

FINAL

**Environmental Assessment for
BRAC 05 Disposal and Reuse of the
Riverbank Army Ammunition Plant, California**



Prepared by:

U.S. Army Corps of Engineers: Mobile District

With Technical Assistance from:
Marstel-Day, LLC
Fredericksburg, VA, 22401

March 2009

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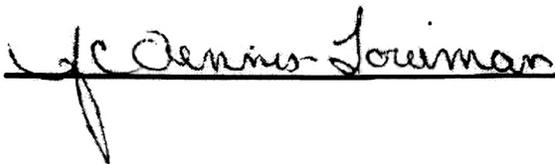
BYRON G. JORNS
Colonel, U.S. Army Corps of Engineers
Commanding

5 Feb '09

DATE

Approved by:

Riverbank Army Ammunition Plant, California



YOLANDA C. DENNIS-LOWMAN
Colonel, Tooele Army Depot Commander
LE, Commanding Officer

18 FEB 09

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INTRODUCTION

The 2005 Base Closure and Realignment (BRAC) Commission made recommendations for realignment and closure actions for military installations on 8 September 2005, in conformance with the provisions of the Defense Base Closure and Realignment Act of 1990 (Base Closure Act), Pub. L. 101-510, as amended. These recommendations included the closure of the Riverbank Army Ammunition Plant (RBAAP), California. In the absence of Congressional disapproval, the BRAC Commission's recommendations became binding on 9 November 2005. The RBAAP installation property was determined to be surplus to U.S. Department of Army needs.

This Environmental Assessment (EA), prepared in accordance with the National Environmental Policy Act (NEPA), analyzes the environmental and socioeconomic effects of disposal of the federal property and considers reasonable foreseeable reuse alternatives.

BACKGROUND

RBAAP consists of 173 acres of land located within the City of Riverbank (population 15,826, U.S. Census 2000), about 2 miles from the city's central downtown area. Riverbank is located in Stanislaus County in the San Joaquin Valley of central California (Figure 2.1-1). RBAAP is located to the west of the Sierra Nevada Mountains, about 80 miles east of the San Francisco Bay and about 100 miles west of Nevada. RBAAP is a government-owned, contractor-operated installation that was originally constructed as an aluminum reduction plant. In 1951, the plant was converted to the manufacture of steel cartridge cases. NI Industries, Inc. (NI) has operated the installation for this purpose since 1952.

Implementation of the BRAC Commission's recommendations must be completed by no later than 15 September 2011.

PROPOSED ACTION AND ALTERNATIVES

The proposed action is to dispose of the property made available by the closure of RBAAP mandated by the BRAC Commission. This action includes caretaker operations, cleanup of contaminated sites, and possible interim leasing. Reuse by others is a secondary action that may result from disposal.

Laws and regulations applicable to the proposed action include the Base Closure Act and the Federal Property and Administrative Services Act of 1949. The latter act is implemented by the Federal Property Management Regulations. Other major legislation governing the disposal and reuse of the RBAAP property includes: 32 Code of Federal Regulations (CFR) Part 174 (Revitalizing Base Closure Communities); regulations issued by the U.S. Department of Defense (DoD) to implement BRAC law; the Pryor

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Amendment; and the President's Program to Revitalize Base Closure Communities. Additional relevant federal statutes include: the Clean Water Act (CWA); Clean Air Act (CAA); Noise Control Act (NCA); Endangered Species Act (ESA); National Historical Preservation Act (NHPA); Native American Graves Protection and Repatriation Act (NAGPRA); American Indian Religious Freedom Act (AIRFA); Archaeological Resources Protection Act; Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Community Environmental Response Facilitation Act (CERFA); and Toxic Substances Control Act. The framework of these laws within the context of the NEPA analysis provides standards that guide environmental compliance and planning, and their consideration in the NEPA process helps ensure the preservation and promotion of environmental values in property transfer and reuse planning. Issues related to implementation actions consistent with several Executive Orders relevant to this BRAC action are also considered in this EA.

Alternatives for the proposed action are early transfer disposal, traditional disposal, caretaker status, and no action. The Army's preferred alternative for disposal of the RBAAP property is early transfer. Encumbrances such as those pertaining to access easements and remedial activities will be in effect as necessary for any disposal alternative.

The Army considers the Local Redevelopment Authority's (LRA) reuse plan as the primary source from which to determine reuse scenarios to be considered. Reuse alternatives for the RBAAP property are analyzed in terms of intensity-based probable reuse scenarios; specifically, this EA evaluates Medium-High Intensity Reuse (MHIR) and Medium Intensity Reuse (MIR) scenarios for RBAAP. The MHIR scenario, as determined for the purposes of this document and as described further in the EA, could result in a maximum of 1,100 employees at RBAAP and the establishment of up to 1.9 million square feet of building space on the surplus property. The MIR scenario could result in a maximum of 500 employees at RBAAP and the establishment of up to 1.4 million square feet of building space. Both reuse scenarios encompass the anticipated redevelopment activities at the property, including the development of a new green industry business park; new industrial, office and research and development; and new retail, as well as subsequent operations at RBAAP.

The Army expresses no preference with respect to reuse scenarios because reuse planning decisions are not within its authority.

DISPOSAL PROCESS

Methods available to the Army for property disposal include: transfer to another federal agency; public benefit disposal conveyance; economic development conveyance; negotiated sale; competitive sale; and exchanges for military construction. The real estate screening process for the RBAAP property first invited expressions of interest by the DoD and other federal agencies (9 May 2006), then by the LRA (the Riverbank Local Redevelopment Authority [RLRA]) and state and local authorities and homeless services providers (30 September 2006). In response to this screening, the RLRA received one Notice of Interest application from a prospective homeless service provider. After

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consultation with the U.S. Department of Housing and Urban Development, meetings with the NOI applicant, a review of the application by an RLRA-appointed panel, and public hearings, the RLRA denied the application. No other declarations of interest in the property were submitted by any other agencies. The RLRA reuse plan calls for multiple-use redevelopment of the area, including industrial, green industry, office, research and development, and retail uses.

In November 2006, the Army prepared an Environmental Condition of Property report for RBAAP; this report described the current environmental conditions of the surplus property (U.S. Army 2006a). Remediation or cleanup of contaminated sites is guided by the Army's Installation Restoration Program (IRP) and the Military Munitions Response Program (MMRP). Remediation activities that may occur prior to disposal of surplus property at RBAAP include cleanup of sites contaminated as a result of previous actions related to the handling and disposal of hazardous materials/substances. RBAAP is included on the U.S. Environmental Protection Agency's (USEPA) National Priorities List (NPL). RBAAP is regulated under RCRA permits. The Corrective Action provisions of these permits guide remedial activities at the installation. A Federal Facilities Agreement pursuant to CERCLA (involving the Army, USEPA, and State of California), signed on April 5, 1990, guides remediation activities at RBAAP.

ENVIRONMENTAL CONSEQUENCES

The evaluated resource areas include land use, aesthetics and visual resources, air quality, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics, transportation, utilities, and hazardous and toxic substances. Direct and indirect impacts of each disposal alternative on the resource areas include a variety of short- and long-term impacts, both adverse and beneficial.

Early Transfer Disposal Alternative. As stated above, the preferred alternative is early transfer disposal, which would result in minor adverse effects for all resource areas, moderate beneficial effects for socioeconomics, and moderate adverse effects for air quality, noise, and transportation. Minor beneficial effects would occur for land use, aesthetics and visual resources, geology and soils, water resources, biological resources, utilities, and hazardous and toxic substances.

Traditional Disposal Alternative. For traditional disposal, minor or moderate adverse effects would occur for all resource areas. These effects would occur over a longer period of time as compared to the early transfer disposal alternative. Moderate adverse impacts would occur in the areas of air quality, noise, and transportation.

Caretaker Status Alternative. For the caretaker status alternative, minor adverse impacts would occur for land use, aesthetics and visual resources, geology and soils, biological resources, socioeconomics, transportation, utilities, and hazardous and toxic substances. Minor beneficial effects would also occur for land use, air quality, noise, geology and soils, water resources, biological resources, socioeconomics, transportation, utilities, and hazardous and toxic substances.

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No Action Alternative. The no action alternative would result in no adverse or cumulative impacts. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those that occurred prior to the BRAC Commission's recommendations for closure and realignment. Implementation of this alternative is not possible, however, in light of the BRAC closure recommendations having the force of law. However, inclusion of the no action alternative is prescribed by Council on Environmental Quality (CEQ) regulations implementing NEPA and serves as a benchmark against which federal actions can be evaluated. Therefore, the no action alternative is evaluated in this EA.

Reuse. The two evaluated reuse scenarios could result in a variety of adverse and beneficial short- and long-term direct, indirect, and cumulative effects. To bound potential effects under reuse, the MHIR scenario for RBAAP represents a development intensity higher than that proposed in the RLRA reuse plan. The MHIR scenario for RBAAP would result in short-term minor adverse effects for all resource areas. Minor beneficial effects would occur for land use, aesthetics and visual resources, geology and soils, socioeconomics, transportation, utilities, and hazardous and toxic substances. Reuse of RBAAP at such an intensity level, representing greater amounts of built space and higher levels of employment, would add jobs and increase population in the region.

Reuse of the installation at MIR intensity, similar to the level of intensity presented in the RLRA's reuse plan, would result in effects identical to those under the MHIR scenario on all resource areas, but the MIR scenario would result in a lower level of effects overall than the MHIR scenario.

Cumulative effects related to reuse would be most noticeable with respect to achievement of the MHIR scenario. Minor adverse cumulative effects would occur to land use, aesthetics and visual resources, noise, water resources, and socioeconomics. Moderate adverse cumulative effects would be expected to occur relative to air quality and transportation. Net increases in air emissions from both stationary and mobile sources would occur at RBAAP and throughout the region. Moderate beneficial cumulative effects could occur for land use. Cumulative effects under the MIR scenario would be similar to those under the MHIR scenario.

Table ES-1.1 presents an overview of the environmental and socioeconomic effects associated with each of the alternatives evaluated in this EA (with the exception of the no action alternative, for which no effects were identified).

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Table ES-1.1 Summary of Effects from Disposal and Reuse of RBAAP

RESOURCE AREAS	CARETAKER STATUS			EARLY TRANSFER DISPOSAL			TRADITIONAL DISPOSAL			REUSE SCENARIOS				
	Direct	Indirect	Cumulative	Direct	Indirect	Cumulative	Direct	Indirect	Cumulative	Medium-High Intensity Direct	Medium-High Intensity Indirect	Medium Intensity Direct	Medium Intensity Indirect	Cumulative
Land Use	●	■	■	■	■●	■●	●	■●	■●	■⊖	●	■⊖	●	■⊖
Aesthetic/Visual Resources	■			■●		■●	■●		■●	■●	■	■●	■	■●
Air Quality	●		●	■	■	⊠	■	■	⊠	■	■	■	■	⊠
Noise	●		●	⊠		■	⊠		■	⊠	■	⊠	■	■
Geology and Soils	■	●		■	■●		■	■●		■●	■	■●	■	
Water Resources	■●	●	●	■	■●	■	■	■●	■	■	■	■	■	■
Biological Resources	●	■		■●	■	■	■●	■	■	⊠	■	⊠	■	■
Cultural Resources														
Socioeconomics	■	■●	■	■●	■●	■⊖●	■●	■●	■⊖●	■⊖●	■●	■⊖●	■●	■⊖●
Transportation	■●		■●	⊠●	■	⊠	⊠●	■	⊠	⊠●	■	■●	■	⊠
Utilities	■		●	■●	■		■●			■●		■●		
Hazardous/Toxic Substances	●	■		●	■●			■●		●	■	●	■	
<ul style="list-style-type: none"> ● Beneficial Effect (Minor) ⊖ Beneficial Effect (Moderate) ○ Beneficial Effect (Significant) 										<ul style="list-style-type: none"> ■ Adverse Effects (Minor) ⊠ Adverse Effects (Moderate) ■ Adverse Effects (Significant) 				
NOTE: No adverse or beneficial effects were identified for No Action. No significant adverse effects have been identified. [BLANK] No Effects Expected														

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MITIGATION AND RECOMMENDATIONS FOR PLANNING AND MANAGEMENT

Beyond the placement of encumbrances on the land, no specific mitigation is required of the Army. Relative to property redevelopment, federal, state, and local regulations and policies will govern to a large extent the proper use and conservation of the environment including aesthetics and visual resources, noise, air quality, biological resources, wetlands resources, water resources and quality, cultural resources, and other resources. Certain other management measures beyond these may also be implemented by the Army or the RLRA to successfully manage the disposal and redevelopment of RBAAP according to the principles of sound and sustainable planning. Additional management measures for reducing adverse effects to resources are outlined below.

Early Transfer/Traditional Disposal. Beyond the placement of encumbrances on the land, no specific mitigation is required of the Army. Management measures that the Army will take to avoid, reduce, or compensate for adverse effects that might occur as a result of early transfer or traditional disposal are outlined below.

- Impose in the transfer or conveyance of BRAC property appropriate encumbrances to avoid potential adverse effects on a variety of environmental resource areas, as outlined in Section 3.2.4.2. Conveyance documents would provide notification on hazardous substances that were stored, released, or disposed of on the property in excess of the 40 CFR Part 373 reportable quantities.
- Continue to work with the RLRA to ensure that disposal transactions are consistent with the adopted community reuse plan.
- Continue to manage BRAC property in accordance with DoD, Army, federal, state and local regulations and policies that require the identification, delineation, and, where appropriate, abatement of hazardous conditions.
- Until final disposal, maintain installation buildings, infrastructure, and natural resources in caretaker status to the extent provided by Army policy and regulations.

Caretaker Status Alternative. Beyond adherence to Army policy and procedures relative to long-term caretaker conditions, no specific mitigation is required of the Army. The longer the RBAAP property remains in caretaker status, the greater the potential would be for adverse effects on various resources. The Army would implement the following measures to reduce or avoid adverse effects associated with caretaker status as they might occur.

- Conduct installation security and maintenance operations to the extent provided by federal policies and regulations.
- Identify clean or remediated portions of the installation excess property for disposal and reuse and prioritize restoration and cleanup activities.
- Recycle solid waste and debris where practicable.

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No Action Alternative. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC Commission's recommendations for closure and realignment. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005. Therefore, no mitigation or management measures would be necessary to reduce effects.

Intensity-Based Probable Use Scenarios. Under the MHIR and MIR reuse scenarios, non-Army entities would assume reuse planning and execution of redevelopment actions. Recommended measures for intensity-based reuse scenarios, except for those related to federally protected interests, remediation, or other Army concerns, are not the responsibility of the Army. Other than adherence to specific encumbrances imposed by the Army and compliance with federal, state, and local regulations and policies, no specific mitigation actions are required to address adverse effects. Encumbrances and management measures that are most important for reducing adverse effects from reuse are outlined below.

- *Land Use.* Adverse effects associated with development of the BRAC property at RBAAP to a level of intensity equal to a MHIR or MIR scenario could be at least partially reduced through sound site planning and the design and creation of appropriate buffer zones and on-site security measures (e.g., to prevent trespassing into dangerous areas). Furthermore, the Army may restrict certain types of future land use, impose institutional controls, or take other actions affecting land use to protect human health and the environment. Restrictions such as those on the use of groundwater, provisions against disturbing soils in certain locations (e.g., active IRP sites), and access controls for certain parcels would be included in conveyance documents as restrictions on future land use, as required. Furthermore, as specific projects are proposed as part of redevelopment in the future, additional planning studies may be required to determine sufficient buffer zones, security measures, or design features in order to ensure that newly developed uses do not create incompatible land use conditions.
- *Aesthetics and Visual Resources.* Similar to land use, adverse effects to aesthetics and visual resources at RBAAP associated with the level of development representative of the MHIR or MIR scenarios could be at least partially reduced through location of industrial facilities on interior parcels, establishment and maintenance of adequate buffers between industrial uses and adjacent viewsheds, and screening of potential sources of light and glare. These and other adverse effects may be addressed during the City of Riverbank's planning review process for new, project-specific development proposed for the RBAAP property and through adherence to the goals and policies presented in the City of Riverbank's General Plan (Community Character Element), including those addressing road corridors and commercial, industrial, and retail development.
- *Air Quality.* The permit process established by the CAA provides effective controls over potential stationary air emission sources. Adherence to the State Implementation Plan's provisions for mobile sources could address that source category. Additional mechanisms, such as the application of traffic controls to minimize mobile air emission

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sources and Best Management Practices (BMPs) to control fugitive dust during construction and demolition, could be used to control airborne contaminants.

- *Noise.* Measures to reduce potential impacts related to noise could include the establishment of buffers or barriers around noise-producing uses, or between the installation property and surrounding uses. Hearing protection for industrial or manufacturing workers, per Occupational Safety and Health Administration (OSHA) standards, could also help reduce adverse impacts. Special planning consideration could be given to reduce potential conflicts between on-site uses and off-site residential and office/professional land uses relative to the location of noisy operations in parcels dedicated to industrial, manufacturing, or warehousing operations, as well as transportation corridors providing ingress and egress via rail and roads. Noise studies and careful planning would allow for the creation of sufficient buffers and proper placement of facilities.
- *Geology and Soils.* Disturbance of highly erodible soils could be avoided wherever possible through the implementation of low-impact design, BMPs, and other planning measures. Should soil be disturbed, erosion control measures could be implemented. Geotechnical studies required prior to construction could also address potential impacts.
- *Water Resources.* Application of BMPs to reduce sediment loading to surface waters could aid in reducing effects on water quality. Low-impact design measures and construction of storm water retention systems could help mitigate impacts associated with storm water runoff from impervious surfaces, site water use, and wastewater discharge from site operations. Business operational practices designed to reduce potential effects of operations on water resources, such as measures to prevent the release of engine oil into storm drains, could also be implemented at the RBAAP property during and after redevelopment.
- *Biological Resources.* Redevelopment of the RBAAP site following disposal could result in adverse effects to sensitive habitat, including wetlands and special-status species. The RLRA and other parties to redevelopment could implement the following measures to address and protect biological resources.
 - Follow project-specific wetlands delineations, permitting, and wetlands avoidance and/or mitigation requirements prior to the redevelopment of specific parcels, in consultation with the U.S. Army Corp of Engineers (USACE), Sacramento District. As required under Section 404 of the CWA, the sequencing of wetlands mitigation requirements would ensure that impacts would be avoided if possible, and then minimized if unavoidable. As a last resort, wetlands mitigation, such as creation, restoration, banking, and other means would be required, in consultation with the USACE, Sacramento District.

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- Implement low-impact design measures, erosion and sediment controls, storm water controls, and other appropriate BMPs to reduce or even avoid any potentially adverse effects on wetlands from construction activities.
 - Avoid impacts to threatened, endangered, and other special-status species. At this time, no current federally listed species have been identified within the RBAAP property. Suitable habitat for such species, however, does exist within the RBAAP property – for example, birds with protected status may be transient or migrant visitors to the RBAAP property (e.g., white-tailed kite has been identified in the area). It should also be noted that no bat surveys have been conducted for the property (however, such surveys would not be required to be undertaken by the Army, because the three bat species that were identified as potentially occurring in the area lack protected status under ESA). In addition, protected fish species (Central Valley steelhead and Central Valley fall/late-fall Chinook salmon), critical habitat for Central Valley steelhead, and Essential Fish Habitat (EFH) for Chinook salmon have all been identified as occurring or located in the Stanislaus River flowing past the E/P ponds. Measures to address the protection of these species, such as restrictions to development of the portion of the E/P ponds directly adjacent to the river and maintenance of the riparian woodland in this area, may be required to be implemented by the RLRA or future owners of the site, for the continued protection of these species.
- *Cultural Resources.* The RLRA and other developer entities would follow procedures as specified by California law and the California State Historic Preservation Office (SHPO) to address potential effects to undiscovered cultural resources (including human remains) that may be inadvertently revealed during ground-disturbing activities. These procedures could include, for example, stopping work in the area where cultural resources are discovered, and within 100 feet of the find, until a qualified archaeologist (and/or the County Coroner) can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with appropriate agencies.
 - *Transportation.* Redevelopment of the BRAC property at the MHIR or MIR scenario levels may benefit from sound planning to meet increased traffic and transportation needs. Improvements to roads, intersections, and railway access to and within the RBAAP property are planned over the 15-year planning horizon in conjunction with the implementation of the RLRA's reuse plan and the planning processes of the City of Riverbank and other local agencies.
 - *Utilities.* Redevelopment may require extension and possible renovation of many utilities at the RBAAP property. As outlined in the reuse plan (RLRA 2008), the RLRA proposes to exercise careful planning to minimize system capacity stress, to ensure that sufficient utility service is provided to current and new tenants. Specific measures that may be taken by the RLRA to reduce adverse effects include:

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- Extensions of the existing 8-inch main water distribution line, as well as the installation of new 4-inch or 6-inch branch lines, at the Main Site;
 - Extension of a new 12-inch sanitary sewer main and a new 8-inch branch line at the Main Site. The RLRA's reuse plan also includes a plan for the installation of recycled water ("gray water") systems at the Main Site for the reuse of water for nonpotable uses such as irrigation and fire suppression;
 - Extension of electrical systems and new connections to the existing 12-kilovolt line at the Main Site;
 - Extension of new natural gas service infrastructure, including new 2-inch, 4-inch, 6-inch and 10-inch natural lines, as required at the Main Site; and
 - Extension of telecommunications lines as required at the Main Site.
- *Hazardous and Toxic Substances.* Coordination with regulatory agencies would be required under CERCLA and RCRA to show that ongoing remedial actions and monitoring programs are continuing to be effective.

CONCLUSION

Analyses in the EA show that implementation of the proposed action would not result in significant adverse environmental effects. Issuance of a Finding of No Significant Impact would be appropriate, and an Environmental Impact Statement is not required prior to implementation of the proposed action.

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PURPOSE, NEED, AND SCOPE

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1 PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

The Base Realignment and Closure (BRAC) process affords the U.S. Department of the Army (Army) the opportunity to reshape its physical plant – installations and associated weapons ranges – as well as the organization and stationing of its forces. Through the BRAC process, the U.S. Department of Defense (DoD) evaluates its current stationing plan against multiple variables, including changes in threat, force structure, technologies, doctrine, organization, business practices, and plant inventory (Defense Base Closure and Realignment Commission [DBCRC] 2005). The Army is realigning and closing installations to produce a more efficient and cost-effective base structure for achieving dynamic national military objectives.

Recommendations of the BRAC Commission made on 8 September 2005 in conformance with the provisions of the Defense Base Closure and Realignment Act of 1990 (Base Closure Act), Public Law (Pub. L.) 101-510, as amended, included the closure of the Riverbank Army Ammunition Plant (RBAAP), California. In the absence of Congressional disapproval, the BRAC Commission's recommendations became binding on 9 November 2005. The RBAAP installation property has been determined to be surplus to Army needs and will be disposed of according to applicable laws, regulations, and national policy. Pursuant to the National Environmental Policy Act of 1969 (NEPA) and its implementing regulations, the Army has prepared this Environmental Assessment (EA) to evaluate the environmental and socioeconomic impacts of disposing of the federal property and to consider reasonable foreseeable reuse alternatives.

In its 2005 report to the President (DBCRC 2005), the BRAC Commission recommended the following actions for RBAAP:

- Close Riverbank Army Ammunition Plant, California.
- Relocate the artillery cartridge case metal parts functions to Rock Island Arsenal, Illinois.

Pursuant to these recommendations, all Army missions at RBAAP must cease or be relocated. Following closure, the property (approximately 173 acres) will be excess to Army needs. Accordingly, the Army proposes to dispose of its real property interests at RBAAP. The proposed action of disposal is more fully described in Section 2.0, Description of the Proposed Action. The purpose of the proposed action is to carry out the BRAC Commission's recommendations. The proposed action supports the Army's need to comply with the Base Closure Act and to transfer the surplus property to new ownership.

1.2 PURPOSE AND NEED

The purpose of the proposed action is to implement the BRAC Commission's recommendations addressing RBAAP. The need for the proposed action is to improve the

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ability of the nation to respond rapidly to the challenges of the 21st century. The Army is addressing this need through its facilitation of the ongoing transformation of U.S. Armed Forces; its implementation of global force reposturing; and its restructuring of important support functions to capitalize on advances in technology and business practices, including sustainable practices in installation planning.

To carry out its mission of providing necessary forces and capabilities to the Combatant Commanders in support of the National Security and Defense Strategies, the Army must adapt to changing world conditions and must improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations. The current BRAC initiative addresses these requirements.

The Secretary of Defense's justifications for the BRAC recommendation at RBAAP, from Volume I of the DBCRC's Base Closure and Realignment Report (DBCRC 2005), are as follows:

There are 4 sites within the Industrial Base producing Metal Parts. To remove excess from the Industrial Base, the closure allows DoD to generate efficiencies and nurture partnership with multiple sources in the private sector.

1.3 SCOPE

This EA has been developed in accordance with NEPA and implementing regulations issued by the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500—1508) and the Army (32 CFR Part 651). Its purpose is to inform decision makers and the public of the likely environmental consequences of the proposed action and alternatives. The EA identifies, documents, and evaluates the potential environmental effects of property disposal and future uses of RBAAP.

The Base Closure Act specifies that NEPA does not apply to actions of the President, the BRAC Commission, or 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."¹

The BRAC Commission's deliberations and decision, as well as the need for closing or realigning a military installation, are also exempt from NEPA.² Accordingly, this EA does not address the need for closure or realignment. NEPA does, however, apply to disposal

¹ Public Law 101-510, Sec. 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 that has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation, or (iii) military installations alternative to those recommended or selected.

² Public Law 101-510, Sec. 2905(c)(2).

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of excess property as a direct Army action and to reuse of such property as an indirect effect of disposal; therefore, those actions are addressed in this document.

Two disposal alternatives (early transfer and traditional disposal) are identified in the EA, as well as a caretaker status alternative (which might arise prior to disposal) and the no action alternative. Two reuse scenarios, based on low and medium-low intensity uses, encompass the community's reuse plan and are evaluated as secondary actions. These alternatives and scenarios, and the rationale for their selection, are further described in Section 3.0, Alternatives.

An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians performed the impact analysis. The team identified the affected resources and topical areas, analyzed the proposed action against the existing conditions, and determined the relevant beneficial and adverse effects associated with the action. Section 4.0, Affected Environment and Consequences, describes the baseline conditions of the affected resources and other areas of special interest at RBAAP as of November 2005. The environmental consequences of disposal and reuse are also described in Section 4. Conclusions regarding potential environmental and socioeconomic effects of the proposed action are presented in Section 5, Findings and Conclusions.

1.4 PUBLIC INVOLVEMENT

The Army invites full public participation in the NEPA process to promote open communication and better decision making. All persons and organizations that have a potential interest in the proposed action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the NEPA environmental analysis process.

Public participation opportunities with respect to the proposed action and this EA are guided by the provisions of 32 CFR Part 651, Environmental Analysis of Army Actions. The final EA and a draft Finding of No Significant Impact (FNSI), if appropriate, will be made available for a 30-day comment period. During this time, the Army will consider all comments submitted by agencies, organizations, and members of the public on the proposed action, the EA, and the draft FNSI. At the conclusion of the comment period, the Army may, if appropriate, execute the FNSI and proceed with the proposed action. If it is determined that implementation of the proposed action would result in significant impacts, the Army will publish in the Federal Register a notice of intent to prepare an Environmental Impact Statement (EIS).

1.5 FRAMEWORK FOR DISPOSAL

Numerous factors contribute to Army decisions relating to disposal of installation property at RBAAP. The Base Closure Act triggers action under 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 executive branch policies. There are also practical concerns, such as identifying base assets to allow for disposal in a manner most

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consistent with statutory and regulatory guidance. These matters are further discussed below

1.5.1 BRAC Procedural Requirements

Statutory Provisions. The two laws that govern real property disposal in BRAC are the Base Closure Act (Pub. L. 101-510, as amended) and the Federal Property and Administrative Services Act of 1949 (Title 40 of the United States Code [USC], Sections 471 and following, as amended). The latter is implemented by the Federal Property Management Regulations at Title 41 CFR, Subpart 101-47. The disposal process is also governed by 32 CFR Part 174 (Revitalizing Base Closure Communities), regulations issued by DoD to implement BRAC law, and matters known as the Pryor Amendment and the President's Program to Revitalize Base Closure Communities (see below).

Screening Process. Having been recommended for closure and realignment, the RBAAP property has been determined to be excess to Army needs and, therefore, subject to specific procedures to identify potential subsequent public sector users. That is, the properties have been offered to a hierarchy of potential users through procedures called the screening process. This process and its results to date are discussed in Section 2.3.4, Real Estate Disposal Process.

The President's Program to Revitalize Base Closure Communities. On 2 July 1993, President Clinton announced a major new program to speed the economic recovery of communities near closing military installations. The president pledged to give top priority to early reuse of each closing installation's most valuable assets. A principal goal of the initiative was to provide for rapid redevelopment and creation of new jobs. In announcing the program, the president outlined the five parts of his community revitalization plan:

- Job-centered property disposal that puts local economic redevelopment first;
- Fast-track environmental cleanup that removes delays while protecting human health and the environment³;
- Appointment of transition coordinators at installations slated for closure;
- Easy access to transition and redevelopment help for workers and communities; and
- Larger economic development planning grants to base closure communities.

The Army is fully committed to the President's Program to Revitalize Base Closure Communities. A Base Transition Coordinator has been appointed for the RBAAP property, and the Army has taken an active role in providing assistance to local officials in the community.

³ Fast-track cleanup per the President's Program to Revitalize Base Closure Communities is no longer being exercised by the Army.

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The Pryor Amendment. Congress endorsed the President's plan by enacting the Base Closure Communities Assistance Act (contained in Title XXIX, Pub. L. 103-160), popularly known as the "Pryor Amendment" in recognition of its principal legislative sponsor. This act, as amended, provides legal authority to carry out the President's plan by granting conveyances of real and personal property to a Local Redevelopment Authority (LRA). In the case of RBAAP, the Riverbank Local Redevelopment Authority (RLRA) acts as the LRA. Specifically, the act created a new federal property mechanism, the Economic Development Conveyance (EDC). An EDC can help induce a market for the property, thereby enhancing economic recovery and generating jobs. The Army is required to seek fair market value consideration for EDC conveyance of property on installations that were approved for closure or realignment after 1 January 2005. Some flexibility is given to the military departments and the communities 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. The DoD's regulations implementing the Pryor Amendment appear at 32 CFR Parts 174 and 175. The EDC is further described in Section 2.3.4, Real Estate Disposal Process.

1.5.2 Relevant Statutes and Executive Orders (EO)

A decision on whether to proceed with the proposed action rests on numerous factors, such as mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, the Army is guided by several relevant statutes (and their implementing regulations) and Executive Orders (EO) that establish standards and provide guidance on environmental and natural resources management and planning. These include, but are not limited to, the Clean Air Act (CAA); Clean Water Act (CWA); Noise Control Act (NCA); Endangered Species Act (ESA); National Historic Preservation Act (NHPA); Native American Graves Protection and Repatriation Act (NAGPRA); American Indian Religious Freedom Act (AIRFA); Archaeological Resources Protection Act; Resource Conservation and Recovery Act (RCRA); Toxic Substances Control Act; EO 11988 (Floodplain Management); EO 11990 (Protection of Wetlands); EO 12088 (Federal Compliance with Pollution Control Standards); EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations); and EO 13045 (Protection of Children from Environmental Health Risks and Safety Risks). Key provisions of these statutes and EOs are described in more detail, as needed, in the text of this EA.

1.5.3 Other Reuse Regulations and Guidance

DoD's Office of Economic Adjustment published its Community Guide to Base Reuse in May 1995. The guide describes the base closure and reuse processes that have been designed to help with local economic recovery and summarizes the many assistance programs administered by DoD and other agencies. In 2006, DoD published its DoD Base Reuse Redevelopment and Realignment Manual (DoD 4165.66-M) to serve as a handbook for the successful execution of reuse plans.

PURPOSE, NEED, AND SCOPE

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DESCRIPTION OF THE PROPOSED ACTION

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



2 DESCRIPTION OF THE PROPOSED ACTION

2.1 INTRODUCTION

The proposed action (Army primary action) is to dispose of the surplus federal property generated by the BRAC-mandated closure of RBAAP. Reuse of the RBAAP property by others is a secondary action resulting from disposal.

RBAAP consists of 173 acres of land located within the City of Riverbank (population 15,826, U.S. Census 2000), about 2 miles from the city's central downtown area. Riverbank is located in Stanislaus County in the San Joaquin Valley of central California (Figure 2.1-1). RBAAP is located to the west of the Sierra Nevada Mountains, about 80 miles east of the San Francisco Bay and about 100 miles west of Nevada. Stockton, California (population 243,771, U.S. Census 2000) is about 30 miles northwest of RBAAP, and Modesto, California (population 188,856, U.S. Census 2000) is located about 10 miles to the southwest. Smaller towns and municipalities in the region near Riverbank include Escalon (population 5,963, U.S. Census 2000); Oakdale (population 15,503, U.S. Census 2000); Turlock (population 55,810, U.S. Census 2000); and Waterford (population 6,924, U.S. Census 2000). The City of Modesto and its outlying areas comprise the metropolitan area closest to RBAAP.

The installation is composed of two noncontiguous sites – the Main Site, comprising 146 acres and containing the primary manufacturing plant area, and the 27-acre Evaporation/Percolation ponds (E/P ponds) area, located about 1.5 miles north of the Main Site. The E/P ponds are used in the treatment of industrial wastewater and groundwater that is transported by pipe from the Main Site. Land use surrounding RBAAP is primarily low-density residential and agricultural. The Main Site is zoned Light Industrial and has been given a preliminary General Plan designation of Industrial/Business Park by the City of Riverbank⁴. The E/P ponds have been given a preliminary General Plan designation of Parks and are not currently zoned.

Townsend Avenue and railroad tracks bound the Main Site to the north, Claribel Road bounds the site to the south, and Claus Road bounds the site to the west. Land uses to the north, west, and south of the Main Site consist primarily of low- to medium-density residential development; land use to the east consists primarily of grazing/pasture land. State Highway 99 is located about 10 miles, and Interstate 5 about 20 miles, west of the Main Site. The E/P ponds are adjacent to the Stanislaus River, which marks the boundary between Stanislaus and San Joaquin Counties.

⁴ The City of Riverbank is currently preparing an update to the City's General Plan (City of Riverbank 2006).

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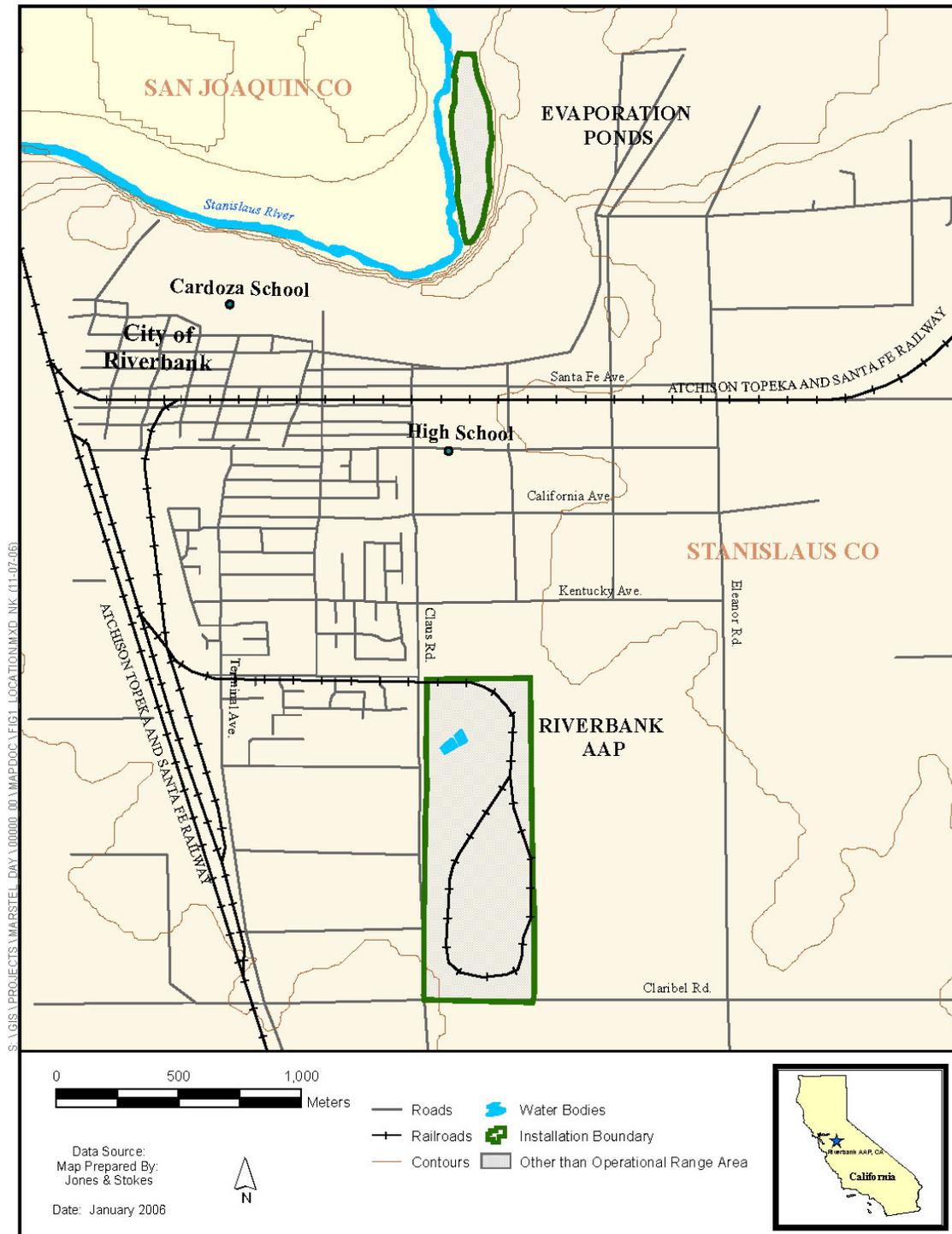


Figure 2.1-1 Location Map of RBAAP, California

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RBAAP is a government-owned, contractor-operated (GOCO) installation under the jurisdiction of the U.S. Army Joint Munitions Command. NI Industries, Inc. (NI) has operated the installation since early 1952. The installation's original facilities were designed to produce 40,000 tons of aluminum per year. Since 1951, the plant has remained an industrial metal-working plant, and its mission has been to manufacture grenades, projectiles, and steel cartridge casings (RBAAP 2005). RBAAP contains areas used for production, water and wastewater treatment, storage and hazardous waste storage, administrative and support functions, and open land (including pasture land and the E/P ponds). Present-day production operations at RBAAP include operation of the cartridge case production line, layaway of idle facilities, limited manufacturing and technology updates, and maintenance and protection of the overall plant (U.S. Army 2006a). Some buildings at the installation have been leased to private businesses, including ten non-government tenants that are overseen by NI. These businesses conduct a variety of light to heavy industrial activities, as described in Section 4.2.1, Affected Environment.

RBAAP includes approximately 45 acres of outgrants (leases, easements, and other agreements for use). The installation has over 150 buildings and structures, totaling approximately 940,000 square feet of building space (U.S. Army 2006a). Installation infrastructure also includes approximately 6 miles of paved roadway on the Main Site and one unpaved access road at the E/P ponds. The Main Site also contains a rail spur, serviced by the Burlington-Northern-Santa Fe Railroad, with approximately 5 miles of track.

2.2 PROPOSAL IMPLEMENTATION

2.2.1 Army Disposal Action

The Army proposes to implement the BRAC recommendations, which became law when Congress approved, in entirety, the list of military installations recommended by the BRAC Commission for closure and/or realignment that was approved by President Bush on 15 September 2005. Installation properties on the BRAC list must close within six years. RBAAP is among the installations on the list slated for closure.

Under provisions of the Base Closure Act, Pub. L. 101-510 mandates the initiation of closures and realignments no later than two years after the President transmits the recommendation to the Congress and completion of the closures no later than six years after the President transmits the recommendation to the Congress. The proposed action for this installation will be the disposal and reuse of surplus federal property.

Identification of recipients of the property being disposed of at RBAAP is governed by expressions of interest submitted by potential recipients in response to the Army's Declaration of Excess Property and Determination of Surplus Property (71 FR 26930, May 9, 2006). As a result of the screening process (see Section 2.3.4, Real Estate Disposal Process), the installation property would be available for transfer or conveyance to, and subsequent reuse by, the RLRA or other entities.

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2.2.2 Community Reuse

The DoD has recognized the RLRA as the LRA for the reuse planning associated with RBAAP. The RLRA has developed a comprehensive reuse plan (reuse plan, RLRA 2008) for the RBAAP surplus property, an extract of which is provided in Appendix A. The reuse plan focuses on several goals, including the creation of the following (RLRA 2008):

- Goal 1: A strong economic base for Riverbank;
- Goal 2: High-quality industrial facilities;
- Goal 3: Security for workers and businesses;
- Goal 4: Safety for Riverbank's residents; and
- Goal 5: Appropriate development of vacant land.

As of the date of preparation of this document, the RLRA has completed their final reuse plan, which has undergone review by the Department of Housing and Urban Development (HUD) and community stakeholders. As described further in Section 3.3, Reuse Alternatives, redevelopment of the RBAAP property could include the establishment of a new green industry business park, new retail areas, and industrial/office/research and development uses that would be established in new and existing buildings on the site.

Additional information regarding reuse scenarios evaluated in the EA is provided in Section 3.3, Reuse Alternatives.

2.2.3 Implementation

Under the Base Closure Act, closure is required by no later than the end of the six-year period beginning on 15 September 2005, the date on which the President transmitted his report containing the recommendations of the BRAC Commission to Congress.

The BRAC process of property disposal includes predisposal activities and real estate disposal, which in turn allow for subsequent reuse development. Predisposal activities may include, but are not limited to, NEPA compliance, Section 106 coordination in accordance with the NHPA, property inventories and title reviews, completion of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)/RCRA actions and contaminated site cleanup (unless early transfer is negotiated), interim uses, and caretaking of vacated facilities until disposal. In transferring or conveying federally owned property at RBAAP, the Army would identify encumbrances consistent with requirements of law, agency negotiation, and protection of environmental values. Section 3.2.4, Encumbrances Applicable to Either Disposal Alternative, provides details on the encumbrances expected to exist at the time of transfer.

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2.3 DISPOSAL PROCESS

2.3.1 Caretaking of Property Until Disposal

Prior to disposal, the Army may find it necessary to maintain the RBAAP property for an undetermined period. Though it is the goal of this round of BRAC to quickly dispose of federal properties for reuse, if disposal of BRAC properties were delayed, the Army would employ two levels of maintenance.

Initial Maintenance. From the time of operational closure until conveyance of the property, the Army would provide for maintenance procedures to preserve and protect those facilities and items of equipment needed for reuse in an economical manner that facilitates redevelopment. In consultation with the LRA and consistent with available funding, the Army would determine required levels of maintenance of facilities and equipment for an initial period following operational closure. The levels of maintenance during this initial period would not exceed maintenance standards in effect before approval of the closure decision. Maintenance would not include any property improvements such as construction, alteration, or demolition. In an appropriate case, however, demolition could occur if required for health, safety, or environmental reasons, or if it were economically justified in lieu of continued maintenance.

Long-term Maintenance. In the unlikely event that the property were not transferred, the Army would reduce maintenance levels to the minimum level for surplus government property required by 41 CFR 101-47.402, 41 CFR 101-47-4913, and Army Regulation 420-70 (Building and Structures). Long-term maintenance would not be focused on keeping the facilities in a state of repair to permit rapid reuse. Rather, maintenance during this period would consist of minimal activities intended primarily to ensure security and to avoid deterioration. This reduced level of maintenance would continue indefinitely until disposal. Activities that would occur during this maintenance period are identified in Section 3.2, Disposal Alternatives.

2.3.2 Cleanup of Contaminated Sites

Unless the requirements under CERCLA/RCRA are otherwise deferred, all site remediation activities must be completed before federal property at RBAAP is transferred. To determine the baseline nature of contamination at RBAAP as a result of past activities that may have released hazardous substances, the U.S. Army prepared an Environmental Condition of Property (ECP) Report for the property to be closed (U.S. Army 2006a). The findings of the ECP are presented in Section 4.13, Hazardous and Toxic Substances.

2.3.3 Interim Uses

Pending issuance of a FNSI following the NEPA analysis for disposal and reuse of RBAAP (or, if required, an EIS), the Army will not make commitments that would significantly affect the quality of the human environment or irreversibly alter the environment in a way that precludes any reasonable alternative for disposal of the property. The Army may, however, enter into an interim lease that would terminate at the time the property conveys to its new owner, if the Army determines that the lease would

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facilitate state and local economic efforts and not interfere with or delay property disposal (DBCRC 2005). In such a case, the Army would consult with the RLRA before entering into such a lease. Interim leases would allow limited use of the property and facilities such that no reasonable reuse options would be eliminated or compromised before the publication of the conclusions of the NEPA analysis.

The extensive environmental and other requirements to ensure that property is suitable for such an interim lease could, however, detract from the Army's ability to accomplish actions needed to dispose of the property (DBCRC 2005); therefore, the Army will not lease base closure property should such leasing potentially delay the disposal of the property. Before entering into such a lease, the Army must meet certain environmental requirements, including consultation with the appropriate regulatory agencies to determine whether the environmental condition of the property is such that a lease is advisable.

2.3.4 Real Estate Disposal Process

Although it is the Army's preference to dispose of property as a single entity, the Army may also dispose of the RBAAP property in parcels. After identification of parcels, disposal may occur to meet objectives related to reuse goals, tax revenue generation, and job creation. Methods available to the Army for property disposal include EDC, public benefit discount conveyance, negotiated sale, competitive sale, and exchanges for military construction.

Economic Development Conveyance (EDC). The 1994 Defense Authorization Act provides for conveyance of property to an LRA to promote economic development and job creation in the local community. An EDC is not intended to supplant other federal property disposal authorities. The Army is required to seek fair-market-value consideration for EDC conveyance of property on installations that were approved for closure or realignment after 1 January 2005. To qualify for an EDC, the LRA must submit an application to the Army describing its proposed economic development and job creation program.

Public Benefit Disposal Conveyance. State or local government entities may obtain property when sponsored by a federal agency for uses that would benefit the public, such as education, public roads, parks and recreation, wildlife conservation, or public health.

Negotiated Sale. The Army would negotiate the sale of the property to state or local governmental entities, including tribal governments or private parties, at fair market value.

Competitive Sale. Sale to the public would occur through either an invitation for bids or an auction.

Exchanges for Military Construction. Section 2869 of Title 10 USC provides an alternative authority for disposal of real property at a closing or realigning installation. This authority allows any real federal property not subject to reversion at such an installation to be

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exchanged for military construction on that or another location. The Military Department may seek offers of military construction in exchange for real property.

Although the Army may make use of several different mechanisms in its final disposition plan for RBAAP, disposition would likely include the transfer of the majority of the property on RBAAP to the RLRA via a proposed EDC process. Final disposition of the property could also include the public/competitive sale of parts of the RBAAP property. Per the recommendations in the reuse plan, disposition may also include a public benefit conveyance for the purpose of constructing a perimeter road at the western and southern boundaries of the RBAAP property. Regardless of the disposition mechanism or mechanisms employed, redevelopment would be guided by the goals and proposed land uses described in the RLRA's reuse plan.

DoD and Federal Agency Screening. The Army began the screening process by offering its excess properties to other DoD agencies and federal agencies for their potential use on 5 May 2006. That screening process for the properties resulted in no requests for use by other agencies.

LRA Screening. Pursuant to the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, federal property not subject to reversion that is surplus to the federal government's needs is to be screened through an LRA's soliciting notices of interest from state and local governments, representatives of the homeless, and other interested parties. An LRA's outreach efforts to potential users or recipients of the property include working with the HUD and other federal agencies that sponsor public benefit transfers under the Federal Property and Administrative Services Act. The real estate screening process for the RBAAP property invited expressions of interest by state and local authorities and homeless services providers on 30 September 2006. In response to this screening, the RLRA received one Notice of Interest application from a prospective homeless service provider. After consultation with the HUD, meetings with the NOI applicant, a review of the application by an RLRA-appointed panel, and public hearings, the RLRA denied the application. No other declarations of interest in the property were submitted by any other agencies.

Public Agency Screening. Consistent with the Federal Property and Administrative Services Act, screening notices have been sent to federal agencies that approve or sponsor public benefit conveyances and appropriate state and local agencies in the vicinity of the property. The Army initiated this screening after coordination with the RLRA. In response to this screening, the Army received no requests for transfer of federal property.

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3 ALTERNATIVES

3.1 INTRODUCTION

This section addresses alternatives to the Army's primary action of disposal of federal property and the secondary action of property reuse by other entities. Pursuant to the Base Closure Act and the BRAC 2005 Commission's recommendations pertaining to RBAAP, continuation of full Army operations is not feasible. There is no alternative to closure at RBAAP as described by the BRAC Commission's recommendation without further legislative action. For federal property, the Army has identified two disposal alternatives (early transfer and traditional disposal), a caretaker status alternative, and the no action alternative. Two reuse scenarios, based on medium and medium-high intensity uses, encompass the community's reuse plan and are evaluated as secondary actions. Future reuse of the RBAAP property is analyzed in the context of land use intensity categories, as described in Section 3.3, Reuse Alternatives.

The RLRA's reuse plan is the primary factor that guides the development of the reuse scenarios and effects analysis. Taking into consideration both the reuse plan and the proposed federal action allows both the community and the Army to make informed decisions on reuse issues. The Army expresses no preference with respect to reuse scenarios because decisions implementing reuse will be made by other entities.

As discussed in Section 1, Purpose, Need, and Scope, the Army is closing RBAAP in compliance with BRAC 2005. Federal property at the installation is surplus and will be disposed of. Predisposal activities may include but are not limited to NEPA compliance, Section 106 coordination in accordance with the NHPA, property inventories and title reviews, identifying and cleaning up hazardous substance contamination, and caring for vacated facilities. (Appendix B contains information on the current status of the ongoing biological and Section 106 cultural resources consultation at RBAAP.)

3.2 DISPOSAL ALTERNATIVES

3.2.1 Early Transfer Alternative

Under this alternative, the Army has available various property transfer and disposal methods that allow the reuse of the property to occur before environmental remedial action has been completed. One possible method of early disposal, allowable under the provision of Section 120 (h)(3)(C) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), would be to defer the requirement of complete environmental cleanup and allow an early transfer of the property. This provision, known as early transfer authority (ETA), authorizes the deferral of the CERCLA covenant that requires remedial actions to be completed before federal property is transferred.

RBAAP was officially listed as a National Priorities List (NPL) site in 1990, and cleanup is ongoing. Because RBAAP is an NPL site, the covenant deferral request will have to be

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approved by the Regional Administrator of the U.S. Environmental Protection Agency (USEPA) with the concurrence of the Governor of California. 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. ETA is not an actual conveyance mechanism, just a deferral of the CERCLA covenant based on a finding that:

- The property is suitable for transfer for the use intended by the transferee, and the intended use is consistent with protection of human health and the environment.
- The deed or other agreement proposed to govern the transfer between the United States government and the transferee of the property contains specified assurances.
- The federal agency requesting deferral has provided notice, by publication in a newspaper of general circulation in the vicinity of the property, of the proposed transfer and of the opportunity for the public to submit, within a period of not less than 30 days after the date of the notice, written comments on the suitability of the property for the transfer.
- The deferral and the transfer of the property will not substantially delay any necessary response action at the property.

The property could also be transferred 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.

3.2.2 Traditional Disposal Alternative

Under this alternative, the Army would transfer or dispose of property once environmental remediation and other environmental requirements are completed for individual parcels of the installation. The Army is required under CERCLA to speedily identify uncontaminated property. This requirement is being completed; the Army has completed categorization of contaminated properties through the analysis documented in the ECP report for RBAAP. The Army has completed the Community Environmental Response Facilitation Act (CERFA) process for RBAAP, and the Final CERFA report was submitted on 17 November 2008. Uncontaminated property is defined as areas where no release or disposal of hazardous substances or petroleum products has occurred, including any migration of these substances from adjacent areas. Such property would be available for transfer or disposal fairly quickly. For property on which hazardous substances were known to have been released or disposed of, other provisions may apply.

If a property has been or is contaminated, and the Army opts for traditional disposal, it must be able to certify that actions necessary to protect human health or the environment have been taken before the transfer or disposal, which may include land use restrictions to preclude contact with environmental media that are still undergoing remediation. Transfer of property not fully remediated is allowed if a long-term environmental remedy is shown to be operating properly and successfully. Specifically, under traditional disposal, properties that have been classified as Categories 1, 2, 3, or 4 according to the American

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Society for Testing and Materials 5746-98 Standard Classification of Environmental Conditions of Property Area Types for Defense Base Closure and Realignment Facilities would be suitable for transfer (for properties classified as Categories 2 and 3, a release of contaminants may have occurred, but because of the nature of the release, no response or cleanup actions would be required). For properties that are classified as Category 5, 6, or 7, transfer of property not fully remediated would be performed under the ETA.

Some environmental remedial actions may take a long time to be selected, approved, and implemented. Therefore, there may be a prolonged period under this alternative during which parcels are not available for transfer or disposal.

3.2.3 Caretaker Status Alternative

The caretaker status alternative would arise if the Army were unable to dispose of any or all portions of the federal property within the period of initial maintenance (refer to Section 2.3.1, Caretaking of Property Until Disposal). Once the time period for initial maintenance elapses, and if the Army has not yet disposed of its property, the Army would then reduce maintenance to levels consistent with federal government standards for excess and surplus properties (i.e., 41 CFR 101-47.402 and 101-47.4913) and Army Regulation 420-70 (Buildings and Structures). This long-term maintenance, or "caretaker status," stage would no longer be focused on keeping the facilities in a state of repair to facilitate rapid reuse. Rather, maintenance during this period would consist of minimal activities intended primarily to ensure security, health, and safety and to avoid physical deterioration.

3.2.4 Encumbrances Applicable to Either Disposal Alternative

The Army's methodology for ensuring environmentally sustainable redevelopment of BRAC disposal property includes identifying natural and man-made resources that must be protected after ownership transfers out of federal control. The Army develops this information from the environmental baseline information (included in the Environmental Condition of Property Report and other sources) early in the NEPA process and provides it to the LRA, with the recommendation that the reuse plan consider protecting these valuable resources and any other conditions that might influence reuse. Using this methodology, the LRA develops a reuse plan that satisfies community reuse goals and objectives.

Encumbrances are legal constraints imposed to protect environmental values, to meet requirements of federal law, to implement results from Army negotiations with regulatory agencies, or to address specific Army needs. Encumbrances can also arise as a result of past Army management of real property. For example, the presence of special hazardous materials such as asbestos-containing material (ACM), lead-based paint (LBP), radon, polychlorinated biphenyls (PCB), and radiological material might require specific handling or management strategies. In most cases, these conditions will not materially and adversely affect redevelopment. Some other types of conditions may be identified to an LRA as potentially limiting redevelopment but not classified as legal encumbrances because they are not within the ability of the Army to control or modify (U.S. Army 2006b).

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In general, encumbrances that the Army would consider if found applicable in this analysis include the protection and preservation of natural resources such as sensitive habitat, special natural areas, and sensitive species. Encumbrances could also involve historic properties and sites, archaeological sites, legacy resources, land use restrictions relative to public health and safety concerns, and access to remediation sites. Encumbrances are not imposed for other facets of environmental protection and conservation such as endangered species protection, Coastal Zone Management, wetlands protection, hazardous waste remediation, and other issues, as these concerns are already regulated by local, state, and/or federal statutes and must be complied with regardless of property ownership. Furthermore, special easements, rights-of-way, and leases will continue to run with the property under new ownership; thus, specific encumbrances are not necessary.

Consistent with this methodology and as part of the disposal process, the Army will also meet all applicable requirements of federal law necessary to carry out agreements reached in negotiations with regulatory agencies or to address specific Army needs.

3.2.4.1 Types of Encumbrances

Major categories of encumbrances, outlined below, can be identified on federal properties (U.S. Army 2006b).

Easements and Right-of-Ways. Real estate might be burdened with utility system, other infrastructure-related, roadway, or access easements, and rights-of-way.

Use restrictions. Activities on property might be limited by existing conditions or in recognition of adjacent land uses. For example, use of a former landfill site would preclude ground disturbance of a clay cap but could permit passive uses such as recreation. The presence of munitions and explosives of concern (MEC) would preclude many uses of a parcel because of the potential safety hazards. In other cases, restrictive covenants could impose or maintain buffer zones between incompatible uses. Use restrictions might also require that transferees of property take certain actions (e.g., remediate ACM or LBP prior to use of buildings for residential purposes) or refrain from certain actions (e.g., prohibit use of on-site groundwater pending completion of cleanup activities).

Habitat and wetlands protection. The presence of federally listed threatened or endangered species of wildlife, plants, or wetlands might constrain unlimited use of property.

Historic building or archaeological site protection. Negotiated terms of transfer or conveyance might result in requirements for new owners to maintain the status quo of historic buildings or archeological sites or might impose a requirement for consultation with the State Historic Preservation Office (SHPO) before any actions affecting such resources take place.

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Water rights. Protective covenants might be required to protect existing well fields or aquifers.

The Army's identification and imposition of encumbrances takes into consideration opportunities for the protection and preservation of sensitive environmental resources, as well as the requirements of federal law and specific Army requirements. Consistent with the stewardship principles by which it operates its installations, the Army has a vital interest in perpetuating important resource protections and in some cases is able to do so by use of encumbrances. Identification of encumbrances reflects the Army's objective of returning property to public and private sector use in a manner that will result in continued stewardship of environmental resources, protection of public health and safety, and promotion of Army and reuse interests.

3.2.4.2 Encumbrances Identified at RBAAP

The following specific encumbrances would be expected to apply at the time of transfer or conveyance of RBAAP:

Land Use Restrictions. The Army's environmental restoration efforts at RBAAP will attempt to facilitate the land use and reuse needs stated by the community's reuse plan. As a component of remedy implementation, the Army may restrict certain types of future land use, impose institutional controls, or take other actions affecting land use to protect human health and the environment. Restrictions such as those on the use of groundwater, provisions against disturbing surface soil, restrictions on residential development, and access controls for certain parcels could be included in conveyance documents as restrictions on future land use.

Floodplains. Portions of the RBAAP property (the E/P ponds) lie within the 100-year floodplain of the Stanislaus River. 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.

Asbestos-containing Materials (ACM). Ongoing surveys at RBAAP reveal the presence of ACM in most of the buildings on the Main Site (specific details on buildings containing ACM may be found in the ECP report for the installation). Before transfer or conveyance, the Army may remove, enclose, or encapsulate all friable ACM posing a risk to human health or may negotiate agreements with transferees to remediate ACMs. Transfer or conveyance documents would notify new owners or lessees of the property that they would be responsible for any future remediation of ACM found to be necessary. Appendix C shows the notification the Army would typically provide.

Lead-based Paint (LBP). Paints used at RBAAP between 1930 and 1970 contained lead. LBP is assumed to be present in buildings constructed before 1978 (the majority of the buildings at the installation). Consistent with the Residential Lead-Based Paint Hazard Reduction Act of 1992 (Pub. L. 102-550), the Army may provide notice in transfer and

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conveyance documents addressing buildings containing LBP. Appendix C shows LBP provisions the Army would typically use for BRAC leases and deeds.

Easements and Rights-of-Way. Existing easements and rights-of-way benefiting or burdening the RBAAP property would continue after transfer or conveyance. An example of such easements is one held by Stanislaus County for the Hetch Hetchy underground water pipe aqueduct that transports water to San Francisco, located in the northern portion of the Main Site area.

Groundwater Use Prohibition. The ECP report indicates that groundwater contamination has been found below some of the areas on RBAAP. Transfer or conveyance of the RBAAP property may include some form of a prohibition on the use of groundwater. This encumbrance on the property would extend until such time as appropriate regulatory agencies certified the completion of remedial action pertaining to the groundwater.

Natural Resource Protection. Project-specific wetlands delineations, permitting, and wetlands avoidance and/or mitigation requirements will be necessary prior to redevelopment of specific parcels with suspected wetlands habitat, in consultation with the U.S. Army Corps of Engineers (USACE), Sacramento District, as required under Section 404 of the CWA.

3.3 REUSE ALTERNATIVES

Consistent with Congressional mandate, the Army must cease performance of its active Army missions at RBAAP no later than 15 September 2011. Regardless of the disposition mechanism or mechanisms employed, reuse of the RBAAP property is reasonably foreseeable, and redevelopment would be guided by the goals and proposed land uses described in the RLRA's reuse plan. Consistent with statutory requirements, this EA analyzes the impacts of closing RBAAP, disposing of the federal property, and reuse of federal property associated with the installation. Reuse of federal property is treated as a secondary action resulting from closure.

The RLRA's reuse plan involves federally owned land subject to disposal. CEQ regulations require evaluation of reasonably foreseeable actions, without limitation on the party conducting them, and evaluation of consequent environmental impacts. Accordingly, reuse of federal property is evaluated as a secondary action in time, following the Army's primary action of disposal.

The following subsections discuss the methodology used to define the reuse scenarios to be considered. Because of the speculative and changeable nature of reuse planning, specific activities cannot be precisely identified at this time. The Army considers the RLRA's reuse plan to be the primary factor in defining the reuse scenarios to be considered and evaluates that reuse plan for potential environmental effects. Redevelopment of the RBAAP property is expected to take place in a manner consistent with the nature and intensity of the uses described in the RLRA's reuse plan, although certain factors, such as the ultimate disposition of the property, may affect whether certain

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uses as described in the reuse plan are developed at the site. Encumbrances as described above for the disposal alternatives would also apply under reuse.

3.3.1 Development of Reuse Alternatives

The reuse planning process is dynamic and is often dependent on market and general economic conditions beyond the control of the reuse planning authority. In recognition of the complexities attending reuse planning, the Army uses intensity-based probable reuse scenarios to identify the range of reasonable reuse alternatives required by NEPA and by DoD implementing directives. That is, rather than speculatively predicting exactly what will occur at a site, the Army establishes ranges or levels of activity that reasonably might occur. These levels of activity, referred to as intensities, provide a flexible framework capable of reflecting the different kinds of uses that could result at a location. Reuse intensity levels also take into account the effects that encumbrances exert on reuse.

3.3.1.1 Land Use Intensity Categories Described

Five intensity-based levels of reuse can be evaluated for their potential environmental and socioeconomic impacts, as outlined in BRAC Guidelines for Compliance with the National Environmental Policy Act (U.S. Army 2006b). These are Low Intensity Reuse (LIR), Medium-Low Intensity Reuse (MLIR), Medium Intensity Reuse, Medium-High Intensity Reuse (MHIR), and High Intensity reuse. At any given installation, however, analysis of all five levels of intensity might not be appropriate due to historical usage, physical limitations, or other compelling factors.

Levels of reuse intensity can be viewed as a continuum. At RBAAP, a MIR level of reuse could be represented by demolition, conversion, or replacement of some existing modern era and noneligible older structures and the establishment of some new industrial and light industrial uses; some continued use of existing facilities in the same way that they have been used; and some open space uses occurring over a portion of the installation. A MHIR level of reuse, in the context of RBAAP, would represent a greater level of use intensity than MIR, with more area on the installation dedicated for industrial uses, for example. Levels of use of existing facilities at the time of the BRAC 2005 Commission's recommendations for closure and realignment would represent a medium intensity use.

Indicators of levels of intensity can be quantified by counting the number of people at a location (employees or residents), the potential number of vehicle trips generated as a result of the nature of the activity, or the number of dwelling units. Other indicators of the intensity of use are the rates of resource consumption (e.g., electricity, natural gas, water) and the amount of building floor space per acre (identified as the Floor Area Ratio [FAR], and expressed as the amount of square feet of built space per acre).

Development of intensity parameters is based on several sources, including existing land use plans for various types of projects and planning jurisdictions, land use planning reference materials, and prior Army BRAC land use planning experience (U.S. Army 2006b). Private sector reuse of property subject to BRAC action, on the other hand, seeks different objectives and uses somewhat different planning concepts in that it focuses on

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the creation of jobs and capital investment costs, and typically uses traditional community zoning categories (e.g., residential, industrial).

Upon evaluating various types of indicators and their applicability to Army lands subject to BRAC action, the Army has selected four representative, illustrative intensity parameters: residential density, employee density (general spaces), employee density (warehouse spaces), and FAR (U.S. Army 2006b). These intensity parameters aid in evaluating environmental effects at various levels of reuse (see Table 3.3-1).

Table 3.3-1 Land Use Intensity Parameters

Intensity Level	Residential Intensity ¹	Square Feet per Employee (General Space)	Square Feet per Employee (Warehouse Space)	Floor Area Ratio
Low	<2	>800	>15,000	<0.05
Medium-Low	2–6	601–800	8,001–15,000	0.05–<0.10
Medium	6–2	401–600	4,000–8,000	0.10–<0.30
Medium-High	12–20	200–400	1,000–4,000	0.30–0.70
High	>20	<200	<1,000	>0.70

¹Dwelling Units per Acre
Source: U.S. Army 2006a

The intensity parameters are discussed below.

Residential density. This parameter identifies the number of dwelling units per acre. It indicates the number of people who might reside or work in an area.

Square feet per employee (general space). This parameter indicates the number of square feet available per employee in all types of facilities at an installation, except family housing and warehouses or storage structures.

Square feet per employee (warehouse and storage space). This parameter indicates the number of square feet available per employee engaged in warehouse or storage activities at an installation. Only built, fully enclosed and covered storage space is calculated; sheds and open storage areas are excluded from computation. In describing Army uses of facilities, estimates of the number of employees engaged in warehouse or storage operations are used to determine the portion of the installation workforce in this employee density category.

Floor Area Ratio. This ratio reflects how much building development occurs at a site or across an area. For example, a three-story building having a 7,500-square-foot footprint on a 4-acre site would represent a FAR of 0.13 (22,500 square feet of floor space within a 174,240 square-foot property).

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Employee density, FAR, and development ratio considerations shown in Table 3.3-1 are appropriate to describe intensity levels for reuse planning at RBAAP. The intensity parameters shown in Table 3.3-1 reflect generalized values or ranges appropriate to describe the variety of installations subject to Army management, as well as the variety of reuse situations. The intensity parameters should be considered together in evaluating the intensity of reuse of a site so as to provide full context. Use of any single parameter without considering the others could unduly emphasize certain aspects of a site or preclude a broader understanding. As applied to any particular parcel or area, or to the whole of the installation, the values given might require some adjustment to account for the context in which an activity is located. For example, the size of a redevelopment project might result in distorting effects on the generalized values for the parameters provided.

3.3.2 Baseline Land Use Intensity

Use of RBAAP as of November 2005 is characterized as at medium intensity. The total floor area of all buildings is nearly one million square feet over 145 acres, resulting in a FAR of <0.15 (which represents a medium intensity use). The employee density in general space (approximately 3,000 square feet per employee) is a medium-high intensity value. The presence of approximately 300 employees at the time of the BRAC Commission closure recommendation reflects a workforce much smaller than the workforce historically employed at the site. Considered together, these factors indicate a medium intensity level of use at the time of the BRAC closure announcement.

3.3.3 Local Reuse Plan

The following text is excerpted from the RLRA's reuse plan and provides a brief summary of the reuse plan process (RLRA 2008). An excerpt from the reuse plan discussion of the base reuse concept for the RBAAP property is also provided in Appendix A.

1 INTRODUCTION

When the Riverbank Army Ammunition Plant (RBAAP) was selected for closure as part of the Base Realignment and Closure (BRAC) 2005 round, the community of Riverbank lost not only a source of high-quality jobs, but to some extent, a sense of security and identity. The RBAAP had, after all, been a preeminent fixture in the City of Riverbank for more than six decades. The Riverbank Local Redevelopment Authority (LRA) was formed to help guide the City through the BRAC reuse process. The Department of Defense recognizes this local redevelopment authority as the entity responsible for taking into account the goals and needs of the community and creating a redevelopment plan for the closed facility before the property is transferred for redevelopment...

RBAAP is in a state of transition and the change of ownership from federal to local and/or private ownership will affect the City of Riverbank in several ways. The reuse of the property is expected to create a diverse industrial and manufacturing center where entrepreneurship, opportunity, environmental consciousness and local economic growth will thrive. The RBAAP Reuse Plan addresses the

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opportunities and challenges by creating a thorough and responsive redevelopment plan. The Plan proposes a strategy to transform the site into a vibrant facility that retains and grows existing businesses, attracts new businesses and establishes a new "green" economic cluster for longterm regional job growth....

D. Overview of the Planning Process

After constituting the LRA, a planning team was assembled to prepare a redevelopment plan. ...As shown in Figure 1-3, the planning process began in May 2006 with the solicitation of Notices of Interest from homeless service providers, followed by a Homeless Outreach Workshop in December 2006. Work on the Base Reuse Plan began in March 2007, with initial kick-off meetings between LRA staff, its consultants and representatives of the Army. These meetings were followed by tours of the facility and initial planning for community and stakeholder events. The first stakeholder meeting was held on May 9, 2007. Representatives from each of the current RBAAP tenant businesses were invited to attend the stakeholder meeting, along with representatives from the Army, the City of Riverbank and the City's consulting team. The purpose of the first stakeholder meeting was to explain the BRAC process, identify the opportunities and constraints faced at the site, address any tenant concerns and solicit feedback on tenants' desires for the future of the RBAAP site. A second stakeholder meeting was held on July 11, 2007. The same parties were invited. This meeting focused more on detailed issues such as the groundwater contamination on the site, the timeline for remediation of the site, future land uses and infrastructure.

A community workshop was held on June 7, 2007, between the first and second stakeholder meetings. The public was asked to provide their vision for the future of the site. The workshop was useful in solidifying the community's vision and generated goals that were appropriate for the site. On February 25, 2008, an open house was held to review the preliminary alternative plans proposed for the reuse of the RBAAP site. The open house was informal and allowed members of the public to view the alternatives and ask questions before the LRA chose a preliminary preferred alternative. Existing business tenants at RBAAP were also invited to view and discuss the alternatives. Later that evening, the LRA held a formal public hearing to receive direction from the LRA on the preliminary preferred alternatives presented and select the community's preference. The Base Reuse Plan had been posted on the City's website since September 15, 2008, but was formally unveiled on September 18, 2008 at a public meeting that included a bus tour of the installation. A presentation on the Draft Base Reuse Plan was given and enthusiastically received by the approximately 100 individuals in attendance, including residents, LRA officials, County officials, Congress representatives, current business tenants, prospective businesses and employees, real estate officials, and consultants. Subsequent public meetings and hearings provided substantial opportunity to receive feedback regarding the Reuse

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Plan. Public meetings were held on September 22, 2008, and October 27, 2008, with a final public hearing on October 30, 2008. Public comments, both oral and written, were responded to and integrated into the Reuse Plan as appropriate....

E. Remediation of Contamination

RBAAP is currently listed as a federal Superfund site due to groundwater contamination and other pollutants at the site. A primary goal of this Base Reuse Plan is to create a framework for addressing pollution on the site and that leads to removal of RBAAP from the Superfund site list. Some remediation has already occurred and further remediation is planned for the future. Additionally, there are areas and buildings on the RBAAP site that still require investigation and study to determine the extent of contamination. Unknown or unidentified environmental conditions uncovered at a later date could prove too costly and/or detrimental to the implementation of the Reuse Plan. Therefore, it is essential that an environmental strategy be devised by the Implementing LRA prior to conveyance to address future environmental liabilities.

3.3.4 Alternatives to Be Evaluated in Detail

Medium Intensity Reuse

The proposed level of intensity of reuse presented in the RLRA's reuse plan is considered commensurate with the MIR scenario (presented in Table 3.3-2). The site development plan as envisioned by the RLRA (RLRA 2008) describes approximately 1.4 million square feet of new building development; it is estimated that approximately 500 jobs would be associated with this reuse. Assuming a standard weighted average of general and warehouse space per employee of 800 square feet, and an estimated FAR of 0.022, the scenario described in Table 3.3-2 is commensurate with a MIR level of reuse. For the purposes of the analysis in this document, this level of reuse is assumed to follow the general character of the development represented in the RLRA's Conceptual Land Use Plan map for RBAAP, shown here in Figure 3.3-1.

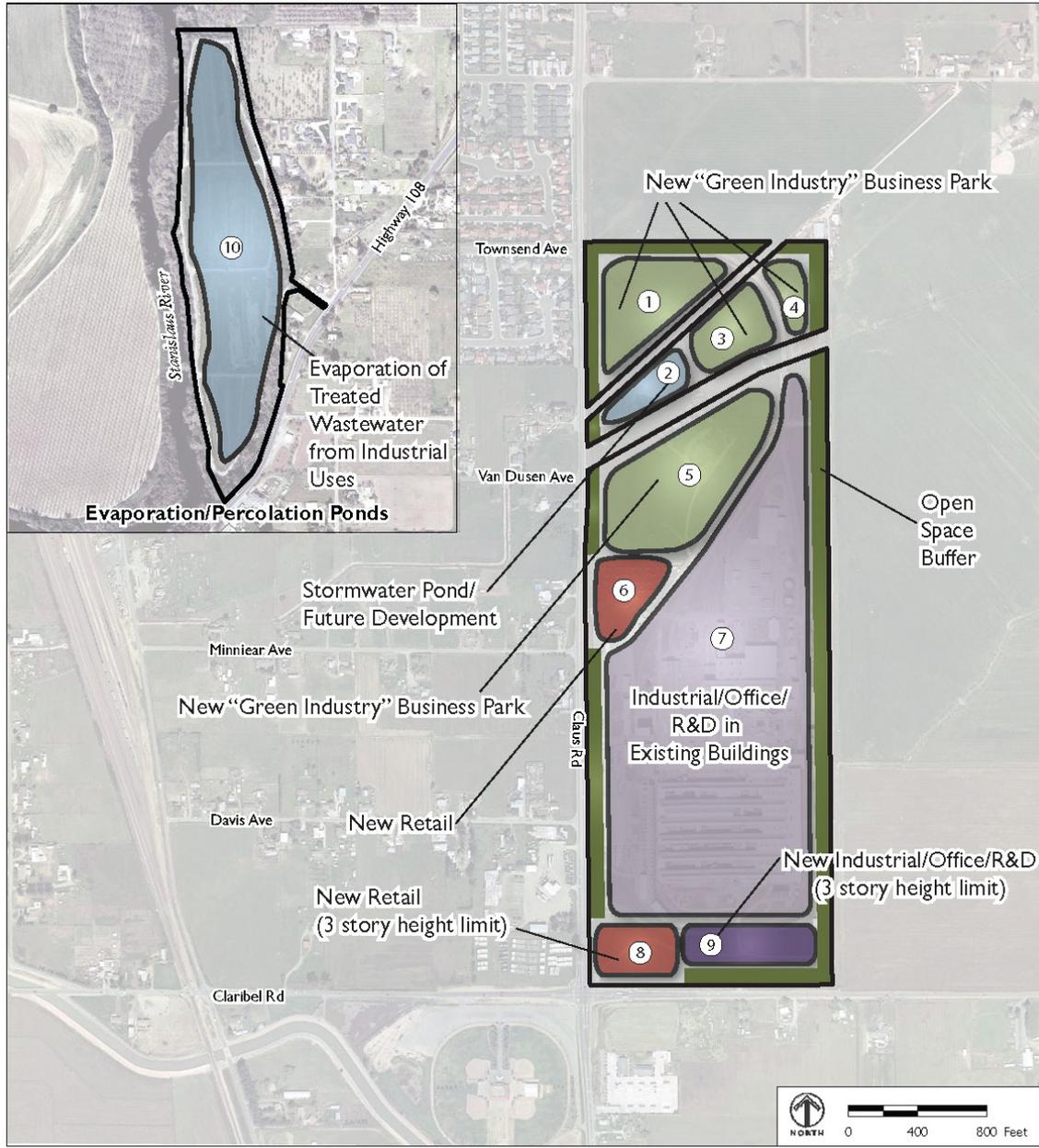
Medium-High Intensity Reuse

To accurately capture, or "bracket," the higher end of the potential reuse of the RBAAP properties, a MHIR scenario is also evaluated in this EA. Although it is less likely that this level of intensity of reuse would ultimately be established at the RBAAP property, this scenario is also included to ensure that potential impacts resulting from reuse are evaluated conservatively.

