff on the island consists of surface drainage to the river.

4.14.2 Environmental Consequences

Effects on utilities would be considered adversely significant if an alternative impaired service to the SIP or local communities.

Alternative 1: No Action Alternative. No effects would be expected. Under the No Action Alternative, there would be no change in demand for potable water, wastewater, stormwater, energy, or communication utilities.

Alternative 2: Accelerated Disposal Alternative. No effects would be expected on utilities. There would be no change in the use of potable water, wastewater, stormwater, energy, or communication utilities from transferring or conveying title of real estate for LRA Parcel 20 to the LRA.

Alternative 3: Recreation-Only Reuse Alternative. No effects would be expected on utilities.

Alternative 4: Recreation and Solar Reuse Alternative. Long-term beneficial effects on energy would be expected. Effects would include the effects expected under Alternative 3 except solar panels would be installed at Cleanup Site 20, Abandoned Landfill. The power produced could be used on site or used to increase the electrical capacity in the area, depending on coordination with the local power utility.

Alternative 5: LRA Reuse Alternative. Short- and long-term, less-than-significant adverse indirect effects and long-term beneficial effects would be expected. The adjacent properties in the SIP have significant infrastructure, including power, water, fiber, and steam, which would support the build-out of the Proposed Action over time (JCD LRA 2023). Except for sewage treatment, the new demand would be low intensity and not expected to burden the utility system. Long-term beneficial effects could be expected from the new utility systems to accommodate new development.

Test pumping and drawdown measurements indicate that the potable water wells can supply much more water than is currently being drawn from them. The proposed development on LRA Parcel 20 would require installation of water supply distribution pipelines. The long-term impacts on water supply would be less than significant. Pump upgrades might be needed in the future to provide more water if the demand increases.

Long-term, less-than-significant adverse effects on sewage treatment could occur as a result of the development under Alternative 5. Although much of the current plant has been maintained over the years, it will soon reach the end of its useful life and need to be replaced. Even with minor development on LRA Parcel 20, the construction of a new sewage treatment facility might be required to accommodate the increased need from any new development on the parcel along with further development on the SIP.

The proposed development of LRA Parcel 20 would require associated stormwater improvements. Short-term, less-than-significant impacts would result from stormwater

being controlled by the dewatering and storage of dredged sediments. The long-term impacts would be less than significant.

The proposed development of LRA Parcel 20 would require associated energy improvements. Power lines would have to be extended from the SIP to the parcel. Existing transmission lines are located within 4 miles of the site and could provide additional power to the site. The capacity of the existing substation is underutilized, so the long-term impacts on capacity would be less than significant. The proposed solar PV arrays, if constructed, would result in generation of power, further reducing the additional demand from the existing system.

Communication line improvements would be required for the development on LRA Parcel 20. The long-term impacts would be less than significant.

4.14.3 Mitigation Measures and BMPs

No mitigation measures or BMPs would be required.

4.15 Hazardous and Toxic Materials

4.15.1 Affected Environment

The Army's environmental cleanup of SVADA continues to address contamination from the Depot's former munitions-related activities. The Proposed Action as it relates to potential contaminated media and the associated mitigation is distinct in that the responsibility for environmental mitigation lies with the Army due to contamination associated with requirements under CERCLA. As the contamination is attributable to past DoD activities, the Army retains responsibility for any necessary remediation and long-term management of the site. While in operation, activities on-base contaminated soil, groundwater, surface water, and sediment with hazardous chemicals. Preliminary environmental investigations of the installation by the U.S. Army Toxic and Hazardous Management Agency resulted in the agency proposing in 1984 that SVADA be added to the National Priorities List (NPL). In 1989, USEPA added SVADA to the NPL. The NPL is the list of Superfund sites of national priority throughout the United States and its territories recorded as having known or threatened releases of hazardous substances, pollutants, or contaminants. NPL sites are targeted for long-term remedial action under CERCLA. The CERCLA Information System identification number for SVADA is IL3210020803.

In 1989, after SVADA was listed as an NPL site, the Army, IEPA, and USEPA entered into a three-party federal facility agreement that established an approach to contaminant investigation, characterization, and cleanup activities across the installation. The Army, as the lead agency, is responsible for conducting SIs and cleanup actions on the facility under the oversight of IEPA and USEPA. Once SVADA was identified for closure, the Army's BRAC Environmental Restoration Program conducted an initial sitewide assessment of the potential environmental issues by preparing the 1999 EBS (USACE, Mobile District 1999). The EBS identified five CERCLA sites within LRA Parcel 20, as shown in Figure 4.15-1: Cleanup Site 20, Abandoned Landfill; Cleanup Site 73, Stables Landfill; Cleanup Site 77, 1917-Era Powder Magazines; Cleanup Site 130, Vincent Road

Septic System; and Cleanup Site 178, Ordnance School Lake (USACE, Mobile District 1999).

Of the five sites, only Cleanup Site 77 was not recommended for further investigation in the 1999 EBS. Site 77 consisted of 1917-era powder magazines used to store explosives and propellants in the initial years of the installation's operation. USACE concluded in the EBS that there was no evidence to indicate a release or disposal of hazardous substances or petroleum products had occurred (USACE, Mobile District 1999). Since preparation of the EBS, the remaining sites have been investigated or remediated or have remediation measures in place that are protective of human health and the environment. Of the remaining four sites, LUCs and land use restrictions have been established for Cleanup Site 20 and Cleanup Site 178 and no LUCs or use restrictions have been established for Cleanup Site 73 or Cleanup Site 130. This section briefly describes each identified site that required further environmental investigation.

Cleanup Site 20, Abandoned Landfill. This approximately 11-acre site operated as a landfill between approximately 1920 and the early 1970s. Landfill waste disposal practices and procedures that were used and waste types are largely unknown; however, an interview with a former SVADA employee conducted as part of developing the 1999 EBS indicated that drums of oil, solvents, paint, and sludge from acid baths were discarded into the landfill between 1945 and 1959 (USACE, Mobile District 1999). The EBS also indicated that the landfill might have been used as a burning ground in 1942; however, there was no confirmation that a burning ground or incinerator existed on the site (USACE, Mobile District 1999).

