

RECLAMATION

Managing Water in the West

Final Programmatic Environmental Assessment

Quarry Operations –Yuma Area Office
Lower Colorado River Region



U.S. Department of the Interior
Bureau of Reclamation
Yuma Area Office
Yuma, Arizona

August 2007

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

**FINAL
FINDING OF NO SIGNIFICANT IMPACT
Quarry Operations
Lower Colorado River Region**

**U. S. Department of the Interior
Bureau of Reclamation
Yuma Area Office**

In accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, and based on the following, the Bureau of Reclamation (Reclamation) has determined that implementation of the Proposed Action (Preferred Alternative) to utilize quarries and their associated access roads to meet material needs along the Lower Colorado River (LCR) would not result in a significant impact on the quality of the human and natural environment. The attached Environmental Assessment (EA) provides details on the Proposed Action and an analysis of potential impacts and should be used as a companion document to this Finding of No Significant Impact (FONSI).

The purpose of the proposed project is to preserve the use of 9 currently operating quarries, re-open 5 previously used quarry sites, and establish 2 new quarry sites to obtain materials for use in Reclamation projects along the LCR. Quarries are used to produce materials essential to the maintenance and construction of banklines, river control structures, levees, canals, and reservoirs. Reclamation needs access to a variety of quarry locations along the LCR in order to obtain an adequate supply of suitable material.

The EA focused on those resource areas identified as potentially impacted by the alternatives considered, including the No Action Alternative. Those resources were air quality, water quality, biological, special status species, cultural resources, soils and geology, land use, aesthetic values, and noise. Based on the location and nature of the project no effects were determined to have the potential to occur to socioeconomics, Indian Trust Assets, or present any environmental justice issues. The analysis area encompasses a 10-mile corridor along both side of the LCR from Davis Dam to Laguna Dam.

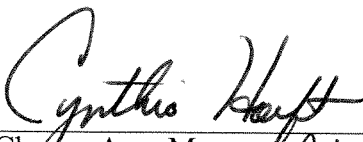
The analysis presented in the EA is addressed from a programmatic level, and evaluates the affected environment and potential consequences from a broad perspective. This EA is not intended to fulfill all environmental requirements for future activities at the specific quarry sites. Rather, future activities proposed at individual quarries will be subject to site-specific NEPA and other environmental planning and regulatory requirements prior to the conduct of such activities.

Reclamation has identified several best management practices (BMPs) to avoid, minimize, or mitigate adverse effects that may result from the Proposed Action. A brief summary of the environmental commitments and practices Reclamation has committed to follows.

- Implement dust control measures such as water, gravel, or dust palliatives on unpaved roads, minimizing the area of disturbance, covering haul trucks, and limiting ground-disturbing activities

- Prepare storm water pollution prevention plans for individual quarry sites to reduce or eliminate pollutants in storm water and non-storm water discharges from the quarry site
- Avoid washes and drainage areas during establishment and operation of quarries to minimize erosion grade the pit floor to drain internally and capture all runoff and sediment
- Follow the Reasonable and Prudent Measures, and Terms and Conditions presented in the EA to minimize or avoid impacts to desert tortoise and their habitat
- Conduct site-specific surveys and consultations to identify and avoid any cultural resources that may be affected
- Cease all activity in the area, in the event of an unanticipated archaeological or historical cultural resource discovery, until the discovery has been evaluated, all reasonable efforts have been made to protect the resource, and consultations are completed between Reclamation and the appropriate State Historical Preservation Officer
- Coordinate existing or new quarries and/or access roads with the appropriate agencies or tribal government and obtain access and right-of-way permits, prior to operation of any of the quarries, from the appropriate land-managing agency
- Select quarry locations to avoid areas of aesthetic value, repair drainage areas to minimize further erosion of visual quality and prepare Mining and Reclamation Plans, as required
- Coordinate with national wildlife refuges and wilderness area management agencies to limit quarry operations to non-mating, non-nesting seasons of noise-sensitive species whenever possible
- Use natural topography as a barrier when feasible, keep idling equipment to a minimum, and install temporary acoustic barriers and/or standard noise control devices on equipment, as necessary

Based on analysis of the environmental impacts, BMPs, and environmental commitments, as presented in the EA, Reclamation has concluded that implementation of the Proposed Action (Preferred Alternative) does not pose a significant adverse impact to the quality of the human and natural environment.


Jim Cherry, Area Manager
Yuma Area Office


Date

Final Programmatic Environmental Assessment

Quarry Operations – Yuma Area Office
Lower Colorado River Region

prepared by

Yuma Area Office
Resource Management Office
Environmental Planning and Compliance Group

Jason Associates Corporation
Yuma Office
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U.S. Department of the Interior
Bureau of Reclamation
Yuma Area Office
Yuma, Arizona

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Acronyms and Abbreviations

ADEQ	Arizona Department of Environmental Quality
APCD	Air Pollution Control District
AQMD	Air Quality Management District
BCO	Biological and Conference Opinion
BMPs	Best Management Practices
BLM	U.S. Bureau of Land Management
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CO	Carbon monoxide
CRFWLS	Colorado River Front Work and Levee System
CRIT	Colorado River Indian Tribes
DM	Departmental Manual
DTSC	Department of Toxic Substance Control
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
HMA	Herd Management Area
ITAs	Indian Trust Assets
LCR	Lower Colorado River
LCR MSCP	Lower Colorado River Multi-Species Conservation Plan
MDAQMD	Mojave Desert Air Quality Management District
MSHA	Mine Safety and Health Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_x	Nitrogen Oxides
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
O₃	Ozone
PG&E	Pacific Gas & Electric
PM_{2.5}	Particulate matter less than 2.5 micrometers in diameter
PM₁₀	Particulate matter less than 10 microns in diameter
Reclamation	Bureau of Reclamation
ROW	Right of Way
RV	Recreational Vehicle
SHPO	State Historic Preservation Officer
SIB	Southerly International Boundary
SO₂	Sulfur Dioxide
SWPPP	Storm Water Pollution Prevention Plan
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
VOCs	Volatile Organic Compounds
YAO	Yuma Area Office
YPG	Yuma Proving Ground

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Appendix III	– Desert Tortoise Brief (Power Point Presentation)
Appendix IV	– Programmatic Biological Opinion

1.0 Purpose of and Need for the Proposed Action

This document complies with the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 *et seq.*), in accordance with the Council on Environmental Quality regulations (40 CFR 1500-1509) and the Department of Interior and Bureau of Reclamation (Reclamation) NEPA procedures (516 DM 14). This chapter introduces the Proposed Action, the purpose and need for the Proposed Action, the scope of this document, and provides an overview of the location, background, and operation of Reclamation quarries along the Lower Colorado River (LCR).

1.1 Introduction

The Reclamation, Yuma Area Office (YAO) is responsible for maintenance of the LCR from Davis Dam to the Southerly International Boundary (SIB), see Figure 1. Reclamation's mission is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public. Under the Colorado River Front Work and Levee System¹ (CRFWLS) and in accordance with the Law of the River (Reclamation 2006a) Reclamation is responsible for providing flood control while maintaining the river channel and protective levees. Each year YAO performs inspections of the LCR to identify bankline areas, levees, and river structures that require maintenance. Approximately 100,000 cubic yards of riprap and gravel are proposed to be quarried annually to support these ongoing maintenance activities. Reclamation proposes to use 14 existing quarries and establish 2 new quarries along the LCR in order to meet its responsibilities.

Reclamation has prepared this programmatic Environmental Assessment (EA) to evaluate the potential impacts associated with establishing new quarries, as well as those associated with the operation and maintenance of existing quarries. This EA provides a broad-based analysis of the environmental characteristics, constraints, and requirements for present and future use of Reclamation quarries. The analysis presented includes evaluation of the Proposed Action and alternatives considered, including the No Action Alternative.

¹ The Colorado River Front Work and Levee System was authorized by the acts of March 3, 1925 (43 Stat. 1186, 1198), January 21, 1927 (44 Stat. 1010, 1021), July 1, 1940 (54 Stat. 708), and the act of June 28, 1946 (60 Stat. 338), Public Law 79-469, as amended by the act of May 1, 1958 (72 Stat. 101).



Figure 1-General Location of Project Area and Quarry Sites

This EA is not intended to fulfill all environmental requirements for future activities at the specific quarry sites. Rather, future activities proposed at individual quarries will be subject to site-specific NEPA and other environmental planning and regulatory requirements prior to the conduct of such activities. It is anticipated that such future planning and regulatory documents will be tiered to this Programmatic EA.

1.2 Location

As shown in Figure 1, the LCR extends 276 river miles from Davis Dam to the SIB. The Proposed Action area traverses several wildlife refuges and wilderness areas, five Indian reservations, and six counties in the states of California and Arizona. Quarry sites are located in upland habitats within 10 miles east or west of the LCR and usually within 20 miles of the closest stockpile site along the LCR.

The project area is in the Mojave and Sonoran deserts of California and Arizona, respectively. The Mojave Desert is the transitional zone between the Sonoran Desert to the south and east and the higher Great Basin to the north. It is characterized by extreme temperatures with an average annual precipitation of 5 to 11 inches. The Mojave Desert has a typical basin-and-range topography with sparse vegetation. It is considered to be less diverse in plant and animal life forms than the Sonoran Desert. The Sonoran Desert is an arid desert characterized by warm temperatures and little rainfall. This is the hottest of the North American deserts, but its proximity to the Pacific Ocean and bimodal rainfall pattern facilitates the growth of diverse annual and woody plants. Parts of the Sonoran Desert receive less than 3 inches of rainfall per year.

Proposed and existing quarry sites and associated access routes are located on land owned or managed by a variety of entities including:

- Reclamation
- Bureau of Land Management (BLM)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Army Yuma Proving Ground (YPG)
- National Park Service
- Indian Tribes
- State, counties, & cities of California
- State, counties, & cities of Arizona
- Private landowners

Reclamation will obtain necessary use and right-of-way (ROW) permits prior to operation of any quarry and renew permits as required.

1.3 Background

The purpose of the CRFWLS is to control floods, improve navigation, and regulate the flows through the construction, operation, and maintenance of the Colorado River in Arizona, California, and Nevada (Reclamation 2006b). In order to support the CRFWLS, it is important that quarries be strategically placed along the LCR, as their use is directly related to their proximity to the location of the necessary bankline work. Quarries provide rock in the form of crushed stone aggregate for bank protection and levee maintenance projects. The availability of suitable materials has been depleted over the years because of changes in land use designations, cultural resource conservation, environmental compliance regulations, and dual management of resources between Reclamation and BLM. Existing stockpiles for riprap and gravel base material are well below capacity. Operating and strategically placing quarries along the LCR would ensure that projects proceed in a timely and cost-effective manner.

Table 2.1 lists the 16 quarries, their location, permit status, and quarry acreages. Table 2-3 presents potential environmental issues and recommendations for each quarry.

1.4 Purpose and Need

1.4.1 Purpose

The purpose of the Proposed Action is to preserve the use of currently operating quarries, re-open previously used quarry sites, and establish new quarry sites to obtain materials for use in Reclamation projects along the LCR from Davis Dam to the SIB.

1.4.2 Need

Quarry activities are an integral part of Reclamation's responsibilities for operation and maintenance of the LCR. Quarries are used to produce materials (e.g., rock, riprap, gravel) essential to the maintenance and construction of banklines, river control structures, levees, canals, and reservoirs. Currently, Reclamation's stockpile sites are being depleted without replacement. This depletion limits Reclamation's abilities to meet its responsibilities to construct, maintain, and operate the CRFWLS, particularly during higher flows and storm events. Reclamation needs access to a variety of quarry locations along the LCR in order to obtain an adequate supply of suitable material to meet its operation, maintenance, and repair responsibilities in accordance with the CRFWLS.

1.5 Scope of Analysis

This EA presents a programmatic analysis of potential impacts associated with establishing and re-opening quarries along the LCR; and their normal operational

and maintenance activities. The analysis performed and presented is from a programmatic level, which evaluates the affected environment and potential environmental consequences from a broad perspective. The analysis area encompasses the LCR from Davis Dam to Laguna Dam (lowest point of quarry included in this analysis) and a 10-mile corridor along both sides of the river (see figure 1). The intent is to use this programmatic analysis to support future site-specific analyses for individual quarry sites, which will tier to this EA. Site-specific analyses will focus on issues specific to an individual quarry site (e.g., applicable Federal and state regulations, tribal consultation, permitting requirements, and wildlife and cultural surveys) and will be completed or updated prior to initiation of operations at each quarry site.