Table 3.3-2 shows the attributes of the MIR and MHIR reuse scenarios to be evaluated in the EA. These scenarios are formulated to define a reasonable upper-bound intensity of reuse planned for the RBAAP property after closure for the purposes of the analysis in the EA. Specific assumptions relative to the RBAAP property and these reuse scenarios are discussed below.

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Source: RLRA 2008

Figure 3.3-1 RLRA Conceptual Land Use Plan

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Table 3.3-2 Reuse Scenarios to be Evaluated in the EA

Intensity Level	Residential Population	Employees	Sq. Ft. per Employee (weighted average general and warehouse space)	Building Space (sq. ft.)	FAR (midpoint)
Medium (MIR)*	NA ¹	500	800	1,400,000	0.22
Medium-High (MHIR)	NA ¹	1,100	700	1,900,000	0.30

¹ Residential uses are not planned for RBAAP
* Commensurate with the RLRA Conceptual Land Use Plan

RBAAP Reuse Scenarios

The intensity levels for the scenarios shown in Table 3.3-2 are considered to be conservatively high and are based on the following several assumptions, including the following:

1. No residential development would take place on RBAAP.
2. The RLRA's preferred alternative for reuse will occur at an average FAR of 0.25 (per the RLRA's FAR methodology).
3. Minimal additional development is anticipated in Site 7 (as shown in Figure 3.3-1), the area in which the existing buildings at RBAAP are located. The RLRA plans to lease the existing buildings on Site 7 for industrial purposes, with limited office and R&D components, which is similar to existing conditions at this site.
4. All reuse scenarios assume that new construction on the site would be consistent, in terms of building heights and density, with existing development on the site and in the surrounding areas. Building heights would be limited to six stories/70 feet except in some areas, which will be limited to three stories/40 feet in height to ensure that uses in these areas will transition appropriately to lower-intensity residential uses adjacent to the site.
5. All reuse scenarios assume that the concentration of Office/R&D uses will occupy a relatively small part of the total area (i.e., up to 5 percent of the site's existing buildings would be used for office/R&D purposes, as well as up to 10 percent of all new buildings).
6. Under the MIR scenario, Site 2 will continue to function as a storm water detention pond for the entire RBAAP site after closure. The pond may also be incrementally expanded in size to accommodate increased runoff that would result from new development; or, if it is determined that a storm water detention pond is not needed on this site (i.e., that storm water could be accommodated using another method or other infrastructure), then Site 2 would be available in the future for new

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development. The MHIR scenario assumes that part of the Site 2 area would be available for development.

7. Under both reuse scenarios, the E/P ponds would continue to collect treated wastewater from the industrial uses on Site 7.
8. Under both reuse scenarios, extensions of the site's utility systems (including storm drainage, natural gas, potable water, sewer, electrical, and a fire suppression system) would be required to support new development. The existing 8-inch main water distribution line will be required to be extended to Sites 1, 3, 4, 5 and 6; future development could be served by 4-inch or 6-inch branch water lines, as needed. New development is also anticipated to include the installation of systems to reuse gray water for nonpotable uses. In addition, new sanitary sewer systems would be constructed, including a new 12-inch sewer main and 8-inch branch lines for Sites 8 and 9, which would connect to an existing main.

The overall reuse concept for RBAAP is that the property will continue to function as an industrial park. New tenants are expected to include a wide variety of manufacturing, storage, and repair businesses, similar to current business tenants on the site. Some new tenants may also require a limited amount of office space, as well as space for R&D activities to support their manufacturing operations. Most of the existing buildings on the Main Site could require extensive upgrades, including structural improvements, roof improvements, accessibility upgrades, and abatement of lead and ACMs in order to make them suitable for reuse. Although no demolition of the existing buildings is currently proposed, some demolition could occur as part of site redevelopment, especially if structures are determined to be unusable.

Specific elements of property reuse are described below.

“Green Industry” Business Park. Under the reuse proposed by the RLRA, the existing industrial character of the site would be maintained, but the focus would be on bringing new “green industries” to the site. Green industries, such as recycling companies or alternative fuel manufacturers, provide services or manufacture products that reduce global warming and/or use “green” practices. Current tenants at the site (Environmental and Lubrication Solutions and Eco2 Plastics, for example) represent “green” businesses already in operation at the site. Sites 1, 3, 4 and 5, as shown in Figure 3.3-1, would be targeted to green industries, and would accommodate limited office and R&D components, potentially including a lab facility.

New Industrial/Office/R&D. On Site 9, which is currently vacant, industrial development with limited office and R&D components is proposed. Businesses on these parcels could be similar to existing RBAAP tenants, or they could include other industrial uses such as food manufacturing. To ensure that uses on this site transition appropriately to the lower-intensity residential uses to the south, a three-story/40-foot height limit is proposed for Site 9.

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New Retail. Two sites (6 and 8) are planned for new retail uses and would likely accommodate small shopping centers geared towards providing services to nearby neighborhoods. The retail areas would follow the existing land use, parking, and design requirements for retail uses in the city's zoning ordinance and would be consistent (in terms of height and density) with surrounding residential areas. A three-story, 40-foot height limit is proposed for Site 8 to ensure this consistency of development.

Industrial/Office/R&D in Existing Buildings. The existing buildings on RBAAP are located within Site 7. Under the proposed reuse, minimal additional development is anticipated for this area, and the existing buildings would be leased for industrial purposes, with limited office and R&D components. The existing buildings on this site also have the potential to serve as incubator spaces for new start-up businesses.

“Team Track” Facility. A “team track” facility is proposed to be included in one of the industrial areas on the property. “Team track” is a railway term for a spur track intended for the use of local merchants, manufacturers, and other businesses to personally load and unload products and merchandise. The team track on RBAAP would provide an area where goods could be transferred between trucks and rail cars and would also serve rail carriers by providing a space for temporary storage of railcars. The proposed team track would serve off-site (Burlington-Northern-Santa Fe) rail facilities and would accommodate up to an estimated 3,000 rail cars annually. Existing rail at the site may be used for the team track facility, but additional rail track suitable to accommodate Class-One loads (as defined by the Federal Railroad Administration) may also be required. No new buildings are anticipated to be required as part of the team track facility, although loading platforms or other facilities may ultimately be constructed.

Open Space Buffer. The open space buffer shown in Figure 3.3-1 would be about 100 feet wide around the perimeter of the site, and would provide a transition between industrial uses and adjacent residential and agricultural areas. A publicly accessible trail system is also proposed within the buffer area, and a community park may also be established within this area.

Circulation Improvements. The RLRA's reuse concept includes several required circulation improvements in and around the site, including the extension of Van Dusen Avenue, which is anticipated to continue east to Eleanor Avenue in the future. Van Dusen Avenue would cross through the site, with an at-grade rail crossing, and would cross the Hetch Hetchy utility corridor in the northern portion of the site. Coordination with the San Francisco Public Utility Commission will be necessary where the road crosses this utility corridor (RLRA 2008).

In addition, the North County Corridor Joint Powers Agency (NCCJPA) is pursuing the North County Corridor Project, a new expressway connecting Highways 99 and 120 east of the RBAAP site. The RLRA will coordinate with the NCCJPA and local authorities to ensure that nearby roadways are widened and intersections improved as necessary to accommodate increased traffic through this area. The RLRA will apply for a public benefit conveyance, for sufficient property for utility corridors and to locate necessary public

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facilities and roads, including a perimeter road in accordance with California highway standards, for the western and southern boundaries of the RBAAP property.

3.3.5 Reuse Alternatives Not to Be Evaluated in Detail

Low Intensity Reuse

With a LIR FAR range of <0.05 (Table 3.3-1), reuse of the RBAAP excess property would represent a total building area of less than 300,000 square feet at the site, or less than one-half of the existing built area at the site. This scenario would require the demolition of more than half of the existing building area at the site and no new construction, which represents a very unrealistic outcome of reuse. Such an outcome would be unlikely, and therefore is not further evaluated.

Medium-Low Intensity Reuse

With a MLIR FAR range of 0.05-0.10 (Table 3.3-1), reuse of the RBAAP excess property at this level would represent a total building area of between 300,000 and 600,000 square feet at the site, less than the existing built area at the site. This scenario would require the demolition of much of the existing building area at the site and no new construction, which represents an unrealistic outcome of reuse. Such an outcome would be unlikely, and therefore is not further evaluated.

High Intensity Reuse

High intensity reuse of the RBAAP property, at a FAR of at least 0.7, would involve the use of approximately 4.4 million square feet of space, or nearly five times more built area than existing conditions, and would support an employee population of more than 2,500 persons. In light of the elements included in the reuse plan, as well as surrounding land use, this magnitude of redevelopment would represent an unrealistic outcome of reuse. Such an outcome would be unlikely, and therefore is not further evaluated.

3.4 NO ACTION ALTERNATIVE

Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those that occurred prior to the BRAC Commission's recommendations for closure and realignment. Implementation of this alternative is not possible, however, in light of the BRAC closure recommendations having the force of law. However, inclusion of the no action alternative is prescribed by CEQ regulations implementing NEPA and serves as a benchmark against which federal actions can be evaluated. Therefore, the no action alternative is evaluated in this EA.

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4 AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 INTRODUCTION

This section describes the current environmental conditions of the areas at RBAAP that would be affected by implementation of the proposed action or an alternative. This section also analyzes the potential effects that would arise from implementation of the proposed action or alternatives. Descriptions of the affected environment represent baseline conditions, or the “as is” or “before the action” conditions, at the installation property. The baseline for this document has been established as status quo environmental conditions assuming continuation of Army missions at the levels occurring in November 2005, the time that the BRAC Commission’s decisions became final. This baseline is used to identify by comparison any changes in conditions that would result from realignment, disposal, and reuse actions. The environmental consequences portion forms the scientific and analytic basis for the comparison of alternatives and presents an analysis of potential effects, as measured against the baseline, that could arise from implementation of the proposed action. Direct, indirect, and cumulative effects of the proposed action are addressed, as well as the anticipated effects of mitigation.

For clarity, the environmental consequences associated with each alternative follow the discussion of the affected environment for each resource. The discussion of environmental consequences is divided into five sections for each of the alternatives evaluated in the EA: early transfer disposal, traditional disposal, caretaker status, no-action, and reuse. Reuse is further divided into the effects associated with medium and medium-high intensity reuse. As discussed in Sections 2 and 3, these reuse scenarios sufficiently bound the degree and intensity of redevelopment as represented in the RLRA’s reuse plan (RLRA 2008).

Environmental effects are characterized with respect to direct and indirect effects, as well as minor, moderate, or significant beneficial and adverse effects. Direct effects are those that are the direct, or immediate, results of implementation of disposal or reuse actions and occur in the same time and place as the action, such as the effect of increased air emissions associated with the development of industrial uses on a given property. Indirect effects are those effects that are related to a primary action or effect but that are secondary, or otherwise occur later in time or farther in distance from the action or effect. For example, an indirect effect could result from the generation of additional emissions from traffic, related to the economic growth of a region that is stimulated by property redevelopment. Cumulative effects and mitigation requirements are discussed at the end of this section.

In reviewing the discussion of environmental consequences, it is important to consider that effects for each alternative are characterized relative to the continuation of “status quo” Army operational and management regimes in November 2005, as defined by the no action alternative. The baseline conditions are described in the Affected Environment section for each resource. Beneficial or adverse effects are then estimated relative to the

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estimated condition expected of the resource under continuation of Army ownership (e.g., remediation programs were assumed to continue as is under no action). In addition, the effects associated with disposal (either early transfer or traditional disposal) are inherently linked to the effects that may occur under reuse. The effects of disposal are not simply the execution of a legal document, but the implications of the change in policies, regulations, management regimes, and goals that will guide future land development as it moves from federal to nonfederal ownership. This change in ownership will also have reasonably foreseeable effects as a result of planned redevelopment after disposal. Although reuse is guided by decision-making authority beyond the control of the Army, the reuse scenarios (i.e., MHIR and MIR) evaluated in this EA capture the potential short- and long-term implications of disposal as formulated in the RLRA's reuse plan. Given that the reuse plan can change, the reuse scenarios bound the higher end of potential development (i.e., the MHIR scenario represents a level of development intensity more than 35 percent greater than the RLRA's reuse plan, while the MIR scenario is similar to the development intensity outlined in the plan).

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4.2 LAND USE

4.2.1 Affected Environment

This section discusses the regional geographic setting and location of RBAAP, existing land uses on and adjacent to the installation property, and current and future proposed development within the Region of Influence (ROI) that is relevant to the cumulative impacts assessment. Information presented in this section is largely based on information provided in the City of Riverbank's General Plan update documents, including the *2005-2025 General Plan Update EIR, City of Riverbank* (City of Riverbank 2008a). Although these documents have not yet been formally adopted by the city as of the date of this document, they represent an accurate portrayal of the land use planning environment for RBAAP within the city (Silveira 2006).

4.2.1.1 Regional Geographic Setting and Location

The RBAAP is located in the City of Riverbank, central Stanislaus County, in California's San Joaquin Valley west of the Sierra Nevada Mountains. The RBAAP Main Site, located at 5300 Claus Road, was annexed by the City of Riverbank in 2006 (Silveira 2008). The RBAAP facility occupies a total of 173 acres of land comprising two separate areas: the Main Site area (approximately 146 acres) located at 5300 Claus Road at the southwest border of the city, and the Evaporation/Percolation (E/P) ponds (27 acres) located 1.5 miles north of the Main Site, along the Stanislaus River, which marks the border between Stanislaus and San Joaquin counties. The Main Site falls within the Riverbank city limits; the E/P ponds do not, but the city plans to annex the E/P ponds area in the future (City of Riverbank 2006).

The RBAAP property is situated in a largely rural area with sparsely settled residential areas to the north and south, more populated residential areas to the west, and pasture land and farmland to the east. The more developed core of the City of Riverbank is located to the northwest. The city, incorporated in 1922, has an agricultural/small town character, with a population of 19,500 (2005). The City of Modesto is the closest large urban center, with a population of 205,000 (2005). The smaller rural towns of Escalon, Ripon, Salida, Ceres, Waterford, and Oakdale are all within 10 miles of the RBAAP property. The major northern California cities of San Francisco, San Jose, Oakland, Sacramento, and Fresno are within 100 miles; Los Angeles is 300 miles to the southeast. The RBAAP property has access to an extensive transportation network including links to several state and interstate highways, two transcontinental railway lines, commercial airports, and a major port.

The topography of the RBAAP Main Site, the E/P ponds, and the surrounding areas is generally featureless, flat valley land, with a land surface southwestward slope of 25 feet per mile. The average elevation of the RBAAP property is 135 feet above mean sea level (amsl) (U.S. Army 2006a).

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4.2.1.2 Installation Land/Airspace Use

Land Use

RBAAP is a GOCO military industrial installation under the jurisdiction of the U.S. Army Joint Munitions Command. The plant at RBAAP was originally constructed in 1942 under the authority of the Defense Plant Corporation by Aluminum Corporation of America (ALCOA) as an aluminum reduction plant. Prior to government acquisition of the property, the land was used for agriculture. The RBAAP facility was closed in 1944 after World War II and the land was used for storage of government surplus materials (including corn and grain). In 1951, the Ordnance Corps decided to convert the facility to the manufacture of steel cartridge cases for joint Army and Navy use. RBAAP was assigned to the Army in 1951, and in 1952, the Norris Thermador Corporation of Los Angeles, California, (later Norris Industries, then NI Industries) was awarded the contract for the conversion and operation of RBAAP. NI has operated the facility as the GOCO ever since, producing Army and Navy cartridge cases (U.S. Army 2006a).

Table 4.2-1 RBAAP Facility Information

RBAAP Land Use	Acres
Main Plant Area	146
RBAAP Production	99
Open land	37
Roads, rights-of-way, and easements	10
E/P Ponds	27
Total Acreage	173
RBAAP Facility Characteristics	Quantity
Number of buildings and structures	150+
Miles of Road	
Paved	6
Unpaved	3
Miles of Active Railroad	5
Built Footprint (square footage, roofed areas)	920,000
Source: U.S. Army 2006a	

The RBAAP Main Site has over 150 buildings and structures and about 920,000 square feet of roofed areas (U.S. Army 2006a). Of these areas, Army-owned facilities comprise about 800,000 square feet (Staubach 2006). The Main Site also contains a rail spur, serviced by the Burlington Northern-Santa Fe (BNSF) Railroad, providing freight access to the site. There are no buildings or structures at the E/P ponds. Table 4.2-1 presents details regarding some of the main physical characteristics of the built square footage, roads, and other characteristics of the RBAAP Main Site and the E/P ponds.

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Land use features on the Main Site include industrial manufacturing buildings, warehouses, wastewater treatment facilities, transportation facilities, and administrative support (Staubach 2006). There are no military living quarters at the Main Site. The Industrial Wastewater Treatment Plant (IWTP) and the Groundwater Treatment Plant (GWTP) on the Main Site treat water that is then transported via underground piping to the four E/P ponds. A list of the areas of structures by use is presented in Table 4.2-2.

Table 4.2-2 RBAAP Main Site Structure/Land Use Types, Sizes and Status by Area

Area	Primary Land Use/Major Activities	Size (Sq. Ft.)	Active/Inactive
Offices and Administrative	NI offices/administrative	22,895	Active
	RBAAP Installation offices/administrative	14,144	Active
Production Area (a)	Steel cartridge case manufacture	607,782	Partially active
Wastewater Treatment	Sewage Disposal Plant	42,875	Active/Tenants
	Industrial Wastewater Treatment Plant	14,790	Active/Tenants
	Groundwater Treatment Plant	11,027	Active/Tenants
Storage and Hazardous Waste Storage	Storage (propane, fuel oil, etc.) Tank Area	88,931	Active
	Warehouse/Storage	56,637	Partially active
	Hazardous/Materials Storage	19,711	Partially active
	Vehicle Equipment Maintenance/Storage	6,527	Active
	Tank, Water Storage, 1,000,000 Gallons	2,739	Inactive
Other Buildings and Structures	Transformers/Substations	32,509	Active
	Water Wells	543	Active
	Sludge Dessicating Pit (Never Used)	17,600	Inactive
	Former Fire Department	3,600	Inactive
Total:		942,310	
Source: U.S. Army 2006a			
(a) Includes steel plant, machine shop/offices, boiler house, austemper facility			

There are approximately 40 acres of outgrants (leases, easements and other agreements for use) at RBAAP. Thirty acres of open land located at the northern end of the Main Site are leased for agriculture. The San Francisco Public Utility Commission holds a rent-free easement for the Hetch Hetchy aqueduct, which carries water to San Francisco and diagonally crosses the northern end of the Main Site (U.S. Army 2006a).

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Buildings at the Main Site are leased to private businesses that conduct a variety of activities including light to heavy industrial manufacturing, storage, warehousing, and distribution. Leaseholders at RBAAP are listed in Table 4.2-3.

Table 4.2-3 RBAAP Tenant Information (2008)

Tenant	Industry
Ceracon	R&D/Powdered metal manufacturing
AM2T	Engineered materials and products design and production
AT&T Wireless/T-Mobile	Wireless communication services
Berkeley Forge	Tooling
Dayton Superior	Metal products manufacturer and distributor
Donaldson Company	Industrial and engine filtration systems
Eco2 Plastics	Polyethylene Terephthalate (PET) plastic recycling
Environmental and Lubrication Solutions, Inc.	Lubricant and absorbents manufacturer and distributor
Kiva Energy, Inc.	Propane energy installation, service and supply
Leisure RV Storage	Recreational Vehicle (RV) Storage
NI	Metal components manufacturer (commercial, industrial, consumer, and defense markets) / RBAAP GOCO
Riverbank Oil Transfer	Oil, oily water and antifreeze waste recycler
Sierra Northern Railway	Rail service (serves RBAAP Main Site)
Source: RLRA 2008	

Per the RLRA, current tenants will be supported and accommodated during the transition process, and will remain at the Main Site during and after the development of the reuse plan (RLRA 2008).

Figure 4.2-1 presents the land uses at the RBAAP Main Site, including current tenant occupancy.

Airspace Use

There is no airspace use on either the Main Site or the E/P Ponds. Neither the Main Site nor the E/P ponds have aviation transport infrastructure or services.

Range/Training Operations

There are currently no operational ranges at RBAAP. One pistol range (0.29 acres in size), now closed, was operated in the 1950s in the northwestern area of the Main Site, oriented toward the northeast. Only small arms were used in this area, which is currently part of pasture land used for cattle grazing. No other sites with unexploded ordnance, discarded military munitions, or munitions constituents or areas containing an explosive hazard exist on the Main Site or the E/P ponds.

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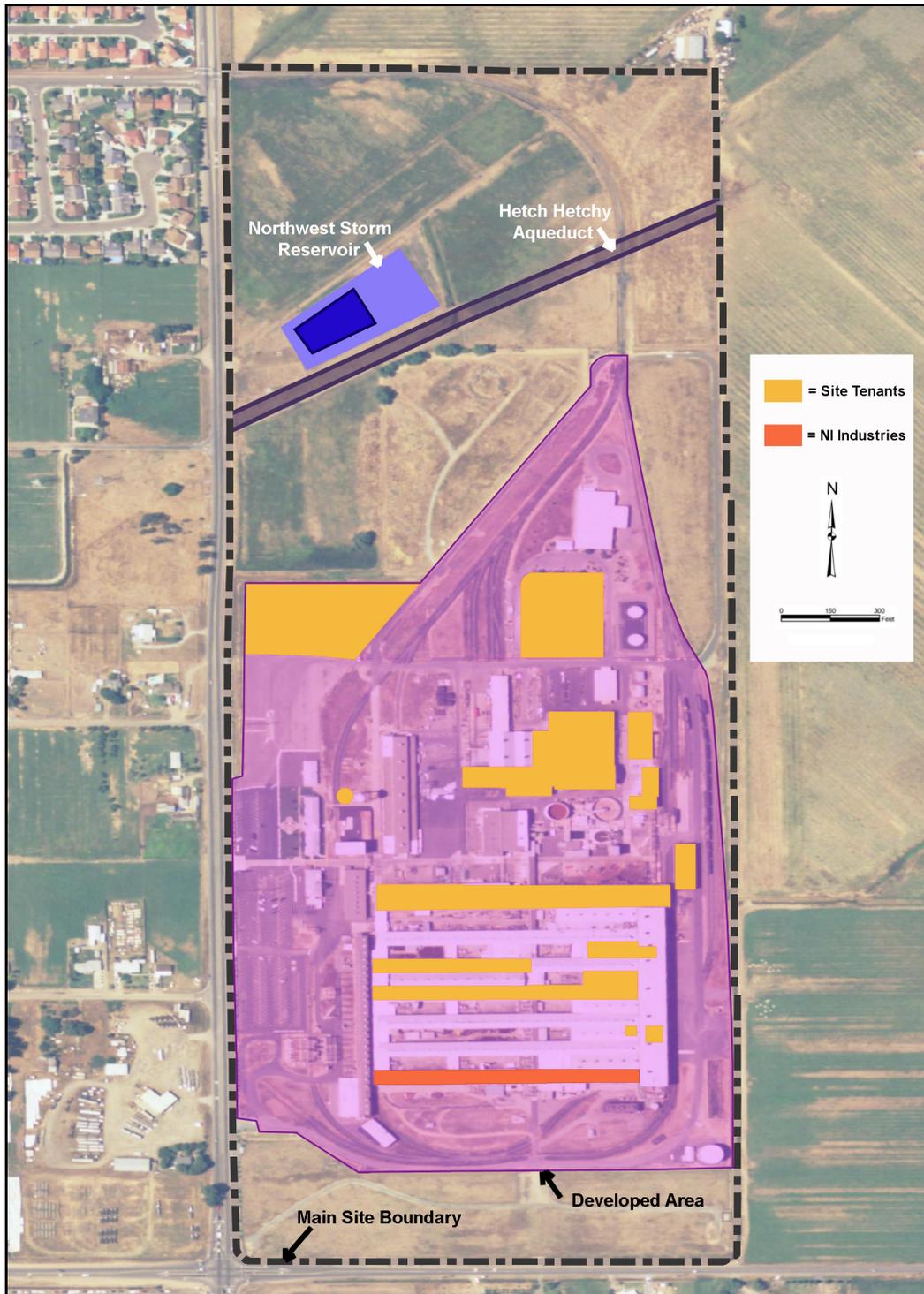


Figure 4.2-1 RBAAP Main Site Installation and Land Use Map

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4.2.1.3 Surrounding Land and Airspace Use

The RBAAP property is located in a rural, agricultural area of central Stanislaus County. The primary entrance to the RBAAP Main Site is by Claus Road on the western border of the installation. Claribel Road, a two-lane, east-west thoroughfare, extends along the southern border of the Main Site and continues west to the City of Modesto via Kiernan Avenue. Low-density residential development is adjacent to the Main Site to the north and south; low- to medium-density residential development lies to the west; pasture land and low-density residential development lies to the south; and pasture land and farmland (primarily fruit and nut orchards) is adjacent to the Main Site to the east. Located within two miles north and west of the RBAAP Main Site, the rest of the City of Riverbank includes a mixture of residential (47 percent of City of Riverbank land is developed with single family residential uses), commercial (8 percent of city land), and civic land uses. Industrial land uses (14 percent of city land) are located, for the most part, along a north-south corridor that extends through the center of the city, generally following the BNSF railroad line. Riverbank has more than 90 acres of vacant land within its city limits, approximately eight acres of which are currently zoned for industrial development (City of Riverbank 2006). Agricultural fields, orchards, pasture land and grassland habitat compose much of the rest of the non-urban environment in Riverbank (City of Riverbank 2006).

The E/P ponds are 1.5 miles north of the RBAAP Main Site, on the east bank of the Stanislaus River. An unpaved road provides access to the E/P ponds from Adams Gravel Road. Low-density residential development is adjacent to the ponds to the west. Large expanses of agricultural land, primarily vineyards and orchards, extend to the north and east across the river. Mature riparian forest and ruderal grassland surrounds much of the periphery of the ponds, which themselves are maintained to be devoid of vegetation.

Sensitive Receptors

RBAAP is located within an area developed with residential and some commercial uses, and several sensitive receptors are located in the vicinity of the Main Site area and the E/P ponds. Sensitive receptors within an approximate 1,000-foot radius of the Main Site include low- to medium-density residential areas, two churches, and several neighborhood parks (including ballparks). Sensitive receptors located within an approximate 1,000-foot radius of the E/P ponds include low-density/large lot residential areas and two parks. Riverbank High School is also located approximately 0.5 mile north of the Main Site.

4.2.1.4 Current and Future Development in the Region of Influence

General Plan Designations and Zoning

Under the city's currently proposed General Plan update (City of Riverbank 2006), the RBAAP Main Site will receive a designation of Industrial/Business Park, with the Hetch Hetchy easement designated as a buffer area. The E/P ponds will receive a designation of Parks. The Main Site is currently zoned Industrial (M-1, M-2); the E/P ponds currently have no zoning designation (City of Riverbank 2008b). Land use designations for areas to

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the west of the Main Site will include Lower-Density Residential, Medium-Density Residential, and Industrial/Business Park. Land use designations for areas to the north and west of the Main Site will include and Community Commercial, Parks, Medium-Density Residential and Lower-Density Residential. Land use designations and zoning for areas to the south of the Main Site will be primarily Industrial/Business Park.⁵ Most of the area around the Main Site is not currently zoned, except for areas to the north and west, which are zoned for Single Family Residential and Commercial-Industrial (City of Riverbank 2008b).

Land use designations for areas to the west and south of the E/P ponds will include Lower- and Medium-Density Residential; to the north, land use designations will include Multi-Use Recreation/Resource Management. Areas to the east of the E/P ponds are outside of the City of Riverbank's planning jurisdiction, but land uses in these areas are anticipated to remain agricultural (vineyards, orchards and pasture lands) and lower-density residential.

Future Development

Development of the RBAAP property and surrounding areas is directly affected by trends of economic development and change in the City of Riverbank, as well as in nearby Modesto and across Stanislaus County and the region. The public and decision makers in Riverbank have growing concerns about the impacts of rapid population growth in the region, which include traffic congestion; increased housing prices; loss of open space and rural character; and development of the fringe of the city at the expense of redevelopment, downtown revitalization and infill development (City of Riverbank 2006). Of primary concern is the housing construction boom that has taken place in recent years in the region – to serve commuters who work outside the area – without a corresponding increase in the development of commercial and other diverse land uses that would provide a better balance between housing and employment.

In the 20 years since the 1987 General Plan update, the population of the City of Riverbank has grown by more than 100 percent. In addition, between 2000 to 2007, Riverbank added more housing units (in percentage terms) than Stanislaus County as a whole and more than the state as a whole: the average annual growth rate for housing units in Riverbank for this period was 4.5 percent, compared to 2.2 percent for the county and 1.2 percent for the state (City of Riverbank 2008a). Between 1990 and 2000, average housing price in Riverbank increased by about 50 percent (U.S. Census 2000). Although Riverbank's jobs-to-housing balance has increased since 1994 – the average ratio of jobs to housing increased from 0.45 in 1994 to 0.60 in 2002 – this ratio is still comparatively

⁵ It should be noted that land parcels to the north and west of the Main Site are protected under the California Land Conservation Act of 1965 (commonly known as the Williamson Act) by restrictions on development or conversion of agricultural use, for the purpose of restricting specified parcels of land to agricultural or open space uses. The City's proposal to designate these parcels with residential, community commercial and other land use designations is identified in the *2005–2025 General Plan Update EIR, City of Riverbank* as resulting in a significant and unavoidable impact under the California Environmental Quality Act (City of Riverbank 2008).

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low, given that communities with a job-to-housing ratio lower than 1.5 are generally considered “housing rich” (City of Riverbank 2008a). With the current recession and continuing decline of the California housing market, job creation is even more central to the City of Riverbank’s vision for future development (RLRA 2008).

North County Corridor Project

The NCCJPA is pursuing the North County Corridor Project, a new expressway that would connect Highways 99 and 120 east of Oakdale, located near the RBAAP Main Site (RLRA 2008). The purpose of the new expressway is to accommodate growth throughout Stanislaus County, provide a safer and more efficient east-west route, and separate regional and local traffic.

City of Riverbank General Plan Projected Development Levels

Under projections included as part of the city’s General Plan update, the Riverbank General Planning Area would accommodate a population of approximately 52,500 at build-out, an increase of 150 percent over the estimated 2006 population of 21,215. Approximately 10,700 new dwelling units and 3.3 million square feet of commercial and industrial building space could be accommodated during the General Plan build-out, as well as schools, parks, commercial retail and services, industrial development, and other land uses. Table 4.2-4 shows anticipated growth under the General Plan update (City of Riverbank 2006).

The General Plan update identifies the area on the southeastern outskirts of the city, near the railroad line and existing industrial uses, including the RBAAP Main Site, as an area for future industrial and business park uses. The city would promote redevelopment of existing industrial land in the downtown area of Riverbank for retail, housing, office development, public spaces, and other land uses that may be more compatible with the overall downtown environment, and would support industries that wish to move out of downtown to establish themselves in the southeastern part of the Planning Area. New industrial/business park areas that would be located near existing or future residential development or other sensitive uses would be developed with design measures that would address land use compatibility issues (City of Riverbank 2006a).

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Table 4.2-4 New Growth Under Riverbank 2005–2025 General Plan Update

Land Use Category	Acres	Dwelling Units	Population	Building Square Feet
Agricultural/Resource Conservation Area (AG)	1,220			
Buffer/Greenway/Open Space (B/G/OS)	350			
Clustered Rural Residential (RR)	1,230	250	770	
Community Commercial (CC)	90			678,980
Higher-Density Residential (HDR)	80	940	2,030	
Industrial/Business Park (I/BP)	270			1,999,540
Infill Opportunity Area (IOA)	400	490	1,050	226,850
Lower-Density Residential (LDR)	1,260	4,410	13,680	
Medium-Density Residential (MDR)	640	4,470	13,420	
Multi-Use Recreation/Resource Management (MUR/R)	140			
Neighborhood Commercial (NC)	70	170	370	410,630
Parks (P)	140			
Civic (C)	170			
Total:	6,010	10,700	31,300	3,315,990
Source: City of Riverbank 2006				

Under the 2005–2025 General Plan update, the RBAAP Main Site area has been given a preliminary designation of Industrial/Business Park (City of Riverbank 2006). This designation includes manufacturing uses as well as a mixture of light manufacturing and office spaces. These uses may be located in campus-like settings sometimes referred to as “business parks” or “research parks.” Office parks could accommodate businesses of various types, research and development, logistics services, and other uses. Areas with this designation near existing or future planned residential and other sensitive land uses will be subject to performance standards to address potential impacts related to noise, traffic, safety, light spillage and glare, and other impacts related to land use compatibility.

Under the General Plan update, the EP ponds area has been given a preliminary designation of Parks. This category includes active and passive parkland of all types and can include public plazas, town squares, tot lots, parkways, linear parks, and other configurations (City of Riverbank 2006).

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Stanislaus Enterprise Zone

The RBAAP Main Site is also located within the Stanislaus Enterprise Zone (Zone 40), a 15-year business development zone in central Stanislaus County comprising 67,500 acres. One of the largest enterprise zones in the State of California, Zone 40 was originally approved in 2005 to include parts of Modesto, Ceres, and Turlock and has since expanded to include parts of the cities of Hughson, Oakdale, Patterson, and Riverbank (Stanislaus Economic Development and Workforce Alliance [SEDWA] 2008; Stanislaus County Board of Supervisors 2006). Entities and other individuals who operate or invest in a business within the boundaries of Zone 40 are eligible for special tax incentives, designed to reduce the cost of new employee hires and investment in equipment. Zone 40 is scheduled to expire in November 2020 (SEDWA 2008).

City of Modesto

Several “special projects” are being planned for the City of Modesto that add to the composite of growth and economic development in areas near the RBAAP property. The largest of these closest to the RBAAP Main Site area is the Tivoli Specific Plan, located south of RBAAP between Sylvan Avenue, Oakdale Road, and Claratina and Roselle Avenues. The Plan includes proposals for annexation and development of a 454-acre area, to include approximately 286 acres of various densities of residential land uses with a build-out potential of up to 3,200 units. The project also includes 87 acres of neighborhood, general, and region-serving commercial uses and 81 acres for professional office space, an elementary school site, parks and open space, and interior roadways (City of Modesto 2008).

4.2.2 Consequences

4.2.2.1 Early Transfer Disposal Alternative

Direct. Minor short-term adverse effects would be expected. The early transfer disposal alternative would result in property transfer before all remedial action has been completed for contaminated sites on the RBAAP property. Existing land use patterns would change over time on the RBAAP Main Site, though ongoing tenant operations would likely be only slightly affected. Under early transfer, not all areas would be available for productive reuse immediately after transfer, and full reuse of the Main Site area would not be practicable before all areas and buildings have been inspected to determine the extent of contamination and clean-up has been completed. The early transfer disposal alternative could therefore result in short-term fragmentation of redevelopment; orderly or rational redevelopment of the installation property could be somewhat impeded under this alternative. This effect, however, is anticipated to be minor, because the RLRA has taken into account requirements for clean-up in the reuse plan. No effects on surrounding land uses or on airspace would be expected. Potential land use compatibility effects related to noise and transportation and traffic associated with disposal and reuse are addressed in Section 4.5 and Section 4.11, respectively.

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Indirect. Minor short-term adverse and beneficial effects would be expected. Disposal of RBAAP would result in nonfederal ownership, and reduced and fragmented implementation of regulatory controls for the protection of natural resources as required for federal property.

Although existing clean-up programs will continue under either federal or nonfederal ownership, nonfederal ownership could result in the availability of additional resources for the renovation or removal of facilities. Thus, in the long term, disposal could indirectly generate minor beneficial effects.

It should be noted that the city's proposed General Plan designation of Parks for the E/P ponds may differ from the current use of the ponds as well as the future use proposed in the RLRA's reuse plan; this potential conflict would not result in an indirect impact related to the disposal of the E/P ponds property, but would be resolved through the city's General Plan adoption process and/or through the planning process specific to the adoption and implementation of the RLRA's reuse concept. The Army will disclose soil and groundwater conditions at the E/P ponds as part of the disposal/property transfer.

4.2.2.2 Traditional Disposal Alternative

Direct. Minor long-term beneficial effects would be expected. Traditional disposal would result in property transfer after all remedial action has been completed for contaminated sites at the property. Existing land use patterns would change over time on the property; ongoing tenant operations at the Main Site would not be notably affected. All areas of the property not currently under use/lease by existing tenants would be available for productive use after transfer, and orderly or rational redevelopment of the property could be assisted under this alternative, resulting in beneficial land use effects. No effects on surrounding land uses or on airspace would be expected.

Indirect. Minor short-term adverse and beneficial effects would be expected, similar to the effects outlined for early transfer. As compared to early transfer, redevelopment would occur later, but the effects would be similar.

4.2.2.3 Caretaker Status Alternative

Direct. Minor beneficial effects are expected. Under the caretaker status alternative, Army, NI, and tenant operations would cease. The elimination of military operations would reduce any minor land use incompatibilities, such as those caused by noise and traffic, with surrounding residential areas.

Indirect. Long-term minor adverse effects would be expected. If the RBAAP property were to be maintained in caretaker status for an extended period of time, the condition of buildings, facilities, roadways, utility systems, and other infrastructure could be expected to deteriorate. This could ultimately lead to a reduction in the suitability of these facilities to support uses similar to those associated with fully operational installation or industrial conditions. Additionally, if the caretaker period were to be extended, the area of the Main Site would not undergo redevelopment as proposed by the RLRA, representing lost opportunities for raising tax revenues to fund orderly development and for increasing the

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jobs-to-housing ratio in the area, as well as obstructing the City of Riverbank's plan to stimulate industrial/business park development in the area of the Main Site and move industrial uses out of the downtown area.

4.2.2.4 No Action Alternative

No direct or indirect effects would be expected under the no action alternative. For this alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC 2005 Commission's recommendations for closure and realignment, which would affect neither land use on RBAAP nor land use patterns external to the installation property. No effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.2.2.5 Intensity-Based Probable Use Scenario

The Army's environmental restoration efforts at RBAAP will help facilitate the land use and redevelopment goals of the community as described in the RLRA's reuse plan (RLRA 2008). As a component of this environmental restoration, the Army may 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.

Medium-High Intensity, Direct. Long-term moderate beneficial and minor adverse effects would be expected. The RLRA's reuse plan envisions a mix of uses (primarily industrial, research, and development) for the RBAAP Main Site property, including some uses that would require construction of new facilities, structural improvements to existing facilities, and expansion or improvement of existing infrastructure (storm drainage, natural gas, potable water, sewer service, fire suppression, and electrical utilities). Reuse of the RBAAP Main Site, including demolition of unusable buildings, construction of new structures, and infrastructure upgrades would increase the property's value. Redevelopment of the Main Site with industrial and other uses would create an opportunity for raising tax revenues to fund orderly development, would improve the jobs-to-housing ratio in the area, and would assist the City of Riverbank's goals to stimulate industrial/business park development in the area of the Main Site and move industrial uses out of the downtown area.

The uses for the Main Site envisioned in the RLRA's reuse plan are consistent with the City of Riverbank's proposed land use designations for this site. The City of Riverbank's proposed land use designation for the E/P ponds area is Parks, a category which includes active and passive parkland of all types (City of Riverbank 2006). According to City of Riverbank Planning Department staff, "passive" industrial uses, such as the current site use and the use proposed in the reuse plan, would not necessarily be inconsistent with this proposed designation (Hightower 2008). The combination of these two uses would be examined during the process of the adoption of the new General Plan and/or the environmental California Environmental Quality Act (CEQA) review and adoption of the RLRA's proposed reuse plan. Potential modification of the reuse plan to accommodate

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compatible passive recreational park use or co-use of this area would be addressed through that process.

Under the MHIR scenario, the intensity of reuse at the Main Site would be above the current use of the property, and would thus change land use patterns in the area being developed due to increases in built square footage and worker presence at the site. The projected total building square footage associated with the MHIR reuse scenario (1.9 million square feet) is anticipated to be nearly double the existing square footage of buildings at the site. Although some of the proposed uses to be developed at the Main Site (e.g., green industries, with some retail and office space) differ from current and historic RBAAP/NI operations, land uses would remain functionally similar to existing use. The 100-foot open space buffer proposed for the Main Site will provide landscaping and will screen, to some extent, industrial uses from nearby residential neighborhoods and other sensitive users.

The proposed redevelopment would also likely have the effect of better integrating the property at RBAAP into the surrounding community, as the industrial uses planned for the site would become part of a growing industrial area in the southeast part of the city that, under the Riverbank General Plan Update, will extend both west and east of the current RBAAP property (City of Riverbank 2006). As part of redevelopment, existing road networks on the RBAAP property would be improved to accommodate increased traffic associated with reuse. In the surrounding area, specific circulation improvements would include the extension of Van Dusen Avenue through the Main Site, connecting to the circulation system of the installation, with an at-grade rail crossing at the joint line (RLRA 2008). Van Dusen Avenue is expected to continue east to Eleanor Avenue in the future, further improving integration of the larger community. Construction of the North County Corridor Project, a new expressway connecting Highways 99 and 120 east of Oakdale, would be located near the RBAAP site, further enabling improved regional and local connectivity.

Projected levels of development at RBAAP would alter some land use patterns for the Main Site area, resulting in construction of facilities in areas that are currently vacant. While this may create a minor adverse impact impeding the flow of movement on the site, the implementation of the reuse scenario at RBAAP would be largely consistent with the current land use on the property.

Some adverse impacts could be expected from the implementation of this scenario. While the existing regional labor market would be able to supply some or most of the employees represented by the projections in the reuse plan, it is likely that other employees would commute or relocate to the area; these employees could potentially increase demand for new housing (particularly rental housing) and associated services and could place stress on existing infrastructure in the area. Over time, however, it is likely that regional economic recovery and improvements and additions to the local housing market and infrastructure would accommodate the demands associated with redevelopment.

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Medium-High Intensity, Indirect. Long-term minor beneficial effects would be expected. Development of the MHIR scenario would likely involve an increase of development and investment capital in the ROI. Implementation of the reuse plan may stimulate further development and alteration of land use in the area that could support economic growth and enhanced quality of life in the community. The creation of a green industrial business park would likely increase the attractiveness of investment in the area, resulting in higher interest in and use of the property, as well as potentially higher adjacent property values.

It should be noted that the city's proposed General Plan designation of Parks for the E/P ponds may differ from the current use of the ponds as well as the future use proposed in the RLRA's reuse plan; this potential conflict would not result in an indirect impact related to the disposal of the E/P ponds property, but would be resolved through the city's General Plan adoption process and/or through the planning process specific to the adoption and implementation of the RLRA's reuse concept. The Army will disclose soil and groundwater conditions at the E/P ponds as part of the disposal/property transfer.

Medium Intensity, Direct. Long-term moderate beneficial and minor adverse effects would be expected. This intensity of reuse under the MIR scenario (a proposed total of 1.4 million square feet of building space) would be above the current use of the property. The effects would be similar to, though less than, those described for the MHIR scenario.

Medium Intensity, Indirect. Long-term minor beneficial effects would be expected. Indirect effects similar to but less than those expected for the MHIR scenario would also occur for the MIR scenario.

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4.3 AESTHETICS AND VISUAL RESOURCES

4.3.1 Affected Environment

Most of the RBAAP Main Site area (about 99 of 146 acres) is developed with industrial uses; however, a large portion (about 47 acres) of the Main Site area consists of open, undeveloped land and pasture land. The E/P ponds area consists of open grassland and riparian woodland and includes the slightly depressed (several feet below ground surface) ponds, which cover about 27 acres of grassland. Both the Main Site area and the E/P ponds are surrounded by pasture land, farmland, and relatively low-density residential areas, lending a “small town” rural appearance to the general vicinity.

4.3.1.1 Visual Environment

The overall visual character of RBAAP is also predominantly rural, with the exception of the developed area at the Main Site, which is industrial in nature. Major visible habitat types at the Main Site include grassland, marshland, and pasture land; major visible habitat types at the E/P ponds include grassland, wetlands, and riparian woodland. Large areas of pasture and farmland, including orchards and vineyards, provide long, pleasant, rural vistas around the Main Site and E/P ponds. There are no designated scenic vistas at the Main Site, at the E/P ponds, or in the City of Riverbank (City of Riverbank 2008a).

Buildings at the RBAAP Main Site tend to be structures up to a few stories in height constructed from brick and corrugated metal, utilitarian and blocky in design, and of no uniform type or style (although they are similar in massing and appearance). No buildings at the Main Site have been determined eligible for the National Register of Historic Places (NRHP). There are no structures at the E/P ponds.



Figure 4.3-1 View of RBAAP Main Site from the South

The visual character of the Main Site from areas off-site, such as the residential neighborhoods to the south, is one of a fairly low-profile industrial plant area surrounded by a large amount of pasture land, except along the developed portion of the Main Site fronting on Claus Road.

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Figure 4.3-2 Main Plant Buildings



Figure 4.3-3 E/P Ponds

The E/P ponds are visually screened from many potential public off-site viewing locations by trees and other vegetation, as well as by their lower elevation. The ponds are also generally screened from adjacent residential properties by trees and other vegetation, as well as fencing. The ponds are not overtly industrial in appearance, but look like lower-elevation/depressed grassland areas surrounded by riparian woodlands on several sides.

4.3.2 Consequences

4.3.2.1 Early Transfer Disposal Alternative

Direct. Minor long-term beneficial and adverse effects at the RBAAP Main Site would be expected. In the long term, disposal and the change to nonfederal ownership may ultimately result in some demolition and removal or renovation of structures to comply

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with up-to-date architectural standards; this could lead to the enhancement of the built landscape with newer buildings that are more attractive than current structures. New construction at the site could, however, affect the natural, rural aesthetics at the RBAAP Main Site. Preservation of the natural aesthetics at the RBAAP property would depend on, for example, the quality of landscaping installed in the reuse area, especially bordering the installation property. For further details, see the discussion of potential cumulative aesthetics and visual resources impacts related to implementation of the reuse scenarios, below. No effects would be expected at the E/P ponds area.

Indirect. No effects would be expected.

4.3.2.2 Traditional Disposal Alternative

Direct. Minor long-term beneficial and adverse effects at the RBAAP Main Site would be expected. Effects would be similar to those described under the early transfer disposal alternative, but the changes in effects would take place further in the future. No effects would be expected at the E/P ponds area.

Indirect. No effects would be expected.

4.3.2.3 Caretaker Status Alternative

Direct. Minor adverse effects at the RBAAP Main Site would be expected. Under caretaker status, the appearance of buildings and grounds could decline and deteriorate over time, decreasing the aesthetic value of the Main Site. No effects would be expected at the E/P ponds area.

Indirect. No direct effects would be expected.

4.3.2.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC 2005 Commission's recommendations for closure and realignment. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.3.2.5 Intensity-Based Probable Use Scenario

Medium-High Intensity, Direct. Minor short- and long-term beneficial and adverse effects at the Main Site would be expected. Increased construction, demolition, and site-clearing activities would result in a short-term adverse visual effect that would likely be contained within the Main Site property. As redevelopment of the property proceeds, older facilities could be replaced by newer, more attractive buildings, and existing natural open space areas could be enhanced through landscaping improvements. Construction activities necessary to build up to 1.9 million square feet of facilities could reduce the existing beneficial visual effects of open space areas on the landscape at the Main Site. These and other adverse effects will be addressed during the City of Riverbank's planning review process for new, project-specific development proposed for the RBAAP property

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and through adherence to the goals and policies presented in the City of Riverbank's General Plan (Community Character Element), including those addressing road corridors and commercial, industrial, and retail development. Establishment of adequate landscaped buffers around the boundary of the Main Site, and careful design review of new buildings to be constructed, could reduce the adverse effects to viewsheds into the installation property from nearby residential areas and other vantage points.

Construction and operation of industrial uses on the Main Site would also have adverse effects on visual resources, including those associated with the massing and height of facility buildings and structures. Location of industrial uses within an interior parcel and viewshed analysis could reduce visual effects associated with increased industrial operations.

No effects would be expected at the E/P ponds area.

Medium-High Intensity, Indirect. Minor long-term adverse effects would be expected. New buildings associated with new industrial and other areas at the Main Site could obstruct views through the sites of surrounding landscapes. New sources of light and glare could, if not screened properly, affect nighttime views in communities adjacent to the installation properties. These potential effects would be addressed during the City of Riverbank's planning review process for new, project-specific development proposed for the RBAAP property, and through adherence to the goals and policies presented in the City of Riverbank's General Plan (Community Character Element). No effects would be expected at the E/P ponds area.

Medium Intensity, Direct. Minor short- and long-term beneficial and adverse effects at the Main Site would be expected. Effects would be similar to those expected under the MHIR scenario, but to a lesser degree. No effects would be expected at the E/P ponds area.

Medium Intensity, Indirect. Minor long-term adverse effects at the Main Site would be expected. Effects would be similar to those expected under the MHIR scenario, but to a lesser degree. No effects would be expected at the E/P ponds area.

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4.4 AIR QUALITY

4.4.1 Affected Environment

4.4.1.1 Climate

The climate of Stanislaus County is semi-arid to arid with long, hot summers and short, mild winters. Average high temperatures range from 53°F in winter to 94°F in summer, and average low temperatures range from 37°F in winter to 61°F in summer. RBAAP is situated in the San Joaquin Valley between the Coastal Range and the Sierra Nevada. Long periods of hot, dry weather in summer are not unusual, and winters are rather mild with short-lived cold spells. The last freeze is typically in February, and the first freeze is usually in mid-November (National Climatic Data Center 2001).

Average annual precipitation is only 14 inches. Most of the rain falls in the winter and spring months (November – April).

4.4.2 Air Quality

4.4.2.1 Ambient Air Quality Conditions

RBAAP is located in Stanislaus County, California, under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD) and USEPA Region 9.

The USEPA has divided the country into geographical regions, known as Air Quality Control Regions (AQCRs), to evaluate compliance with the National Ambient Air Quality Standards (NAAQS). There are NAAQS for each of the criteria pollutants (carbon monoxide [CO], nitrogen oxide [NO_x], ozone, sulfur oxides, PM₁₀, PM_{2.5}, and lead). Criteria pollutants are those upon which EPA has placed the greatest emphasis and for which it has developed health-based concentration standards for ambient air. There are primary NAAQS for protection of public health and secondary NAAQS for the protection of public welfare (effects on soils, vegetation, climate, economic value, personal comfort, and welfare).

Compliance with the NAAQS is determined through the use of ambient air monitoring stations located throughout the state, including monitors in the vicinity of RBAAP. Stanislaus County and the surrounding counties are designated as attainment for all criteria pollutants except ozone (severe) and PM_{2.5}. Stanislaus County was reclassified as attainment for PM₁₀ in September, 2008. Table 4.4-1 shows both the primary and secondary NAAQS. The California Air Resources Board approved the SJVAPCD 8-hour ozone attainment plan in April, 2007, that outlines regulations, control measures, and strategies to conform to the NAAQS. SJVAPCD adopted a PM_{2.5} attainment plan in April, 2008 that details strategies to attain the PM_{2.5} NAAQS by 2015.

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Table 4.4-1 National Ambient Air Quality Standards

Air Pollutant	EPA Standard	Concentration	Remarks	AQCR Classification
Particulate matter ≤ 10 microns (PM ₁₀)	Primary and Secondary Standard	Revoked	Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM ₁₀ standard in 2006 (effective December 17, 2006)	N/A
	Primary and Secondary Standard	150 $\mu\text{g}/\text{m}^3$	The standard is attained when the number of days per calendar year with a 24-hour average above 150 $\mu\text{g}/\text{m}^3$ is equal to or less than one	Maintenance
Particulate matter ≤ 2.5 microns (PM _{2.5})	Primary and Secondary Standard	15 $\mu\text{g}/\text{m}^3$	The standard is attained when the 3-year average annual weighted mean is less than or equal to 15 $\mu\text{g}/\text{m}^3$	Non-attainment
	Primary and Secondary Standard	35 $\mu\text{g}/\text{m}^3$	The standard is attained when the 3-year average of the 98 th percentile of 24-hour concentrations within an area does not exceed 35 $\mu\text{g}/\text{m}^3$	Non-attainment
Sulfur dioxide	Primary Standard	80 $\mu\text{g}/\text{m}^3$	Annual arithmetic mean	Attainment
	Primary Standard	365 $\mu\text{g}/\text{m}^3$	Maximum 24-hour concentration not to be exceeded more than once per year	Attainment
	Secondary Standard	1,300 $\mu\text{g}/\text{m}^3$	Maximum 3-hour concentration not to be exceeded more than once per year	Attainment
Carbon monoxide	Primary Standard	10 mg/m^3	8-hour average not to be exceeded more than once per year	Attainment
	Primary Standard	40 mg/m^3	1-hour average not to be exceeded more than once per year	Attainment
Ozone	Primary and Secondary Standard	158 $\mu\text{g}/\text{m}^3$	The standard is attained when the 3-year average of the 4 th -highest daily maximum 8-hour average concentration measured at each monitor within an area over each year does not exceed 157 $\mu\text{g}/\text{m}^3$	Severe Non-attainment
Nitrogen dioxide	Primary and Secondary Standard	100 $\mu\text{g}/\text{m}^3$	Annual arithmetic mean not to be exceeded	Attainment
Lead	Primary and Secondary Standard	1.5 $\mu\text{g}/\text{m}^3$	Quarterly average not to be exceeded	Attainment
Source: 40 CFR 50				

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4.4.2.2 Air Pollutant Emissions at RBAAP

RBAAP maintains 22 permits in compliance with SJVAPCD regulations. Permitted air emission sources at RBAAP include stationary boilers, furnaces and engines; lime storage silo; emergency diesel and propane-fired engines; metal parts and product coating operations; an incinerator; zinc plating operation; fuel storage tank; paint spraying operations; annealing and lubrication operation; heat treating and soap coating line; and sand blast equipment. Table 4.4-2 lists the main air permits maintained at RBAAP.

Table 4.4-2 Main Air Permits for the Operation of RBAAP

Permit No.	Permitted Unit	Issue Date	Expiration Date
N-2138-2-0	Confined abrasive blasting operation	October 1, 1997	September 30, 2011
N-2138-16-1	Propane-fired emergency IC engine	October 1, 1997	
N-2138-11-0	Storage silo for lime	October 1, 1997	
N-2138-6-0	Metal parts and product coating operation	October 1, 1997	
N-2138-4-1	Corrosion-preventive coating served by paint sprayer	October 1, 1997	
N-2138-3-0	Paint stripe line and associated equipment	October 1, 1997	
N-2138-18-0	Metal parts and products coating operation	October 1, 1997	
N-2138-10-0	Bayco Model R-2B-150 incinerator	October 1, 1997	
N-2138-0-0	Facility-wide requirements	October 1, 1997	
N-2138-1-2	450-gallon Convault Aboveground Storage Tank	October 17, 1997	
N2138-21-0	Annealing and lubrication operation	September 30, 1999	
N-2138-20-0	7.2-MMBTU/HR spheroidizing heat treat furnace	September 30, 1999	
N-2138-19-0	Confined abrasive blasting operation	September 30, 1999	
N-2138-23-1	Zinc plating operation	January 10, 2001	
N-2138-22-1	Heat treating and soap coating line	January 10, 2001	
N-2138-26-0	Diesel-fired emergency IC engine	March 13, 2001	
N-2138-28-0	Diesel-fired emergency IC engine	August 10, 2003	
N-2138-25-0	8.583-MMBTU/HR Boiler	July 2, 2004	
N-2138-24-1	8.583-MMBTU/HR Natural gas boiler	July 2, 2004	
N-2138-15-1	195-HP Propane-fired engine	July 16, 2004	
N-2138-14-1	195-HP Propane-fired engine	July 16, 2004	
N-2138-27-0	Propane-fired emergency IC engine	July 16, 2004	
Source: NI 2006			

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Table 4.4-3 lists the emissions for some of these sources for calendar year 2005, summarized from the 2005 Emissions Inventory submitted to SJVAPCD by RBAAP. RBAAP must keep records of the amount of fuel used and how much volatile organic compound (VOC) and NO_x are emitted on a monthly basis from the entire installation. RBAAP submits semiannual reports in January and July of each year.

Table 4.4-3 2005 RBAAP Air Emission in Tons Per Year (TPY)

Source Type	NO _x	SO ₂	PM ₁₀	PM _{2.5}	CO	VOC
Direct Emissions						
Permitted Sources	0.88	0.03	2.34	1.17	0.70	0.05
Indirect Emissions						
Commuting, Shipping	24.64	0.18	7.85	1.87	182.68	16.84
Total	25.52	0.21	10.19	3.04	183.38	16.89
Source: NI 2005, Appendix D						

4.4.2.3 Regional Air Pollutant Emissions Summary

Stanislaus County is predominantly residential and agricultural, with some areas of light industry. The population of Stanislaus County in 2000 was 446,997 (U.S. Census 2000). There are several highways that run through Stanislaus County, including I-5 and US-99. Nearby industrial facilities include Silgan Containers, Hershey Chocolate, ConAgra Foods, and Ball Western Can Company, all within 6 miles of RBAAP (National Emissions Inventory 2002). The Modesto air quality monitor, approximately 7 miles southwest of RBAAP (USEPA 2008) collects data for CO, NO_x, Ozone, PM₁₀, and PM_{2.5}. The nearest SO₂ monitor is in Bethel Island, approximately 43 miles northwest of RBAAP. As shown in Table 4.4-4, monitored values are below the NAAQS, except ozone and PM_{2.5}.

Monitored values of SO₂, CO, NO_x, and PM₁₀ are well below the NAAQS. The 8-hour Ozone and the annual and 24-hour PM_{2.5} monitored values are exceeding the NAAQS.

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Table 4.4-4 Air Quality Monitor Data, Highest Values (µg/m3)

Pollutant	Averaging Period	2003	2004	2005	Standard
PM ₁₀ (Modesto, CA)	24-hour	70	80	93	150
	Annual	29	29	29	N/A
PM _{2.5} (Modesto, CA)	24-hour ¹	47	45	55	35
	Annual	14.5	13.6	14.9	15
SO ₂ (Bethel Island, CA)	3-hour	34.1	23.6	26.2	1,300
	24-hour	15.7	15.7	15.7	365
	Annual	5.2	5.2	5.2	80
NO _x (Modesto, CA)	Annual	32.0	28.2	26.3	100
CO (Modesto, CA)	1-hour	6,092.0	5,287.4	4,252.9	40,000
	8-hour	4,367.8	3,448.3	3,333.3	10,000
O ₃ (Modesto, CA)	8-hour ²	160.7	156.8	174.4	158
NOTES: ¹ 98 th percentile ² 4 th highest Source: USEPA 2006a					

Greenhouse Gas Emissions

As of the date of this document, the USEPA has not set ambient air quality standards to address emissions of greenhouse gases such as carbon dioxide, methane, and nitrous oxide, and there are no acceptable federal thresholds for significance related to global warming. Although widespread scientific evidence supports the likelihood that anthropogenic warming has had a discernible influence on many physical and biological systems (IPCC 2007), a consistent means of assessing individual “project” contributions to cumulative greenhouse gas levels that could stimulate such an influence has not yet been established. Until standards and guidelines for assessing impacts are established, general compliance with emission reduction strategies can achieve reductions of greenhouse gases.

4.4.3 Consequences

To determine the consequences of the alternatives discussed below, area source emissions were calculated using the URBEMIS model (V9.2), while vehicle exhaust emissions were calculated using EMFAC2007 (V2.3). These calculations are included in Appendix D.

4.4.3.1 Early Transfer Disposal Alternative

Direct. Minor short-term and long-term adverse effects would be expected. Transfer of RBAAP will ultimately lead to redevelopment and increases in air emissions from construction activities (both short-term and long-term), increased facility operation and

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other point source emissions, and increased vehicle traffic. While there will be an increase in emission sources, future vehicle exhaust emissions will be less in the year 2025 as compared to baseline levels.⁶ See Section 4.4.3.5 for further discussion of effects.

The General Conformity Rule provides that actions proposed to occur within nonattainment areas must, unless otherwise exempt, be accompanied by a General Conformity Determination (GCD). Among the recognized exemptions are “transfer of ownership, interests, and titles in land, facilities, and real and personal properties, regardless of the form or method of the transfer” (40 CFR Part 51.853). Because the Army’s proposed action will involve the sale or other title transfer of federal property, it has been determined that the action is exempt from the General Conformity Rule requirement to prepare a full GCD. Therefore, a Record of Non-Applicability (RONA) was prepared (and is presented in Appendix E). In any event, for the purposes of NEPA compliance, the EA includes a detailed assessment of air emissions relative to *de minimis* thresholds resulting from redevelopment. The results of this analysis are presented in Section 4.4.3.5. Based on this analysis, short-term and long-term changes in emissions are still expected to be below *de minimis* levels; and therefore minor.

Indirect. Minor long-term adverse effects would be expected. Disposal of RBAAP may spawn additional economic growth in the region, which could generate additional emissions from traffic and industry operations in the area.

4.4.3.2 Traditional Disposal Alternative

Direct. Minor short-term and long-term adverse effects would be expected, similar to the early transfer disposal alternative but taking place further in the future.

Indirect. Minor long-term adverse effects would be expected, similar to the early transfer disposal alternative but taking place further in the future.

4.4.3.3 Caretaker Status Alternative

Direct. Minor short- and long-term beneficial effects would be expected. Stationary sources at RBAAP would cease to operate with the exception of remediation operations, thereby reducing emissions. Vehicle emissions would also cease as employees would no longer travel to RBAAP and the building operations would be shut down.

Indirect. No effects are expected.

⁶ This seemingly counterintuitive effect, as predicted in the URBEMIS model, would be the result of older cars retiring from local roadways and being replaced by newer, cleaner-burning cars which would have much lower levels of exhaust in 2025 than cars on the road in 2005, leading to a net decrease in harmful air emissions. This effect is also predicted to occur related to diesel emissions from construction vehicles.

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4.4.3.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC 2005 Commission's recommendations for closure. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.4.3.5 Intensity-Based Probable Use Scenario

Stanislaus County is a nonattainment area for ozone and PM_{2.5} and a maintenance area for PM₁₀. Any reuse alternative must be reviewed under EPA's General Conformity Rule to ensure that federal actions are not impeding local efforts to control air pollution in these areas. An action is exempt from the General Conformity Rule if it is covered by transportation conformity, the emissions are clearly at or below the *de minimis* levels (as shown in Table 4.4-5), listed as exempt, or covered by the presumed-to-conform approved list. Each reuse alternative described below will not cause emissions in excess of the *de minimis* levels. Furthermore, the proposed action is exempt, as previously discussed. Therefore a General Conformity Determination is not required. A RONA is presented in Appendix E.

Table 4.4-5 De Minimis Levels for Nonattainment Areas

Pollutant	Nonattainment Area Classification	Pollutant to be Controlled	Emission Rate Threshold (TPY)
Ozone	Severe Nonattainment	NO _x	25
		VOC	25
PM _{2.5}	Nonattainment	PM _{2.5} Direct	100
		SO ₂	100
		NO _x	100
		VOC	100
PM ₁₀	Maintenance	PM ₁₀	100
Source: U.S. EPA 2008			

Medium-High Intensity, Direct. Long-term minor adverse effects would be expected. Reuse of the RBAAP property under this scenario would result in higher emissions as compared to 2005 levels, dependant on the type of industrial activity on-site. There will be an increase in vehicle traffic due to additional people in the area and an increase in office/industrial/retail space at RBAAP, but vehicle exhaust emissions in the year 2025 are expected to be less than the emissions in the baseline year. Construction activities associated with this scenario would create temporary sources of fugitive dust and vehicle emissions that would primarily be confined to immediate project areas. These emissions are not expected to create any significant ambient air quality effects due to the temporary nature of the construction and the fact that the construction would be spread over a multiyear period. Table 4.4-6 shows the construction emissions estimates, and Table 4.4-7 summarizes the emissions increase from the future operations for this scenario

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compared to the baseline emissions and the conformity thresholds. It is expected that total on-site emissions will not affect regional air quality.

Table 4.4-6 MHIR Demolition and Construction Emissions (TPY)

Year	NO _x	CO	PM ₁₀	PM _{2.5}	VOC	SO ₂
Year 2011	14.90	18.94	27.25	6.28	2.76	0.02
Year 2012	13.80	17.71	27.28	6.24	2.63	0.02
Year 2013	12.69	16.49	27.22	6.18	2.48	0.02
Year 2014	11.60	15.34	27.15	6.12	2.35	0.02
Year 2015	10.53	14.30	27.10	6.07	2.21	0.02
Year 2016	9.57	13.38	27.05	6.03	2.09	0.02
Year 2017	8.66	12.49	26.89	5.96	1.98	0.02
Year 2018	7.90	11.80	26.95	5.94	1.88	0.02
Year 2019	7.20	11.14	26.91	5.90	1.78	0.02
Year 2020	6.60	10.59	26.98	5.89	1.70	0.02
Year 2021	5.84	8.68	26.85	5.85	1.60	0.02
Year 2022	5.82	8.65	26.75	5.82	1.59	0.02
Year 2023	5.82	8.65	26.75	5.82	1.59	0.02
Year 2024	5.86	8.71	26.95	5.87	1.61	0.02
<i>Maximum Annual Emissions</i>	14.90	18.94	27.28	6.28	2.76	0.02
<i>De Minimis Threshold</i>	25	N/A	100	100	25	100

NOTES:
Area source emissions calculated using URBEMIS V9.2. Vehicle exhaust emissions calculated using EMFAC2007 V2.3 See Appendix D

Table 4.4-7 MHIR Reuse Emissions (TPY)

Year	NO _x	CO	PM ₁₀	PM _{2.5}	VOC	SO ₂
Year 2025	15.80	120.62	21.96	4.79	13.99	0.26
Baseline	21.96	157.07	9.06	2.77	14.75	0.19
Emissions Increase	-6.16	-36.45	12.90	2.02	-0.76	0.07
<i>De Minimis Threshold</i>	25	N/A	100	100	25	100

NOTES:
Area source emissions calculated using URBEMIS V9.2. Vehicle exhaust emissions calculated using EMFAC2007 V2.3. See Appendix D

Medium-High Intensity, Indirect. Minor long-term adverse effects would be expected. Redevelopment of RBAAP may result in additional economic growth in the region, which could generate additional emissions from traffic and industry operations in the area.

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Medium Intensity, Direct. Long-term minor adverse effects would be expected. Reuse of the RBAAP property under this scenario would result in higher emissions as compared to 2005 levels, dependant on the type of industrial activity onsite. There would be an increase in vehicle traffic due to additional people in the area and an increase in office/industrial/retail space at RBAAP, but vehicle exhaust emissions in the year 2025 are expected to be less than the emissions in the baseline year. Construction activities and, to a lesser extent, demolition associated with this scenario would create temporary sources of fugitive dust and vehicle emissions that would primarily be confined to immediate project areas. These emissions are not expected to create any significant ambient air quality effects due to the temporary nature of the construction and the fact that the construction would be spread over a multiyear period. Table 4.4-8 shows the construction emissions estimates and Table 4.4-9 summarizes the emissions increase from the future operations for this scenario compared to the baseline emissions and the conformity thresholds. It is expected that total on-site emissions will not affect regional air quality.

Table 4.4-8 MIR Demolition and Construction Emissions (TPY)

Year	NO _x	CO	PM ₁₀	PM _{2.5}	VOC	SO ₂
Year 2011	11.35	12.17	14.28	3.46	2.01	0.01
Year 2012	10.58	11.47	14.28	3.42	1.91	0.01
Year 2013	9.81	10.76	14.23	3.37	1.80	0.01
Year 2014	9.04	10.10	14.18	3.32	1.69	0.01
Year 2015	8.27	9.49	14.14	3.29	1.59	0.01
Year 2016	7.57	8.96	14.09	3.25	1.49	0.01
Year 2017	6.90	8.45	14.00	3.20	1.41	0.01
Year 2018	6.34	8.05	14.01	3.17	1.33	0.01
Year 2019	5.80	7.67	13.98	3.14	1.25	0.01
Year 2020	5.35	7.35	14.00	3.13	1.19	0.01
Year 2021	4.95	6.33	13.94	3.11	1.13	0.01
Year 2022	4.93	6.30	13.89	3.09	1.13	0.01
Year 2023	4.93	6.30	13.89	3.09	1.13	0.01
Year 2024	4.97	6.35	13.99	3.12	1.14	0.01
<i>Maximum Annual Emissions</i>	11.35	12.17	14.28	3.46	2.01	0.01
<i>De Minimis Threshold</i>	25	N/A	100	100	25	100
NOTES: Area source emissions calculated using URBEMIS V9.2. Vehicle exhaust emissions calculated using EMFAC2007 V2.3. See Appendix D						

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Table 4.4-9 MIR Reuse Emissions (TPY)

Year	NO _x	CO	PM ₁₀	PM _{2.5}	VOC	SO ₂
Year 2025	10.54	80.03	1.56	0.97	9.59	0.17
Baseline	21.96	157.07	9.06	2.77	14.75	0.19
Emissions Increase	-11.42	-77.04	-7.50	-1.80	-5.16	-0.02
<i>De Minimis Threshold</i>	25	N/A	100	100	25	100

1 – Area source emissions calculated using URBEMIS V9.2
2 – Vehicle exhaust emissions calculated using EMFAC2007 V2.3
See Appendix D

Vehicle exhaust emissions are forecast to decrease by 2025, compared with vehicle exhaust emissions in 2005.

Medium Intensity, Indirect. Minor long-term adverse effects would be expected. Redevelopment of RBAAP may result in additional economic growth in the region, which could generate additional emissions from traffic and industry operations in the area.

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4.5 NOISE

4.5.1 Affected Environment

Noise is defined as unwanted sound. The common unit of measure for noise is the decibel (dB). The U.S. EPA bases the measurement of ambient noise levels on an A-weighted decibel scale (expressed as dBA). The A-weighted scale weights sounds of different frequencies according to their relative detectability to the human ear. The A-weighted scale provides a simple approximation of relative loudness for a broad range of sounds.

Noise that varies with time is quantified using several descriptors, and the choice of descriptors is dictated by the purpose for which the analysis is intended. The “equivalent noise level” (L_{eq}) is the average noise level during a specified monitoring period. The maximum noise level (L_{max}) is generally defined as the highest noise level from some passing source over some short interval of time, such as 1/10 second. The day-night noise level (DNL or L_{dn}) is the average noise over a 24-hour period, with noise levels between 10:00 p.m. and 7:00 a.m. adjusted upward by 10 dB to account for peoples’ heightened sensitivity to nighttime noise. The DNL is the method of choice for the production of noise contour maps.

Noise Impact Criteria

The Federal Noise Control Act of 1972 (NCA) states, “Congress declares that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare.” In response to the NCA, many federal and local noise ordinances and guidelines were enacted to address noise impacts. The NCA declares that military installations are subject to state and local noise laws to the same degree as any person.

Per Army policy, a daytime L_{eq} below 65 and a nighttime L_{eq} below 55 are acceptable for all types of noise-sensitive land uses, including homes, schools, and churches (U.S. Army 2007a). This policy applies to noise from aircraft, highways, generators, or any other continuous noise source.

Local regulations apply to nonmilitary noise generation in the areas in and around RBAAP. Title IX, Chapter 93 of the City of Riverbank Code of Ordinances sets numerical noise level standards, as outlined in Table 4.5-1. For the purposes of the city standards, noise levels are to be measured at the property line of the affected property.

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Table 4.5-1 City of Riverbank Exterior Noise Level Standards

Time Period	Allowable L_{eq}	Allowable L_{max}
7 a.m. – 10 p.m.	50 dBA	70 dBA
10 p.m. – 7 a.m.	45 dBA	65 dBA

Source: City of Riverbank 2006

Noise sources associated with construction activities, which are generally short-term in nature, are exempted from the city's noise ordinance, provided such activities do not take place between 6:30 p.m. and 6:00 a.m. on weekdays or between 5:00 p.m. and 8:00 a.m. on weekends and legal holidays.

The City of Riverbank General Plan (2005-2025 Update) provides guidelines for noise for new development projects (City of Riverbank 2008a). The noise level performance standards for new projects, as measured at outdoor activity areas of existing and planned noise-sensitive areas (including residential areas) are provided in the Table 4.5-2.