To address the human health risks, a ROD identifying a selected remedy for Cleanup Site 20 was prepared in 2016. The remedy consisted of capping the landfill with "hot spot" removal—excavation of soil containing chemicals of concern at concentrations above recreational remediation goals and buried drums and debris; transportation of the contaminated soil, drums, and debris to a regulated, licensed solid waste landfill for disposal; site restoration; long-term monitoring of groundwater and surface water; maintenance of the landfill cap; and implementation of LUCs. The LUCs as described in Section 3.2.1.4 would restrict site access, prohibit residential and agricultural land use of the property, and prevent intrusive activities and access to groundwater. The long-term groundwater monitoring would verify the success of the landfill cap as demonstrated by the reduction in groundwater contaminant concentrations over time to concentrations at or below the remediation goals (USACE, Louisville District 2019a).

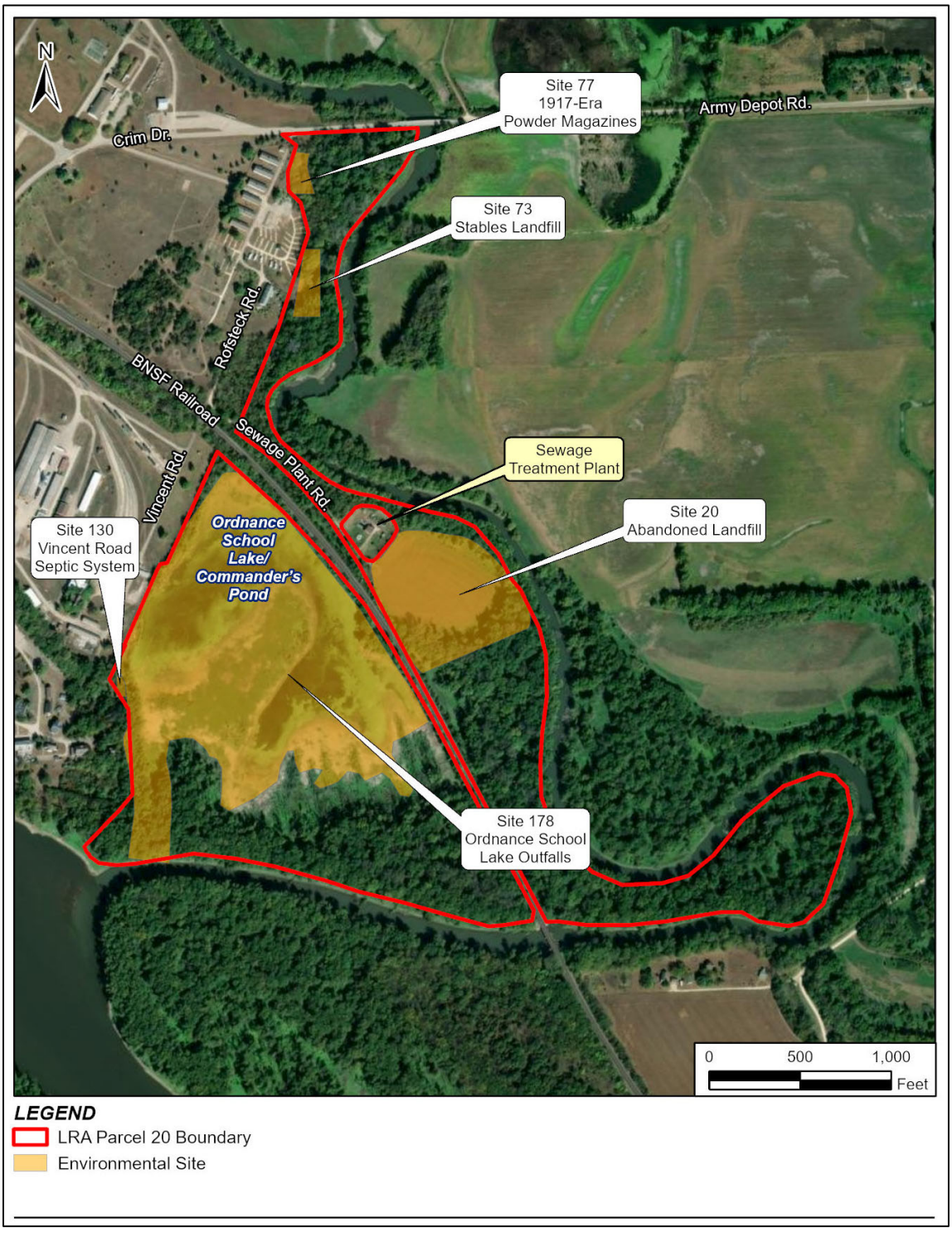


Figure 4.15-1. CERCLA Environmental Cleanup Sites on LRA Parcel 20.

Remedial action has been completed at Cleanup Site 20, but LUCs are enforced, and groundwater sampling continues to ensure that no contaminant rebound occurs and the landfill cap is functioning properly. A land use control implementation plan (LUCIP) documenting the LUCs has been finalized; however, UECA environmental covenants that would be included in a transfer document have not been executed. Environmental covenants restrict the use of, or limit the access to, real property. Five-year reviews are required for this site until it is deemed protective of unlimited use/unrestricted exposure (UU/UE) or until wastes are no longer present. The purpose of a 5-year review is to evaluate the implementation and performance of a remedy to determine if the remedy will continue to be protective of human health and the environment.

Site-wide PFAS SIs that began in October 2023 determined that PFAS constituents in groundwater at Cleanup Site 20, Abandoned Landfill, exceeded risk screening levels (Leidos 2024). Based on the findings of the SI, Cleanup Site 20 has been recommended for an RI for PFAS. An RI is conducted to determine the nature and extent of PFAS and evaluate potential impacts to human and ecological receptors.