The analysis presented in this EA includes a general description and broad-based analysis of the following resource areas:

<i>Air Quality</i>	<i>Water Resources</i>
<i>Biological Resources</i>	<i>Special Status Species</i>
<i>Cultural Resources</i>	<i>Soils and Geology</i>
<i>Land Uses</i>	<i>Aesthetic Values</i>
<i>Socioeconomic</i>	<i>Indian Trust Assets</i>
<i>Environmental Justice</i>	<i>Noise</i>

Reclamation coordinated with multiple agencies to help define the scope of analysis in this programmatic EA and copies of applicable correspondence is included in Appendix A.

This EA does not assess the environmental implications of Reclamation-associated stockpile sites, or the use of the quarried material in projects along the LCR. These activities and associated impacts are analyzed and presented in the Lower Colorado River Multi-Species Conservation Plan (LCR MSCP) documents, which are available on Reclamation's website at <http://www.usbr.gov/lc/lcrmscp/publications/eireis2004.html>. In addition, this EA does not assess impacts from emergency actions [as defined in Section 3.11 of the NEPA Handbook (DOI 2000)].

Chapter 2 presents the Proposed Action for the operation and maintenance of the quarries, the No Action Alternative, and other alternatives considered. Chapter 3 presents a broad description of the human and natural environment within the project area. Chapter 4 presents the evaluation of the potential environmental consequences of implementing either the Proposed Action or the No Action Alternative. The analysis concludes with Chapter 5 describing Reclamation's environmental commitments for this project.

2.0 Proposed Action and Alternatives Considered

This chapter presents the Proposed Action for the operation and maintenance of the quarries, other alternatives considered, and the No Action Alternative.

2.1 Proposed Action (Preferred Alternative)

The Proposed Action (Preferred Alternative) is to continue using or re-open 14 existing quarries and establish 2 new quarries and associated access roads, as needed, to meet proposed annual needs of 100,000 cubic yards of material. The proposed quarry sites and associated details are shown in Table 2-1 Quarry Information at the end of this section.

Utilization of a specific quarry site is directly dependent on the location of the operation and maintenance project. Typically, the nearest available quarry to the depleted stockpile site would be used to re-supply the site; and rarely, if ever, would more than one quarry be in operation at the same time. See Appendix B for detailed maps of the quarry sites. This alternative includes the option of purchasing gravel and gravel-base materials commercially on an occasional basis when relatively large amounts of a single material are required. Availability of commercial gravel producing facilities dictates when and where this is economically feasible. Once haul distances become excessive (in excess of 15 to 20 miles) material costs become prohibitively expensive.

In general, excavation of materials from a quarry would be accomplished by a Reclamation contractor under an existing or future Indefinite Delivery Indefinite Quantity or requirements-type contract. Contractors would be issued a delivery order detailing the amount and types of material required and the final delivery point, including any additional environmental requirements (e.g., conducting biological monitoring, preparing plans, and obtaining permits). Under the contract requirements, the contractor would also be responsible for obtaining the Storm Water Pollution Prevention Plan (SWPPP) and submitting the Notice of Intent to the Environmental Protection Agency (EPA). Copies of the approved permits and forms would be submitted to the appropriate state and/or local governing agency.

Quarry operations consist of blasting, as necessary, to produce working benches and working materials for the mechanically operated grizzlies and screening plant. Blasting is done in accordance with Reclamation's guideline, "Reclamation Safety and Health Standards" and the Federal Mine Safety and Health Act (MSHA) of 1997 (Public Law 91-173), Title 30, Chapter 1. The MSHA standards

apply to all rock quarry, sand, gravel, and crushed stone operations and are found at <http://www.msha.gov/>.

Oversized rock that is produced during the blasting operation would be reduced to the designated riprap size and used in stockpiles in accordance with Reclamation's delivery orders and associated specifications. Smaller materials would be processed into 1 inch to 4 inch rock sizes and the undersized materials and fines, graded and screened to produce gravel-base materials. Reclamation currently utilizes all materials produced from quarrying operations.

To meet Reclamation's standards and specification, surplus material produced during the quarry and processing operation may be stockpiled on the quarry floor until needed. Stockpiles would be separated by types of materials produced (i.e., riprap, gravel base, or 1- to 4-inch material). Materials would be relocated to the associated stockpile sites or banklines on an as-need basis.

During any given quarry operation, the height of the working face may exceed 40 feet. However, at the end of an individual delivery order, the final elevations of successive benches would not exceed a 40-foot vertical difference and would have a back slope of 3 to 1, or a slope to match any existing prominent rock joint. The existing rock faces of the quarry would be scaled (as defined by 30 CFR, Part 56, paragraph 56.2, *Definitions*) prior to beginning any quarrying operations and during the operation of any quarries as necessary to eliminate danger at the quarry site.

The following is a list of equipment that may be utilized during quarry operations:

- Mechanically operated grizzly and screening plant
- Two or three rubber-tired front-end loaders
- Rock crusher
- One or two dozers
- Blade (for maintaining access and haul roads)
- Water truck (for maintaining access and haul roads)
- Six to twelve haul trucks, depending on the size of the vehicles and the distance to where the rock is being stockpiled or placed on the bankline
- Compressor and air drill
- Certified platform scale
- Backhoe with ram attachment
- Service truck.

Access roads would be built within the confines of the quarry and to the benches as required for the operation of the quarry. After completion of the delivery order, all worked rock faces would be scaled and all access roads blocked with oversized rocks or fencing as needed.

Generally, all quarry sites have existing access roads; however, Reclamation may improve or repair such access, as needed, to accommodate travel to and from the

quarry sites. Improvement/repair would be limited to grading, laying gravel, widening, and watering for dust control.

The following table provides a legal description, acreages, landownership, and permit status for each of the 16 quarries proposed for use.

Table 2-1. Quarry Information

	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
Agnes Wilson	T. 1 S., R. 24 E., sec. 31, E ½ W ½, E ½, T. 1 S., R. 24 E., sec. 32, W ½ excepting that portion of Sections 31 and 32 lying within the Colorado Indian Reservation	BLM (Quarry & ROW)	Riverside County, CA	Existing, Active	CACA 34795 Expires 11/10/2007	33.62
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
Bat Cave No.1	T. 7 N., R. 24 E., sec. 8, S ½ NE ¼ SW ¼ and SE ¼ SW ¼	Reclamation (Quarry & ROW)	San Bernardino County, CA	Existing, Active	Active No Permit Required	40.00
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
Cibola (Hart Mine No. 1)	T. 1 S., R. 23 W., sec. 34, E ½ and T. 1 S., R. 23 W., sec. 35 NE ¼ W ½	BLM (Quarry & ROW)	La Paz County, AZ	Existing	Permit Expired	17.52
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
Eagle Pass	T. 8 N., R. 22 E., sec. 18, (all)	Reclamation (Quarry) BLM (ROW)	San Bernardino County, CA	Existing	Need Permit	17.58
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
Ehrenberg	T. 4 N., R. 21 W., sec. 34, SE ¼ SE ¼ and sec. 35 SW ¼ SW ¼	BLM (Quarry & ROW)	La Paz County, AZ	Existing, Active	AZA 30359 Expires 11/23/2008	18.80
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
Hart Mine No.2	T. 2 S., R. 23 W., sec. 2 E ½ and sec. 1 W ½	Reclamation (Quarry) BLM (ROW)	La Paz County, AZ	Existing, Active	Need Permit	56.20
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage

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	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
Laguna Dam (East)	T. 7 S., R. 22 W., sec. 14 S ½ and sec. 23 N ½	Reclamation (Quarry & ROW)	Yuma County, AZ	Existing, Active	Active, No Permit Required	15.32
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Combined Acreage (La Paz East & West)
La Paz East	T. 4 N., R. 21 W., sec. 22 SW ¼ SW ¼	BLM (Quarry) BLM & CRIT (ROW)	La Paz County, AZ	Existing, Active	AZA 27047 Expires 11/23/2008	15.22
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Combined Acreage (La Paz East & West)
La Paz West	T. 4 N., R. 21 W., sec. 21 SE ¼ SE ¼	BLM (Quarry) BLM & CRIT (ROW)	La Paz County, AZ	Existing, Active	AZA 27047 Expires 11/23/2008	15.22
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Combined Acreage (La Paz East & West)
Palo Verde Road	T. 10 S., R. 21 E., sec. 1 W ½ NW ¼ NW ¼ SW ¼	Reclamation (Quarry & ROW)	Imperial County, CA	Existing, Active	Active, No Permit Required	28.60
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
Paymaster	T. 11 S., R. 21 E., sec. 14 NW ¼ NW ¼ NE ¼	BLM (Quarry & ROW)	Imperial County, CA	New, Undeveloped	New, None Issued	15.00
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Proposed Acreage
Quien Sabe West	T. 3 S., R. 23 E., sec. 21 E ½ NE ¼ NW ¼, E ½ W ½ NE ¼ NW ¼, SW ¼ SW ¼ NE ¼ NW ¼, SE ¼ SE ¼ NW ¼ NW ¼, N ½ SE ¼ NW ¼, E ½ NE ¼ SW ¼ NW ¼, NE ¼ SE ¼ SW ¼ NW ¼, N ½ SW ¼ SE ¼ NW ¼, and NW ¼ SE ¼ SE ¼ NW ¼	BLM (Quarry & ROW)	Riverside County, CA	New, Undeveloped	New, None Issued	35.10
	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Proposed Acreage

	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
Ripley	T. 8 S., R. 21 E., sec. 4 E ½ W ¼, and E ½	BLM (Quarry & ROW)	Riverside County, CA	Existing	Need Permit	32.40
Section 7	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
	T. 10 N., R. 22 E., All of sec. 7	Reclamation (Quarry) BLM & Private (ROW)	San Bernardino County, CA	Existing - Unavailable	Need Permit	15.32
Times Gulch	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
	T. 19 N., R. 20 W., sec. 18 S ½ S ½ NW ¼ NW ¼, S ½ SW ¼ NE ¼ NW ¼, N ½ SW ¼ NW ¼, NW ¼ SE ¼ NW ¼, N ½ S ½ SW ¼, NW ¼, and N ½ SW ¼ SE ¼ NW ¼	BLM (Quarry & ROW)	Mohave County, AZ	Existing, Active	AZA 032659 Expires 4/1/2015	27.30
Trigo Wash	Legal Description	Landownership	County/ State	Status of Quarry	Use/ROW Permit	Existing Acreage
	T. 2. N., R. 21 W., sec. 19 SW ¼	Department of Defense – YPG (Quarry) BLM (ROW)	La Paz County, AZ	Existing, Active	DACA09-4-06- 0273 Expires 8/31/2016	20.10

2.2 No Action Alternative

Under the No Action Alternative, Reclamation would use existing, available quarries; new quarries would not be established and previously developed quarries would not be re-opened. This alternative includes the option of purchasing rock commercially as required by the individual project specifications.

The quarries currently available to Reclamation are Agnes-Wilson, Bat Cave No.1, Ehrenberg, Laguna Dam (East), La Paz East, La Paz West, Palo Verde Road, Times Gulch, and Trigo Wash,. However, section 7 consultation under the Endangered Species Act (ESA) would need to be updated for all quarry sites and ROW permits renewed for several quarry sites (see permit status in Table 2-1). Reclamation would use the existing stockpiles to compensate for limited quarry materials at project locations where quarries are physically and economically inaccessible.

The No Action Alternative does not provide adequate sources and/or supplies of rock material to maintain stockpiles at a sufficient capacity, and Reclamation would be constrained in fulfilling its mission and ensuring that projects proceed timely and cost-effectively.

2.3 Alternatives Considered but Eliminated from Further Detailed Analysis

An alternative of obtaining all rock material commercially was considered. Commercial materials are not readily available in the quantities required and the cost would be significant. This alternative was removed from further detailed analysis because is not feasible and does not meet the purpose and need.

Additional quarry sites were considered but eliminated from this analysis. Due to the programmatic nature of this EA, it was determined that evaluation of additional sites would not be appropriate for this analysis. The following quarries sites may be viable alternatives provided additional site-specific analysis, surveys, and coordination are completed:

Table 2-2. Quarries Considered but Eliminated from Analysis

Quarry	Reason eliminated from further Consideration
Bat Cave No. 2	Located within a wilderness area
Bat Cave No. 3	Located within a wilderness area
Manchester	Land coordination, wilderness, and ROW access
Palo Verde Dam	Land coordination, possible wilderness area, and ROW access
Park Moabi	Portions are possibly located within a wilderness area
Pilot Knob	Potentially significant cultural resource issues
Pipeline	Portions are possibly located within a wilderness area
Vidal Junction	Located within a critical habitat for the Mojave desert tortoise

2.4 Comparison of Alternatives and Future Site Specific Needs

Chapter 4 of this EA presents a broad analysis of the consequences relative to the alternatives. A programmatic analysis of potential impacts at the quarry site for the Proposed Action and the No Action Alternative determined that the impacts would be similar; however, the No Action Alternative does not meet the purpose and need.