Table 4.5-2 City of Riverbank General Plan Noise Level Standards for New Projects

Time Period	Allowable L_{eq}	Allowable L_{max}
7 a.m. – 10 p.m.	60 dbA	75 dBA
10 p.m. – 7 a.m.	45 dBA	65 dBA

Source: City of Riverbank 2006

Per the General Plan noise level standards, in noise-sensitive (outdoor activity) areas where current existing exterior noise levels are already between 60 and 65 dB L_{eq} , an increase of 3 dB or greater requires mitigation to achieve allowable levels.

Vehicles associated with the RBAAP (especially heavy trucks) traveling on public roads can cause noise impacts at homes close to the roadway. The Federal Highway Administration (FHWA) regulates traffic noise impacts caused by vehicles on new federally funded roadway improvement projects near residential areas, but the proposed action would not require construction of new roadways near houses, so FHWA regulations would not apply.

The City of Riverbank General Plan also provides guidelines for noise generated by vehicles (transportation noise). Maximum allowable noise exposure levels from transportation sources are provided in Table 4.5-3.

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Table 4.5-3 City of Riverbank General Plan Maximum Allowable Noise Exposure from Transportation Noise Sources in Noise-Sensitive Areas

Land Use	Outdoor Activity Areas (dBA L _{dn})	Interior Spaces	
		dBA DNL	dBA Leq
Residential	60	45	
Transient Lodging	60	45	
Hospitals, Nursing Homes	60	45	
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	60	--	40
Office Buildings	--	--	45
Schools, Libraries, Museums	60	--	45
Playgrounds, Neighborhood Parks	70	--	--
Source: City of Riverbank 2006			

Per the General Plan noise level standards, in noise-sensitive (outdoor activity) areas where current existing exterior noise levels are already between 60 and 65 dB DNL, an increase of 3 dB DNL or greater requires mitigation to achieve allowable levels.

Existing Noise Environment

Existing noise-producing activities on the RBAAP Main Site (as shown in Table 4.5-4) include metal parts manufacturing and packing, industrial and manufacturing operations of site tenants, and on-road vehicles. For the most part, noise sources at RBAAP are fairly minor and/or buffered from residential and other areas surrounding the Main Plant area by undeveloped or agricultural land. Only minor sources of noise-producing activities occur at the E/P site (e.g., occasional traffic). Currently, there are no noise sources at the RBAAP Main Site or E/P ponds with a potential for community disturbance.

Table 4.5-4 Existing Noise-Producing Activities on RBAAP

Noise Source	Location	Hours of Operation	Noise Conditions
Industrial and Manufacturing Operations	Indoor manufacturing areas	Working hours	Not likely to impact off-site receptors. Employees are already required to wear hearing protection in loud manufacturing areas.
Facility vehicles on public roadways	Public roads serving the facility	Working hours	Noise impacts likely to be most notable during commute periods or when truck convoys pass through public neighborhoods.

There are no known noise studies, records of noise complaints, or noise-related plans for RBAAP (Kielhorn 2008). In the absence of specific noise measurements at RBAAP, the USEPA’s Guidelines for Noise Impacts (USEPA 1982) indicates that average DNL as estimated by population density should be used as a baseline. The existing DNL can be estimated by using the following equation:

DNL or L_{dn} = 10 log₁₀(p) + 22 (dB), where p is the number of people per square mile.

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The City of Riverbank is located within the Modesto Metropolitan Statistical Area (MSA). According to data from the U.S. Census Bureau's 2006 American Community Survey, the Modesto MSA has a population density of about 338 people per square mile. Using the equation above, the estimated baseline DNL for RBAAP may be approximated as 47 dB.

Comparison of the estimated DNL at RBAAP with the range of DNL values found across the U.S. demonstrates that noise levels at RBAAP currently fall within the normal range for a small town environment (comparison case studies provided by the USEPA are shown in Figure 4.5-1 [USEPA 1978]).

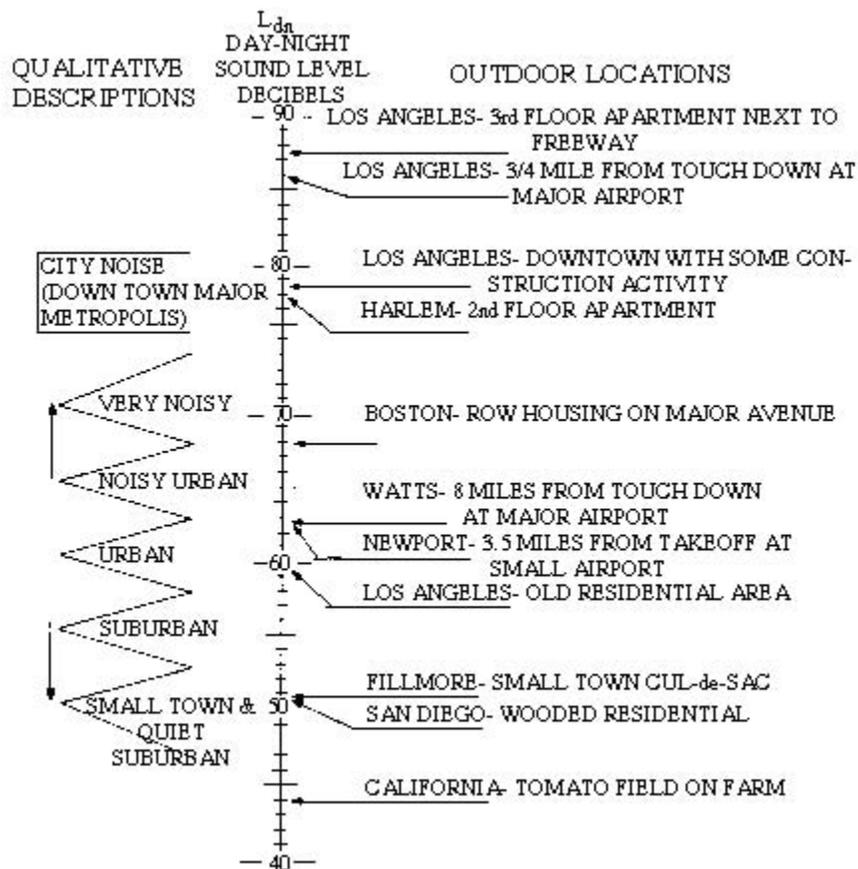


Figure 4.5-1 Outdoor Day-Night Sound Level in dB at Various Locations

Source: USEPA 1978

The Noise Technical Background Report (City of Riverbank 2006) for the City of Riverbank General Plan includes estimated traffic noise levels within the Riverbank city limits. The noise estimates in the report were made using the FHWA Highway Traffic Noise Prediction Model. DNL levels at 100 feet from the center line of the intersections of Claus Road with Claribel Road and Claus Road with Davis Road were estimated at 62

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and 61 dB, respectively. These intersections are adjacent to the southwest and west of RBAAP, respectively.

Sensitive Receptors

RBAAP is located within an existing developed area, and there are several sensitive receptors in the vicinity of the Main Site area and the E/P ponds. Sensitive receptors located within an approximate 1,000-foot radius of the Main Site include low- to medium-density residential areas, two churches, and several neighborhood parks (including ballparks). Sensitive receptors located within an approximate 1,000-foot radius of the E/P ponds include low-density/large lot residential areas and two parks. Riverbank High School is also located about 0.5 mile from the Main Site.

4.5.2 Consequences

4.5.2.1 Early Transfer Disposal Alternative

Direct. Moderate short-term and long-term adverse effects at the Main Site would be expected. In the short term, the early transfer alternative may involve disposal of RBAAP property as individual parcels over time and/or leasing actions on specific parcels, which may ultimately affect the manner in which lands are developed, including incremental changes in ownership and redevelopment intensity. As such, the manner in which the property is disposed of over time (i.e., as individual parcels, one parcel, leasing strategies, etc.) will principally affect the timing, duration, and short-term intensity of effects resulting from the transfer to nonfederal ownership and redevelopment. In the short term, nonfederal ownership will result in increased potential for construction and demolition activities, which may result in minor adverse noise effects. In particular, adverse impacts from demolition and construction activities to residential areas located near RBAAP would occur. In the long term, disposal of the RBAAP property would lead to new industrial and commercial tenants that may use noise-generating equipment (e.g., fans, conveyors, loading docks). Long-term noise-generating uses at the RBAAP property would likely be at least somewhat buffered from nearby residential uses by distance and barriers such as building walls. Disposal and redevelopment of the property would also ultimately result in an increase in traffic to the property and a greater number of visitors to the property, thus increasing noise levels in surrounding neighborhoods.

Indirect. No effects would be expected.

4.5.2.2 Traditional Disposal Alternative

Direct. Moderate short-term and long-term adverse effects would be expected. Effects similar to those described for the early transfer alternative would be expected to occur, but would occur further in the future.

Indirect. No effects would be expected.

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4.5.2.3 Caretaker Status Alternative

Direct. Minor beneficial effects would be expected. Under this alternative, activities would cease at RBAAP, thereby reducing noise generation at the installation property. Accordingly, noise levels for this alternative would be lower than those for existing conditions or for other disposal alternatives.

Indirect. No effects would be expected.

4.5.2.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC 2005 Commission's recommendations for closure. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.5.2.5 Intensity-Based Probable Use Scenario

Medium-High Intensity, Direct. Moderate short-term and long-term adverse effects would be expected. Increases in noise levels associated with demolition, site-clearing activities, and construction at the Main Site would be expected in the short-term. Residential areas to the west and south of the Main Site may be especially sensitive to construction noise.

Noise generated by long-term activities at the Main Site due to implementation of the MHIR scenario would be greater than existing conditions due to the addition of new industrial, retail, and office uses. The majority of these noise-generating activities would be expected to be contained within buildings, and adequate sound engineering of these buildings can be expected to minimize noise impacts to sensitive receptors in areas surrounding RBAAP. In addition, the RLRA proposes to maintain a 100-foot-wide open space buffer around much of the RBAAP property as part of redevelopment of the site, which will further screen noise sources at RBAAP from surrounding sensitive receptors (RLRA 2008).

Long-term increases in traffic noise due to increased intensity of use of the RBAAP property would be expected. The increase in traffic noise generated can be estimated from the following equation:

$$\text{Decibel increase} = 10 * \log_{10} (\text{Post-Project Traffic} / \text{Existing Traffic})$$

According to the Draft Environmental Impact Report (EIR) for the City of Riverbank's General Plan update (City of Riverbank 2008a), the existing daily volume of traffic along Claus Road between Davis Road and Claribel Road (adjacent to the Main Site to the west), is 10,217 trips. Using the above equation, an increase in traffic volume of approximately 10,170 trips would be needed to increase the noise level along this road above the 3 dBA threshold of significance for new projects set forth in the City of Riverbank General Plan. Medium-High intensity reuse of RBAAP would result in an estimated increase in employees from about 300 to about 1,100. The additional traffic

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volume represented by these additional 800 employees, added to likely customers' trips to the limited amount of new retail space proposed in the Reuse Plan, is highly unlikely to reach 10,170 additional trips per day. Therefore, increases in traffic noise levels under the MIR scenario are highly unlikely to exceed the City of Riverbank's 3 dBA threshold and are likely to be minor in nature.

Medium-High Intensity, Indirect. Minor long-term adverse impacts would be expected from noise impacts to residential areas located along public roads serving the RBAAP property, due to increases in employment and corresponding commute traffic and delivery trucks associated with redevelopment. Furthermore, redevelopment of the property may spur economic growth in the area, possibly resulting in increased traffic noise along existing roadways.

Medium Intensity, Direct. Moderate short-term and long-term adverse effects would be expected. Effects similar to those described in the MHIR scenario would be expected to occur, but to a lesser degree due to the lower level of development.

Medium Intensity, Indirect. Minor adverse impacts would be expected. Effects similar to those described in the MHIR scenario would be expected to occur, but to a lesser degree.

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4.6 GEOLOGY AND SOILS

This section describes the geologic setting and soils at RBAAP. The ROI for soils and geology includes the installation property, geologic formations underlying these areas, and adjacent land.

4.6.1 Affected Environment

4.6.1.1 Physiography and Topography

RBAAP lies in the San Joaquin Valley portion of the Great Valley geomorphic province, which is an alluvial plain about 50 miles wide and 400 miles long in the central part of California. The Great Valley is a trough in which sediments have been deposited almost continuously since the Jurassic period, about 160 million years ago.

The topography of RBAAP and the surrounding area is characterized by featureless, flat valley land. The terrain within the RBAAP Main Site and the E/P ponds slopes southwestward at a rate of 25 feet per mile. The average elevation at RBAAP is 135 feet amsl (California Department of Conservation [CA DoC] 2006).

4.6.1.2 Structure and Subsurface Strata

Subsurface geology at the RBAAP Main Site consists of unconsolidated Pleistocene nonmarine sedimentary deposits, locally called the Riverbank Formation, and Aromas Red Sands, consisting of gray to brown and yellow to red sands that are cross-bedded. These sands are also locally pebbly, with minor percentages of clay and silt (U.S. Army 2006a).

The fluvial depositional environment has resulted in the deposition of hundreds of feet of interlayered sands, clays, and gravels. Locally, substantial clay layers have been observed in the subsurface. Substantial relatively continuous clay strata are present at elevation intervals of approximately 100 to 110 feet, 70 to 80 feet, and 10 to 40 feet (U.S. Army 2006a).

Subsurface geology at the E/P ponds is characterized by sands and silty sands. Groundwater flow at the Main Site and in the vicinity of the E/P ponds is predominantly west (U.S. Army 2006a).

Five subsurface aquifer zones have been identified, based on depth and stratigraphy, at the Main Site. These are summarized as follows:

A – An unsaturated upper sand zone; average depth from 29 to 60 feet bgs (below ground surface);

A' – A partially to fully saturated, well-graded silty sand; average depth from 60 to 90 feet bgs; approximately 30 feet thick;

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B – Saturated, semi-continuous sand units interbedded with thin silt and clay layers; average depth from 90 to 120 feet bgs; approximately 30 feet thick;

C – Saturated sand zone; average depth from 120 to 150 feet bgs; approximately 30 feet thick; and

D – Saturated coarse sand and gravel with volcanic material; between 150 and 220 feet bgs; approximately 70 feet thick.

The aquifer zones defined above are not hydraulically independent. The presence of discontinuous fine-grained sediment layers creates a complex flow pattern in the subsurface. Aquifer testing indicates a high degree of interaction between the A', B, and C aquifer zones (U.S. Army 2006a).

4.6.1.3 Soils

The San Joaquin-Madera Association comprises the soils at the RBAAP Main Site. The San Joaquin Series is composed of moderately coarse, well-drained soils with silica-iron hardpans. The color of the soils is reddish-brown to brown, and the soils are slightly to moderately acidic. Resting on the indurated hardpan at a depth between 41 and 76 cm is the red to reddish-brown clayey subsoil.

The Madera Series is composed of medium to moderately coarse, well-drained soils with hardpans. The surface soil is usually neutral to brown loam or sandy loam, whereas the subsoil is reddish-brown to brown sandy clay and is underlain by indurated hardpan (iron and silica with seams of lime). The material underlying the hardpan is compact, stratified sandy loam that is weakly cemented in spots (U.S. Army 2006a).

The Grangeville Series comprises the soils in the area of the E/P ponds. The Grangeville Series is composed of very fine sandy loams with 0 to 1 percent slopes (U.S. Department of Agriculture 2006).

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4.6.1.4 Farmland Soil

Because of the various soil types that occur on the Main Site and the E/P ponds, it is important to consider the potential impact of development on the ability of the soils to support continued agriculture and forestry uses. Prime farmland soils are protected under the Farmland Protection Policy Act (FPPA) of 1981.⁷ The implementing procedures of the FPPA and Natural Resource Conservation Service (NRCS) require federal agencies to evaluate the adverse effects (direct and indirect) of their activities on prime or unique farmland (by preparing the Farmland Conversion Impact Rating Form AD 1006), as well as farmland of statewide and local importance, and to consider alternative actions that could avoid adverse effects. The Army is not required to evaluate the RBAAP property for Prime Farmland status because land withdrawn from farmland inventory for military or national defense purposes is not subject to considerations related to farmland conversion.

4.6.1.5 Seismic Activity

The U.S. Geological Survey (USGS) probabilistic seismic hazard analysis model indicates that the area surrounding RBAAP has a 90 percent probability of an earthquake of a magnitude greater than 5.0 in the next 100 years and a 70 percent probability of an earthquake of a magnitude greater than 5.0 in the next 50 years. RBAAP is located in an area of relatively frequent earthquakes. The USGS Earthquake Database lists earthquakes occurring within 50 km of RBAAP, including earthquakes that occurred in 1866, 1932, 1943, 1944, 1945, 1946, 1948, 1949, 1950, 1951, 1952, 1954, 1955, 1957, 1958, 1959, 1960, 1961, 1963, 1966, 1971, 1973, 1974, 1976, 1977, 1987, 1990, 1991, 1994, 1996, and 2002. The greatest magnitude earthquake occurring within 50 km of RBAAP occurred in 1866 and had an epicenter approximately 40 km from RBAAP and a magnitude of 5.80. The greatest-magnitude earthquake occurring within 50 km of RBAAP since 1866 occurred in 1994 and had a magnitude of 4.1. This earthquake was also epicentered approximately 40 km from RBAAP (USGS 2006).

4.6.2 Consequences

4.6.2.1 Early Transfer Disposal Alternative

Direct. Minor short-term and long-term adverse effects would be expected. Disposal of RBAAP would result in nonfederal ownership, potentially reducing emphasis on natural resource management and conservation currently governed by installation practices as well as Army policies and regulations.

Indirect. Minor short-term and long-term beneficial and adverse effects would be expected. Minor beneficial effects associated with nonfederal control may result from renovation and upgrading of facilities to improved designs that minimize storm water runoff and other adverse effects to soil. On the other hand, long-term minor adverse effects would also be expected, as disposal will likely lead to enhanced demolition,

⁷ 7 CFR Part 658; The NRCS Final Rule, Farmland Policy, July 5, 1984; proposed revisions published on January 8, 1987.

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construction, and/or site clearing activities that could result in localized increases in erosion. If adequate erosion and sediment control practices (Storm Water Pollution Prevention Plans [SWPPP] and Best Management Practices [BMP], as described in Section 4.15) are employed during construction, demolition, and renovation activities, then adverse effects could be minimized.

4.6.2.2 Traditional Disposal Alternative

Direct. Minor short-term and long-term adverse effects would be expected, similar to the effects outlined for early transfer but occurring further in the future.

Indirect. Minor short-term and long-term beneficial and adverse effects would be expected, similar to the effects outlined for early transfer but occurring further in the future.

4.6.2.3 Caretaker Status Alternative

Direct. Minor adverse effects would be expected. Under the caretaker status alternative, current natural resource management programs and objectives would not be continued. This could result in lower levels of vegetative and erosion controls that benefit geologic and soil resources.

Indirect. Minor long-term beneficial effects would be expected. Military missions would cease and future construction and ground-disturbing activities that would have occurred would not be implemented. Land use intensity would be below levels assumed under current conditions, thereby resulting in long-term minor benefits to geologic and soil resources.

4.6.2.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC Commission's recommendations for closure and realignment. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.6.2.5 Intensity-Based Probable Use Scenario

Medium-High Intensity, Direct. Minor short-term and long-term beneficial and adverse effects would be expected. Redevelopment of the RBAAP site may accelerate ongoing remediation efforts and upgrade storm water systems and other infrastructure, which would have beneficial effects on soils.

Building demolition and construction activities involving vegetation clearing and soil excavation, grading, and removal could result in short-term and long-term minor adverse effects to soils, including increased erosion. Additional land would be disturbed at the Main Site by the construction of new buildings, roads, parking areas, walkways, and other infrastructure. Construction activities would require standard erosion and sediment control measures, standard engineering practices, and storm water control measures that are

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designed to minimize the loss of soils from erosion. The application of BMPs and the implementation of a SWPPP to reduce erosion during demolition and construction activities will reduce adverse effects to geologic and soil resources.

The process of excavating soils may result in a loss of soil structure and a mixing of soil layers. While these soils are often placed back into the excavated areas, the mixing of the soils results in a long-term loss of productivity and presents the potential for erosion until vegetation is reestablished.

Long-term direct adverse effects on soils also would be expected when soils are covered with impervious surfaces. The MHIR scenario would result in the construction of up to about one million additional square feet of building space at the Main Site, potentially resulting in a much greater total area of impervious surface. Construction at the Main Site will be governed by state and local regulations that require low-impact design and other measures that address potential operational impacts associated with storm water runoff.

Medium-High Intensity, Indirect. Long-term minor adverse effects may occur. Redevelopment has the potential to lead to economic expansion in the region, resulting in construction and site clearing activities that may cause localized increases in erosion. If adequate erosion and sediment control practices are employed during construction, demolition, and renovation, then adverse effects could be minimized.

Medium Intensity, Direct. Short-term and long-term minor beneficial and adverse effects would be expected. Effects would be similar to those described under the MHIR scenario but would be lesser in degree due to the lower level of development.

Medium Intensity, Indirect. Long-term minor adverse effects may occur. Effects would be similar to those described under the MHIR scenario, but would be lesser in degree due to the lower level of development.

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4.7 WATER RESOURCES

4.7.1 Affected Environment

This section describes surface water, watersheds and drainage, groundwater hydrology and quality, floodplains, storm water systems, and water usage on the 173 acres of RBAAP, including 27 acres of E/P ponds located approximately 1.5 miles north of the RBAAP Main Site and adjacent to the Stanislaus River. Point and nonpoint sources of pollution at the installation are discussed briefly in this section, with further information in Section 4.13, Hazardous and Toxic Substances.

The ROI for the water resources affected environment comprises the area of the RBAAP Main Site and the E/P ponds, as well as an area within a radius of 0.5 mile of RBAAP and the E/P ponds. The ROI is prescribed within this area because the flat topography of the area precludes major overland flows to or from the site, and impacts to water resources at the site or in areas adjacent to the site are likely to be confined to this area. The underlying groundwater to which surface waters may percolate moves very slowly, generally less than 0.1 mile/year (U.S. Army 2006a).

4.7.1.1 Surface Water and Drainage

RBAAP is located in the San Joaquin Valley, the southern portion of northern California's Great Central Valley, in the center of the 1,800 square-mile Middle San Joaquin-Lower Merced-Lower Stanislaus River Watershed (Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005).

4.7.1.2 Climate and Rainfall

The climate in Riverbank is warm and generally dry. The rainy season extends from December to April, with a distinct dry season from May to October. The annual average rainfall is about 11 inches, with monthly averages ranging from 0.05 inch in July and August to 2.8 inches in January. Historical records from the Modesto Irrigation District (MID) show 1912–13 as the lowest rainfall year, with only 4.30 inches, and 1982–83 as the highest rainfall year, with 26.01 inches (MID n.d.).

Winter air temperatures are mild, with a January average minimum temperature of 34 degrees Fahrenheit (°F) (1.1 degrees Celsius [°C]) and a 17-year record minimum of 15°F (-9.4 °C). Summer air temperatures are very warm, with the highest monthly average maximum of 96°F (35.6°C), and the 17-year record high temperature of 110°F (43°C) (U.S. Army 2006a).

4.7.1.3 Watershed Characteristics

RBAAP lies generally within the San Joaquin River watershed, and specifically within the North Stanislaus minor subarea of the East Valley Floor Subarea of the Lower San Joaquin River Watershed. The North Stanislaus minor subarea drains approximately 68 square miles of land between the Stanislaus and Tuolumne River watersheds just above

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where they join the San Joaquin River (California Regional Water Quality Control Board, Central Valley Region [CVRWQCB] 2007).

The land in the ROI is generally flat, sloping slightly to the west. Precipitation in the area generally percolates through the soil and recharges groundwater. Unusually heavy rains may generate some overland flows that move generally west and southwest until settling into a localized depression or encountering a waterway (Oakdale Irrigation District [OID] 2005). Intentional discharges to irrigation canals require permission from the local irrigation district, and landowners within irrigation districts may be required to manage runoff to canals (OID 2002). Groundwater level contours mapped by the California Department of Water Resources over 50 years suggest that groundwater in the region discharges into the San Joaquin and Tuolumne Rivers, making them gaining rivers along most reaches. The relationship of the Stanislaus River to local groundwater has been less clearly defined, but it is likely that the Stanislaus is both a gaining and a losing river along different reaches and at different times of year (Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005).

4.7.1.4 Floodplains

In the realignment and disposal of DoD real property, the responsibility to protect sensitive resources is mandated by several statutes. Executive Order 11988, Floodplain Management, was established in 1973 to avoid, to the extent possible, the adverse impacts associated with the occupancy and modification of floodplains. This EO includes a provision such that each federal agency that acquires, manages, or disposes of federal lands and facilities is required to “reduce the risk of flood loss” and to “minimize the impact of floods on human safety, health and welfare,” among other responsibilities. Each agency has a responsibility to evaluate the potential effects such actions may have in a floodplain, according to this EO.

The RBAAP Main Site is not located in a 100-year floodplain, but the E/P ponds are located in the 100-year floodplain of the Stanislaus River (U.S. Army 2006a). Upstream of the City of Riverbank and the E/P ponds, the Stanislaus River is controlled by a series of impoundments and reservoirs, which provide water storage, flow control, and power generation. Approximately 22 miles upstream of the City of Riverbank on the Stanislaus River is the Goodwin Dam, which is operated by the Oakdale Irrigation District (OID). This dam has a capacity of 506 acre-feet and diverts water for irrigation. Another mile and a half upstream, Tulloch Dam, operated by the Tri-Dam Project and partly managed by OID, impounds about 56,000 acre-feet of water in Tulloch Reservoir. This reregulating reservoir provides storage for power releases from New Melones Dam (OID 2005), which is 11 miles further upstream. New Melones Dam, which impounds 2.4 million acre-feet of water in the New Melones Reservoir, was built in the 1970s for flood control, water conservation, and power generation (United States Department of the Interior Bureau of Reclamation [USBR] n.d.). The seismic conditions of the area around these dams is such that the probability of flooding at RBAAP from an upstream dam breach caused by a seismic event is fairly low (USBR 2002). Estimates by USGS include a 30 percent probability of a magnitude 5 earthquake in the next 70 years in the area around the dams

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(USGS 2002). See Section 4.6, Geology and Soils, for further discussion of earthquake risks.

Another dam in the area that is not located on the Stanislaus River is Woodward Dam, which is located about 8.5 miles to the northeast of Riverbank and impounds water for the South San Joaquin Irrigation District. The outflow for this dam is to the northwest, directly away from Riverbank (CVRWQCB 2004). Modesto Reservoir, operated by the MID, lies approximately 15 miles to the southeast of Riverbank and holds irrigation water (MID n.d.).

4.7.1.5 On-site Water

There are no naturally occurring streams or bodies of water on the RBAAP Main Site. The Stanislaus River, a tributary of the San Joaquin River, flows adjacent to the E/P ponds and is the closest naturally occurring large surface water body in the area. Some wetlands may exist in the irrigated pasture and marsh areas at the Main Site, as well as in and around the storm reservoirs at the site, although a formal wetlands delineation has not been performed for these areas. A wetland area that parallels the Stanislaus River and encompasses the western portion of the E/P ponds has been mapped by the National Wetland Inventory (City of Riverbank 2006). Refer to Section 4.8, Biological Resources, for further information about wetlands at the Main Site and E/P ponds. Man-made water bodies or structures at RBAAP include:

- The E/P ponds;
- The storm reservoir system for site drainage (Southeast and Northwest Storm Reservoirs);
- The OID canal; and
- The Hetch Hetchy aqueduct.

E/P Ponds

The E/P ponds are located immediately adjacent to, and hydraulically connected to, the Stanislaus River, within the 100-year floodplain as mapped by the Federal Emergency Management Agency (FEMA) (RBAAP 2002, CVRWQCB 2001). The ponds were constructed in 1952 for the disposal of treated effluent from the IWTP. The river adjacent to the ponds supports populations of warm-water fish, including largemouth and smallmouth bass, white and channel catfish, black and white crappie, bluegill, and rock bass. Salmon and steelhead species migrating from the Sacramento-San Joaquin Delta pass through the river on their way upstream to spawn (RBAAP 2002). A geological cross section of the unlined E/P ponds reveals the first 10 feet below the ground surface of the ponds to be predominately silts and clays with pockets of sand and silty sands. From 10 to 20 feet bgs are predominately sands and silty sands (U.S. Army 2006a).

The E/P ponds were not designed to outflow to the Stanislaus River. Disposal of wastewater at the ponds takes place entirely through evaporation and percolation (RBAAP 2002). There are no authorized inflows to the E/P ponds other than those

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generated by activities on the RBAAP Main Site. Possible impacts to soil or water quality at the ponds include the effects of four nearby businesses with underground storage tanks (UST) or other hazardous materials, but all four sites are downgradient or cross-gradient from the ponds and are considered to have low potential to impact the ponds (U.S. Army 2006a). Illegal dumping into or near the ponds has taken place in the past, most notably from four properties adjacent to the ponds on the east side (Wendt 2008). The property owners responsible for this dumping have been notified to desist. Refer to Section 4.13, Hazardous and Toxic Substances, for further information.

The E/P ponds comprise four ponds separated by berms. The berm height was raised in 1972 to increase the capacity of the ponds. Effluent to the ponds was originally only generated from the operation of the IWTP but now also includes effluent from the GWTP. The treated effluent from the IWTP and GWTP is discharged through a force main to a point where it travels by gravity through a 21-inch vitreous clay pipe for approximately 1.5 miles prior to emptying into the ponds. The effluent is then progressively distributed to the four ponds, which are operated independently based on the volume of flow that requires containment. The flow is diverted into a second pond once the first becomes full, and so forth. The effluent discharged to the ponds evaporates or percolates through the existing sediments to the groundwater. Data gathered from the five wells installed to monitor groundwater around the E/P ponds indicate that groundwater consistently flows southwesterly toward the river (RBAAP 2002, CVRWQCB 2001).

Prior to 1972, metals in the wastewater from industrial processes at the Main Site precipitated out as metal hydroxides that were eventually washed into the E/P ponds and concentrated in the upper layers of soil at the bottom of the ponds. Prior to 1978, when a batch chromium treatment system was installed, chromium wastes received no special disposal treatment and were sent with other wastewater from the IWTP to the ponds (RBAAP 2002). In 1981, analysis of pond soils found levels of zinc and chromium that exceeded California Total Threshold Limit Concentrations (TTLC) for all four of the ponds (U.S. Army 1980, U.S. Army 1981). A survey completed in October 1986 concluded that the E/P ponds were not a source of groundwater contamination (RBAAP 2005); however, extensive characterization work conducted at the ponds during the Remedial Investigation (RI) found that the sediments in Pond 3 contained levels of zinc that exceeded the TTLC value of 5,000 mg/kg, thus classifying the pond sediments as a hazardous waste (RBAAP 2002). A zinc removal action was carried out at the E/P ponds between September and December 1993. Confirmatory sampling activities, conducted during the removal process, indicated that remaining soils did not exceed criteria. Under oversight of the regulatory agencies, the Army also excavated a few limited areas of total petroleum hydrocarbon contamination and disposed of the soil along with the zinc-contaminated soils. The Record of Decision (ROD) issued 24 March 1994, documented this removal action in detail and concluded that no further action was necessary at the ponds (RBAAP 1996, RBAAP 2002).

In 1994, the CVRWQCB issued Waste Discharge Requirements (WDR) for discharges from RBAAP to the E/P ponds.

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Industrial Wastewater Treatment Plant treatment processes for wastewater generated by RBAAP operation currently include coagulation, flocculation, clarification, sludge thickening, and sludge/liquid separation, after which treated effluent is discharged to the E/P ponds. Current production activities at RBAAP are not continuous, but tend to average less than 500 gallons per day of wastewater when the plant is active (RBAAP 2002).

Treated groundwater from GWTP is also sent to the E/P ponds, the volume of treated effluent averaging about 250,000 gallons/day as of 2002 (RBAAP 2002). See Section 4.13, Hazardous and Toxic Substances, for detailed information on treatment of groundwater. Discharge of treated groundwater effluent to the E/P ponds is performed in accordance with updated WDRs issued by the RWQCB, on 27 July 2001 (RBAAP 2002).

Storm Reservoir System for Site Drainage

RBAAP holds a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharges. Storm water runoff at the Main Site is diverted to a drainage system that collects water into the Southeast and Northwest Storm Reservoirs, two large evaporatory storm reservoirs. The Southeast Storm Reservoir, with a capacity of about 400,000 gallons, receives runoff from the southeastern part of the Main Site, and the collected storm water is then pumped to the Northwest Storm Reservoir (U.S. Army 2006a). The Northwest Storm Reservoir has a capacity of 2.5 million gallons and receives storm water runoff from most of the Main Site property as well as from the Southeast Storm Reservoir. If the storm water reservoirs and the storm drain system were dry, the system could hold a 24-hour rainfall event of about 1.78 inches. If the main storm water reservoir exceeds the maximum capacity, the excess rainwater would flow into the OID canal. While flooding events have occurred in the past after heavy rainfall, the probability of a 24-hour rainfall event at 2.00 inches is low (U.S. Army 2006a).

RBAAP has a storm water sump that allows storm water or any contaminant spill to be diverted to the IWTP and then to the E/P ponds. In Phase I of the Remedial Investigation (RI) performed in 2005, the sediments in the Northwest Reservoir were found to have elevated levels of chromium; however, the reservoir was not considered a source of groundwater contamination based on California's Designated Level Methodology, which models the potential impact of contaminated soils on groundwater. A cross connection discovered between the industrial sewer system and the storm water sewer system was a possible source of the contamination and was repaired. Soil samples taken at the Southeast Reservoir in 2003 showed PCB concentrations above preliminary remediation goals. In 2004, approximately 15 cubic yards were excavated from the Southeast Reservoir and disposed of off-site. Subsequent sampling showed no contamination, and no further action was recommended (U.S. Army 2006a).

The OID Canal

The OID Canal traverses the site, running adjacent to the Northwest Storm Reservoir. Under WDRs issued in 1994, limited amounts of effluent from RBAAP's IWTP can be discharged to the OID. Updated WDRs issued by the CVRWQCB on 27 July 2001 no

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longer permit effluent discharges to the OID canal (RBAAP 2002, CVRWQCB 2001). However, storm water overflow from the Northwest Reservoir can drain into the OID Canal, which then discharges to the Stanislaus River (U.S. Army 2006a).

The Hetch Hetchy Aqueduct

The Hetch Hetchy Aqueduct traverses the northern part of the main plant area in an underground pipe. The San Francisco Public Utility Commission holds a rent-free easement for the aqueduct, which carries water to San Francisco (U.S. Army 2006a).

4.7.1.6 Water Usage

RBAAP operates a nontransient, noncommunity water system that provides potable water for the facilities at the Main Site. The water is obtained from three wells located on the plant property that can cumulatively produce over 2,600 gallons per minute (U.S. Army 2006a). See Section 4.12, Utilities, for further information about these wells and for information about wastewater and wastewater treatment.

4.7.1.7 Groundwater Resources and Quality

RBAAP lies in the Modesto Subbasin of the San Joaquin Valley Groundwater Basin. The Modesto Subbasin, or Modesto Basin (Basin), has a surface area of 247,000 acres and is bounded on the north by the Stanislaus River, on the west by the San Joaquin River, on the south by the Tuolumne River, and on the east by the crystalline basement rock of the Sierra Nevada foothills, where the Stanislaus-Tuolumne County line is located. The Basin encompasses all of the MID and about half of the OID. RBAAP lies within both the MID and OID (Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005).

Hydrogeology

The Modesto Subbasin is located in the northern portion of the San Joaquin Valley. Soils in the San Joaquin Valley are composed of a base of marine sediments deposited during periodic inundation by the Pacific Ocean, interleaved with continental sediments deposited from erosion of the surrounding mountains. The sediments are coarser-grained in the eastern part of the subbasin and more fine-grained to the west (Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005). Refer to Section 4.6, Geology and Soils, for a more detailed description of the underlying geology.

The entire Subbasin is underlain by saline water, although groundwater in the upper 800 feet of sediment is potable and suitable for agricultural purposes. The Lone and Valley Springs Formations at the lower extent of this zone are exposed at the eastern end of the Modesto Basin but tilt down sharply toward the west, occurring very far underground in the ROI. These formations are composed of light-colored consolidated sediments that hold and transmit little water. The Mehrten Formation that overlies these formations, however, is dark-colored andesite (identified by well drillers as “black sand”), and is capable of transmitting large quantities of groundwater. The Mehrten Formation occurs at the surface at its eastern extent and then tilts downward toward the west. The upper boundary of the Mehrten Formation is irregular, with subsurface valleys and hills, making

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it difficult to predict at what depth Mehrten Formation groundwater may be encountered in a given area (Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005).

The Corcoran clay extends across the western end of the Basin at a depth of about 200 feet bgs and is 20 to 60 feet thick, though it may be locally eroded. Some smaller, discontinuous clay layers may also be present in near-surface sediments. These clay layers perch percolating water and may cause some of the high groundwater conditions that trouble agriculture in the western part of the basin. The MID operates water level control wells to maintain groundwater levels below crop root zones so that roots may be properly aerated and so that naturally occurring salts can leach out of the root zone, preventing damage to crops (Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005).

Groundwater Flow

Groundwater in the Subbasin flows generally west and southwest. There is local variability in flow direction partly as a result of groundwater pumping from wells, as well as variability over time, as shown in historic groundwater contour maps dating back to 1958 (California Department of Water Resources 2003, Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005). Groundwater below RBAAP occurs at about 80 feet bgs and flows almost due west at a rate of 38 to 550 feet per year (U.S. Army 2006a). No earthquake faults have been identified in the ROI that would affect the movement of groundwater (CA DWR 2003). For further information regarding groundwater and aquifers underlying the RBAAP property, see Section 4.6, Geology and Soils.

Groundwater Usage

Groundwater is a major source of water for Stanislaus County and is the sole source of water for RBAAP. The City of Riverbank gets all of its drinking water from seven wells located in the city, which supply more than 4,000 acre-feet per year (City of Riverbank 2006; Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005). The City of Modesto gets 60 percent of its water supply, an annual average of 45,300 acre-feet, from city-owned and operated wells, with the remainder coming from treated surface water supplied through the MID. The MID operates 44 irrigation wells and 55 water table control wells that help keep groundwater levels below the plant root zone, though this function has become less necessary in recent years. The OI operates 22 deep wells, producing about 6,300 acre-feet per year and 43 drainage and reclamation wells, which discharge about 13,000 acre-feet per year (Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005).

4.7.1.8 Water Quality

Regulatory Environment

RBAAP holds a drinking water permit from the California Department of Public Health, Drinking Water and Environmental Management, which certifies drinking water treatment and distribution operators. RBAAP also holds a wastewater discharge permit from the City

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of Riverbank for the discharge of sanitary sewage. Industrial wastewater discharge from RBAAP's on-site IWTP is regulated via WDRs issued by CVRWQCB. Nonpoint source (storm water) runoff is regulated by Phase I of the CVRWQCB's Storm Water program, which includes storm water discharges associated with "industrial" activities (CVRWQCB 2007) and is permitted under a NPDES permit. Refer to Section 4.12, Utilities, and Section 4.13, Hazardous and Toxic Substances, for further information about these permits.

Surface Water Quality

USEPA lists the reach of the Stanislaus River near Riverbank as impaired because it exceeds MCLs for Diazinon, Group A pesticides, and mercury (USEPA 2002).

Groundwater Quality

Groundwater in the basin is generally of good quality; however, groundwater in the local area is affected by some problem constituents, including total dissolved solids (TDS), nitrates, radionuclides, dibromochloropropane (DBCP) and VOC, as well as gasoline and solvents (Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005). TDS concentrations in most wells in the forebay aquifers are low, and the water is suitable for potable or agricultural use. Results of testing shallow groundwater in some wells show salinity levels higher than typical for the shallow aquifer, indicating that the deep aquifer may be a source of higher salinity water. Nitrate levels have historically been below maximum contaminant levels (MCL), but some areas of the shallow aquifer and forebay aquifers have recently begun to exceed nitrate MCLs, a possible source being wastewater disposal. DBCP, a pesticide usually associated with vineyards or orchards, was banned in 1977; however, it continues to be detected sporadically in wells scattered across the Subbasin. VOCs are present in groundwater near Modesto as a result of industrial activities, and VOC contamination has required the closure of some wells and necessitated water treatment in others. Most VOC contamination is in the shallow aquifer, but pumping from below this aquifer could pull contaminants into the deep aquifer (Stanislaus and Tuolumne Rivers Groundwater Basin Association 2005).

In addition, some areas of groundwater at RBAAP are likewise affected by some problem constituents. Groundwater contamination at RBAAP is monitored and treated through the onsite groundwater treatment plant. For further information regarding water and groundwater quality at RBAAP, refer to Section 4.13, Hazardous and Toxic Substances, and Section 4.12, Utilities.

4.7.2 Consequences

4.7.2.1 Early Transfer Disposal Alternative

Direct. Minor short- and long-term adverse effects would be expected. Disposal of RBAAP would result in nonfederal ownership and reduced regulatory controls for the protection of natural resources. Thus, water resources would not benefit from Army programs and policies set forth to protect these resources. Such adverse effects would be

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relatively minor, however, because remedial activities and water resource protection would continue per state and federal requirements. In the long term, further development, construction activities, and increases in impervious surface may adversely affect water quality.

Indirect. Minor short- and long-term adverse and beneficial effects may occur. Under nonfederal ownership, additional resources may be available to accelerate efforts to renovate and remove debris, buildings, and subsurface pipe networks, which may provide an indirect long-term benefit to water quality. However, in the short and long term, minor adverse effects could occur from demolition and site-clearing activities that would result in increased erosion and nonpoint source loadings from runoff to surface water bodies. These impacts would be minor because erosion and sediment control and other BMPs would be employed during construction, demolition, and other site-clearing activities.

4.7.2.2 Traditional Disposal Alternative

Direct. Minor short- and long-term adverse effects would be expected, similar to the effects outlined for early transfer.

Indirect. Minor short- and long-term adverse and beneficial effects would be expected. As compared to early transfer disposal, remedial programs and redevelopment may occur over a longer period, but the effects would be similar.

4.7.2.3 Caretaker Status Alternative

Direct. Minor short- and long-term beneficial and adverse effects would be expected. Under caretaker status, activities such as natural resources management would be reduced greatly or would not take place. Caretaker activities would involve fewer vehicles, which are potential sources of contaminants such as lubricants, coolants, and fuels that could be transported by storm water runoff. Likewise, caretaker activities would involve less use of fertilizers, fuels, pesticides, and herbicides and reduced warehouse and shop activities, which would also contribute to a reduction in storm water contaminant loads.

Indirect. Long-term minor beneficial effects would be expected. Cartridge case production and associated activities would cease, and new construction and ground disturbing activities would be greatly reduced. Reduced intensity of land use would result in fewer inputs to surface water, as compared to operational conditions in November 2005.

4.7.2.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC Commission's recommendations for realignment and closure, including implementation of remedial programs required under CERCLA. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

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4.7.2.5 Intensity-Based Probable Use Scenario

Medium-High Intensity, Direct. Short- and long-term minor adverse effects are expected. Construction resulting from implementation of the MHIR scenario would increase the area of impervious surfaces such as those associated with new buildings, parking lots, loading docks, roads, and walkways. Increased impervious surface area would result in increased storm water runoff, and therefore greater inputs of potential contaminants and sediments into surface water and ultimately groundwater, thus potentially adversely affecting water quality to a minor extent. Construction of storm water management systems would help reduce effects associated with storm water runoff from impervious surfaces.

The MHIR scenario at full build-out would also result in an increase in both passenger vehicles and other vehicles associated with commercial and industrial activities on-site, which would increase the amount of contaminants such as lubricants, coolants, and fuels that may be transported to the waterways over the same roadways and parking areas that are constructed for their benefit. BMPs employed during site construction and operation of new facilities at the RBAAP property, such as construction of suitable drainage and storm water treatment structures, or business practices to prevent discharge of oil and other chemicals into storm drains, would be implemented for the MHIR scenario, and would reduce the potential level of effect overall to a minor one.

No adverse impacts to the Stanislaus River are expected, because the proposed reuse does not include any development or other changed conditions relative to this area. In addition, adverse effects related to flooding would not be expected, because no construction is planned for the area of the E/P ponds within the 100-year floodplain (and no floodplains are located at the Main Site).

Water consumption and wastewater infrastructure issues are discussed in Section 4.12, Utilities.

Medium-High Intensity, Indirect. Minor adverse effects would be expected. Economic market forces generated by reuse would increase further infrastructure and development outside of the installation property, thereby adding to the level of impervious surface within the watershed, but not to an extent that cannot be addressed by existing City of Riverbank and CVRWQCB regulations, codes, and policies addressing storm water impacts from new construction.

Medium Intensity, Direct. Short- and long-term minor adverse effects would be expected. Effects similar to those discussed under MHIR would be expected to occur, but to a lesser degree.

Medium Intensity, Indirect. Long-term minor adverse effects would be expected. Effects similar to those described under the MHIR scenario would be expected to occur, but to a lesser degree.

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4.8 BIOLOGICAL RESOURCES

4.8.1 Affected Environment

Information in this section is largely based on the results of a reconnaissance-level biological resource study conducted in October 2007 at the RBAAP property, reported in the *Results of a Biological Resource Study at the Riverbank Ammunition Plant and Wastewater Treatment Ponds, Stanislaus County, California* report (Jones & Stokes 2007), except where noted.

The City of Riverbank and adjacent areas are located in the Manteca-Merced Alluvium subregion of the Great Valley ecological section (USFS 2008). This subsection consists of very gently to gently sloping floodplains and alluvial fans along and between streams that cross from the mountains of the Sierra to reach the San Joaquin River. The subsection elevation range is from 20 to about 180 feet amsl. Summers are hot and dry, and winters are mild. Average annual rainfall ranges between 5 and 25 inches.

Composition and successional sequence of some natural communities (especially grassland communities) in this section has changed because of plant and animal species introduced between the early 1800s and early 1900s related to grazing, agriculture, and urbanization. Much of the section has been converted to irrigated agriculture. In addition, flood control has decreased the duration and extent of wetlands. Rapidly expanding urbanized areas are scattered throughout the section. The area surrounding the RBAAP Main Site includes developed areas and pasture land used for grazing cattle. The area surrounding the E/P ponds includes residential development, farmland, and undeveloped riparian areas along the Stanislaus River.

4.8.1.1 Flora

4.8.1.1.1 Vegetative Community

Main Site

Most of the RBAAP Main Site has been developed. The areas that have not been developed are characterized by three vegetation types: ruderal grassland, irrigated pasture, and emergent marsh.

Ruderal Grassland

Ruderal grassland occurs predominately along the southern periphery of the Main Site, in an area that was a former parking lot. The ruderal grassland on the RBAAP is dominated by nonnative plant species. These include yellow starthistle (*Centaurea solstitialis*), wild oat (*Avena fatua*), soft chess (*Bromus hordeaceus*), and dove weed (*Eremocarpus setigerus*).

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Irrigated Pasture

Irrigated pastures occur in areas on the Main Site that were formerly annual grassland but have been irrigated to provide year-round forage for livestock. Common plant species found in irrigated pastures include Dallis grass (*Paspalum dilatatum*), bird's-foot trefoil (*Lotus corniculatus*), curly dock (*Rumex crispus*), and a few sedge species (*Carex* sp.).

Emergent Marsh

Emergent marshes on the Main Site property occur within a storm water ditch located in the southeastern portion of the site and in water detention basins located in the northwestern portion of the site. Emergent marshes are dominated by plant species that are adapted to inundation or saturation year round, including cattails (*Typha latifolia*) and arrowhead (*Sagittaria cuneata*).

Developed

Most of the Main Site is developed. Much of the grounds have been paved, and structures of various sizes have been built throughout the RBAAP. What little vegetation occurs in the developed areas is characterized by nonnative species that provide little habitat value to wildlife species.

E/P Ponds

The E/P ponds were constructed in what was formerly riparian forest on a bank of the Stanislaus River. The forest that remains along the periphery of the ponds is healthy and exhibits the diverse structure of mature riparian woodland. The ponds are regularly maintained and are devoid of wild vegetation, except around the edges. The vegetation that is present consists of ruderal grassland. The vegetation and wildlife characteristics of the habitat types present at the E/P ponds are described below.

Riparian Woodland

Mature riparian woodland typically consists of tall, dense, deciduous broadleaf trees that occur on alluvial soils near river channels. The riparian woodland at the E/P ponds contains species that are typical to riparian forests located in the Central Valley, including Fremont cottonwood (*Populus fremontii*), California box elder (*Acer negundo* ssp. *californicum*), black willow (*Salix gooddingii*), western sycamore (*Planatus racemosa*), and valley oak (*Quercus lobata*). Mature riparian woodlands also contain a multilayered understory of shrub species, including arroyo willow (*Salix lasiolepis*), blue elderberry (*Sambucus mexicana*), California wild grape (*Vitus californica*), and Himalayan blackberry (*Rubus procerus*). Mugwort (*Artemisia douglasiana*), Mexican tea (*Chenopodium ambrosioides*), and California creek nettle (*Urtica dioica* ssp. *garcilis* var. *californica*) are plant species that are common in the herbaceous layer of this woodland.

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4.8.1.1.2 Wetlands Potentially Subject to U.S. Army Corps of Engineers Jurisdiction

The USACE and USEPA regulate the discharge of dredge material into jurisdictional water of the United States, under Section 404 of the CWA. The term “water of the United States” is an encompassing term that includes wetlands and other waters of the United States.

Wetlands, as defined for regulatory purposes, are:

“Those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (33 CFR 329.9, 40 CFR 230.3).

Other waters of the United States include seasonal or perennial water bodies, including lakes, rivers, creeks, drainages, ponds, and mud flats that have a defined “bed” where water flows or stands and a “bank” that confines the water.

Wetlands

Main Site

The irrigated pastures and emergent marsh located in the northern part of the Main Site could be classified as wetlands. A formal wetland delineation of the irrigated pastures and the emergent marsh has not been conducted to confirm this classification.

E/P Ponds

A background report on biological resources in the City of Riverbank prepared as part of the city’s General Plan update process identified wetlands in the area of the E/P ponds that had been mapped as part of the National Wetland Inventory (City of Riverbank 2006). The riparian vegetation at the E/P ponds is dominated by hydrophytic plants species and is likely flooded frequently enough by the Stanislaus River to have wetland hydrology as defined by the USACE, the regulating federal agency for wetlands and other waters of the United States.

Other Waters of the United States

The Stanislaus River would qualify as other waters of the United States, and any manipulation of its bed and/or bank would likely require a permit from the USACE.

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4.8.1.2 Fauna

Main Site

Ruderal Grassland

Ruderal grassland generally provides habitat to wildlife species that are adapted to disturbed habitats. Wildlife species observed in the ruderal grassland located in the southern portion of the Main Site during the field study include American crow (*Corvus brachyrhynchos*), mourning dove (*Zenaida macroura*), western meadowlark (*Sturnella neglecta*), European starling (*Sturnus vulgaris*), lark sparrow (*Chondestes grammacus*), and killdeer (*Charadrius vociferus*). The ruderal grassland provides foraging habitat for many raptor species including red-tailed hawk (*Buteo jamaicensis*), white-tailed kite (*Elanus leucurus*), and Swainson's hawk (*Buteo swainsoni*), and could provide nesting habitat for western burrowing owl (*Athene cunicularia*).

Mammal species that occur in ruderal grassland habitats and that may occur at the Main Site include deer mouse (*Peromyscus maniculatus*), black-tailed jackrabbit (*Lepus californicus*), and California ground squirrel (*Spermophilus beecheyi*). Reptile species include western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), and gopher snake (*Pituophis catenifer*).

Irrigated Pastures

Irrigated pastures such as those occurring on the Main Site provide marginal habitat for many wildlife species because of human and cattle disturbance, though some wildlife species are tolerant of disturbance and utilize irrigated pastures. Examples of wildlife species that may occur at the Main Site include brewer's blackbird (*Euphagus cyanocephalus*), northern mockingbird (*Mimus polyglottos*), western meadowlark, and western kingbird (*Tyrannus verticalis*). Irrigated pastures also provide foraging habitat for raptor species and foraging and nesting habitat for western burrowing owls, which may also occur at the Main Site.

Emergent Marsh

Emergent marshes provide important habitat for a number of wildlife species. Wildlife species observed utilizing the emergent marsh at the Main Site during the field study include red-winged blackbird (*Agelaius phoeniceus*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), bullfrog (*Rana catesbeiana*), and Pacific treefrog (*Hyla regilla*).

Developed

Bat species could establish day roosts and/or maternity roosts in buildings located within the Main Site, especially in buildings that have been abandoned. No survey for bats has been conducted in the existing buildings on the RBAAP Main Site.

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E/P Ponds

Riparian Forest

The riparian forests along the Stanislaus River provide important foraging and nesting habitat for many species of song birds, raptors, and waterfowl. Mammalian species that utilize riparian forests, and that may occur at the E/P ponds include Western harvest mouse (*Reithrodontomys megalotis*), California vole (*Microtus californicus*), Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and mule deer (*Odocoileus hemionus*). Bat species that roost in woodlands could establish day roosts and maternity roosts in established riparian forests.

4.8.1.3 Special Status Flora

Based on a review of California Natural Diversity Database (CNDDDB) and California Native Plant Society (CNPS) occurrences for special-status plant species reported in the Riverbank USGS quadrangle and for Stanislaus County, ten special-status plant species were identified as having potential to occur in the study area (Table 4.8-1). However, most of the identified special-status plant species that occur in the area are associated with seasonal wetland habitats, such as vernal pools. Although wetlands are present on the RBAAP property, seasonal wetland habitats that could support such plant species are not present in the study area, and for this reason these species do not occur within the study area. Three of the species, big tarplant, beaked clarkia, and Hartweg's golden sunburst, are associated with annual grassland habitats. Big tarplant and beaked clarkia occur at higher elevation than the study area and therefore are not likely to occur within the study area. The grassland habitat in the study area is heavily degraded and disturbed and is therefore unlikely to support Hartweg's golden sunburst. Table 4.8-1 describes these special-status plant species, along with a determination of their likelihood to occur within the area of the Main Site or E/P ponds.

The U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Services (NOAA Fisheries), and California Department of Fish and Game (DFG) were contacted in October 2008 for any additional information regarding special status flora or fauna that occur in the area; in November 2008, DFG staff responded with no additional information regarding special status flora.

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Table 4.8-1 Special-Status Plant Species Known to Occur in the Region of RBAAP

Common and Scientific Name	Legal Status ^a Federal/State /CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Likelihood of Occurrence in the Study Area
Big tarplant <i>Blepharizonia plumosa</i>	-/-/1B.1	Western San Joaquin Valley, San Francisco Bay area, South Coast Ranges	Valley and foothill grassland; 30–505 meters	Jul–Oct	Not present; study area is outside elevational range of this species.
Succulent owl's-clover <i>Castilleja campestris</i> ssp. <i>succulenta</i>	T/E/1B.2	Southern Sierra Nevada foothills, eastern San Joaquin Valley	Vernal pools (often acidic); 50–750 meters	Apr–May	Not present; no suitable habitat available, study area is outside elevational range of this species.
Hoover's spurge <i>Chamaesyce hooveri</i>	T/-/1B.2	Central Valley from Tehama to Tulare Counties	Vernal pools; 25–250 meters	Jul–Aug	Not present; no suitable habitat available, study area is outside elevational range of this species.
Beaked clarkia <i>Clarkia rostrata</i>	-/-/1B.3	Central Sierra Nevada foothills, San Joaquin Valley	Cismontane woodland, valley and foothill grassland; 60–500 meters	Apr–May	Not present; study area is outside elevational range of this species.
Legenere <i>Legenere limosa</i>	-/-/1B.1	Sacramento Valley, North Coast Ranges, northern San Joaquin Valley, and Santa Cruz mountains.	Vernal pools; below 880 meters	May–Jun	Not present; no suitable habitat available
Colusa grass <i>Neostapfia colusana</i>	T/E/1B.1	Central Valley with scattered occurrences from Colusa to Merced Counties	Adobe soils of vernal pools; 5–200 meters	May–Aug	Not present; no suitable habitat available
San Joaquin Valley Orcutt grass <i>Orcuttia inaequalis</i>	T/E/1B.1	San Joaquin Valley from Solano to Tulare Counties	Vernal pools; 10–755 meters	Apr–Sep	Not present; no suitable habitat available
Hairy Orcutt grass <i>Orcuttia pilosa</i>	E/E/1B.1	Central Valley from Tehama to Madera Counties	Vernal pools; 55–200 meters	May–Sep	Not present; no suitable habitat available; study area is outside elevational range of this species.
Hartweg's golden sunburst <i>Pseudobahia bahiifolia</i>	E/E/1B.1	Central Sierra Nevada foothills, eastern San Joaquin Valley	Clay soils in valley and foothill grassland; 15–150 meters	Mar–Apr	Low; habitat conditions of poor quality (i.e., ruderal annual grassland) and suitable microhabitat (clay soils) may not be present. No known occurrences within 5 mi.

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Common and Scientific Name	Legal Status ^a Federal/State /CNPS	Geographic Distribution/Floristic Province	Habitat Requirements	Blooming Period	Likelihood of Occurrence in the Study Area
Greene's tuctoria <i>Tuctoria greenei</i>	E/-/1B.1	Scattered distribution along eastern Central Valley and foothills from Shasta County to Tulare County	Dry vernal pools; elevation 30-1070 meters	May-Sep	Not present; no suitable habitat available, study area is outside elevational range of this species.
<p>^a Status explanations:</p> <p>Federal E = listed as endangered under the federal ESA. T = listed as threatened under the federal ESA. - = no listing.</p> <p>State E = listed as endangered under the California ESA. - = no listing.</p> <p>California Native Plant Society (CNPS) 1B = List 1B species: rare, threatened, or endangered in California and elsewhere. .1 = seriously endangered in California .2 = fairly endangered in California .3 = not very endangered in California</p>					

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4.8.1.4 Special Status Fauna

Based on a review of CNDDDB records and other reports such as the San Joaquin County Multi-Species Habitat Conservation Plan and Riverbank General Plan (City of Riverbank 2006), 20 special-status wildlife species have been identified as having potential to occur in the project vicinity (Table 4.8-2). Six of these species – vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander, giant garter snake, greater western mastiff bat, and San Joaquin kit fox – are highly unlikely to occur in the vicinity of the RBAAP Main Site or E/P ponds because either suitable habitat is not present or the areas are outside of the species' range.

No species-specific surveys were conducted during the 2007 biological resource study and no special-status wildlife species were observed. The ruderal grassland and irrigated pasture provide suitable nesting and foraging habitat for western burrowing owl and provide suitable foraging habitat for Swainson's hawk and white-tailed kite. The emergent marsh located in the detention pond at the Main Site provides marginal nesting habitat for tricolored blackbird. Western Townsend's big-eared bat and other non-special-status bat species have the potential to roost in the numerous large buildings located at the Main Site. The lack of human activity in some of the older buildings may increase the likelihood of use by big-eared bats and other bat species.

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Table 4.8-2 Special-Status Wildlife Species with Potential to Occur at RBAAP Area

Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Fish				
Central Valley steelhead <i>Oncorhynchus mykiss</i>	T/--	Sacramento River and tributary Central Valley rivers	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 7.8 to 18°C (Moyle 2002). Habitat types are riffles, runs, and pools.	Present. Surveys observed steelhead in the area.
Central Valley fall/late fall-run Chinook salmon <i>Oncorhynchus tshawytscha</i>	--/SSC	Sacramento and San Joaquin Rivers and tributary Central Valley rivers	Occurs in well-oxygenated, cool, riverine habitat with water temperatures from 8.0 to 12.5°C. Habitat types are riffles, runs, and pools (Moyle 2002).	Present. Surveys observed Chinook salmon in the area.
Hardhead <i>Mylopharodon conocephalus</i>	--/SSC	Tributary streams in the San Joaquin drainage; large tributary streams in the Sacramento River and the main stem	Reside in low- to mid-elevation streams and prefer clear, deep pools and runs with slow velocities. Also occur in reservoirs.	Present. Surveys observed hardhead in the area.
Invertebrates				
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T/--	Streamside habitats below 3,000 feet throughout the Central Valley	Riparian and oak savanna habitats with elderberry shrubs; elderberries are the host plant.	High potential to occur in elderberry shrubs surrounding wastewater ponds.
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	T/--	Central Valley, central and south Coast Ranges from Tehama County to Santa Barbara County. Isolated populations also in Riverside County.	Common in vernal pools; also found in sandstone rock outcrop pools.	None. No suitable habitat in study area.
Vernal pool tadpole shrimp <i>Lepidurus packardii</i>	E/--	Shasta County south to Merced County	Vernal pools and ephemeral stock ponds	None. No suitable habitat in study area.
Amphibians				
California tiger salamander <i>Ambystoma californiense</i>	T/SSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet, and coastal region from Butte County south to northeastern San Luis Obispo County.	Small ponds, lakes, or vernal pools in grass-lands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy.	None. No suitable habitat in study area.

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Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
Reptiles				
Giant garter snake <i>Thamnophis couchii gigas</i>	T/T	Central Valley from the vicinity of Burrel in Fresno County north to near Chico in Butte County; has been extirpated from areas south of Fresno	Sloughs, canals, low-gradient streams and freshwater marsh habitats where there is a prey base of small fish and amphibians; also found in irrigation ditches and rice fields; requires grassy banks and emergent vegetation for basking and areas of high ground protected from flooding during winter.	None. No suitable habitat in study area.
Northwestern pond turtle <i>Clemmys marmorata marmorata</i>	--/SSC	Occurs from the Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through the Sacramento Valley, and on the western slope of Sierra Nevada	Occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation in woodlands, grasslands, and open forests.	High potential to occur in the Stanislaus River.
Birds				
Swainson's hawk <i>Buteo swainsoni</i>	--/T	Lower Sacramento and San Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County	Nests in oaks or cottonwoods in or near riparian habitats. Forages in grasslands, irrigated pastures, and grain fields.	High potential to nest in riparian forests along Stanislaus River and forage in ruderal grassland and irrigated pasture.
Tricolored blackbird <i>Agelaius tricolor</i>	--/SSC	Permanent resident in the Central Valley from Butte County to Kern County. Breeds at scattered coastal locations from Marin County south to San Diego County; and at scattered locations in Lake, Sonoma, and Solano Counties. Rare nester in Siskiyou, Modoc, and Lassen Counties	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs. Probably requires water at or near the nesting colony.	Low potential to nest in emergent marsh.
Western burrowing owl <i>Athene cunicularia hypugaea</i>	--/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast	Level, open, dry, heavily grazed or low stature grassland or desert vegetation with available burrows	High potential to nest and forage in ruderal grassland at ammunition plant.

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Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
White-tailed kite <i>Elanus leucurus</i>	--/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	High potential to nest in riparian forests along Stanislaus River and forage in ruderal grassland and irrigated pasture.
Yellow-breasted chat <i>Icteria virens</i>	--/SSC	Nests locally in coastal mountains and Sierra Nevada foothills, east of the Cascades in northern California, along the Colorado river, and very locally inland in southern California.	Nests in dense riparian habitats dominated by willows, alders, Oregon ash, tall weeds, blackberry vines, and grapevines.	Moderate potential to occur in riparian forests along Stanislaus River.
Mammals				
Greater western mastiff bat <i>Eumops perotis californicus</i>	--/SSC	Occurs along the western Sierra primarily at low to mid elevations and widely distributed throughout the southern coast ranges. Recent surveys have detected the species north to the Oregon border.	Found in a wide variety of habitats from desert scrub to montane conifer. Roosts and breeds in deep, narrow rock crevices, but may also use crevices in trees, buildings, and tunnels.	None. No suitable habitat in study area.
Pallid bat <i>Antrozous pallidus</i>	--/SSC	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations.	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on trees for roosts.	Moderate potential to roost in riparian along the Stanislaus River.
Riparian brush rabbit <i>Sylvilagus bachmani riparius</i>	E/E	Limited to San Joaquin County at Caswell State Park near the confluence of the Stanislaus and San Joaquin Rivers and Paradise Cut area on Union Pacific right-of-way lands.	Native valley riparian habitats with large clumps of dense shrubs, low-growing vines, and some tall shrubs and trees	Low potential to occur in riparian areas along the Stanislaus River.
Riparian (San Joaquin Valley) woodrat <i>Neotoma fuscipes riparia</i>	E/SSC, FP	Historical distribution along the San Joaquin, Stanislaus, and Tuolumne Rivers, and Caswell State Park in San	Riparian habitats with dense shrub cover, willow thickets, and an oak overstory	Low potential to occur in riparian areas along the Stanislaus River.

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Common and Scientific Names	Status Federal/State	Geographic Distribution	Habitat Requirements	Potential Occurrence in Study Area
		Joaquin, Stanislaus, and Merced Counties; presently limited to San Joaquin County at Caswell State Park and a possible second population near Vernalis.		
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	E/T	Principally occurs in the San Joaquin Valley and adjacent open foothills to the west; recent records from 17 counties extending from Kern County north to Contra Costa County.	Saltbush scrub, grassland, oak, savanna, and freshwater scrub	None. No suitable habitat in study area.
Townsend's western big-eared bat <i>Corynorhinus townsendii townsendii</i>	--/SSC	Coastal regions from Del Norte County south to Santa Barbara County	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings. Very sensitive to disturbances and may abandon a roost after one on-site visit.	Low potential to roost in buildings at ammunition plant.

Status explanations:

Federal

- T = listed as threatened under the federal ESA.
- = no listing.

State

- T = listed as threatened under the California ESA.
- FP = fully protected under the California Fish and Game Code.
- SSC = species of special concern in California.
- = no listing.

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Surveys conducted in 2006 and 2007 identified federally listed as threatened Central Valley steelhead (*Oncorhynchus mykiss*) and state species of concern Central Valley fall/late-fall run Chinook salmon (*Oncorhynchus tshawytscha*) and hardhead (*Mylopharodon conocephalus*) in the Stanislaus River near where it flows past the E/P ponds (Anderson et. al 2007). The Stanislaus River is also located within designated critical habitat for Central Valley steelhead, and Essential Fish Habitat (EFH) for Chinook salmon may also be present in the river.

The riparian forest along the Stanislaus River provides suitable nesting habitat for Swainson's hawk, white-tailed kite, and yellow-breasted chat as well as other non-special-status song birds and raptors. The banks of the Stanislaus River provide suitable nesting and hibernating habitat for Northwestern pond turtles (*Clemmys marmorata marmorata*). Blue elderberry shrubs that occur around the E/P ponds provide potential habitat for valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).

Riparian brush rabbit (*Sylvilagus bachmani riparius*) and riparian woodrat (*Neotoma fuscipes riparia*) are known to occur along the Stanislaus River at Caswell State Park, about 15 miles west of the E/P ponds (CNDDDB 2008). Both of these species are restricted to mature riparian forests in the Central Valley floor. Though neither of these species is known to occur along the Stanislaus River at the E/P ponds, and the CNDDDB did not report any occurrences within the Riverbank quadrangle, the riparian forest at the ponds is mature and does provide suitable habitat.

Although no survey for bats has been conducted in the existing buildings on the RBAAP Main Site or in the riparian forests next to the E/P ponds, potential bat habitat does occur. Many of the buildings on the Main Site, especially those that have been abandoned, offer roosting habitat for Townsend's big-eared bats (*Corynorhinus townsendii*), a state species of special concern, Mexican free-tail bats (*Tadarida brasiliensis*), and Yuma myotis (*Myotis yumanensis*). Riparian woodlands along the Stanislaus River provide roosting habitat for pallid bats (*Antrozous pallidus*), a state species of special concern, western red bats (*Lasiurus blossevillii*), hoary bats (*Lasiurus cinereus*), and big brown bats (*Eptesicus fuscus*).

The USFWS, NOAA Fisheries, and California DFG were contacted in October 2008 for any additional information regarding special status fauna that occur in the area. In November 2008, both USFWS and DFG staff responded with no additional information. In a January 15, 2009 letter, NOAA Fisheries responded, confirming that a federally-listed Distinct Population Segment of Central Valley steelhead (threatened) and a federally-listed Evolutionary Significant Unit of Central Valley fall/late-fall Chinook salmon (Species of Concern) occur in the Stanislaus River. In this letter, NOAA Fisheries staff also confirmed that the Stanislaus River falls within designated critical habitat for threatened Central Valley steelhead, and that EFH for Chinook salmon may also be affected by any project proposed near the river. Recommendations made by NOAA Fisheries staff with regards to the reuse of the E/P ponds site included the prevention of a connection between the Stanislaus River and the E/P ponds, and the restoration of floodplain habitat

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on the E/P ponds property adjacent to the Stanislaus River. This letter is included in Appendix B.

4.8.2 Consequences

4.8.2.1 Early Transfer Disposal Alternative

Direct. Minor short-term beneficial and adverse effects to biological resources would be expected under the early transfer disposal alternative. With early transfer, Army operations would cease prior to any reuse of the property. The reduction in human activity would make the property's buildings and open space more hospitable for wildlife use. However, federal resource management mandates would no longer apply, so the new land managers may conduct activities (land and building maintenance) that could have minor adverse effects on resources. Though RBAAP does not currently have a natural resource management plan, the installation staff does provide stewardship of habitat for many wildlife species. In any event, state-mandated habitat and species protection requirements would ensure continued protection of the remaining habitat at RBAAP.

No changes in habitat conditions are anticipated at the E/P ponds as a result of the early transfer disposal alternative. Currently, there is no discharge of wastewater from the ponds into the Stanislaus River and there will be no discharge associated with redevelopment. Therefore, there will be no adverse effects to biological resources in the riparian forests or in the Stanislaus River.

Indirect. Minor long-term adverse effects would be expected as a result of the early disposal of the installation property. Demolition of buildings as a result of early transfer disposal could result in disturbance or abandonment of bat day roost and/or maternity roosts.

No long-term changes in habitat conditions are anticipated at the E/P ponds as a result of early transfer disposal; therefore, no adverse effects to biological resources in the riparian forests or in the Stanislaus River would be anticipated from the proposed reuse. However, protected fish species (Central Valley steelhead and Central Valley fall/late-fall Chinook salmon), critical habitat for Central Valley steelhead, and EFH for Chinook salmon have all been identified as occurring or located in the Stanislaus River flowing past the E/P ponds. Measures to address the protection of these species, such as restrictions to development of the portion of the E/P ponds directly adjacent to the river and maintenance of the riparian woodland in this area, may be required to be implemented by the RLRA or future owners of the site, for the continued protection of these species.

4.8.2.2 Traditional Disposal Alternative

Direct. Minor short-term beneficial and adverse effects such as those described under the early transfer disposal alternative would be expected; however, these effects would occur at a later date.

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Indirect. Minor long-term adverse effects such as those described under the early transfer disposal alternative would be expected; however, these effects would occur at a later date.

4.8.2.3 Caretaker Status Alternative

Direct. Minor long-term beneficial effects would be expected from the discontinuation of operations at RBAAP. Reduced human activity in existing buildings at the Main Site would make them more attractive to bats and the potential for roost sites would increase. The reduction in human activity throughout the rest of the Main Site, as well as at the E/P ponds, would also make these areas more attractive to other wildlife species.

Indirect. Minor long-term, potentially adverse effects would be expected from the discontinuation of operations at the RBAAP Main Site. The RBAAP does not have an active natural resource management plan; therefore, there would be a low probability of indirect impacts to existing habitat conditions as a result of discontinuation of operations. However, discontinuation of operations could result in discontinued water delivery to the Northwest Storm Reservoir in the northern portion of the Main Site. Potential nesting habitat for tricolored blackbirds as well as red-winged blackbirds was identified in the cattails in this pond. If water delivery to the pond were to cease, the pond could dry out, resulting in the disappearance of the cattails. This would result in the loss of the potential nesting habitat at the pond.

Conditions at the E/P ponds would remain unchanged under the caretaker status alternative. Though water delivery to the ponds could cease under this alternative, the riparian forest next to the ponds receives its water from the Stanislaus River. Therefore, the riparian habitat would remain intact and would continue to provide habitat for wildlife species.

4.8.2.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC Commission's recommendations for closure and realignment. Habitat conditions at the RBAAP Main Site and the E/P ponds would not change, and no effects to biological resources would occur relative to continuation of the Army's mission and conditions in November 2005.

4.8.2.5 Intensity-Based Probable Use Scenario

Medium-High Intensity, Direct. Moderate short- and long-term adverse effects would occur as a result of medium-high intensity reuse at the RBAAP property. The construction of planned commercial structures, as outlined in the reuse plan, would occur in undeveloped areas in the northern and southern portions of the RBAAP (RLRA 2008). Construction of retail and industrial offices in ruderal grassland located in the southern portion of the RBAAP could result in disturbance to or destruction of the nests of ground-nesting bird species. This development would also diminish foraging grounds for many raptor species. Development of the irrigated pastures in the northern portion of the

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RBAAP would diminish foraging grounds for raptors and other bird species and could also adversely affect areas that could be classified as wetlands. As part of redevelopment of the Main Site, the Northwest Storm Reservoir could be expanded to accommodate increased storm water runoff, which could be beneficial by increasing the amount of potential nesting habitat for tricolored blackbirds and red-winged blackbirds. There is also potential for the Northwest Storm Reservoir to be filled in and developed with other uses if it is determined that it is not required to treat storm water runoff at the site. This could result in an adverse effect because potential nesting habitat would be eliminated. The development of the pond with other uses could also adversely affect a water body that may be classified as a wetland.

Under the Medium-High Intensity Reuse scenario, new owners of the RBAAP property may choose to replace or demolish existing buildings, which could result in an adverse effect on bat species, potentially displacing bats that have established day roosts or maternity roosts in these buildings.

To mitigate adverse impacts to wetlands resources, project-specific wetlands delineations, permitting, and wetlands avoidance and/or mitigation requirements will be necessary prior to redevelopment of specific areas of the RBAAP property in consultation with the USACE, Sacramento District. As required under Section 404 of the CWA, the sequencing of mitigation requirements will ensure that impacts will be avoided if possible; then minimized if unavoidable; and as a last resort mitigated through creation, restoration, banking, and other means in consultation with the USACE, Sacramento District.

As discussed earlier in this section, no special status species are known to occupy the RBAAP property, other than, potentially, migrant or transient species. For example, birds with protected status may be transient or migrant visitors to the RBAAP property (e.g., white-tailed kite has been identified in the area); however, the RBAAP property is not known to provide any nesting or important hunting areas for any special status species. It should be noted, however, that no bat surveys have been conducted for the property. Given this data gap, the existence of viable habitat at RBAAP, and the occurrence of special status bat species (including Townsend's western big-eared bat) within the region, it is possible that these species are also present on the RBAAP property. It should be noted, however, that surveys for these bat species would not be required to be undertaken by the Army, because the three bat species that were identified as potentially occurring in the area lack protected status under ESA.