Cleanup Site 73, Stables Landfill. The 1-acre Stables Landfill site was an abandoned, uncontrolled disposal area behind an old stable (Building 268) that also was designated as the Post Engineer Warehouse and used for storage of materials, such as fencing and pipes. Cleanup Site 73 was identified as a potential area of concern in 1992 during RI field activities that identified debris at the site that included concrete; abandoned, empty 55-gallon drums; and other discarded containers. Sampling conducted as part of the RI identified chemicals of concern in the soil (USACE, Louisville District 2020a).

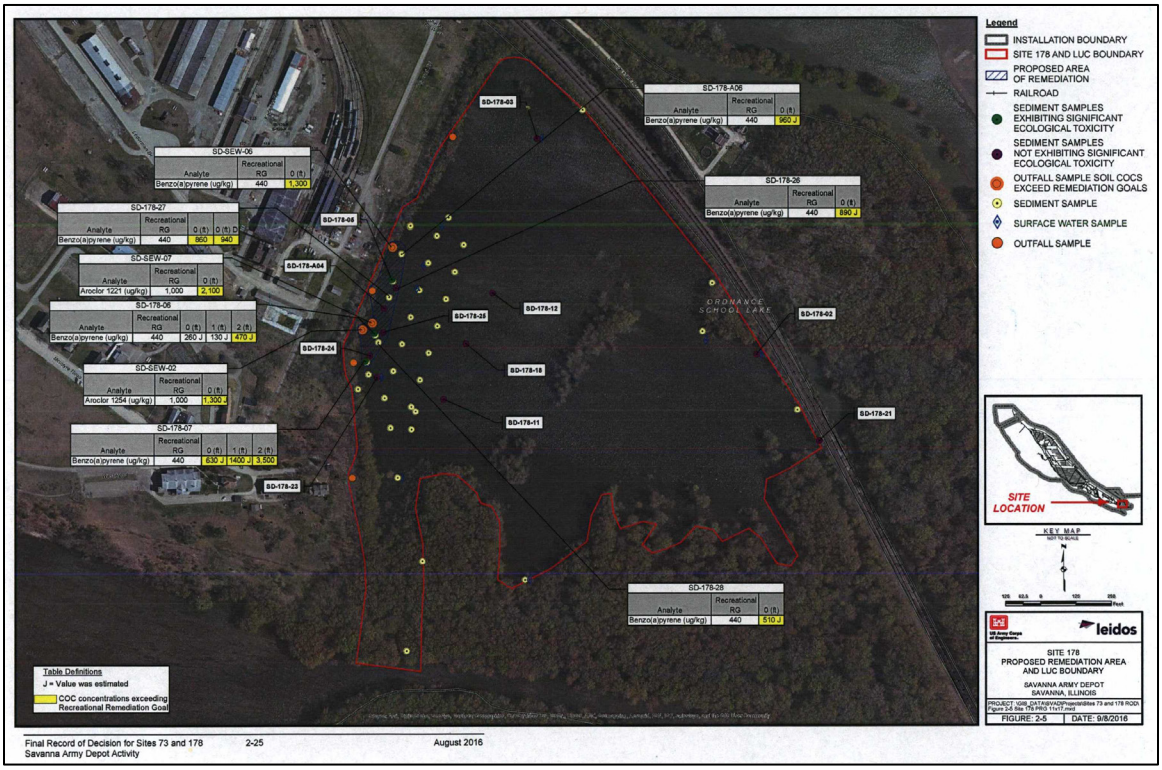
The selected remedy for Cleanup Site 73 was surface debris removal, soil excavation, and off-site disposal. This remedy was selected because it eliminated the potential debris-related hazards through removal, and soil excavation and disposal eliminated the need for LUCs, which would result in conditions at the site being suitable for future unrestricted land use (USACE, Louisville District 2016b).

The remedial action for Cleanup Site 73 has been completed and the remedial action completion report has been approved by regulators. The remedy at Cleanup Site 73 is protective of human health and the environment and the remedial action objectives as set forth in a 2016 ROD have been achieved (USACE, Louisville District 2020a). This site is included in the SVADA 5-year review to determine if the remedies are and will continue to be protective of human health and the environment.

Cleanup Site 130, Vincent Road Septic System. The Vincent Road septic system was constructed in 1918 on the western bank of Commander's Pond in a wooded area east of Vincent Road. The septic system consisted of two septic tanks and a sludge bed that received sanitary wastewater from the SVADA barracks, hospital, administration building, guardhouse, garage, engine house, heating plant, machine shop, vehicle storage building, and latrines in the SVADA Lower Post Area. The system was the primary wastewater management system for buildings in the Lower Post Area from 1918 until the sewage treatment plant was constructed in 1941. Hazardous materials and/or hazardous wastes associated with historical activities at SVADA could have been released into the Vincent Road septic system. A site-specific human health risk assessment evaluated the potential for adverse health effects for groups of people likely to be present under the

planned industrial/commercial and recreational use of the site (USACE, Louisville District 2012). In addition, the potential for adverse health effects for groups of people present under hypothetical residential use of the site also was assessed. The human health risks were determined to be acceptable for receptors and specified land uses and the preferred remedy was no further action (USACE, Louisville District 2012).

Cleanup Site 178, Ordnance School Lake. This site is composed of about 9 acres within the approximately 60-acre Commander's Pond (Figure 4.15-2). The 1999 EBS noted that wastewater from sinks and floor drains in the Lower Post Shop Area (Buildings 100–129) once drained into the stormwater sewer system, which discharged to seven outfalls along the western shore of Ordnance School Lake. This posed a risk of contaminating the lake with industrial waste. A known incident occurred in December 1968, when a ruptured preheater tube in Building 114 released oil into the lake via the storm system. All building sewer lines have since been rerouted to the Main Sewage Disposal Plant. Currently, only stormwater drains into the lake (USACE, Mobile District 1999).