Each quarry site has unique environmental characteristics as well as logistical requirements that will need to be addressed prior to commencing operations at the individual quarries. Table 2-3 presents a brief listing of known issues and requirements for each quarry.

Table 2-3. Subject Environment and Recommended Analysis for Quarries

Subject Environment		Quarries	Agnes Wilson	Bat Cave No. 1	Cibola	Eagle Pass	Ehrenberg	Hart Mine No. 2	Laguna Dam (East)	La Paz East	La Paz West	Palo Verde Road	Paymaster	Quien Sabe West	Ripley	Section 7	Times Gulch	Trigo Wash
Air	Non-Attainment Area Dust Control Plan	-	√	-	√	-	-	-	-	-	-	-	-	-	√	-	-	
Water	Potential 404 Issues	√	√	-	√	-	-	-	√	√	-	√	√	√	√	√	√	
	Chromium 6	-	√	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Storm Water Pollution Prevention Plan (SWPPP)	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Biology/Special Status Species	Desert Tortoise Habitat	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Cultural	Survey	-	√	-	√	√	-	√	√	√	-	√	√	√	√	-	√	
Soils & Geology	SWPPP	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Land Use	Tribal Coordination	√	-	√	-	√	√	√	√	√	√	-	√	-	-	-	-	
	Potential Wilderness Issues	-	√	-	-	-	√	-	-	-	-	-	√	-	√	-	-	
Socioeconomic		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Aesthetic Values	Mining & Reclamation Plan	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Indian Trust Assets		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Environmental Justice		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Noise	Receptor: Wilderness Area	√	√	-	-	-	√	√	-	-	√	-	√	-	√	-	-	
Site Specific NEPA Analysis		√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

3.0 Affected Environment

This chapter provides a general description of the human and natural environment of the project area for potentially affected resources. Resource areas discussed include air, water, biological, cultural, soils and geological, land uses, aesthetic values, socioeconomic, Indian Trust Assets, environmental justice, and noise. A discussion of applicable regulatory requirements and responsibilities are included, where appropriate, to guide the consequence analysis presented in Chapter 4.

3.1 Air Quality

Air quality is determined by the concentration of pollutants in the atmosphere. Federal and state governments have established ambient air quality standards in accordance with the Clean Air Act. EPA has established the National Ambient Air Quality Standards (NAAQS), that is, the maximum acceptable concentrations which may not be exceeded. In Arizona, the Arizona Department of Environmental Quality (ADEQ) regulates air quality and has adopted the NAAQS to regulate air pollution sources. The California Air Resources Board (CARB) has established the California Ambient Air Quality Standards (CAAQS) that are as restrictive as the NAAQS; however, CAAQS includes standards for additional pollutants that NAAQS does not address. The primary air pollutants of concern are particulate matter less than 10 microns in diameter (PM_{10}), nitrogen oxides (NO_x), volatile organic compounds (VOCs), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), and lead.

Yuma County in Arizona, from approximately Imperial Dam to the SIB, is a nonattainment area for PM_{10} . ADEQ is developing a maintenance plan for the Yuma area, whereupon EPA approval would allow the area to be considered for redesignation to attainment (ADEQ 2006). There are no air quality issues in Arizona, within the project area, in either La Paz or Mohave counties.

The CARB has the responsibility for air quality in California; however, due to the size of the state, the CARB has created air quality management districts (AQMDs) and air pollution control districts (APCDs) to administer air quality regulations. The Mojave Desert Air Quality Management District (MDAQMD) is the air district responsible for regulating the sources of air pollution in San Bernardino County and eastern Riverside County. The Imperial County APCD regulates air quality within Imperial County.

The Clean Air Fine Particle Rule designates areas where air quality does not meet the health-based standard for particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$). Particulate matter can either be emitted directly into the air or it

can be formed in the atmosphere (like ozone) from the reaction of gaseous precursors such as NO_x, VOCs, SO_x, and ammonia. Stagnant conditions and cool temperatures contribute to the formation of secondary particles, which are also precursors to ozone pollution. There are no areas along the LCR designated for NO_x, VOCs, CO, SO₂, or lead in Arizona or California.

In a response letter from EPA to the State of California (CARB 2006a), the southwest portions of San Bernardino and Riverside counties were designated nonattainment for PM_{2.5}. The entire state of Arizona was designated as “attainment/unclassifiable” for PM_{2.5} in a letter from EPA to the State of Arizona (EPA 2006). San Bernardino County also is designated a moderate PM₁₀ nonattainment area (MDAQMD 2006). Generally, sources of particulate matter include:

- Combustion sources – truck and passenger cars (especially diesel vehicles), off-road equipment, industrial processes, residential wood burning, and forest/agricultural burning.
- Fugitive emissions sources – paved and unpaved roads, construction, mining, and agricultural activities.
- Ammonia sources – livestock operations, fertilizer application, and motor vehicles.

Arid conditions produce low soil moisture, which is responsible for the fugitive dust that often occurs, especially in proximity to ground-disturbing quarrying activities. A majority of the Proposed Action area in the vicinity of the quarries is rural and sparsely populated. Dust is generated by local sources and moderate-to-high, region-wide wind episodes.

Ozone and particulate matter pollution are caused by many of the same sources and precursors. Ground-level ozone is an air pollutant that causes health problems, damages crops and other vegetation, and is a key ingredient of urban smog. This pollutant forms in the atmosphere through complex reactions between chemicals directly emitted from exhaust systems (e.g., from vehicles and industrial plants). Primary pollutants involved in ozone formation are hydrocarbons and NO_x.

Imperial County is designated a nonattainment area for ozone (CARB 2006b). San Bernardino and Riverside counties are proposed nonattainment areas for ozone.

3.2 Water Resources

Surface water in the project area, specifically, the LCR, its tributaries, desert washes, and groundwater found in the underlying river aquifer form a hydraulically connected system. The following section describes the existing condition of water resources that are adjacent and associated with the Proposed Action.

3.2.1 Groundwater

Groundwater in the Colorado River alluvium occurs under both water table (unconfined) conditions and artesian (confined) conditions. Depending on the river stage and groundwater elevations, the river can receive inflows from the aquifer or provide recharge to the aquifer. Sources of recharge to the groundwater reservoir are the Colorado River, unused irrigation water, runoff from precipitation in desert washes, and underflow from bordering areas. Groundwater is discharged from the aquifer by wells and evapotranspiration. River water extends from the floodplain for a considerable distance beneath the alluvial slopes (Wilson and Owen-Joyce 1994).

California groundwater basins within proximity of the LCR include portions of the Needles and Chemehuevi Valleys; the Arch Creek, Vidal Wash, Big Wash, and Slaughter Wash areas; the Palo Verde, Chuckwalla, Cibola, and Yuma Valleys; and Senator Wash. Arizona groundwater basins proximal to the river include portions of the Mohave Valley and Sacramento Wash; washes and drainages adjacent to Lake Havasu; portions of the Cactus Plain and the area around Parker; and Parker, Palo Verde, Cibola, Yuma, and South Gila valleys.

3.2.2 Surface Water

The Upper and Lower basins of the Colorado River include the “basin states” Wyoming, Utah, Colorado, New Mexico (Upper Colorado River), Nevada, California, and Arizona (Lower Colorado River). The Lower Basin or LCR extends from Lees Ferry to the SIB and includes multiple dams, power plants, and diversion structures. Dams include Hoover, Davis, Parker, Headgate Rock, Palo Verde Diversion, Imperial, Laguna, and Morelos at the northern international border. Water is diverted from the Colorado River at numerous locations for use within the lower basin states, specifically Arizona and California. Under the U.S.-Mexican Water Treaty of 1944, Mexico is entitled to 1.5 million acre-feet per year of Colorado River water. Tributaries to the LCR include the Bill Williams River and the Gila River. Small quantities of runoff that originate from precipitation infiltrate through the beds of washes and intermittent tributary streams and recharge the river aquifer.

3.2.3 Water Quality

Water quality variations within the LCR are due to irrigation return flows, municipal and industrial effluents, dam construction, and numerous point sources along the river. The main water quality issues are salinity and total dissolved solids. Other constituents of concern are pH levels, pathogens, fecal coliform, mercury, nitrate, selenium, perchlorate, and chromium.

Within the Proposed Action area, a groundwater plume contaminated with the chemical hexavalent chromium was recently discovered on the California side of the Colorado River near Pacific Gas & Electric’s (PG&E) Topock Natural Gas Compressor Station. The Topock Area groundwater is currently being studied and cleaned up under the direction of the California Department of Toxic

Substance Control (DTSC) in conjunction with ADEQ. Samples collected from sediments in the bottom of the Colorado River in January 2006 did not detect any hexavalent chromium (DTSC 2006).

3.3 Biological Resources

This section of the EA discusses the existing condition of biological resources within the project area. The term “biological resources” refers to botanical and wildlife communities that are located within the LCR corridor. For purposes of this discussion, the analysis area for biological resources for the proposed project is defined by a 10-mile radius from the Colorado River. Descriptions of biological resources are general, and more detailed descriptions of plant and wildlife communities can be found in Section 3.4 of the LCR MSCP (2004). Wildlife or plant species that are considered “special-status species” are discussed in Sections 3.4, 4.4, and 5.4 of this EA. Special-status species are those that are designated by federal or state resource agencies as threatened, endangered, sensitive, or species of special concern.

3.3.1 Vegetation

A variety of vegetative communities, such as woody riparian, marsh, and desert scrub, exist within the project area. Approximately 126,000 acres of woody riparian are present in the LCR (LCR MSCP 2004). Of this, 23,000 acres are native cottonwood willow and honey mesquite vegetation types (LCR MSCP 2004). The remainder is dominated by non-native saltcedar. These riparian communities provide important habitat for migratory birds, such as a variety of raptors, as well as habitat for waterfowl and shorebirds in the backwaters and reservoirs.

Approximately 11,914 acres of marsh habitat exist within the LCR (LCR MSCP 2004). Marshes occur in areas characterized by long-term flooding, such as oxbow lakes, backwaters, and around reservoirs (LCR MSCP 2004). The dominant species found in marsh habitat are cattails (*Typha* spp.), bulrush (*Scirpus* spp.), and common reed (*Phragmites australis*) (LCR MSCP 2004).

Desert scrub is the primary vegetation type that occurs in the upland regions of the LCR and within the analysis area. Common species associated with desert scrub habitat include, but are not limited to, creosote bush (*Larrea tridentata*), palo verde (*Cercidium floridum*), desert ironwood (*Olneya tesota*), smoke tree (*Dalea spinosa*), brittlebush (*Encelia* spp.), white bursage (*Ambrosia dumosa*), catclaw acacia (*Acacia greggii*), and a variety of yucca and mesquite species. A wide variety of annual forbs are also found scattered within the area.

3.3.2 Wildlife

The LCR supports several hundred species of wildlife (birds, mammals, fish, reptiles, and amphibians), including both resident species and migratory visitors

(LCR MSCP 2004). Many of these species use a variety of riparian and upland habitats. Some of the common mammals found associated with upland habitats within the project area are mule deer (*Odocoileus hemionus*), coyote, (*Canis latrans*), bobcat (*Felis rufus*), Audubon cottontail (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), and a variety of bats and rodents. Reptiles and amphibians, such as lizards, snakes, toads, and frogs, are also present in upland and riparian habitats within the project area.

Woody riparian vegetation and wetlands in the LCR provide habitats for a variety of raptors, egrets, herons, flycatchers, and woodpeckers. Examples of some common birds found using riparian habitat are Cooper's hawk (*Accipiter cooperii*), common black hawk (*Buteogallus anthracinus*), Harris hawk (*Parabuteo unicinctus*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), white-tailed kite (*Elanus Leucurus*), Southwestern willow flycatcher (*Empidonax traillii extimus*), vermilion flycatcher (*Pyrocephalus rubinus*), Gila woodpecker (*Melanerpes uropygialis*), and the yellow-billed cuckoo (*Coccyzus americanus occidentalis*) (LCR MSCP 2004).

Historically, the portions of the LCR that are within the project area were inhabited by four native fish species: Colorado pikeminnow (*ptychocheilus lucius*), bonytail chub (*Gila elegans*), razorback sucker (*Xyrauchen texanus*), and the desert pupfish (*Cyprinodon macularius*). However, only the bonytail chub and the razorback sucker are still present (LCR MSCP 2004). All other fish in the LCR are non-native fish that have been introduced. The bonytail chub and the razorback sucker are both listed as endangered under the Endangered Species Act (ESA) and are discussed further in Sections 3.4 and 4.4.