Under the MHIR reuse scenario, conditions at the E/P ponds would remain unchanged, and these ponds would continue to collect treated wastewater from the Main Site. No adverse effects to biological resources in the riparian forests or in the Stanislaus River would be anticipated from the proposed reuse; however, protected fish species (Central Valley steelhead and Central Valley fall/late-fall Chinook salmon), critical habitat for Central Valley steelhead, and EFH for Chinook salmon have all been identified as occurring or located in the Stanislaus River flowing past the E/P ponds. Measures to address the protection of these species, such as restrictions to development of the portion of the E/P ponds directly adjacent to the river and maintenance of the riparian woodland

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in this area, may be required to be implemented by the RLRA or future owners of the site, for the continued protection of these species.

Medium-High Intensity, Indirect. Minor long-term adverse effects to biological resources would result from increased human activity at the Main Site. The Main Site property's value to wildlife would be reduced as a result of commercial and other development that would crowd out wildlife, making the Main Site property unusable for many species.

Medium Intensity, Direct. Moderate short- and long-term adverse effects to biological resources would be expected. Effects similar to those discussed under the MHIR scenario would be expected to occur, but to a lesser degree.

Medium Intensity, Indirect. Minor long-term adverse effects to biological resources would be expected. Effects similar to those discussed under the MHIR scenario would be expected to occur, but to a lesser degree.

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4.9 CULTURAL RESOURCES

4.9.1 Affected Environment

This section addresses federal statutes, regulations, EOs, and memoranda applicable to the management of potential historic properties at RBAAP. Section 106 and Section 110 of the National Historic Preservation Act (NHPA, Pub .L. 89-655) require that federal agencies consider cultural resources, defined as any prehistoric or historic district, site, building, structure, or object eligible for inclusion on the National Register of Historic Places (NRHP), in their proposed programs, projects, and actions prior to initiation.

In August 2006, a Programmatic Agreement between DoD and the ACHP was signed regarding compliance with Section 106 as it concerns World War II and Cold War Era Army Ammunition Production Facilities and Plants and Ammunition Storage Facilities.

4.9.1.1 Prehistoric, Ethnographic and Historic Background

Prehistoric Context

Although few archaeological sites demonstrate evidence of human occupation of the San Joaquin Valley during the late Pleistocene and early Holocene (12,000–6,000 B.C.), this is likely a product of the archaeological record itself rather than lack of use of this area. Most Pleistocene- and Holocene-epoch sites are deeply buried in accumulated gravels and silts or have eroded away. The earliest sites in the San Joaquin Valley are believed to be the Farmington Complex sites in San Joaquin and Stanislaus Counties (Riddell 1949; Treganza 1952), the Tranquility Site in Fresno County (Riddell 1949; Treganza 1952), and the Witt Site in Kings County (Riddell and Olsen 1969; Wallace 1991).

As summarized in Moratto (1984), a chronology was devised for the southern San Joaquin Valley in 1969 by Olsen and Payen based on western valley excavations. This chronology is composed of four temporally distinct complexes, namely, the Positas, Pacheco, Gonzaga, and Panoche complexes.

The Positas Complex (3300–2600 B.C.) is characterized by small shaped mortars, short cylindrical pestles, millingstones, perforated flat cobbles, and spire-topped *Olivella* beads. The Pacheco Complex (2600 B.C.–A.D. 300) has been divided into two phases. The Pacheco, Phase B (2600–1600 B.C.) is characterized by foliated bifaces; rectangular *Haliotis* ornaments; and thick, rectangular *Olivella* beads. The Pacheco, Phase A (1600 B.C.–A.D. 300) is represented by more varied types of shell beads. The Gonzaga Complex (A.D. 300–1000) is characterized by extended and flexed burials; bowl mortars and shaped pestles; squared and tapered stem projectile points; and a distinctive shell industry. The Panoche Complex (A.D. 1500 to European contact) is characterized by the presence of few millingstones and varied mortars and pestles; small side-notched arrow points; clamshell disc beads; and bone awls, whistles, saws, and tubes.

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Ethnographic Context

This section is summarized from Wallace 1978, except where otherwise noted. The project area is located in the territory of the Lakisamne tribe of the Northern Valley Yokuts. Northern Valley Yokuts territory is bounded roughly by the crest of the Diablo Range on the west and the foothills of the Sierra Nevada on the east. The southern boundary is approximately where the San Joaquin River bends northward, and the northern boundary is roughly halfway between the Calaveras and Mokelumne Rivers.

Population estimates for the Northern Valley Yokuts vary from 11,000 to more than 31,000 individuals. Populations have tended to be concentrated along waterways and on the more hospitable east side of the San Joaquin River. Principal settlements were located on the tops of low mounds, on or near the banks of the larger watercourses. Settlements were composed of single-family dwellings, sweathouses, and ceremonial assembly chambers. Dwellings were small and lightly constructed, semi-subterranean, and oval. The public structures were large and earth-covered. Sedentism (settling down in one area) was fostered by the abundance of riverine resources in the area.

Subsistence among the Northern Valley Yokuts revolved around the waterways and marshes of the lower San Joaquin Valley, including fish, waterfowl and small game. The contribution of big game to the diet was probably minimal. Vegetal staples included acorns, tule roots, and seeds. Goods not available locally were obtained through trade. Paiute and Shoshone groups on the eastern side of the Sierra were suppliers of obsidian. Shell beads and mussels were obtained from Salinan and Costanoan groups. Trading relations with Miwok groups to the north yielded baskets and bows and arrows. A network of trails facilitated overland transport, and tule rafts were used for water transport.

Most Northern Valley Yokuts groups had their first contact with Europeans in the early 1800s, when the Spanish began exploring the Sacramento-San Joaquin river delta. The gradual erosion of Yokuts culture began during the mission period when escaped neophytes brought foreign (European and Native American) habits and tastes back to their native culture, and Spanish expeditions to recover them followed. Epidemics of European diseases played a large role in the decimation of the native population. The secularization of the missions and the release of neophytes set tribal and territorial adjustments in motion. Former neophytes returned to Native American groups other than their group of origin, and a number of polyglot "tribes" were formed. The final blow to the aboriginal population came with the Gold Rush and its aftermath. In the rush to the mines, native populations were pushed out or exterminated. Many natives became dependent on the Gold Rush economy for their subsistence, drastically changing their way of life. Ex-miners who settled in the fertile valley applied further pressure to the native groups, and altered the landforms and waterways of the valley. Many Yokuts resorted to wage labor on farms and ranches. Others were settled on land set aside for them on the Fresno and Tule River Reserves.

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Historic Context

The first Euroamerican to enter Stanislaus County was likely Gabriel Moraga, who discovered the Stanislaus River in 1806 while on a scouting expedition for new mission sites (Hoover et al. 1990). However, with only five Mexican ranchos located in the county, the area remained primarily unsettled preceding the California Gold Rush (Bean and Rawls 1983). Even during the Gold Rush, the area was only peripherally affected, as most of the population headed to the more lucrative foothills and mountains where mining camps were set up. Larger and more permanent settlements later sprang up along the Stanislaus River.

The town of Riverbank was originally known as Burneyville. In 1867, a former Sherriff of Mariposa, Major James Burney, established a ferry crossing on the Stanislaus River. The settlement that grew around the ferry became known as Burneyville; this settlement was eventually absorbed by the community of Riverbank, which was incorporated in 1922 (City of Riverbank 2006).

Military History

The Riverbank Army Ammunition Plant began as a private industry. In 1942 the Aluminum Company of America (ALCOA) built the plant to serve as an aluminum reduction plant to supply military requirements during World War II (City of Riverbank 2006). The plant was closed in 1944. Between 1944 and 1951, the plant was used for the storage of government surplus materials (including corn and grain) (ATSDR 2007). The property was assigned to the Army in June 1951, converted to manufacture steel cartridge cases, and reopened with Norris Industries, Inc. as the operating contractor. With the end of the Korean Conflict, the plant was closed again and placed on standby status. The facility was reactivated in 1966, and has remained in operation since that time, producing shell and mortar casings and related metal parts (ATSDR 2007, U.S. Army 2006a).

4.9.1.2 Regulatory Setting

The BRAC actions at RBAAP have been conducted in compliance with Section 106 of the NHPA of 1966 and its implementing regulations (36 CFR Part 800, as amended in 2004). Section 106 requires federal agencies, or those they fund or permit, to consider the effects of their actions on properties that may be eligible for listing or are listed in the NRHP. To determine whether an undertaking could affect NRHP-eligible properties, cultural resources (including archaeological, historical, and architectural properties) must be inventoried and evaluated for listing in the NRHP. Although compliance with Section 106 is the responsibility of the lead federal agency, others can undertake the work necessary to comply.

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Implementing regulations for Section 106 (36 CFR Part 800) detail the following five basic steps:

1. Initiate the Section 106 process.
2. Identify and evaluate historic properties.
3. Assess the effects of the undertaking on historic properties within the Area of Potential Effect (APE).
4. If historic properties are subject to adverse effects, the lead federal agency, the SHPO, and any other consulting parties (including Native American Tribes) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effect. A memorandum of agreement (MOA) is usually developed to document the measures agreed upon to resolve the adverse effects.
5. Proceed in accordance with the terms of the MOA.

4.9.1.3 Status of Cultural Resource Inventories and Section 106 Consultations

This section provides a brief discussion of the prehistoric and historic cultural resources investigations, including management plans, architectural surveys, archaeological surveys, and archaeological excavations conducted at RBAAP to date.

Previous Surveys

Prior to 2005, one architectural study (MacDonald and Mack Partnership 1984) and one archaeological study (Cleland et al. 1988) were conducted for RBAAP. Built environment in the area was recorded and evaluated by MacDonald and Mack (1984) in a Historic Properties Report. This report concluded that RBAAP is not eligible for inclusion on the NRHP.

The 1988 archaeological study conducted for RBAAP (Cleland et al. 1988) consisted of an archaeological overview of the area, including a literature review and an informal site visit. A management plan was developed based on the overview. No formal archaeological survey was conducted for the 1988 study. Cleland et al. (1988) identified a possible historic refuse deposit adjacent to the E/P ponds, but no formal recordation was conducted. Information about the deposit came from an interview with a neighbor adjacent to the ponds. According to the Riverbank USGS topographical map, the Hetch Hetchy aqueduct traverses the project area trending east-west. This particular segment of the Hetch Hetchy system is subterranean and would not be affected by any project-related disturbances.

Cultural Resources Study, 2007

A cultural resources study was conducted on the RBAAP Main Site and E/P ponds in 2007. The study included a records search of the project area, consultation with local Native American tribes and the California Native American Heritage Commission, and a pedestrian survey of the project area.

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On 7 November 2006, a records search was conducted at the Central California Information Center of the California Historical Resources Information System (Information Center) at CSU Stanislaus in Turlock, California. The records search covered the Area of Potential Effect (APE) and a 0.25-mile-radius area around the APE. Resources consulted for the records search consisted of the state's database of previously recorded cultural resources sites and studies and pertinent historical inventories and historic maps. According to the records search, no archaeological surveys have been conducted for the RBAAP area and no resources have been formally recorded within the area.

On 11 October, 2007, a qualified archaeologist, accompanied by a NI employee for security purposes, conducted a pedestrian survey at the Main Site and E/P ponds area. About 25 acres at the Main Site and E/P ponds were identified as property not previously disturbed by land leveling and construction, and were surveyed intensively for archaeological resources. The survey area was examined using intensive survey techniques that included walking systematic linear transects spaced 10 to 15 meters apart. Any areas with exposed subsurface materials (rodent back dirt, road cuts, erosional features, etc.) were examined closely for evidence of archaeological deposits. Ground disturbance throughout the area was heavy due to grading, disking, and other earth-moving activities. An attempt was made to relocate the historic refuse deposit noted by Cleland et al. (1988). No deposit was noted; NI employees stated that the deposit was removed 10 to 12 years prior during grading activities. Ground visibility was excellent throughout the area due to the aforementioned grading and disking. No significant cultural resources were located as a result of the pedestrian survey.

Historic Buildings and Structures

The built environment at RBAAP is typical of military installations, with various utilitarian/industrial architectural themes and designs; however, no one architectural theme or style dominates the design of structures at the site. The Historic Properties Inventory conducted in 1984 at RBAAP found no NRHP eligible standing structures; no buildings or structures on RBAAP have since been determined to be eligible for listing on the NRHP. In addition, the structures at RBAAP are covered by the Program Comments for World War II and Cold War Era (1939-1974) Army Ammunition Production Facilities and Plants as approved by the Advisory Council on Historic Preservation in 2006.

Cemeteries

Cemeteries are protected by state and county laws. There are no current or former cemeteries on the RBAAP property.

Disposition of Archaeological Artifacts and Associated Documentation

There are no archaeological artifacts or associated documents held at RBAAP.

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Paleontological Remains

There are no known paleontological localities at RBAAP.

Section 106 Consultation

The California SHPO was sent a letter describing the proposed action for RBAAP, and has responded by concurring that the Area of Potential Effects has been properly determined and documented pursuant to 36 CFR Part 800.4(a)(1); that the efforts to identify Historic Properties within the APE represent a reasonable and good faith effort; and that, pursuant to 36 CFR Part 800.5(d)(1), a finding of No Historic Properties Affected is appropriate. This letter and other relevant Section 106 consultation documentation are included in Appendix B.

4.9.1.4 Native American Consultation

On 23 October, 2006, the Native American Heritage Commission (NAHC) was contacted in order to gather background information for this report. A search of the NAHC's sacred lands database and a list of potentially interested Native American representatives was requested. The NAHC responded on 8 November, 2006, stating that the search of their sacred lands database had not indicated any Native American cultural resources in the immediate area. The NAHC also provided a list of three Native American representatives. On 8 November, 2006, contact letters were sent to all three Native American representatives. The contact letters described the BRAC action, provided a map of RBAAP's location, and requested a response if the representatives had any interest or concern. On 6 December 2006, follow-up telephone calls were placed to the representatives to ensure that they had received the letters and had no concerns related to the BRAC action and reuse. As of 24 October, 2008, no input or concerns have been received as a result of these contacts. No Traditional Cultural Properties or Native American sacred places are known to exist on the RBAAP property. Letters to Native American representatives as well as other relevant Section 106 consultation documents are included in Appendix B.

4.9.2 Consequences

4.9.2.1 Early Transfer Disposal Alternative

Direct. No adverse effects to cultural resources would be expected, because no significant cultural resources have been identified at the RBAAP Main Site or E/P Ponds.

Indirect. No effects would be expected.

4.9.2.2 Traditional Disposal Alternative

Direct. No adverse effects to cultural resources would be expected, because no significant cultural resources have been identified at the RBAAP Main Site or E/P Ponds.

Indirect. No effects would be expected.

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4.9.2.3 Caretaker Status Alternative

Direct. No adverse effects to cultural resources would be expected. Under this alternative, access to RBAAP would be very limited, and maintenance levels would be low, but there are no archeological sites or standing structures that are eligible for listing on the NRHP that would be subject to vandalism or deterioration because of limited presence of maintenance personnel.

Indirect. No effects would be expected

4.9.2.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative the Army would continue activities at RBAAP at levels similar to those occurring prior to the BRAC 2005 Commission's recommendations for closure and realignment, including implementation of ongoing remedial programs required under CERCLA and RCRA. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.9.2.5 Intensity-Based Probable Use Scenario

Medium-High Intensity, Direct. No adverse effects to cultural resources would be expected, because no significant cultural resources have been identified at the RBAAP Main Site or E/P Ponds.

Medium-High Intensity, Indirect. No effects would be expected.

Medium Intensity, Direct. No effects would be expected.

Medium Intensity, Indirect. No effects would be expected.

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4.10 SOCIOECONOMICS

4.10.1 Affected Environment

RBAAP is located in central Stanislaus County in the southern part of California's Central Valley. Stanislaus County comprises the Modesto Metropolitan Statistical Area (MSA) and occupies about 1,500 square miles with a population of 510,000 people in 2005 (California Department of Finance (CA DoF) 2007a). The MSA was identified by the U.S. Department of Defense as the ROI in which potential socioeconomic impacts related to 2005 BRAC actions at RBAAP would most likely occur, and therefore serves as the geographic basis for the socioeconomic affected environment and impact analysis (U.S. DoD 2005). The great majority of RBAAP employees live in Stanislaus County, as do a majority of the employees of the 11 tenants operating on the installation. Stanislaus County receives the majority of the installation's procurement and contractual spending and provides necessary goods and services for installation personnel.

4.10.1.1 Economic Development

Regional Economic Activity

In 2005, there were almost 221,000 people employed in Stanislaus County (U.S. DoC 2008). Table 4.10-1 shows that government and retail trade were the largest sectoral employers in 2005, each representing 13 percent of all full- and part-time county employment. Service-industry employment represented 40 percent of all full- and part-time county employment (U.S. DoC 2008). From 2001 to 2005, Stanislaus County employment in the finance, real estate, and insurance industries rose by 19 percent, along with a 17 percent increase in the construction industry and a 13 percent increase in wholesale trade. Though the farm sector represented only 8 percent of county employment in 2005, 14 of the county's top 15 major manufacturing employers were in the food or wine industries, and manufacturing industry employment represented 10 percent of total employment (SEDWA 2006). Table 4.10-2 shows that the Stanislaus County government was the top employer (manufacturing and nonmanufacturing) in the county in 2006 (SEDWA 2006). The employment distribution by industry shown in this table – with primary employers in government, services, and retail – reflects the distribution at the state level.

According to the U.S. Bureau of Economic Analysis (U.S. DoC 2007), the MSA gross domestic product grew from \$10.1 million in 2001 to \$13.9 million in 2005, a 37.6 percent increase over four years. This economic expansion was largely driven by population growth following relatively low housing and labor costs, in turn driving new home construction; resilience in the manufacturing sector; rising agricultural values; and new business creation. In 2005, the manufacturing sector had the largest economic value in the county, growing from \$1.74 billion GDP in 2001 to \$1.91 billion in 2005 (SEDWA 2008). Retail sales rose by more than 30 percent between 2001 and 2005, to nearly \$7.3 billion (SEDWA 2007). According to the Stanislaus Economic Development and Workforce Alliance (SEDWA), the challenge in 2005 for the county was to create enough employment in the county to meet the needs of a growing population and decrease the

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need to commute elsewhere for work (SEDWA 2007). In 2000, of the population living in Stanislaus County, about 20 percent (35,000 people) worked outside the county (EDIS 2008).

Table 4.10-1 RBAAP ROI Employment by Industry (2005)

Industry	Stanislaus County			California		
	Number	Percentage	2001-2005 Percent Change	Number	Percentage	2001-2005 Percent Change
Farm Employment	10,985	5%	-7%	258,049	1%	-12%
Forestry, fishing, related activities, mining, and other ⁽³⁾	7,931	4%	-8%	271,130	1%	-2%
Construction	16,996	8%	17%	1,215,413	6%	13%
Manufacturing	22,930	10%	-9%	1,588,387	8%	-16%
Wholesale trade	7,378	3%	13%	759,830	4%	2%
Retail trade	27,840	13%	3%	2,070,705	10%	4%
Transportation, warehousing, utilities	6,577	3%	7%	587,957	3%	-7%
Information	2,951	1%	12%	554,556	3%	-13%
Finance, insurance, and real estate services	14,978	7%	19%	2,009,046	10%	18%
Education, healthcare, social services	23,311	11%	8%	2,019,639	10%	7%
Professional, technical, & business services, including management, admin. and waste services	21,459	10%	0%	3,057,420	15%	-2%
Arts, leisure, hospitality services	17,172	8%	12%	1,833,039	9%	6%
Other services, except public administration	12,451	6%	5%	1,159,332	6%	2%
Government and government enterprises	27,955	13%	5%	2,650,794	13%	1%
Federal, civilian	1,223	4%	5%	250,717	9%	2%
Military	837	3%	-3%	223,563	8%	-2%
State and local	25,895	93%	5%	2,176,514	82%	2%
Total Employment	220,914	100%	4%	20,035,297	100%	2%
(3) "Other" consists of the number of jobs held by U.S. residents employed by international organizations and foreign embassies and consulates in the United States. Source: U.S. DoC 2008						

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Table 4.10-2 Top Ten Employers in Stanislaus County ^a

Employer	Employees
Stanislaus County	4,704
Signature Fruit Company	4,292
Modesto City Schools	3,500
E&J Gallo Winery	3,380
Memorial Medical Center	2,619
Del Monte Foods	2,600
Doctors Medical College	2,312
Stanislaus Food Products	2,000
Turlock Unified School District	1,922
Modesto Junior College	1,866
^a Manufacturing and Nonmanufacturing Source: SEDWA 2006	

In 2005, RBAAP and its government contractor-operator, NI, was an integral part of the local and regional economy. RBAAP and NI employed a total of 89 people (four civilian government staff and 85 NI employees), with total annual expenditures of \$5.7 million in 2005 (RBAAP 2006). The average annual installation salary of \$52,384 (excluding the commanding officer) was 34 percent more than the 2005 Stanislaus County average wage of \$34,500 per year (U.S. DoC 2005). In 2002, direct expenditures by the tenants operating on the installation, including NI, together totaled about \$85 million, with more than 230 employees (SEDWA 2006).

4.10.1.2 Demographics

Regional Population

There were 510,000 people living in Stanislaus County in 2005 (CA DoF 2007). Table 4.10-3 shows a 36 percent growth in population since 1990, with a predicted additional 46 percent increase, to 745,000, by the year 2030 (CA DoF 2004). The City of Riverbank was among the fastest growing communities in the state, growing six percent per year from 1990 to 2005 or 133 percent over this 15-year period (City of Riverbank 2006). In comparison, the state's population grew by 24 percent over the same 15 years. In 2005, the median age in Stanislaus County was 32 years old, with about 40 percent of the population between the ages of 18 and 65 years old (U.S. Census 2005).

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Table 4.10-3 ROI and State Population Trends

County	Population				Projected	
	1990	2000	2005	Percent Change 2000–2005	2010	2030
Stanislaus County	373,600	450,982	510,164	13%	559,051	744,599
California	29,828,000	34,098,740	36,981,931	8.4%	39,246,767	48,110,671

Source: 1990–2005: CA DoF 2007, 2010 - 2030: CA DoF 2004

In 2005, the racial composition of Stanislaus County was nearly three-quarters Caucasian (73.6 percent), with small Asian (5.4 percent) and African American (2.9 percent) communities (U.S. Census 2005). The balance of the county population comprised people of American Indian, native Alaskan, Hawaiian or other Pacific Islander, or other descent. Nearly 40 percent of Stanislaus County’s population is of Hispanic or Latino origin, regardless of race. As illustrated in Table 4.10-4, the county’s 2005 population demographic characteristics generally mirror demographics at the state level. (See Section 4.10.1.6, Environmental Justice, for discussion of the racial composition of the local communities including and surrounding RBAAP.)

Table 4.10-4 Population Demographic Characteristics for ROI and State (2005)

	Stanislaus County	California
Population	510,164	36,981,931
Median Age	32	34
Racial Distribution		
% Caucasian	73.6%	60.9%
% Black	2.9%	6.1%
% Asian	5.4%	12.4%
% Other ¹	18.1%	20.6%
Hispanic or Latino (of any race)	37.8%	35.5%

¹Other includes individuals who identified themselves by more than one race.
Source: CA DoF 2006, U.S. Census 2005

Income, Unemployment, and Poverty

In 2005, the average wage in Stanislaus County was \$34,500 per year (U.S. DoC 2005). From 1995 to 2005, personal income in Stanislaus County grew by 3.9 percent, below the levels of growth across the state (4.5 percent) and nation (4.2 percent) in the same period. Median household income in Stanislaus County was \$47,525 in 2005, or 88 percent of statewide median household income (U.S. Census 2005). The median hourly wage in the county in 2006 (\$13.87) was 86 percent of the statewide median wage and only 72 percent of the median hourly wage in neighboring metropolitan markets (SEDWA 2007).

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Table 4.10-5 ROI Unemployment, Poverty, and Income (2005)

Unemployment Rate (percent)		Median Household Income	Percent Individuals Below Poverty	Per Capita Personal Income		
				Income	ROI Rank	1995-05 Average Annual Growth Rate (percent)
Stanislaus County	8.3	\$47,525	14.4	\$26,995	37th/58 counties	3.9
California	5.4	\$53,629	13.3	\$37,462	72% of state average	4.5
United States	5.1	\$46,242	13.3	\$34,757	78% of national average	4.2

Source: *Unemployment* (U.S. DoL 2006); *Per Capita Personal Income* (U.S. DoC 2005); *Poverty and Median Household Income* (U.S. Census 2005)

On average, 8.3 percent of the Stanislaus County labor force was unemployed in 2005, almost 3 percent more than the proportion of unemployed across the state (5.4 percent), but comparable to the average unemployment rate in California’s southern Central Valley (CA DoF 2006). This is a marked improvement over the county’s 14 percent unemployment rate of a decade ago, though still above the low of 7.8 percent in 2000 for the county (U.S. DoL 2006). The share of individuals living below poverty in Stanislaus County in 2005 was 14.4 percent, down from 16 percent in 2000 (U.S. Census 2005, CA DoF 2007). Income, poverty, and unemployment levels in the communities adjacent and surrounding RBAAP are discussed below in Section 4.10.1.6, Environmental Justice.

4.10.1.3 Housing

In 2005, there were 167,000 housing units in Stanislaus County, 60 percent of which were owner-occupied and more than a third of which were rental properties, with only a five percent vacancy rate. Table 4.10-6 shows that the median value of a single-family home in Stanislaus County in 2005 was \$347,100, or 73 percent of the median value statewide (SEDWA 2007). Migration to Stanislaus County for the relatively low-cost, single-family housing was a major growth component in the past several years.

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Table 4.10-6 Housing Characteristics for ROI and California (2005)

	Stanislaus County	California
Total Housing Units	167,079	12,989,254
% Owner Occupied	60.4	54.4
% Renter Occupied	34.4	38.7
% Vacant	5.2	6.9
% Lacking Complete Plumbing Facilities	0.003	0.004
Average Household Size	3.14	2.92
Median Value of Owner-Occupied Housing	\$347,100	\$477,700
Source: U.S. Census 2005		

4.10.1.4 Personnel Housing

There is no active housing on the installation property. In 2005, most RBAAP and tenant personnel lived within 10 to 15 miles of the installation (RBAAP 2006).

4.10.1.5 Quality of Life

The ROI for the quality of life assessment focuses on Stanislaus County and the three main cities, each within 10 miles of the installation, in which RBAAP and NI employees make their homes. These cities include Riverbank (population of 19,500 in 2005), Modesto (population of 205,000 in 2005) and Oakdale (population of 18,400 in 2005). The other nine cities and towns with at least one RBAAP/NI employee resident in 2005 (Turlock, Waterford, Empire, Salida, Stevenson, Escalon, Stockton, and unincorporated Valley Home and Knights Ferry) are either very small, outside the county, or far enough away from the installation to have relatively little direct influence on quality of life for the employees. For the most part, shops and services (including education, fire and law enforcement, health and medical care) available to the immediate community surrounding RBAAP are found in Riverbank, Modesto, and Oakdale.

Education

In the 2004–2005 academic year, there were 26 school districts in Stanislaus County, with 170 public elementary, middle, and high schools together serving more than 102,000 students (CA DoE 2008). The Riverbank Unified, Sylvan Union, and Modesto City school districts serve students in the immediate Riverbank area, as defined by the Riverbank General Plan (City of Riverbank 2006). These districts include five elementary schools, two middle schools, and three high schools serving approximately 12,000 students, with 957 staff (City of Riverbank 2006). In 2004–2005, six of these ten public schools were operating at or over capacity (City of Riverbank 2006). An additional public elementary school is planned for the 2008–2009 school year and is expected to alleviate some overcrowding in the Sylvan Union School District. There are at least two private schools serving students in the Riverbank area.

There are no educational facilities located on the RBAAP property.

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Shops and Services

Stanislaus County has many services and shopping establishments, including more than 1,400 retail trade establishments; more than 400 wholesale trade establishments; and over 1,000 health care and social assistance providers; as well as restaurants; real estate, administrative, and professional services; churches; public transit; and county police and fire departments (U.S. Census 2002, City of Riverbank 2006). The cities of Riverbank, Modesto, and Oakdale together host nearly 840 retail establishments and 180 wholesale trade establishments, as well as more than 2,600 private-sector establishments offering a similar variety of services as at the county level (U.S. Census 2002). Among these three cities, Modesto offers the largest selection of shops and services.

There are no retail shops or services on RBAAP property.

Recreation

Extensive recreational opportunities are available in close proximity to the installation property. Within 10 miles of RBAAP, in the cities of Riverbank, Modesto, and Oakdale, are at least 10 public pools, more than 70 parks (with baseball, basketball, soccer, volleyball, walking trails, picnic areas, and tennis, among other facilities), public golf courses, and lakes and rivers for fishing and boating. These cities are also host to numerous theaters and movie houses, opera, ballet, museums, and public libraries (City of Riverbank 2006, Modesto Chamber of Commerce 2006).

There are no recreational facilities at the RBAAP Main Site or E/P ponds.

Law Enforcement

The Stanislaus County Sheriff's Department provides law enforcement services to the surrounding community. The City of Riverbank contracts with the Stanislaus County Sheriff's Department to serve the incorporated areas of the city through Riverbank Police Services, which has 17 full-time officers, approximately 60 reserve officers, and 11 vehicles. Unincorporated areas around Riverbank are served directly by the Stanislaus County Sheriff's Department, headquartered in Modesto (City of Riverbank 2006). The City of Modesto Police Department has 270 sworn personnel and 60 police vehicles, as well as 8 mounted patrols, and is part of the statewide police computer system and mutual aid program (Modesto Chamber of Commerce 2006).

There are no on-site law enforcement personnel on RBAAP. Law enforcement services for the RBAAP Main Site and the E/P ponds are provided by the Stanislaus County Sheriff's Department.

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Fire Protection

Riverbank and the surrounding area receive fire protection and emergency services from the Stanislaus Consolidated Fire Protection District (SCFPD), which includes six stations, nearly 90 firefighters (career and volunteer), and 17 additional employees. The SCFPD station in the City of Riverbank has three firefighting vehicles, and has a mutual aid agreement with all 16 Stanislaus County fire protection agencies. The Modesto Fire Department comprises 10 fire stations, and has 160 career fire fighters and 23 pieces of equipment (Modesto Chamber of Commerce 2006).

There are no on-site fire protection personnel on RBAAP property. Fire protection and emergency services for the RBAAP Main Site and the E/P Ponds are provided by Stanislaus County.

Health/Medical

Eight licensed hospitals, with a total of 1,570 beds, serve Stanislaus County (SEDWA 2006). Five of these hospitals are in the City of Modesto, six miles southwest of the City of Riverbank, and include two major medical centers, a rehabilitation hospital, a behavioral health center, and a surgical hospital (SEDWA 2006). Modesto is also home to more than 700 physicians, 200 dentists, and other medical specialists (Modesto Chamber of Commerce 2006). Additional physicians, nursing care facilities, and several senior or adult residential facilities are available in the City of Riverbank (City of Riverbank 2006).

There are no on-site medical facilities on the RBAAP property. Emergency medical services for the RBAAP Main Site and the E/P ponds are provided by Stanislaus County.

4.10.1.6 Environmental Justice

On 11 February 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. The purpose of the order is to avoid the disproportionate placement of any adverse environmental or economic impacts from federal policies and actions on minority and low-income populations.

It is the Army's policy to fully comply with EO 12898 by incorporating environmental justice concerns in decision-making processes supporting Army policies, programs, projects, and activities. The initial step in the environmental justice analysis process is identification of minority and low-income populations that might be subject to actual or potential health, economic, or environmental threats arising from implementation of the proposed actions or alternatives. Low income, or the poverty threshold, is defined by the U.S. Census Current Population Reports, Series P-60 on Income and Poverty as the weighted average annual income, which for a family of four in 2005 correlated to \$19,971 (U.S. Census 2005). This section identifies minority or low-income communities that could be adversely affected by the implementation of actions or alternatives on RBAAP.

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Minority Individuals are defined as people of African American, American Indian, Alaska Native, Asian, Native Hawaiian or other Pacific Islander origin, and of Hispanic origin, regardless of race. Minority populations are identified where minority individuals compose more than 50 percent of the population in the affected area or where this percentage is “meaningfully greater” than the percentage in the general population (U.S. CEQ 1997). As shown in Table 4.10-7, in 2000, the minority populations of the cities of Riverbank and Modesto equaled or exceeded 50 percent of the general population, and Stanislaus County had a minority population of 57 percent.

The poverty rate in Stanislaus County in 2000 was 16 percent, comparable to the poverty rate in the City of Modesto (15.7 percent), but higher than poverty levels in the cities of Riverbank (12.3 percent) and Oakdale (11.3 percent). By 2005, poverty levels in the county had fallen to 14.4 percent, with 8.3 percent unemployment (expected to rise as high as 10 percent following the 2008 home mortgage crisis) (U.S. Census 2005, SEDWA 2008). In 2005, 54 percent of the 103,400 students enrolled in the county’s 26 school districts were eligible for free or reduced-price meals. In the three school districts that serve students near RBAAP, 64 percent of students at Riverbank Unified School District were eligible for free/reduced-price meals, with 39 percent and 41 percent eligible at Sylvan Union Elementary and Modesto City High Districts, respectively (CA DoE 2008).

Table 4.10-7 Minority and Low-Income Populations (2000)

City/County/State	Total Population	Percent Minority Population	Median Household Income	Percent Persons Below Poverty
Riverbank	15,826	74	44,668	12.3
Modesto	188,856	50	40,394	15.7
Oakdale	15,503	32	39,338	11.3
Stanislaus County	446,997	57	40,101	16.0
California	33,871,648	68	47,493	14.2

Note: Minority population data represent individuals who identified themselves by only one race in the 2000 U.S. Census and includes people of African American, American Indian, Alaska Native, Asian, Native Hawaiian, other Pacific Islander, Other, and Hispanic origin regardless of race.

Source: U.S. Census, 2000

There are no programs with the specific purpose of promoting environmental justice that are sponsored by RBAAP.

4.10.1.7 Protection of Children

On 21 April 1997, President Clinton issued Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. A growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks due to their physiology and their behavior. Federal agencies are required to give high priority to identifying and assessing environmental health risks and safety risks that might disproportionately affect children and to ensure that policies, programs, activities, and standards address these risks. To fully comply with EO 13045,

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the Army ensures that it would identify, disclose, and respond to potential adverse health and safety risks to children within the area affected by a proposed Army action.

Historically, children have only been present at the RBAAP Main Site and the E/P ponds as visitors, and there is no child care facility associated with RBAAP. The Army and RBAAP staff (including NI employees) have taken precautions for the safety of all visitors to the Main Site and the E/P ponds, including children, by the use of fencing, a checkpoint for visitors entering the grounds, and limited access to certain areas. In addition, Army regulations related to transferring property (e.g., rules addressing LBP) help to ensure that past Army practices will not pose a future threat to children who subsequently use the property.

4.10.1.8 Homeless, Special Concerns

Pursuant to the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, property that is surplus to the federal government's needs is to be screened by means of an LRA's soliciting notices of interest from state and local government, representatives of the homeless, and other interested parties. The LRA's outreach efforts to potential users or recipients of the property include working with the Department of Housing and Urban Development and other federal agencies that sponsor public benefit transfers under the Federal Property and Administrative Services Act. The RLRA completed extensive outreach to homeless service providers as part of the reuse planning process. One Notice of Interest application was submitted, reviewed, given a public hearing, and subsequently denied further consideration (RLRA 2008).

4.10.1.9 Post-2005 Economic Update: Conditions in Stanislaus County in 2008

The economic conditions in Stanislaus County have changed since the 2005 base-year analysis, resulting in a different socioeconomic context in 2008 for potential impacts related to redevelopment in the area.

In the three years since 2005, economic conditions in Stanislaus County have fallen appreciably. The nation-wide economic slowdown, mortgage finance crisis, and rising price of gasoline in 2008 led to a severe decline in residential construction and related financial activities in the county and contributed to the closing of small retail operations, restaurants, and other service operations. In early 2008, about five percent of homes in Stanislaus County were in pre-foreclosure, foreclosure, or had already been repossessed by a lender (SEDWA 2008). In the City of Riverbank in 2005, building permits for single-family homes fell from 258 to 128 (City of Riverbank 2005), although, in 2008, there are still more homes than jobs in the city (RLRA 2008).

According to SEDWA (2008), cutbacks in residential construction have resulted in major layoffs of workers and a downturn in purchase of materials and supplies, with secondary impacts on related services (suppliers of household amenities, etc.). The effect of reduced generation of public revenues from the decline in developer fees associated with new construction is anticipated to have an impact on civic development and public services. Energy costs and rising food prices have affected family budgets and restricted

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discretionary spending. Nearly 35,000 citizens commute out of the county every day for jobs, with over 20,000 taking the time- and fuel-intensive commute over the Altamont Pass. Before the current economic crisis, the City of Riverbank predicted its population to grow by an additional 35 percent by 2015, to 27,000 (City of Riverbank 2006). The uncertainty of employment opportunities may now instead lead to a short-term reduction in the local population. From 2003 to 2005, Riverbank saw a 15.3 percent growth in population, but only a 7.5 percent growth from 2005 to 2007 (CA DoF 2008).

4.10.2 Consequences

4.10.2.1 Early Transfer Disposal Alternative

Economic Development

Direct. Long-term minor beneficial and short-term minor adverse effects would be expected. The early transfer of RBAAP properties would enable immediate initiation of redevelopment activities, with associated new job creation, increased local sales volumes, some industrial diversification in the local and regional economies, and expansion of the local and regional tax base earlier than would occur under traditional disposal. Ongoing environmental remediation and site preparation would generate additional employment, expenditures, tax revenues and economic diversification, with similarly positive impacts on the local and regional economy. Deed restrictions resulting from continued environmental remediation activities on the installation properties could preclude many uses in some areas until cleanup is complete to ensure the protection of human health and the environment.

Indirect. Long-term minor beneficial effects would be expected. Increased employment resulting from early transfer and environmental remediation and site preparation activities could result in reductions in local unemployment and increased local incomes sooner than under traditional disposal. Low-income populations would benefit from the creation of low-skill and unskilled jobs. Increased employment and expenditures under early transfer would generate secondary increases in jobs, local sales volumes, income, and tax revenues sooner than under traditional disposal.

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Sociological Environment (Including Environmental Justice and Protection of Children)

Direct. Long-term minor beneficial and adverse effects would be expected. Increased employment associated with redevelopment activities and on-going environmental remediation activities could result in increased population and corresponding increases in housing demand, earlier than would occur under traditional disposal. Increased housing demand could contribute to a revival of the local residential housing market.

Low-income populations would benefit from the creation of low-skill and unskilled jobs and increased incomes associated with early transfer and economic redevelopment of the properties, possibly reducing the effect of rising rents or high home prices.

Early transfer is not expected to create impacts that disproportionately affect homeless programs or minority communities in the ROI.

Residential development will not be permitted on the RBAAP property, and environmental remediation will continue to address environmental liabilities on the property prior to redevelopment. Ongoing environmental remediation activities and continuing deed restrictions will prevent access for the protection of human health and the environment; therefore, no disproportionate risks to children are expected.

Indirect. Short- and long-term minor adverse effects would be expected. Population growth under early transfer would lead more quickly to increased demand for public services and infrastructure. Responsibility for inspecting or maintaining continuing facilities on the properties would transfer immediately to the state and local regulatory agencies. Short-term minor adverse impacts are expected from the additional burden placed on these public agencies resulting from the transfer of these responsibilities, which would take place earlier than under traditional disposal.

Quality of Life

Direct. No direct effects would be expected.

Indirect. Short-term minor adverse effects would be expected. Increased population from early transfer and redevelopment activities would result in increased student populations and class size at already overcrowded public schools in the area, with associated increased demand on public resources. It is likely that these effects would be localized and not spread throughout the ROI.

Installation Agreements

Direct. No direct effects would be expected. Fire, police, and emergency medical services are provided to RBAAP by Stanislaus County and will continue after the property has been conveyed to the RLRA (Mendes 2008).

Indirect. No indirect effects would be expected.

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4.10.2.2 Traditional Disposal Alternative

Economic Development

Direct. Long-term minor beneficial and short-term minor adverse effects would be expected. Effects are similar to those described under the early transfer disposal alternative, but would occur at a later period in time.

Indirect. Long-term minor beneficial effects would be expected. Effects are similar to those described under the early transfer disposal alternative, but would occur at a later period in time.

Sociological Environment (Including Environmental Justice and Protection of Children)

Direct. Long-term minor beneficial and adverse effects would be expected. Effects are similar to those described under the early transfer disposal alternative, but would occur at a later period in time.

Indirect. Short- and long-term minor adverse effects would be expected. Effects are similar to those described under the early transfer disposal alternative, but would occur at a later period in time.

Quality of Life

Direct. No direct effects would be expected.

Indirect. Short-term minor adverse effects would be expected. Effects are similar to those described under the early transfer disposal alternative, but would occur at a later period in time.

Installation Agreements

Direct. No direct effects would be expected. Fire, police, and emergency medical services are provided to RBAAP by Stanislaus County and will continue after the properties have been conveyed to the RLRA (Mendes 2008).

Indirect. No indirect effects would be expected.

4.10.2.3 Caretaker Status Alternative

Economic Development

Direct. Short- and long-term minor adverse effects would be expected. According to analysis using the U.S. Army's Economic Impact Forecast System (EIFS) model, the closure of RBAAP, NI, and all other tenants on the facility under caretaker status would result in the direct loss of 691 jobs and \$92.9 million in sales volumes in the ROI economy. The economic contraction resulting from caretaker status would impact the

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local economy most directly, but the economic impact of these direct changes is not predicted to exceed historical thresholds for socioeconomic changes in the ROI and can be expected to be reversed when the property is redeveloped. The EIFS model is discussed in detail in Section 4.10.2.5 and in Appendix F, including the EIFS forecast report for the caretaker status alternative.

Indirect. Short- and long-term minor adverse effects would be expected. Under caretaker status the loss of RBAAP, NI, and existing tenant employment and expenditures would translate into an indirect loss of 911 jobs and nearly \$186 million in sales volumes. Total combined losses (direct and indirect) would translate into a loss of 1,600 jobs, \$279 million dollars in total sales, \$59 million in total incomes, and reductions in tax revenues for the local and ROI economies. Caretaker status would also represent foregone economic opportunity (e.g., job creation, sales and expenditures, and tax revenues) until the RBAAP property is conveyed to the community. Additionally, depending on how long the property remains under caretaker status and the level of dilapidation the infrastructure suffers, facilities and local infrastructure could degrade over time, increasing costs for future development and potentially negatively affecting the interest of future potential investors. The economic contraction resulting from caretaker status would impact the local economy most directly, but none of the predicted effects exceed historical thresholds for economic change in the ROI and can be expected to be reversed when the property enters into redevelopment.

Sociological Environment (Including Environmental Justice and Protection of Children)

Direct. Long-term minor adverse effects would be expected. Depending on how long the properties remain in caretaker status and the ability of RBAAP, NI, and other tenants' employees to find other work, people may move from the local community, resulting in a contraction in the local population. Given the high cost of housing and the size of the ROI economy, however, it is unlikely that many families could afford to relocate and more likely that employees could find other work within the ROI.

Caretaker status is not expected to create effects that disproportionately affect homeless programs or minority or low-income communities within the ROI. Furthermore, access control and security measures (primarily perimeter fencing) would continue under caretaker status; therefore no direct disproportionate risks to children are expected.

Indirect. Short-term minor adverse effects would be expected. Departure of RBAAP, NI, and other tenants' employees and their families from the local community could result in a short-term reduction in local housing demand, with a corresponding increase in the number of residential vacancies in the local real estate market. This effect would be minor and localized and would not affect the entire ROI equally.

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Quality of Life

Direct. Short-term minor adverse effects would be expected. Discontinuation of the daily presence of the installation and tenant staff on the RBAAP property could potentially create increased opportunity for vandalism, property theft, and other criminal activity. Reduced staffing could also result in less timely discovery of fire and longer response times for fire-fighting and medical emergencies for the caretaker force or visitors to the properties. Together, this could result in adverse effects to human safety and natural resources on the property.

Indirect. Short-term minor beneficial effects would be expected. Departure of some RBAAP, NI, and other tenants' employees and their families from the local community could result in a reduction in the local student population, providing minor relief from overcrowding in some public schools in the area. This effect would be localized and not affect the ROI equally.

Installation Agreements

Direct. No direct effects would be expected. Fire, police, and emergency medical services are provided to RBAAP by Stanislaus County (Mendes 2008) and would continue under caretaker status.

Indirect. No indirect effects would be expected.

4.10.2.4 No Action Alternative

No direct or indirect effects would be expected under the no action alternative. For this alternative, the Army would continue operations at RBAAP at similar levels to those occurring prior to the BRAC 2005 Commission's recommendations for closure and realignment, which would have no effect on any socioeconomic metrics in the immediate vicinity of RBAAP nor within the ROI. Overall, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.10.2.5 Intensity-Based Probable Use Scenario

Socioeconomic Impact Assessment Method of Analysis

To determine the secondary socioeconomic effects of the implementation of the Medium-High Intensity Reuse (MHIR) and Medium Intensity Reuse (MIR) scenarios for RBAAP, the EIFS model was used. The EIFS model is a computer-based economic tool that calculates multipliers to estimate the direct and indirect impacts resulting from a given action. The model requires input data for: the names of counties comprising the ROI, the number and income of civilian and military personnel affected by the action and reuse scenarios, change in local expenditures due to the action and reuse scenarios, the number of civilians expected to relocate, and the number of military personnel who live on the installation. Changes in employment and spending represent direct effects resulting from the action and reuse scenarios. Forecast changes in ROI sales volume,

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employment, income, and population represent indirect effects and are based on the input data and calculated multipliers within the model.

For the purposes of analysis, a change is considered significant if it falls outside the normal range of ROI economic variation. To determine normal variability, the EIFS model calculates a rational threshold value (RTV) profile for the ROI based on historical fluctuations in sales volume, employment, income, and population patterns. The historic extremes for the ROI become the threshold of significance for social and economic change. If the calculated effect of a reuse scenario falls outside the RTV, the effect is considered significant. Appendix F describes the EIFS model in detail, as well as the calculation of input parameters, and presents model input and output tables and RTV parameters for both reuse intensity scenarios considered.

For the MHIR and MIR scenarios, EIFS was used to predict maximum annual economic change in the ROI over a 15-year redevelopment plan build-out. The proportion of development that would occur in any given year is not known; therefore, conservative assumptions were used to predict maximum annual change. The EIFS parameters and analysis do not account for phased development planning, or employment and expenditures for site remediation, preparation, or new construction, and only reflect anticipated effects from the RLRA reuse plan upon completed build-out. As such, model inputs reflect a conservative assumption that 50 percent of new employment and expenditures would occur in one year during the total build-out period for the reuse plan, which is assumed to be a 15-year period (Ogden 2008). Table 4.10-8 presents model input parameters and projected outputs and maximum annual change for both the MHIR and MIR reuse scenarios under the RLRA reuse plan. Appendix F describes the EIFS model and calculation of input parameters and presents model input and output tables for maximum annual change over the build-out period. Expected effects of the two reuse scenarios at build-out are discussed below along with their EIFS output reports.

Economic Development

Medium-High Intensity, Direct. Short- and long-term minor beneficial effects would be expected. A MHIR scenario could create beneficial effects for job creation, income generation, sales and expenditures, and tax revenues for the ROI and local economy. Table 4.10-8 shows that, in year(s) of maximum economic change during a 15-year build-out period, an estimated 662 direct jobs could be created, generating direct increases of \$41 million in sales volumes and \$28 million in incomes.

Medium-High Intensity, Indirect. Short- and long-term minor beneficial effects would be expected. Table 4.10-8 shows that, under the MHIR scenario in year(s) of maximum economic change, 402 indirect jobs would be created, with indirect sales volumes increased by \$82 million and indirect incomes increased by almost \$15 million. Local and regional tax revenues would increase, in turn.

Medium-High Intensity, Direct plus Indirect. Short- and long-term moderate beneficial effects would be expected. Table 4.10-8 shows that, under the MHIR scenario, in year(s)

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of maximum economic change over a 15-year build-out period, an estimated total (direct and indirect) of nearly 1,064 jobs would be created, which represents an increase of 0.6 percent over 2005. The infusion of jobs could help to reduce local and regional unemployment to the extent that local skills match the needs of the industrial business park and limited retail development proposed in the RLRA reuse plan for the RBAAP property. Total income generation (direct plus indirect) in year(s) of maximum economic change over a 15-year build-out period could increase by \$43 million (0.5 percent over 2005) with \$123 million increases in total sales volumes (1.2 percent over 2005). The economic effect of total (direct plus indirect) maximum annual change in employment, sales, and incomes are not predicted to exceed historical thresholds for socioeconomic change and sustainability in the ROI.

Medium Intensity, Direct. Short- and long-term minor beneficial effects would be expected. Table 4.10-8 shows that, under the MIR scenario in year(s) of maximum economic change over a 15-year build-out period, an estimated 227 jobs could be created, generating direct increases of \$13.5 million in sales and \$9.7 million in income.

Medium Intensity, Indirect. Short- and long-term minor beneficial effects would be expected. Table 4.10-8 shows that, under the MIR scenario in year(s) of maximum economic change over a 15-year build-out period, an estimated 132 indirect jobs would be created, with increases in indirect sales volumes by \$26.9 million and indirect incomes by \$4.9 million. Local and regional tax revenues would increase, in turn.

Medium Intensity, Direct plus Indirect. Short- and long-term moderate beneficial effects would be expected. Table 4.10-8 shows that under the MIR scenario, in year(s) of maximum economic change over a 15-year build-out period, an estimated 359 total (direct and indirect) jobs could be created (0.2 percent over 2005). The infusion of jobs could help to reduce local and regional unemployment to the extent that local skills match the needs of the new industrial business park and limited retail development proposed in the RLRA's reuse plan. Total income generation (direct plus indirect) could increase by as much as \$14.6 million (0.2 percent over 2005) with \$40 million increases in total sales volumes (0.4 percent over 2005). The economic impact of maximum annual total changes in employment, sales, and incomes are not predicted to exceed historical thresholds for socioeconomic change and sustainability in the ROI.

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Table 4.10-8 RBAAP Reuse Intensity Scenarios

PEAK YEAR INPUT PARAMETERS ¹					
Reuse Intensity Scenario	Medium Intensity		Medium-High Intensity		
Change in Local Expenditures	\$6,681,384		\$21,601,910		
Net Change in Civilian Employment	161		461		
Average Income of Affected Civilian	\$52,384		\$52,384		
Percent Expected to Relocate	25		25		
Change in Military Employment	0		0		
Average Income of Affected Military	0		0		
Percent of Military Living On-post	0		0		
Build Out Period	15 years		15 years		
FORECAST OUTPUT					
Maximum Annual Predicted Change During 15-Year Build-out Period					
	MIR		MHIR		RTV Range (percent)
	Max. Annual Projected Change	Percent Change	Max. Annual Projected Change	Percent Change	
Sales Volume					
Direct	\$13,462,180		\$41,017,720		
Indirect	\$26,924,360		\$82,035,460		
Sales Total	\$40,386,540	0.4	\$123,053,200	1.2	-6.47–12.18
Employment					
Direct	227		662		
Indirect	132		402		
Employment Total	359	0.2	1,064	0.6	-2.08–3.61
Income					
Direct	\$9,654,777		\$28,096,550		
Indirect	\$4,920,148		\$14,991,130		
Total (place of work)	\$14,574,930	0.2	\$43,087,680	0.5	-5.12–11.7
Population					
Total Population Change*	100	0.02	287	0	-1.58–3.79

¹Sources and calculations of input parameters are presented in Appendix F.

Sociological Environment (Including Environmental Justice and the Protection of Children)

Medium-High Intensity, Direct. Short- and long-term minor beneficial effects would be expected. In year(s) of maximum economic change, 662 direct jobs could be created under the MHIR scenario. Direct jobs created could attract highly skilled individuals from within the ROI, given the emphasis on industries new to the local economy.

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It is unlikely that the MHIR scenario for the RBAAP property would create disproportionately high or adverse human health or environmental health effects on minority or low-income populations of the surrounding communities. Low-income populations may benefit from the creation of low-skill and unskilled jobs under the RLRA's reuse plan. No effects would be expected for environmental justice, homeless, or other special programs.

No residential development is planned on the RBAAP property. Access and security control measures for areas requiring environmental mediation will continue until all remediation has been completed. According to the RLRA's reuse plan, potential security enhancements that would be installed at the site would include a high-tech security system with computerized surveillance cameras, and partition walls between many of the interconnected buildings to prevent people from moving freely between tenant spaces. Newly developing sites may also require security measures, depending on the nature of the new use. Therefore, no disproportionate risks to children are expected.

Medium-High Intensity, Indirect. Short- and long-term minor beneficial and minor adverse effects would be expected. Under the MHIR scenario, in year(s) of maximum economic change, 402 indirect jobs could be created. Total (direct plus indirect) jobs created in year(s) of maximum economic change could reach nearly 1,064, increasing the population by 287 people. Over time, local public support services could adapt to the demands of an expanded local population, funded by new property tax revenues and sales taxes. It is unlikely that an increase in local housing demand would be enough to drive up house prices in the short run, given the 9.4 percent vacancy rate in the ROI in 2007 (U.S. Census 2007) and severe decline of local housing markets.

Medium Intensity, Direct. Short- and long-term minor beneficial effects would be expected. The nearly 227 direct jobs created under the MIR scenario in year(s) of maximum economic change would create effects similar to but less than those expected under the MHIR scenario.

Medium Intensity, Indirect. Short- and long-term minor beneficial and adverse effects would be expected. The 132 indirect jobs and nearly 360 total (direct plus indirect) jobs created under the MIR scenario in year(s) of maximum economic change would create effects similar to but less than those expected under the MHIR scenario.

Quality of Life

Medium-High Intensity, Direct. Short- and long-term minor adverse effects would be expected. At the local level, a population increase and associated demand for public services could create short-term pressure on local public resources and infrastructure, particularly for local public schools, some of which are already operating over capacity. Increases in the population over the full build-out period would likely have less adverse local effects, as the time frame would allow for local planning to address the needs of a growing population. These effects would be localized rather than taking place throughout the ROI.

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Medium-High Intensity, Indirect. Short- and long-term minor adverse effects would be expected. An increase in the local population would create an increased demand for local public support services; health and medical services; shops and services; recreational resources; a short-term need for new facilities and infrastructure; and over time, the need for new construction and educational and funding resources. New construction and public infrastructure could have an adverse effect on visual and aesthetic values in the area (see Section 4.3, Aesthetics and Visual Resources). Over the full build-out period, accommodating change in local demand for public resources would likely be within the economic and institutional capacities of local public and private organizations. These effects would be localized rather than taking place throughout the ROI.

Medium Intensity, Direct. Short- and long-term minor adverse effects would be expected. Implementation of the MIR scenario would create effects similar to but less than those expected under the MHIR scenario.

Medium Intensity, Indirect. Short- and long-term minor adverse effects would be expected. Implementation of the MIR scenario would create effects similar to but less than those expected under the MHIR scenario.

Installation Agreements

Medium-High Intensity, Direct. No direct effects would be expected. Fire, police, and emergency medical services are provided to RBAAP by Stanislaus County (Mendes 2008) and would continue under a MHIR reuse scenario.

Medium-High Intensity, Indirect. No indirect effects would be expected.

Medium Intensity, Direct. No direct effects would be expected. Fire, police, and emergency medical services are provided to RBAAP by Stanislaus County (Mendes 2008) and would continue under a MIR reuse scenario.

Medium Intensity, Indirect. No indirect effects would be expected.

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4.11 TRANSPORTATION

4.11.1 Affected Environment

RBAAP has access to an extensive transportation network including several state and interstate highways, two transcontinental railway lines, commercial airports, and a major port within 30 miles.

4.11.1.1 Roadways and Traffic

The RBAAP Main Site and E/P ponds have easy access to three east/west running State Highways (SR), 108, 132, and 120, which in turn connect to SR 99 and Interstate (I) Highway 5, both major north-south routes through Northern California. As shown in Figure 4.2.1 (RBAAP Main Site Installation and Land Use Map), SR 108 is located approximately 1.5 miles north of the Main Site and travels east-west through downtown Riverbank, before turning south towards Modesto. SR 120 is located approximately 4 miles north of 108 and runs parallel with SR 132, located 5 miles south of the base. Smaller north-south local and regional roads, including Claus Road, run through more rural and agricultural areas and connect SR 108 and SR 132. SR 99 is located approximately 8 miles to the west of the Main Site and is a major trucking route through California's Central Valley. I-5 is located 25 miles west of the Main Site (via SR 99 and SR 120) and is the primary transportation route on the West Coast, providing access from Mexico to Canada. In addition, the Port of Stockton is approximately 35 miles north of Riverbank (U.S. Army 2006a).

The primary entrance to the Main Site is Gate 2, accessed from Claus Road, which runs along the western edge of the installation, intersecting SR 108 to the north and SR 132 to the south. Delivery trucks and other vehicles can also enter through Gate 10, north of Gate 2. Access through both gates is secured by a perimeter fence. Along the southern border of the Main Site is Claribel Road, a two-lane, east-west thoroughfare that continues west to the City of Modesto via Kiernan Avenue. Other main arterial roads connecting RBAAP to the surrounding community and nearby cities include Patterson Road (which turns into SR 108) and Yosemite Boulevard (SR 132), which provide direct access to the cities of Modesto, Oakdale, Empire and Waterford.

According to City of Riverbank General Plan documents, traffic volumes on these arterial roads have increased in recent years and in some cases are approaching their limits of capacity (City of Riverbank 2006). Average Daily Traffic (ADT) on Patterson Road in northern Riverbank has increased by an average of about 5 percent per year during the past 10 years, and, according to the California Department of Transportation (CalTrans 2007), reached 26,000 vehicles a day in 2005. As a result, vehicle entry and exit from Highway 99 has become increasingly difficult, as has pedestrian traffic across Patterson Road where there are no traffic signals. Claribel Road, just south of RBAAP, carries an ADT of more than 10,000 vehicles a day, raising concerns about infrastructure capacity.

Level of Service (LOS) conditions for intersections within the City of Riverbank are measured and monitored regularly, and an LOS analysis was included in the Draft EIR for

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the city's General Plan update (City of Riverbank 2008a). In the General Plan update, the city proposes LOS D as the minimum operational threshold for intersections and roadway segments. LOS conditions for major intersections near the RBAAP Main Site during the morning and evening peak-hour commutes tend to be at LOS C or above, indicating that some area roads are operating at or above the city's threshold during peak hours. Peak-hour LOS at the signaled intersection of Claribel Road and Claus Road, southwest of the installation, was measured as B for morning and C for evening. Peak-hour LOS at the intersection of Claribel Road and Eleanor Avenue, southeast of the installation, was measured as A for both morning and evening peak-hour commutes. North of the installation, the intersection of Patterson Road and Claus Road has an all-way stop, which was measured as LOS C during both the morning and evening peak-hour commutes (City of Riverbank 2008a).

Under the city's projected General Plan build-out, however, the signaled intersection of Claribel Road and Claus Road is anticipated to have a peak-hour LOS of F for both morning and evening commutes. With the implementation of General Plan Circulation Element improvements and mitigation, LOS is anticipated to be reduced to C for morning peak-hour and D for evening peak-hour at this intersection. Given the uncertainties of transportation planning for this part of the region, however, the EIR analysis has identified adverse effects on transportation from the build-out projected under the General Plan update as significant and unavoidable (City of Riverbank 2008a).

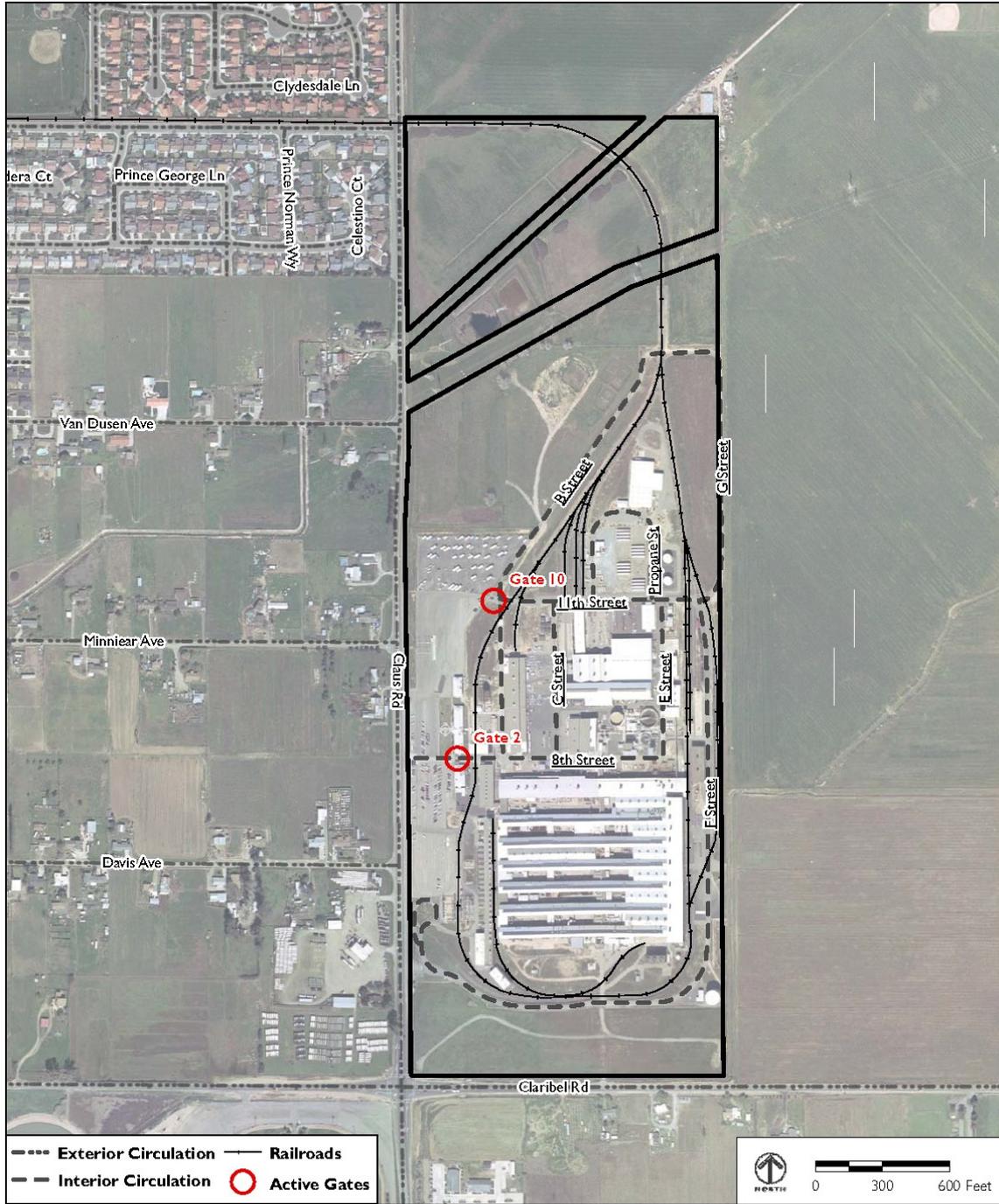
Local circulation improvements planned for the area around the RBAAP Main Site include the extension of Van Dusen Avenue through the site, with an at-grade crossing over the rail line, as shown earlier in this document in Figure 3.3.1. Coordination with the San Francisco Public Utility Commission will be necessary where the circulation system crosses the Hetch Hetchy utility corridor. The RLRA's reuse plan also assumes that existing roadways may need to be widened, and intersections improved, in the area of the Main Site in order to accommodate redevelopment (RLRA 2008).

The City of Riverbank and local affected agencies are considering developing a regional expressway as an alternate route for the SR 108/Patterson Road corridor, either a State Highway, County Road, or city street that would pass around the periphery rather than through the center of the city (City of Riverbank 2008a). Current preference among the affected agencies is to upgrade Claribel Road to arterial/expressway status, while widening the road and controlling traffic at major signal-controlled intersections, though ultimate decision-making authority rests with CalTrans.

In addition, the NCCJPA is pursuing the North County Corridor Project, a new expressway that would connect SR 99 and SR 120 at a location east of Oakdale, near the RBAAP Main Site (RLRA 2008).

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Source: RLRA 2008

Figure 4.11-1 Existing Circulation System, RBAAP Main Site

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Main Site

The RBAAP Main Site has approximately 6 miles of paved roads within its boundaries, all of which are in good condition (U.S. Army 2006a). Vehicles enter the base through either Gate 2 or Gate 10 off Claus Road. Figure 4.11.1 shows existing roads, rail, and access points at the Main Site.

E/P Ponds

The E/P ponds are located 1.5 miles north of the RBAAP main facility, tucked close between the Stanislaus River to the west and SR 108 to the east. The ponds are accessible by Adams Gravel Road, which leads to an unpaved road that circumnavigates the perimeter of the ponds.

4.11.1.2 Regional Public Transportation

RBAAP, surrounding cities, and Stanislaus County are served by public transportation. The cities of Riverbank, Oakdale, Ceres, and Turlock all run small, local bus services. The Stanislaus County Regional Transit (StaRT) system provides fixed route and dial-a-ride bus services in and among the main cities in the area (Modesto, Riverbank, Oakdale, Turlock, Waterford, and Empire, among others) (StaRT 2007). The Riverbank-Oakdale Transit Authority (ROTA) trolley provides hourly service between the cities of Riverbank and Oakdale; in the future, ROTA will be coordinated with StaRT. The StaRT bus system, as well as the Modesto Area Express bus service, connects Riverbank to train services throughout Stanislaus, San Joaquin, and Stockton Counties (including the Altamont Commuter Express and Amtrak California) that in turn connect to other counties and cities in the area and throughout California (San Joaquin Council of Governments 2007).

4.11.1.3 Rail

BNSF and Union Pacific (UP) Railroads actively serve Stanislaus County and the San Joaquin Valley with transcontinental and West Coast freight transport services. The BNSF rail line runs north/south through the City of Riverbank and includes a rail yard located just west of the RBAAP Main Site; the UP rail line parallels north/south SR 99 through the City of Modesto. The Modesto & Empire Traction Company (M&ET) is a short-line railroad in Modesto that services heavy industrial users and interconnects with BNSF and UP for regional and transcontinental transport (U.S. Army 2006a). Amtrak provides regional and national passenger train service with a San Joaquin Valley line that passes through Riverbank, with daily stops at stations in Stockton, Modesto, and Denair (Turlock) (Amtrak 2007).

Main Site

The BNSF Railroad services a heavy rail spur that enters the RBAAP Main Site at the northeast corner. Rail on the Main Site includes five miles of track that are in good condition and that run along the north and east perimeter and split to bisect the facility on a north-south diagonal.

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E/P Ponds

The EP Ponds are not accessible by railroad.

4.11.1.4 Air Traffic and Airspace

There are six commercial airports within 40 miles of the City of Riverbank and RBAAP. Three are certified for carrier operations and include the Modesto City-County Airport (8 miles from Riverbank, in Modesto); the Stockton Metropolitan Airport (23 miles from Riverbank, in Stockton), and the Merced Municipal/Macready Field (44 miles from Riverbank, in Merced). The Modesto Municipal Airport provides several daily flights to San Francisco International Airport, Castle, and Modesto Freight Airports (NI 2005). Three additional commercial airports in close proximity to Riverbank include the Oakdale Airport (11 miles from Riverbank, in Oakdale), New Jerusalem Airport (24 miles from Riverbank, in Tracy), and the Turlock Municipal Airport (25 miles from Riverbank, in Turlock).

There is no aviation transport infrastructure or service, or airspace utilization, on the RBAAP Main Site or the E/P ponds (Mendes 2008).

4.11.2 Consequences

4.11.2.1 Early Transfer Disposal Alternative

Direct. Short- and long-term moderate adverse and minor beneficial effects to transportation infrastructure would be expected at RBAAP. For off-site transportation networks, moderate short- and long-term adverse effects would be expected. It is anticipated that early transfer would result in increased traffic and increased usage of transportation infrastructure both on and off the installation property. This increase would cause greater wear and tear on existing roadways and possibly other transportation infrastructure, such as the rail lines, thereby causing short- and long-term minor adverse effects both on- and off the installation property. Off-site area roads are operating at or above the City of Riverbank's LOS thresholds, and adverse effects are expected from site redevelopment. These effects are anticipated to be moderate, because improvements to local roads that will increase capacity are planned by the City of Riverbank and other transportation planning agencies, and, perhaps more importantly, the RLRA will plan widening and improvement for nearby roadways as part of redevelopment. On-site, a minor adverse effect would be offset to some degree, as existing transportation infrastructure would be better maintained and possibly upgraded under this alternative. Thus, beneficial effects would also be expected on RBAAP.

Indirect. Long-term minor adverse effects would be expected near RBAAP. In the long term, disposal of RBAAP may spur additional economic growth in the region, which could generate additional residential and commercial traffic within the area and adversely affect traffic flow. However, improvements to local road networks that will increase capacity are planned in the short and long term for the area. Thus, only minor effects are expected.

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4.11.2.2 Traditional Disposal Alternative

Direct. Short- and long-term moderate adverse and minor beneficial effects to transportation infrastructure would be expected at RBAAP. For off-site transportation networks, moderate short- and long-term adverse effects would be expected. Effects would be similar to those described under the early transfer disposal alternative, but the effects would occur further into the future.

Indirect. Long-term minor adverse effects would be expected near RBAAP. Effects would be similar to those described under the early transfer disposal alternative, but the effects would occur further into the future.

4.11.2.3 Caretaker Status Alternative

Direct. Long-term minor adverse and beneficial effects would be expected. Caretaker status would result in fewer demands on roads and other transportation elements. Roads would receive less use, and therefore less wear and tear, and traffic would be reduced. Reduced use and maintenance over a prolonged period of caretaker status, however, would result in gradual deterioration of roads and on-site rail. No effects on regional traffic patterns would be expected.

Indirect. No effects would be expected.

4.11.2.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC Commission's recommendations for closure and realignment, including implementation of road and other infrastructure maintenance. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.11.2.5 Intensity-Based Probable Use Scenario

Medium-High Intensity, Direct. Long-term moderate adverse and minor beneficial effects would be expected at RBAAP. Medium-high intensity reuse of RBAAP would result in an estimated increase in employees from about 300 to 1,100. This represents long-term build-out of these facilities, and it is anticipated that infrastructure investments commensurate with this growth would minimize adverse effects to transportation, as described in the reuse plan (RLRA 2008). In the short term, increased demands on the installation property's transportation infrastructure could cause greater wear and tear on available infrastructure both on and off the installations. Furthermore, construction associated with reuse could result in short-term adverse impacts by affecting traffic on the installation property.

Off-site area roads are operating at or above the City of Riverbank's LOS thresholds, and adverse effects are expected from site redevelopment; these effects, however, are anticipated to be moderate, because improvements to local roads that will increase capacity are planned by the City of Riverbank and other transportation planning agencies,

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and, perhaps more importantly, the RLRA will plan widening and improvement for nearby roadways as part of redevelopment. The RLRA's reuse plan addresses requirements for transportation networks at the RBAAP property, as well as adequate circulation for an increased number of employees at the site (RLRA 2008). On-site, a minor adverse effect would be offset to some degree, as existing transportation infrastructure would be upgraded under this alternative. Thus, beneficial effects would also be expected on RBAAP.

Medium-High Intensity, Indirect. Long-term minor adverse effects would be expected near RBAAP. This reuse scenario would generate additional economic growth in the region, which could result in additional residential and commercial traffic beyond the levels specifically addressed in the reuse plan. This added growth could adversely affect traffic as well. However, improvements to local roads that will increase capacity are planned by the City of Riverbank and other transportation planning agencies; therefore, only minor effects are expected.

Medium Intensity, Direct. Long-term minor beneficial and adverse effects would be expected. Use of RBAAP as of November 2005 was characterized as medium intensity. Medium intensity reuse of RBAAP would result in an estimated increase in employees from about 300 to 500. Although this increase is less than that predicted for the MHIR scenario, this increase would still result in greater demands on the installation's transportation infrastructure and area roads, but to a lesser degree.

Medium Intensity, Indirect. Long-term minor adverse effects would be expected. Effects from the MIR scenario are similar to but less than the effects from the MHIR scenario.

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4.12 UTILITIES

4.12.1 Affected Environment

This section includes a discussion of the utilities, including water supply, wastewater system, storm water system, energy sources, and solid waste disposal at RBAAP. Information in this section is largely based on information contained in the ECP Report prepared for RBAAP (U.S. Army 2006a), except where noted. Related topics, such as storm water flow, groundwater flow, and treatment of contaminants are addressed in Section 4.7, Water Resources, and Section 4.13, Hazardous and Toxic Substances.

4.12.1.1 Potable Water Supply

The water system serving RBAAP provides water for drinking, fire protection, and industrial processes from three groundwater production wells (Production Wells 1, 5 and 6), located on the Main Site property. The system operates under a State of California Domestic Water Supply Permit (see Table 4.12-1 for information about this permit). The water system is classified as a nontransient, noncommunity water system (or, a public water system that regularly supplies water to at least 25 of the same people at least six months per year). The water is treated at the wellhead by gas chlorination (U.S. Army 2006a, California Department of Health Services [CA DoH] 2003).

Water distribution facilities include an existing 8-inch main distribution line (RLRA 2008), 26 service connections, and a 100,000-gallon elevated storage tank. As of 2005, maximum monthly potable water usage had never exceeded 3 percent of well pumping capacity. Well 5 has a production capacity of 1,100 gallons per minute (gpm) and Well 6 has a capacity of 1,500 gpm. The combined capacity of all three production wells is 5.04 million gpd (Staubach 2006). RBAAP was granted a permit amendment in 2005 to change the status of Well 1 from Active to Standby, a status which allows only short-term, emergency use. Well 1 lies within the designated ECP Category 5 area of the property, where release, disposal, and/or migration of hazardous substances has occurred, but where remediation is incomplete. The facility has an ongoing program for extraction and remediation of groundwater affected by hexavalent chromium and cyanide; the three production wells have had no detections of either hexavalent chromium or cyanide as of the issue date of the drinking water permit (May 2003). See Section 4.13, Hazardous and Toxic Substances, for a complete description of the ECP property categorizations (CA DoH 2003, CA DoH 2005, U.S. Army 2006a).