Source: USACE, Louisville District 2016b.

Figure 4.15-2. Cleanup Site 178, Ordnance School Lake.

As presented in the 2016 ROD for sites 73 and 178, the baseline human health risk assessment for the planned future reuse determined that human health risks from the outfall surface soil and surface water at Cleanup Site 178 were unacceptable both for the planned land use and for hypothetical residential land use. To address human health and ecological risks, the ROD recommended a remedy that required soil and sediment excavation, disposal of excavated material at an off-site facility, and implementing LUCs

to prevent the site from being used for purposes other than industrial/commercial and recreational (USACE, Louisville District 2016b).

The remedial action for Cleanup Site 178 has been completed and the remedial action completion report has been approved by regulators. Based upon the ROD, an area of approximately 0.8 acre of soil (34,220 ft^2) and 3 ft deep was identified for excavation and disposal within the lake near the original outfalls from the base stormwater system. Confirmation sampling of the excavated area was conducted to verify that the cleanup met the established goals outlined in the ROD (USACE, Louisville District 2020b). The selected remedy, however, does not achieve UU/UE. While remediation was performed in accordance with the ROD, this does not indicate that all contamination has been eliminated from the lake's soils and sediments. In fact, less than 1 acre of the approximately 60 acres of pond sediments was removed. It is likely that contaminants of concern remain in the unexcavated sediments at concentrations exceeding the ROD's action levels.

The remedy at Cleanup Site 178 is protective of human health and the environment and the remedial action objectives as set forth in the 2016 ROD, except for an approved LUCIP, have been achieved. For the selected remedy to be protective in the long term, an executed environmental covenant in compliance with the UECA is needed to ensure that effective procedures are in place and LUCs are monitored, maintained, and enforced (USACE, Louisville District 2020a). The LUCIP and UECA have not been executed. This site is included in the SVADA 5-year review to determine if the remedies are and will continue to be protective of human health and the environment.

Sewage Treatment Plant. While not situated on LRA Parcel 20, the sewage treatment plant is surrounded by LRA Parcel 20, as shown in Figure 4.15-1. The plant was constructed in 1941 and remains operational. It historically received wastewater from buildings in the SVADA Lower Post Area where industrial operations might have released hazardous substances and petroleum products into the sewer system and ultimately to the sewage treatment plant (USACE, Louisville District 2015b). The plant is operated under LUCs that permit industrial uses, prohibit residential land use, and prohibit the use of groundwater as a drinking water source.

Ordnance and Explosive Wastes. No historical munitions training activities have been identified within LRA Parcel 20. Cleanup Site 20, Abandoned Landfill, and Cleanup Site 73, Stables Landfill, however, were historically used as disposal areas for munitions constituents based upon contamination detected in the landfills during environmental investigations. Because of the historical operations and use of the SVADA, there always is the site-wide potential that munitions or munition constituents could be encountered.

4.15.2 Environmental Consequences

Under NEPA, impacts from hazardous materials and hazardous wastes would be considered significant if an alternative would result in substantial risks to human health or safety—such as through direct human exposure—or if it would cause a marked increase in environmental contamination.

Alternative 1: No Action Alternative. No effects would be expected. The No Action Alternative would be a continuation of the current state of LRA Parcel 20, with the Army

continuing as the caretaker of the parcel. LUCs and land use restrictions, as applicable, would continue to be enforced and monitored as prescribed. Regulatory coordination and RI efforts related to PFAS detected at Cleanup Site 20, Abandoned Landfill, would continue.

Alternative 2: Accelerated Disposal Alternative. No effects would be expected. Except for the ongoing RI for PFAS at Cleanup Site 20, the environmental restoration sites within LRA Parcel 20 have been investigated or remediated or have LUCs or use restrictions in place that are protective of human health and the environment. The RI being conducted to determine the nature and extent of PFAS in groundwater also will evaluate potential impacts to human and ecological receptors. Those findings may result in additional LUCs or use restrictions that also would be documented in the transfer document between the recipient(s) of LRA Parcel 20 and the Army.

With disposal of LRA Parcel 20, the Army would follow the provisions of CERCLA Section 120(h), which requires a covenant warranting that all remedial action necessary to protect human health and the environment from any hazardous or toxic substances remaining on the property has been taken before the date of transfer. Under certain circumstances, conveying the deed of a contaminated property might take place before completion of remedial actions. Under CERCLA Section 120(h)(3)(C), the covenant can be deferred so that property may be transferred before all necessary remedial actions have been taken if regulators agree that the property is suitable for the intended use and the intended use is consistent with protection of human health and the environment. This agreement is referred to as a "covenant deferral request," which would take the form of a deed provision warranting that all remedial action necessary to protect human health and the environment with respect to any such substance remaining on the property has been taken before the date of transfer and that the United States shall conduct any additional remedial action found to be necessary after the date of the transfer. USEPA and the Governor of the State of Illinois would be responsible for accepting such an agreement.

Further, the Army, along with USEPA and IEPA, will have enforcement authority of the LUCs and use restrictions through the covenant. The Army will bear the burden of any enforcement that may become necessary to make sure that compliance with the LUCs is maintained. In addition to enforcing the LUCs and use restrictions, the Army also will be responsible for ongoing restoration or monitoring activities to ensure effectiveness of LUCs, where applicable. The Army may later transfer these responsibilities to another party by contract, property transfer agreement, or other means; however, the Army shall retain ultimate responsibility for remedy integrity.