Desert scrub habitats support a variety of wildlife species. Reptile species include desert tortoise (*Gopherus agassizii*), western whiptail (*Cnemidophorus tigris*), side-blotched lizard (*Uta stansburiana*), and zebra-tailed lizard (*Callisaurus draconoides*). Avian species include turkey vulture (*Cathartes aura*), Gambel's quail (*Callipepla gambellii*), lesser nighthawk (*Chordeiles acutipennis*), common raven (*Corvus corax*), and black-throated sparrow (*Amphispiza bilineata*). Coyote (*Canus latrans*), wood rats (genus *Neotoma*), deer mice (*Peromyscus maniculatus*), bobcat (*Felus rufus*), desert pocket mouse (*Chaetodipus penicillatus*), and kangaroo rats (genus *Microdipodops*) may also be found within the area.

Wild horses and burros are managed and protected by BLM under the authority of the Wild Free-Roaming Horses and Burros Act of 1971 to ensure the herds thrive on healthy rangelands. Wild horses and burros are found in herd management areas (HMA) and herd areas (not managed for wild horses and burros). Table 3-1 describes the California and Arizona wild horses and burros areas and populations within the affected environment.

Table 3-1. Wild Horses and Burros Areas and Populations

Herd Areas	Estimated Horse Population	Estimated Burro Population
Arizona		
Black Mountain HMA	0	478
Havasu HMA	0	170
Cibola-Trigo HMA	120	165
California		
Dead Mountain	0	26
Chemehuevi HMA	0	150
Chocolate-Mule Mountains	0	90
Picacho	0	0

3.4 Special Status Species

Special-status species are defined as those species that have been recognized by either Federal or state agencies as having special management needs due to limited distribution, limited numbers, or significant population declines. Special-status species include those designated as endangered, threatened, rare, protected, sensitive, or species of special concern to the USFWS, the California Department of Fish and Game, and the Arizona Game and Fish Department.

3.4.1 Lower Colorado River Multi Conservation Plan (LCR MSCP)

A biological and conference opinion (BCO) for the LCR MSCP (2004) was issued by the USFWS on March 4, 2005, to address the effects of incidental take of 27 species for 6 Federal agencies and 24 permit applicants from Arizona, California, and Nevada (BCO 2005). Reclamation was one of the six Federal agencies whose actions were covered under the BCO. Reclamation has the responsibility under the Front Work Levee System Act of 1927, as amended, and the Colorado River Floodway Protection Act of 1986 (BCO 2005) for the operation and maintenance of major dams, associated facilities, and the maintenance of the river channel. The construction and maintenance of stockpile sites supports the maintenance of these infrastructures and was identified in the BCO as a covered action. During the Proposed Action, surplus material would be used to replenish stockpile sites or to create new stockpile sites along the LCR. Stockpile sites are used for bank stabilization and usually contain riprap and gravel. Twenty-seven species of those listed in Table 3-2 that are associated with the construction and maintenance of stockpile sites were covered and evaluated in the BCO for LCR MSCP. However, these species were not covered and evaluated for activities associated with the construction and maintenance of the quarries. Therefore, impacts to these species from the Proposed Action, excluding the stockpile sites, were further evaluated on a programmatic level in the Biological Assessment included in Appendix C.

3.4.2 Federal and State-Listed Species

Species listed as endangered or threatened under the ESA that may occupy or traverse the project area are the southwestern willow flycatcher (*Empidonax traillii extimus*), Yuma clapper rail (*Rallus longirostris*), Sonoran pronghorn (*Antilocapra americana sonoriensis*), razorback sucker (*Xyrauchen texanus*), Bonytail chub (*Gila elegans*), Colorado pikeminnow (*ptychocheilus lucius*), bald eagle (*Haliaeetus leucocephalus*), least Bell's vireo (*Vireo bellii pusillus*), and the desert tortoise (*Gopherus agassizii*). In addition, a number of other species, including the species mentioned above, are state listed as endangered or threatened under the California Endangered Species Act (CESA), or as species of special concern. Although species designated as a species of special concern or sensitive have no legal authority, Reclamation still considers impacts to these species from its actions. The status of Federal- and state-listed species and their potential to occur in the quarry sites is presented in Table 3-2.

Table 3-2. Special-Status Species present or that have the potential to be present in the vicinity of the project area

Species	Status					
	Covered or Evaluated under MSCP	Federal	State		BLM	Potential to Occur
			AZ	CA		
Alverson’s foxtail cactus (<i>Coryphantha alversonii</i>)					FSS	Moderate. Known to occur in the Big Maria Mountains.
Arizona Bell’s vireo (<i>Vireo bellii arizonae</i>)	X			SE		Low. Requires riparian habitat.
Banded Gila Monster (<i>Heloderma suspectum cinctum</i>)					FSS	Low. Not many known occurrences.
Bald Eagle (<i>Haliaeetus leucocephalus</i>)		FT	WSC	SE		Low. Not suitable habitat.
Bonytail Chub (<i>Gila elegans</i>)	X	FE	WSC	SE		Low. Requires aquatic and riparian habitat.
California black rail (<i>Laterallus jamaicensis coturniculus</i>)	X		WSC	ST		Low. Requires riparian habitat.
California leaf-nosed bat (<i>Macrotus californicus</i>)	X		WSC	CSC	FSS	Moderate. Can occur on sites with desert scrub vegetation.
Cave myotis (<i>Myotis velifer</i>)				CSC	FSS	Moderate. Roosts in caves, tunnels, and mine shafts in desert scrub
Chuckwalla (<i>Sauromalus ater</i>)						Moderate. Can occur in desert scrub habitats, prefers rocky habitat.
Colorado Pike Minnow (<i>Prychocheilus lucius</i>)		FE	WSC	SE		Low. Requires aquatic and riparian habitat.
Colorado River cotton rat (<i>Sigmodon arizonae plenus</i>)	X			CSC		Low. Found in dense grassy and marshy areas adjacent to the Colorado River.
Desert rosy boa (<i>Lichanura trivirgata gracia</i>)					FSS	Low. Not many known occurrences.
Desert tortoise (<i>Gopherus agassizii</i>)	X	FE, CH	WSC	ST		Moderate. Can occur in desert scrub habitats.

Species	Status					Potential to Occur
	Covered or Evaluated under MSCP	Federal	State		BLM	
			AZ	CA		
Elf owl (<i>Micrathene whitneyi</i>)	X			SE		Moderate. Can occur in upland habitat in the Sonoran Desert but requires riparian vegetation.
Flannelmouth sucker (<i>Catostomus latipinnis</i>)	X		WSC			Low. Requires riparian habitat.
Flat-tailed horned lizard (<i>Phrynosoma mcalli</i>)	X	FE	WSC	CSC		Low. Not suitable habitat.
Gila woodpecker (<i>Melanerpes uropygialis</i>)	X			SE		Moderate. Can occur in upland habitat types in the Sonoran Desert.
Gilded flicker (<i>Colaptes chrysoides</i>)	X			SE		Moderate. Occurs in upland habitat in the Sonoran Desert.
Great egret (<i>Ardea alba</i>)			WSC			Low. Only occurs in riparian habitat types.
Humpback chub (<i>Gila cypha</i>)	X	FE	WSC			Low. Requires aquatic habitat.
Least Bell's vireo (<i>Vireo bellii pusillus</i>)		FE, CH		SE		Low. Primarily occurs in riparian habitats. Closest population is found in the Santa Ana River.
Long-leaf sandpaper plant (<i>Petalonyx linearis</i>)					FSS	Moderate. Known to occur in the Laguna Mountains.
Lowland Leopard Frog (<i>Rana yavapaiensis</i>)	X		WSC	CSC		Low. Requires aquatic habitat
MacNeill's Sootywing Skipper (<i>Pholisora graciellae</i>)	X				FSS	Low. Requires saltbush stands. Saltbush is found minimally at or near quarry sites.
Pale Townsend's Big-Eared Bat (<i>Corynorhinus townsendii pallescens</i>)	X		WSC	CSC	FSS	Low. Most records are from 3000 ft. elevation or above. All quarries found less than 3000 ft. elevation.
Razorback Sucker (<i>Xyrauchen texanus</i>)	X	FE, CH	WSC	SE		Low. Requires aquatic habitat.
Sonoran pronghorn (<i>Antilocapra americana sonoriensis</i>)		FE	WSC	SE		Low. Lack of habitat. Physical barriers blocking corridors.
Sonoran yellow warbler (<i>Dendroica petechia sonorana</i>)	X			CSC		Moderate. May migrate into upland habitats near riparian areas.

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Species	Status					Potential to Occur
	Covered or Evaluated under MSCP	Federal	State		BLM	
			AZ	CA		
Southwestern willow flycatcher (<i>Empidonax traillii extimus</i>)	X	FE	WSC	SE		Low. Suitable habitat not present.
Spotted bat (<i>Euderma maculatum</i>)			WSC	CSC		Low. Varied habitat with specimens found from desert scrub to pine forests.
Summer tanager (<i>Piranga rubra</i>)	X			CSC		Low to moderate. Migrants could occur in uplands near riparian areas.
Vermillion flycatcher (<i>Pyrocephalus rubinus</i>)	X			CSC		Low to moderate. Migrants could occur in uplands near riparian areas.
Western least bittern (<i>Ixobrychus exilis hesperis</i>)	X		WSC	CSC		Low. Tends to inhabit riparian areas.
Western red bat (<i>Lasiurus blossevillii</i>)	X		WSC	ST		Low. Roosts primarily in cottonwood trees in riparian habitat.
Western yellow bat (<i>Lasiurus xanthinus</i>)	X		WSC			Low. Expanding range into SW US from Mexico. Associated with urban areas with palms.
White-faced ibis (<i>Plegadis chihi</i>)					FSS	Low. Tends to inhabit riparian areas.
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	X	FC	WSC	SE		Low. Requires riparian habitat types.
Yuma Clapper Rail (<i>Rallus longirostris</i>)	X	FE	WSC	ST		Low. Requires riparian habitat types.
Yuma hispid cotton rat (<i>Sigmodon hispidus eremicus</i>)	X			CSC		Low. Found in dense grassy areas from Yuma south to Arizona/Mexico border.
Yuma puma (<i>Felis concolor browni</i>)			WSC	CSC		Low to moderate. Can occur in upland habitats near riparian areas.

Sources: USFWS, 2005a; LCR MSCP 2004; and AGFD 2006.

Federally Listed Species and Candidates		Stated-Listed Species	
FE	Federally listed, endangered	SE	State listed, endangered
FT	Federally listed, threatened	ST	State listed, threatened
FC	Federal candidate	CSC	California special concern species
FSS	Federally sensitive species	WSC	Wildlife species of concern
CH	Critical Habitat		

3.4.3 Desert Tortoise

The desert tortoise (*Gopherus agassizii*) is the species with the most potential to occur at or in the vicinity of the proposed quarry sites and is therefore included as a separate subsection. This species is divided into two distinct populations: the Mojave Desert population (populations occurring north and west of the Colorado River) and the Sonoran Desert population (populations occurring south and east of the Colorado River). The Mojave population of the desert tortoise includes those animals in the Mojave Desert of Arizona, California, Nevada, southwestern Utah, and in the Colorado Desert in California. On August 4, 1989, the USFWS published an emergency rule listing the Mojave population of the desert tortoise as endangered. The Sonoran population of the desert tortoise is not an endangered or threatened species; however, it is listed as a species of special concern by the State of Arizona.

In California, BLM has established Desert Wildlife Management Areas to restrict human activities and ensure conservation of the desert tortoise. The constituent elements of designated critical habitat (or desert wildlife management areas) for the desert tortoise are:

- sufficient space to support viable populations within each of the six recovery units and Desert Wildlife Management Areas to provide for movement, dispersal, and gene flow
- sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species
- suitable substrates for burrowing, nesting, and overwintering
- burrows, caliche caves, and other shelter sites
- sufficient vegetation for shelter from temperature extremes and predators
- habitat protected from disturbance and human-caused mortality.

A more in depth description and analysis on this species is provided in the Biological Assessment included as Appendix C.