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Table 4.12-1 Water, Wastewater, and Storm Water Permits

Permit Number	Statute/Agency	Issuance Date	Expiration Date
Drinking Water			
03-10-03P-005, Amendment No. 03-10-05PA-004	State of California, Department of Health Services, Division of Drinking Water and Environmental Management Branch	14 May 2003	None
Industrial Wastewater Discharge			
05-001	City of Riverbank	1 Jan 2005	31 Dec 2007
Storm Water			
NPDES General Permit for Storm Water Discharges associated w/ industrial activities, CAS 000001, Order No. 97-03-DWQ	RWQCB Central Valley Region	17 April 1997	None
SOURCE: U.S. Army 2006a			

4.12.1.2 Wastewater System

RBAAP has been connected since 1980 to the City of Riverbank sanitary sewer system through a 12-inch main sewer line and the use of a lift station on the Main Site for discharge of domestic wastewater. Lessees (tenants) on the property discharge domestic wastewater to the City of Riverbank. The sanitary sewer system on the RBAAP Main Site is considered to be in good condition but does not serve all areas of the Main Site, such as the open area in the northern portion of the site (RLRA 2008). Brine solution and rinse water from regeneration of the ion-exchange columns at the IWTP are discharged to the City of Riverbank publicly owned treatment works (POTW) under Industrial Wastewater Discharge Permit 05-001. Actual discharges to the POTW of water from the IWTP are close to the maximum permitted volume of 5.76 million gallons per year and maximum allowed TDS of 352,000 pounds per year (U.S. Army 2006a, City of Riverbank 2004, CVRWQCB 2001).

All industrial wastewater generated at RBAAP is treated at the on-site IWTP. The IWTP was originally built after the Army acquired the facility in 1951, has been upgraded as needed, and is regularly maintained. The entire IWTP area is now covered with an impermeable concrete or asphalt layer, and a series of concrete drainage trenches captures spills and overflows and drains to the former influent sump which is currently used as a secondary containment sump for the IWTP. In 1999, the old underground lines that conveyed waste from the process generation points to the IWTP were replaced with a new pressurized system designed to run aboveground and constructed with double-walled lines equipped with leak detection. All old underground lines were deactivated, flushed, cleaned, drained, and abandoned in place. Inlet points were disconnected, capped, or welded shut and the discharge ends were filled with concrete (U.S. Army 2006a, RBAAP 2002).

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Current influents to the IWTP include wastewaters directly associated with plant production activities, spent chemicals and effluents from cleaning and maintenance activities, liquids from the Hazardous Waste Accumulation area that can be treated by the IWTP, effluents from the GWTP that need further treatment before discharge to the E/P ponds, and pretreated wastewater from the chromium reduction units. The IWTP treats wastewater sequentially through the following processes:

- Mixing with coagulants/flocculants for the removal of dissolved solids via pH adjustment and chemical precipitation;
- Clarification;
- Filtration through sand media;
- Absorption through activated carbon;
- Treatment through an ion exchange system; and
- Neutralization with carbon dioxide.

The IWTP process is piped to allow unnecessary process steps to be bypassed or required process steps to be repeated if necessary. Scums and sludges from the IWTP and the Chromium Reduction Units are thickened, dewatered, and collected in roll-off boxes for transport to an off-site disposal facility. Treated effluent from the IWTP is discharged to an 80,000 gallon effluent basin where it is sampled for compliance with effluent discharge limitations in accordance with Waste Discharge Requirement (WDR) permits issued by the CVRWQCB. IWTP effluent is then batch-discharged to the E/P ponds via an underground pipe. See Section 4.7, Water Resources, and Section 4.13, Hazardous and Toxic Substances, for further information about the operation of the IWTP and the E/P ponds. The total permitted daily treatment/system capacity for the IWTP is about 58,000 gallons per day; the maximum daily treatment/system capacity (design) is about 180,000 gallons per day.

4.12.1.3 Groundwater Treatment System

As part of the requirements of the 1994 Record of Decision, RBAAP extracts groundwater from a number of wells both on-site and immediately west of the Main Site, processing it through a GWTP to remove chromium and cyanide. The GWTP currently comprises five ion exchange columns and processes an average of 250,000 gallons of contaminated groundwater per day. Treated water flows to storage tanks, and the storage tank contents are tested before they are sent to the IWTP for further treatment, if necessary. If no further treatment is necessary, the GWTP effluent is discharged to the E/P ponds, which are subject to CVRWQCB WDRs (U.S. Army 2006a, RBAAP 2002). See Section 4.7, Water Resources, for further information about the E/P ponds. See Section 4.13, Hazardous and Toxic Substances, for more information about groundwater treatment.

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A waste hauler comes every two to three months to RBAAP to transport contaminated brine that is generated through the groundwater treatment process off-site for disposal at an appropriate treatment facility (RBAAP 2002).

4.12.1.4 Storm Water System

The terrain around RBAAP is generally flat, sloping slightly to the west. Precipitation in the area generally percolates through the soil and recharges groundwater. Unusually heavy rains may generate some overland flows, which move generally west and southwest until settling into a localized depression or encountering a waterway (OID 2005). Undeveloped areas in the northern portion of the RBAAP Main Site do not have storm drains and are subject to the same percolation and runoff as the surrounding open land. Storm drains and channels in the developed portion of the Main Site (main plant area) collect runoff into two storm reservoirs. The storm water collected in the Southeast Storm Reservoir is pumped to the larger Northwest Storm Reservoir. In the case of unusually heavy or continuous rains, overflow from the Northwest Storm Reservoir will discharge to the adjacent Oakdale Irrigation District canal that traverses the property. Storm drainage systems at the site are separate from wastewater and sanitary sewer systems. RBAAP holds an NPDES General Permit for discharges of storm water associated with industrial activities (see Table 4.12-1 for a description of this permit), and NI maintains a SWPPP. Refer to Section 4.7, Water Resources, for a more information about watershed characteristics, storm water management, and system characteristics.

4.12.1.5 Solid Waste

RBAAP does not maintain a Solid Waste Permit. There is currently no active landfill at the site; solid waste from daily employee operations is trucked off-site to a landfill facility (Mendes 2008). Dewatered sludge from the IWTP is collected in roll-off boxes for transport to an off-site disposal facility (U.S. Army 2006a). A 4.3-acre area in the northeastern part of the Main Site was historically used for waste disposal (dumping or incineration) until 1966, when all on-site waste disposal was discontinued. All surface debris was removed from the landfill in 1987, and it was later capped and covered over as part of the CERCLA response action addressing cyanide and chromium contamination. See Section 4.13, Hazardous and Toxic Substances, for more information about the former landfill.

4.12.1.6 Other Waste

Waste oil produced from operations at RBAAP is accumulated in a 6,000-gallon aboveground tank prior to shipment off-site for recycling (RBAAP 2002).

4.12.1.7 Energy Sources

Electricity is supplied to RBAAP by Hetch Hetchy Water & Power. Electrical transmission lines (12-kilovolt) cross the RBAAP property in the Hetch Hetchy right-of-way in the northern portion of the Main Site. RBAAP owns its utility distribution lines and facilities, including 200,000 linear feet of overhead electrical lines, which are considered to be in good condition (Staubach 2006). In addition, emergency electrical generating equipment

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(11 standby generators) is available on-site for essential operations during a power failure.

Propane liquid is stored at the RBAAP Main Site in 16 horizontal pressure tanks, each with a 30,000-gallon capacity. Because the Army currently has only a limited need for propane at the RBAAP site, the propane storage tank area has been leased to a commercial propane vendor (U.S. Army 2006a).

An existing natural gas line on Claus Road feeds into a 10-inch line at the southeast corner of the Main Site.

Two small package boilers are operated in the production area of the Main Site; no other boilers are operated on-site (Mendes 2008). No fuel oil is currently known to be used at RBAAP.

4.12.2 Consequences

4.12.2.1 Early Transfer Disposal Alternative

Direct. Minor long-term adverse and beneficial effects to utilities would be expected on the RBAAP Main Site. Under the early transfer alternative, utility easements such as the Hetch Hetchy right-of-way would remain in effect. Minor beneficial effects will occur as private ownership and market forces enable upgrades to utility systems, including extension of water distribution, sewer lines, storm water systems, and power infrastructure throughout the Main Site. On the other hand, minor adverse effects may occur if market forces and redevelopment outpace to some degree infrastructure upgrades that are needed. The RLRA includes utility upgrades and extension as part of the reuse plan for the property; stressors to system capacity will thus be minimized to ensure that sufficient utility service is provided to current and new tenants into the future. Any additional, heretofore unforeseen utility upgrades necessary for reuse would be the responsibility of the RLRA and would occur after disposal.

Some of the infrastructure concerns that will require upgrades in the long term are described below under the discussion of the reuse scenarios.

Indirect. Short-term minor adverse effects at the RBAAP Main Site may result from the early transfer disposal alternative because the acceleration of the disposal may make it difficult to upgrade or extend infrastructure as necessary.

4.12.2.2 Traditional Disposal Alternative

Direct. No short-term effects, but minor long-term adverse and beneficial effects to utilities would be expected for the RBAAP Main Site. Effects would be similar to those described under the early transfer disposal alternative, but the effects would occur further into the future.

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Indirect. No effects would be expected. Under traditional disposal, there would be more time to assess the exact condition of utilities and any necessary repairs or upgrades to existing utilities could be performed with limited impact to on-site operations.

4.12.2.3 Caretaker Status Alternative

Direct. Minor long-term adverse effects would be expected. Caretaker status would result in decreased demands on infrastructure at the Main Site, which could extend the life of some utility systems. However, most utility systems (water treatment, wastewater treatment, electricity distribution) are designed to be continually used over the life of the system, and suspending use of the system would likely do more harm than good. Reduced use and maintenance of utility systems could result in gradual deterioration over time, resulting in a long-term adverse effect.

Indirect. No effects would be expected.

4.12.2.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC 2005 Commission's recommendations for closure; thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.12.2.5 Intensity-Based Probable Use Scenario

Medium-High Intensity, Direct. Long-term minor beneficial and adverse effects would be expected on the RBAAP Main Site. Under the MHIR scenario, utility consumption would be higher than under the existing conditions. Extensions of existing utilities to all parts of the Main Site would be required under this scenario.

Increased development on RBAAP would require additional water production and distribution. Based on existing knowledge of utilities at the site, the RLRA assumes that the three active wells on the Main Site have sufficient capacity to support the proposed redevelopment with potable water (RLRA 2008). Extensions of the existing 8-inch main distribution line, as well as the installation of new 4-inch or 6-inch branch lines, would be required to serve new development at the Main Site. Construction would likely occur over time as new water lines were needed.

A new 12-inch sanitary sewer main and a new 8-inch branch line would also be required to serve development proposed under the reuse plan. The RLRA's reuse plan also includes a plan for the installation of recycled water ("gray water") systems at the Main site for the reuse of water for nonpotable uses such as irrigation and fire suppression. The E/P ponds would continue to collect treated wastewater from the industrial uses at the site during and after redevelopment at the site (RLRA 2008).

Adding more impermeable surfaces associated with development as proposed under the reuse plan would require construction of additional storm water management systems, which would take the form of conventional or low-impact development systems. Storm

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water drainage patterns on most of the RBAAP Main Site are not expected to change as a result of redevelopment. The RLRA's reuse planning process assumes that existing storm drainage systems – i.e., drainage to the Northwest Storm Reservoir – would continue to be used and potentially expanded (although, if more effective or suitable storm water drainage systems are proposed as part of redevelopment, the Northwest Storm Reservoir may be filled in and developed with new uses). The RLRA and the City of Riverbank would encourage and potentially require developers to include low-impact development techniques such as green roofs, pervious asphalt, and rain gardens to manage storm flows at newly developed areas on the Main Site (RLRA 2008). New storm water systems would be required to comply with applicable water quality laws and permits, including regulations enforced by the CVRWQCB.

Implementation of the MHIR scenario would result in increased demand for electricity and energy at the RBAAP property. Extension of electrical systems and new connections to the existing 12-kilovolt line would be required to serve new development at the Main Site. The extension of new natural gas service infrastructure, including new 2-inch, 4-inch, 6-inch, and 10-inch natural gas lines, would be required for vacant sites as they develop.

New telecommunications lines may also be required as part of the redevelopment of the Main Site.

Implementation of the MHIR scenario would result in an increase in solid waste generated from commercial, industrial, and other operations at the Main Site. Local landfills serving the area are well below capacity, and solid waste hauling contractors serving the City of Riverbank are contractually required to accommodate any increase in the need for commercial waste management services (City of Riverbank 2008a); therefore, no impacts related to increased disposal of solid waste at the site are expected.

Medium-High Intensity, Indirect. No indirect effects to utility systems would be expected. Economic growth generated from redevelopment at the RBAAP property could generate additional infrastructure and utility demands for the area, but the long-term capacity of regional systems is expected to be sufficient to address growing needs.

Medium Intensity, Direct. Minor beneficial and adverse effects are anticipated. The medium intensity reuse of RBAAP would result in additional development and increased employment. This would result in an increase in utility usage; however, the usage would be less than that under the MHIR scenario. Existing utility systems would be able to better accommodate this scenario because utility demand would be less than under the MLIR scenario. Most utility distribution systems, however, would still require, to some degree, the extensions and upgrades described above under the MHIR scenario to accommodate the anticipated demand.

Medium Intensity, Indirect. No indirect effects to utility systems would be expected.

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4.13 HAZARDOUS AND TOXIC SUBSTANCES

4.13.1 Affected Environment

Information in this section is largely based on information contained in the *Environmental Condition of Property Phase I Report* prepared for RBAAP 16 November 2006 (ECP) (U.S. Army 2006a) and associated reports, including the 2007 Site Investigation Report (U.S. Army 2007b).

4.13.1.1 ECP Categories

The ECP report identified and described areas at RBAAP in accordance with the criteria in the Community Environmental Response Facilitation Act (CERFA – Pub. L. 102-426), the Base Reuse Redevelopment and Realignment Manual (2006), and the American Society for Testing and Materials' Standard Practice for Conducting Environmental Baseline Surveys (ASTM D6008-96, 2005). CERFA directs federal agencies to evaluate all BRAC property to identify uncontaminated parcels and allows the transfer of remediated parcels when the successful operation of an approved remedy has been demonstrated. Table 4.13-1 provides definitions for the seven ECP categories and gives the total acreage at RBAAP classified under each category.

The ECP Categories that apply to RBAAP are shown in Figure 4.13-1. Individual ECP Category descriptions and designations are also provided in Appendix G.

Areas that are designated as Category 1, 2, 3, or 4 are considered suitable for transfer or lease, subject to the applicable qualifiers. Areas that are designated as Category 5, 6, or 7 may be suitable for early transfer. The transfer of areas in these three categories would only occur under the early transfer scenario.

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Table 4.13-1 ECP Categories and Acreage

Category 1 Definition: Areas where no release or disposal of hazardous substances or petroleum products has occurred, including no migration of these substances from adjacent areas.	45.71 acres
Category 2 Definition: Areas where only releases or disposal of petroleum products has occurred.	0.03 acres
Category 3 Definition: Areas where release, disposal, and/or migration of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action.	56.01 acres
Category 4 Definition: 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.	28.23 acres
Category 5 Definition: Areas where release, disposal, and/or migration of hazardous substances has occurred and removal or remedial actions are under way, but all required remedial steps have not yet been taken.	37.00 acres
Category 6 Definition: Areas where release, disposal, and/or migration of hazardous substances has occurred but required actions have not yet been implemented.	0 acres
Category 7 Definition: Areas that are not evaluated or require additional evaluation.	5.57 acres
Notes: Total Acreage: 173 acres. Source: U.S. Army 2006a	

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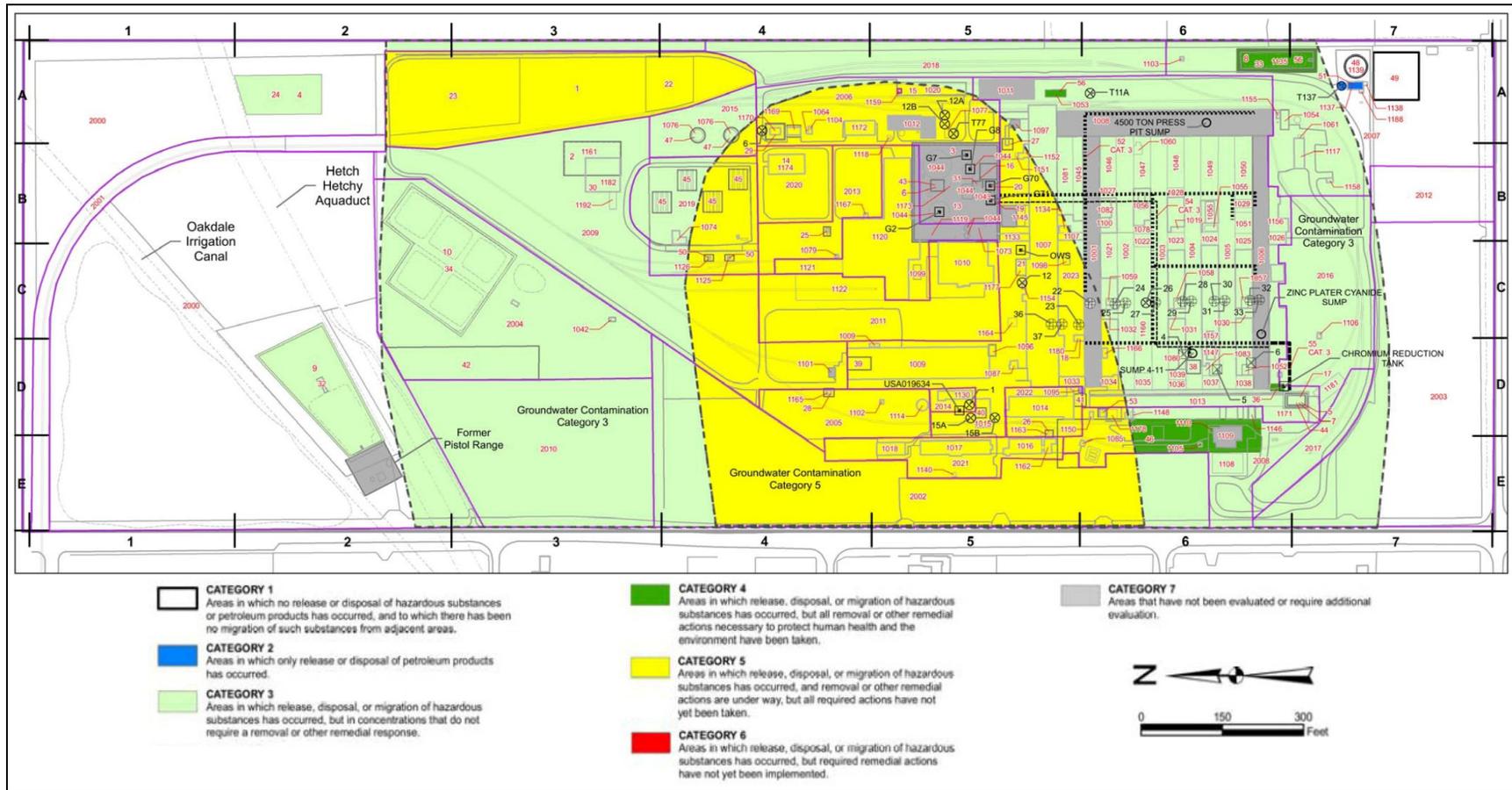


Figure 4.13-1 RBAAP ECP Categories

Source: U.S. Army 2006c

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4.13.1.2 Storage and Handling Areas

RBAAP activities include the lease of RBAAP facilities to NI for the operation of a cartridge case production line, limited manufacturing and technology updates, layaway of idle facilities, and maintenance and protection of the overall facility, including the GWTS, the IWTP, and landfill cap monitoring/maintenance activities.

NI leases a portion of the facilities to other tenants. A variety of materials are handled at the site by NI and by the tenants as part of their operations, including petroleum products. Petroleum products used and/or stored at RBAAP include gasoline, diesel fuel, lubricating oils, and waste oil. These materials are stored in aboveground storage tanks (ASTs) and small quantity containers on-site. The facility maintains a Spill Prevention, Control, and Countermeasure (SPCC) plan that lists 20 separate oil storage locations including one AST (USA0119634).

Building 11 is being leased by Riverbank Oil Transport, which collects and transports waste oil for recycling. Transportation of waste oil to the facility is by way of tanker truck, and transportation of this waste oil from the facility is by railroad tanker car.

RBAAP leases several buildings to other private businesses for light to heavy industrial activities. Tenants include a powder-coated-metal manufacturing company, a tooling company, a metal sheet manufacturer, a medical equipment warehouse, a recreational vehicle (RV) storage yard, a telecommunications company, a rail switchyard, a rebar manufacturer, a lubricant and absorbent distributor, and a plastic recycling company. Each of these tenants is responsible for properly maintaining hazardous materials that they use within their processes.

4.13.1.3 Hazardous Waste Disposal

RBAAP currently operates with a RCRA Part B Permit (05-SAC-06) issued by the California Department of Toxic Substances Control (DTSC) on 30 July 1995. The permit was renewed on 6 May 2006 and expires 6 May 2016.

The four primary wastes generated at RBAAP have been solid waste, wastewater from production plant operations, treated effluent from the IWTP and GWTS, and brine from regeneration of ion exchange units at the IWTP and GWTS. In addition, limited amounts of hazardous waste are generated from various operations at RBAAP. These are stored at the hazardous waste storage area (designated as Solid Waste Management Unit [SWMU] 2) prior to being shipped off-site for disposal. SWMU 2 is regulated under the RCRA Part B permit issued for RBAAP-03, described below. RBAAP is listed as a Large Quantity Generator of Hazardous Waste (greater than 1,000 kg/mo) under USEPA ID # CA7210020759. There are currently 26 discrete waste treatment and/or storage facilities located at RBAAP, as listed in the RCRA Part B Permit associated with RBAAP-03 (U.S. Army 2006a). These discrete waste treatment and/or storage facilities are located in the IWTP area and include ASTs, clarifiers, sumps, filters, filter presses and a filter cake accumulation area associated with wastewater treatment, chromium reduction process

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units, an ion exchange waste regeneration tank, an equipment wash facility, oil water separators, drum storage areas, a hazardous waste steam cleaning area, and hazardous waste accumulation areas.

4.13.1.4 Site Contamination

National Priorities List

The USEPA added RBAAP to the NPL on 21 February 1990, primarily due to the presence of groundwater contamination (cyanide and chromium) detected on- and off-site. In March 1994, the USEPA, DTSC, CVRWQCB, and the Army signed a Record of Decision for RBAAP, which included the operation of the GWTS, groundwater monitoring, and landfill cap monitoring/maintenance activities. RBAAP is currently responsible for two CERCLA actions specified in the 1994 ROD; these CERCLA actions are covered under the Army Installation Restoration Program (IRP) as sites RBAAP-01 (landfill) and RBAAP-03 (GWTS).

Installation Restoration Program

The IRP at RBAAP began in 1979 with an installation assessment. The assessment concluded that areas of the RBAAP and the waste disposal ponds located off site were potentially contaminated with heavy metals and other chemicals, including chromium and cyanide, as a result of past manufacturing operation and waste disposal practices at RBAAP.

Eleven sites have been identified as part of the IRP; however, only two of the sites are currently active (and require CERCLA Actions), RBAAP-01 and RBAAP-03. These two sites covered under the IRP are shown in Figure 4.13-2 and are described below.

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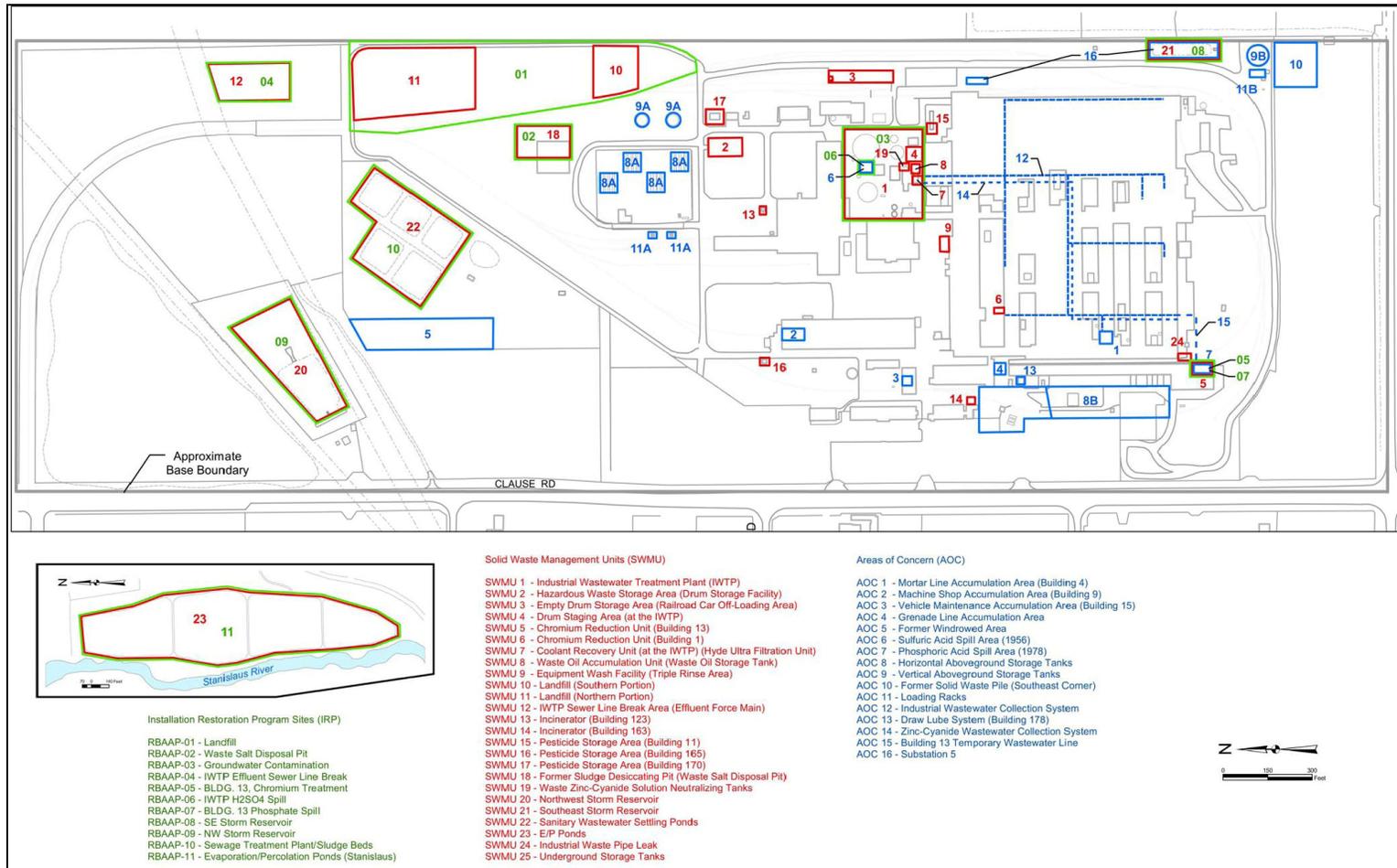


Figure 4.13-2 RBAAP IRP Sites, SWMUs, and AOCs

Source: U.S. Army 2006a

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RBAAP-01

Site RBAAP-01 is located in the northern section of the Main Site, near the eastern boundary. Site RBAAP-01 was operated for 15 months by ALCOA from 1943 to 1944 as a landfill site for general refuse, including pot liner (a byproduct of aluminum production), a cyanide-containing RCRA hazardous waste. The landfill area was also used from 1952 through 1966 for incineration and disposal of a variety of industrial sludges and solid waste, including paper, dunnage, oils, greases, solvents, hospital wastes, and construction debris. Chromium contamination, originating from chromium-contaminated bricks that were deposited in the landfill, has been identified at this site.

In accordance with 23 California Code of Regulations (CCR) 15.5 and 15.8, Corrective Action and Closure Requirements, the following corrective remedies associated with the landfill were implemented in 1995:

- A foundation soil layer of sufficient stability provided by grading and compacting existing landfill soils;
- A one-foot-thick clay layer with a design permeability of 1×10^{-6} centimeters per second, placed over the foundation soil layer;
- A minimum of one foot of clean topsoil placed over the clay layer to provide an adequate rooting depth for vegetative cover and to protect the clay layer;
- Grading to provide a minimum of 2 percent slope to minimize ponding of precipitation and allow for adequate drainage;
- A final cover designed with the objective of minimizing maintenance;
- A Five-Year Review to evaluate whether continued maintenance of the cover is necessary to protect human health and the environment, including water quality; and
- Two additional monitoring wells installed down-gradient of the landfill.

Two subsequent Five-Year Reviews concluded that the landfill remedy is currently protective of human health and the environment. Long-term treatment is expected to continue along with maintenance of the landfill cap. Annual surveys to assure stability and annual management of a pesticide program to prevent damage to the completed landfill cap are planned.

RBAAP-03

Site RBAAP-03 is located in the central part of the Main Site and represents the remedial action GWTS installed to treat all sources of groundwater contamination, including the source area related to past IWTP operations. The IWTP historically treated wastewaters generated from electroplating, cleaning, and metal finishing processes that occurred on-site and included facilities for flocculation, clarification, sludge thickening, sludge/liquid separation, and nitrate salt removal. The original storage and equalization tanks used for the IWTP were made of redwood, which was susceptible to leakage. From 1973 to 1980,

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the IWTP was upgraded, and the redwood tanks were replaced with concrete tanks. Based on assessments of groundwater contamination both on-site and off-site, the IWTP area was identified as a primary source of chromium contamination in the groundwater.

The current GWTS consists of the previous Interim Groundwater Treatment System (IGWTS) as well as the upgraded system. These systems, which are co-located and work in tandem, are designed to provide full capture of chromium and cyanide groundwater contamination located on-site and off-site, meeting the requirements of the groundwater remedy described in the 1994 ROD. The extraction system currently includes eight groundwater extraction wells, with two of the extraction wells located on-post and the others located off-post west of the Main Site. The groundwater is treated, using ion exchange only, via a system of tanks and filters, the decontaminated water is routed to the E/P ponds or the OID Canal, and the concentrated regenerant (the solution used in the ion exchange process) is stored in a 6,000-gallon tank until it is shipped off site to an approved waste management facility. The extraction system captures chromium plumes above 50 µg/L and cyanide plumes above 200 µg/L. Discharge limits are less than 50 µg/L for chromium and less than 5.2 µg/L for cyanide for the E/P ponds and less than 11 µg/L for chromium and less than 5.2 µg/L for cyanide for the OID canal.

Additional IRP Sites

Response actions are complete at the other nine IRP sites and require no further action. These nine sites and a brief description of each are listed in Table 4.13-2.

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Table 4.13-2 IRP Sites Requiring No Further Action

Site number	Brief Description	Remediation/Clean-up Actions
RBAAP-02	Former waste salt pond constructed for use as an evaporation basin for wash water from the nitrate molten salt annealing process, located adjacent to west of RBAAP-01. Never used.	No sampling required due to lack of use.
RBAAP-04	IWTP effluent sewer line, which carried treated water to the E/P ponds; break occurred in 1972 near intersection of line with Hetch Hetchy Aqueduct.	Investigative soil borings were completed and analyzed for Title 22 metals. Chromium, copper, and fluoride found at below-action levels.
RBAAP-05	Chromium pretreatment system utilized to pretreat zinc chromate dip waste stream prior to discharge to the IWTP, installed as upgrade in 1978.	No direct sampling occurred because groundwater investigation associated concluded the major source of chromium contamination was the leaking tanks associated with the IWTP prior to upgrade.
RBAAP-06	Sulfuric acid release in the IWTP area in 1956 associated with pipe break. Sulfate levels in groundwater found to be above secondary MCL of 250 mg/L.	Monitoring post-1985 confirms that contamination levels of sulfuric acid that would adversely impact human health or the environment were not found in the IWTP area.
RBAAP-07	Phosphoric acid spill in phosphate coating area, upstairs in southern end of Building 13. Acid was washed down the industrial sewer drain and did not leave building.	No remedial action required due to lack of contact with soil or groundwater.
RBAAP-08	Southeast storm water reservoir collects storm water from southeast portion of the site, water pumped from the southeast reservoir to the northwest storm water reservoir.	Sediment samples taken analyzed for total and hexavalent chromium, total and free cyanide, 1,1-dichloroethylene, and the organic persistent, and bioaccumulative toxic substances listed in California Title 22 CCR. No contamination found above background levels. Samples taken as part of 2004 RCRA Facility Investigation under AOC 16. No further action recommended.
RBAAP-09	Northwest storm water reservoir collects storm water from the majority of the installation and overflow from the southeast reservoir.	Sediment samples analyzed for total and hexavalent chromium, total and free cyanide, 1,1-dichloroethylene, and the organic persistent, and bioaccumulative toxic substances listed in California Title 22 CCR. Samples showed levels greater than three times background levels. Reservoir was not considered a source of groundwater contamination; however, a cross-connection between the industrial sewer system and the storm water sewer system was discovered in an in-line cistern leading to the northwest reservoir. The cistern was pumped out and cleaned with a soap solution.

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RBAAP-10	Sewage Treatment Plant/Sludge Beds located to the west of the northern portion of RBAAP-01.	Sampling concluded that area did not contain chromium or cyanide above background levels.
RBAAP-11	E/P ponds occupy 27 acres on the banks of the Stanislaus River. The E/P ponds were constructed in 1952 to accept treated effluent generated at RBAAP.	Removal action included excavation of zinc-contaminated soil and hydrocarbon-impacted soils.
Source: U.S. Army 2006a		

RCRA Facility Investigation

The DTSC issued to RBAAP a RCRA Part B Hazardous Waste Facility Permit in 1995 which required the Army to conduct a RCRA Facility Investigation (RFI) to assess the conditions of surface water, groundwater, and surface and subsurface soils for 25 SWMUs and 16 Areas of Concern (AOCs). These SWMUs and AOCs are depicted in Figure 4.13-2, and actions at the sites are discussed in the ECP (U.S. Army 2006a). In 2002, the Army and the DTSC signed a Corrective Action Consent Agreement that required the Army to perform additional investigation at five of the listed sites. The additional investigations were conducted in 2003.

Based on the 2003 RFI findings and USEPA Region IV industrial preliminary remediation goals for soils in industrial areas, a RFI completed in 2005 recommended no further action for all of the SWMUs and AOCs, except for the active IWTP (SWMU 1). The DTSC indicated that further sampling will be required at SWMU 1 as part of the permit closure process.

Range Inventory and Military Munitions Response Program (MMRP)

DoD established the MMRP to address Munitions and Explosives of Concern (MEC) on current and former military installations where suspected releases occurred prior to 30 September 2002. Operational military ranges, permitted munitions disposal facilities, or operating munitions storage ranges are not included under the MMRP. There is one former range listed on the Inactive Range Inventory at RBAAP. This former pistol range, which comprised 0.29 acres on the northwestern portion of the Main Site, is identified as RBAAP-001-R-01. The range was reportedly used for only a brief time in the 1950s for small arms target practice and is currently used for cattle grazing. Results of field sampling for MEC at the former range are discussed in the following section. No other areas of concern potentially containing MEC were identified at RBAAP.

Site Investigation (SI) Report

Based on the results of the ECP Phase I Report, areas that had not been evaluated or required additional investigation were identified. Fieldwork was conducted in 2007 to determine the presence or absence of contamination in these areas, and the results of this fieldwork were detailed in a SI Report. The SI Report identified several areas, including three active transformers and one inactive transformer, with soils that could

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represent a potential human health or environmental hazard to an industrial worker, requiring further evaluation for delineation, remediation, or institutional controls. The SI Report also identified two active transformer sites with levels of Aroclor 1260 that were below the industrial Preliminary remediation goals (PRG), but above the residential PRG. The residential PRG is being used to consider institutional controls at these areas.

Some other results from the SI are discussed below. The USEPA Region IX concurred with the findings of the SI on 14 December 2007.

RBAAP-001-R-01, Former Pistol Range

As discussed above, the former pistol range is included in the DoD MMRP. The final ECP concluded that, based on the assumed historical use of the range, there was potential for lead in surface soil. Prior to the SI, soil investigations had not been performed at the former pistol range.

No small arms munitions or other MEC-related items were identified during a metallic survey or visual inspection at the former pistol range. A total of eight locations were sampled within the former range and berm. No lead was detected above residential or industrial PRGs in the soil samples collected. Based on the results of the metallic survey, SI, and soil sampling, the former pistol range does not pose a significant threat to human health or the environment, and no further action was recommended for this MMRP site.

SWMU 1 (IWTP)

The IWTP is active and includes a system of tanks, sumps, filters, pipes, and other related equipment set up for treating facility wastewater. It is operated under the RCRA Part B Hazardous Waste Facility Permit. Groundwater contamination associated with this site (primarily hexavalent chromium and cyanide) is currently being addressed in accordance with the 1994 ROD, as described above. SI activities at the IWTP also included soil sampling and laboratory analysis for metals, cyanide, VOCs, and pH. The purpose of soil sampling was to identify the presence or absence of contamination and to provide useful data for potential future closure requirements under RCRA.

Additional Sites of Potential Concern at RBAAP

During a site visit to RBAAP in 2006 (Beck 2006), an area on the northeast slope of the E/P ponds area was observed to contain materials buried in the hillside. The materials included a 55-gallon drum in poor condition; several 5-gallon containers with no labeling that appeared to have formerly contained motor oil, paint, or other hazardous materials; and a variety of general refuse items that appeared to be buried beneath the ground in the area. According to installation personnel, no assessment of this area has been conducted.

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Adjacent Sites

Several properties located adjacent to RBAAP also have a low potential to impact the RBAAP, and include the following:

- An active 500-gallon underground storage tank (UST), installed in 1979, is located on a private farm less than 0.25 miles south of the E/P ponds. This site is generally down-gradient to cross-gradient of the E/P ponds.
- Two gas stations with leaking USTs impacting groundwater are located less than 0.5 miles west-southwest of the E/P ponds. This site is generally down-gradient to cross-gradient of the E/P ponds.
- On the east side of the E/P ponds are four adjacent properties where activities that have the potential to encroach on the E/P ponds property have been documented. The following is a brief description of these issues:
 - At Parcel No. 062-008-010, drainage piping that drains onto the RBAAP E/P ponds property has been documented. The property owner has been informed of the requirement to remove the piping and repair the erosion caused by the piping.
 - At Parcel No. 062-008-005, the RBAAP E/P ponds boundary fence has been removed and replaced by a deck, retaining wall, ornamental plants, various building materials, and fill dirt. The owner of this adjacent parcel has been informed of the requirement to remove all personal property, return the slope to its natural contour, and replace the chain link fence.
 - At Parcel No. 062-008-007, personal property and debris have been placed along the E/P ponds fence, causing damage to the fence and failure of the slope. The owner has been informed of the requirement to remove all personal property from this area, return the slope to its natural contour, and repair the fence damage.
 - At Parcel No. 062-008-011, a storm water drain pipe was observed entering the E/P ponds area, and oil stains were observed at the foot of a retaining wall. The source of the oil stains is apparently a waste oil tank located on Parcel No. 062-008-011. Preliminary soil samples taken in the area of the E/P ponds indicate motor oil at concentrations of 276,000 mg/kg (U.S. Army 2006a). The Army and USACE, Sacramento District are investigating and pursuing cleanup efforts for the site.

4.13.1.5 Ongoing Remedial Actions

As a condition of the RCRA Part B Permit, site closure requirements are required to be addressed. These include, but are not limited to, the decommissioning of the production

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facilities and associated infrastructure. As indicated above, the DTSC will require further sampling at SWMU 1 (IWTP) as part of the permit closure process.

RBAAP currently has a network of 131 monitoring wells screened in the various aquifer zones (A', A, B, C and D, as described in Section 4.6, Geology and Soils). Four groundwater monitoring events occur throughout the year – two quarterly, one semiannual, and one annual – that include specific sets of wells completed in the various A', A, B, C, and D portions of the aquifer. Samples are analyzed for dissolved chromium and/or free cyanide, and groundwater elevation data are collected and reported. It is projected that the groundwater extraction system at the RBAAP Main Site will be operated into the future (2011 or beyond).

Two Five-Year Reviews concluded that the GWTS is currently protective of human health and the environment. Long-term monitoring and operations of the GWTS will continue based on the results of future Five-Year Reviews. Active evaluation of in-situ treatment is underway, and additional in-situ treatment and extraction configuration modifications are anticipated to accelerate the clean-up process. In the interim, the Army will continue to evaluate the efficiencies of the current operation and monitoring actions and, where appropriate, propose reductions to these actions as clean-up activities at the site move toward completion. A strategy for GWTS and long-term monitoring ramp down as well as NPL delisting, will also be developed as clean-up activities as the site moves toward completion. The Army has concluded that RBAAP-01 will require deed restrictions to remain protective of human health and the environment and RBAAP-03 will require some form of institutional control to prevent inappropriate use of the contaminated groundwater while the groundwater remediation is occurring.

4.13.1.6 Special Hazards

Asbestos – An asbestos survey was conducted at the RBAAP Main Site in March 2005. Results of the survey indicated that most buildings on-site contain suspect ACM. NI maintains an Asbestos Management Plan in order to maintain a permanent record of status and condition of all ACM at the site and responds to ACM conditions that pose any potential health risks at the facility.

Lead and Lead-Based Paint – Several LBP surveys have been conducted at RBAAP, and LBP has been found on HVAC duct work and interior and exterior paint on buildings, fencing, equipment, access platforms, and window sills. Based on the age of the buildings at RBAAP, it is assumed that all contain various amounts of LBP. NI maintains a Lead Compliance Plan that is designed to aid in compliance with state and federal safety and health regulations at the base.

Mercury – No evaluation has been done on mercury in facilities and construction components, such as mercury vapor lights or mercury switches.

Polychlorinated Biphenyls – As part of the RFI, removal actions were completed to address PCB contamination at AOC 8B and AOC 16. The PCBs have been confirmed to

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be removed from the AOCs and the sites are considered to need no further action according to the DTSC.

Currently, only two of the transformers at RBAAP are of unknown PCB content. The remainder of the on-site transformers have been tested for PCBs. Of those transformers, ten have been found to contain greater than 50 parts per million of PCBs. Investigations of PCB impacts have been discussed above with regards to the SI Report investigations.

At Building 109, Substation Nos. 2 and 3, staining was observed on the concrete at the base of transformers during a site inspection in 2006. Based on on-site observations, there is potential that PCBs have impacted the soil in the unpaved area at this location. Additional soil sampling in this area was recommended to characterize the extent of soil contamination. This sampling could not be conducted during the 2007 SI because the transformer was active and could not be shut down; additional sampling may take place in the future.

Radon – A radon survey was conducted from September 1990 through November 1991 in Buildings 172, 9, 1, 13, 162, 14A, 120, 16A, and 9. Building 162 was the only building with radon above the EPA action level of 4 picocuries of radon per liter of air (pCi/L). Building 162 had a measured level of 5.7 pCi/L.

Aboveground Storage Tanks (ASTs) – RBAAP maintains a number of ASTs used for storage of hazardous materials and as part of the IWTP. The ASTs include a scum tank, a flush tank, a sludge thickener, a reactor clarifier, two demineralization tanks, five charcoal filter tanks, two flocculation tanks, an equalization basin, an effluent basin, a lime slurry tank, a transfer tank, a sand filter sump, and four sand filter tanks. These tanks are located within the IWTP area and are described in further detail in Section 4.13.2.

Other ASTs listed in the ECP include one AST associated with an oil water separator, one chromium reduction tank, a 6,000-gallon waste oil tank (G70), Transfer Tank 209, Tank No. 182-26, Tank No. G7, Tank No. G8, a gas/diesel tank, a hazardous waste tank (G71), and a 6,000-gallon AST that stores concentrated regenerate associated with the groundwater treatment system prior to shipment off site. Propane tanks associated with a tenant are also stored at the site.

The integrity of all ASTs and associated piping at RBAAP is reported to be good, and there have been no reported releases (U.S. Army 2006a).

Underground Storage Tanks (UST) – The USTs that were located at the RBAAP have been removed and have received closure from the Stanislaus County Department of Environmental Resources, Hazardous Materials Division (Stanislaus County 1995). The former USTs contained a variety of materials including pesticides, asbestos cuttings/slurry water, paint, varnish, and sulfuric acid.

Pesticides and Herbicides – In general, very low volumes of pesticides are used at RBAAP. The main pest control activity at RBAAP is the use of herbicides to control

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undesirable vegetation around buildings, on berms, and along railroad tracks. Additionally, pest control activities at RBAAP include control of disease vectors such as mosquitoes, bats, pigeons, and spiders; real property pests such as termites, wood-decaying fungi, ground squirrels, ants, bees, and wasps; stored product pests; and household and nuisance pests such as flies, gophers, and mice. All pesticide storage and mixing is currently located within Building 170. This site is identified as SWMU 17 under the RCRA permit, discussed in Section 4.13.4.

Medical and Biohazardous Waste – Building 14 originally served as a dispensary and washroom. Visual observations of this area during a 1998 EA indicated the area was used to store relief medical supplies. Some infectious material from the RBAAP dispensary may have been burned in incinerators identified as SWMU 13 and 14.

Radionuclides – No licensed radioactive materials have been used at RBAAP, save for one temporary activity that was performed at RBAAP in 1995 for approximately one week, involving the packaging of instruments and gauges known to contain radium. The instruments and gauges were intact and unbroken prior to packaging. No releases or spills occurred during this operation.

As discussed above, radiological surveys were conducted at Buildings 11, 162, and 174 during the 2007 SI. Results for these surveys were well below screening levels, indicating the absence of radiological contamination at these sites.

Spills – RBAAP has a SPCC plan in place. Several spills have been noted at RBAAP, and these areas have been documented as SWMUs in Section 4.13.4. Tenants are responsible for management of spills in their individual spaces. Spill clean-up materials are disposed of per state and federal regulation.

Explosives – Bulk explosives were never handled at the RBAAP and there is no evidence or reason to suspect that the structures have been contaminated by explosive compounds.

4.13.2 Consequences

The Army has characterized the existing environmental conditions at RBAAP in the ECP report (U.S. Army 2006a). The RBAAP property was divided into parcels that were evaluated and assigned categories of 1 through 7 based on standard environmental condition of property area types. Category 1 is assigned to an area where no release or disposal of hazardous substances or petroleum products has occurred (including no migration of these substances from adjacent areas). Categories 1 through 4 are considered suitable for transfer.

CERCLA 120(h) requires that, prior to transfer, necessary remedial actions be completed or in place and proven to be operating properly and successfully. Under the ETA in CERCLA 120(h)(3)(C), property can be transferred before all necessary remedial actions have been completed (for ECP Categories 5, 6, and 7). The CERCLA covenant deferral

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of an NPL site is required to be approved by the Regional Administrator of the USEPA with the concurrence of the California governor.

Regardless of the type of disposal, the Army is required to characterize contamination, define appropriate remediation in coordination with regulatory agencies, and conduct required remediation. The new use must be consistent with the remedial constraints, land use restrictions, and the protection of human health and the environment. The new owner may agree to perform all environmental remediation and monitoring, waste management, and environmental compliance activities required, or the Army may choose to continue to conduct or contract remedial or other activities. The Army will provide notification on the storage of hazardous substances for one year or more in quantities greater than or equal to 1,000 kg or the hazardous substance's CERCLA reportable quantity (whichever is greater). If additional remedial actions are needed beyond the transfer date, the government is responsible for only those that are attributable to activities of the federal government prior to transfer.

DoD policy with regard to LBP and ACMs is to manage these substances in a manner protective to human health and the environment and in compliance with all applicable laws. DoD manages LBP at installation properties in accordance with the provisions of the Residential LBP Hazardous Reduction Act of 1992 (Title X of Pub. L. 102-550). This law requires federal property constructed between 1960 and 1978 that is being transferred for residential use to be inspected for LBP and related hazards and the results of such inspections to be provided to prospective purchasers or transferees. Although there are no residential buildings on RBAAP and no residential uses anticipated as part of redevelopment and reuse, and therefore none of the buildings at RBAAP will be remediated under the Residential LBP Hazardous Reduction Act, the Army will address LBP according to DoD policy.

ACM shall be remediated prior to property disposal if it is of a type and condition that is not in compliance with applicable laws, regulations, and standards or if it poses a threat to human health at the time of transfer of the property. This remediation should be accomplished by the Army, by the Army's disposal agent, or by the transferee under a negotiated requirement of the contract for sale or lease. The remediation discussed above would not be required when buildings are scheduled for demolition by the transferee. The transfer documents would prohibit occupation of the buildings prior to the demolition and would notify the owners or lessees of the property that they would be responsible for any future ACM remediation found to be necessary in accordance with applicable laws (Office of the Secretary of Defense 1994).

4.13.2.1 Early Transfer Disposal Alternative

Direct. Minor beneficial effects would be expected. Remediation of hazardous substances would continue in accordance with approved plans in concurrence and consultation with appropriate regulatory agencies. Necessary land use restrictions would be put in place to ensure protection of human health and the environment, and controls would be placed on parcels that are still undergoing investigation and clean-up activities.

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Early transfer could actually facilitate accelerated clean-up and demolition efforts at the RBAAP property, thereby providing a long-term beneficial effect.

Indirect. Long-term minor beneficial and adverse effects may occur. Although existing remedial programs would continue under either federal or nonfederal ownership, under nonfederal ownership additional resources may be available to renovate or remove facilities that are in disrepair, as well as remove debris and cracked subsurface pipes. Thus, market forces may provide indirect beneficial effects from the removal of residual sources of contaminants and enhance environmental quality in the long term as compared to status quo conditions. Following disposal, redevelopment of RBAAP could lead to construction, demolition, renovation, and expanded industrial and commercial use. These activities could increase the potential for use, storage, transport, and generation of hazardous substances and hazardous wastes, as well as the potential for accidental release and minor spills. In any event, hazardous waste generation and disposal are carefully regulated under state and federal programs, thereby reducing the effect to the environment.

4.13.2.2 Traditional Disposal Alternative

Direct. No effects would be expected. This alternative is similar to the early transfer disposal alternative and would require the continuance of ongoing remedial and monitoring actions; however, because of the additional time for transfer, some additional monitoring and closure would be completed. The long-term remedies must continue to be monitored and shown to be operating properly and successfully. Until that determination is made and agreed to by all parties, the property could not be transferred. This alternative would require the disclosure and commitment of ongoing remedial actions. The Army would take the necessary remedial action(s) to protect human health and the environment in accordance with all applicable federal, state, and local laws. Future site assessment, closure, and decommissioning of production, treatment, and storage and disposal areas would be negotiated.

Indirect. Long-term minor beneficial and adverse effects may occur. As compared to early transfer disposal, remedial programs and redevelopment would occur over a longer period, but the effects would be similar.

4.13.2.3 Caretaker Status Alternative

Direct. Minor beneficial effects would be expected. Remedial efforts would continue to occur during caretaker status. Storage and use of hazardous materials would decline to a minimal level. Furthermore, unused storage, treatment, disposal, and production areas would be decommissioned in accordance with applicable federal, state, and local regulations. The decreased storage and use of hazardous substances would result in long-term beneficial effects relative to status quo operating conditions. In any event, remediation of hazardous substances would continue in accordance with approved plans in concurrence and consultation with appropriate regulatory agencies. Furthermore, ACMs, LBP, PCB equipment, and radiological materials would be subject to Army policies and requirements.

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Indirect. Minor adverse effects would be expected. ACM, LBP, and PCBs are still located in structures. Certain studies and renovations that would have otherwise taken place may not be initiated for idle facilities, resulting in long-term adverse effects relative to status quo operating conditions.

4.13.2.4 No Action Alternative

No direct or indirect effects would be expected. Under the no action alternative the Army would continue activities at RBAAP at levels similar to those occurring prior to the BRAC 2005 Commission's recommendations for closure and realignment, including implementation of ongoing remedial programs required under CERCLA and RCRA. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.13.2.5 Intensity-Based Probable Use Scenario

Medium-High Intensity, Direct. Minor long-term beneficial effects would be expected. In general, redevelopment of the RBAAP property at a Medium-High intensity would result in increased capital investments for final closure, demolition, and upgrade of facilities, which could accelerate long-term beneficial effects associated with clean-up actions. Remediation of hazardous substances would continue in accordance with approved plans in concurrence and consultation with appropriate regulatory agencies. Necessary land use restrictions would be put in place to ensure protection of human health and the environment as remediation efforts continue.

Medium-High Intensity, Indirect. Minor long-term adverse effects would be expected. Construction, demolition, and renovation activities may increase the potential for use, storage, transport, and generation of hazardous substances and hazardous wastes relative to baseline conditions. Increased renovation and demolition of buildings containing ACM, LBP, or other hazardous substances may be generated as a result of redevelopment. Under all circumstances, hazardous waste generation and disposal are carefully regulated under state and federal programs, thereby reducing effects to the environment. In addition, implementation of a spill prevention program would minimize potential effects. Over the long term, depending on activities of future tenants, minor quantities of hazardous materials, such as cleaning products and fuels, would be required during the use phase of buildings and structures on the property. These materials and wastes would still be expected to have limited impact to the site due to the likely limited quantities and use of these chemicals. The management of the use of these materials would be subject to federal, state, and local regulation.

Medium Intensity, Direct. Minor long-term beneficial effects would be expected. Effects similar to those described under the MHIR scenario would occur, but to a lesser degree due to the lower level of development.

Medium Intensity, Indirect. Minor long-term adverse effects would be expected. Effects similar to those described in the MHIR scenario would occur, but to a lesser degree due to the lower level of development.

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4.14 CUMULATIVE EFFECTS SUMMARY

4.14.1 INTRODUCTION

In this section, the cumulative effects of the proposed alternatives are identified. Cumulative impacts are considered those that result from the incremental effects of an action when considering past, present, and reasonably foreseeable future actions, regardless of the agencies or parties involved. In other words, cumulative impacts can result from individually minor but collectively significant factors occurring over time as they may relate to the installation property and the entire ROI.

This section summarizes potential cumulative impacts for each alternative and within each resource area as appropriate. For most resources, the analysis area is the same as introduced in the resource-specific consequences section. The geographic boundaries of the analysis vary, depending on the resource and potential effects. If different, the analysis area is specifically defined under each resource section. Cumulative impacts are considered for the 15-year period of the RLRA's initial time frame for implementing redevelopment at RBAAP.

4.14.2 CUMULATIVE ACTIONS

Planned and ongoing development in the ROI is outlined below.

- Development is anticipated to take place within the City of Riverbank as projected in the city's General Plan update. Approximately 3.3 million square feet of commercial and industrial building space could be accommodated during the General Plan build-out. The General Plan update identifies the area on the southeastern outskirts of the city, near the railroad line and existing industrial uses, including the RBAAP Main Site, as an area for future industrial and business park uses.
- Development will be stimulated by the presence of the Stanislaus Enterprise Zone.
- The North County Corridor Project, a new expressway that would connect Highways 99 and 120 east of Oakdale, is being located near the RBAAP Main Site (RLRA 2008). The purpose of the new expressway is to accommodate growth throughout Stanislaus County, provide a safer and more efficient east-west route, and separate regional and local traffic.
- Development is proposed and projected for the City of Modesto. The most notable of this development closest to the RBAAP Main Site area is the Tivoli Specific Plan, which will include residential, commercial, school, and park uses that would be developed south of the Main Site (City of Modesto 2008).

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4.14.3 ALTERNATIVES OVERVIEW

4.14.3.1 Early Transfer Disposal

Under the early transfer alternative, cumulative minor beneficial and adverse effects are anticipated for land use, aesthetics and visual resources, noise, water resources, biological resources, and socioeconomics. Moderate adverse cumulative effects are anticipated for air quality and transportation, and moderate beneficial effects are anticipated for socioeconomics. No cumulative effects are anticipated for geology and soils, cultural resources, utilities, and hazardous and toxic substances.

Land Use. Long-term minor beneficial and adverse cumulative effects are expected for land use under the early transfer alternative. Land use patterns in the areas of the RBAAP installation would be altered, and the integration of the installation property with the surrounding communities would result in more wide-ranging and regional land use changes. These changes would likely stimulate economic growth in the community.

Minor adverse effects could also be expected because, depending upon how disposition of the property takes place, redevelopment could take place in an uneven or fragmented fashion, impeding the orderly or rational redevelopment of the installation property. An influx of new employees associated with construction and new developments in the area of the installation excess property could result in an increased demand for new housing and associated services and could place stress on existing infrastructure in the area. For further details, see the discussion of potential cumulative land use effects related to implementation of the reuse scenarios, below.

Aesthetics and Visual Resources. Short- and long-term minor beneficial and adverse cumulative effects for the RBAAP Main Site are also expected for visual and aesthetic resources under early transfer disposal. In the long term, disposal and the change to nonfederal ownership may ultimately result in some demolition and removal or renovation of structures to comply with up-to-date architectural standards; this could lead to the enhancement of the built landscape with newer buildings that are more attractive than current structures. No effects would be expected at the E/P ponds area. New construction at the site could, however, affect the natural, rural aesthetics at the RBAAP Main Site. Preservation of the natural aesthetics at the RBAAP property would depend on, for example, the quality of landscaping installed in the reuse area, especially bordering the installation property. For further details, see the discussion of potential cumulative aesthetics and visual resources impacts related to implementation of the reuse scenarios, below.

Air Quality. Long-term moderate adverse cumulative effects are expected under the early transfer alternative. Cumulative air quality impacts occur when multiple projects affect the same geographic areas at the same time or when sequential projects extend the duration of air quality impacts on a given area over a longer period. Ozone precursor emissions associated with engine exhaust from construction equipment and vehicles would contribute slightly to area-wide and regional air quality conditions. Long-term moderate adverse cumulative effects would be expected as a result of increased activity at RBAAP,

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including operational emissions and increased traffic flow. Disposal of RBAAP may also stimulate additional economic growth in the ROI, which could generate additional emissions from traffic and industry operations within the area. These cumulative effects are not expected to rise to a level of significance, given that emissions related to property disposal would be below the *de minimis* levels as indicated by air emissions modeling. For further details, see the discussion of potential cumulative air quality impacts related to implementation of the reuse scenarios, below.

Noise. Minor short- and long-term adverse cumulative effects are expected for the early transfer disposal alternative, from noise impacts to residential areas located along public roads serving RBAAP, due to increases in construction and other employment and corresponding traffic, as well as traffic and other noise related to long-term induced economic development to the area after disposal.

Geology and Soils. No cumulative effects to geology and soils are expected.

Water Resources. Minor short- and long-term cumulative adverse effects are expected under the early transfer alternative. These effects would occur as a result of direct and induced economic growth and development that will generate increased construction within the watershed, increases in impervious surface within the watershed, increased water usage, and increased wastewater discharge. These impacts would have the potential to affect areas beyond the RBAAP installation property boundaries at the watershed level. However, the effects are expected to be minor because erosion and sediment control and other BMPs would routinely be employed during construction, demolition, and renovation activities, and because the impacts would be spread over a very large land mass over many years.

Biological Resources. Short- and long-term minor adverse cumulative impacts are expected to occur as a result of early transfer disposal. Redevelopment could result in adverse effects to relatively small areas of habitat resources in the region. For further details, see the discussion of potential cumulative biological resources impacts related to implementation of the reuse scenarios, below.

Cultural Resources. No cumulative effects are expected.

Socioeconomics. Long-term minor to moderate beneficial and minor adverse cumulative effects on the sociological environment and economic development are expected to occur under early transfer. Direct jobs would be created through implementation of reuse objectives, generating new income and increasing personal spending. Such spending generally creates secondary jobs, increases business volume, and increases revenues for schools and other social services. Minor adverse effects may occur if and when the social service infrastructure does not anticipate short-term increases in demand. For further details, see the discussion of potential impacts on the sociological environment and economic development related to implementation of the reuse scenarios, below.

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Transportation. Long-term moderate adverse cumulative effects are expected near RBAAP as a result of the early transfer disposal alternative. Disposal of RBAAP and reuse may stimulate additional economic growth in the region, generating additional traffic within the area, which may adversely affect traffic flow and may result in some deterioration of road networks. For further details, see the discussion of potential cumulative impacts on transportation related to implementation of the reuse scenarios, below.

Utilities. No cumulative effects are expected.

Hazardous and Toxic Substances. No cumulative effects are expected.

4.14.3.2 Traditional Disposal Alternative

Under the traditional disposal alternative, cumulative impacts would be very similar to those described above for the early transfer alternative, but would occur further into the future.

4.14.3.3 Caretaker Status

Under caretaker status, long-term minor cumulative beneficial effects would occur with respect to air quality, noise, water resources, transportation, and utilities. Long-term minor cumulative adverse effects would occur with respect to land use, elements of the sociological environment, and transportation. Reduced facility operations would result in decreases in mission activities, resulting in fewer point and nonpoint emissions, reduced water usage, reduced wastewater generation within the watershed and region, and reduced traffic on area roads. With respect to economic development, caretaker status would result in minor cumulative adverse effects within the ROI, as job loss and decreased expenditures associated with closure would have some effect on the overall economy and economic development. This reduction would in turn result in long-term beneficial cumulative effects to transportation and utilities as demand would decrease slightly within the region. With respect to land use, caretaker status would result in a minor adverse effect, as the integration of the installation property into the surrounding community, and development of industrial and other job-generating land uses, would be delayed.

4.14.3.4 No Action Alternative

The no action alternative would result in no cumulative effects. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC Commission's recommendations for closure and realignment. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005.

4.14.3.5 Intensity-Based Probable Reuse Scenarios

Under MHIR and MIR scenarios, minor adverse cumulative effects are expected for land use, aesthetics and visual resources, noise, water resources, biological resources, and

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socioeconomics. Moderate beneficial cumulative effects are also expected for socioeconomics, and moderate adverse effects are expected for air quality and transportation. No cumulative effects would be anticipated for geology and soils, cultural resources, utilities, and hazardous and toxic substances. In general, effects that would take place under the MIR scenario would be less intense than those under the MHIR scenario.

Land Use. Under the MHIR or MIR reuse scenarios, long-term moderate beneficial and minor adverse cumulative effects would be expected. Under the reuse scenarios, the intensity of development at the site would be above the current use of the property, and thus would change the land use patterns in the region being developed. Development of the reuse scenarios would also likely involve an increase of development and investment capital in the ROI. The proposed redevelopment would also enable the City of Riverbank to pursue land use and economic goals as articulated in the General Plan update and other planning documents and policies, because the proposed industrial/warehousing, commercial, and other uses associated with redevelopment would be consistent with the city's goals of job creation and the stimulation of industrial development in this area.

Minor adverse impacts could be expected under the MHIR and MIR reuse scenarios. Depending upon how disposition of the property takes place, redevelopment could take place in an uneven or fragmented fashion, impeding the orderly or rational redevelopment of the RBAAP property. Also, while the existing regional labor market would be able to supply many or even most of the employees represented by this projection, it is likely that other employees would commute or relocate to the area. These employees could potentially increase demand for new housing and associated services and could place stress on existing infrastructure in the area.

Aesthetics and Visual Resources. Long-term minor beneficial and adverse cumulative effects are expected on visual and aesthetic resources as a result of implementation of either the MHIR or MIR reuse scenarios. In the long term, disposal and the change to nonfederal ownership may ultimately result in some demolition and removal or renovation of structures to comply with up-to-date architectural standards; this could lead to the enhancement of the built landscape with newer buildings that are more attractive than current structures. After completion of redevelopment, the built environment at the RBAAP property would noticeably increase; the built environment surrounding the property could also increase, due to induced growth. New construction at the site could affect the natural, rural aesthetics at the RBAAP Main Site. Preservation of the natural aesthetics at the RBAAP property would depend on, for example, the quality of landscaping installed in the reuse area, especially bordering the installation property, or on the design of new facilities. Because new development would be subject to City of Riverbank planning documents and policies, such as the Community Character Element of the General Plan and design review, these cumulative effects are expected to be minor. No effects would be expected at the E/P ponds area.

Air Quality. Long-term moderate adverse cumulative effects are expected for either the MHIR or MIR reuse scenarios, as a result of increased operational emissions and traffic

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flow. Cumulative air quality impacts occur when multiple projects affect the same geographic areas at the same time or when sequential projects extend the duration of air quality impacts on a given area over a longer period. Ozone precursor emissions associated with engine exhaust from construction equipment and vehicles would contribute slightly to area-wide and regional air quality conditions. Disposal of RBAAP may also stimulate economic growth in the ROI, which could generate additional emissions from traffic and industry operations within the area. Stanislaus County is a nonattainment area for ozone and PM_{2.5} and a maintenance area for PM₁₀, but these cumulative effects are not expected to rise to a level of significance, given that emissions related to property disposal would be below *de minimis* levels as indicated by air emissions modeling.

Noise. Minor short- and long-term adverse cumulative effects are expected for both the MHIR and MIR reuse scenarios from noise impacts to residential areas located along public roads serving RBAAP, due to increases in construction and other employment and corresponding traffic, as well as traffic and other noise related to long-term induced economic development to the area after disposal.

Geology and Soils. No cumulative effects are expected to geology and soils.

Water Resources. Minor short- and long-term cumulative adverse effects are expected under either the MHIR or MIR reuse scenarios. These effects would occur as a result of direct and induced economic growth and development that would generate increased construction within the watershed, increases in impervious surface within the watershed, increased water usage, and increased wastewater discharge. These impacts would have the potential to affect areas beyond the RBAAP installation property boundaries at the watershed level. However, the effects are expected to be minor because erosion and sediment control and other BMPs would routinely be employed during construction, demolition, and renovation activities, and because the impacts would be spread over a very large land mass over many years.

Biological Resources. Short- and long-term minor adverse cumulative impacts are expected to occur as a result of reuse. Redevelopment could result in adverse effects to relatively small areas of habitat resources in the region.

Cultural Resources. No cumulative effects would be anticipated.

Socioeconomics. Long-term minor to moderate beneficial and minor adverse cumulative effects on the sociological environment and economic development are expected to occur under reuse. Direct jobs would be created through implementation of reuse objectives, generating new income and increasing personal spending. Such spending generally creates secondary jobs, increases business volume, and increases revenues for schools and other social services. Minor adverse effects may occur if and when the social service infrastructure does not anticipate short-term increases in demand.

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Transportation. Long-term moderate adverse cumulative effects are expected near RBAAP as a result of redevelopment. Disposal of RBAAP and reuse may stimulate additional economic growth in the region, generating additional traffic within the area, which may adversely affect traffic flow and may result in some deterioration of road networks. Local road networks are currently operating at or above the City of Riverbank's LOS thresholds, and future growth is projected. However, improvements to road and transportation networks are planned by the RLRA to address redevelopment needs. In addition, the City of Riverbank and other local agencies are planning transportation upgrades to address long-term impacts to these systems (RLRA 2008). Thus, moderate cumulative effects are expected.

Utilities. No cumulative effects are expected.

Hazardous and Toxic Substances. No cumulative effects are expected.

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4.15 MITIGATION AND RECOMMENDATIONS FOR PLANNING AND MANAGEMENT

Beyond the placement of encumbrances on the land, no specific mitigation is required of the Army. Relative to property redevelopment, federal, state, and local regulations and policies will govern to a large extent the proper use and conservation of the environment including aesthetics and visual resources, noise, air quality, biological resources, wetlands resources, water resources and quality, cultural resources, and other resources. Certain other management measures beyond these may also be implemented by the Army or the RLRA to successfully manage the disposal and redevelopment of RBAAP according to the principles of sound and sustainable planning. Furthermore, specific encumbrances detailed in Section 3.2.4 are required for the protection of cultural resources, land use compatibility, and other resource areas. Additional management measures for reducing adverse effects to resources are outlined below.

Early Transfer/Traditional Disposal. Beyond the placement of encumbrances on the land, no specific mitigation is required of the Army. Management measures that the Army will take to avoid, reduce, or compensate for adverse effects that might occur as a result of early transfer or traditional disposal are outlined below.

- Impose in the transfer or conveyance of BRAC property appropriate encumbrances to avoid potential adverse effects on a variety of environmental resource areas, as outlined in Section 3.2.4.2. Conveyance documents would provide notification on hazardous substances that were stored, released, or disposed of on the property in excess of the 40 CFR Part 373 reportable quantities.
- Continue to work with the RLRA to ensure that disposal transactions are consistent with the adopted community reuse plan.
- Continue to manage BRAC property in accordance with DoD, Army, federal, state and local regulations and policies that require the identification, delineation, and, where appropriate, abatement of hazardous conditions.
- Until final disposal, maintain installation buildings, infrastructure, and natural resources in caretaker status to the extent provided by Army policy and regulations.

Caretaker Status Alternative. Beyond adherence to Army policy and procedures relative to long-term caretaker conditions, no specific mitigation is required of the Army. The longer the RBAAP property remains in caretaker status, the greater the potential would be for adverse effects on various resources. The Army would implement the following measures to reduce or avoid adverse effects associated with caretaker status as they might occur:

- Conduct installation security and maintenance operations to the extent provided by federal policies and regulations;

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- Identify clean or remediated portions of the installation surplus property for disposal and reuse and prioritize restoration and cleanup activities; and
- Recycle solid waste and debris where practicable.

No Action Alternative. Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC Commission's recommendations for closure and realignment. Thus, no effects would occur relative to continuation of the Army's mission and conditions in November 2005. Therefore, no mitigation or management measures would be necessary to reduce effects.

Intensity-Based Probable Use Scenarios. Under the MHIR and MIR reuse scenarios, non-Army entities would assume reuse planning and execution of redevelopment actions. Recommended measures for intensity-based reuse scenarios, except for those related to federally protected interests, remediation, or other Army concerns, are not the responsibility of the Army. Other than adherence to specific encumbrances imposed by the Army and compliance with federal, state, and local regulations and policies, no specific mitigation actions are required to reduce adverse effects. Encumbrances and management measures that are most important for reducing adverse effects from reuse are outlined below.

- *Land Use.* Adverse effects associated with development of the BRAC property at RBAAP to a level of intensity equal to a MHIR or MIR scenario could be at least partially reduced through sound site planning and the design and creation of appropriate buffer zones and on-site security measures (e.g., to prevent trespassing into dangerous areas). Furthermore, the Army may restrict certain types of future land use, impose institutional controls, or take other actions affecting land use to protect human health and the environment. Restrictions such as those on the use of groundwater, provisions against disturbing soils in certain locations (e.g., active IRP sites), and access controls for certain parcels would be included in conveyance documents as restrictions on future land use, as required. Furthermore, as specific projects are proposed as part of redevelopment in the future, additional planning studies may be required to determine sufficient buffer zones, security measures, or design features in order to ensure that newly developed uses do not create incompatible land use conditions.
- *Aesthetics and Visual Resources.* Similar to land use, adverse effects to aesthetics and visual resources at RBAAP associated with the level of development representative of the MHIR or MIR scenarios could be at least partially reduced through location of industrial facilities on interior parcels, establishment and maintenance of adequate buffers between industrial uses and adjacent viewsheds, and screening of potential sources of light and glare. These and other adverse effects may be addressed during the City of Riverbank's planning review process for new, project-specific development proposed for the RBAAP property, and through adherence to the goals and policies presented in the City of Riverbank's General Plan (Community Character Element), including

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those addressing road corridors and commercial, industrial and retail development.

- *Air Quality.* The permit process established by the CAA provides effective controls over potential stationary air emission sources. Adherence to the State Implementation Plan's provisions for mobile sources could address that source category. Additional mechanisms, such as the application of traffic controls to minimize mobile air emission sources and BMPs to control fugitive dust during construction and demolition, could be used to control airborne contaminants.
- *Noise.* Measures to reduce potential impacts related to noise could include the establishment of buffers or barriers around noise-producing uses, or between the installation property and surrounding uses. Hearing protection for industrial or manufacturing workers, per Occupational Safety and Health Administration (OSHA) standards, could also help reduce adverse impacts. Special planning consideration could be given to reduce potential conflicts between on-site uses and off-site residential and office/professional land uses relative to the location of noisy operations in parcels dedicated to industrial, manufacturing, or warehousing operations, as well as transportation corridors providing ingress and egress via rail and roads. Noise studies and careful planning would allow for the creation of sufficient buffers and proper placement of facilities.
- *Geology and Soils.* Disturbance of highly erodible soils could be avoided wherever possible through the implementation of low-impact design, Best Management Practices (BMPs), and other planning measures. Should soil be disturbed, erosion control measures could be implemented. Geotechnical studies required prior to construction could also address potential impacts.
- *Water Resources.* Application of BMPs to reduce sediment loading to surface waters could aid in reducing effects on water quality. Low-impact design measures and construction of storm water retention systems could help mitigate impacts associated with storm water runoff from impervious surfaces, site water use, and wastewater discharge from site operations. Business operational practices designed to reduce potential effects of operations on water resources, such as measures to prevent the release of engine oil into storm drains, could also be implemented at the RBAAP property during and after redevelopment.
- *Biological Resources.* Redevelopment of the RBAAP site following disposal could result in adverse effects to sensitive habitat, including wetlands and special-status species. The RLRA and other parties to redevelopment could implement the following measures to address and protect biological resources:
 - Follow project-specific wetlands delineations, permitting, and wetlands avoidance and/or mitigation requirements prior to the redevelopment of specific parcels, in consultation with the U.S. Army Corp of Engineers (USACE), Sacramento District. As required under Section 404 of the CWA,

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the sequencing of wetlands mitigation requirements would ensure that impacts would be avoided if possible, and then minimized if unavoidable. As a last resort, wetlands mitigation, such as creation, restoration, banking, and other means, would be required, in consultation with the USACE, Sacramento District.