Alternative 3: Recreation-Only Reuse Alternative. Short-term, less-than-significant adverse indirect effects and long-term, negligible adverse indirect effects would be expected, with required prior design and written approval by the Army, USEPA, and IEPA because of existing Cleanup Site 20 LUCs and use restrictions as described in this section. Should this alternative be approved, some existing enforced controls may require revision including limiting site access and additional controls, such as installation of signage, could be required. In the short term, adverse effects would be expected from construction activities associated with the proposed recreation elements. Construction vehicles and equipment (e.g., generators) used to implement this alternative would use

petroleum products that could spill or be discharged on the ground in work areas. Construction contractors would be responsible for preventing spills by implementing proper storage, handling, and management procedures. As SVADA is a former military facility with a history of munitions storage, testing, and disposal, there remains the potential for encountering UXO, discarded military munitions, or munitions constituents during any soil-disturbing activities. These hazards may be present in areas previously used for training, testing, or disposal operations. As a result, any future excavation, construction, or land development activities should include appropriate safety protocols, site assessments, and coordination with USACE or other responsible agencies to mitigate risks associated with potential munitions exposure. Prior to commencing any fieldwork, construction contractors would be informed of this possibility, instructed not to disturb suspicious items, and follow procedures outlined in the site safety plan.

Monitoring wells associated with environmental restoration and monitoring activities would not be disturbed. All disturbed soils at the site must be managed as potentially contaminated due to the historical use of the area for military operations, including munitions handling, storage, and disposal. This precautionary approach is necessary because residual contaminants such as heavy metals, explosives, petroleum products, or other hazardous substances may be present in the subsurface. Proper handling, sampling, and disposal procedures must be followed in accordance with the LUC and applicable federal, state, and local environmental regulations to ensure the protection of human health and the environment during any soil disturbance activities.

Long-term, negligible adverse effects would be expected once the recreational area and trails are available for public use. Based on regulatory coordination and approval, signage will likely be required that will inform users that the recreation area is sited on a landfill and that no intrusive activities or tampering with monitoring wells are permitted. Signage also would inform users about the past use of SVADA, that users should remain on the established trail system, and to call local law enforcement should a suspicious object be observed on the trail.

Alternative 4: Recreation and Solar Reuse Alternative. Short-term, less-than-significant adverse indirect effects and long-term, negligible adverse indirect effects would be expected with implementation of this alternative. In the short term, adverse effects would be expected from construction activities as described under Alternative 3. In the long term, also like Alternative 3, implementation of Alternative 4 would require prior design and written approval by the Army, USEPA, and IEPA because of existing LUCs and use restrictions on Cleanup Site 20, Abandoned Landfill. The solar array design would preclude any intrusive activities within the landfill boundaries and would preserve the continuity of the landfill caps. Should this alternative be approved, existing LUCs may require revision including those limiting site access and new controls such as the addition of signage as described under Alternative 3. The proposed solar array design has been specifically engineered to avoid any intrusive activities within the boundaries of the closed landfill. All structural elements such as panel supports, wiring conduits, and access routes will be constructed using ballasted or surface-mounted systems, thereby eliminating the need for excavation or penetration into the waste mass. This design approach ensures that the integrity and continuity of the existing landfill cap are preserved by preventing disruption of the protective cover system, including the

geomembrane and soil layers; avoiding any compromise to the gas collection or leachate control infrastructure; maintaining compliance with applicable RCRA Subtitle D post-closure care requirements; and supporting long-term cap performance by minimizing erosion, settlement, and infiltration risks. This nonintrusive solar development strategy aligns with best practices for landfill reuse and has been successfully implemented at numerous closed landfill sites nationwide under both USEPA and state agency oversight.

Alternative 5: LRA Reuse Alternative, Phase 1. Alternative 5, Phase 1 would be expected to have short- and long-term, less-than-significant adverse indirect effects. In the short term, adverse effects would be expected from the use of hazardous materials, petroleum products, and waste generated from construction activities. Construction activities, including the proposed solar PV arrays to be sited on the landfill, and dredging operations occurring within encumbered areas where LUCs or use restrictions have been established would require coordination with the Army, USEPA, and IEPA to ensure that construction does not impact environmental restoration activities and that established controls protective of human health and the environment are not compromised. In the long term, adverse effects would be realized from the use of hazardous materials, petroleum products, and waste generated from operating the proposed facilities. During construction, including dredging in the river, and future operations, the LRA and its tenants would be required to comply with established land use restrictions and would be regulated under local, state, and federal programs to ensure proper management of hazardous materials and petroleum products and of generated waste, waste disposal, and dredged material.

Effects would include the effects expected under alternatives 3 and 4 with additional short- and long-term, less-than-significant adverse effects from increased development that would result in increased use of hazardous materials, petroleum products, and waste generation during construction and facility operations. The LRA and its tenants would be required to comply with established land use restrictions and would be regulated under local, state, and federal programs to ensure proper management of hazardous materials and petroleum products and of generated waste, waste disposal, and dredged material.

Alternative 5: LRA Reuse Alternative, Phases 2 and 3. Alternative 5, phases 2 and 3, would have short- and long-term, significant-but-mitigable adverse indirect effects. The dredging of Commander's Pond in phases 2 and 3 would result in significant adverse environmental impacts without the implementation of substantial mitigation measures. There is a substantial risk that unknown chemicals of concern present in sediment could contaminate nearby waterbodies. Such contamination may result in significant ecological degradation and pose considerable risks to public health through exposure to affected drinking water sources or aquatic organisms. The primary concern is the sheer volume of impacted sediment waste that would be disturbed and potentially mobilized during dredging and excavation activities. Current estimates indicate the presence of approximately 450–600 million pounds of contaminated sediment waste within the impacted area, based on a projected 500,000 yd^3 at 3,500 pounds per yd^3 (CAT 2025). This volume presents a considerable environmental and public health risk. In addition to the known volume of hazardous material, there is a high potential for unknown or uncharacterized contaminants within the pond sediments. The full chemical profile of the waste has not yet been defined, introducing uncertainty regarding the nature and extent of

potential pollutants. This uncertainty heightens the level of risk, particularly in the absence of a comprehensive contaminant delineation and control strategy. The site's proximity to adjacent waterways, including surface waterbodies and underlying groundwater aquifers, increases the likelihood of contaminant migration. Disturbance of the pond sediments under this alternative could lead to the mobilization of hazardous constituents, posing risks to aquatic ecosystems, drinking water sources, and regional hydrology. The potential for cross-media contamination from sediments to water warrants a conservative and precautionary approach. Before implementing Alternative 5, the LRA would be required by CWA Section 401 and Section 404 to conduct extensive sediment chemical analyses and resuspension testing. The testing would be required before USEPA would issue a federal permit for the project to adequately characterize the potential pollutant loading from dredging. The LRA or other future owner would need to prepare and implement BMPs, including a site management plan, a management plan for the solar PV array and protection of the landfill, a spill prevention plan, and hydraulic and sediment modeling.