3.5 Cultural Resources

Cultural resources include, but are not limited to, prehistoric and historic sites, buildings, structures, areas of traditional use, objects that are valued by a cultural group or community, or are of importance to the study/appreciation of history, architecture, and archaeology. Section 106 of the National Historic Preservation Act (NHPA) requires that Federal agencies take into account the effect of a Federal undertaking on historic properties. Cultural resources are evaluated for potential listing on the National Register of Historic Places (NRHP) in consultation with the State Historic Preservation Officer (SHPO), Indian tribes, and other interested stakeholders. Executive Order (EO) 13007 states agencies must consider the effect of their actions on the physical integrity of sacred sites. EO 13007 directs Federal agencies to accommodate access to and ceremonial use

of Indian sacred sites by Native Americans and to avoid adversely affecting their physical integrity.

In Arizona, agencies cooperate with the SHPO to locate, inventory, and nominate all properties that meet the criteria for inclusion in the Arizona Register of Historic Places. In California, coordination is through the SHPO at the Office of Historic Preservation to identify, evaluate, and register historic properties. Consultations with the appropriate SHPO, interested parties, and tribes are required when historic properties cannot be avoided and mitigation is proposed.

The LCR is now, as it was in the past, a reliable water source with valleys and canyons along the river and its tributaries. Sites are likely to be located near the LCR and its tributaries as well as natural catchments and washes. Modern tribes with traditional and historical ties to the area adjacent to the LCR include Hualapai, Fort Mojave, Colorado River Indian Tribes (CRIT), Chemehuevi, Yavapai, Quechan, Cocopah, Hopi, Zuni, Navajo, (LCR MSCP 2004) and Havasupai tribes.

Geographic landmarks and landscapes along the Colorado River are known to have traditional importance to Native Americans. Besides special places, these cultural resources include intaglios (earth figures); rock rings and cleared circles; and rock art, often located on the terraces along the river. An extensive trail system follows the river and leads to locations off the river. Broken pieces of pottery (sherds) and milky quartz scatters are often associated with these trails (Kirkish, et. al. 2000). In 1984, a thematic grouping of intaglios, "Earth Figures of California-Arizona Colorado River Basin" was listed on the NRHP. The listing included ten groups of figures while other intaglios are treated as eligible to be included in the listing by federal agencies. The intaglios are listed individually as contributing to a larger theme of earth figures along the LCR on Reclamation-withdrawn lands, BLM-administered lands, and tribal and private lands (NRHP 1984). Ripley Intaglios are located on the east side of the Colorado River, approximately 10 miles south of Blythe, California, and Blythe Intaglios are located on the west side of the river approximately 15 miles north of Blythe..

Pilot Knob is located south of Yuma and approximately two miles west of the LCR. There are numerous archaeological resources associated with this area. The mountain is considered sacred by the Quechan and Cocopah tribes as well as other river groups. More than thirty-six known individual historic properties occur, either on terraces, the southern pediment (between the terraces and Pilot Knob), or on Pilot Knob itself. Numerous petroglyph panels have geometric and anthropomorphic forms. Intaglios of aboriginal origin have been identified at Pilot Knob and are associated with trails, concentrations of milky quartz shatter, tamped areas, small cobble mounds, sleeping circles, and vision circles. All these features have ceremonial significance. Pilot Knob is identified as an area of cultural sensitivity in regard to archaeological, historical, and traditional cultural properties. BLM has designated Pilot Knob an Area of Critical Environmental

Concern, and it is potentially eligible for listing on the NRHP (Sterner and Bischoff 1997).

The Yuma Crossing and its associated sites have been designated a National Historic Landmark. The boundaries of Yuma Crossing span both sides of the Colorado River; lands are administered by Arizona State Parks, City of Yuma, and Fort Yuma Quechan Tribe. For further discussion of Reclamation structures along the LCR that may potentially be “historic,” refer to the LCR MSCP EIS.

Cultural surveys occurring along the LCR have identified prehistoric and historic sites associated with quarrying operations; however, much of the LCR has not been surveyed according to modern standards. Cultural surveys and SHPO coordination exists for the Agnes-Wilson (1987), Cibola (1987), Hart Mine No. 2 (1987) quarries. The Hart Mine is a Historic site located near the Cibola (previously Hart Mine No.2) quarry and Hart Mine No. 2 quarry. In addition, a recent cultural resource inventory of approximately 60 acres of the Manchester Quarry in San Bernardino County, California, was recently completed. Four sites are documented for the Manchester Quarry, although no features were noted within the project area. The four sites include: a previously recorded landmark, the Von Schmidt Boundary Line, an erroneous survey conducted in 1873 of the boundary between California and Nevada and crosses the quarry access road; a small boulder with a faint spiral petroglyph on a boulder; and two other small rock piles or cairn sites of indeterminate function. The petroglyph boulder is recommended to be an NHPA-eligible site, even though it was moved several meters from its original location along the access road (ASM Affiliates, Inc. 2005).

3.6 Soils and Geology

The quarries along the LCR are located in the southwest portion of the Basin and Range Province within the Sonoran Desert. This area is characterized by numerous mountain ranges that rise abruptly from broad valleys or basins and generally lack organic soil development. The basins are composed of silt-filled channels and alluvial fans, fan terraces, and floodplains, consisting of Quaternary sand, gravel, and conglomerate soils.

The Colorado River flows through a series of wide alluvial valleys separated by canyons cut into bedrock. In areas outside the floodplain, alluvial slopes rise to mountain ranges that rim the valleys. The river aquifer generally includes the younger alluvium soils that consist of unconsolidated gravel, sand, silt, and clay; it was the last deposit by the Colorado River before the dams and diversion structures were built. Older alluviums consist of weakly to moderately consolidated gravel, sand, silt, and clay and include the Chemehuevi Formation, the Bouse Formation, and the conglomerate or the Muddy Creek Formation as well as bedrock. The Bouse Formation is a thin basal limestone and marl overlain by clay, silt, and sand. It is present in the subsurface and is noticeable in the

Mohave and Chemehuevi Valleys; in Vidal, Chuckwalla, and Smoketree Valleys in California; and Cactus and La Posa Plains in Arizona. The Muddy Creek Formation consists of moderately to firmly cemented continental sandy gravel, sand, silt, clay, gypsum, and halite interbedded with basalt flows. Bedrock consists of volcanic, igneous, metamorphic, and sedimentary rocks that are dense, consolidated, and weakly to firmly cemented (Wilson and Owen-Joyce 1994).

The principal landforms in the area are rugged mountains, alluvial slopes, valleys, and washes. Mountain ranges in California (from Davis Dam southward) are the Dead Mountains, Sacramento Mountains, Chemehuevi Mountains, Whipple Mountains, Big Maria Mountains, Palo Verde Mountains, and the Chocolate Mountains. Arizona ranges include the Black Mountains, Mohave Mountains, Buckskin Mountains, Dome Rock Mountains, Trigo Mountains, and the Laguna Mountains. Valleys along the LCR include Mohave, Chemehuevi, Parker, Palo Verde, Cibola, Imperial and Yuma Valleys. Major washes in the vicinity of the quarries are Piute, Sacramento, Chemehuevi, Bouse, Tyson, Milpitas, Osborne, Mohave, Gould, Vidal, McCoy, Yuma, McAllister, Indian, and Los Angeles Washes.

In general, rock resources for quarry operations include, but are not limited to Schist outcrops, gneiss, silicified gneiss, quartz veins, limestone outcrops, basalt talus, feldspar, biotite, calcite, barite, specular hematite, andesite, granite, outcrops of granitic gneiss, quartz monzonite (Harris 1985).

3.7 Land Use

Land uses along the Lower Colorado River are in the vicinity of a number of agencies, including:

- Reclamation
- Bureau of Land Management (BLM)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Army Yuma Proving Ground (YPG)
- National Park Service
- Indian Tribes
- State, counties, & cities of California
- State, counties, & cities of Arizona
- Private landowners

Proposed and existing quarry sites and associated access routes are located on land owned or managed by a variety of entities including Mohave, La Paz, and Yuma counties in Arizona; and San Bernardino, Riverside, and Imperial counties in California (see figure 2). Incorporated cities include Bullhead City, Lake Havasu City, Parker, San Luis, Somerton, and Yuma, Arizona; and Needles, and Blythe, California. Indian reservations in the vicinity of the quarries are Fort

Mojave, Chemehuevi, CRIT, Fort Yuma-Quechan, and Cocopah. All necessary use and right-of-way (ROW) permits will be renewed or obtained prior to the operation of any quarry, as required.

3.7.1 Federal Land

3.7.1.1 National Wild Refuges

The Havasu National Wildlife Refuge (NWR) (39,747 acres) is located along the LCR between Needles, California, and Lake Havasu City, Arizona, with the majority of the refuge in Arizona. The refuge protects 30 river miles – 300 miles of shoreline – and includes Topock Marsh and Topock Gorge. Havasu Wilderness (17,801 acres), approximately one-third of the Havasu NWR, is located in Arizona (14,606 acres) and California (3,195 acres).

Bill Williams River NWR (6,105 acres) is located approximately 23 miles south of Lake Havasu City along the Bill Williams River. The refuge preserves, protects, and enhances native riparian habitat associated with the LCR and the Bill Williams River.

The Cibola NWR (16,667 acres) is located on both sides of the LCR in Arizona and California. The refuge encompasses both the historic Colorado River channel as well as a channelized portion constructed in the late 1960's. It's backwaters are home to many wildlife species and host to numerous migratory birds.

The Imperial NWR (25,768 acres), located 25 north of Yuma, Arizona, protects wildlife habitat along 30 miles of the LCR. The river and its associated backwater lakes and wetlands provide refuge and breeding for migratory birds and other wildlife in Arizona and California. Imperial Refuge Wilderness, 15,056 acres of the Imperial NWR, also is located in both Arizona (9,220 acres) and California (5,836 acres).

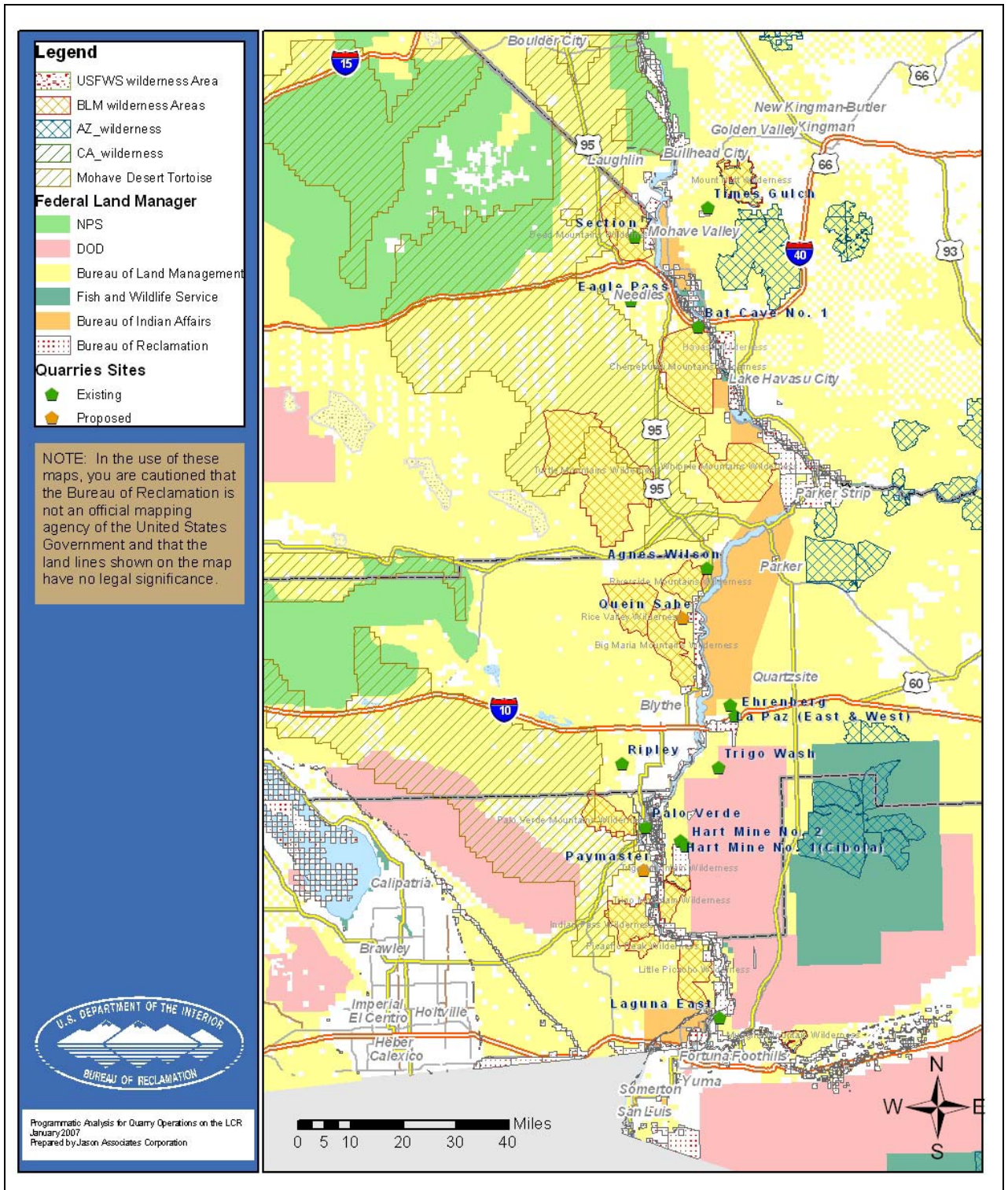


Figure 2-Federal Land Designation in the Vicinity of Quarry Sites

3.7.1.2 Wilderness Areas

Table 3-3 lists 11 BLM-designated wilderness areas and one USFWS wilderness area associated with the Proposed Action area.