- Implement low-impact design measures, erosion and sediment controls, storm water controls, and other appropriate BMPs to reduce or even avoid any potentially adverse effects on wetlands from construction activities.
- Avoid impacts to threatened, endangered, and other special-status species. At this time, no current federally listed species have been identified within the RBAAP property. Suitable habitat for such species, however, does exist within the RBAAP property; for example, birds with protected status may be transient or migrant visitors to the RBAAP property (e.g., white-tailed kite has been identified in the area). It should also be noted that no bat surveys have been conducted for the property (however, such surveys would not be required to be undertaken by the Army, because the three bat species that were identified as potentially occurring in the area lack protected status under ESA). In addition, protected fish species (Central Valley steelhead and Central Valley fall/late-fall Chinook salmon), critical habitat for Central Valley steelhead, and EFH for Chinook salmon have all been identified as occurring or located in the Stanislaus River flowing past the E/P ponds. Measures to address the protection of these species, such as restrictions to development of the portion of the E/P ponds directly adjacent to the river and maintenance of the riparian woodland in this area, may be required to be implemented by the RLRA or future owners of the site, for the continued protection of these species.
- *Cultural Resources.* The RLRA and other developer entities would follow procedures as specified by California law and the California SHPO to address potential effects to undiscovered cultural resources (including human remains) that may be inadvertently revealed during ground-disturbing activities. These procedures could include, for example, stopping work in the area where cultural resources are discovered, and within 100 feet of the find, until a qualified archaeologist (and/or the County Coroner) can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with appropriate agencies.
- *Transportation.* Redevelopment of the BRAC property under the MHIR or MIR scenario levels may benefit from sound planning to meet increased traffic and transportation needs. Improvements to roads and intersections and railway access to and within the RBAAP property are planned over the 15-year planning horizon in conjunction with the implementation of the RLRA's reuse plan and the planning processes of the City of Riverbank and other local agencies.

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- *Utilities.* Redevelopment may require extension and possible renovation of many utilities at the RBAAP property. As outlined in the reuse plan (RLRA 2008), the RLRA proposes to exercise careful planning to minimize system capacity stress, to ensure that sufficient utility service is provided to current and new tenants. Specific measures that may be taken by the RLRA to reduce adverse effects include:
 - Extensions of the existing 8-inch main water distribution line, as well as the installation of new 4-inch or 6-inch branch lines, at the Main Site;
 - Extension of a new 12-inch sanitary sewer main and a new 8-inch branch line at the Main Site. The RLRA's reuse plan also includes a plan for the installation of recycled water ("gray water") systems at the Main Site for the reuse of water for nonpotable uses, such as irrigation and fire suppression;
 - Extension of electrical systems and new connections to the existing 12-kilovolt line at the Main Site;
 - Extension of new natural gas service infrastructure, including new 2-inch, 4-inch, 6-inch and 10-inch natural gas lines, as required, at the Main Site; and
 - Extension of telecommunications lines as required at the Main Site.
- *Hazardous and Toxic Substances.* Coordination with regulatory agencies will be required under CERLCA and RCRA to show that ongoing remedial actions and monitoring programs are continuing to be effective.

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5 FINDINGS AND CONCLUSIONS

5.1 INTRODUCTION

This EA has been prepared to evaluate the potential effects on the natural and human environment from the disposal and subsequent reuse of RBAAP (173 acres). The EA has examined five types of actions: early transfer disposal, traditional disposal, caretaker status disposal, no action disposal, and reuse (redevelopment of the available property by the RLRA at a medium-high or medium intensity level). The no action alternative is prescribed by the CEQ regulations to serve as the baseline against which the proposed actions are analyzed. The proposed action in this case is the disposal of the surplus property by the Army to another entity. After disposal, the community will implement various aspects of the RLRA's reuse plan as part of redevelopment of the property. The following sections provide the findings and conclusions of this EA.

5.2 FINDINGS

The following subsections summarize the potential effects on the human and natural environment resulting from implementation of each type of action: no action, disposal, caretaker status, and reuse. Resource areas for which no effects were identified are not discussed. Table 5.3-1 notes the potential environmental and socioeconomic effects of the early transfer disposal alternative, traditional disposal alternative, caretaker status alternative, and two intensity-based reuse scenarios (the no action alternative is not included in this table because no effects were identified).

For a more detailed discussion of the analyses, refer to the appropriate subsections in Section 4, Affected Environment and Consequences.

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Table 5.2-1 Summary of Effects from Disposal and Reuse of RBAAP

RESOURCE AREAS	CARETAKER STATUS			EARLY TRANSFER DISPOSAL			TRADITIONAL DISPOSAL			REUSE SCENARIOS				
	Direct	Indirect	Cumulative	Direct	Indirect	Cumulative	Direct	Indirect	Cumulative	Medium-High Intensity Direct	Medium-High Intensity Indirect	Medium Intensity Direct	Medium Intensity Indirect	Cumulative
Land Use	●	■	■	■	■●	■●	●	■●	■●	■⊖	●	■⊖	●	■⊖
Aesthetic/Visual Resources	■			■●		■●	■●		■●	■●	■	■●	■	■●
Air Quality	●		●	■	■	⊠	■	■	⊠	■	■	■	■	⊠
Noise	●		●	⊠		■	⊠		■	⊠	■	⊠	■	■
Geology and Soils	■	●		■	■●		■	■●		■●	■	■●	■	
Water Resources	■●	●	●	■	■●	■	■	■●	■	■	■	■	■	■
Biological Resources	●	■		■●	■	■	■●	■	■	⊠	■	⊠	■	■
Cultural Resources														
Socioeconomics	■	■●	■	■●	■●	■⊖●	■●	■●	■⊖●	■⊖●	■●	■⊖●	■●	■⊖●
Transportation	■●		■●	⊠●	■	⊠	⊠●	■	⊠	⊠●	■	■●	■	⊠
Utilities	■		●	■●	■		■●			■●		■●		
Hazardous/Toxic Substances	●	■		●	■●			■●		●	■	●	■	
<ul style="list-style-type: none"> ● Beneficial Effect (Minor) ⊖ Beneficial Effect (Moderate) ○ Beneficial Effect (Significant) 										<ul style="list-style-type: none"> ■ Adverse Effects (Minor) ⊠ Adverse Effects (Moderate) ⊡ Adverse Effects (Significant) 				
NOTE: No adverse or beneficial effects were identified for No Action. No significant adverse effects have been identified. [BLANK] No Effects Expected														

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5.2.1 Consequences of the Early Transfer Alternative

Early transfer disposal would result in minor adverse effects for all resource areas, moderate beneficial effects for socioeconomics, and moderate adverse effects for air quality and noise. Minor beneficial effects would occur for land use, aesthetics and visual resources, geology and soils, water resources, biological resources, transportation, utilities, and hazardous and toxic substances.

5.2.2 Consequences of the Traditional Disposal Alternative

Traditional disposal would result in minor adverse effects for all resource areas, moderate beneficial effects for socioeconomics, and moderate adverse effects for air quality and noise. Minor beneficial effects would occur for land use, aesthetics and visual resources, geology and soils, water resources, biological resources, transportation, utilities, and hazardous and toxic substances.

5.2.3 Consequences of the Caretaker Status Alternative

For the caretaker status alternative, minor adverse impacts would occur for land use, aesthetics and visual resources, geology and soils, biological resources, socioeconomics, transportation, utilities, and hazardous and toxic substances. Minor beneficial effects would also occur for land use, air quality, noise, geology and soils, water resources, biological resources, socioeconomics, transportation, utilities, and hazardous and toxic substances.

5.2.4 Consequences of the No Action Alternative

Under the no action alternative, the Army would continue operations at RBAAP at levels similar to those occurring prior to the BRAC Commission's recommendations for closure and realignment. Analysis of the no action alternative is included in this EA as a basis for comparing the effects of disposal and reuse. No beneficial, adverse, or cumulative effects were identified for the no action alternative, as this alternative represents status quo conditions relative to the continuation of Army missions in November 2005 (i.e., baseline operating conditions).

5.2.5 Consequences of the Reuse Alternatives

The two evaluated reuse scenarios could result in a variety of adverse and beneficial short- and long-term direct, indirect, and cumulative effects. To bound potential effects under reuse, the MHIR scenario for RBAAP represents a development intensity higher than that proposed in the RLRA reuse plan. The MHIR scenario for RBAAP would result in short-term minor adverse effects for all resource areas. Minor beneficial effects would occur for land use, aesthetics and visual resources, geology and soils, socioeconomics, transportation, utilities, and hazardous and toxic substances. Reuse of RBAAP at such an intensity level, representing greater amounts of built space and higher levels of employment, would add jobs and increase population in the region.

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Reuse of the installation at MIR intensity, similar to the level of intensity presented in the RLRA's reuse plan, would result in effects identical to those under the MHIR scenario on all resource areas, but the MIR scenario would result in a lower level of effects overall than the MHIR scenario.

Cumulative effects related to reuse would be most noticeable with respect to achievement of the MHIR scenario. Minor adverse cumulative effects would occur to land use, aesthetics and visual resources, noise, water resources, socioeconomics, and transportation. Moderate adverse cumulative effects would be expected to occur relative to air quality. Net increases in air emissions from both stationary and mobile sources would occur at RBAAP and throughout the region. Moderate beneficial cumulative effects could occur for land use. Cumulative effects under the MIR scenario would be similar to those under the MHIR scenario.

5.3 CONCLUSIONS

Analysis in the EA shows that implementation of the proposed action would not result in significant adverse environmental effects. Thus, issuance of a FNSI would be appropriate, and an EIS is not required prior to implementation of the proposed action.

PREPARERS LIST

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6 PREPARERS LIST

Key personnel involved in the development of this EA are presented below.

Name	Education and Experience	Primary Responsibilities
Sean Donahoe	B.S. Mathematics and Biology, summa cum laude; M.S. Biology; 19 years of experience in NEPA, natural resource management, and risk assessment; conducted over 100 NEPA studies primarily for Army actions including BRAC.	Program Manager; Description of Proposed Action and Alternatives; Alternatives Analysis; Technical Approach and Review.
Christy Herron	B.A. Environmental Studies and English Literature (with honors); M.C.R.P City and Regional Planning; AICP; 8 years experience in NEPA and CEQA, environmental planning, environmental permit compliance, and land use planning.	Project Manager; Description of Proposed Action and Alternatives; Alternatives Analysis; Aesthetics and Visual Analysis; Water Resources; Technical Approach and Review.
Mike Rushton	B.A. Geography; M.A. Physical Geography; 34 years experience with NEPA and natural resource management; project manager or director for over 200 NEPA/CEQA documents, including NEPA and other regulatory compliance for BRAC actions on 24 military facilities.	Peer Review and Technical Support - Description of Proposed Action; Air Quality; Noise; and Utilities.
Elizabeth Copley, AICP	B.A. Urban Studies; M.U.P. Urban Planning; certified planner with over 25 years experience in federal and state environmental planning and impact assessment, particularly associated with BRAC actions.	Resource Area Leader - Land Use and Visual Impact Assessment.
Sharon Crowland	B.S. Civil and Environmental Engineering; 14 years experience with environmental engineering, environmental planning, and project management, including 10 years of experience with the federal government.	Resource Area Leader - Transportation and Infrastructure.
Mary Kaplan	B.S. Meteorology; M.S. Environmental Science (Atmospheric Concentration); 6 years experience in air quality modeling and emissions inventories.	Resource Area Leader - Air Quality.
George Luz	Ph.D. in Psychology; 35 yrs experience with the effects of military noise on health, safety and welfare of individuals, animals and communities. Luz Social & Environmental Associates.	Resource Area Leader - Noise.
Darlene Stringos-Walker	B.S. Civil/Mining Engineering; M.S. Environmental Engineering; 21 years experience in environmental engineering, site assessments and investigations, remedial design of waste sites. ISO 14001 Lead Auditor Certified.	Geology and Hazardous, Toxic, Radioactive Waste Sections. Review of previous environmental documentation and site visit.
Rich Muller	B.S. in Biology; M.S. in Oceanography; 35 years experience in environmental impact assessment and environmental management for all branches of the military, FEMA, NOAA, and FBOP.	Resources Area Leader - Water Resources Lead. Data gathering; analysis; report writing; response to comments; and support for the preparation of Land Use and Transportation sections.

PREPARERS LIST

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



Jerry Thompson	B.S. Environmental Studies; M.S. Natural Resources Management; 20 years experience assessing and managing endangered and other species on public and private land for DoD, and federal, state and Tribal governments.	Resource Area Leader - Biology/ Wetlands, Land Use, and Aesthetics and Visual Resources.
Paula Bienenfeld	B.A. Anthropology; M.A. Anthropology; Ph.D. Anthropology; 25 years experience in cultural resources management; 12 years experience in NEPA and Army planning, including BRAC '95.	Resource Area Leader - Cultural Resources.
Mark Dunning	Ph.D. Sociology; 30 years of experience in social effects analysis, water resources planning, regional economics analysis, and NEPA analysis.	Resource Area Leader - Socioeconomic Resources.
Jennifer Bassett-Hales	B.S. Public Policy, Management, and Planning; 5 years experience with NEPA and natural resource management.	Preparation of Utilities section; peer review of Air Quality and Noise.
Holly Bisbee	B.A Anthropology; 10 years experience in archaeological field work; 5 years experience in cultural resources management; 2 years experience in environmental issues, including BRAC '05.	Support/ Cultural Resources and Socioeconomics; data collection; preparation of supporting sections; document review.
Leigh Goldstein	B.A. Environmental Biology and Anthropology; M.S. Health Evaluation Sciences; 5 years experience in environmental and land use issues, including those related to BRAC properties.	Support/ preparation of supporting sections.
Paul Holland	B.A. History; M.S. Nature, Society, and Environmental Policy; 4 years of research and consulting experience in environmental and social public policy.	Support/ Noise; review and preparation of noise analysis.
Marian Mabel	B.A. English; B.A. Economics; M.A. Public Policy; Ph.D. Environmental Science, Policy, and Management; 15 years experience in environmental policy and economic development, socioeconomic assessment of economic and institutional change.	Prepared Socioeconomics, Land Use, Water Resources Sections. Maintain Administrative Record.
Tim Messick	B.A. Botany; M.A. Biology; 13 years experience in botanical and wetland impact assessments and restoration planning, followed by 12 years experience in technical and information graphics, cartography, visual simulation, and web design.	Prepared graphics for selected figures.
Daniel Moreno	M.A. Geography; 25 years of experience in applying GIS to NEPA, natural resource studies, and military installation mapping.	GIS/ Mapping Lead.
Elizabeth Pratt	B.S. Business Administration; 3 years experience in socioeconomic data gathering and environmental analysis including BRAC properties.	Support/ document review.
James Wilder	M.S. Environmental Engineering; 30+ years experience in environmental engineering.	Air Quality and Noise assessments.

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112 Hart Senate Office Building
Washington, DC 20510

Honorable Dianne Feinstein
331 Hart Senate Office Building
Washington, DC 20510

U.S. House of Representatives –19th Congressional District

Congressman George Radanovich
2367 Rayburn House Office Building
Washington, DC 20515

Congressman George Radanovich
3509 Coffee Rd., D-3
Modesto, CA 95357

Federal Agencies

Byron Jorns, District Commander
USACE, Mobile District
109 Saint Joseph Street
Mobile, AL 36602

Col. Thomas C. Chapman, Dist. Engineer
USACE, Sacramento District
Executive Office
1325 J Street
Sacramento, CA 95814

Bryan Arroyo, Assistant Director
U.S. Department of the Interior
Fish and Wildlife Service
1849 C Street NW
Washington, DC 20240

Gary Frazer, Assistant Director
U.S. Fish and Wildlife Service
Fisheries and Habitat Conservation
1849 C Street NW
Washington, DC 20240

Maryann Owens
U.S. Fish and Wildlife Service
Habitat Conservation Division
2800 Cottage Way, Rm. W-2605
Sacramento, CA 95825

Sarah Killinger
Advisory Council on Historic
Preservation
1100 Pennsylvania Avenue NW
Suite 809
Washington, DC 20004

Robert Hargrove
U.S. Environmental Protection Agency
Office of Federal Activities
EIS Filing Section
Ariel Rios Bldg (So. Oval Lobby), Rm. 7220
1200 Pennsylvania Avenue, NW
Washington, DC 20004

Wayne Nastri, Regional Administrator
U.S. EPA, Region 9
75 Hawthorne Street
San Francisco, CA 94105

U.S. EPA, Region 9
Environmental Review Office
75 Hawthorne Street
San Francisco, CA 94105

Douglas J. McKalip
U.S. Department of Agriculture
14th and Independence Avenue, SW
Room 6121-S
Washington, DC 20013

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Lincoln E. Burton
State Conservationist
U.S. Department of Agriculture
Natural Resources Conservation Service
430 G Street
Davis, CA 95616

State Officials & Agencies

State Senate – District 14

Senator Dave Cogdill
State Capitol
Room 305
Sacramento, CA 94248

Assembly Member – District 25

Assembly Member Tom Berryhill
State Capitol
Room 4116
Sacramento, CA 94249

Governor

Governor Arnold Schwarzenegger
Governor's Office
State Capitol Building
Sacramento, CA 95814

State Agencies

Terry Roberts, Director
Governor's Office of Planning and
Research
State Clearinghouse
1400 Tenth Street, Rm. 121
Sacramento, CA 95814

Ruth Coleman, Director
California Department of Parks and
Recreation
1416 9th Street
Sacramento, CA 95814

A.G. Kawamura, Secretary
California Department of Food and
Agriculture
1220 N Street
Sacramento, California 95814

Milford Wayne Donaldson, FAIA, SHPO
California Office of Historic Preservation
California Dept. Parks and Recreation
1416 9th Street, Room 1442-7
Sacramento, CA 95814

Susan Stratton, Sr. State Archaeologist
Project Review Unit, Supervisor
California Office of Historic Preservation
California Dept. of Parks and Recreation
1416 9th Street, Room 1442-7
Sacramento, CA 95814

Steven D. Mikesell, Deputy SHPO
California Office of Historic Preservation
California Dept. of Parks and Recreation
1416 9th Street, Room 1442-7
Sacramento, CA 95814

Ruben Grijalva, Director
Dept. of Forestry and Fire Protection
California Resources Agency
1416 9th Street
Sacramento 94244

Randy Moore, Regional Forester
Pacific Southwest Region
USDA Forest Service
1323 Club Drive
Vallejo, CA 94592

Susan Skalski, Forest Supervisor
Stanislaus Nat. Forest, Pacific SW Region
USDA Forest Service
19777 Greenley Road
Sonora, CA 95370

Donald Koch, Director
California Department of Fish and Game
1416 9th Street
Sacramento, CA 95814

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Bill Loudermilk, Regional Manager
California Department of Fish and Game
San Joaquin Valley / So. Sierra Region
1234 E. Shaw Ave.
Fresno, CA 93710

Dr. Jeffrey R. Single
California Department of Fish and Game
Central Region
1234 E. Shaw Avenue
Fresno, CA 93710

Chuck Armor, Regional Manager
California Department of Fish and Game
Central Valley Bay-Delta Branch
7329 Silverado Trail
Napa, CA 94558

Robin Hook, Env. Management Branch
California Department of Health Services
1616 Capitol Ave., Bldg. 174-2nd Floor
Sacramento, CA 95899

Christopher Hartley, Dist. Conservationist
E. Stanislaus Resource Conservation Dist.
NRCS Service Center Office
U.S. Department of Agriculture
3800 Cornucopia Way, Ste. E
Modesto, CA 95358

Brian Leahy, Assistant Director
Division of Land Resource Protection
Farmland Review
California Department of Conservation
801 K Street, MS 18-01
Sacramento, CA 95814

Matt Machado, Director
Stanislaus Co. Dept. of Public Works
1010 10th Street, #3500
Modesto, CA 95354

Steve Edmondson, HCD
Northern CA Division
NOAA Fisheries/NMFS
777 Sonoma Ave., Rm. 325
Santa Rosa, CA 95404

Maria Rea, Supervisor
Sacramento Area Office
NOAA Fisheries/NMFS
650 Capitol Mall, #8-300
Sacramento, CA 95814-4706

Interested Tribes and Tribes of Unknown Interest

Neil Peyron, Chairperson
Tule River Indian Tribe
P.O. Box 589
Porterville, CA 93258

Katherine Erolinda Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

Jay Johnson, Spiritual Leader
Southern Sierra Miwuk Nation
5235 Allred Road
Mariposa, CA 95338

Les James, Spiritual Leader
Southern Sierra Miwuk Nation
P.O. Box 1200
Mariposa, CA 95338

Anthony Brochini, Chairperson
Southern Sierra Miwuk Nation
P.O. Box 1200
Mariposa, CA 95338

Local Government Officials & Agencies

Local Government

Mayor David I. White
Office of the Mayor of Riverbank
6707 Third St.
Riverbank, CA 95367

Mayor Farrell Jackson
Office of the Mayor of Oakdale
280 North Third Avenue
Oakdale, CA 95361

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Mayor Jim Ridenour
Office of the Mayor of Modesto
1010 10th Street
Modesto, CA 95354

Richard P. Holmer
Office of the City Manager, Riverbank
6707 Third Street
Riverbank, CA 95367

J.D. Hightower, Director
Community Development Department
City of Riverbank
6707 Third Street
Riverbank, CA 95367

Tim Ogden, Director
Economic Development & Housing
Department
6707 Third Street
Riverbank, CA 95367

Debbie Olson, Economic Devel. Manager
Economic Development & Housing Dept.
6707 Third Street
Riverbank, CA 95367

Steven Hallam, Director
Community Development Department
Planning Division
City of Oakdale
455 South Fifth Avenue
Oakdale, CA 95361

Patrick Kelly, Planning Div. Manager
Community and Economic Development
Department
City of Modesto
1010 10th Street
Modesto, CA 95354

Chris Kalashian, Air Quality Specialist
San Joaquin Valley
Air Pollution Control District
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244

Paul Clanon, Executive Director
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Lester A. Snow, Director
California Dept. of Water Resources
1416 Ninth Street
P.O. Box 942836
Sacramento, CA 94236

Paula J. Landis, Chief
San Joaquin District
California Dept. of Water Resources
3374 E. Shields Avenue
Fresno, CA 93726

Kiran Lanfranchi-Rizzardi, Board
Central Valley Region, California
Regional Water Quality Control Board
11020 Sun Center Drive #200
Sacramento, CA 95670-6114

Robert Busby, DoD Sites
Central Valley Region, California
Regional Water Quality Control Board
11020 Sun Center Drive #200
Sacramento, CA 95670-6114

Steve Mayotte, Fire Chief
Stanislaus Consolidated Fire Protection
District
3324 Topeka Street
Riverbank, CA 95367

Organizations

Ric McGinnis
Riverbank Historical Society
6418 Central Avenue
Riverbank, CA 95367

Vikki Peters, Chair
Riverbank Chamber of Commerce
P.O. Box 340
Riverbank, CA 95367

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Kirk Lindsey, Chairman, Exec. Committee
Modesto Chamber of Commerce
1114 J Street
Modesto, CA 95353

Mary Guardiola, Chief Executive Officer
Oakdale Chamber of Commerce
590 N.. Yosemite Ave.
Oakdale, CA 95361

David White, Authority Member
Riverbank Local Redevelopment
Authority
6707 Third Street
Riverbank, CA 95367

Jojo Espiritu
Riverbank Watch
2220 Cedarwood Circle
Riverbank, CA 95367

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ACRONYMS AND ABBREVIATIONS

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10 ACRONYMS AND ABBREVIATIONS

°C	Degrees Celsius
°F	Degrees Fahrenheit
ACM	Asbestos-Containing Material
ADT	Average Daily Traffic
AIRFA	American Indian Religious Freedom Act
ALCOA	Aluminum Corporation of America
amsl	Above Mean Sea Level
AOC	Area of Concern
APE	Area of Potential Effect
AQCR	Air Quality Control Region
Army	U.S. Department of the Army
AST	Aboveground Storage Tank
Base Closure Act	Defense Base Closure and Realignment Act of 1990
Basin	Modesto Basin
bgs	below ground surface
BMP	Best Management Practices
BNSF	Burlington Northern-Santa Fe Railroad
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CalTrans	California Department of Transportation
CCR	California Code of Regulations
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CVRWQCB	Central Valley Regional Water Quality Control Board

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CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel scale
DBCP	Dibromochloropropane
DBCRC	Defense Base Closure and Realignment Commission
DNL	Day-Night Noise Level
DoD	U.S. Department of Defense
DoF	U.S. Department of Finance
DTSC	Department of Toxic Substances Control
EA	Environmental Assessment
ECP	Environmental Condition of Property
EDC	Economic Development Conveyance
EFH	Essential Fish Habitat
EIFS	Economic Impact Forecast System
EIR	Environmental Impact Report (CEQA)
EIS	Environmental Impact Statement (NEPA)
EO	Executive Order
E/P Ponds	Evaporation/Percolation Ponds
ESA	Endangered Species Act
ETA	Early Transfer Authority
FAR	Floor Area Ratio
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FNSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
GOCO	Government-Owned, Contractor-Operated
gpm	gallons per minute
GCD	General Conformity Determination
GWTP	Groundwater Treatment Plant
GWTS	Groundwater Treatment System
HUD	Department of Housing and Urban Development
I-	Interstate Highway

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IGWTS	Interim Groundwater Treatment System
IRP	Installation Restoration Program
IWTP	Industrial Wastewater Treatment Plant
LBP	Lead-Based Paint
L _{dn}	Day-Night Noise Level
L _{eq}	Equivalent Noise Level
LIR	Low Intensity Reuse
LOS	Level of Service
LRA	Local Redevelopment Authority
M&ET	Modesto & Empire Traction Company
MCL	Maximum Contaminant Levels
MEC	Munitions and Explosives of Concern
MHIR	Medium-High Intensity Reuse
MID	Modesto Irrigation District
MLIR	Medium-Low Intensity Reuse
MMRP	Military Munitions Response Program
MOA	Memorandum of Agreement
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Registration Act
NAHC	Native American Heritage Commission
NCA	Noise Control Act
NCCJPA	North County Corridor Joint Powers Agency
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NI	NI Industries, Inc.
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
OID	Oakdale Irrigation District

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OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyls
pCi/L	picocuries per liter of air
PM ₁₀	Particulate matter measuring less than 10 microns in diameter
PM _{2.5}	Particulate matter measuring less than or equal to 2.5 microns in diameter
POTW	Publicly Owned Treatment Works
PRG	Preliminary remediation goals
R&D	Research and Development
RBAAP	Riverbank Army Ammunition Plant
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RLRA	Riverbank Local Redevelopment Authority
ROD	Record of Decision
ROI	Region of Influence
ROTA	Riverbank-Oakdale Transit Authority
RTV	Rational Threshold Value
RV	Recreational Vehicle
SEDWA	Stanislaus Economic Development and Workforce Alliance
SHPO	State Historic Preservation Office
SI	Site Investigation
SJVAPCD	San Joaquin Valley Air Pollution Control District
SPCC	Spill Prevention, Control and Countermeasure
SR	State Highway
StaRT	Stanislaus County Regional Transit
SWMU	Solid Waste Management Unit
SWPPP	Storm Water Pollution Prevention Plan
TDS	Total Dissolved Solids
tpy	tons per year
TTLC	California Total Threshold Limit Concentrations
UP	Union Pacific Railroad

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USACE	U.S. Army Corps of Engineers
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WDR	Waste Discharge Requirements
µg/L	micrograms per liter
µg/m ³	micrograms per cubic meter

ACRONYMS AND ABBREVIATIONS

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APPENDIX A RIVERBANK ARMY AMMUNITION PLANT BASE REUSE PLAN (EXCERPT)

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3 BASE REUSE CONCEPT

This chapter describes the Base Reuse Concept for the RBAAP site. It contains sections providing the intent for the base's future land uses, circulation, community character and utility infrastructure. The chapter also discusses possibilities for building reuse, future security needs and procurement of Army-owned equipment.

A. Land Use

It is proposed that the 146-acre RBAAP site will continue to function primarily as an industrial park, along with some limited convenience retail uses, while the 27-acre evaporation/percolation pond site remain unchanged. This approach is consistent with the vision, goals and objectives of this Reuse Plan, which were developed through consultation with community members, stakeholders and current tenants. It is also generally consistent with the land use designations proposed in Riverbank's Draft 2025 General Plan. With job creation and current tenant expansion being the top priorities for the community, no other significant land uses were considered viable in reaching the community goals. Figure 3-1 shows the current land use designations for RBAAP.

It is expected that new tenants will include a wide variety of manufacturing, storage and repair businesses, similar to the businesses currently on the site. Some of these new tenants may require a limited amount of office space, as well as space for research and development (R&D) activities to support their manufacturing operations. Limited retail uses are also proposed for two portions of the site.

Figure 3-2 shows the new types of businesses that are proposed for various parts of the RBAAP site. In addition, Figure 3-3 illustrates the potential character of new buildings on the south part of the RBAAP site, standing near Claribel Road and looking west.

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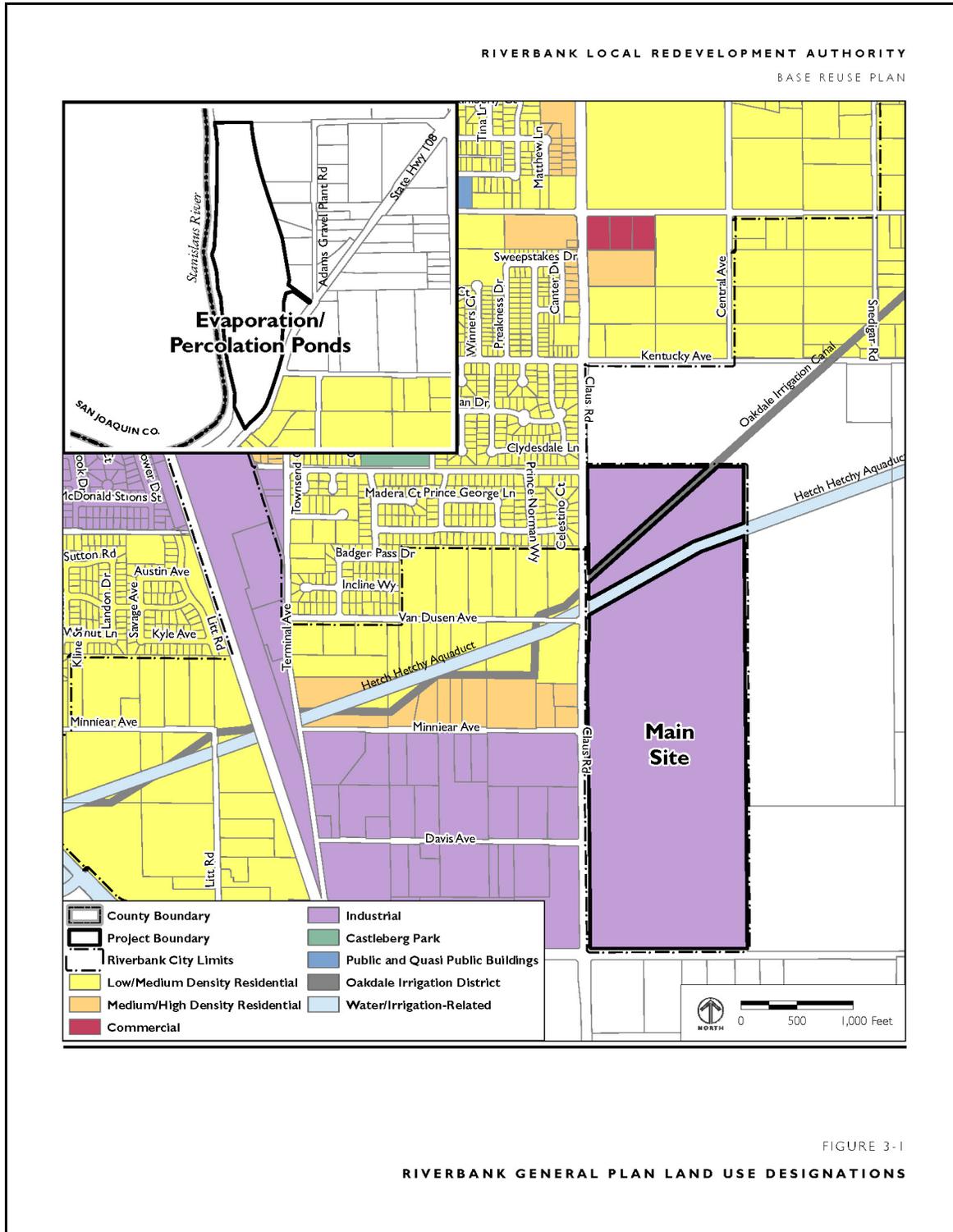
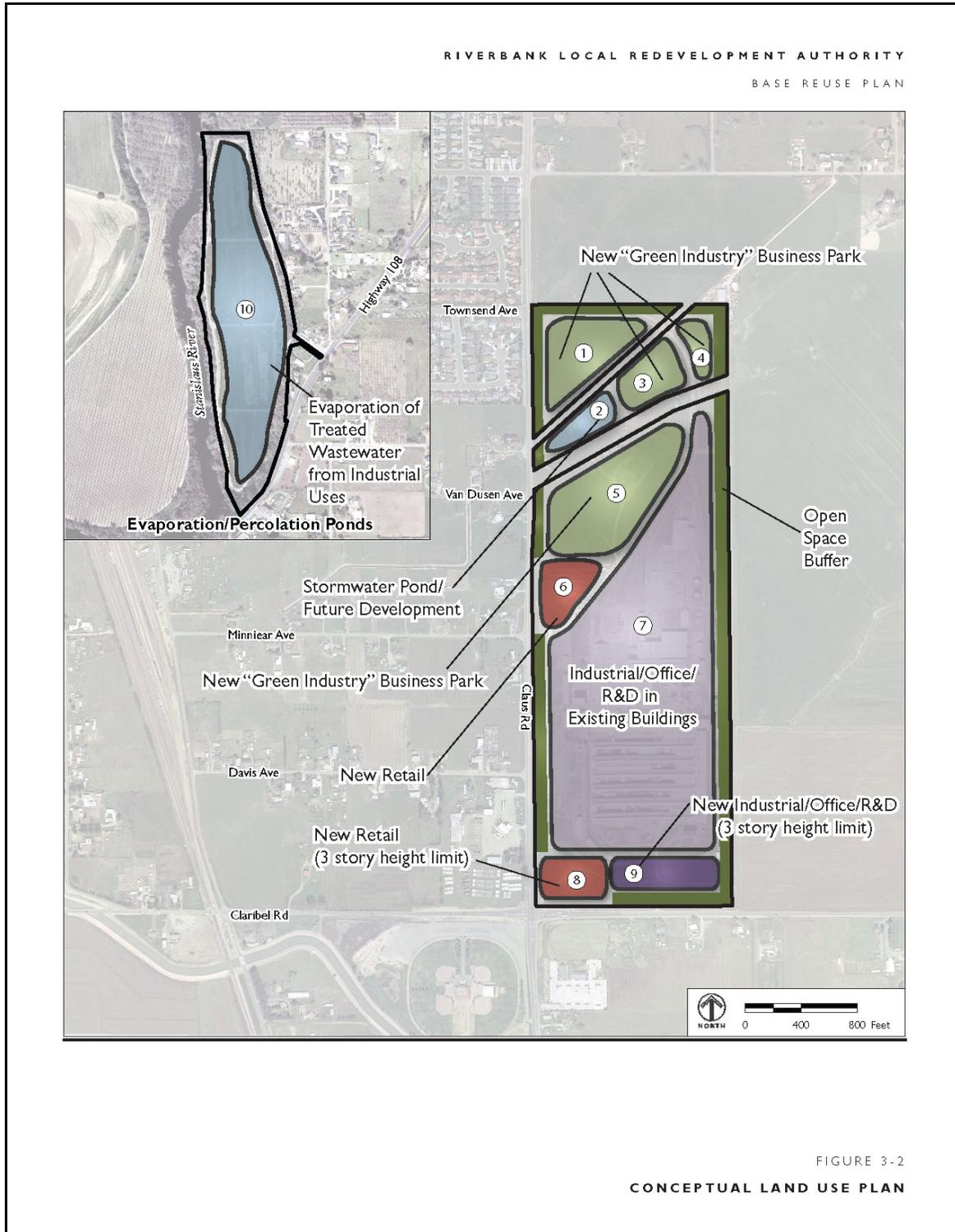


FIGURE 3-1

RIVERBANK GENERAL PLAN LAND USE DESIGNATIONS

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BASE REUSE PLAN



FIGURE 3-3
RENDERING OF RBAAP CONCEPT: LOOKING WEST ALONG CLARIBEL ROAD



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1. Green Industries

On the northern portion of the main RBAAP site, the Reuse Concept focuses on attracting “green industries.” Green industries generally focus on servicing or manufacturing products that reduce global warming, or using “green” practices to make products that fulfill traditional consumer demands. Green industry is expected to become an increasingly important part of the manufacturing sector in the future, in California and on a national level. In a 2004 study, it was projected that venture capital investment in start-up green industries could be expected to generate 52,000 to 114,000 new jobs in California by 2010.¹ Considering the current trend toward sustainable practices, RBAAP has the opportunity to become a highly successful facility for green industries in California.

Current tenants Advanced Materials and Manufacturing Technologies (AM2T), Environmental and Lubrication Solutions (ELS), Riverbank Oil Transfer and Eco2 Plastics are operating “green” industries at RBAAP. AM2T has engineered a replacement for highly toxic elements used in large quantities in the fabrication of planes, tools and by the Department of Defense. Additionally, ELS manufactures and distributes a unique lubricant that reduces emissions and toxic waste, Riverbank Oil Transfer focuses on oil recycling, and Eco2 Plastics focuses on cleaning polyethylene terephthalate (PET) beverage containers for recycling. Other examples of businesses compatible with RBAAP’s Reuse Plan would include other similar recycling companies, alternative fuel manufacturers, manufacturing of parts for natural gas or electric cars, ultra-high-performance engineered materials, powder metallurgy, low impact stormwater management devices, solar panel manufacturing, and/or the installation of alternative power production processes, such as a solar panel field or anaerobic digesters used to convert manure from local dairies to methane. As shown in Figure 3-2, Sites 1, 3, 4 and 5 are limited to green industries, and will accommodate limited office and R&D components

¹ Burtis, Patrick R., Bob Epstein, and Roland J. Hwang, 2004, *Creating the California Cleantech Cluster*, page 6.



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associated with green industries, potentially including lab facilities. LEED-certified, energy-efficient buildings are encouraged to house these activities.

2. Other Industrial Uses

RBAAP's existing buildings are located within Site 7. While a new owner may choose to replace or consolidate some of the existing buildings, minimal additional development is anticipated in this area. It is proposed that the existing buildings on this site be leased for industrial purposes, with limited office and R&D components. The existing buildings on Site 7 also have the potential to serve as incubator start-up spaces for new businesses. RBAAP may provide an excellent site for an incubator, provided that low rents and utilities, as well as other business inducements, remain at the installation through its transition. Start-up businesses could potentially operate side-by-side in these buildings, leasing a small portion of a larger building. These growing businesses, given the opportunity to expand, would be likely to lease larger spaces at RBAAP in time. In addition, the ability to own their own building may be an attractive option for some current and future tenants. Therefore, there may be potential to convert some of the existing buildings on Site 7 to individually-owned industrial condominiums.

New industrial development with limited office and R&D components is proposed on Site 9. Businesses on this site could be similar to the existing RBAAP tenants, or they could include other industrial uses such as food manufacturing and distribution. A three-story, 40-foot height limit is proposed for Site 9 to ensure that uses on this site transition appropriately to the lower-intensity residential uses to the south.

3. Team Track Facility

There may be interest in creating a team track facility on the southern portion of RBAAP, likely between Sites 7 and 9. A "team track" is a spur track area intended for the use of facility tenants or other businesses. The team track serves rail carriers by providing a space for temporary storage, loading and unloading of railcars. It is anticipated that a team track could accommodate up to 3,000 rail cars annually, and could potentially serve existing build-



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ings at RBAAP, as well as new development expected on Site 9. Additional analysis is needed to better understand the feasibility of the team track and how it would fit into a community master plan for rail service.

4. Retail Uses

It is proposed that Site 6, currently occupied by RV storage, be designated for new convenience retail development. Future retail uses should follow the existing land use, parking and design requirements for retail uses in the City's zoning ordinance.

New retail development is also proposed on Site 8, which is currently vacant. A 3-story, 40-foot height limit is proposed for Site 8 to ensure that uses on this site transition appropriately to the lower-intensity residential uses to the south.

5. Stormwater and Wastewater

Site 2 will continue to function as a stormwater retention pond for the existing developed RBAAP site. It may be necessary to incrementally expand the pond to accommodate the increased stormwater runoff that would result from new development. Further studies will be required to determine the appropriate size for the retention pond. If additional land is available in Site 2 after the pond is expanded, or if it is determined that a stormwater retention pond is not needed on this site, then Site 2 would be available in the future for new development.



The RBAAP's evaporation/percolation ponds, which are located north of the main RBAAP site along the Stanislaus River, would continue to collect treated wastewater from the industrial uses on Site 7.

6. Open Space Buffer

As shown in Figure 3-2, a 100-foot open space buffer is proposed for much of the perimeter of the RBAAP site. The buffer will consist of a linear strip of open space surrounding the site. The buffer will help screen industrial uses on the RBAAP site from the nearby residential uses and provide aesthetic



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relief. Additionally, a publicly-accessible trail system is proposed within the buffer area around the RBAAP site. A community park may also be created within the buffer to provide the community and their pets with opportunities to gather.

B. Circulation



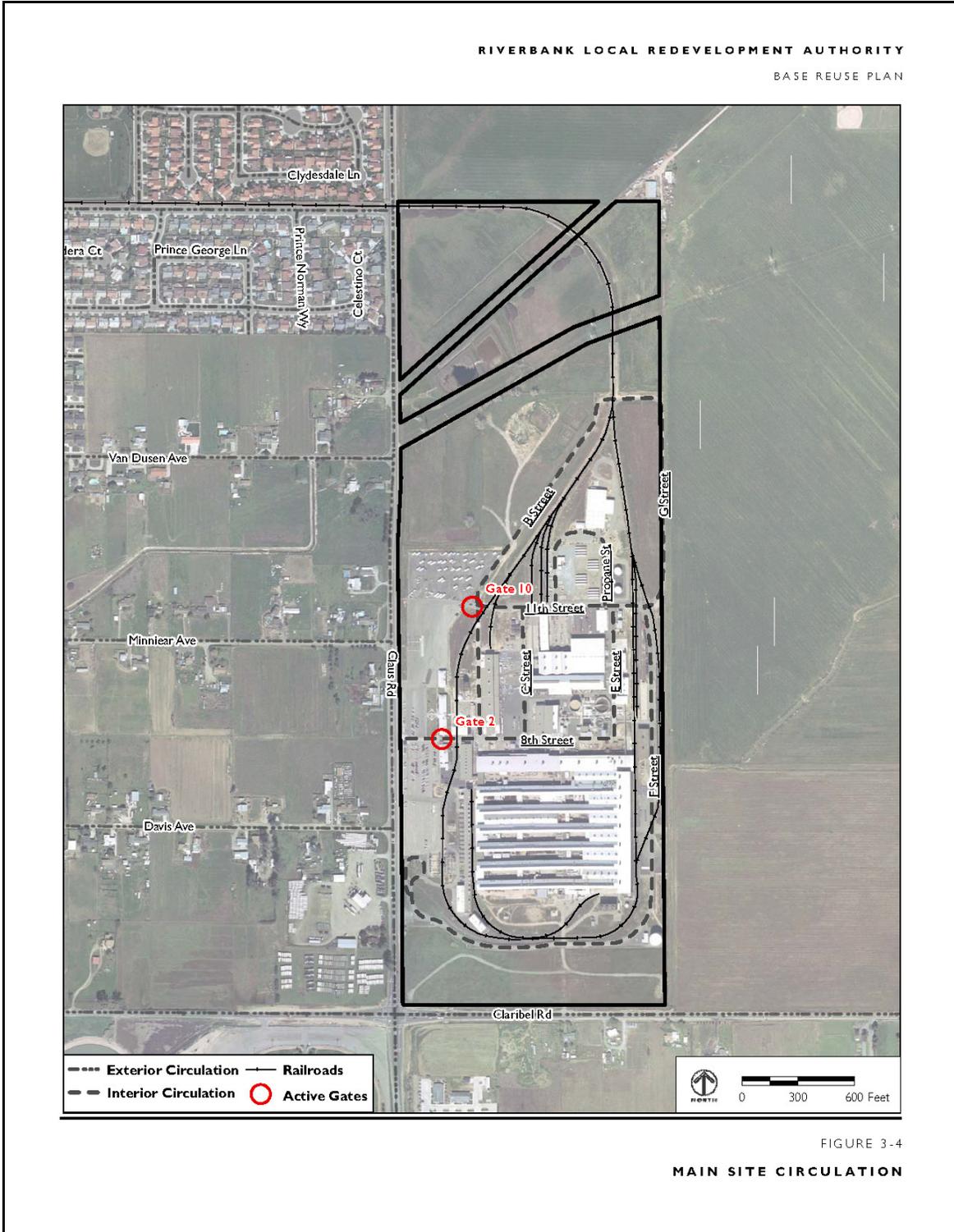
Figure 3-4 shows the existing circulation system for RBAAP's main site. Claus Road currently provides access to RBAAP, which is secured by a perimeter fence. Workers and visitors can park near Claus Road and enter the site on foot through Gate 2. Vehicles such as delivery trucks can enter through Gate 10. An internal network of streets provides access to the various buildings on the property. In addition, a heavy rail line enters the property at its northeast corner, and rail spurs provide access to numerous parts of the site.

The current circulation configuration does not comply with the following adopted City Vision Statements:

- ◆ We will design our community so that people can walk, bicycle, or use public transit if they choose not to drive.
- ◆ A healthy community requires that its citizens feel a sense of connection. Physical, economic, or social barriers that prevent us from living as one community should be removed whenever possible.
- ◆ New development should increase, not impede, our sense of being connected as one community.

Movement to and from the site is currently too restricted to comply with these Vision Statements. Specific circulation improvements that will be required include the extension of Van Dusen Avenue through the site, with an at-grade rail crossing at the joint line. Van Dusen Avenue will be connected to the circulation system of the base and is expected to continue east to Eleanor Avenue in the future. To accomplish this, coordination with the San

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Francisco Public Utility Commission will be necessary where the circulation system crosses the Hetch Hetchy utility corridor.

The Reuse Plan calls for the existing interior circulation system, as well as the access roads to the Evaporation/Percolation Ponds, to remain largely unchanged. However, potential new development on Sites 1, 3, 4, 5, 8 and 9 may require additional curb cuts to provide new entries and parking areas. Entries and parking areas should be provided in accordance with the requirements of the City of Riverbank Municipal Code. Additionally, an at-grade rail crossing will be needed to support development of Site 4, and new rail spurs would be needed to accommodate a team track.

Currently, the North County Corridor Joint Powers Agency (NCCJPA) is pursuing the North County Corridor Project, a new expressway that would connect Highways 99 and 120 east of Oakdale, and would be located near the RBAAP site. Its intent is to help accommodate new growth throughout the County, provide a safer and more efficient east-west route, and separate regional and local traffic. As this project moves forward, the LRA will coordinate with NCCJPA to ensure the expressway is seen as an asset that would help to retain and attract RBAAP's tenants. It is also expected that nearby roadways will need to be widened and intersections improved to accommodate the increased development expected at RBAAP. Details pertaining to expanded transportation infrastructure will be determined during the environmental review process associated with new development on the site.

C. Utility Infrastructure

This section describes the infrastructure improvements necessary to accommodate the increased development proposed for the RBAAP site. Topics covered include storm drainage, natural gas, potable water, sewer service, fire suppression and electrical utilities.



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1. Storm Drainage

Development of Sites 1, 3, 4, 5, 8 and 9 will create new impervious surfaces that increase stormwater runoff. This new development will require new stormwater management systems, either conventional or low impact development systems. Conventional systems include the concentration of stormwater flows to catch basins via inlets and underground stormwater distribution lines. Low impact development systems include methods that take every opportunity to allow for natural absorption and plant uptake in managing the stormwater.

For planning purposes, it is assumed that existing developed areas will continue to use conventional stormwater management systems that utilize distribution lines that connect to the Northwest Storm Reservoir, which is located in Site 2. New buildings will be encouraged to use low impact development techniques such as green roofs, pervious asphalt and rain gardens to manage new storm flows. The intent of this approach is to showcase the area with low impact development to entice companies with patented and proprietary technologies to invest in the base. Upgrades to accommodate an increased capacity, as well as compatibility and integration into citywide stormwater management systems, are anticipated over time, and may require additional extensive additional study.

2. Natural Gas

It will be necessary to extend natural gas service to vacant sites as they develop. For Sites 1, 3, 4, 5 and 6, it is anticipated that a 6-inch gas feed line will be connected to the existing natural gas line on Claus Road. This 6-inch line will connect to 2-inch and 4-inch lines that serve each individual site. For Sites 8 and 9, it is assumed that a new 4-inch distribution line will be connected to the existing 10-inch feed line at the southeast corner of the site.

3. Potable Water

It is assumed that the three active wells on the RBAAP site will provide enough potable water to support new development. However, it will be necessary to extend the existing 8-inch main distribution line to Sites 1, 3, 4, 5



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and 6. Further analysis will be needed to determine whether future development can be served by 4-inch or 6-inch branch lines.

4. Recycled Water

New development will be required to install systems to reuse gray water for non-potable uses, such as irrigation and fire suppression, by pumping the gray water to the existing water tower on the site. The tower is assumed to be capable of maintaining static pressure for these uses, and will require further analysis to confirm.

5. Sewer Service

To connect Sites 1, 3, 4, 5 and 6 to the City of Riverbank's sanitary sewer system, a new 12-inch sewer main would be constructed. Sites 8 and 9 would require a new 8-inch branch line, which would connect to an existing 12-inch main.

An existing lift station currently conveys sewage from the RBAAP site to Riverbank's sewer system. While it is assumed that the existing lift station is adequate to support increased sewage volumes, further study is required to verify this assumption.

6. Fire Suppression

In order to provide adequate recycled water for fire suppression, a closed-loop system will be required on each vacant portion of the site. Sites 1, 3, 4, 5, 6, 8 and 9 will be ringed with 8-inch PVC pipe and hydrants. Individual fire suppression systems in each new building would connect to this backbone service.

On Site 7, surge water storage for fire abatement is currently provided by two on-site water storage tanks: a 1,000,000 gallon tank, known as Building 139, located near the southeast corner of the RBAAP site, and an elevated 100,000 gallon tank, known as Building 114, situated more closely to the current administration building. In 1998, structural evaluations of both tanks determined that they do not comply with current seismic requirements, meaning



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that the tanks could fail during an earthquake.² Both tanks will require upgrades to ensure that they meet current code requirements. In addition, they may require additional storage capacity to respond to anticipated fire suppression needs, and this will require further analysis.

7. Electrical

Sites 1, 3, 4, 5, 6, 8 and 9 would all be served by 12-kilovolt overhead electrical lines, which would connect to an overhead 12-kilovolt line that currently runs through the RBAAP site. Transformers would step down power to 600 volts or less for service into each of the sites.

D. Building Reuse

Reuse of existing facilities for industrial and office/R&D purposes would be subject to the requirements of the City's Building Code and Fire Code, as interpreted by the Building Department and the Stanislaus Consolidated Fire Protection District. The type and intensity of use, as well as the type and amount of combustible building contents involved in that use, could trigger requirements to upgrade existing buildings. Any upgrades mandated by the City to achieve compliance would be consistent with the newly adopted 2007 California Building Code, Mechanical Code, Plumbing Code and Fire Code. The 2008 National Electrical Code would also apply.

In general, basic initial costs associated with continued reuse of existing buildings would fall into one of the following categories:

- ◆ Inspections, evaluations and code and safety-related improvements, as required by the City of Riverbank.
- ◆ Maintenance and repairs to building systems.
- ◆ Upgrades related to applicable provisions of the State Energy Code.

² Brown and Caldwell, 1998, *Seismic Evaluation and Corrective Action Evaluation of Tank No. 139*; Brown and Caldwell, 1998, *Seismic Evaluation and Corrective Action Evaluation of Elevated Water Tank*.



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- ◆ Roofing maintenance and replacement to extend the service life of the existing facilities.

Based on a preliminary assessment and walkthrough of many of RBAAP's existing buildings, it is anticipated that these buildings will require structural improvements in order to conform to seismic requirements, as well as maintenance and replacement of existing roofs. The City of Riverbank has indicated that it is likely to require additional improvements to RBAAP's existing buildings for code conformance purposes, based on a walkthrough of the facility by the Building Official and the Stanislaus Consolidated Fire Protection District. Where code compliance improvements or changes result in additional costs, the responsibility for covering the additional costs will be determined in accordance with lease arrangements and funding availability.

The following sections provide additional detail about the code compliance and maintenance issues that are most likely to affect reuse of existing buildings at RBAAP.

1. Building Code and Fire Code Compliance

Many of the RBAAP site's original buildings were built in the 1940s and 1950s, and other smaller buildings of various construction types were built in the late 1960s and early 1970s. Buildings constructed between 1982 and 2006 are typically pre-engineered metal buildings.

Spot inspections by RBAAP's operating contractor between 2002 and 2006 have documented a variety of specific structural issues that will require attention in the future, including steel columns with broken concrete pedestals, dry rot in wooden building members and cracks in the brick veneer on building façades.³ The operating contractor's staff have indicated that many of these structural issues have not been corrected. A comprehensive inspection

³ Comple Engineering Group, 2002, *Building Inspection - Comple File No. 22058*; R&S Tavares Associates, 2006, *Riverbank Army Ammunition Plant Structural Walk-Through Inspection - RST File No. 6085*.



RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
BASE REUSE PLAN
BASE REUSE CONCEPT

and engineering assessment will likely identify additional issues that require correction.

Prior to transfer of the property, the City's Building Department will evaluate the existing facilities by building construction type, building systems, physical condition and intended use. Due to the age of most of the facilities, it is likely that a more detailed inspection and evaluation of the structural systems of the buildings will be required, to determine whether they comply with the structural and seismic provisions of the current Building Code.

Buildings that are most likely to require structural upgrades fall into one of the following categories:

- ◆ **Original Buildings.** These buildings were originally constructed in 1941 as an aluminum reduction facility. They were modified for ammunition production in 1951. There are 10 buildings in this category.
- ◆ **Unreinforced Masonry Buildings.** These buildings were constructed after 1951 with unreinforced masonry and are likely to require significant structural improvements. There are three buildings in this category.
- ◆ **Other Production Buildings.** These buildings were constructed after 1951 and are likely to require limited structural upgrades. There are 21 buildings in this category.

2. Roof Maintenance

Roofs on RBAAP's existing buildings vary in design and materials, based on the character of the building's original use. It is not possible to qualify the type and age of roofing for individual buildings, and it does not appear that a comprehensive Roof Inspection and Maintenance Program has been maintained. Roof maintenance has occurred on an "as-needed" basis when leaks are identified. In addition, Buildings 9 and 10 are known to have splits in



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their roof trusses; continued monitoring of their condition, and potentially repair or replacement of the trusses, will be necessary in the future.⁴

Pending the outcome of a detailed inspection and analysis of the condition of all roofs, which would involve a walk-over survey and test cuts where necessary, it should be assumed that roofing repairs and upgrades will be needed to extend the service life of the facilities.

3. Accessibility Upgrades

The Americans with Disabilities Act (ADA) and State code requirements require buildings to incorporate handicapped-accessible facilities such as the following:

- ◆ Handicapped-accessible parking stalls.
- ◆ A code-compliant accessible route to the main entrance of each building and to accessible features within each building.
- ◆ An accessible entrance.
- ◆ At least one alternate exit at each building that complies with size, configuration and hardware provisions of accessibility codes.
- ◆ Accessible restrooms.

Few buildings at RBAAP comply with the State's accessibility requirements, or with similar provisions in the federal *Americans with Disabilities Accessibility Guidelines (ADAAG)*. However, most of the existing buildings have features that will facilitate handicapped accessibility. The majority of structures are grade-level and have internal circulation at the ground floor level, without sufficient grade changes or barriers to create an ADA compliance issue. Required handicapped accessibility upgrades would typically be implemented as part of tenant improvements to existing buildings, or as a comprehensive whole if desired by the building owner or dictated by statute.

⁴ Ralph Morgan & Associates, 1998, *Report of Inspection, Roof Structure, Building #10*; R&S Tavares Associates, 2008, *Riverbank Ammunition Plan Structural Walk-Through Re-Inspection, Building #9 - Trusses*.



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4. Energy Code Compliance

The State Energy Code requires any additions or alterations to the existing structures to comply with the building envelope, lighting, and space heating/cooling requirements of the Code. All new heating and air-conditioning systems, as well as interior and exterior lighting, would need to be code compliant, energy-efficient systems.

As buildings and equipment are repaired, any increase in the pre-existing energy consumption of the repaired component, system or equipment would require upgrades to meet Energy Code requirements. In addition, any alterations that cause an increase in the energy use of the facility would require code-related upgrades; this includes the addition of heating or cooling to buildings that are not currently heated or cooled. Furthermore, a change of use can also result in required upgrades to comply with the Energy Code.

5. Building Serviceability

The interior finish of the existing buildings is utilitarian, consistent with their current use as a light manufacturing and industrial facility. It is likely that reuse of many buildings would involve cosmetic upgrades to the interior, determined on a case-by-case basis as part of tenant upgrades.

In general, the exterior construction is of low-maintenance materials such as concrete, prefinished metal siding and brick masonry. The concrete and masonry is in good condition. However, much of the siding on large buildings has deteriorated in appearance. If appearance is an issue for future marketability, exterior improvements may be necessary.

E. Security

The RBAAP site perimeter is currently fenced for the security needs of the government contractor. Workers and visitors to the site must also pass through a checkpoint. The current level of security is important to existing tenants and should be maintained and enhanced in the future. One potential

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RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
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enhancement is a high-tech security system complete with computerized surveillance cameras.

Individual tenant spaces should also maintain a high level of security. It is anticipated that partition walls will be constructed between many of the interconnected buildings at RBAAP, to prevent people from moving freely between tenant spaces, so long as these walls comply with Building and Fire Protection necessary exiting requirements. With the exception of potential retail, security measures may also be necessary on the newly-developing sites, depending on the specific nature of new uses.

F. Community Character



The character of the buildings on the RBAAP site reflects a focus on utility rather than aesthetics. The brick and corrugated metal buildings at RBAAP are in contrast with the residential neighborhoods adjacent to the site. As discussed in Section A of this chapter, an open space buffer proposed for the site will help provide landscaping that will screen the industrial uses from the residential neighborhoods nearby.

New development on the RBAAP site will comply with the existing design standards and zoning requirements already in place for industrial and retail development in the City of Riverbank. These requirements will help to ensure that new development respects the pre-existing residential uses adjacent to the site. If a Specific Plan is prepared for the RBAAP site, it could include more detailed, site-specific requirements as well.

G. Equipment Transfer

Several pieces of Army-owned equipment, furnishings and other miscellaneous materials are currently being used on the site by existing business tenants. The LRA is adamantly requesting the conveyance and retention of property or equipment that current tenants are using for their operations, in particular

RIVERBANK ARMY AMMUNITION PLANT BASE REUSE PLAN EXCERPT
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RIVERBANK LOCAL REDEVELOPMENT AUTHORITY
BASE REUSE PLAN
BASE REUSE CONCEPT

the 4,500-ton hydraulic press currently being used by AM2T in the production of products and equipment for the Department of Defense and other contractors. Appendix B includes a complete list of items the LRA wishes to remain with the property upon conveyance.

The LRA and the Army have agreed to allow the Trackmobile railcar mover to be designated as surplus property and remain with the facility for community reuse. The LRA has likewise requested the overhead cranes noted as excess property be available for community reuse, and the Army has agreed to leave this equipment in place at the Riverbank facility.

RIVERBANK ARMY AMMUNITION PLANT BASE REUSE PLAN EXCERPT
Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



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AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



APPENDIX B AGENCY CONSULTATION LETTERS

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Sacramento Area Office
650 Capitol Mall, Suite 8-300
Sacramento, California 95814-4706

January 15, 2009

RECEIVED
January 23 2009
1736 FRANKLIN ST., STE. 500
OAKLAND, CA 94612

Ms. Christy Herron
NEPA Document Project Manager
Marstel Day Conservation and Consulting
1736 Franklin St. #500
Oakland, California 94612

Dear Ms. Herron:

This is in response to your October 30, 2008, letter requesting a list of all Federally listed threatened, endangered, proposed or candidate species potentially occurring in the waterway (Stanislaus River) in the vicinity of the Evaporation/Percolation (E/P) ponds of the Riverbank Army Ammunition Plant (RBAAP) near Riverbank, California in Stanislaus County. NOAA's National Marine Fisheries Service (NMFS) has reviewed your letter and accompanying information and offers the following technical assistance for the disposal and reuse of the RBAAP.

Available information indicates that the following Federally listed threatened species and species of concern under the jurisdiction of NMFS occur within the proposed project area:

Central Valley steelhead Distinct Population Segment (DPS)
(*Oncorhynchus mykiss*) threatened (January 5, 2006, 71 FR 834)

Central Valley fall/late-fall Chinook salmon Evolutionary Significant Unit (ESU)
(*Oncorhynchus tshawytscha*) Species of Concern (April 15, 2004, 69 FR 19975)

The project area also falls within designated critical habitat for Central Valley steelhead:

Central Valley steelhead designated critical habitat
(September 2, 2005, 70 FR 52488)

Additionally, you should be aware that the proposed project may also affect Essential Fish Habitat (EFH) for Chinook salmon as described in Amendment 14 of the Pacific Salmon Fishery Management Plan pursuant to the Magnuson-Stevens Fishery Management Act.

NMFS recommends that the habitat needs of steelhead and Chinook salmon be incorporated into the reuse of this site in the following ways:



AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



2

- **Prevent connection between the Stanislaus River and the E/P ponds on the property.** Large gravel mining pits along the Stanislaus River have been recaptured by the river and now serve as habitat for predatory non-native fishes. These fish prey on juvenile salmonids as they are migrating through and rearing in the river. Connection with the E/P ponds would create more of this undesirable habitat.
- **Restore floodplain habitat on the RBAAP property adjacent to the Stanislaus River.** Floodplain habitat, which is important to juvenile salmonids as both feeding areas and refuge, has been greatly diminished in both quantity and quality on the Stanislaus River. A lack of access to floodplain habitat is a limiting factor in both the Chinook salmon and steelhead populations in the river. Increasing floodplain habitat would benefit these species.

Please contact Ms. Erin Strange at (916) 930-3653, or via email at Erin.Strange@noaa.gov, if you have any questions regarding this project or require additional information.

Sincerely,



Maria Rea
Supervisor, Sacramento Area Office

cc: Copy to file: ARN151422SWR2008SA00502
NMFS-PRD, Long Beach, CA

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



October 30, 2008

Mr. Harry Mossman
U.S. Fish and Wildlife Service
Sacramento Fish and Wildlife Office
2800 Cottage Way
Sacramento, California 95825

RE: Request for Special-Status Species List for the Proposed BRAC Actions at Riverbank Army Ammunition Plant

Dear Mr. Mossman:

In compliance with the National Environmental Policy Act (NEPA), the Department of the Army is preparing an Environmental Assessment (EA) for the disposal and reuse of the Riverbank Army Ammunition Plant (RBAAP), slated for closure under the Base Realignment and Closure Act (BRAC) of 2005. This EA will address the environmental and socioeconomic effects of the disposal of real property interests at this installation under BRAC 2005. Various property disposal alternatives are being evaluated in the EA. Specific plans for reuse are currently being developed by the Local Redevelopment Authority (LRA). Future redevelopment of this property is considered a secondary action resulting from disposal.

RBAAP lies within the limits of the city of Riverbank in Stanislaus County, in the San Joaquin Valley to the west of the Sierra Nevada Mountains (USGS Riverbank CA 7.5 minute quadrangle). The installation is located approximately 1.5 miles south of the Stanislaus-San Joaquin County Border, approximately five miles northeast of the city of Modesto and approximately 30 miles southeast of the city of Stockton. A map showing the location of the area is attached for your reference. The installation covers approximately 173 acres, all of which have been declared excess through the BRAC process. The main ammunition plant area of RBAAP covers approximately 146 acres; four Evaporation/Percolation (E/P) ponds that are associated with the installation are also located approximately 1.5 miles north of the main plant area, and occupy approximately 27 acres. Most of the installation property is paved, except for the E/P ponds area and approximately 40 acres of open land in the main plant area. The main plant area is bordered on the north, west and south by low- to medium-density residential areas, and on the east by pastureland.

Marstel-Day is acting as consultant to the Mobile District of the U.S. Army Corps of Engineers on this project. We are hereby requesting a list of federally-listed threatened, endangered, or candidate species, as well as sensitive species known to occur, or potentially occurring on or in the vicinity of the main plant and E/P ponds areas of RBAAP. We would also appreciate information on any other sensitive natural resources that could be impacted by the proposed action.

If your office has any information available on this issue, please send it to:

Attn: Christy Herron
Marstel-Day, LLC
1736 Franklin St. #500
Oakland, CA 94612

509-1 Jackson St., Fredericksburg, VA 22401 540-371-3338

218 North Lee Street, Suite 300, Alexandria, VA 22314 703-519-3777

* 1736 Franklin Street, Suite 500, Oakland, CA 94612 510-663-0936

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Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



Thank you in advance for your assistance in this matter. If you have any questions, or require additional information, please contact me at (510) 663-0936, or by email at ch@marstel-day.com

Sincerely,

Christy Herron, AICP
NEPA Document Project Manager

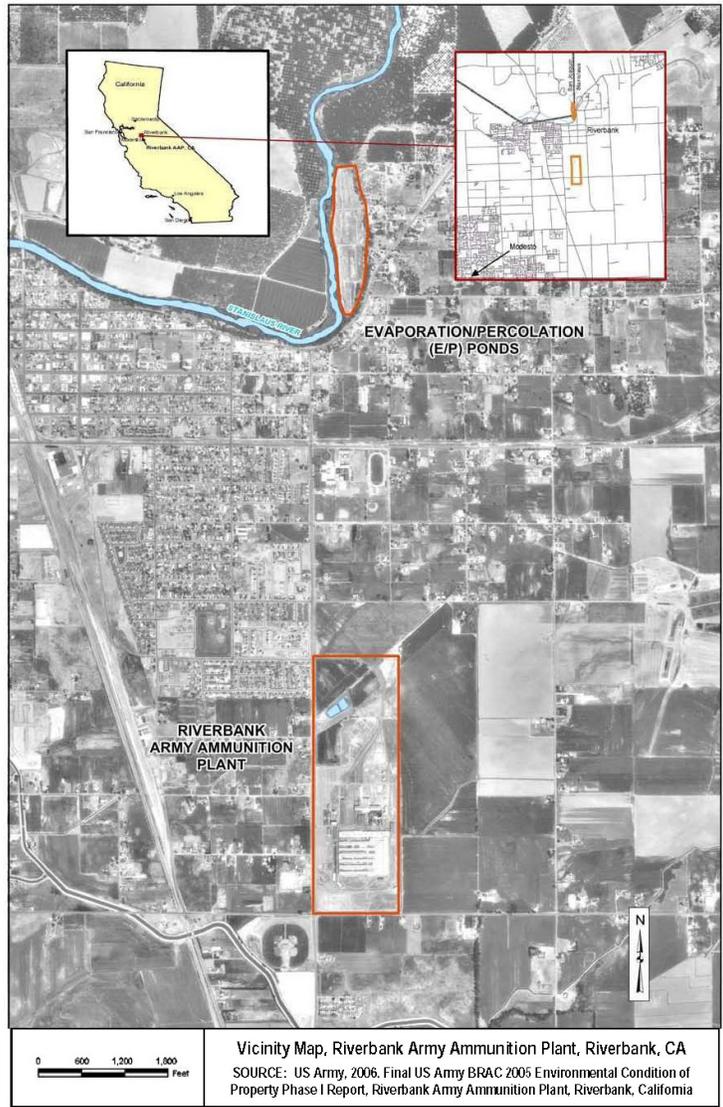
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AGENCY CONSULTATION LETTERS

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Riverbank Army Ammunition Plant, California



October 30, 2008

Mr. Michael Aceituno
NOAA Fisheries-National Marine Fisheries Service
Protected Resources Division
650 Capitol Mall, Suite 6070
Sacramento, CA 95814-4706

RE: Request for Species List for Stanislaus River

Dear Mr. Aceituno:

In compliance with the National Environmental Policy Act (NEPA), the Department of the Army is preparing an Environmental Assessment (EA) for the disposal and reuse of the Riverbank Army Ammunition Plant (RBAAP), slated for closure under the Base Realignment and Closure Act (BRAC) of 2005. This EA will address the environmental and socioeconomic effects of the disposal of real property interests at this installation under BRAC 2005. Various property disposal alternatives are being evaluated in the EA. Specific plans for reuse are currently being developed by the Local Redevelopment Authority (LRA). Future redevelopment of this property is considered a secondary action resulting from disposal.

RBAAP lies within the limits of the city of Riverbank in Stanislaus County, in the San Joaquin Valley to the west of the Sierra Nevada Mountains (USGS Riverbank CA 7.5 minute quadrangle). The installation is located approximately 1.5 miles south of the Stanislaus-San Joaquin County Border, approximately five miles northeast of the city of Modesto and approximately 30 miles southeast of the city of Stockton. A map showing the location of the area is attached for your reference. The installation covers approximately 173 acres, all of which have been declared excess through the BRAC process. The main ammunition plant area of RBAAP covers approximately 146 acres. Four Evaporation/Percolation (E/P) ponds that are associated with the installation are also located approximately 1.5 miles north of the main plant area directly adjacent to the Stanislaus River, and occupy approximately 27 acres. Most of the installation property is paved, except for the E/P ponds area and approximately 40 acres of open land in the main plant area. The main plant area is bordered on the north, west and south by low- to medium-density residential areas, and on the east by pastureland.

Marstel-Day is acting as consultant to the Mobile District of the Army Corps of Engineers on this project. We are requesting a list of federally-listed threatened, endangered, proposed or candidate species, as well as sensitive species known to occur, or potentially occurring on or in the waterways (Stanislaus River) in the vicinity of the E/P ponds areas of RBAAP. We are requesting that NOAA Fisheries-National Marine Fisheries Service (NMFS) provide a list for species under its protection which may occur in the area of the proposed action. We would also appreciate information on any other sensitive natural resources that could be impacted by the proposed action.

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AGENCY CONSULTATION LETTERS

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Based on a preliminary review of the literature, the only listed or sensitive species under the protection of NMFS which have the potential to occur near the area of the proposed action (specifically, the E/P ponds) are the Central Valley, California Steelhead ESU and the Central Valley Fall and Late Fall-Run Chinook Salmon ESU. The E/P ponds are located adjacent to the Stanislaus River, north of the City of Riverbank, at the border of Stanislaus and San Joaquin Counties, as shown on the attached map. The proposed action, including the draft plan for reuse, would not alter the condition or operation of the E/P ponds.

If your office has any information available on this issue, please send it to:

Attn: Christy Herron
Marstel-Day, LLC
1736 Franklin St. #500
Oakland, CA 94612

Thank you in advance for your assistance in this matter. If you have any questions, or require additional information, please contact me at (510) 663-0936, or by email at ch@marstel-day.com

Sincerely,

Christy Herron, AICP
NEPA Document Project Manager

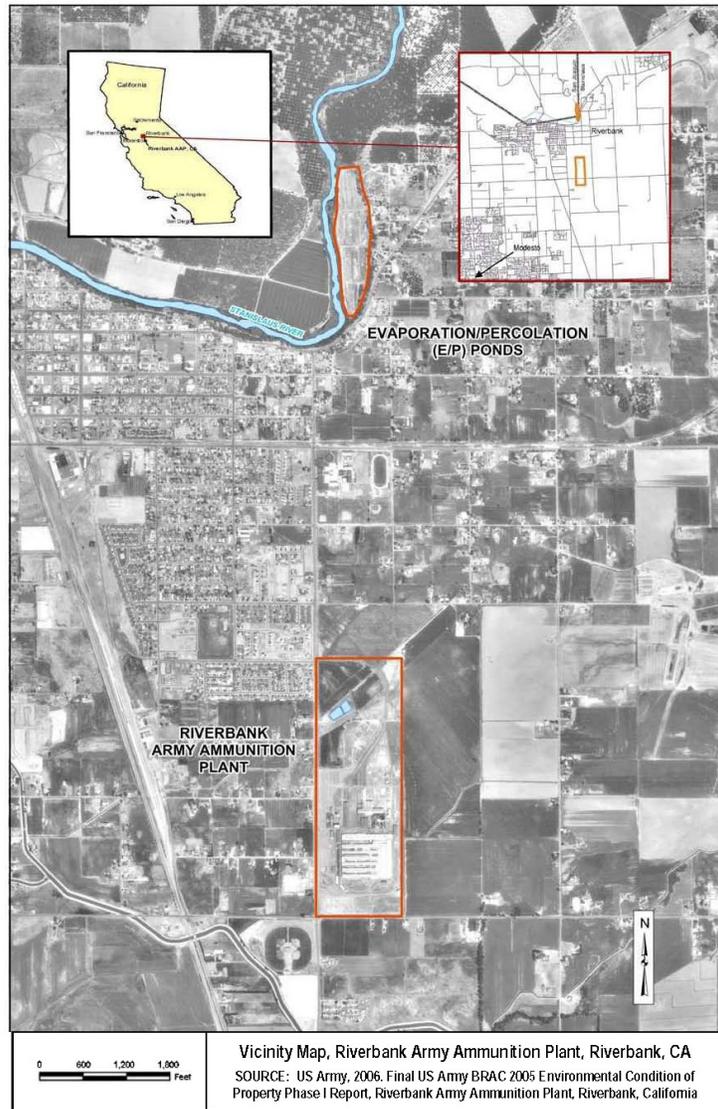
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AGENCY CONSULTATION LETTERS

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Riverbank Army Ammunition Plant, California



October 30, 2008

Mr. Bill Loudermilk, Regional Manager
Central Region (Region 4)
California Department of Fish and Game
1234 Shaw Ave.
Fresno, CA 93710

RE: Request for Special-Status Species List for the Proposed BRAC Actions at Riverbank Army Ammunition Plant

Dear Mr. Loudermilk:

In compliance with the National Environmental Policy Act (NEPA), the Department of the Army is preparing an Environmental Assessment (EA) for the disposal and reuse of the Riverbank Army Ammunition Plant (RBAAP), slated for closure under the Base Realignment and Closure Act (BRAC) of 2005. This EA will address the environmental and socioeconomic effects of the disposal of real property interests at this installation under BRAC 2005. Various property disposal alternatives are being evaluated in the EA. Specific plans for reuse are currently being developed by the Local Redevelopment Authority (LRA). Future redevelopment of this property is considered a secondary action resulting from disposal.