The LRA would implement phases 2 and 3 over a 10-year period. To calculate a maximum impact from the CERCLA contaminated sediment, this analysis assumes the dredging under phases 2 and 3 would be completed in a 4-year period. This equates to approximately 500 yd^3 of sediment per day (based on a 300-day work year), or roughly 15,000 yd^3 per month. This volume of sediment and associated water would generate approximately 1,250,000 gallons of water per month that would require pretreatment before discharge. This would require storage tanks with a total daily capacity of 40,000 gallons, equivalent to approximately two 20,000-gallon water storage tanks per day. For the contaminated soil, approximately 51,000 yd^3 of storage capacity might be necessary. The storage would have to be either covered or otherwise designed to protect the environment from exposure and contamination.

4.15.3 Mitigation Measures and BMPs

Mitigation. Beyond regulatory requirements, mitigation measures are measures that would be tailored to the specific conditions and risks of implementing phases 2 and 3 under Alternative 5. These measures would anticipate potential contaminants and reflect best practices in environmental management, exceeding baseline legal obligations. The Army would be responsible for cleanup of Site 178, Ordnance School Lake (Commander's Pond) under CERCLA.

The Army's mitigation measures for cleanup of Commander's Pond would need to include, at a minimum, the following:

- Overseeing and managing the remedial action in Commander's Pond.
- Preparing a comprehensive corrective measures feasibility study for Commander's Pond, including a remedial action plan for the remaining contaminated sediment.
- Conducting detailed and targeted sampling and analysis as part of characterization of potential pollutant loading, with specific analytes (e.g., heavy metals, MECs, PCBs, pesticides, and VOCs) and protocols selected based on project-specific risk considerations.

- Defining contaminant transport modeling to predict dispersion.
- Delineating boundaries of contaminated zones to minimize over-dredging and to segregate the sediment.
- Establishing water quality monitoring baselines.
- Establishing engineering controls to prevent the release of contaminants.
- Conducting advance dredge management planning to include coordination for handling potentially contaminated sediment, including identification of contaminants and planning for disposal at permitted facilities, exceeding standard compliance practices.
- Incorporating proactive compliance with land disposal restrictions into project planning to ensure that any hazardous waste identified is managed in accordance with applicable treatment and disposal requirements.
- Reviewing progress reporting from the LRA to confirm criteria are being met.
- Conducting post-dredging contaminant confirmation surveys.
- Outlining restoration habitats (e.g., replanting submerged aquatic vegetation or benthic communities).
- Inspecting containment structures and implementing adaptive management, as needed.

The LRA planning mitigation measures for dredging management plan for Commander's Pond and the Mississippi River would need to include, at a minimum, the following:

- Adherence to the Army's remedial action planning and corrective measures outlined in feasibility study.
- Dredging technique optimization
  - Select low-impact dredging methods (e.g., hydraulic cutterhead or environmental clamshell dredges).
  - Avoid open mechanical bucket dredging for contaminated sediment.
  - Use silt curtains, sheet piling, or cofferdams to isolate work areas.
  - Schedule work during low-flow conditions and avoid sensitive ecological windows.
  - Employ real-time turbidity and chemical monitoring (e.g., total suspended solids, PCBs, and metals).
  - Install sediment barriers (e.g., silt curtains or bubble curtains).
  - Use closed-loop dredging systems with integrated suction and filtration.
  - Minimize dredge head agitation and maintain slow movement to reduce resuspension.
  - Use geotextile tubes, filter presses, or settling basins to dewater dredged material.
  - Store and handle dredged sediment in contained areas with impermeable liners.

- Monitor water and sediment quality to confirm contaminant reduction.
- Manage runoff from sediment dewatering areas to prevent recontamination.
- Use sealed containers or barges to transport contaminated sediment.
- Avoid spills and leaks during transfer and loading operations.
- Ensure disposal occurs at approved facilities (e.g., confined disposal facilities and hazardous waste landfills).

BMPs. BMPs for hazardous materials storage minimize the possibility of spills, weathering, leaks, and improper handling from regular site activities. They include properly inspecting, labeling, and sealing all containers; segregating incompatible materials based on physical and chemical properties and secondary containment requirements; storing all hazardous materials in areas that will not be subject to rain, flooding, or vandalism (under lock and key if necessary); for outdoor storage locations, providing proper ventilation, storage foundations (e.g., pallets or a concrete slab), and secondary containment as recommended by the manufacturer or required by regulation; confining storage of hazardous materials to designated areas; ensuring enough aisle space to ease inspections and handling and minimize the chance of accidental spills; performing loading and unloading operations in areas designed to contain potential spills; making sure workers have easy access to spill cleanup materials; and training employees on proper storage techniques.