Table 3-3. Wilderness areas

Wilderness Area	Size (acres)	County, State	Location
Dead Mountains	48,850	San Bernardino, CA	12 miles north of Needles, CA
Havasu*	17,801	Mohave, AZ & San Bernardino, CA	From Interstate 40, 15 miles south – within the Havasu NWR.
Chemehuevi Mountains	64,320	San Bernardino, CA	10 miles southeast of Needles, CA
Whipple Mountains	77,520	San Bernardino, CA	10 miles northwest of Parker, AZ
Riverside Mountains	24,029	Riverside, CA	10 miles north of Blythe, CA
Big Maria Mountains	45,367	Riverside, CA	10 miles north of Blythe, CA
Palo Verde Mountains	29,167	Imperial, CA	18 miles southwest of Blythe, CA
Indian Pass	32,083	Imperial, CA	50 miles east of Brawley, CA
Picacho Peak	8,853	Imperial, CA	40 miles south of Blythe, CA
Little Picacho Peak	38,182	Imperial, CA	55 miles east of El Centro, CA
Gibraltar Mountains	18,790	La Paz, AZ	10 northeast of Parker, AZ
Trigo Mountains	30,300	La Paz, AZ	25 miles north of Yuma, AZ

* Havasu Wilderness Area is managed by the USFWS.

3.7.2 Tribal Land

Fort Mojave Indian Tribal lands include 23,699 acres in Arizona, 12,633 acres in California, and 5,582 acres in Nevada (ITCA 2006a). The Chemehuevi reservation comprises approximately 32,000 acres (Chemehuevi 2006). The CRIT reservation spans the Colorado River with 225,995 acres in La Paz County, Arizona, and 42,696 acres in San Bernardino County, California (Arizonan, 2006). The Fort Yuma-Quechan reservation encompasses 45,000 acres and is located along both sides of the Colorado River (ITCA 2006c). The Cocopah Indian Reservation is located approximately 13 miles south of the city of Yuma, and is divided into east, west and north reservations, which together comprise over 6,500 acres of tribal land (ITCA 2006d).

3.7.3 Private Land

There are numerous agricultural areas as well as undeveloped areas within the LCR region. Agricultural regulating agencies are the California Department of Conservation and the Arizona Department of Agriculture. Agricultural resources on tribal lands are administered by the tribal government. For further information on tribal agriculture, refer to Section 3.8 of this EA.

3.7.4 Recreation

Recreational uses that potentially may occur in the vicinity of the quarries include camping, hiking, hunting, wildlife observation, photography, off-highway vehicle use, rockhounding, ghost town exploring, general use of the various NWRs and wilderness areas, and LCR water-based recreational activities (e.g., fishing, boating, water skiing).

3.8 Socioeconomic

As mention previously, the quarry locations occur within the six counties located along the LCR in California and Arizona. Cities include Needles and Blythe, California; and Bullhead City, Lake Havasu City, Parker, San Luis, Somerton, and Yuma, Arizona. Recreational areas are discussed in Sections 3.7 and 3.9.

3.8.1 San Bernardino County, California

San Bernardino County population was estimated at 1,963,535 in 2005, with a total of 20,052 square miles (U.S. Census Bureau 2006a). The city of Needles and the Chemehuevi and Fort Mojave Indian Tribes are located in eastern San Bernardino County within the Proposed Action area. The CRIT are located in both San Bernardino County and La Paz County in Arizona (for further information on La Paz County, Arizona see Section 3.8.5).

The city of Needles is located on approximately 30 square miles along I-40 on the west bank of the Colorado River. In 2000, the population of Needles was 4,830. Current industry includes casinos (in Laughlin, Nevada), Burlington Northern Santa Fe Railroad, PG&E, the Mohave Generating Plant, and local municipalities (City of Needles 2006).

The Chemehuevi Indian Tribe enrollment is estimated to be 600 to 700 members. Income is derived from recreation due to the reservation's location across Lake Havasu from Lake Havasu City. The tribe owns and operates a resort and casino along with camping and boating facilities (Lake Havasu City 2006).

3.8.2 Riverside County, California

Riverside County population was estimated at 1,946,419 in 2005, with a total of 7,207 square miles (U.S. Census Bureau 2006a). The city of Blythe is located in eastern Riverside County, along the Colorado River.

The city of Blythe encompasses approximately 26.8 square miles with a 2000 population of 24,641 (U.S. Census Bureau 2006c). Located off I-10, Blythe's main economic sources are agriculture and tourism.

3.8.3 Imperial County, California

Imperial County 2005 population estimate was 155,823 with a total of 4,175 square miles (U.S. Census Bureau 2006a). The Fort Yuma-Quechan Indian Reservation is located on both sides of the LCR in the Imperial and Yuma counties.

The Quechan population is approximately 2,475 (ITCA 2006c). In addition to farming and a sand and gravel operation, the Quechan depend on tourism to augment its economy. The tribe manages five trailer and RV parks, a small grocery store, museum, bingo hall, utility company, a fish and game department, and a casino.

3.8.4 Mohave County, Arizona

The 2005 estimated population for Mohave County was 187,200, with a total of 13,312 square miles (U.S. Census Bureau, 2006b). The Colorado River, Lake Mohave, and Lake Havasu play an important role in the growth of the county's two cities along the LCR, Bullhead City and Lake Havasu City. Major industries include retail trade, services, public administration, transportation, public utilities, insurance, and real estate. The population estimate for Bullhead City in 2003 was 35,760; for Lake Havasu City, 48,730 (County of Mohave 2006).

Fort Mojave Indian Reservation, also located within Mohave County, is home to 1,120 people. Agriculture provides the basis for the Fort Mojave economy. Approximately 15,000 acres are cultivated; crops include corn, alfalfa, and wheat. The tribe owns and operates hotels, casinos, an 18-hole golf course, and a recreational vehicle (RV) park plus hotel (ITCA 2006a).

3.8.5 La Paz County, Arizona

Agriculture and tourism are the chief economic sources for La Paz County. The towns of Parker and Quartzsite are the main population centers, as well as the main business areas for residents and winter visitors (La Paz County 2006). The 2005 estimated population for La Paz County (4,500 square miles) was 20,238; the 2004 population estimates for the towns of Parker and Quartzsite were 3,167 and 3,355, respectively (U.S. Census Bureau 2006b).

The CRIT economy is centered on agriculture, recreation, government, and light industry. Crops include cotton, alfalfa, wheat, feed grains, lettuce, and melons, with approximately 84,500 acres currently cultivated and another 50,000 acres available for development. The tribe owns and operates a resort and casino located in Parker, Arizona. CRIT population is approximately 1,600 (ITCA 2006b).

3.8.6 Yuma County, Arizona

Agriculture, tourism, military, and government are the county's principal industries. During the winter months, the population grows considerably with winter visitors as part-time residents. The 2005 estimated population for Yuma County was 181,277, with a total of 5,514 square miles (U.S. Census Bureau 2006b). The population of the city of Yuma in 2000 was 77,515; Somerton was 7,266; and San Luis was 4,212 (County of Yuma 2006).

Yuma County is also the home of the Cocopah Indian Reservation. Although agriculture is the Cocopah tribe's major economic resource, the tribe also owns a convenience store, gas station, smoke shop, golf and RV resort, and a casino. There are about 816 Cocopah members (ITCA 2006d).

3.9 Aesthetic Values

Land formations, vegetation, and manmade features combine to form the visual resources of landscape characteristics of the project area. The landscape character is evaluated to assess whether the Proposed Action would appear compatible with the existing features or contrast noticeably with the setting and appear out of place. Public interest in visual resources and concern regarding changes to those resources assist in determining the aesthetic value of the area. Changes to prominent topographic features, changes in the character of an area with high visual sensitivity, removal of vegetation, or blockage of public views of a visually sensitive landscape are of particular concern.

Visually sensitive resources were identified using the *Draft Yuma Field Office Resource Management Plan* (BLM, July 2006), the *Multi-Species Conservation Plan* (Reclamation, December 2004), the internet, and scoping comments. Visual resources associated with quarry operations include, but are not limited to, the following:

- Topock Gorge – which has a natural stretch of the Colorado River flowing through the 20-mile-long gorge, Native American petroglyphs, colorful sandstone cliffs, and big horn sheep.
- Topock Marsh – provides habitat for numerous migratory birds and wildlife.
- Havasu NWR – is the location of Topock Gorge and Topock Marsh, as well as 300 miles of shoreline along the LCR.
- Lake Havasu State Park – has scenic shorelines and views of the London Bridge in Lake Havasu City, AZ.
- Picacho State Recreation Area – includes the ruins of a gold mining town, and has extensive plant and wildlife habitat along the Colorado River.
- Mitty Lake Wildlife Area – provides riparian, wetland, and aquatic habitat for many wildlife species.
- Bill Williams River, the Gila River, and numerous lakes along the LCR (NWRs are listed and described in Section 3.7) – are valued for their natural landscapes and habitat for plants and wildlife.
- Various dams along the lower Colorado River

3.10 Indian Trust Assets

All Federal bureaus and agencies are responsible for protecting “... ‘legal interests’ in ‘assets’ held in ‘trust’ by the Federal Government for federally recognized Indian tribes or individual Indians” (Reclamation 1994) otherwise known as Indian Trust Assets (ITAs). Reservation lands and allotments include the Fort Mojave Indian Reservation, CRIT, Chemehuevi, Fort Yuma Indian Reservation (Quechan), and Cocopah Indian Tribes along the LCR. For quarries

located on either reservation land or allotments, Reclamation, in cooperation with the tribe, would need to identify, notify, and obtain permission to use the land.

ITAs include reservation lands and allotments; water rights; rights to hunt, fish, and gather; and minerals. All five tribes have reserved rights to Colorado River water (LCR MSCP 2004) and use the LCR to gather plants used for medicinal and ceremonial purposes, in traditional crafts, as well as for food.

3.11 Environmental Justice

EO 12898 requires “...identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of [Federal] programs, policies, and activities on minority populations and low-income populations...” The minority population includes all people except non-Hispanic single-race whites. Low-income populations are persons living below the poverty thresholds set forth by the U.S. Census Bureau (for current threshold, refer to Census Bureau website, <http://quickfacts.census.gov>).

Quarrying operations are located along the LCR within 10 miles east or west of the Colorado River. There are three counties in California and three in Arizona within the Proposed Action area. Of the six counties, Imperial County has the largest percentage of minority residents and population living below poverty standards (U.S. Census Bureau 2006d). Tribal lands along the LCR include the five tribes described in Sections 3.7, 3.8, and 3.10. A 2000 Census report, *Characteristics of American Indians and Alaska Natives by Tribe and Language: 2000*, states that the Cocopah Indian Tribe has the highest percentage of families with incomes below poverty levels (U.S. Census Bureau 2006e).

3.12 Noise

Soundscape refers to the total acoustic environment associated with a given area. Both natural and human-caused sounds are found in many areas. Sound is measured in terms of amplitude and frequency. Amplitude (loudness or volume) is the relative strength of a sound wave and is described in decibels. Frequency is related to the pitch of a sound and is expressed in terms of hertz. A soundscape is often made up of many sounds, each with its own combination of frequency and amplitude. Other factors that contribute to the soundscape experience are vegetation, topography, and individual hearing sensitivity.

The term “noise” is derived from the Latin word “nausea.” It is defined as unwanted sound and is usually objectionable because it is disturbing or annoying due to its pitch or loudness (NPC 2006). Excessive levels are associated with negative affects and considered to be pollutants. Noise generators may include but are not limited to road traffic, aircraft, personal watercraft, construction or maintenance equipment, hauling trucks, and blasting from quarry operations.