RBAAP lies within the limits of the city of Riverbank in Stanislaus County, in the San Joaquin Valley to the west of the Sierra Nevada Mountains (USGS Riverbank CA 7.5 minute quadrangle). The installation is located approximately 1.5 miles south of the Stanislaus-San Joaquin County Border, approximately five miles northeast of the city of Modesto and approximately 30 miles southeast of the city of Stockton. A map showing the location of the area is attached for your reference. The installation covers approximately 173 acres, all of which have been declared excess through the BRAC process. The main ammunition plant area of RBAAP covers approximately 146 acres; four Evaporation/Percolation (E/P) ponds that are associated with the installation are also located approximately 1.5 miles north of the main plant area, and occupy approximately 27 acres. Most of the installation property is paved, except for the E/P ponds area and approximately 40 acres of open land in the main plant area. The main plant area is bordered on the north, west and south by low- to medium-density residential areas, and on the east by pastureland.

Marstel-Day is acting as consultant to the Mobile District of the U.S. Army Corps of Engineers on this project. Army regulations require consideration of state-listed species in all Army actions. We are hereby requesting a list of state-listed threatened, endangered, or candidate species, as well as sensitive species known to occur, or potentially occurring on or in the vicinity of the main plant and E/P ponds areas of RBAAP. We would also appreciate information on any other sensitive natural resources that could be impacted by the proposed action.

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AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
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If your office has any information available on this issue, please send it to:

Attn: Christy Herron
Marstel-Day, LLC
1736 Franklin St. #500
Oakland, CA 94612

Thank you in advance for your assistance in this matter. If you have any questions, or require additional information, please contact me at (510) 663-0936, or by email at ch@marstel-day.com

Sincerely,

Christy Herron, AICP
NEPA Document Project Manager

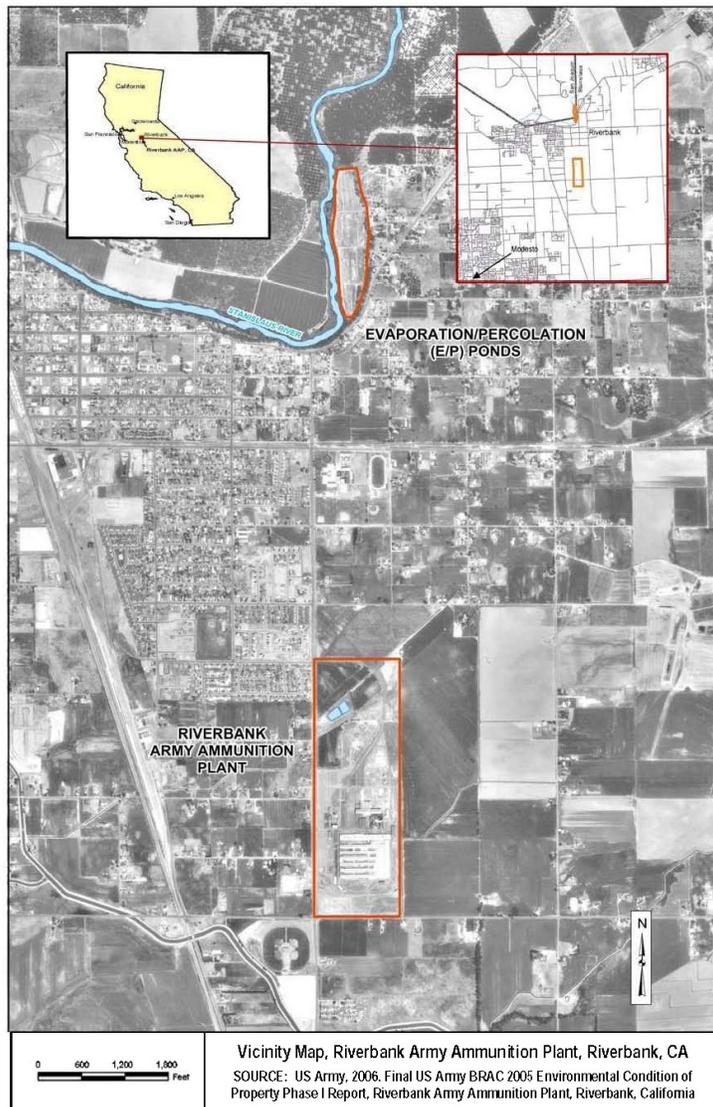
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AGENCY CONSULTATION LETTERS

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Riverbank Army Ammunition Plant, California



STATE OF CALIFORNIA - THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6824 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov



August 28, 2008

In Reply Refer To COE080213C

Neil D. Robison, Ph.D.
Chief, Military Planning and Environmental Compliance Branch
Department of the Army
Mobile District, Corps of Engineers
P.O. Box 2288
Mobile, Alabama 36628-0001

RE: USACE FILE NO. CESAM-PD-M [SECTION 106 CONSULTATION (RND.02) FOR THE
RIVERBANK ARMY AMMUNITION PLANT PROJECT, CITY OF RIVERBANK, STANISLAUS
COUNTY, CALIFORNIA]

Dear Dr. Robison:

This letter is a response to the United States Army Corps of Engineers' (COE) submission of additional information, as requested by this office, in support of a finding of effect for the subject undertaking. The COE submission and my comment on it here are made pursuant to 36 CFR Part 800, the regulation, effective 5 August 2004, that implements Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and other applicable regulations.

The United States Army is proposing to dispose of the Riverbank Army Ammunition Plant (AAP) in order to comply with the Defense Base Closure and Realignment Act of 1990 (Public Law [PL] 101-510), as amended, in facilitating recommendations of the Base Realignment and Closure (BRAC) Commission. The COE has identified the proposed action (transfer of property out of federal ownership), as an undertaking pursuant to the NHPA.

After reviewing your letter, supplemental information and revised report responding to my previous comments, I have the following comments;

- 1) I concur that the Area of Potential Effects has been properly determined and documented pursuant to 36 CFR Part 800.4 (a) (1) and that the efforts to Identify Historic Properties within the APE represent a reasonable and good faith effort by the COE pursuant to 36 CFR Part 800.4.
- 2) I further concur that a finding of No Historic Properties Affected is appropriate pursuant to 36 CFR Part 800.5(d) (1).

Thank you for seeking my comments and for considering historic properties in planning your project. Please direct any questions or concerns that you may have to Christopher Caputo at 916.653.8902 or at ccaputo@parks.ca.gov.

Sincerely,

Suzanne K. Stratton for

Milford Wayne Donaldson, FAIA

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



Neil D. Robinson
PAGE 2 of 2

COE080213C

State Historic Preservation Officer

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
MOBILE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2288
MOBILE, ALABAMA 36628-0001

July 22, 2008

CESAM-PD-M

Mr. Milford Wayne Donaldson
State Historic Preservation Officer
Attn: Christopher Caputo
Office of Historic Preservation
Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

RE: SHPO Reference Number COE080213C, Riverbank Army Ammunition Plant

Dear Mr. Donaldson:

The United States Army appreciates your input and assistance concerning the Riverbank Army Ammunition Plant (AAP) disposal action. Based on comments received from your office in a letter dated March 24, 2008 (Enclosure 1), the Army is providing an updated final report (Enclosure 2) and further information in order to satisfy your concerns. This information and updated report are intended to support the Army's determination of "no historic properties affected" by the proposed action as per 36 CFR 800.4(d)(1).

The first issue raised in your letter concerned the built environment and the age of the original assessment. The Riverbank AAP standing structures are all covered by the Program Comments for World War II and Cold War Era (1939-1974) Army Ammunition Production Facilities and Plants as approved by the Advisory Council on Historic Preservation in 2006 (Enclosure 3). Therefore, no further consultation or comments are required concerning the disposition of these buildings. This should have been stated in the original consultation letter and we apologize for the confusion over the omission of that information.

Your second issue was a request for further information and discussion in the report concerning the Hetch Hetchy aqueduct. The segment of the Hetch Hetchy aqueduct that transverses the area is subterranean and will not be affected by the proposed action. Details concerning the canal have been added to the report as requested.

In addition, you requested both an environmental context and information concerning the potential for buried archaeological sites within the project Area of Potential Effect. That information has been added to the updated report. Based on the analysis of the project archaeologist, the area has a very low possibility for buried resources.

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



CESAM-PD-M

22 July 2008

RE: SHPO Reference Number COE080213C, Riverbank Army Ammunition Plant

Finally, you requested information concerning Native American consultation. Details concerning tribal consultation including lists of tribes contacted, dates, and copies of the correspondence have been added to the report. No interest was expressed by any tribe nor were any areas of concern or Traditional Cultural Properties identified. The Army, as lead Federal agency for the section 106 process recognizes its responsibilities under 36 CFR 800.2(c) and has made a reasonable and good faith effort to identify Native American interests. Since no comments or concerns were expressed, the Army considers consultation with tribes to be concluded.

Based on the information provided, the Army, as the lead Federal agency, has determined "no historic properties affected" by the proposed disposal of the Riverbank AAP, as per 36 CFR 800.4(d)(1). We request your concurrence on our "no effect" determination. If you have questions or concerns about this project please contact Joseph Giliberti, BRAC NEPA support team archaeologist at (251) 694-4114.

Sincerely,

Neil D. Robison, Ph.D.
Chief, Military Planning and
Environmental Compliance Branch

Enclosures

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



05/29/2008 14:56 FAX 916 657 5390

NAHC

001/002

STATE OF CALIFORNIA

Arnold Schwarzenegger, Governor

**NATIVE AMERICAN HERITAGE
COMMISSION**

915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4882
Fax (916) 657-5390



May 29, 2008

Christiaan Havelaar
Jones & Stokes
268 Grand Avenue
Oakland, CA 94610

Sent by Fax: 510-433-8961
Number of Pages: 2

Re: Propose: decommission of the Riverbank Army Ammunition Plant; Stanislaus County

Dear Mr. Havelaar:

A record search of the sacred lands file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4040.

Sincerely,

Katy Sanchez
Program Analyst

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



05/29/2008 14:57 FAX 916 657 5390

NAHC

002/002

**Native American Contacts
Stanislaus County
May 27, 2008**

Tule River Indian Tribe
Neil Peyron, Chairperson
P.O. Box 589
Porterville, CA 93258
chairman@tulerivertribe.nsn.
(559) 781-4271
(559) 781-4610 FAX

Yokuts

Southern Sierra Miwuk Nation
Les James, Spiritual Leader
PO Box 1200
Mariposa, CA 95338
209-966-3690

Miwok
Pauite
Northern Valley Yokut

Southern Sierra Miwuk Nation
Jay Johnson, Spiritual Leader
5235 Allred Road
Mariposa, CA 95338
209-966-6038

Miwok
Pauite
Northern Valley Yokut

North Valley Yokuts Tribe
Katherine Erolinda Perez
PO Box 717
Linden, CA 95236
(209) 887-3415

Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

Southern Sierra Miwuk Nation
Anthony Brochini, Chairperson
P.O. Box 1200
Mariposa, CA 95338
tony_brochini@nps.gov
209-379-1120
209-628-0085 cell

Miwok
Pauite
Northern Valley Yokut

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Decommission of the Riverbank Army Ammunition Plant; Stanislaus County.

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



STATE OF CALIFORNIA – THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942886
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov



March 24, 2008

In Reply Refer To COE080213C

Neil D. Robison, Ph.D.
Chief, Military Planning and Environmental Compliance Branch
Mobile District, Corps of Engineers
Department of the Army
P.O. Box 2288
Mobile, Alabama 36628-0001

RE: USACE FILE NO. CESAM-PD-M [SECTION 106 CONSULTATION (RND.01) FOR THE
RIVERBANK ARMY AMMUNITION PLANT PROJECT, CITY OF RIVERBANK, STANISLAUS
COUNTY, CALIFORNIA]

Dear Mr. Robison:

This letter is a response to the United States Army Corps of Engineers' (COE) submission of information in support of a finding of effect for the subject undertaking. The COE submission and my comment on it here are made pursuant to 36 CFR Part 800, the regulation, effective 5 August 2004, that implements Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and other applicable regulations.

The United States Army is proposing to dispose of the Riverbank Army Ammunition Plant (AAP) in order to comply with the Defense Base Closure and Realignment Act of 1990 (Public Law [PL] 101-510), as amended, in facilitating recommendations of the Base Realignment and Closure (BRAC) Commission. The COE has identified the proposed action (transfer of property out of federal ownership), as an undertaking pursuant to the NHPA.

The COE has determined that the Area of Potential Effects (APE) for this undertaking consists of the entire 172-acre Riverbank AAP property. This APE determination is based on the transfer of property out of federal ownership.

In addition to your letter of 7 February 2008, you have submitted the following cultural resources report:

- *Phase I Archaeological Inventory of 25 Acres at Riverbank Army Ammunition Plant, Stanislaus County, California: (Jones & Stokes, December 2007).*

After reviewing your letter and supporting documentation, I am presently unable to provide comment on the COEs' determination of No Historic Properties Affected pursuant to 36 CFR Part 800.4(d)(1) because your 1 February 2008 letter and attached documentation does not meet the documentation standards set forth at 36 CFR § 800.11(b). The documentation provided by COE needs to meet the standards under 36 CFR § 800.11(d), to support your analysis of the undertaking's potential to affect historic properties. The submitted documentation does not meet the standards in two crucial ways:

1) The COE' efforts to identify historic properties pursuant to 36 CFR Part 800.4(b) appear to be incomplete. This assessment is in part based on the potential for built resources in the APE. The Historic Properties Report referenced in your letter (MacDonald and Mack 1984), due to

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Final Environmental Assessment for BRAC 05 Disposal and Reuse of
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Neil D. Robinson
PAGE 2 of 2

COE000213C

the time that has passed since the study was completed, will require that a new study be conducted to identify and evaluate any built resources within the APE. Also, Figure 2 in the consultant's report indicates that the Hetch Hetchy aqueduct passes through the APE. This will need to be identified and considered in your analysis.

In addition, the consultant's report does not provide an environmental context or analysis of the potential for buried archaeological sites within the APE. Specifically, the portion of the APE depicted in Figure 3 of the report would appear to have some degree of sensitivity for buried archaeological sites. Please develop these sections of the report so that this office can assess the sensitivity of the APE for buried prehistoric resources.

2) The documentation you have provided as evidence of consultation with Native American Tribes and organizations pursuant to 36 CFR Part 800.3(f) (2) is insufficient. The consultant's report indicates that they have contacted the California Native American Heritage Commission (NAHC) in reference to this project and that the NAHC's responded with a list of three Native American Representatives. The consultant then attempted to contact the representatives in an effort to solicit any input or concerns related to the project. While this appears to meet the requirements of 36 CFR Part 800.3(f) (2), please provide the letters requesting Native American consultation as evidence of your documentation of efforts to identify historic properties.

Thank you for seeking my comments and for considering historic properties in planning your project. Please direct any questions or concerns that you may have to Christopher Caputo at 916.653.8902 or at ccaputo@parks.ca.gov.

Sincerely,

Susan K. Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



7 February 2008

CESAM-PD-M

Mr. Milford Wayne Donaldson
State Historic Preservation Officer
Office of Historic Preservation
Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Dear Mr. Donaldson:

The United States Army is proposing to dispose of the Riverbank Army Ammunition Plant (AAP) in order to comply with the Defense Base Closure and Realignment Act of 1990 (Public Law [PL] 101-510), as amended, in facilitating recommendations of the Base Realignment and Closure (BRAC) Commission. The proposed property to be transferred from federal ownership is located in the town of Riverbank, Stanislaus County, California (Figure 1). The Riverbank AAP is a contractor operated metal manufacturing facility of the U.S. Army with a mission of making parts for military munitions.

As per requirements of section 106 of the National Historic Preservation Act, the Army is required to consider the effects of the proposed action on historic properties. Due to the nature of the proposed action (transfer of property out of federal ownership), the entire Riverbank AAP property is considered to be within the Area of Potential Effect (APE). Therefore, the APE is defined as being 172 acres in size. The project area is delineated on a portion of the Riverbank, California 7.5 minute quadrangle (Figure 2). A majority of the Riverbank AAP property is built environment. This includes office buildings, manufacturing structures, warehouses and paved roadways that all support the manufacturing industry. Also located on the property are a waste water treatment facility with settling ponds which cover over 29 acres. Only 25 acres of the AAP is identified as having potential for archaeological remains due to the developed nature of the property.

A records search was conducted at the Central California Information Center of the California Historical Resources Information System at CSU Stanislaus in Turlock, California. The records search covered the APE and a .25-mile radius around the APE. Resources consulted for the search included the state's database of previously recorded cultural resources sites and studies, and pertinent historical inventories and historic maps. The result of the search found one archaeological study has been conducted within the project area (Cleland et al. 1988). The 1988 study consisted of an overview and management plan. No archaeological or historical resources

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
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were located within the project area, although a possible historic refuse deposit was found adjacent to the water treatment settling ponds. The site was not considered old enough for formal recordation. The built environment in the project area was recorded and evaluated by MacDonald and Mack (1984) in a Historic Properties Report. No buildings or portion of the Riverbank AAP was considered eligible for inclusion on the National Register of Historic Places (NRHP).

Although the entire project area is considered to be heavily disturbed, the U.S. Army Corps of Engineers, Mobile District, BRAC NEPA support team requested a Phase I survey of the plant site in order to ensure no previously unknown or unrecorded archaeological sites are present. The Phase I study was targeted only for the 25 acres of property not completely covered or altered by the built environment. The work was conducted by Jones & Stokes and completed in November, 2007. The results of the study are provided in the enclosed report entitled: *Phase I Archaeological Inventory of 25 Acres at Riverbank Army Ammunition Plant, Stanislaus County, California*. The Phase I cultural resources investigation of the Riverbank AAP identified no cultural resources eligible for listing on the NRHP (historic properties) within the APE. The results of that survey are provided for your review and comment.

Based on the results of the previously conducted archaeological overview (Cleland et al. 1988), the historic properties report (MacDonald and Mack 1984), and the enclosed Phase I survey report, the Army, as the lead Federal agency, has determined that there are "no historic properties affected" by the proposed disposal of the Riverbank AAP, as per 36 CFR 800.4(d)(1).

We request your concurrence on our determination that there are "no historic properties affected" by the proposed disposal of the Riverbank AAP. If you have questions or concerns about this project please contact Joseph Giliberti, BRAC NEPA support team archaeologist at (251) 694-4114

Sincerely,

Neil D. Robison, Ph.D.
Chief, Military Planning and
Environmental Compliance Branch

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



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Neil D. Robison, Ph.D.
Chief, Military Planning and
Environmental Compliance Branch

AGENCY CONSULTATION LETTERS

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Riverbank Army Ammunition Plant, California



Jones & Stokes

November 8, 2006

Tule River Indian Tribe
Neil Peyron, Chairperson
PO Box 589
Porterville, CA 93258
559-781-4271

Subject: Riverbank AAP EA

Dear Mr. Peyron:

Jones & Stokes has contracted with the United States Army Corps of Engineers in Mobile, Alabama to conduct studies in support of an Environmental Assessment for the decommissioning of the Riverbank Army Ammunitions Plant in Riverbank, CA (see attached maps). The proposed project includes the main facility as well as detention ponds adjacent to the Stanislaus River..

A records search of the project area indicated that no pedestrian inventories have been conducted and no known cultural resources are present within the project area. A pedestrian inventory is scheduled for this project within the near future.

The Native American Heritage Commission searched their sacred lands database, which failed to indicate the presence of Native American cultural resources within the immediate project areas. They also provided your name as a Native American representative who may be interested in the project or have knowledge of the project area.

Please contact me at the telephone number below or by e-mail (chavelaar@jsanet.com) if you have any concerns or information regarding the sensitivity of the project area.

Sincerely,

Christiaan Havelaar
Staff Archaeologist

Enclosure: Area Map

2600 V Street • Sacramento, CA 95818 • tel. 916 737.3000 • fax 916 737.3030
www.jonesandstokes.com

AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



Jones & Stokes

November 8, 2006

North Valley Yokuts Tribe
Katherine Erolinda Perez
PO Box 717
Linden, CA 95236

Subject: Riverbank AAP EA

Dear Ms. Perez:

Jones & Stokes has contracted with the United States Army Corps of Engineers in Mobile, Alabama to conduct studies in support of an Environmental Assessment for the decommissioning of the Riverbank Army Ammunitions Plant in Riverbank, CA (see attached maps). The proposed project includes the main facility as well as detention ponds adjacent to the Stanislaus River..

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AGENCY CONSULTATION LETTERS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
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November 8, 2006

Southern Sierra Miwuk Nation
Jay Johnson, Spiritual Leader
5235 Allred Road
Mariposa, CA 95338

Subject: Riverbank AAP EA

Dear Mr. Johnson:

Jones & Stokes has contracted with the United States Army Corps of Engineers in Mobile, Alabama to conduct studies in support of an Environmental Assessment for the decommissioning of the Riverbank Army Ammunitions Plant in Riverbank, CA (see attached maps). The proposed project includes the main facility as well as detention ponds adjacent to the Stanislaus River..

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November 8, 2006

Southern Sierra Miwuk Nation
Les James, Spiritual Leader
PO Box 1200
Mariposa, CA 95338

Subject: Riverbank AAP EA

Dear Mr. James:

Jones & Stokes has contracted with the United States Army Corps of Engineers in Mobile, Alabama to conduct studies in support of an Environmental Assessment for the decommissioning of the Riverbank Army Ammunitions Plant in Riverbank, CA (see attached maps). The proposed project includes the main facility as well as detention ponds adjacent to the Stanislaus River..

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Christiaan Havelaar
Staff Archaeologist

Enclosure: Area Map

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AGENCY CONSULTATION LETTERS

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Jones & Stokes

November 8, 2006

Southern Sierra Miwuk Nation
Anthony Brochini, Chairperson
PO Box 1200
Mariposa, CA 95338

Subject: Riverbank AAP EA

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Sincerely,

Christiaan Havelaar
Staff Archaeologist

Enclosure: Area Map

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**MODEL FOST AND LEAD BASED PAINT AND ASBESTOS PROVISIONS FOR BRAC
LEASES AND DEEDS**

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**APPENDIX C MODEL FOST AND LEAD BASED PAINT
AND ASBESTOS PROVISIONS FOR BRAC
LEASES AND DEEDS**

**MODEL FOST AND LEAD BASED PAINT AND ASBESTOS PROVISIONS FOR BRAC
LEASES AND DEEDS**

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**MODEL FOST AND LEAD BASED PAINT AND ASBESTOS PROVISIONS FOR BRAC
LEASES AND DEEDS**

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



**FINDING OF SUITABILITY TO TRANSFER
(FOST)**

[Name of installation]

[Parcel or Specific Area]

[Date]

**MODEL FOST AND LEAD BASED PAINT AND ASBESTOS PROVISIONS FOR BRAC
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Final Environmental Assessment for BRAC 05 Disposal and Reuse of
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**FINDING OF SUITABILITY TO TRANSFER
(FOST)**

**[Name of installation]
[Parcel or Specific Area]**

[Date]

1. PURPOSE

The purpose of this Finding Of Suitability To Transfer (FOST) is to document the environmental suitability of certain parcels or property at _____ **[Name of installation]** for transfer to the _____ **[Name of transferee]** consistent with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120(h) and Department of Defense (DOD) policy. In addition, the FOST includes the CERCLA Notice, Covenant, and Access Provisions and other Deed Provisions and the Environmental Protection Provisions (EPPs) necessary to protect human health or the environment after such transfer.

2. PROPERTY DESCRIPTION

The property consists of _____ acres, which includes _____ buildings and _____ acres of undeveloped land. The property was previously used as _____ **[Describe past Army activities, e.g., industrial, administrative, housing, etc.]** The property is intended to be transferred as _____ **[Describe intended reuse]** and is consistent with the intended reuse of the property as set forth in the _____ **[Name of LRA]** Reuse Plan. A site map of the property is attached (Enclosure _____).

3. ENVIRONMENTAL DOCUMENTATION

A determination of the environmental condition of the property was made based upon the _____ **[List primary environmental surveys, e.g., Environmental Baseline Survey (EBS), etc.]** The information provided is a result of a complete search of agency files during the development of these environmental surveys.

A complete list of documents providing information on environmental conditions of the property is attached (Enclosure _____).

[Editorial note – This list should be a comprehensive list that includes the EBS and other relevant documents, e.g., NEPA analysis, Remedial Investigations, Feasibility Studies, Asbestos Surveys, Lead Based Paint Surveys, Radiological Surveys, Radon Surveys, Munitions Response Reports, Statement of Munitions and Explosive (MEC) Removal, etc.]

4. ENVIRONMENTAL CONDITION OF PROPERTY

The DOD Environmental Condition of Property (ECP) categories for the property are as follows:

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Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



ECP Category 1: _____ [List specific buildings, parcels, or operable units]

ECP Category 2: _____ [List specific buildings, parcels, or operable units]

ECP Category 3: _____ [List specific buildings, parcels, or operable units]

ECP Category 4: _____ [List specific buildings, parcels, or operable units]

A summary of the ECP categories for specific buildings, parcels, or operable units and the ECP category definitions is provided in Table 1 – Description of Property (Enclosure _____).

[Editorial Note – The Army may only transfer ECP 5, 6, or 7 property if the property is transferred under a deferred covenant in accordance with CERCLA 120(h)(3)(C), because these categories indicate that all remedial action has not been completed.]

4.1. Environmental Remediation Sites

There were _____ remediation sites located on the property. A summary of the environmental remediation sites on the property is as follows: _____ [List sites, e.g., Operable Unit 1 – Old Solvent Disposal Pit, Operable Unit 2 – Groundwater contamination .] All environmental soil and groundwater remediation activities on the property have been completed or are in place and operating properly and successfully. [Alternate language: The property was not remediated to levels suitable for unrestricted use. The deed will include the following land use restrictions _____ [List land use restrictions, e.g., no residential activities, no use of groundwater, no excavation at designated locations] See _____ for additional information. [Cite the Record of Decision, Decision Document, Remedial Design, or other appropriate documentation.] A summary of the environmental remediation sites is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure _____).

[Editorial Note – Specific language may vary. If a site is investigated and there is no evidence of a release of hazardous substances in excess of 40 CFR 373 reportable quantities, the site should be included on Table 1 – Description of Property, but not be listed on Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal.]

[Alternate language: There are no environmental investigation/remediation sites and no evidence of groundwater contamination on the property.]

4.2. STORAGE, RELEASE, OR DISPOSAL OF HAZARDOUS SUBSTANCES

Hazardous substances were stored for one year or more and released or disposed of on the property in excess of reportable quantities specified in 40 CFR Part 373. All hazardous substance storage operations have been terminated on the property. Hazardous substances were released in excess of the 40 CFR 373 reportable quantities at the following sites: _____ [List sites.] The release or disposal of these hazardous substances was remediated at the time of the release or as part of the Installation Restoration Program (IRP). See Section 4.1 Environmental

MODEL FOST AND LEAD BASED PAINT AND ASBESTOS PROVISIONS FOR BRAC LEASES AND DEEDS

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Remediation Sites for additional information. A summary of the buildings or areas in which hazardous substance activities occurred is provided in Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal (Enclosure ____). The CERCLA 120(h)(3) Notice, Description, and Covenant at Enclosure ____ will be included in the Deed.

[Alternate language: There is no evidence that hazardous substances were stored, released, or disposed of on the property in excess of the 40 CFR Part 373 reportable quantities. The CERCLA 120(h)(4) Notice and Covenant at Enclosure ____ will be included in the Deed.]

4.3. PETROLEUM AND PETROLEUM PRODUCTS

4.3.1. UNDERGROUND AND ABOVE-GROUND STORAGE TANKS (UST/AST)

Current UST/AST Sites - There are ____ underground and/or ____ above-ground petroleum storage tanks (UST/AST) on the property. Petroleum product releases occurred at the following sites: ____ **[List sites.]** The release of these petroleum products was remediated at the time of the release or as part of the UST/AST closure. See ____ for additional information. **[Cite closure report, no further action letter, or other appropriate documentation (if any).]**

[Alternate language: There is no evidence of petroleum releases from these sites.]

Former UST/AST Sites - There were ____ underground and/or ____ above-ground petroleum storage tanks (UST/AST) on the property that have been removed or closed in place. Petroleum product releases occurred at the following sites: ____ **[List sites.]** The release of these petroleum products was remediated at the time of the release or as part of UST/AST closure. See ____ for additional information. **[Cite closure report, no further action letter, or other appropriate documentation (if any)]**

[Alternate language: There is no evidence of petroleum releases from these sites.]

A summary of the UST/AST petroleum product activities is provided in Table 3 – Notification of Petroleum Products Storage, Release, or Disposal (Enclosure ____).

[Alternate language: There is no evidence that petroleum products were stored in underground or above-ground storage tanks on the property.]

4.3.2. Non-UST/AST Storage, Release, or Disposal of Petroleum Products

There was non-UST/AST storage of petroleum products in excess of 55 gallons for one year or more on the property. The petroleum was used for the following types of activities: ____ **[List activities - e.g., motor pool operations, industrial operations, etc.]** All non-UST/AST petroleum product storage operations have been terminated on the property. There was no evidence of petroleum releases in excess of 55 gallons as a result of these activities.

[Alternative language: Petroleum product release or disposal in excess of 55 gallons occurred at

MODEL FOST AND LEAD BASED PAINT AND ASBESTOS PROVISIONS FOR BRAC LEASES AND DEEDS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



the following buildings or areas: _____ [List sites] The release or disposal of these petroleum products was remediated at the time of the release or as part of the installation restoration program. See _____ for additional information. [Cite no further action letter, or other appropriate documentation (if any)]

A summary of the non-UST/AST petroleum activities is provided in Table 3 – Notification of Petroleum Products Storage, Release, or Disposal (Enclosure ____).

_____ [Alternate language: There is no evidence that non-UST/AST petroleum products in excess of 55 gallons were stored for one year or more on the property.]

4.4. POLYCHLORINATED BIPHENYLS (PCB)

The following PCB-containing equipment is located on the property: _____ [List type and location of equipment, e.g., transformer in Building XX, etc.] This equipment is operational, properly labeled in accordance with federal and state regulations, and has been determined not to be leaking. [Alternate language: There is evidence of releases from the PCB-containing equipment at the following sites: _____ [List sites. NOTE: If PCB transformers are present, then include the PCB Notice and Covenant in the EPPs.] The PCBs were remediated at the time of the release or as part of the installation restoration program. See _____ for additional information [Cite the Record of Decision, Decision Document, or other appropriate documentation (if any)]

[Alternate language: There is no evidence that PCB-containing equipment is located or was previously located on the property.]

[Editorial note – A PCB deed notice provision is generally not required unless the property has significant PCB issues. Please consult with the appropriate Army lawyer if you believe that a PCB Notice EPP is necessary. However, if there is storage, release, or disposal of PCB on the property in excess of the 40 CFR Part 373 reportable quantities, this information should be included on Table 2 – Notification of Hazardous Substance Storage, Release, or Disposal.]

4.5. ASBESTOS

There is asbestos-containing material (ACM) in the following buildings: _____ [List buildings] The ACM includes: _____ [Describe types of ACM, e.g., floor tiles, insulation, etc.] See _____ for additional information. [Cite Asbestos Survey (if any)] The ACM does not currently pose a threat to human health or the environment because all friable asbestos that posed an unacceptable risk to human health has been removed or encapsulated.

[Alternate language: Any remaining friable asbestos that has not been removed or encapsulated will not present an unacceptable risk to human health because _____. [Explain why, e.g., the buildings are scheduled for demolition and no occupation of the buildings will be permitted prior to demolition.] The deed will include an asbestos warning and covenant (Enclosure ____).]

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[Alternate language: There is no evidence that buildings or structures with ACM are located on the property.]

4.6. LEAD-BASED PAINT (LBP)

The following buildings are known or presumed to contain lead-based paint (LBP): _____ **[List buildings]** See _____ for additional information **[Cite LBP Survey (if any)]** The property was not used for residential purposes and the transferee does not intend to use the property for residential purposes in the future. **[Alternate language:** The property was used for residential purposes and the transferee intends to use the property for residential purposes in the future.] The deed will include a lead-based paint warning and covenant (Enclosure ____).

[Alternate language: Based on the age of the buildings (constructed after 1978), no buildings on the property are presumed to contain lead-based paint.]

4.7. RADIOLOGICAL MATERIALS

The following buildings were used for radiological activities: _____ **[List buildings and describe radiological activities, e.g., low-level sealed radioactive sources for research and development, tritium exit signs, etc.]** There is no evidence of any release of radiological materials at these buildings. **[Alternate language:** There was a release of radiological material at the following buildings: _____ **[List buildings]** The following actions were taken to remediate the radiological material: _____ **[Describe remediation activities]** A radiological field survey was conducted at those sites having radiological activities and the survey concluded these areas are suitable for unrestricted use. See _____ for additional information. **[Cite radiological field survey.]**

[Alternate language: There is no evidence that radioactive material or sources were stored or used on the property.]

4.8. RADON

Radon surveys were conducted in _____ buildings on the property. Radon was detected at above the EPA residential action level of 4 picocuries per liter (pCi/L) in the following buildings: _____ **[List buildings and radon level, e.g., Building 100 (8 pCi/L), etc.]**

[Alternate language: Radon surveys were conducted in _____ buildings on the property. Radon was not detected at above the EPA residential action level of 4 picocuries per liter (pCi/L) in these buildings.]

[Alternate language: There were no radon surveys conducted on the property.]

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4.9. MUNITIONS AND EXPLOSIVES OF CONCERN (MEC)

Based on a review of existing records and available information, there is no evidence that Munitions and Explosives of Concern (MEC) are present on the property. In addition _____ **[Explain basis for concluding there is no MEC on the property (e.g., the property was historically used exclusively as an administrative area, there is no record of MEC being discovered on the property, there is no record that munitions-related activities occurred).]** The term “MEC” means military munitions that may pose unique explosives safety risks, including: (A) unexploded ordnance (UXO), as defined in 10 U.S.C. §101(e)(5); (B) discarded military munitions (DMM), as defined in 10 U.S.C. §2710(e)(2); or (C) munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. §2710(e)(3), present in high enough concentrations to pose an explosive hazard.

[Alternate language: – Based on a review of existing records and available information, there was evidence that Munitions and Explosives of Concern (MEC) are **[or may]** be present on the property. The property was previously used for _____ **[Describe munitions-related activities (e.g., used as an operational range for live-fire training or testing, used for open burning (OB) or open detonation (OD) of munitions, or used as a munitions operating facility for production, renovation, etc.)]** that could result in the presence of MEC. The term “MEC” means military munitions that may pose unique explosives safety risks, including: (A) unexploded ordnance (UXO), as defined in 10 U.S.C. §101(e)(5); (B) discarded military munitions (DMM), as defined in 10 U.S.C. §2710(e)(2); or (C) munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. §2710(e)(3), present in high enough concentrations to pose an explosive hazard.

A summary of the munition response sites (MRS) on the property is as follows: _____ **[List sites (e.g., Test Range Impact Area #1, OB/OD Area #1, Munitions Production Buildings 10, 11, and 12.)** On _____, a munitions response to MEC was conducted and _____ **[Describe each munitions response (e.g., type of munitions response {e.g., surface removal, removal to detected depth}, number of MEC items recovered, amount of scrap metal recovered)]** The _____ **[Statement of MEC Removal” or other appropriate document]** concluded _____. **[Summarize “Statement of MEC Removal.”]**

A copy of the _____ **[Statement of MEC Removal or other appropriate document.]** is provided as Enclosure _____. A summary of MEC discovered on the property is provided in Table 4 – Notification of Munitions and Explosives of Concern (Enclosure ____). Given the property’s past use, the deed will include the Table 4- Notification of MEC and a MEC Notice (Enclosure ____).]

[Editorial note – If the property has MEC, the MEC issue should be addressed first and listed as FOST Section 4.1. All FOSTs with property known or suspected to contain MEC, even residual MEC remaining after a munitions response, must be signed by the Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health) (DASA(ESOH)). The explosives safety aspects of the transfer documents must be submitted through the US Army Technical Center for

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Explosives Safety to the Department of Defense Explosives Safety Board for review and approval of the explosives safety provisions of transfer, prior to DASA(ESOH)'s signature.]

4.10. OTHER PROPERTY CONDITIONS

The following conditions also exist on the property: _____ **[Briefly describe any other potentially hazardous conditions (non-hazardous waste landfills, hanta virus, past releases of raw sewage, etc.) and explain what action was taken place or what restrictions are necessary to prevent an unacceptable risk to human health and the environment.]**

[Alternate language: There are no other hazardous conditions on the property that present an unacceptable risk to human health and the environment.]

5. ADJACENT PROPERTY CONDITIONS

The following other potentially hazardous conditions exist on adjacent property: _____ **[Briefly describe any potential hazards that exist on adjacent property (e.g., explosive operations, munitions response sites, environmental sites, or other hazardous conditions).]** The presence of these hazards on adjacent property does not present an unacceptable risk to human health and the environment because _____ **[Explain site conditions/protective measures (e.g., lack of migration of contamination, warning signs, fences).]**

[Alternate language: There are no conditions adjacent to the property that present an unacceptable risk to human health and the environment.]

[Editorial note - The decision to list an adjacent hazardous condition should be made on a case-by-case basis depending on the magnitude of the threat and its proximity to the property.]

6. ENVIRONMENTAL REMEDIATION AGREEMENTS

The following environmental orders/agreements are applicable to the property: _____ **[Identify any environmental agreements or orders, e.g., Federal Facility Agreements, RCRA corrective action orders, etc.]** All remediation activities on the property, required by such agreement or order, are completed or in place and operating properly and successfully (See Section 4.1 Environmental Remediation Sites). The deed will include a provision reserving the Army's right to conduct remediation activities (Enclosure _____).

[Alternate language: There are no environmental remediation orders or agreements applicable to the property being transferred. The deed will include a provision reserving the Army's right to conduct remediation activities if necessary in the future (Enclosure _____).]

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7. REGULATORY/PUBLIC COORDINATION

The U.S. EPA Region _____, the _____ **[Insert name of State regulator]**, and the public were notified of the initiation of this FOST. Regulatory/public comments received during the public comment period will be reviewed and incorporated, as appropriate. A copy of the regulatory/public comments and the Army Response will be included at Enclosure _____.

[Editorial note – This section should be revised after the public comment period is completed to reflect whether any regulatory/public comments were received and an Army Response was prepared.]

8. NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) COMPLIANCE

The environmental impacts associated with the proposed transfer of the property have been analyzed in accordance with the National Environmental Policy Act (NEPA). The results of this analysis are documented in the _____ **[Identify NEPA document, e.g., Disposal and Reuse Environmental Assessment or Environmental Impact Statement.]** There were no encumbrances or condition identified in the NEPA analysis as necessary to protect human health or the environmental. **[Alternate language:** The NEPA analysis identified the following encumbrance: _____ **[Describe the NEPA encumbrance and how it will be addressed in the FOST]**

9. FINDING OF SUITABILITY TO TRANSFER

Based on the above information, I conclude that all removal or remedial actions necessary to protect human health and the environment have been taken and the property is transferable under CERCLA section 120(h)(3). In addition, all Department of Defense requirements to reach a finding of suitability to transfer have been met, subject to the terms and conditions set forth in the attached Environmental Protection Provisions that shall be included in the deed for the property. The deed will also include the CERCLA 120(h)(3) Notice, Covenant, and Access Provisions and Other Deed Provisions. Finally, the hazardous substance notification (Table 2) shall be included in the deed as required under the CERCLA Section 120(h) and DOD FOST Guidance.

[Alternate language: Based on the information above, I conclude that the Property qualifies as CERCLA §120(h)(4) uncontaminated property and is transferable under that section. In addition, all Department of Defense requirements to reach a finding of suitability to transfer have been met, subject to the terms and conditions in the Environmental Protection Provisions that shall be included in the deed for the property. The deed will include the CERCLA 120(h)(4) Notice, Covenant, and Access Provisions and Other Deed Provisions. Whereas no hazardous substances or petroleum products were stored for one year or more, known to have been released, or disposed of on the parcel, a hazardous substance or petroleum notification is not required.]

[Editorial note – The CERCLA §120(h)(4) certification can be used only if there is no evidence of any release or disposal of hazardous substances or petroleum products on the property and the appropriate regulatory agency has concurred with this determination. If there has been no storage, release or disposal of hazardous substances, but a petroleum product has been released

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on the property, consult with the appropriate Army lawyer for appropriate covenant determination. Additionally, consult with the appropriate Army lawyer on appropriate language if the transferee is a potentially responsible party (PRP).]

APPROPRIATE SIGNATURE BLOCK

11 Enclosures

Encl 1 -- Site Map of Property

Encl 2 -- Environmental Documentation

Encl 3 -- Table 1 -- Description of Property

Encl 4 -- Table 2 -- Notification of Hazardous Substance Storage, Release, or Disposal

Encl 5 -- Table 3 -- Notification of Petroleum Product Storage, Release, or Disposal

Encl 6 -- Table 4 -- Notification of Munitions and Explosives of Concern (if applicable)

Encl 7 -- CERCLA Notice, Covenant, and Access Provisions and Other Deed Provisions

Encl 8 -- Environmental Protection Provisions

Encl 9 -- Statement of MEC Removal (if applicable)

Encl 10 -- Regulatory/Public Comments

Encl 11 -- Army Response

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ENCLOSURE 3

TABLE 1 – DESCRIPTION OF PROPERTY

Building Number and Property Description	EBS Parcel Designation	Condition Category	Remedial Actions
Bldg. 1 is 5,000 sq. ft administrative building	5C(1) FEBS	1	None
Bldg. 2 is a 1,000 sq. ft storage building..	12(4)HS/HR	1	Bulk chemical solutions were stored in Bldg. 2 in excess of 40 CFR 373 reportable quantities from 1980 to 1996. There were no reported spills or other evidence of hazardous substance releases.
Bldg. 3 is a former gas station with 10,000-gallon UST	57(7)PS/PR(P)	2	A 10,000 gallon UST was removed along with some petroleum contaminated soils on 10 Sep 97. A closure report was submitted to the State in Jan 00. The State determined that no further action is necessary in letter dated 22 Feb 00.
Bldg. 5 is a 1,530 sq. ft building that was used for radio repair operations	12(3)HS/HR	3	There were minor releases of battery acid associated with radio repair operations in Bldg. 170. These releases were remediated at the time of the spill. The performance of industrial and/or commercial operations at this site in accordance with the Deed Restrictions will not pose an unacceptable risk to human health.
Bldg. 6 is a 400 sq. ft former supply building including adjacent tank farm	12(3)HS/HR	4	TCE solvent was stored in 1,000 gallon AST between 1959 and 1992. In 1992, the tank farm ASTs and contaminated soils were removed in coordination with state regulators. The performance of industrial and/or commercial operations at this site in accordance with the Deed Restrictions will not pose an unacceptable risk to human health.
Operable Unit 10 Area	No Parcel #	4	The OU 10 area was contaminated with Cobalt-60. In 1983, the site was remediated with the removal of soil and vegetation over a 3,000 square foot area. A Radiological Survey Report was prepared and no additional radiation above background was found and the site was released for unrestricted use.

Category 1: Areas where no release or disposal of hazardous substances or petroleum products has occurred. (including no migration of these 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.

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ENCLOSURE 4

TABLE 2 – NOTIFICATION OF HAZARDOUS SUBSTANCE STORAGE, RELEASE OR DISPOSAL

Building Number	Name of Hazardous Substance(s)	Date of Storage, Release, or Disposal	Remedial Actions
Bldg. 2.	Hydrochloric acid; (7647010,hydrogen chloride); Sodium Hydroxide (1310732); Chrome plating treatment sludge (F006,D007); trichloroethylene (79016,trichloro ethene); Product Paint and thinners.	1980 to 1996	Bulk chemical solutions were stored in Bldg. 2 in excess of 40 CFR 373 reportable quantities from 1980 to 1996. There were no reported spills or other evidence of hazardous substance releases.
Bldg. 6	Trichloroethylene (TCE)	1959 to 1992	TCE solvent was stored in 1,000 gallon AST between 1959 and 1992. In 1992, the tank farm AST's and contaminated soils were removed in coordination with state regulators. The performance of industrial and/or commercial operations at this site in accordance with the Deed Restrictions will not pose an unacceptable risk to human health.

* The information contained in this notice is required under the authority of regulations promulgated under section 120(h) of the Comprehensive Environmental Response, Liability, and Compensation Act (CERCLA or 'Superfund') 42 U.S.C. §9620(h). This table provides information on the storage of hazardous substances for one year or more in quantities greater than or equal to 1,000 kilograms or the hazardous substance's CERCLA reportable quantity (which ever is greater). In addition, it provides information on the known release of hazardous substances in quantities greater than or equal to the substances CERCLA reportable quantity. See 40 CFR Part 373.

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ENCLOSURE 5

**TABLE 3 – NOTIFICATION OF PETROLEUM PRODUCT STORAGE, RELEASE, OR
DISPOSAL**

Building Number	Name of Petroleum Product(s)	Date of Storage, Release, or Disposal	Remedial Actions
Bldg. 3	Gasoline	1974 to 1997	A 10,000 gallon UST was removed along with some petroleum contaminated soils on September 10, 1997. A closure report was submitted to the State in January 2000. The State determined that no further action is necessary in letter dated 22 Feb 2000.

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ENCLOSURE 6

TABLE 4 – NOTIFICATION OF MUNITIONS AND EXPLOSIVES OF CONCERN (MEC)*

Site	Type of MEC	Date of MEC Activity	Munitions Response Actions
Range Test Area #1	Unexploded Ordnance (UXO)	1940 – 1977	Range Test Area #1 is a 2 acre, former function test range for military munitions. In Apr - May 01, a munitions response was performed at this former range. During this response, 55 UXO items (37mm projectiles) were recovered and destroyed. Additionally, 49 inert items munitions and 758 pounds of scrap metal were recovered and dispositioned. (See Range Test Area #1 Munitions Response Report dated .)
Open Burning(OB)/ Open Detonation (OD) Ground #1	Discard Military Munitions (DMM)	1940 – 1977	The OB/OD Ground #1 was used to OD military munitions. In Aug 04, a munitions response was completed on OB/OD Ground #1. A total of 194 DMM (e.g., fuses and partially detonated munitions) were removed from the Property. (See OB/OD Ground #1 Muntions Response Report dated .)
Bldg. Nos. 10, 11, and 12	Munitions Constituents (MC)	1940 – 1977	Buildings 10, 11, and 12 were used for the production of military munitions. were determined to have MC (residual explosives) present in high enough concentrations to present an explosives hazard In Nov 02, they were processed (e.g., burned, disassembled) burned, disassembled) per a DDESB-approved ESS. (See Buildings 9, 14, and 15 Munitions Response Report dated .)

***Munitions and Explosives of Concern (MEC).** This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks, means: (A) Unexploded Ordnance (UXO), as defined in 10 §101(e)(5); (B) Discarded military munitions (DMM), as defined in 10 U.S.C. §2710(e)(2); or (C) Munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. §2710(e)(3), present in high enough concentrations to pose an explosive hazard.

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ENCLOSURE 7

**CERCLA NOTICE, COVENANT, AND ACCESS PROVISIONS
AND OTHER DEED PROVISIONS**

The following CERCLA Notice, Covenant, and Access Provisions, along with the Other Deed Provisions, will be placed in the deed in a substantially similar form to ensure protection of human health and the environment and to preclude any interference with ongoing or completed remediation activities.

[Editorial Note – The below CERCLA 120(h)(3) Notice and Covenant provisions should be used in all deeds for property having storage for more than a year, release, or disposal of hazardous substances in excess of reportable quantities.]

1. CERCLA NOTICE

For the Property, the Grantor provides the following notice, description, and covenant:

A. Pursuant to section 120(h)(3)(A)(i)(I) and (II) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9620(h)(3)(A)(i)(I) and (II)), available information regarding the type, quantity, and location of hazardous substances and the time at which such substances were stored, released, or disposed of, as defined in section 120(h), is provided in Exhibit _____ **[The FOST Table 2 – Hazardous Substance, Storage, Release and Disposal should be included as a deed exhibit.]**, attached hereto and made a part hereof. Additional information regarding the storage, release, and disposal of hazardous substances on the property has been provided to the Grantee, receipt of which the Grantee hereby acknowledges. Such additional information includes, but is not limited to, the following documents:

_____ **[List additional documents, e.g., the EBS, FOST, etc.]**

B. Pursuant to section 120(h)(3)(A)(i)(III) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9620(h)(3)(A)(i)(III)), a description of the remedial action taken, if any, on the property is provided in Exhibit _____ **[The FOST Table 2 – Hazardous Substance, Storage, Release and Disposal should be included as an exhibit in the final deed]**, attached hereto and made a part hereof. Additional information regarding the remedial action taken, if any, has been provided to the Grantee, receipt of which the Grantee hereby acknowledges. Such additional information includes, but is not limited to, the following documents: _____ **[List additional documents, e.g., the Record of Decision, Decision Document, etc.]**

2. CERCLA COVENANT

Pursuant to section 120(h)(3)(A)(ii) and (B) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9620(h)(3)(A)(ii) and (B)), the United States warrants that -

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A. All remedial action necessary to protect human health and the environment with respect to any hazardous substance identified pursuant to section 120(h)(3)(A)(i)(I) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 remaining on the property has been taken before the date of this deed, and

B. Any additional remedial action found to be necessary after the date of this deed shall be conducted by the United States.

This warranty shall not apply in any case in which the person or entity to whom the property is transferred is a potentially responsible party with respect to such property. For purposes of this warranty, Grantee shall not be considered a potentially responsible party solely due to the presence of a hazardous substance remaining on the property on the date of this instrument, provided that Grantee has not caused or contributed to a release of such hazardous substance.”

OR

[CERCLA 120(h)(4) Covenant language – The below CERCLA Covenant provision should be used in all deeds for property that did NOT have storage for more than a year, release, or disposal of hazardous substances in excess of reportable quantities.]

1. CERCLA COVENANT

Pursuant to section 120(h)(4)(D)(i) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §9620(h)(3)(D)(i)), the United States warrants that any response action or corrective action found to be necessary after the date of this deed for hazardous substances existing on the property prior to the date of this deed shall be conducted by the United States. This warranty shall not apply in any case in which the person or entity to whom the property is transferred is a potentially responsible party with respect to such property. For purposes of this warranty, Grantee shall not be considered a potentially responsible party solely due to a hazardous substance remaining on the property on the date of this instrument, provided that Grantee has not caused or contributed to a release of such hazardous substance or petroleum product or its derivatives.

[Editorial Note - Insert below provisions in all deeds. Renumber as appropriate.]

3. RIGHT OF ACCESS

A. Pursuant to section [120(h)(3)(A)(iii)] [120(h)(4)(D)(ii)] [**Select appropriate citation**] of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. §[9620(h)(3)(A)(iii)] [9620(h)(D)(ii)] [**Select appropriate citation**]), the United States retains and reserves a perpetual and assignable easement and right of access on, over, and through the property, to enter upon the property in any case in which an environmental response action or corrective action is found to be necessary on the part of the United States, without regard to whether such environmental response action or corrective action is on the Property or on adjoining or nearby

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lands. Such easement and right of access includes, without limitation, the right to perform any environmental investigation, survey, monitoring, sampling, testing, drilling, boring, coring, test-pitting, installing monitoring or pumping wells or other treatment facilities, response action, corrective action, or any other action necessary for the United States to meet its responsibilities under applicable laws and as provided for in this instrument. Such easement and right of access shall be binding on the Grantee, its successors and assigns, and shall run with the land.

B. In exercising such easement and right of access, the United States shall provide the Grantee or its successors or assigns, as the case may be, with reasonable notice of its intent to enter upon the Property and exercise its rights under this covenant, which notice may be severely curtailed or even eliminated in emergency situations. The United States shall use reasonable means, but without significant additional costs to the United States, to avoid and to minimize interference with the Grantee's and the Grantee's successors' and assigns' quiet enjoyment of the property. Such easement and right of access includes the right to obtain and use utility services, including water, gas, electricity, sewer, and communications services available on the Property at a reasonable charge to the United States. Excluding the reasonable charges for such utility services, no fee, charge, or compensation will be due the Grantee nor its successors and assigns, for the exercise of the easement and right of access hereby retained and reserved by the United States.

C. In exercising such easement and right of access, neither the Grantee nor its successors and assigns, as the case may be, shall have any claim at law or equity against the United States or any officer, employee, agent, contractor of any tier, or servant of the United States based on actions taken by the United States or its officers, employees, agents, contractors of any tier, or servants pursuant to and in accordance with this covenant. In addition, the Grantee, its successors and assigns, shall not interfere with any response action or corrective action conducted by the Grantor on the Property.

4. "AS IS"

A. The Grantee acknowledges that it has inspected or has had the opportunity to inspect the Property and accepts the condition and state of repair of the subject Property. The Grantee understands and agrees that the Property and any part thereof is offered "AS IS" without any representation, warranty, or guaranty by the Grantor as to quantity, quality, title, character, condition, size, or kind, or that the same is in condition or fit to be used for the purpose(s) intended by the Grantee, and no claim for allowance or deduction upon such grounds will be considered.

B. No warranties, either express or implied, are given with regard to the condition of the Property, including, without limitation, whether the Property does or does not contain asbestos or lead-based paint. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos, lead-based paint, or other conditions on the Property. The failure of the Grantee to inspect or to exercise due diligence to be fully informed as to the condition of all or any portion of the Property offered, will not constitute grounds for any claim or demand against the United States.

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C. Nothing in this “As Is” provision will be construed to modify or negate the Grantor’s obligation under the CERCLA Covenant or any other statutory obligations.

5. HOLD HARMLESS

A. To the extent authorized by law, the Grantee, its successors and assigns, covenant and agree to indemnify and hold harmless the Grantor, its officers, agents, and employees from (1) any and all claims, damages, judgments, losses, and costs, including fines and penalties, arising out of the violation of the NOTICES, USE RESTRICTIONS, AND RESTRICTIVE COVENANTS in this Deed by the Grantee, its successors and assigns, and (2) any and all any and all claims, damages, and judgments arising out of, or in any manner predicated upon, exposure to asbestos, lead-based paint, or other condition on any portion of the Property after the date of conveyance.

B. The Grantee, its successors and assigns, covenant and agree that the Grantor shall not be responsible for any costs associated with modification or termination of the NOTICES, USE RESTRICTIONS, AND RESTRICTIVE COVENANTS in this Deed, including without limitation, any costs associated with additional investigation or remediation of asbestos, lead-based paint, or other condition on any portion of the Property.

C. Nothing in this Hold Harmless provision will be construed to modify or negate the Grantor’s obligation under the CERCLA Covenant or any other statutory obligations.

6. POST-TRANSFER DISCOVERY OF CONTAMINATION

A. If an actual or threatened release of a hazardous substance or petroleum product is discovered on the Property after the date of conveyance, Grantee, its successors or assigns, shall be responsible for such release or newly discovered substance unless Grantee is able to demonstrate that such release or such newly discovered substance was due to Grantor’s activities, use, or ownership of the Property. If the Grantee, its successors or assigns believe the discovered hazardous substance is due to Grantor’s activities, use or ownership of the Property, Grantee will immediately secure the site and notify the Grantor of the existence of the hazardous substances, and Grantee will not further disturb such hazardous substances without the written permission of the Grantor.

B. Grantee, its successors and assigns, as consideration for the conveyance of the Property, agree to release Grantor from any liability or responsibility for any claims arising solely out of the release of any hazardous substance or petroleum product on the Property occurring after the date of the delivery and acceptance of this Deed, where such substance or product was placed on the Property by the Grantee, or its successors, assigns, employees, invitees, agents or contractors, after the conveyance. This paragraph shall not affect the Grantor’s responsibilities to conduct response actions or corrective actions that are required by applicable laws, rules and regulations, or the Grantor’s indemnification obligations under applicable laws.

7. ENVIRONMENTAL PROTECTION PROVISIONS

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The Environmental Protection Provisions are at Exhibit _____, which is attached hereto and made a part hereof. The Grantee shall neither transfer the property, lease the property, nor grant any interest, privilege, or license whatsoever in connection with the property without the inclusion of the Environmental Protection Provisions contained herein, and shall require the inclusion of the Environmental Protection Provisions in all further deeds, easements, transfers, leases, or grant of any interest, privilege, or license.

[Editorial note - The EPPs will be included as a deed exhibit in order to streamline the deed language. It will not diminish the enforceability or legal significance of the EPPs.]

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ENCLOSURE 8

ENVIRONMENTAL PROTECTION PROVISIONS

The following conditions, restrictions, and notifications will be attached, in a substantially similar form, as an exhibit to the deed and be incorporated therein by reference in order to ensure protection of human health and the environment.

1. FEDERAL FACILITIES AGREEMENT

The Grantor acknowledges that the _____ [Name of Installation] has been identified as a National Priorities List (NPL) site under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended. The Grantee acknowledges that the Grantor has provided it with a copy of the _____ [Installation] Federal Facility Agreement (FFA) dated _____. For so long as the Property remains subject to the FFA, the Grantee, its successors and assigns, agree that they will not interfere with United States Department of the Army activities required by the FFA. In addition, should any conflict arise between the FFA and any amendment thereto and the deed provisions, the FFA provisions will take precedence. The Grantor assumes no liability to the Grantee, its successors and assigns, should implementation of the FFA interfere with their use of the Property.

[Editorial Note – The FFA provision should be used in transfers involving properties on the National Priorities List. If the Property is subject to a non-CERCLA cleanup agreement (e.g., a RCRA Corrective Action Order), consult with the appropriate Army lawyer about including a non-FFA cleanup agreement notice provision.]

2. LAND USE RESTRICTIONS

A. The United States Department of the Army has undertaken careful environmental study of the Property and concluded that the land use restrictions set forth below are required to ensure protection of human health and the environment. The Grantee, its successors or assigns, shall not undertake nor allow any activity on or use of the property that would violate the land use restrictions contained herein.

(1) Residential Use Restriction. The Grantee, its successors and assigns, shall use the Property solely for commercial or industrial activities and not for residential purposes. For purposes of this provision, residential use includes, but is not limited to, single family or multi-family residences; child care facilities; and nursing home or assisted living facilities; and any type of educational purpose for children/young adults in grades kindergarten through 12.

(2) Groundwater Restriction. Grantee is hereby informed and acknowledges that the groundwater under Property has _____ [Briefly describe condition of the groundwater.] The Grantee, its successors and assigns, shall not to access or use ground water underlying the Property for any purpose without the prior written approval of United States

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Department of the Army and the _____ **[List appropriate regulator(s).]** For the purpose of this restriction, "ground water" shall have the same meaning as in section 101(12) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

(3) Landfill Restriction. The Property has three non-hazardous waste landfills ("Non-Hazardous Waste Landfill Parcels"). The Grantee, its successors and assigns, shall not conduct or permit others to conduct any excavation activities (i.e. digging, drilling, or any other excavation or disturbance of the land surface or subsurface) or other activities, which may damage the Non-Hazardous Waste Landfill Parcels soil cover and liners. A site map depicting the location of the Non-Hazardous Waste Landfill Parcels is provided as Exhibit 1 (Site Map of Property).

B. Modifying Restrictions. Nothing contained herein shall preclude the Grantee, its successors or assigns, from undertaking, in accordance with applicable laws and regulations and without any cost to the Grantor, such additional action necessary to allow for other less restrictive use of the Property. Prior to such use of the Property, Grantee shall consult with and obtain the approval of the Grantor, and, as appropriate, the State or Federal regulators, or the local authorities. Upon the Grantee's obtaining the approval of the Grantor and, as appropriate, state or federal regulators, or local authorities, the Grantor agrees to record an amendment hereto. This recordation shall be the responsibility of the Grantee and at no additional cost to the Grantor.

C. Submissions. The Grantee, its successors and assigns, shall submit any requests to modifications to the above restrictions to Grantor and _____ **[List appropriate regulator(s)]**, by first class mail, postage prepaid, addressed as follows:

- a. Grantor - _____ **[Provide mailing address.]**
- b. EPA/State Regulator - _____ **[Provide mailing address.]**

[Editorial Note - The actual deed language will depend on the site specific conditions. Therefore, you are encouraged to consult with the appropriate Army lawyer when drafting land use restriction language.]

3. NOTICE OF THE POTENTIAL PRESENCE OF MUNITIONS AND EXPLOSIVES OF CONCERN (MEC)

A. The Grantee is hereby notified that due to the former use of the Property as a military installation, the Property may contain munitions and explosives of concern (MEC). The term MEC means specific categories of military munitions that may pose unique explosives safety risks and includes: (1) Unexploded Ordnance (UXO), as defined in 10 U.S.C. §101(e)(5); (2) Discarded military munitions (DMM), as defined in 10 U.S.C. §2710(e)(2); or (3) Munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. §2710(e)(3), present in high enough concentrations to pose an explosive hazard.)

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B. The Property was previously used _____ **[Describe past munitions-related activities (e.g., used as an operational range for live-fire training or testing, used for open burning (OB) or open detonation (OD) of munitions, or used as a munitions operating facility for production, renovation, etc.)]** In _____, a munitions response was conducted. _____ **[Describe munitions response (e.g., surface removal, subsurface removal to detected depth); any MEC discovered (e.g., 24, 81 mm mortar high explosive projectile warheads, 3 fuzes, 3 practice bombs; the disposition of discovered MEC (e.g., blown in place, OD in consolidated shot, destroyed using contained detonation).]** A summary of MEC discovered on the property is provided in Exhibit __ **[Include FOST Table 4 – Notification of Munitions and Explosives of Concern (MEC) as a deed exhibit]**. A summary of the map depicting the location of munitions response site is provided at Deed Exhibit _____.

C. The Grantor represents that, to the best of its knowledge, no MEC is currently present on the Property. Notwithstanding the Grantor's determination, the parties acknowledge that there is a possibility that MEC may exist on the Property. If the Grantee, any subsequent owner, or any other person should find any MEC on the Property, they shall immediately stop any intrusive or ground-disturbing work in the area or in any adjacent areas and shall not attempt to disturb, remove or destroy it, but shall immediately notify the Local Police Department so that appropriate explosive ordnance disposal personnel can be dispatched to address such MEC as required under applicable law and regulations.

D. Easement and Access Rights.

(1) The Grantor reserves a perpetual and assignable right of access on, over, and through the Property, to access and enter upon the Property in any case in which a munitions response action is found to be necessary, or such access and entrance is necessary to carry out a munitions response action on adjoining property. Such easement and right of access includes, without limitation, the right to perform any additional investigation, sampling, testing, test-pitting, surface and subsurface clearance operations, or any other munitions response action necessary for the United States to meet its responsibilities under applicable laws and as provided for in this Deed. This right of access shall be binding on the Grantee, its successors and assigns, and shall run with the land.

(2) In exercising this easement and right of access, the Grantor shall give the Grantee or the then record owner, reasonable notice of the intent to enter on the Property, except in emergency situations. Grantor shall use reasonable means, without significant additional cost to the Grantor, to avoid and/or minimize interference with the Grantee's and the Grantee's successors' and assigns' quiet enjoyment of the Property. Such easement and right of access includes the right to obtain and use utility services, including water, gas, electricity, sewer, and communications services available on the property at a reasonable charge to the United States. Excluding the reasonable charges for such utility services, no fee, charge, or compensation will be due the grantee nor its successors and assigns, for the exercise of the easement and right of access hereby retained and reserved by the United States.

(3) In exercising this easement and right of access, neither the Grantee nor its successors and assigns, as the case maybe, shall have any claim at law or equity against the United States or any officer, employee, agent, contractor of any tier, or servant of the United States based on actions taken by the United States or its officers, employees, agents, contractors of any tier, or servants

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pursuant to and in accordance with this Paragraph. In addition, the Grantee, its successors and assigns, shall not interfere with any munitions response action conducted by the Grantor on the Property.

E. The Grantee acknowledges receipt of the _____ **[List the Statement of MEC Removal and any other pertinent reports.]**

[Editorial Note - The actual deed language will depend on the site specific conditions. Therefore, you are encouraged to consult with the appropriate Army lawyer when drafting land use restriction language.]

4. NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT

[Editorial Note - The below ACM provision should be used if all friable asbestos has been removed or encapsulated and only non-friable asbestos or asbestos-containing material ("ACM") remains on the Property.]

A. The Grantee is hereby informed and does acknowledge that non-friable asbestos or asbestos-containing material ("ACM") has been found on the Property. The Property may contain improvements, such as buildings, facilities, equipment, and pipelines, above and below the ground, that contain non-friable asbestos or ACM. The Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency have determined that such unprotected or unregulated exposure to airborne asbestos fibers increases the risk of asbestos-related diseases, including certain cancers that can result in disability or death.

B. The Grantee covenants and agrees that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos. The Grantee agrees to be responsible for any remediation or abatement of asbestos found to be necessary on the Property to include ACM in or on buried pipelines that may be required under applicable law or regulation.

C. The Grantee acknowledges that it has inspected or has had the opportunity to inspect the Property as to its asbestos and ACM condition and any hazardous or environmental conditions relating thereto. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos or ACM hazards or concerns.

OR

4. NOTICE OF THE PRESENCE OF ASBESTOS AND COVENANT

[Alternate ACM Language - State the following, if friable asbestos remains in buildings on the property at the time of transfer.]

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A. The Grantee is hereby informed and does acknowledge that friable and non-friable asbestos or asbestos containing material "ACM" has been found on the Property. The Property may also contain improvements, such as buildings, facilities, equipment, and pipelines, above and below the ground, that contain friable and non-friable asbestos or ACM. The Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency have determined that unprotected or unregulated exposure to airborne asbestos fibers increases the risk of asbestos-related diseases, including certain cancers that can result in disability or death.

B. The following building(s) on the Property has (have) been determined to contain friable asbestos: _____. The Grantee agrees to undertake any and all asbestos abatement or remediation in the aforementioned buildings that may be required under applicable law or regulation at no expense to the Grantor. The Grantor has agreed to transfer said buildings to the Grantee, prior to remediation or abatement of asbestos hazards, in reliance upon the Grantee's express representation and covenant to perform the required asbestos abatement or remediation of these buildings.

C. The Grantee covenants and agrees that its use and occupancy of the Property will be in compliance with all applicable laws relating to asbestos. The Grantee agrees to be responsible for any future remediation or abatement of asbestos found to be necessary on the Property to include ACM in or on buried pipelines that may be required under applicable law or regulation.

D. The Grantee acknowledges that it has inspected or has had the opportunity to inspect the Property as to its asbestos and ACM condition and any hazardous or environmental conditions relating thereto. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any asbestos or ACM hazards or concerns.

5. NOTICE OF THE PRESENCE OF LEAD-BASED PAINT (LBP) AND COVENANT AGAINST THE USE OF THE PROPERTY FOR RESIDENTIAL PURPOSE

A. The Grantee is hereby informed and does acknowledge that all buildings on the Property, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Every purchaser of any interest in Residential Real Property on which a residential dwelling was built prior to 1978 is notified that there is a risk of exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning.

B. The Grantee covenants and agrees that it shall not permit the occupancy or use of any buildings or structures on the Property as Residential Property, as defined under 24 Code of Federal Regulations Part 35, without complying with this section and all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. Prior to permitting the occupancy of the Property where its use subsequent to sale is intended for residential habitation, the Grantee specifically agrees to perform, at its sole expense, the Army's abatement

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requirements under Title X of the Housing and Community Development Act of 1992 (Residential Lead-Based Paint Hazard Reduction Act of 1992).

C. The Grantee acknowledges that it has inspected or has had the opportunity to inspect the Property as to its lead-based paint content and condition and any hazardous or environmental conditions relating thereto. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any lead-based paint hazards or concerns.

6. PCB NOTIFICATION AND COVENANT

A. The Grantee is hereby informed and does acknowledge that equipment containing polychlorinated biphenyls (PCBs) exists on the Property to be conveyed, described as follows: _____ . All PCB-containing equipment has been properly labeled in accordance with applicable laws and regulations. Any PCB contamination or spills related to such equipment have been properly remediated prior to conveyance.

B. The Grantee covenants and agrees that its continued possession, use and management of any PCBs and PCB-containing equipment will be in compliance with all applicable laws relating to PCBs and PCB-containing equipment. The Grantee agrees to be responsible for any future remediation of PCB contamination from PCB-containing equipment found to be necessary on the Property.

C. The Grantee acknowledges that it has inspected or has had the opportunity to inspect the Property as to the presence of PCBs and PCB-containing equipment and any hazardous or environmental conditions relating thereto. The Grantee shall be deemed to have relied solely on its own judgment in assessing the overall condition of all or any portion of the Property, including, without limitation, any PCB hazards or concerns.

[Editorial Note – A PCB Notice EPP will generally not be required unless the property has significant PCB issues. Please consult with the appropriate Army lawyer if you believe that a PCB Notice EPP is necessary.]

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Lead Based Paint and Asbestos Provisions for BRAC Leases and Deeds

I. BRAC LEASE PROVISIONS

(1) WHERE LEASED PREMISES INCLUDE NO RESIDENTIAL HOUSING:

Lead-based Paint Warning and Covenant:

1. The Leased Premises do not contain residential dwellings and are not being leased for residential purposes. The Lessee is notified that the Leased Premises contains buildings built prior to 1978 that contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Such property may present exposure to lead from lead-based paint that may place young children at risk of developing lead poisoning. Lead poisoning in young children may produce permanent neurological damage, including learning disabilities, reduced intelligence quotient, behavioral problems, and impaired memory. A risk assessment or inspection for possible lead-based paint hazards is recommended prior to lease.

2. Available information concerning known lead-based paint and/or lead-based paint hazards, the location of lead-based paint and/or lead-based paint hazards, and the condition of painted surfaces is contained in the Environmental Baseline Survey, which has been provided to the Lessee. Additionally, the following reports pertaining to lead-based paint and/or lead-based paint hazards have been provided to the Lessee:

Additionally, the Lessee has been provided with a copy of the federally-approved pamphlet on lead poisoning prevention. The Lessee hereby acknowledges receipt of all of the information described in this subparagraph.

3. The Lessee acknowledges that it has received the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards prior to execution of this Lease.

4. The Lessee shall not permit use of any buildings or structures on the Leased Premises for residential habitation without first obtaining the written consent of the Army. As a condition of its consent, the Army may require the Lessee to: (i) inspect for the presence of lead-based paint and/or lead-based paint hazards; (ii) abate and eliminate lead-based paint hazards by treating any defective lead-based paint surface in accordance with all applicable laws and regulations; and (iii) comply with the notice and disclosure requirements under applicable Federal and state law. The Lessee agrees to be responsible for any future remediation of lead-based paint found to be necessary on the Leased Premises.

5. The Army assumes no liability for remediation or damages for personal injury, illness, disability, or death, to the Lessee, its successors or assigns, sublessees or to any other person, including members of the general public, arising from or incident to

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possession and/or use of any portion of the Leased Premises containing lead-based paint as residential housing. The Lessee further agrees to indemnify and hold harmless the Army, its officers, agents and employees, from and against all suits, claims, demands or actions, liabilities, judgments, costs and attorneys' fees arising out of, or in any manner predicated upon, personal injury, death or property damage resulting from, related to, caused by or arising out of the possession and/or use of any portion of the Leased Premises containing lead-based paint as residential housing. This section and the obligation of the Lessee hereunder shall survive the expiration or termination of this Lease and any conveyance of the Leased Premises to the Lessee. The Lessee's obligation hereunder shall apply whenever the United States of America incurs costs or liabilities for actions giving rise to liability under this section.

**(2) LEAD-BASED PAINT PROVISION WHERE LEASED PREMISES CONTAIN
RESIDENTIAL HOUSING:**

NOTICE OF THE PRESENCE OF LEAD-BASED PAINT AND COVENANT

a. The Lessee is hereby informed and does acknowledge that all buildings on the Leased Premises, which were constructed or rehabilitated prior to 1978, are presumed to contain lead-based paint. Lead from paint, paint chips, and dust can pose health hazards if not managed properly. Lead exposure is especially harmful to young children and pregnant women. Before renting pre-1978 residential housing, lessors must disclose to leasees and subleasees the presence of lead-based paint and/or lead-based paint hazards therein. Residential housing means any housing constructed prior to 1978, excepting housing for the elderly (households reserved for and composed of one or more persons 62 years of age or more at the time of initial occupancy) or persons with disabilities (unless any child who is less than 6 years of age resides or is expected to reside in such housing) or any 0-bedroom dwelling. A risk assessment or inspection for possible lead-based paint hazards by the Lessee is recommended prior to lease.

b. Available information concerning known lead-based paint and/or lead-based paint hazards, the location of lead-based paint and/or lead-based paint hazards, and the condition of painted surfaces is contained in the Environmental Baseline Survey, which has been provided to the Lessee. Additionally, the following reports pertaining to lead-based paint and/or lead-based paint hazards have been provided to the Lessee:

All lessees and subleases must also receive the federally-approved pamphlet on lead poisoning prevention. The lessee hereby acknowledges receipt of all of the information described in this subparagraph.

c. The Lessee acknowledges that it has received the opportunity to conduct a risk assessment or inspection for the presence of lead-based paint and/or lead-based paint hazards prior to execution of this lease.

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d. The Lessee shall not permit the occupancy or use of any buildings or structures as residential housing without complying with this section and all applicable federal, state, and local laws and regulations pertaining to lead-based paint and/or lead-based paint hazards. Prior to permitting the occupancy of residential housing, if required by law or regulation, the Lessee, at its sole expense, will abate and eliminate lead-based paint hazards by treating any defective lead-based paint surface in accordance with all applicable laws and regulations.

e. The Army assumes no liability for remediation or damages for personal injury, illness, disability, or death, to the Lessee, its successors or assigns, sublessees or to any other person, including members of the general public, arising from or incident to possession and/or use of any portion of the Leased Premises containing lead-based paint as residential housing. The Lessee further agrees to indemnify and hold harmless the Army, its officers, agents and employees, from and against all suits, claims, demands or actions, liabilities, judgments, costs and attorneys' fees arising out of, or in any manner predicated upon, personal injury, death or property damage resulting from, related to, caused by or arising out of the possession and/or use of any portion of the Leased Premises containing lead-based paint as residential housing. This section and the obligations of the Lessee hereunder shall survive the expiration or termination of this Lease and any conveyance of the Leased Premises to the Lessee. The Lessee's obligation hereunder shall apply whenever the United States of America incurs costs or liabilities for actions giving rise to liability under this section.