Managing demolition debris and potentially contaminated sediment in Commander's Pond and Brickhouse Slough would be subject to federal environmental laws, including the CERCLA, CWA, and RCRA. These statutes govern the investigation, evaluation, and remediation of hazardous substances as well as the classification, handling, and disposal of hazardous and nonhazardous waste. The following measures are mandatory under federal and state regulations to ensure environmental compliance and protect public health and would be required to be implemented by the LRA or other future owner(s) of LRA Parcel 20:

- File a CWA Section 401 permit application including the following:
  - Characterization of the potential pollutant loading
  - Extensive sediment chemical analyses
  - Extensive resuspension testing
  - Identify the LEDPA
- File a CWA Section 404 permit application containing the following:
  - Dredge management plan
    - Dredging cost estimate
    - Dredging volume estimate
    - Cost estimates for the characterization and disposal of dredged sediments
    - Identify the location where contaminated and uncontaminated dredged material would be placed
    - Cost estimate for annual maintenance required to maintain a 9-ft-deep channel leading into and within Brickhouse Slough and Commander's Pond

    - Dredged volume estimate for annual maintenance required to maintain a 9-ft-deep channel leading into and within Brickhouse Slough and Commander's Pond
    - Safety precautions for handling contaminated versus uncontaminated dredged sediments
- Prepare a site management plan that includes the following:
    - Maintenance of LUCs and incorporation of the Army Corrective Measures, feasibility requirements, and remedial action plan.
    - Mitigation for potential exposure to munitions and munitions, if needed.
    - Management for PFAS, if needed, pending the results of the PFAS RI.
- Prepare a management plan for the solar PV array, demonstrating how:
    - The installation, operation, and maintenance of the array will not compromise the landfill's environmental monitoring and control systems.
    - The installation, operation, and maintenance of the array will not compromise the landfill footprint or landfill area regarding run-off, pooling or ponding water, erosion, and so forth.
    - The design of the array would take into account the dead load of the system, flooding, snow loading, and wind.
- Conduct hydraulic modeling
- Conduct sediment transport modeling
- Prepare and file final development plans
- Prepare and implement spill prevention, control, and countermeasure and strategic preparedness and response plans in compliance with RCRA

4.16 Irreversible and Irretrievable Commitment of Resources

Irreversible and irretrievable commitments of resources are related to the use of nonrenewable resources and the effects that using such resources could have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource that could not be replaced within a reasonable time frame (e.g., fossil fuels or minerals). Irretrievable resource commitments involve the loss in value of an affected resource that could not be restored because of the action (e.g., extinction of a threatened or endangered species or disturbance of a cultural resource).

The reuse alternatives 3, 4, and 5 would involve commitments of nonrenewable or slowly renewable resources. These resources include fossil fuels and common construction materials (e.g., aggregate [sand, gravel, and stone], bituminous materials [derived from coal, petroleum, or natural deposits and used for their adhesive, binding, or waterproofing properties], minerals, and lumber). The LRA would use fossil fuels for energy during both construction and operation of the port, as would the barges, trains, and trucks that would use the port. The use of fossil fuels and raw materials is largely irreversible, except for trees that, in time, can grow to produce more lumber and items that could be salvaged and recycled at the end of a facility's life. The solar PV arrays under Alternative 4 and possibly under Alternative 5 would create a renewable energy resource that could result in a reduction in regional fossil fuel use.

Alternative 4 would permanently alter the land use character of LRA Parcel 20, transitioning it from a dormant or passive open space into a solar PV array.

Alternative 5 would permanently alter the land use character of LRA Parcel 20, transitioning it from a dormant or passive open space into an active industrial port facility, including wharf infrastructure and associated supporting features and facilities.

Alternative 5 would result in permanent visual alterations from the construction and operation of the port. The transformation of LRA Parcel 20 would constitute a substantial change in visual character of LRA Parcel 20.

Construction and operation of the port could impact the mussels because it would degrade the quality of the aquatic habitat and would essentially remove or bury any freshwater mussels within the construction area, potentially resulting in a take of federally protected species. Those activities also would permanently alter the bathymetry of the riverbed and create more deep-water areas. Consultation with USFWS determined that Alternative 5 "may affect and is likely to adversely affect" the federally listed Higgins eye pearlymussel and sheepnose mussel. The LRA would be required to conduct formal consultation with USFWS before implementing Alternative 5 to comply with ESA Section 7. The LRA would need to develop specific mitigation measures based on coordination with state and federal regulatory agencies to minimize impacts on the mussels.

Under alternatives 3, 4, and 5, the proposed construction activities and long-term use of the parcel, and dredging and barge traffic under Alternative 5, would increase the potential of irretrievable adverse effects on cultural resources. Cultural resources include archaeological sites located both within and outside LRA Parcel 20, including sites 11CA1, 11CA142, 11CA44, 11CA60, 11CA143, 11CA147, and 11CA148.

Construction and operation of the recreational and solar facilities and the port could impact the archaeological sites through construction activity, increased site area soil erosion, increased site visibility, increased potential for looting, and shoreline erosion and site destabilization. The LRA would need to adhere to the stipulations in the PA and the preservation covenant and consult with the ACHP and IL SHPO for environmental clearance for the proposed activities under alternatives 3, 4, and 5. The LRA might be required to conduct additional site testing and evaluation and/or mitigation, as necessary and, based on applicable law, to minimize impacts on the sites and prevent an irretrievable loss of the resource. Mitigation requirements may include rerouting the conceptual reuse construction activities outside of archaeological site boundaries, archaeological monitoring, additional excavations evaluating NRHP-eligibility, and salvage excavations and/or maintaining the status quo of protected cultural resources as outlined in the provisions of the preservation covenant.

4.17 Relationship between Short-Term Use of the Environment and Maintenance and Enhancement of Long-Term Productivity

NEPA requires that an EIS consider the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity. Short-term uses of man's environment include construction-related disturbances. Long-term uses of man's environment include impacts occurring from operation of new man-made facilities

and permanent resource loss. The following identified short- and long-term effects could be expected under reuse alternatives 3, 4, and 5. No adverse effects would be expected under alternative 1 or 2.

Short-term uses of the environment associated with reuse alternatives 3 through 5 would be the environmental consequences from construction described for each environmental resource in Section 4.0. These effects would include the use of the physical environment (land and water) and energy resources (fossil fuels) during project construction that would cause air emissions, noise, traffic, turbidity, temporary or permanent removal of vegetation and disturbance of soil, and use of hazardous materials and petroleum products, generate waste, and dredged material, including contaminated sediment. Construction also would have short-term economic benefits from expenditures on labor and materials, but that would end after construction is completed.