Multiple land uses are associated with the Proposed Action area. Noise regulations or policies for cities are established by local jurisdictions. Noise receptors are areas where the intrusion of noise has the potential to adversely impact the occupancy, use, or enjoyment of the environment. These can include local communities (e.g., residences, schools, hospitals, and parks), NWRs, wilderness areas, and recreational areas. For a more detailed analysis on noise threshold levels for the counties and cities within the Proposed Action area, refer to the LCR MSCP (2004).

4.0 Environmental Consequences

This section evaluates the potential environmental consequences of implementing either the Proposed Action or the No Action Alternative. Based on the programmatic nature of the analysis, the scope and magnitude of potential impacts at quarry sites included in the Proposed Action and the No Action Alternative were determined to be similar. Therefore, the consequences discussed in each resource area apply to both the Proposed Action and No Action Alternative. However, the No Action Alternative does not meet the purpose and need; and would greatly limit Reclamation's ability to meet operation and maintenance obligations timely and cost-effectively, as the existing stockpiles would continue to be depleted and quarries would not be readily accessible for project requirements.

The discussion of environmental consequences provides the programmatic framework for adequately assessing impacts from quarrying operations in future site-specific NEPA documentation. Site-specific NEPA analysis is required for those quarries associated with the Proposed Action and No Action Alternative prior to commencing operations in individual quarries.

4.1 Air Quality

Impacts to air quality are considered significant if implementation violates any air quality standard, contributes considerably to an existing air quality violation, exposes sensitive receptors to substantial pollutant concentrations, or results in an increase of a criteria pollutant for any designated nonattainment area.

4.1.1 Potential Consequences

Impacts to air resources may result from fugitive dust (PM₁₀ and PM_{2.5}) emissions due to earth-moving activities within the quarries, vehicles driving on unpaved access roads, and naturally occurring high-wind events. Quarries located in the PM₁₀ nonattainment areas may potentially produce emissions that exceed the daily thresholds, resulting in an increase of a criteria pollutant. Quarrying activities in nonattainment areas are subject to emissions reporting and permitting requirements of the state or county regulatory agency. Further analysis of quarry areas with considerable emissions would be performed in subsequent site-specific documents to assess consequence(s) to air quality.

Combustive emissions at the quarry locations would not violate NO_x or O₃ air quality standards, contribute to an existing violation or the O₃ nonattainment area in Imperial County, California, and are therefore considered insignificant.

Quarry operations do not occur adjacent to populated areas or in the vicinity of sensitive receptors; therefore, the action would not result in significant air quality impacts to sensitive receptors.

4.2 Water Resources

Impact to water resources are considered significant if the action would (1) substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a wash, stream, or river in a manner that would result in substantial erosion or siltation onsite or offsite; (2) have a significant impact to water resources that would affect normal river operations or availability of water; or (3) violate any water quality standards or waste discharge requirements.

4.2.1 Potential Consequences

Vehicles and equipment used in quarrying activities potentially may release pollutants that could contaminate surface or groundwater. Vehicle fluids, including oil, grease, petroleum, and coolants, could be carried offsite during a storm event. Waste generated by quarry equipment and personnel potentially may affect surface or groundwater resources.

Quarrying operations potentially may impact washes and/or drainages that flow within the boundary of the quarry site. Ground disturbance from quarrying in or near a wash could alter the drainage pattern of the site, causing erosion or siltation.

The quality of water discharged into the river has the potential to impact wildlife and fish. However, implementation would not change the amount of water available or affect normal river operations.

4.3 Biological Resources

Implementation of the proposed project would have a significant adverse impact if it would: result in a substantial adverse effect to riparian habitat or other sensitive natural communities; or have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.

4.3.1 Potential Consequences

Direct impacts to riparian habitat, wetlands or other sensitive communities would be the result of construction, operation, or maintenance activities associated with implementation of the Proposed Action. However, all activities associated with the Proposed Action would occur in upland areas located approximately a quarter mile away from any riparian habitat or wetland areas. In addition, there are no wetlands identified within the vicinity of the Proposed Action. Therefore, there would be no direct impacts to riparian habitat or federally protected wetlands.

A number of indirect impacts could occur to riparian habitat from implementation of the Proposed Action, examples include:

- Fugitive dust produced by construction adjacent to the quarry sites could disperse on and blanket vegetation, limiting their photosynthetic capabilities, thereby reducing their overall vigor and increasing their susceptibility to pests and diseases
- Noise from construction activities could impact birds and mammals breeding in riparian habitats, causing them to leave their territories
- Riparian areas could be impacted by pollutants in runoff and sedimentation from construction activities
- Animals could be killed/injured by vehicular traffic
- Invasive non-native plants may be transported and relocated by vehicular traffic.

However, as previously mentioned, the quarries are located far enough from riparian habitats that indirect impacts would be minimal or could be minimized by implementing the mitigation measures listed in section 5.3 and 5.4. Therefore, impacts to riparian habitat or wetlands from implementation of the Proposed Action are considered non-significant.

4.4 Special Status Species

Implementation of the Proposed Action may have a significant adverse impact if it would jeopardize the continued existence of a species listed or proposed for listing as endangered or threatened under the ESA or CESA; or it adversely affects the constituent elements identified in the designation of critical habitat.

4.4.1 Potential Consequences

A number of special-status species require riparian, aquatic, or upland habitat types in order to persist. Table 3-2 in Section 3.4 and the Biological Assessment in Appendix C (Reclamation 2007) describe the different habitats required for each species. The majority of the species that have the potential to occur within the vicinity of the Proposed Action require riparian habitat, generally consisting of dense, mesic shrub and tree communities. Species that are most likely to occur in areas associated with riparian habitats are flycatchers, migratory and resident birds, egrets, and amphibians. Other species, such as the bonytail chub, Colorado pikeminnow, and the razorback sucker, are aquatic fish species that require deep pools, eddies, and backwaters. Most of the quarry sites are located within 5 to 10 miles away from the LCR and are found primarily in upland habitat types that are considered unsuitable for riparian- or aquatic-dependant species. Laguna Dam East, Paymaster, and Palo Verde Road quarries are in the vicinity of potential riparian areas. A number of special-status species, such as the elf owl, rodents, and a variety of bats, are found in areas where riparian and upland habitats overlap. These species feed on a variety of insects, grasses, and forbs associated with riparian areas, but can sometimes migrate into adjacent upland areas for

similar food types. Significant impacts to listed species are not anticipated as a result of the Proposed Action. However, each quarry location will be subject to more detailed site specific surveys prior to operations.

Special-status species that exist in upland habitats that have the potential to occur within the vicinity of the Proposed Action area are the Sonoran pronghorn, Yuma puma, and the desert tortoise. However, biological surveys indicate that it is unlikely that the Sonoran pronghorn would occupy the project area due to lack of suitable habitat and physical barriers. The Yuma puma depends primarily on large mammals like the Sonoran pronghorn and deer for its food source; there is a potential for the puma to occur within the project area if a food source is also in the area. The puma has a large home range and travels wherever its food source is most abundant. However, impacts from the Proposed Action to the Sonoran pronghorn and the Yuma puma are non-significant.

San Bernardino County is one of six areas that have been designated as a critical habitat for the least Bell's vireo. The least Bell's vireo Recovery Plan (USFWS 1998) designed to protect and manage for the downlisting of the least Bell's vireo identified 14 population/metapopulation units within California. The closest unit to the LCR is the Santa Ana River Unit, which is located several hundred miles away from the project area. Therefore, implementation of the Proposed Action would not degrade or destroy least Bell's vireo critical habitat.

The desert tortoise also is known to occupy upland habitat types that are dominated by creosote-bursage. Desert Wildlife Management Areas have been established to mitigate the negative effect of human activities that are responsible for the declining number of desert tortoises. However, there are no quarries or access roads located within established Desert Wildlife Management Areas.

In the past the desert tortoise has been spotted migrating through different portions of the project area. Site visits indicate there is a moderate potential for the desert tortoise to occur on these sites. Further, no significant tortoise populations have been recorded within the established quarries. This could be attributed to loss of habitat from past quarry construction and operation activities. The Proposed Action could impact desert tortoises that wander into the work site areas. Desert tortoises could potentially be killed or injured by haul trucks and other vehicles, and/or equipment.

The establishment of new quarries could impact stray desert tortoises and desert tortoise habitat. Proposed acreages for the new quarry sites are 35.1 acres for Quien Sabe and approximately 15 acres for Paymaster. Site-specific surveys would be completed prior to ground disturbing quarry activities to determine the footprint of disturbance for each quarry. Tortoises could be injured or killed from blasting, heavy equipment, or vehicular traffic associated with construction. Activities at the quarries would result in disturbance of up to 10 acres of desert tortoise habitat annually.

In addition, new road construction to gain access to these sites could temporarily increase human use in the area. Human predation is considered one of the major threats to the desert tortoise. People illegally collect desert tortoises for pets, food, and commercial trade. New road construction would allow temporary access to these areas and could result in an increase of human predation.

4.5 Cultural Resources

In accordance with 36 CFR 800(a)(1), an activity may have an adverse effect on a cultural resource if the resource would be physically damaged or altered, would be isolated from the context considered significant, or would be affected by project elements that would be out of character with the eligible property or its setting. Direct, indirect, and cumulative effects must be considered.

In accordance with American Indian Religious Freedom Act of 1978 and EO 13007, any action that could disturb or destroy archaeological sites, biological habitats, topographic features, or other properties associated with Native American religious ceremonies would be considered adverse and significant.

4.5.1 Potential Consequences

Ground surface disturbance such as access to quarries, existing quarrying operations, and establishment of new quarries could directly or indirectly impact archaeological or historical resources, especially in undisturbed areas.

Unauthorized artifact collection of cultural resources may occur by onsite personnel during the establishment of new quarries and/or operation of existing quarries. Workers may unintentionally destroy or damage cultural resources if they have not been educated in the procedures and policies governing cultural resources. Impacts to the resources may also result from public use of the access roads and quarries. However, significant impacts to cultural resources are not anticipated as a result of the Proposed Action. Each quarry location will be subject to more detailed site specific surveys prior to operations.

4.6 Soils and Geology

Impacts would be considered significant if the action resulted in extensive soil erosion, sedimentation, or contamination.

4.6.1 Potential Consequences

Soil-disturbing activities from quarry operations may potentially increase erosion from wind or storm events in the area of the quarries. However, the quarries do not intercept classified drainages therefore runoff and sedimentation should be minimal. Adjacent properties would not be impacted.

Vehicles and equipment used in quarrying activities potentially may release pollutants that could contaminate soils.

4.7 Land Use

The Proposed Action would have significant impacts on land uses if it conflicts with existing land uses or recreational opportunities.

4.7.1 Potential Consequences

Quarries may be located on unauthorized lands if Reclamation fails to coordinate with the appropriate agencies or tribal government. A few existing quarries are located near designated wilderness areas, partially on tribal lands, or access is through tribal lands. Trigo Wash quarry is located on YPG military withdrawn lands.

Recreational opportunities, such as wildlife observations, photography, and hunting, may be disrupted by quarry activities. However, impacts would be temporary or short-term.

4.8 Socioeconomic

Impacts would be considered significant if the Proposed Action displaced persons/housing, resulted in substantial changes in employment, or induced considerable population growth in the area.

4.8.1 Potential Consequences

The quarries typically are located in remote upland areas; therefore, socioeconomic impacts would be minimal. Impacts to agricultural areas, incorporated cities, and areas that profit from tourism would not be significant. Quarry operations would not produce changes in employment, displacement, or population growths. There could be minor temporary impacts to recreational fee sites located in the vicinity of quarries.

4.9 Aesthetic Values

Implementation of the Proposed Action would have significant impact on aesthetic values if it has an adverse effect on a view, substantially damages scenic resources, or degrades the existing visual quality (or character) of the site and its surroundings.

4.9.1 Potential Consequences

Ground disturbing activities from quarry operations and access roads would affect the vegetation and the visual character/quality of the site. The basic elements of

the natural landscape—form, line, color, and texture—may be visible to the public if quarry locations are not carefully considered.

4.10 Indian Trust Assets

Impacts would be considered significant if the Proposed Action interferes with any Tribal water rights; substantially degrades water quality (associated with water rights); has an adverse effect on rights to hunt, fish, and gather (including minerals); or results in a substantial temporary or permanent increase in noise levels or other disturbance near a reservation that would adversely impact cultural practices or uses of reservation lands.

4.10.1 Potential Consequences

Existing or new quarries located on reservation lands would need to be identified, negotiated, and permission obtained in agreement from with the land-holding tribe, thus resulting in no adverse effect to the ITA(s).

Quarry establishment and operation would not modify or affect the decreed water rights of any tribes or their ability to gather plants. Potential impacts to any cultural resources identified as ITAs will be addressed in accordance with Section 4.5 of this EA.