(3) ASBESTOS PROVISION

Notice of the Presence of Asbestos and Covenant:

a. The Transferee/Lessee is hereby informed and does acknowledge that friable and non-friable asbestos or asbestos-containing materials (ACM) has been found on the Premises, as described in the final base-wide EBS. Except as provided for in c. below, the ACM on the Premises does not currently pose a threat to human health or the environment. All friable asbestos that posed a risk to human health has either been removed or encapsulated.

b. The Transferee/Lessee covenants agrees that its use and occupancy of the Premises will be in compliance with all applicable laws relating to asbestos and that the Transferor/Lessor assumes no liability for future remediation of asbestos or damages for personal injury, illness, disability, or death, to the Transferee/Lessee, its successors or assigns, sublessees, or to any other person, including members of the general public, arising from or incident to the purchase, transportation, removal, handling, use, disposition, or other activity causing or leading to contact of any kind whatsoever with asbestos on the Premises described in this Transfer/Lease, whether the Transferee/Lessee, its successors or assigns have properly warned or failed to properly warn the individual(s) injured. The Transferee/Lessee agrees to be responsible for any future remediation of asbestos found to be necessary on the Premises.

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c. The buildings listed in Exhibit ____ to this Deed/Lease contain asbestos which may pose an unacceptable risk to human health. The Transferee/Lessee agrees not to use or occupy said buildings without identifying and remediating any asbestos hazards therein in accordance with all applicable legal requirements, at Transferee/Lessee's sole expense. This deed is granted based upon the Transferee/Lessee's representation that it will comply with this subparagraph c.

d. The Transferee/Lessee further agrees to indemnify and hold harmless the Army, its officers, agents and employees, from and against all suits, claims, demands or actions, liabilities, judgments, costs and attorneys' fees arising out of, or in any manner predicted upon, personal injury, death or property damage resulting from, related to, caused by or arising out of the possession and/or use of any portion of the Premises containing asbestos.

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**APPENDIX D URBEMIS AIR QUALITY MODEL
CALCULATIONS**

URBEMIS AIR QUALITY MODEL CALCULATIONS

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URBEMIS AIR QUALITY MODEL CALCULATIONS

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Table D-1a. RBAAP Baseline Combined Annual Emissions (Tons/Year), URBEMIS Model

Summary Report								
		<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
AREA SOURCE EMISSION ESTIMATES	TOTALS (tons/year, unmitigated)	1.05	0.35	0.71	0.00	0.00	0.00	411.91
OPERATIONAL (VEHICLE) EMISSION ESTIMATES	TOTALS (tons/year, unmitigated)	16.84	24.64	182.68	0.18	7.85	1.87	8,958.95
SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES	TOTALS (tons/year, unmitigated)	17.89	24.99	183.39	0.18	7.85	1.87	9,370.86
Area Source Unmitigated Detail Report								
AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated	<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
	Natural Gas	0.02	0.34	0.29	0.00	0.00	0.00	411.15
	Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Landscape	0.03	0.01	0.42	0.00	0.00	0.00	0.76
	Consumer Products	0.00						
	Architectural Coatings	1.00						
	TOTALS (tons/year, unmitigated)	1.05	0.35	0.71	0.00	0.00	0.00	411.91
AREA SOURCE CHANGES TO DEFAULTS								
Operational Unmitigated Detail Report								
OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated	<u>Source</u>	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM25</u>	<u>CO2</u>
	General office building	1.18	1.79	13.33	0.01	0.57	0.14	652.95
	Warehouse	3.94	5.54	40.45	0.04	1.76	0.42	2,001.19
	Industrial park	11.72	17.31	128.90	0.13	5.52	1.31	6,304.81
	TOTALS (tons/year, unmitigated)	16.84	24.64	182.68	0.18	7.85	1.87	8,958.95
NOTES: Urbemis 2007 Version 9.2.4. On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006. Off-Road Vehicle Emissions Based on: OFFROAD2007. Project Location: Stanislaus County Operational Settings: Does not include correction for passby trips. Does not include double counting adjustment for internal trips. Analysis Year: 2005 Season: Annual								

URBEMIS AIR QUALITY MODEL CALCULATIONS

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Table D-1b. RBAAP Baseline Factors and Assumptions, URBEMIS Model

Summary of Land Uses						
Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.01	1000 sq ft	40.00	440.40	3,568.34
Warehouse		4.96	1000 sq ft	300.00	1,488.00	11,000.78
Industrial park		6.96	1000 sq ft	600.00	4,176.00	34,419.64
Vehicle Fleet Mix						
Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel		
Light Auto	43.6	3.7	95.8	0.5		
Light Truck < 3750 lbs	12.2	7.4	82.8	9.8		
Light Truck 3751-5750 lbs	20.4	2.9	96.6	0.5		
Med Truck 5751-8500 lbs	11.8	1.7	97.5	0.8		
Lite-Heavy Truck 8501-10,000 lbs	2.5	4.0	64.0	32.0		
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0	44.4	55.6		
Med-Heavy Truck 14,001-33,000 lbs	1.3	7.7	15.4	76.9		
Heavy-Heavy Truck 33,001-60,000 lbs	1.7	0.0	0.0	100.0		
Other Bus	0.1	0.0	0.0	100.0		
Urban Bus	0.0	0.0	0.0	0.0		
Motorcycle	4.3	83.7	16.3	0.0		
School Bus	0.1	0.0	0.0	100.0		
Motor Home	1.1	9.1	81.8	9.1		

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



Travel Conditions						
	Home-Work	Residential Home-Shop	Home-Other	Commute	Commercial Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5
Warehouse				2.0	1.0	97.0
Industrial park				41.5	20.8	37.8

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



Table D-2a. RBAAP MHIR Construction Combined Annual Emissions (Tons/Year), URBEMIS Model

Summary Report, Construction Emission Estimates										
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2011 TOTALS (tons/year unmitigated)	2.76	14.90	18.94	0.02	26.43	0.82	27.25	5.53	0.75	6.28
2012 TOTALS (tons/year unmitigated)	2.63	13.80	17.71	0.02	26.53	0.76	27.28	5.55	0.69	6.24
2013 TOTALS (tons/year unmitigated)	2.48	12.69	16.49	0.02	26.53	0.69	27.22	5.55	0.63	6.18
2014 TOTALS (tons/year unmitigated)	2.35	11.60	15.34	0.02	26.53	0.63	27.15	5.55	0.57	6.12
2015 TOTALS (tons/year unmitigated)	2.21	10.53	14.30	0.02	26.53	0.57	27.10	5.55	0.52	6.07
2016 TOTALS (tons/year unmitigated)	2.09	9.57	13.38	0.02	26.53	0.52	27.05	5.55	0.47	6.03
2017 TOTALS (tons/year unmitigated)	1.98	8.66	12.49	0.02	26.43	0.47	26.89	5.53	0.43	5.96
2018 TOTALS (tons/year unmitigated)	1.88	7.90	11.80	0.02	26.53	0.42	26.95	5.55	0.38	5.94
2019 TOTALS (tons/year unmitigated)	1.78	7.20	11.14	0.02	26.53	0.38	26.91	5.55	0.34	5.90
2020 TOTALS (tons/year unmitigated)	1.70	6.60	10.59	0.02	26.63	0.35	26.98	5.57	0.32	5.89
2021 TOTALS (tons/year unmitigated)	1.60	5.84	8.68	0.02	26.53	0.32	26.85	5.55	0.29	5.85
2022 TOTALS (tons/year unmitigated)	1.59	5.82	8.65	0.02	26.43	0.32	26.75	5.53	0.29	5.82
2023 TOTALS (tons/year unmitigated)	1.59	5.82	8.65	0.02	26.43	0.32	26.75	5.53	0.29	5.82
2024 TOTALS (tons/year unmitigated)	1.61	5.86	8.71	0.02	26.63	0.32	26.95	5.57	0.29	5.87

NOTES:
 Project Location: San Joaquin Valley APCD
 On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
 Off-Road Vehicle Emissions Based on: OFFROAD2007

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



Construction Unmitigated Detail Report: CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated										
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2011	2.76	14.90	18.94	0.02	26.43	0.82	27.25	5.53	0.75	6.28
Asphalt 01/02/2011-12/31/2024	0.36	2.13	1.37	0.00	0.00	0.19	0.19	0.00	0.17	0.17
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.35	2.12	1.20	0.00	0.00	0.19	0.19	0.00	0.17	0.17
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.01	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	1.22	8.65	15.20	0.02	0.09	0.41	0.50	0.03	0.37	0.40
Building Off Road Diesel	0.46	2.19	1.48	0.00	0.00	0.15	0.15	0.00	0.14	0.14
Building Vendor Trips	0.47	5.97	4.57	0.01	0.04	0.23	0.27	0.01	0.21	0.23
Building Worker Trips	0.29	0.49	9.16	0.01	0.04	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.67	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.51	4.12	2.35	0.00	26.34	0.22	26.56	5.50	0.20	5.70
Fine Grading Dust	0.00	0.00	0.00	0.00	26.34	0.00	26.34	5.50	0.00	5.50
Fine Grading Off Road Diesel	0.51	4.11	2.19	0.00	0.00	0.22	0.22	0.00	0.20	0.20
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2012	2.63	13.80	17.71	0.02	26.53	0.76	27.28	5.55	0.69	6.24
Asphalt 01/02/2011-12/31/2024	0.34	2.03	1.35	0.00	0.00	0.18	0.18	0.00	0.16	0.17
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.33	2.02	1.20	0.00	0.00	0.18	0.16	0.00	0.16	0.16
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	1.13	7.90	14.08	0.02	0.09	0.38	0.46	0.03	0.34	0.37
Building Off Road Diesel	0.42	2.07	1.44	0.00	0.00	0.14	0.11	0.00	0.13	0.13
Building Vendor Trips	0.44	5.38	4.24	0.01	0.04	0.21	0.21	0.01	0.19	0.20
Building Worker Trips	0.26	0.44	8.41	0.01	0.04	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.49	3.87	2.27	0.00	26.44	0.20	26.64	5.52	0.19	5.71
Fine Grading Dust	0.00	0.00	0.00	0.00	26.44	0.00	26.44	5.52	0.00	5.52
Fine Grading Off Road Diesel	0.48	3.86	2.12	0.00	0.00	0.20	0.17	0.00	0.18	0.18
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2013	2.48	12.69	16.49	0.02	26.53	0.69	27.22	5.55	0.63	6.18
Asphalt 01/02/2011-12/31/2024	0.32	1.93	1.33	0.00	0.00	0.17	0.17	0.00	0.15	0.15
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.31	1.92	1.19	0.00	0.00	0.17	0.17	0.00	0.15	0.15
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	1.03	7.13	12.97	0.02	0.09	0.34	0.43	0.03	0.31	0.34
Building Off Road Diesel	0.39	1.94	1.39	0.00	0.00	0.13	0.13	0.00	0.12	0.12
Building Vendor Trips	0.40	4.79	3.91	0.01	0.04	0.19	0.23	0.01	0.17	0.18
Building Worker Trips	0.24	0.40	7.67	0.01	0.04	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.46	3.63	2.19	0.00	26.44	0.18	26.62	5.52	0.17	5.69
Fine Grading Dust	0.00	0.00	0.00	0.00	26.44	0.00	26.44	5.52	0.00	5.52
Fine Grading Off Road Diesel	0.46	3.62	2.05	0.00	0.00	0.18	0.18	0.00	0.17	0.17
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2014	2.35	11.60	15.34	0.02	26.53	0.63	27.15	5.55	0.57	6.12
Asphalt 01/02/2011-12/31/2024	0.30	1.83	1.30	0.00	0.00	0.16	0.16	0.00	0.14	0.14
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.30	1.82	1.18	0.00	0.00	0.16	0.16	0.00	0.14	0.14
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.94	6.40	11.92	0.02	0.09	0.30	0.39	0.03	0.27	0.30
Building Off Road Diesel	0.36	1.81	1.35	0.00	0.00	0.11	0.11	0.00	0.10	0.10
Building Vendor Trips	0.37	4.23	3.60	0.01	0.04	0.16	0.21	0.01	0.15	0.16
Building Worker Trips	0.21	0.36	6.98	0.01	0.04	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.44	3.37	2.11	0.00	26.44	0.17	26.61	5.52	0.15	5.67
Fine Grading Dust	0.00	0.00	0.00	0.00	26.44	0.00	26.44	5.52	0.00	5.52
Fine Grading Off Road Diesel	0.43	3.37	1.98	0.00	0.00	0.17	0.17	0.00	0.15	0.15
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2015	2.21	10.53	14.30	0.02	26.53	0.57	27.10	5.55	0.52	6.07
Asphalt 01/02/2011-12/31/2024	0.28	1.71	1.28	0.00	0.00	0.15	0.15	0.00	0.13	0.13
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.28	1.71	1.17	0.00	0.00	0.14	0.14	0.00	0.13	0.13
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.85	5.72	10.97	0.02	0.09	0.28	0.36	0.03	0.25	0.28
Building Off Road Diesel	0.33	1.68	1.31	0.00	0.00	0.10	0.10	0.00	0.10	0.10
Building Vendor Trips	0.33	3.72	3.31	0.01	0.04	0.15	0.19	0.01	0.13	0.15
Building Worker Trips	0.19	0.32	6.35	0.01	0.04	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.41	3.10	2.04	0.00	26.44	0.15	26.59	5.52	0.14	5.66
Fine Grading Dust	0.00	0.00	0.00	0.00	26.44	0.00	26.44	5.52	0.00	5.52
Fine Grading Off Road Diesel	0.40	3.09	1.92	0.00	0.00	0.15	0.15	0.00	0.14	0.14
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2016	2.09	9.57	13.38	0.02	26.53	0.52	27.05	5.55	0.47	6.03
Asphalt 01/02/2011-12/31/2024	0.26	1.60	1.26	0.00	0.00	0.13	0.13	0.00	0.12	0.12
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.26	1.60	1.16	0.00	0.00	0.13	0.13	0.00	0.12	0.12
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.77	5.12	10.13	0.02	0.09	0.25	0.33	0.03	0.22	0.25
Building Off Road Diesel	0.30	1.56	1.28	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Building Vendor Trips	0.30	3.27	3.05	0.01	0.04	0.13	0.17	0.01	0.12	0.13
Building Worker Trips	0.17	0.29	5.80	0.01	0.04	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.38	2.85	1.98	0.00	26.44	0.14	26.58	5.52	0.13	5.65
Fine Grading Dust	0.00	0.00	0.00	0.00	26.44	0.00	26.44	5.52	0.00	5.52
Fine Grading Off Road Diesel	0.38	2.84	1.87	0.00	0.00	0.14	0.14	0.00	0.13	0.13
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2017	1.98	8.66	12.49	0.02	26.43	0.47	26.89	5.53	0.43	5.96
Asphalt 01/02/2011-12/31/2024	0.25	1.50	1.24	0.00	0.00	0.12	0.12	0.00	0.11	0.11
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.24	1.49	1.14	0.00	0.00	0.12	0.12	0.00	0.11	0.11
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.70	4.57	9.34	0.02	0.09	0.22	0.31	0.03	0.20	0.23
Building Off Road Diesel	0.27	1.44	1.25	0.00	0.00	0.08	0.08	0.00	0.08	0.08
Building Vendor Trips	0.28	2.87	2.80	0.01	0.04	0.11	0.16	0.01	0.10	0.12
Building Worker Trips	0.15	0.26	5.28	0.01	0.04	0.02	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.36	2.60	1.91	0.00	26.34	0.12	26.46	5.50	0.11	5.62
Fine Grading Dust	0.00	0.00	0.00	0.00	26.34	0.00	26.34	5.50	0.00	5.50
Fine Grading Off Road Diesel	0.36	2.59	1.81	0.00	0.00	0.12	0.12	0.00	0.11	0.11
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2018	1.88	7.90	11.80	0.02	26.53	0.42	26.95	5.55	0.38	5.94
Asphalt 01/02/2011-12/31/2024	0.23	1.40	1.23	0.00	0.00	0.11	0.11	0.00	0.10	0.10
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.23	1.40	1.14	0.00	0.00	0.11	0.11	0.00	0.10	0.10
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.63	4.11	8.70	0.02	0.09	0.20	0.29	0.03	0.18	0.21
Building Off Road Diesel	0.24	1.34	1.23	0.00	0.00	0.07	0.07	0.00	0.07	0.07
Building Vendor Trips	0.25	2.54	2.61	0.01	0.04	0.10	0.14	0.01	0.09	0.11
Building Worker Trips	0.14	0.24	4.86	0.01	0.04	0.02	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.34	2.39	1.87	0.00	26.44	0.11	26.55	5.52	0.10	5.62
Fine Grading Dust	0.00	0.00	0.00	0.00	26.44	0.00	26.44	5.52	0.00	5.52
Fine Grading Off Road Diesel	0.33	2.38	1.78	0.00	0.00	0.11	0.11	0.00	0.10	0.10
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2019	1.78	7.20	11.14	0.02	26.53	0.38	26.91	5.55	0.34	5.90
Asphalt 01/02/2011-12/31/2024	0.22	1.32	1.21	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.21	1.31	1.13	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.58	3.70	8.10	0.02	0.09	0.18	0.26	0.03	0.16	0.19
Building Off Road Diesel	0.22	1.24	1.21	0.00	0.00	0.06	0.06	0.00	0.06	0.06
Building Vendor Trips	0.23	2.25	2.42	0.01	0.04	0.09	0.13	0.01	0.08	0.10
Building Worker Trips	0.12	0.22	4.47	0.01	0.04	0.02	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.31	2.18	1.82	0.00	26.44	0.10	26.54	5.52	0.09	5.61
Fine Grading Dust	0.00	0.00	0.00	0.00	26.44	0.00	26.44	5.52	0.00	5.52
Fine Grading Off Road Diesel	0.31	2.18	1.74	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2020	1.70	6.60	10.59	0.02	26.63	0.35	26.98	5.57	0.32	5.89
Asphalt 01/02/2011-12/31/2024	0.20	1.23	1.21	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.20	1.23	1.13	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.53	3.37	7.59	0.02	0.09	0.16	0.25	0.03	0.14	0.18
Building Off Road Diesel	0.20	1.16	1.19	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Building Vendor Trips	0.21	2.01	2.27	0.01	0.04	0.08	0.13	0.01	0.08	0.09
Building Worker Trips	0.11	0.20	4.12	0.01	0.05	0.02	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.30	2.00	1.79	0.00	26.54	0.09	26.63	5.54	0.08	5.63
Fine Grading Dust	0.00	0.00	0.00	0.00	26.54	0.00	26.54	5.54	0.00	5.54
Fine Grading Off Road Diesel	0.30	2.00	1.72	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2021	1.60	5.84	8.68	0.02	26.53	0.32	26.85	5.55	0.29	5.85
Asphalt 01/02/2011-12/31/2024	0.20	1.23	1.18	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.20	1.22	1.13	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.43	2.62	5.74	0.02	0.09	0.14	0.23	0.03	0.12	0.15
Building Off Road Diesel	0.20	1.15	1.19	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Building Vendor Trips	0.16	1.34	1.72	0.01	0.04	0.06	0.10	0.01	0.05	0.07
Building Worker Trips	0.07	0.13	2.83	0.01	0.04	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.30	1.99	1.76	0.00	26.44	0.09	26.53	5.52	0.08	5.60
Fine Grading Dust	0.00	0.00	0.00	0.00	26.44	0.00	26.44	5.52	0.00	5.52
Fine Grading Off Road Diesel	0.30	1.99	1.71	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2022	1.59	5.82	8.65	0.02	26.43	0.32	26.75	5.53	0.29	5.82
Asphalt 01/02/2011-12/31/2024	0.20	1.22	1.18	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.20	1.22	1.12	0.00	0.00	0.09	0.10	0.00	0.09	0.09
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.43	2.61	5.72	0.02	0.09	0.14	0.22	0.03	0.12	0.15
Building Off Road Diesel	0.20	1.15	1.18	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Building Vendor Trips	0.16	1.34	1.71	0.01	0.04	0.06	0.10	0.01	0.05	0.07
Building Worker Trips	0.07	0.13	2.82	0.01	0.04	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.30	1.98	1.75	0.00	26.34	0.09	26.43	5.50	0.08	5.58
Fine Grading Dust	0.00	0.00	0.00	0.00	26.34	0.00	26.34	5.50	0.00	5.50
Fine Grading Off Road Diesel	0.29	1.98	1.70	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2023	1.59	5.82	8.65	0.02	26.43	0.32	26.75	5.53	0.29	5.82
Asphalt 01/02/2011-12/31/2024	0.20	1.22	1.18	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.20	1.22	1.12	0.00	0.00	0.09	0.90	0.00	0.09	0.09
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.43	2.61	5.72	0.02	0.09	0.14	0.22	0.03	0.12	0.15
Building Off Road Diesel	0.20	1.15	1.18	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Building Vendor Trips	0.16	1.34	1.71	0.01	0.04	0.06	0.10	0.01	0.05	0.07
Building Worker Trips	0.07	0.13	2.82	0.01	0.04	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.30	1.98	1.75	0.00	26.34	0.09	26.43	5.50	0.08	5.58
Fine Grading Dust	0.00	0.00	0.00	0.00	26.34	0.00	26.34	5.50	0.00	5.50
Fine Grading Off Road Diesel	0.29	1.98	1.70	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>
2024	1.61	5.86	8.71	0.02	26.63	0.32	26.95	5.57	0.29	5.87
Asphalt 01/02/2011-12/31/2024	0.20	1.23	1.18	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.20	1.23	1.13	0.00	0.00	0.10	0.10	0.00	0.09	0.09
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building 01/02/2011-12/31/2024	0.43	2.63	5.76	0.02	0.09	0.14	0.23	0.03	0.12	0.15
Building Off Road Diesel	0.20	1.16	1.19	0.00	0.00	0.05	0.05	0.00	0.05	0.05
Building Vendor Trips	0.16	1.35	1.73	0.01	0.04	0.06	0.10	0.01	0.05	0.07
Building Worker Trips	0.07	0.13	2.84	0.01	0.05	0.03	0.07	0.02	0.02	0.04
Coating 01/02/2011-12/31/2024	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading 01/02/2011-12/31/2024	0.30	2.00	1.77	0.00	26.54	0.09	26.63	5.54	0.08	5.63
Fine Grading Dust	0.00	0.00	0.00	0.00	26.54	0.00	26.54	5.54	0.00	5.54
Fine Grading Off Road Diesel	0.30	2.00	1.72	0.00	0.00	0.09	0.09	0.00	0.08	0.08
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



<u>Phase Assumptions</u>	
<p>Phase: Fine Grading 1/2/2011 - 12/31/2024 - Default Description</p> <p>Total Acres Disturbed: 40.51</p> <p>Maximum Daily Acreage Disturbed: 10.13</p> <p>Fugitive Dust Level of Detail: Default 20 lbs/acre-day</p> <p>On Road Truck Travel (VMT): 0</p> <p>Off-Road Equipment:</p> <p>1 Graders (174 hp) operating at 0.61 load factor for 8 hrs/day</p> <p>1 Rubber Tired Dozers (357 hp) operating at 0.59 load factor for 8 hrs/day</p> <p>2 Tractors/Loaders/Backhoes (108 hp) operating at 0.55 load factor for 7 hrs/day</p> <p>1 Water Trucks (189 hp) operating at 0.5 load factor for 8 hrs/day</p> <p>Phase: Paving 1/2/2011 - 12/31/2024 - Default Description</p> <p>Acres to be Paved: 10.13</p> <p>Off-Road Equipment:</p> <p>1 Pavers (100 hp) operating at 0.62 load factor for 8 hrs/day</p> <p>2 Paving Equipment (104 hp) operating at 0.53 load factor for 6 hrs/day</p> <p>2 Rollers (95 hp) operating at 0.56 load factor for 6 hrs/day</p>	<p>Phase: Building Construction 1/2/2011 - 12/31/2024 - Default Description</p> <p>Off-Road Equipment:</p> <p>1 Cranes (399 hp) operating at 0.43 load factor for 7 hrs/day</p> <p>2 Forklifts (145 hp) operating at 0.3 load factor for 7 hrs/day</p> <p>1 Generator Sets (49 hp) operating at 0.74 load factor for 8 hrs/day</p> <p>1 Tractors/Loaders/Backhoes (108 hp) operating at 0.55 load factor for 8 hrs/day</p> <p>3 Welders (45 hp) operating at 0.45 load factor for 8 hrs/day</p> <p>Phase: Architectural Coating 1/2/2011 - 12/31/2024 - Default Description</p> <p>Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies VOC of 130</p> <p>Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 130</p> <p>Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies VOC of 250</p> <p>Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies VOC of 250</p>

URBEMIS AIR QUALITY MODEL CALCULATIONS

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Table D-2b. RBAAP MHIR Future (Operational) Combined Annual Emissions (Tons/Year), URBEMIS Model

Summary Report						
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>
AREA SOURCE EMISSION ESTIMATES TOTALS (tons/year, unmitigated)	2.11	0.92	1.46	0.00	0.00	0.00
OPERATIONAL (VEHICLE) EMISSION ESTIMATES TOTALS (tons/year, unmitigated)	11.88	14.88	119.16	0.26	21.96	4.79
OPERATIONAL (VEHICLE) EMISSION ESTIMATES TOTALS (tons/year, mitigated)	11.50	14.37	115.09	0.26	21.21	4.62
OPERATIONAL (VEHICLE) EMISSION ESTIMATES Percent Reduction	3.20	3.43	3.42	0.00	3.42	3.55
SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES TOTALS (tons/year, unmitigated)	13.99	15.80	120.62	0.26	21.96	4.79
NOTES: Project Location: San Joaquin Valley APCD On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006 Off-Road Vehicle Emissions Based on: OFFROAD2007 Both Area and Operational Mitigation must be turned on to get a combined mitigated total.						
Area Source Unmitigated Detail Report						
AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated						
<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>
Natural Gas	0.07	0.91	0.76	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00
Landscape	0.06	0.01	0.70	0.00	0.00	0.00
Consumer Products	0.00					
Architectural Coatings	1.98					
TOTALS (tons/year, unmitigated)	2.11	0.92	1.46	0.00	0.00	0.00

URBEMIS AIR QUALITY MODEL CALCULATIONS

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AREA SOURCE CHANGES TO DEFAULTS						
Operational Unmitigated Detail Report						
OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated						
<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25
Strip mall	4.31	5.87	46.34	0.10	8.64	1.88
General office building	0.97	1.23	9.92	0.02	1.82	0.40
Warehouse	0.92	1.04	8.20	0.02	1.53	0.33
General heavy industry	0.38	0.32	2.66	0.01	0.48	0.11
Industrial park	5.30	6.42	52.04	0.11	9.49	2.07
TOTALS (tons/year, unmitigated)	11.88	14.88	119.16	0.26	21.96	4.79
Operational Settings						
<u>Summary of Land Uses</u>						
Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Strip mall		42.94	1000 sq ft	174.50	7,493.03	55,395.97
General office building		11.01	1000 sq ft	130.41	1,435.81	11,633.68
Warehouse		4.96	1000 sq ft	267.20	1,325.31	9,798.03
General heavy industry		1.50	1000 sq ft	220.70	331.05	3,073.80
Industrial park		6.96	1000 sq ft	1,059.90	7,376.90	60,802.29
					17,962.10	140,703.77
NOTES: Operational settings do not include correction for passby trips; do not include double counting adjustment for internal trips.						
Analysis Year: 2025 Season: Annual						
Emfac: Version : Emfac2007 V2.3 Nov 1 2006						

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Vehicle Fleet Mix						
Vehicle Type	Percent Type	Non-Catalyst		Catalyst	Diesel	
Light Auto	42.6	0.0		100.0	0.0	
Light Truck < 3750 lbs	12.0	0.0		98.3	1.7	
Light Truck 3751-5750 lbs	21.2	0.0		100.0	0.0	
Med Truck 5751-8500 lbs	11.9	0.0		100.0	0.0	
Lite-Heavy Truck 8501-10,000 lbs	2.4	0.0		79.2	20.8	
Lite-Heavy Truck 10,001-14,000 lbs	0.9	0.0		55.6	44.4	
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0		23.1	76.9	
Heavy-Heavy Truck 33,001-60,000 lbs	2.6	0.0		0.0	100.0	
Other Bus	0.1	0.0		0.0	100.0	
Urban Bus	0.0	0.0		0.0	0.0	
Motorcycle	3.9	35.9		64.1	0.0	
School Bus	0.1	0.0		0.0	100.0	
Motor Home	1.0	0.0		90.0	10.0	
Travel Conditions						
	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commuter	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0
General office building				35.0	17.5	47.5
Warehouse				2.0	1.0	97.0
General heavy industry				90.0	5.0	5.0
Industrial park				41.5	20.8	37.8

URBEMIS AIR QUALITY MODEL CALCULATIONS

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Table D-3a. RBAAP MIR Construction Combined Annual Emissions (Tons/Year), URBEMIS Model

Summary Report: CONSTRUCTION EMISSION ESTIMATES											
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011 TOTALS (tons/year unmitigated)	2.01	11.35	12.17	0.01	13.62	0.66	14.28	2.85	0.61	3.46	1,862.33
2012 TOTALS (tons/year unmitigated)	1.91	10.58	11.47	0.01	13.67	0.61	14.28	2.86	0.56	3.42	1,869.80
2013 TOTALS (tons/year unmitigated)	1.80	9.81	10.76	0.01	13.67	0.56	14.23	2.86	0.51	3.37	1,870.10
2014 TOTALS (tons/year unmitigated)	1.69	9.04	10.10	0.01	13.67	0.51	14.18	2.86	0.46	3.32	1,870.39
2015 TOTALS (tons/year unmitigated)	1.59	8.27	9.49	0.01	13.67	0.46	14.14	2.86	0.42	3.29	1,870.61
2016 TOTALS (tons/year unmitigated)	1.49	7.57	8.96	0.01	13.67	0.42	14.09	2.86	0.39	3.25	1,870.77
2017 TOTALS (tons/year unmitigated)	1.41	6.90	8.45	0.01	13.62	0.38	14.00	2.85	0.35	3.20	1,863.72
2018 TOTALS (tons/year unmitigated)	1.33	6.34	8.05	0.01	13.67	0.34	14.01	2.86	0.31	3.17	1,870.97
2019 TOTALS (tons/year unmitigated)	1.25	5.80	7.67	0.01	13.67	0.31	13.98	2.86	0.28	3.14	1,871.02
2020 TOTALS (tons/year unmitigated)	1.19	5.35	7.35	0.01	13.72	0.28	14.00	2.87	0.26	3.13	1,878.22
2021 TOTALS (tons/year unmitigated)	1.13	4.95	6.33	0.01	13.67	0.27	13.94	2.86	0.24	3.11	1,871.19
2022 TOTALS (tons/year unmitigated)	1.13	4.93	6.30	0.01	13.62	0.27	13.89	2.85	0.24	3.09	1,864.03
2023 TOTALS (tons/year unmitigated)	1.13	4.93	6.30	0.01	13.62	0.27	13.89	2.85	0.24	3.09	1,864.03
2024 TOTALS (tons/year unmitigated)	1.14	4.97	6.35	0.01	13.72	0.27	13.99	2.87	0.25	3.12	1,878.36

NOTES:
 Urbemis 2007 Version 9.2.4
 Project Location: San Joaquin Valley APCD
 On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
 Off-Road Vehicle Emissions Based on: OFFROAD2007

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Construction Unmitigated Detail Report: CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated											
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2011	2.01	11.35	12.17	0.01	13.62	0.66	14.28	2.85	0.61	3.46	1862.32
Asphalt 01/02/2011-12/31/2024	0.31	1.86	1.33	0.00	0.00	0.16	0.16	0.00	0.15	0.15	173.97
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.30	1.84	1.06	0.00	0.00	0.16	0.16	0.00	0.15	0.15	147.15
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.01	0.01	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.60
Building 01/02/2011-12/31/2024	0.83	5.37	8.49	0.01	0.04	0.28	0.32	0.02	0.26	0.27	1,280.34
Building Off Road Diesel	0.44	2.04	1.41	0.00	0.00	0.15	0.15	0.00	0.14	0.14	210.76
Building Vendor Trips	0.24	3.08	2.36	0.01	0.02	0.12	0.14	0.01	0.11	0.12	597.10
Building Worker Trips	0.15	0.25	4.72	0.00	0.02	0.01	0.04	0.01	0.01	0.02	472.49
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
Fine Grading 01/02/2011-12/31/2024	0.51	4.12	2.35	0.00	13.57	0.22	13.79	2.83	0.20	3.04	407.60
Fine Grading Dust	0.00	0.00	0.00	0.00	13.57	0.00	13.57	2.83	0.00	2.83	0.00
Fine Grading Off Road Diesel	0.51	4.11	2.19	0.00	0.00	0.22	0.22	0.00	0.20	0.20	390.97
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.01	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.63

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	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2012	1.91	10.58	11.47	0.01	13.67	0.61	14.28	2.86	0.56	3.42	1,869.80
Asphalt 01/02/2011-12/31/2024	0.30	1.77	1.30	0.00	0.00	0.15	0.15	0.00	0.14	0.14	174.66
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.29	1.76	1.06	0.00	0.00	0.15	0.15	0.00	0.14	0.14	147.72
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.01	0.01	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.72
Building 01/02/2011-12/31/2024	0.77	4.94	7.89	0.01	0.04	0.26	0.30	0.02	0.23	0.25	1,285.55
Building Off Road Diesel	0.41	1.93	1.37	0.00	0.00	0.14	0.14	0.00	0.12	0.12	211.57
Building Vendor Trips	0.22	2.78	2.19	0.01	0.02	0.11	0.13	0.01	0.10	0.11	599.48
Building Worker Trips	0.14	0.23	4.33	0.00	0.02	0.01	0.04	0.01	0.01	0.02	474.51
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.49	3.87	2.27	0.00	13.63	0.20	13.83	2.85	0.19	3.03	409.17
Fine Grading Dust	0.00	0.00	0.00	0.00	13.62	0.00	13.62	2.85	0.00	2.85	0.00
Fine Grading Off Road Diesel	0.48	3.86	2.12	0.00	0.00	0.20	0.20	0.00	0.18	0.18	392.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.70

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	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2013	1.80	9.81	10.76	0.01	13.67	0.56	14.23	2.86	0.51	3.37	1,870.10
Asphalt 01/02/2011-12/31/2024	0.28	1.69	1.27	0.00	0.00	0.14	0.14	0.00	0.13	0.13	174.67
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.27	1.67	1.05	0.00	0.00	0.14	0.14	0.00	0.13	0.13	147.72
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.01	0.01	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.73
Building 01/02/2011-12/31/2024	0.70	4.49	7.30	0.01	0.04	0.23	0.28	0.02	0.21	0.23	1,285.84
Building Off Road Diesel	0.38	1.81	1.33	0.00	0.00	0.12	0.12	0.00	0.11	0.11	211.57
Building Vendor Trips	0.21	2.47	2.02	0.01	0.02	0.10	0.12	0.01	0.09	0.09	599.56
Building Worker Trips	0.12	0.21	3.95	0.00	0.02	0.01	0.04	0.01	0.01	0.02	474.71
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.46	3.63	2.19	0.00	13.63	0.18	13.81	2.85	0.17	3.02	409.18
Fine Grading Dust	0.00	0.00	0.00	0.00	13.62	0.00	13.62	2.85	0.00	2.85	0.00
Fine Grading Off Road Diesel	0.46	3.62	2.05	0.00	0.00	0.18	0.18	0.00	0.17	0.17	392.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.71

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	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2014	1.69	9.04	10.10	0.01	13.67	0.51	14.18	2.86	0.46	3.32	1,870.39
Asphalt 01/02/2011-12/31/2024	0.27	1.60	1.24	0.00	0.00	0.13	0.14	0.00	0.12	0.12	174.68
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.26	1.59	1.04	0.00	0.00	0.13	0.13	0.00	0.12	0.12	147.72
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.01	0.01	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.74
Building 01/02/2011-12/31/2024	0.64	4.06	6.74	0.01	0.04	0.21	0.25	0.02	0.19	0.20	1,286.11
Building Off Road Diesel	0.34	1.69	1.29	0.00	0.00	0.11	0.11	0.00	0.10	0.10	211.57
Building Vendor Trips	0.19	2.18	1.85	0.01	0.02	0.08	0.11	0.01	0.08	0.08	599.64
Building Worker Trips	0.11	0.19	3.60	0.00	0.02	0.01	0.04	0.01	0.01	0.02	474.90
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.44	3.37	2.11	0.00	13.63	0.17	13.79	2.85	0.15	3.00	409.19
Fine Grading Dust	0.00	0.00	0.00	0.00	13.62	0.00	13.62	2.85	0.00	2.85	0.00
Fine Grading Off Road Diesel	0.43	3.37	1.98	0.00	0.00	0.17	0.17	0.00	0.15	0.15	392.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.71

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2015	1.59	8.27	9.49	0.01	13.67	0.46	14.14	2.86	0.42	3.29	1,870.61
Asphalt 01/02/2011-12/31/2024	0.25	1.51	1.22	0.00	0.00	0.12	0.13	0.00	0.11	0.11	174.69
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.24	1.50	1.03	0.00	0.00	0.12	0.12	0.00	0.11	0.11	147.72
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.01	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.75
Building 01/02/2011-12/31/2024	0.58	3.66	6.24	0.01	0.04	0.19	0.23	0.02	0.17	0.19	1,286.32
Building Off Road Diesel	0.31	1.57	1.26	0.00	0.00	0.10	0.10	0.00	0.09	0.09	211.57
Building Vendor Trips	0.17	1.92	1.71	0.01	0.02	0.08	0.10	0.01	0.07	0.08	599.70
Building Worker Trips	0.10	0.17	3.27	0.00	0.02	0.01	0.04	0.01	0.01	0.02	475.05
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.41	3.10	2.04	0.00	13.63	0.15	13.78	2.85	0.14	2.98	409.19
Fine Grading Dust	0.00	0.00	0.00	0.00	13.62	0.00	13.62	2.85	0.00	2.85	0.00
Fine Grading Off Road Diesel	0.40	3.09	1.92	0.00	0.00	0.15	0.15	0.00	0.14	0.14	392.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.72

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2016	1.49	7.57	8.96	0.01	13.67	0.42	14.09	2.86	0.39	3.25	1,870.77
Asphalt 01/02/2011-12/31/2024	0.23	1.42	1.19	0.00	0.00	0.11	0.12	0.00	0.11	0.11	174.69
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.23	1.41	1.02	0.00	0.00	0.11	0.11	0.00	0.10	0.10	147.72
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.75
Building 01/02/2011-12/31/2024	0.53	3.30	5.79	0.01	0.04	0.17	0.21	0.02	0.15	0.17	1,286.46
Building Off Road Diesel	0.29	1.46	1.23	0.00	0.00	0.09	0.09	0.00	0.08	0.08	211.57
Building Vendor Trips	0.16	1.69	1.57	0.01	0.02	0.07	0.09	0.01	0.06	0.07	599.76
Building Worker Trips	0.09	0.15	2.99	0.00	0.02	0.01	0.04	0.01	0.01	0.02	475.14
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.38	2.85	1.98	0.00	13.63	0.14	13.76	2.85	0.13	2.97	409.20
Fine Grading Dust	0.00	0.00	0.00	0.00	13.62	0.00	13.62	2.85	0.00	2.85	0.00
Fine Grading Off Road Diesel	0.38	2.84	1.87	0.00	0.00	0.14	0.14	0.00	0.13	0.13	392.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.72

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2017	1.41	6.90	8.45	0.01	13.62	0.38	14.00	2.85	0.35	3.20	1,863.72
Asphalt 01/02/2011-12/31/2024	0.22	1.33	1.17	0.00	0.00	0.11	0.11	0.00	0.10	0.10	174.03
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.22	1.32	1.01	0.00	0.00	0.11	0.11	0.00	0.10	0.10	147.15
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.00	0.01	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.65
Building 01/02/2011-12/31/2024	0.48	2.97	5.37	0.01	0.04	0.15	0.19	0.02	0.14	0.15	1,281.64
Building Off Road Diesel	0.26	1.35	1.20	0.00	0.00	0.08	0.08	0.00	0.07	0.07	210.76
Building Vendor Trips	0.14	1.48	1.45	0.01	0.02	0.06	0.08	0.01	0.05	0.06	597.50
Building Worker Trips	0.08	0.14	2.72	0.00	0.02	0.01	0.04	0.01	0.01	0.02	473.39
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41
Fine Grading 01/02/2011-12/31/2024	0.36	2.60	1.91	0.00	13.57	0.12	13.70	2.83	0.11	2.95	407.63
Fine Grading Dust	0.00	0.00	0.00	0.00	13.57	0.00	13.57	2.83	0.00	2.83	0.00
Fine Grading Off Road Diesel	0.36	2.59	1.81	0.00	0.00	0.12	0.12	0.00	0.11	0.11	390.97
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.66

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2018	1.33	6.34	8.05	0.01	13.67	0.34	14.01	2.86	0.31	3.17	1,870.97
Asphalt 01/02/2011-12/31/2024	0.21	1.26	1.15	0.00	0.00	0.10	0.10	0.00	0.09	0.09	174.70
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.21	1.25	1.01	0.00	0.00	0.10	0.10	0.00	0.09	0.09	147.72
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.76
Building 01/02/2011-12/31/2024	0.43	2.69	5.03	0.01	0.04	0.13	0.18	0.02	0.12	0.14	1,286.65
Building Off Road Diesel	0.23	1.26	1.18	0.00	0.00	0.07	0.07	0.00	0.06	0.06	211.57
Building Vendor Trips	0.13	1.31	1.34	0.01	0.02	0.05	0.07	0.01	0.05	0.06	599.84
Building Worker Trips	0.07	0.12	2.51	0.00	0.02	0.01	0.04	0.01	0.01	0.02	475.25
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.34	2.39	1.87	0.00	13.63	0.11	13.74	2.85	0.10	2.95	409.20
Fine Grading Dust	0.00	0.00	0.00	0.00	13.62	0.00	13.62	2.85	0.00	2.85	0.00
Fine Grading Off Road Diesel	0.33	2.38	1.78	0.00	0.00	0.11	0.11	0.00	0.10	0.10	392.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.72

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2019	1.25	5.80	7.67	0.01	13.67	0.31	13.98	2.86	0.28	3.14	1,871.02
Asphalt 01/02/2011-12/31/2024	0.20	1.18	1.13	0.00	0.00	0.09	0.09	0.00	0.08	0.08	174.70
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.19	1.18	1.00	0.00	0.00	0.09	0.09	0.00	0.08	0.08	147.72
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.76
Building 01/02/2011-12/31/2024	0.40	2.44	4.71	0.01	0.04	0.12	0.16	0.02	0.11	0.12	1,286.70
Building Off Road Diesel	0.21	1.17	1.16	0.00	0.00	0.06	0.06	0.00	0.05	0.05	211.57
Building Vendor Trips	0.12	1.16	1.25	0.01	0.02	0.05	0.07	0.01	0.04	0.05	599.87
Building Worker Trips	0.06	0.11	2.30	0.00	0.02	0.01	0.04	0.01	0.01	0.02	475.26
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.31	2.18	1.82	0.00	13.63	0.10	13.72	2.85	0.09	2.94	409.20
Fine Grading Dust	0.00	0.00	0.00	0.00	13.62	0.00	13.62	2.85	0.00	2.85	0.00
Fine Grading Off Road Diesel	0.31	2.18	1.74	0.00	0.00	0.10	0.10	0.00	0.09	0.09	392.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.73

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2020	1.19	5.35	7.35	0.01	13.72	0.28	14.00	2.87	0.26	3.13	1,878.22
Asphalt 01/02/2011-12/31/2024	0.18	1.12	1.12	0.00	0.00	0.08	0.09	0.00	0.08	0.08	175.37
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.18	1.11	1.00	0.00	0.00	0.08	0.08	0.00	0.08	0.08	148.28
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.00	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.86
Building 01/02/2011-12/31/2024	0.36	2.24	4.44	0.01	0.05	0.11	0.15	0.02	0.10	0.11	1,291.67
Building Off Road Diesel	0.19	1.10	1.14	0.00	0.00	0.05	0.05	0.00	0.05	0.05	212.38
Building Vendor Trips	0.11	1.04	1.17	0.01	0.02	0.04	0.06	0.01	0.04	0.05	602.20
Building Worker Trips	0.06	0.10	2.13	0.00	0.02	0.01	0.04	0.01	0.01	0.02	477.09
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.30	2.00	1.79	0.00	13.68	0.09	13.77	2.86	0.08	2.94	410.77
Fine Grading Dust	0.00	0.00	0.00	0.00	13.68	0.00	13.68	2.86	0.00	2.86	0.00
Fine Grading Off Road Diesel	0.30	2.00	1.72	0.00	0.00	0.09	0.09	0.00	0.08	0.08	393.98
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.79

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2021	1.13	4.95	6.33	0.01	13.67	0.27	13.94	2.86	0.24	3.11	1,871.19
Asphalt 01/02/2011-12/31/2024	0.18	1.11	1.08	0.00	0.00	0.08	0.09	0.00	0.08	0.08	174.70
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.18	1.11	1.00	0.00	0.00	0.08	0.08	0.00	0.08	0.08	147.72
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.76
Building 01/02/2011-12/31/2024	0.31	1.85	3.48	0.01	0.04	0.10	0.14	0.02	0.09	0.10	1,286.88
Building Off Road Diesel	0.19	1.09	1.14	0.00	0.00	0.05	0.05	0.00	0.05	0.05	211.57
Building Vendor Trips	0.08	0.69	0.89	0.01	0.02	0.03	0.05	0.01	0.03	0.04	600.01
Building Worker Trips	0.03	0.07	1.46	0.00	0.02	0.01	0.04	0.01	0.01	0.02	475.29
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.30	1.99	1.76	0.00	13.63	0.09	13.71	2.85	0.08	2.93	409.20
Fine Grading Dust	0.00	0.00	0.00	0.00	13.62	0.00	13.62	2.85	0.00	2.85	0.00
Fine Grading Off Road Diesel	0.30	1.99	1.71	0.00	0.00	0.09	0.09	0.00	0.08	0.08	392.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.73

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2022	1.13	4.93	6.30	0.01	13.62	0.27	13.89	2.85	0.24	3.09	1,864.03
Asphalt 01/02/2011-12/31/2024	0.18	1.11	1.08	0.00	0.00	0.08	0.08	0.00	0.08	0.08	174.03
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.18	1.10	1.00	0.00	0.00	0.08	0.08	0.00	0.08	0.08	147.15
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.66
Building 01/02/2011-12/31/2024	0.31	1.84	3.47	0.01	0.04	0.09	0.14	0.02	0.09	0.10	1,281.95
Building Off Road Diesel	0.19	1.09	1.13	0.00	0.00	0.05	0.05	0.00	0.05	0.05	210.76
Building Vendor Trips	0.08	0.69	0.88	0.01	0.02	0.03	0.05	0.01	0.03	0.03	597.72
Building Worker Trips	0.03	0.07	1.45	0.00	0.02	0.01	0.04	0.01	0.01	0.02	473.47
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.30	1.98	1.75	0.00	13.57	0.09	13.66	2.83	0.08	2.92	407.63
Fine Grading Dust	0.00	0.00	0.00	0.00	13.57	0.00	13.57	2.83	0.00	2.83	0.00
Fine Grading Off Road Diesel	0.29	1.98	1.70	0.00	0.00	0.09	0.09	0.00	0.08	0.08	390.97
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.66

URBEMIS AIR QUALITY MODEL CALCULATIONS

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	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2023	1.13	4.93	6.30	0.01	13.62	0.27	13.89	2.85	0.24	3.09	1,864.03
Asphalt 01/02/2011-12/31/2024	0.18	1.11	1.08	0.00	0.00	0.08	0.08	0.00	0.08	0.08	174.03
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.18	1.10	1.00	0.00	0.00	0.08	0.08	0.00	0.08	0.08	147.15
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.66
Building 01/02/2011-12/31/2024	0.31	1.84	3.47	0.01	0.04	0.09	0.14	0.02	0.09	0.10	1,281.95
Building Off Road Diesel	0.19	1.09	1.13	0.00	0.00	0.05	0.05	0.00	0.05	0.05	210.76
Building Vendor Trips	0.08	0.69	0.88	0.01	0.02	0.03	0.05	0.01	0.03	0.03	597.72
Building Worker Trips	0.03	0.07	1.45	0.00	0.02	0.01	0.04	0.01	0.01	0.02	473.47
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.30	1.98	1.75	0.00	13.57	0.09	13.66	2.83	0.08	2.92	407.63
Fine Grading Dust	0.00	0.00	0.00	0.00	13.57	0.00	13.57	2.83	0.00	2.83	0.00
Fine Grading Off Road Diesel	0.29	1.98	1.70	0.00	0.00	0.09	0.09	0.00	0.08	0.08	390.97
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.66

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2024	1.14	4.97	6.35	0.01	13.72	0.27	13.99	2.87	0.25	3.12	1,878.36
Asphalt 01/02/2011-12/31/2024	0.18	1.12	1.09	0.00	0.00	0.08	0.09	0.00	0.08	0.08	175.37
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.18	1.11	1.00	0.00	0.00	0.08	0.08	0.00	0.08	0.08	148.28
Paving On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
Paving Worker Trips	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.86
Building 01/02/2011-12/31/2024	0.31	1.86	3.50	0.01	0.05	0.10	0.14	0.02	0.09	0.10	1,291.81
Building Off Road Diesel	0.19	1.10	1.14	0.00	0.00	0.05	0.05	0.00	0.05	0.05	212.38
Building Vendor Trips	0.08	0.70	0.89	0.01	0.02	0.03	0.05	0.01	0.03	0.04	602.31
Building Worker Trips	0.03	0.07	1.46	0.00	0.02	0.01	0.04	0.01	0.01	0.02	477.12
Coating 01/02/2011-12/31/2024	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Architectural Coating	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42
Fine Grading 01/02/2011-12/31/2024	0.30	2.00	1.77	0.00	13.68	0.09	13.77	2.86	0.08	2.94	410.77
Fine Grading Dust	0.00	0.00	0.00	0.00	13.68	0.00	13.68	2.86	0.00	2.86	0.00
Fine Grading Off Road Diesel	0.30	2.00	1.72	0.00	0.00	0.09	0.09	0.00	0.08	0.08	393.98
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.79

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



<u>Phase Assumptions</u>	
Phase: Fine Grading 1/2/2011-12/31/2024 - Default Fine Site Grading Description	Phase: Building Construction 1/2/2011-12/31/2024 - Default Building Construction Description
Total Acres Disturbed: 20.89	Off-Road Equipment:
Maximum Daily Acreage Disturbed: 5.22	1 Cranes (399 hp) operating at a 0.43 load factor for 6 hrs/day
Fugitive Dust Level of Detail: Default	2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hrs/day
20 lbs/acre-day	1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hrs/day
On Road Truck Travel (VMT): 0	1 Tractors/Loaders/Backhoes (108 hp) operating at 0.55 load factor for 8 hrs/day
Off-Road Equipment:	3 Welders (45 hp) operating at 0.45 load factor for 8 hrs/day
1 Graders (174 hp) operating at 0.61 load factor for 8 hrs/day	
1 Rubber Tired Dozers (357 hp) operating at 0.59 load factor for 8 hrs/day	
2 Tractors/Loaders/Backhoes (108 hp) operating at 0.55 load factor for 7 hrs/day	
1 Water Trucks (189 hp) operating at 0.5 load factor for 8 hrs/day	
Phase: Paving 1/2/2011 - 12/31/2024 - Default Paving Description	Phase: Architectural Coating 1/2/2011 - 12/31/2024 - Default Architectural Coating Description
Acres to be Paved: 5.22	Rule: Residential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies VOC of 130
Off-Road Equipment:	Rule: Residential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies VOC of 130
4 Cement and Mortar Mixers (10 hp) operating at 0.56 load factor for 6 hrs/day	Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies VOC of 250
1 Pavers (100 hp) operating at 0.62 load factor for 7 hrs/day	Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies VOC of 250
2 Paving Equipment (104 hp) operating at 0.53 load factor for 6 hrs/day	
1 Rollers (95 hp) operating at 0.56 load factor for 7 hrs/day	

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



Table D-3b. RBAAP MIR Future (Operational) Combined Annual Emissions (Tons/Year), URBEMIS Model

Summary Report							
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
AREA SOURCE EMISSION ESTIMATES TOTALS (tons/yr, unmitigated)	1.63	0.72	1.29	0.00	0.00	0.00	849.56
OPERATIONAL (VEHICLE) EMISSION ESTIMATES TOTALS (tons/yr, unmitigated)	7.96	9.82	78.74	0.17	1.56	0.97	17,463.70
SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES TOTALS (tons/yr, unmitigated)	9.59	10.54	80.03	0.17	1.56	0.97	18,313.26
NOTES: Urbemis 2007 Version 9.2.4 Project Location: San Joaquin Valley APCD On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006 Off-Road Vehicle Emissions Based on: OFFROAD2007							

URBEMIS AIR QUALITY MODEL CALCULATIONS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



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RECORD OF NON-APPLICABILITY (RONA) (CAA ANALYSIS)
Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



APPENDIX E RECORD OF NON-APPLICABILITY (RONA) (CAA ANALYSIS)

RECORD OF NON-APPLICABILITY (RONA) (CAA ANALYSIS)
Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California





MEMORANDUM FOR FILE

RECORD ON NON-APPLICABILITY CONCERNING THE
GENERAL CONFORMITY RULE (40 CFR 51)

The officially stated mission of Riverbank Army Ammunition Plant (RBAAP) is "To command, operate, and administer the use of the resources of RBAAP to accomplish assigned missions in accordance with the general orders and directives to provide support Headquarters, First and Third U.S. Armies and U.S. Army Forces Command assigned attached and tenant units and activities in assigned geographic area." The installation consists of 173 acres, the majority of which is devoted manufacturing and storage. The rest is occupied by offices and other tenants' facilities. Recommendations of the 2005 Defense Base Closure and Realignment Commission (BRAC 95) require the closure of RBAAP. Based on the BRAC 05 recommendations, the Army proposes to dispose of all 173 acres that are excess to Army military needs. This proposed action requires that the Army complete a conformity review to determine whether the action is subject to the U.S. Environmental Protection Agency's General Conformity Rule (40 CFR Part 51).

RBAAP is located in an area that is in non-attainment status for ozone and PM_{2.5}, and maintenance for PM₁₀. The General Conformity Rule provides that actions proposed to occur within non-attainment areas must, unless otherwise exempt, be accompanied by a Conformity Determination. Among the recognized exemptions are "transfers of ownership, interests, and titles in land, facilities, and real and personal properties, regardless of the form or method of the transfer" (40 CFR Part 51.853). Because the Army's proposed disposal action will involve the sale or other title transfer of federal property, it has been determined that the action is exempt from the General Conformity Rule requirement to prepare a full Conformity Determination. Should effects to air quality occur from reuse of the disposed property due to a result of federal agency funding, it will be the responsibility of the new land owners to meet any requirements for ensuring conformity with federal or state air quality plans. Preliminary estimates for the medium-high and medium intensity reuse scenarios show impacts below the *de minimus* levels, therefore mitigation would not be required.

Proponent: U.S. Army Corps of Engineers, Mobile District

Responsible Official:


BRAC Environmental Coordinator

3-10-2009
Date

RECORD OF NON-APPLICABILITY (RONA) (CAA ANALYSIS)
Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



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APPENDIX F ECONOMIC IMPACT FORECAST SYSTEM (EIFS) – MODELING RESULTS

ECONOMIC IMPACT FORECAST SYSTEM (EIFS) – MODELING RESULTS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



ECONOMIC IMPACT FORECAST SYSTEM (EIFS) – MODELING RESULTS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
Riverbank Army Ammunition Plant, California



ECONOMIC IMPACT FORECAST SYSTEM (EIFS) – MODELING RESULTS

The EIFS Model

The primary metric used to determine significance of changes in socioeconomic activity under the two reuse intensity scenarios at RBAAP is the U.S. Army's Economic Impact Forecast System (EIFS) model. The basis of the EIFS analytical capabilities is the calculation of multipliers that are used to estimate the impacts resulting from Army-related changes in local expenditures or employment. In calculating the multipliers, EIFS uses the economic base model approach, which relies on the ratio of total economic activity to basic economic activity. Basic economic activity, in this context, is defined as the production or employment engaged to supply goods and services outside the ROI or by federal activities (such as military installations and their employees). According to economic base theory, the ratio of total income to base income is measurable and sufficiently stable so that future changes in economic activity can be forecast. This technique is especially appropriate for estimating aggregate impacts and makes the economic base model ideal for the estimation and analysis of sustainability thresholds.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its base sector; for instance, a dollar increase in local expenditures due to an expansion of its military installation. EIFS estimates its multipliers using a location quotient approach based on the concentration of industries within the region relative to the industrial concentrations for the nation.

The user inputs into the model the data elements that describe the Army action: the change in expenditures; change in civilian or military employment; average annual income of affected citizens or military employees; the percent of civilians expected to relocate due to the Army's action; and the percent of the military living on-post. From these inputs, the EIFS model provides projected changes in sales volume, income, employment, and population in the local economy. These variables are then used to measure and evaluate projected socioeconomic impacts. Sales volume is the direct and indirect change in local business activity and sales (total retail and wholesale trade sales, total selected service receipts, and value-added by manufacturing). Employment is the total change in local employment due to the proposed action, including not only the direct and secondary changes in local employment, but also those personnel who are initially affected by the military action. Income is the total change in local wages and salaries due to the proposed action, which includes the sum of the direct and indirect wages and salaries, plus the income of the civilian and military personnel affected by the proposed action. Population is the increase or decrease in the local population as a result of the proposed action.

ECONOMIC IMPACT FORECAST SYSTEM (EIFS) – MODELING RESULTS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of Riverbank Army Ammunition Plant, California



Evaluation of Socioeconomic Impacts

The basis of EIFS analytical capabilities is the calculation of multipliers that are used to estimate the impacts resulting from Army-related changes in local expenditures or employment. Once EIFS model projections are obtained, the Rational Threshold Values (RTV) profile allows evaluation of the context and intensity of the impacts. The RTV profile reviews the historical trends for the defined region, based on U.S. Census data, and develops measures of local historical fluctuations in sales volumes, employment, income, and population. These evaluations indicate the intensity of the positive and negative changes of a project.

The RTV provides boundaries (threshold values) to assess the magnitude of an action's impacts. The largest historical change (both increases and decreases) define the boundaries. These values thus provide a basis for comparing an action's impact to the historical fluctuations in a particular area. As such, the assignment of thresholds is made on a region-specific basis. Specifically, EIFS sets the boundaries by multiplying the maximum historical deviation of the following variables:

		<u>Increase</u>	<u>Decrease</u>
Sales Volume	X	100%	75%
Income	X	100%	67%
Employment	X	100%	67%
Population	X	100%	50%

The percentage allowances are arbitrary but sensible. The maximum positive historical fluctuation is allowed with expansion because of the positive connotations of economic growth. While cases of damaging economic growth have been cited, and although the zero-growth concept is being accepted by many local planning groups, the effects of reductions and closures are generally more controversial than expansions.

The major strengths of the RTV criteria are its specificity to the region under analysis and its basis on actual historical time-series data for the defined region. The EIFS impact model, in combination with the RTV, has proven successful in addressing perceived socioeconomic impacts. The EIFS model and the RTV technique for measuring significance are theoretically sound and have been reviewed on numerous occasions.

The severity of conceivable impacts accelerates in the following order: total sales volume, total personal income, total employment, and total population. Sales volume impacts may be alleviated by manipulation of variables such as inventory and new equipment. Impacts on workers or proprietors are not easily or immediately assessed. Changes in employment and income are of primary interest. Employment and income impacts are followed by changes in personal income, directly affecting individuals within the region. Population threshold indicators are extremely important because they reflect the effects on local government revenues,

ECONOMIC IMPACT FORECAST SYSTEM (EIFS) – MODELING RESULTS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
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housing, education, infrastructure, and other social services. They should be weighted accordingly.

Calculation of Model Input Parameters

The following presents the calculations and assumptions made in determining input parameters for the EIFS analysis for the closure of LSAAP and realignment of RRAD.

Change in Local Expenditures: Data on RBAAP 2005 local expenditures, including NI Industries, were provided by Riverbank Army Ammunition Plant (RBAAP 2006). For caretaker status analysis, data represent total 2002 local expenditures for RBAAP, NI, and all other existing tenants on the property, generated from 2005 RBAAP/NI Industries employee data and 2002 employee data from all other tenants on the RBAAP property by the Stanislaus Alliance Business Resource Center's "Riverbank and NI and Related Multiplier Impact Analysis" (SEDWA 2006).

Predicted expenditure data for the reuse scenarios were not provided, so the following assumptions were made to calculate the change from 2005 baseline expenditures. Estimated predicted local expenditures under caretaker status assumed total discontinuation of operations by RBAAP, NI Industries, and all other tenants on the RBAAP properties. For the MIR and MHIR reuse scenarios, estimated change in local expenditures during peak year(s) of maximum economic change are based on a conservative assumption that 50 percent of total redevelopment activity will take place in one year. Predicted total expenditures over a 15-year build-out period were extrapolated from expected reuse acreage and expected employment, with expenditure per employee calculations, by reuse area, based on approximate NAICS economic sector industrial categories and total operating expenses from the 2002 U.S. Census Business Expenditures Survey. Estimated predicted total local expenditures do not include estimated predicted expenditures for site remediation, preparation, or construction on the property.

The full build-out period under each reuse scenario is estimated to be 10-15 years, according to the City of Riverbank Department of Economic Development and Housing (Ogden 2008). This analysis assumes a 15-year build-out period.

Change in Civilian Employment: Civilian employment includes both civilian and government contractor jobs at RBAAP. For caretaker status, change in civilian employment represents job losses from closure of RBAAP, NI Industries (as GOCO), and all other tenants on the property, based on analysis of 2002 employee data from the Stanislaus Alliance Business Resource Center's "Riverbank and NI and Related Multiplier Impact Analysis" (SEDWA 2006). For the MIR and MHIR reuse scenarios,

change in civilian employment during peak year(s) of economic change represents job losses resulting from closure of RBAAP and NI Industries only, based on data from the BRAC Final Commission Recommendations, Appendix O, plus 50 percent of the total predicted job

ECONOMIC IMPACT FORECAST SYSTEM (EIFS) – MODELING RESULTS

Final Environmental Assessment for BRAC 05 Disposal and Reuse of
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increases under reuse (250 of 500 predicted total new jobs under the MIR scenario, and 550 of 1100 predicted total new jobs under MHIR scenario)..

Average Income of Affected Civilians: Average income of affected citizens under caretaker status is represented by a weighted average of RBAAP and NI civilian/contractor employee wages (89 employees; 2005 average wage \$52,384, excluding the Commanding Officer) (RBAAP 2006) and employee wages of other tenants on the property (146 employees, 2005 average wage in the ROI, \$34,500) (SEDWA 2006; US DoC 2004a). Average income of affected citizens under the MIR and MHIR reuse scenarios is represented by the 2005 average wage of RBAAP and NI employees (excluding the Commanding Officer), \$52,384 (BRAC Commission Final Recommendations, Appendix O).

Percent Expected to Relocate: The percent expected to relocate is uncertain. Under the caretaker status alternative, none (0%) of the affected civilian population was assumed to relocate. In the short run, this is due to the high cost of finding new housing. Under each of the reuse scenarios, over a 15-year build-out period, a relatively conservative 25 percent of the new jobs to be created were assumed to be filled from outside the ROI. It was assumed that the majority of the jobs could be filled by the ROI labor pool, given the 2007 8.8 unemployment rate (up to 10.8 percent in 2008) (CA EDD 2008), a 2007 14 percent poverty rate, the growing size of the ROI labor pool (potential 93,000 increase in the ROI labor force over the next 15 years), and the assumption that many of the jobs under the reuse scenarios will be low-skilled jobs that can be filled by local labor or that will fit with the current skill set of the existing labor force. However, it is likely that, given the RLRA plan's emphasis on new "green" technology, some specialized labor will come from outside the ROI. The estimated increase in labor pool and the potential long-term impact on population growth, were estimated using labor and population pool projections from 2005 to 2020, which is commensurate with a 15- year build out projection.

Change in Military Employment: According to BRAC Final Commission Recommendation, Employment Impact by Economic Areas and States, Appendix O, RBAAP will lose no military jobs with the closure of RBAAP.

Average Income of Affected Military: There are no affected military personnel at the RBAAP installation. **Percent of Military Living on Post:** There are no housing facilities on RBAAP property.



EIFS REPORT

PROJECT NAME

Riverbank 2005 BRAC NEPA - Caretaker Status

STUDY AREA

06099 Stanislaus, CA

FORECAST INPUT

Change In Local Expenditures	(\$85,145,200)
Change In Civilian Employment	-235
Average Income of Affected Civilian	\$41,273
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Militart Living On-post	0

FORECAST OUTPUT

Employment Multiplier	3	
Income Multiplier	3	
Sales Volume - Direct	(\$92,943,320)	
Sales Volume - Induced	(\$185,886,700)	
Sales Volume - Total	(\$278,830,000)	-2.67%
Income - Direct	(\$25,258,560)	
Income - Induced)	(\$33,968,870)	
Income - Total(place of work)	(\$59,227,430)	-0.7%
Employment - Direct	-691	
Employment - Induced	-911	
Employment - Total	-1602	-0.84%
Local Population	0	
Local Off-base Population	0	0%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	12.18 %	11.7 %	3.61 %	3.79 %
Negative RTV	-6.47 %	-5.12 %	-2.08 %	-1.58 %



EIFS REPORT

PROJECT NAME

Riverbank 2005 BRAC NEPA - MIR Scenario

STUDY AREA

06099 Stanislaus, CA

FORECAST INPUT

Change In Local Expenditures	\$6,681,384
Change In Civilian Employment	250
Average Income of Affected Civilian	\$52,384
Percent Expected to Relocate	25
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Militart Living On-post	0

FORECAST OUTPUT

Employment Multiplier	3	
Income Multiplier	3	
Sales Volume - Direct	\$17,210,570	
Sales Volume - Induced	\$34,421,130	
Sales Volume - Total	\$51,631,700	0.49%
Income - Direct	\$14,316,950	
Income - Induced)	\$6,290,107	
Income - Total(place of work)	\$20,607,060	0.24%
Employment - Direct	334	
Employment - Induced	169	
Employment - Total	503	0.27%
Local Population	156	
Local Off-base Population	156	0.04%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	12.18 %	11.7 %	3.61 %	3.79 %
Negative RTV	-6.47 %	-5.12 %	-2.08 %	-1.58 %



EIFS REPORT

PROJECT NAME

RBAAP 2005 BRAC NEPA - MHIR Scenario

STUDY AREA

06099 Stanislaus, CA

FORECAST INPUT

Change In Local Expenditures	\$21,601,910
Change In Civilian Employment	461
Average Income of Affected Civilian	\$52,384
Percent Expected to Relocate	25
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Militart Living On-post	0

FORECAST OUTPUT

Employment Multiplier	3	
Income Multiplier	3	
Sales Volume - Direct	\$41,017,720	
Sales Volume - Induced	\$82,035,460	
Sales Volume - Total	\$123,053,200	1.18%
Income - Direct	\$28,096,550	
Income - Induced)	\$14,991,130	
Income - Total(place of work)	\$43,087,680	0.51%
Employment - Direct	662	
Employment - Induced	402	
Employment - Total	1064	0.56%
Local Population	287	
Local Off-base Population	287	0.07%

RTV SUMMARY

	Sales Volume	Income	Employment	Population
Positive RTV	12.18 %	11.7 %	3.61 %	3.79 %
Negative RTV	-6.47 %	-5.12 %	-2.08 %	-1.58 %

ECONOMIC IMPACT FORECAST SYSTEM (EIFS) – MODELING RESULTS
Final Environmental Assessment for BRAC 05 Disposal and Reuse of
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RBAAP ECP DESIGNATIONS BY PARCEL

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APPENDIX G RBAAP ECP DESIGNATIONS BY PARCEL

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Appendix G
RBAAP ECP Designations by Parcel

Parcel Identifier	Description of Parcel	ECP Designation
AOC 9B	Vertical ASTs – Fire Sprinkler Storage Tank	Category 1
AOC 10	Former Solid Waste Pile (Southeast Corner	Category 1
Buildings 138, 139, 188		Category 1
Open Areas	North Railroad Area, South Parking, Southeast Utilities, South Open Storage, Open Land	Category 1
AOC 11B	Loading Racks – Fire Sprinkler Pumping Station	Category 2
Building 4	Sump 4-11	Category 2
Building 10	Southwest and Northwest Fenced Area	Category 2
Building 137	Former UST Site	Category 2
SWMU 25	Former USTs (T137)	Category 2
AOC 1	Mortar Line Accumulation Area (Building 4)	Category 3
AOC 5	Former Windrowed Area.	Category 3
AOC 7	Phosphoric Acid Spill Area (1978)	Category 3
AOC 9A	Vertical ASTs – Fuel Oil Storage Tanks	Category 3
AOC 12	IWCS	Category 3
AOC 14	Zinc-Cyanide Wastewater Collection System	Category 3
AOC 15	Building 13 Temporary Wastewater Line	Category 3
Building 117	Former Cooling Tower	Category 3
Building 145	Building 145, Substation No. 18	Category 3
RBAAP-02	Waste Salt Disposal Pit; SWMU 18; Former Sludge Desiccating Pit; Facility 161	Category 3
RBAAP-04	IWTP Effluent Sewer Line Break; SWMU 12, IWTP Sewer Line Break Area (Effluent Force Main)	Category 3
RBAAP-05	Building 13, Chromium Pretreatment; SWMU 5, Chromium Reduction Unit (Building 13)	Category 3
RBAAP-07	Building 13 Phosphoric Acid Spill; AOC 7, Phosphoric Acid Spill Area (1978)	Category 3
RBAAP-09	Northwest (NW) Storm Reservoir; SWMU 20, NW Storm Reservoir, Facility 127	Category 3
RBAAP-10	Sewage Treatment Plant/Sludge Beds; SWMU 22, Sanitary Wastewater Settling Ponds	Category 3

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Structure 54	Substation No. 13	Category 3
Structure 96	Substation No. 2	Category 3
SWMU 5	Chromium Reduction Unit (Building 13)	Category 3
SWMU 12	IWTP Sewer Line Break Area (Effluent Force Main)	Category 3
SWMU 18	Former Sludge Desiccating Pit (Waste Salt Disposal Pit)	Category 3
SWMU 20	Northwest Storm Reservoir	Category 3
SWMU 22	Sanitary Wastewater Settling Ponds	Category 3
SWMU 25	Former UST (tanks 11A, 24, 25, 26, 27, 29, 30, 31, 32)s	Category 3
AOC 16	Substation 5 and Storm Drain Discharge Basin	Category 4
RBAAP-08	Southeast (SE) Storm Reservoir; SWMU 21, SE Storm Reservoir, Facility 135	Category 4
RBAAP-11	Percolation/Evaporation Ponds (Stanislaus); SWMU 23, E/P Ponds	Category 4
SWMU 21	Southeastern Storm Reservoir	Category 4
SWMU 24	Industrial Waste Pipe Leak	Category 4
AOC 2	Machine Shop Accumulation Area (Building 9)	Category 5
AOC 3	Vehicle Maintenance Accumulation Area (Building 15)	Category 5
AOC 4	Grenade Line Accumulation Area	Category 5
AOC 8A	Horizontal Aboveground Storage Tanks (AST) - Propane Storage Tanks	Category 5
AOC 8B	Horizontal ASTs - Transformer Oil Storage Tanks (including the Transformer Oil Distribution System)	Category 5
AOC 11A	Loading Racks – Propane Farm Loading/Unloading	Category 5
AOC 13	Draw Lube System (Building 178)	Category 5
Building 169	Paint Spraying Facility	Category 5
E/P Ponds	Soil Staining Area, Parcel No. 062-008-011	Category 5
RBAAP-01	Landfill; SWMU 10, Landfill (Southern Portion); SWMU 11, Landfill (Northern Portion)	Category 5
RBAAP-03	Contaminated Groundwater	Category 5
SWMU 02	Hazardous Waste Storage Area (Drum Storage Facility)	Category 5
SWMU 3	Empty Drum Storage Area (Railroad Car Off-Loading Area), Building 20	Category 5
SWMU 6	Chromium Reduction Unit (Building 1)	Category 5
SWMU 9	Equipment Wash Facility (Building 177 Triple Rinse Area)	Category 5
SWMUs 10 and 11	Landfill (Southern and Northern Portions)	Category 5
SWMU 13	Incinerator (Building 123)	Category 5

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SWMU 14	Incinerator (Building 163)	Category 5
SWMU 15	Pesticide Storage Area (West of Building 11).	Category 5
SWMU 16	Pesticide Storage Area (Building 165)	Category 5
SWMU 17	Pesticide Storage Area (Building 170)	Category 5
SWMU 25	USTs (tanks 1 6, 12, 12A, 12B, 15A, 15B, 23, 36, 37, T77):	Category 5
AOC 6	Sulfuric Acid Spill Area (1956)	Category 7
Building 1,6, 8	Production Area Sumps and Pits	Category 7
Building 6	Zinc Plater Cyanide Sump	Category 7
Building 8	Production Line – Press Room and 4500 Ton Press Pit	Category 7
Building 11	Paint and Oil Storage	Category 7
Building 12	Boiler House	Category 7
RBAAP-001-R-01	Former Pistol Range	Category 7
RBAAP-06	IWTP H2SO4 Spill; AOC 6, Sulfuric Acid Spill Area (1956)	Category 7
Structure 95	Substation No. 1	Category 7
Structure 97	Substation No. 3	Category 7
Structure 101	Substation Spare	Category 7
Structure 109	Main Transformer Substation No. 2 and 3	Category 7
Structure 145	Substation No. 17	Category 7
SWMU 1	IWTP	Category 7
SWMU 4	Drum Staging Area (at the IWTP)	Category 7
SWMU 7	Coolant Recovery Unit (IWTP) (Hyde Ultrafiltration [UF]Unit)	Category 7
SWMU 8	Waste Oil Accumulation Unit (Waste Oil Storage Tank)	Category 7
SWMU 19	Waste Zinc-Cyanide Solution Neutralizing Tanks	Category 7
SWMU 25	Former USTs (tanks 22 & 33)	Category 7

Source: U.S. Army 2006a

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