Four types of long-term productivity were considered for the effect of these short-term uses on long-term productivity: biological productivity, economic productivity, hydrological productivity, and soil productivity.

Biological Productivity. Plant communities and wildlife contribute to biological productivity, and their long-term productivity provides ecological and recreational benefits. Most of LRA Parcel 20 is wetland, with an upland area on the northern part of the parcel. Although the parcel has prime farmland soils, LRA Parcel 20 had been part of SVADA since 1917, and the upland area was used as a landfill (now capped) and is not suitable for agricultural use. The elevated recreational trail under alternatives 3, 4, and 5, and the recreational field proposed under Alternative 3 and possibly Alternative 5, would result in a minor decrease in biological productivity, but still provide a recreational benefit. Installing the solar PV arrays under Alternative 4 or 5 instead of the recreational field, however, would remove the biological productivity of that site for the life of the arrays. Under Alternative 5, soil and vegetation would be removed to widen the mouth of Commander's Pond at Brickhouse Slough and aquatic habitat would be altered from dredging in the pond and slough. Alternative 5 would permanently alter the bathymetry of the riverbed, remove freshwater forested/shrub wetland, and create more deep-water areas. Long-term biological productivity would be reduced from dredging and port operations that would cause erosion, sedimentation, and the release of pollutants into the water. Construction of the port could impact the mussels because it would essentially remove or bury any freshwater mussels within the construction area, potentially resulting in a take of federally protected species.

Economic Productivity. Reuse alternatives 3, 4, and 5 would contribute to the long-term revenue potential for the region's recreational industry sector and the transportation, warehousing, and utilities industry sector. The Reuse Alternatives, especially Alternative 5, would create long-term increases to regional economic productivity by expanding local industry and creating new jobs, income, and business sales. These factors would have a positive effect on long-term economic productivity.

Hydrological Productivity. Although soils and shorelines would be stabilized after construction, the dredging of the pond and river channel, the pilings from the port structures, and the barge traffic would alter water flow and sediment dynamics in the area. The port would impact a FEMA-designated floodway. The dredging would disturb

and resuspend contaminated sediment. The barges and runoff from commercial/industrial operations at the port facilities would degrade water quality within Commander's Pond and the Mississippi River. Hydrological productivity, therefore, would decrease in the long term. Specific mitigation measures would be developed based on coordination with state and federal regulatory agencies to minimize effects.

Soil Productivity. Maintenance of long-term soil productivity is mainly a concern in agricultural areas, although this also can be of concern where soils provide other economic or ecological benefits. Under alternatives 3, 4, and 5, construction of the walking trail would have a less-than-significant effect on long-term soil productivity because the trail would be elevated, the footprint of the supporting poles would be limited, and the surrounding soils would be restored to general preconstruction conditions soon after disturbance. If the solar PV arrays are installed under Alternative 4 or 5, that would remove the soil productivity of that site for the life of the arrays. Under Alternative 5, soil and vegetation would be removed and the land graded for port facilities along the northwestern side of the pond and to widen the mouth of the pond at Brickhouse Slough, removing the soil productivity. The overall effect on soil productivity would be minimal from an agricultural standpoint because the parcel is not or cannot be used for agriculture, but it still would reduce the long-term soil productivity from an ecological standpoint.

4.18 Unavoidable Adverse Environmental Impacts

Implementing the Reuse Alternatives would result in a variety of adverse environmental effects, as detailed in sections 4.3.2 through 4.15.2. Some of the effects could be minimized, avoided, or compensated through mitigation, but others would be unavoidable. This section discusses the principal unavoidable adverse effects on the environment.

Land Use: Unavoidable land use change would occur under alternatives 4 and 5 from open space to a solar PV array and under Alternative 5 from an undeveloped, open space into an active industrial land use.

Aesthetics and Visual Resources: Unavoidable aesthetics and visual changes to LRA Parcel 20 under alternatives 4 and 5 from the solar PV arrays and the port would detract from the site's natural visual character for on-site viewers.

Air Quality: Unavoidable emissions of air pollutants associated with facility construction under alternatives 3, 4, and 5 and port operations activities under Alternative 5 would occur. The emissions with the use of BMPs, however, would be less than significant and would not (1) exceed the significance indicators or (2) contribute to a violation of any federal, state, or local air regulation.

Noise: Unavoidable generation of noise would result from construction under alternatives 3, 4, and 5 and the operation of the port under Alternative 5. The noise, however, would have negligible-to-less-than-significant effects on the noise environment. Noise would be expected to be comparable in intensity to historic and existing uses of the property.

Water Resources: Unavoidable destruction, loss, or degradation of wetlands would occur from the construction of the port in Commander's Pond. Unavoidable disturbance of and turbidity would occur in Commander's Pond and the Mississippi River's Brickhouse

Slough and main channel from dredging necessary to construct and operate the port under Alternative 5.

Biological Resources: Unavoidable loss of natural aquatic and terrestrial habitat would occur to accommodate the construction of the solar PV arrays under alternatives 4 and 5, the construction of the port under Alternative 5, and navigation to the port under Alternative 5. Alternative 5 dredging activities necessary to create a viable port would impact aquatic habitat and freshwater forested/shrub wetland, permanently remove terrestrial habitat, permanently alter the bathymetry of the riverbed, essentially remove or bury any freshwater mussels within the construction area potentially resulting in a take of federally protected species and create more deep-water areas.

Navigation: Unavoidable impacts on navigational structures (e.g., wing dams and revetments), water flow, and commercial navigation on the Mississippi River under Alternative 5 would result from dredging in the Mississippi River main channel and Brickhouse Slough.

Hazardous and Toxic Materials: Unavoidable disturbance and resuspension of contaminated sediment would result from dredging under Alternative 5.

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