4.11 Environmental Justice

Impacts would be considered significant if the Proposed Action disproportionately affects the human health or environment of minority and/or low-income populations.

4.11.1 Potential Consequences

Impacts to human populations from quarrying activities would be minimal due to the remote locations of the quarries. Temporary fugitive dust from quarry operations would not result in disproportionate impacts to isolated residences and workers in the vicinity. Environmental justice impacts as a result of the Proposed Action are not significant.

4.12 Noise

Impacts would be considered significant if generated noise levels at the quarries and along access roads exceeded noise regulations established by local jurisdictions and/or receptors (e.g., local communities and wilderness areas) are impacted.

4.12.1 Potential Consequences

Sensitive noise receptors in the Proposed Action area include wilderness areas, NWRs, recreational areas, and local communities. Noise levels may increase due to hauling trucks en route from quarries to stockpiles, blasting and equipment operations, and construction of new quarries and access roads. Impacts from noise on recreational users and local communities would be minor due to the remoteness of the quarries. However, site-specific noise impact studies may be needed to determine impacts to NWRs and wilderness areas that are located in the immediate vicinity of quarry sites.

4.13 Cumulative Impacts

Cumulative impacts result from the incremental impact of the Proposed Action when added to or interacting with other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Part 1508.7).

4.13.1 Ongoing and Reasonably Foreseeable Actions

Projects that could directly or indirectly interact with the Proposed Action are listed below and define the cumulative impacts area of the Proposed Action. Projects include those occurring in the six counties, four NWRs, eight cities, five Indian reservations, or Federal and state agencies

- PG&E Chromium 6 Investigation
- BLM Resource Management Plan – Yuma Filed Office
- Local Development – City/County/Private

4.13.2 Environmental Analysis of Cumulative Effects

Implementation of the projects listed in Section 4.13.1 would not conflict with implementation of the Proposed Action in terms of establishment, re-opening, operating, and maintaining Reclamation quarries. Cumulative effects associated with the projects listed above and individual quarry operations would be addressed in site-specific NEPA analyses. These effects would not contribute to significant cumulative impacts associated with other planned projects in the vicinity of the Proposed Action.

5.0 Environmental Commitments

This section presents the environmental commitments applicable to implementing either the Proposed Action or the No Action Alternative. The environmental commitments are designed to minimize or avoid adverse effects of the Proposed Action on a resource area, implement environmental plans and BMPs, and to gather information for adaptive management. Reclamation is committed to ensuring that the following environmental commitments are integrated into their daily activities.

5.1 Air

Impacts to air quality are considered significant if an air quality standard is violated, or sensitive receptors (including nonattainment areas) are affected. To ensure that the Proposed Action produces less than significant air quality impacts Reclamation shall:

- Comply with applicable local and state air quality regulations in Arizona and California that regulate PM₁₀, PM_{2.5}, and O₃ air pollutants
- Implement BMPs for dust control such as water, gravel, or dust palliatives on unpaved roads, minimizing the area of disturbance, covering haul trucks, and limiting ground-disturbing activities, especially during high-wind events
- Prepare a Dust Control Plan where required (e.g., MDAQMD requires a Dust Control Plan for areas of 40 acres or larger where earth movement of 2,500 cubic yards or more would occur over at least 3 days)

5.2 Water

Impacts to water resources are considered significant if an action substantially alters the existing drainage pattern, affects normal river operations or availability of water; or violates any water quality or waste discharge standards. Reclamation shall ensure that:

- A SWPPP is prepared for individual quarry sites. Best management practices (BMPs) will reduce or eliminate pollutants in storm water and non-storm water discharges from the quarry during periods of activity and inactivity
- Oil, fuel, and other equipment fluid leaks are cleaned and disposed of accordingly
- Washes and drainage areas will be avoided during establishment and operation of quarries to minimize erosion

- The U.S. Army Corps of Engineers is coordinated with, as needed, regarding Section 404 of the Clean Water Act permitting for designated waters of the United States
- The pit floor will be graded to drain internally and capture all runoff and sediment from the excavated areas

5.3 Biological

Impacts on biological resources are considered significant if there is a substantial adverse effect to riparian habitat, wetlands or other sensitive natural communities. Mitigation designed to reduce or avoid impacts to other sensitive environmental resources such as air quality, water quality, and special-status species will serve indirectly as mitigation for biological resources. Such mitigation measures include:

- Dust Control Plans to reduce fugitive dust
- SWPPPs to reduce or eliminate pollutants in storm water and non-storm water discharges
- Temporary road closures to reduce vehicular traffic

These mitigation measures can be found in Sections 5.1, 5.2, and 5.4 of this EA.

An additional mitigation measure to manage invasive non-native plants includes:

- Treat invasive, non-native plant species using one or a combination of chemical, mechanical, manual, or biological methods

5.4 Special Status Species

Impacts are considered significant if the continued existence of a listed species, a species proposed for listing, or critical habitat is jeopardized. Desert tortoise and desert tortoise habitat have the potential to be affected by the Proposed Action in both Arizona and California. The following Reasonable and Prudent Measures, and implementing Terms and Conditions, based on the USFWS 1997 BO, are recommended to minimize or avoid impacts to desert tortoises and their habitat.

Reasonable and Prudent Measure 1: Implement personnel education programs; define quarry area and access road; and define and implement operational procedures.

Term and Condition: Reclamation shall designate a qualified representative (biologist or quarry manager) that:

- Is responsible for compliance with [the USFWS Biological Opinion and appropriate regulations]
- Shall coordinate with USFWS
- Shall have the authority and responsibility to halt all quarry activities
- Shall be on site

Term and Condition: Reclamation shall implement a desert tortoise education program that:

- Includes, but is not limited to: Reclamation employees, inspectors, supervisors, contractors, and subcontractors
- Shall be implemented prior to quarry construction and operational activities (quarrying, processing, hauling, and stockpiling)
- Confirms completion of the program (personnel shall sign a statement)
- Provides an overview of [the USFWS Biological Opinion and appropriate regulations], defines “take” and the penalties for violation of the laws
- Provides discussion of the legal protection and sensitivity of the species to human activity, distribution and ecology of the species, protocols for encounters with the species, and reporting requirements
- Reduces adverse effects to desert tortoise and their habitat, and promotes long-term survival of the species

Term and Condition: Vehicles shall be limited:

- To existing routes and areas of disturbance
- To speeds that do not exceed 25 miles per hour (particularly from March 1 through November 1)
- Except during the establishment of new quarries and access roads; where areas of new construction shall be identified and work limited to these designated areas
- To turn-around sites, work areas, temporary stockpiles, and service areas located within the quarry and access road site
- To authorized personnel only. Unauthorized vehicle use shall be prohibited; gates or other measures shall be implemented to restrict unauthorized vehicle access
- To BMPs, as described in individual SWPPP for each quarry

Term and Condition: To the extent possible, Reclamation shall schedule:

- Construction and operation activities between November 1 and March 1 when desert tortoises are in hibernation.
- A qualified biologist to be present onsite to monitor construction and operation activities should quarry sites be constructed or operated outside of this period

Term and Condition: Reclamation shall compensate for loss of desert tortoise habitat.

- By coordinating with BLM to develop and implement appropriate compensation for residual impacts resulting from construction of new quarries and access roads, and expansion of existing quarries into desert tortoise habitat.
- In accordance with desert tortoise compensation policy.

Reasonable and Prudent Measure 2: Conduct full surveys for the presence or absence of desert tortoise prior to the construction and/or operation of each quarry site (including access roads).

Term and Condition: Reclamation shall have an authorized, qualified biologist:

- Conduct surveys 24 hours prior to the initiation of surface-disturbing activities for construction/operation activities during the desert tortoise season (March 1 through November 1)
- Conduct 100-percent surveys one (1) week prior to any quarry activity during desert tortoise hibernation (March 1 through November 1)
- Conduct surveys and flag, as required, the location of the tortoise-barrier perimeter fence so that tortoise burrows are located outside the fenced quarry
- Excavate tortoise burrows within 40 feet of proposed quarry disturbance and relocate any desert tortoise and/or eggs
- Collapse or block desert tortoise burrows located within the quarry disturbance area to prevent reentry by tortoises

Terms and Condition: 100-percent surveys shall:

- Include areas of proposed new disturbance and expansion of existing quarries
- Include a buffer of 40 feet
- Be conducted a maximum of three (3) times for areas of new disturbance, or two (2) consecutive times if no desert tortoise are found

Terms and Condition: Construction and operation activities may occur within the quarry site:

- Only after the tortoise-barrier perimeter fence has been constructed and completed, as specified
- Without the presence and monitoring of a biologist after the enclosed quarry has been cleared of desert tortoises

Reasonable and Prudent Measure 3: Take of desert tortoise or destruction of desert tortoise habitat shall be closely monitored.

Term and Condition: An authorized, qualified biologist(s) shall:

- Be approved by USFWS at least 15 days prior to initiation of quarry activities that may result in a take (Reclamation shall submit appropriate information)
- Handle desert tortoises in accordance with appropriate protocols, guidance and regulations
- Be present from March 1 through November 1 to monitor quarry activities that may result in take of desert tortoise

- Inspect the quarry site a minimum of three (3) times per day for any excavations that might trap desert tortoises
- Watch for desert tortoises wandering into construction/quarry areas and check under vehicles
- Conduct other activities necessary to ensure that take is minimized
- Ensure that annual disturbances are limited to 10 acres
- Ensure that loss of desert tortoise habitat over the 13 year operational plan is limited to 65 acres for each state (CA & AZ)
- Survey for and relocate desert tortoise/eggs within 24 hours of blasting within all areas that may be subject to falling rock and debris
- Relocate, upon discovery, the desert tortoise the minimum distance possible within appropriate habitat to ensure its safety from death, injury, or collection associated with quarry activities
 - Desert tortoises shall NOT be relocated to lands outside the jurisdiction of the Federal government without written permission of the landowner
- Maintain a record of all desert tortoises encountered during the project activities that includes:
 - Observance locations and dates
 - General condition and health, injuries, healing, and voidance
 - Location moved from and location moved to
 - Diagnostic markings (i.e. identification numbers of marked lateral scutes)
- Mark, for future reference, an identification number on the 4th costal scute (using the acrylic paint/epoxy technique)
- Notching of scutes or replacement fluids with a syringe is NOT authorized

Reasonable and Prudent Measure 4: Reduce the attraction of desert tortoise predators to the quarry vicinity to the maximum extent possible

Term and Condition: Reclamation shall be responsible for:

- Maintaining a sanitary quarry site at all times
- Controlling and limiting litter, trash, and garbage by placing refuse in predator-proof, sealable receptacles and removing debris regularly from the quarry site

Reasonable and Prudent Measure 5: Monitor incidental take resulting from the proposed action and report findings to the USFWS.

Term and Condition: Reclamation shall submit an annual monitoring report:

- To the appropriate USFWS office by 31 December of each year
- That briefly documents the effectiveness of the desert tortoise mitigation measures, actual acreage of desert tortoise habitat disturbed, the number of tortoises excavated from burrows and moved from the quarry sites, and information on individual desert tortoise encounters

- Recommending adaptive terms and conditions to enhance desert tortoise protection and reduce unnecessary hardship on Reclamation and quarry personnel

Term and Condition: The USFWS will be notified within three (3) days of finding any desert tortoises dead or injured. Reclamation shall:

- Provide notification of the date, time, circumstances, name of reporting individual, and location of incident
- Dispose of the dead animals in accordance with USFWS recommendations
- Ensure that an authorize biologist transports the injured animals to be treated and released, adopted, or euthanized, in accordance with USFWS and veterinarian recommendations

5.5 Cultural

Impacts on cultural resources are considered significant if a resource is physically damaged, altered, or isolated from the context considered significant. To avoid potential impacts to cultural resources Reclamation shall:

- Conduct site-specific surveys and consultations to identify any cultural resources that may be affected
- Modify quarry boundaries or locations, as feasible, to avoid cultural resources
- Cease all activity in the area, in the event of an unanticipated archaeological or historical cultural resource discovery, until the discovery has been evaluated, all reasonable efforts have been made to protect the resource, and consultations are completed between Reclamation and the appropriate SHPO
- Conduct additional cultural surveys to current standards and consultations with both the Tribes and SHPO, for existing quarries, as well as any proposed new quarry areas
- Revise and initiate SHPO consultations for actions—especially when the original footprint is exceeded. Additional surveys and affects assessments will be needed for quarrying beyond existing disturbances, and related access roads
- Provide archeological sensitivity training for all quarry workers and monitor the quarry site during ground-disturbing activities, as appropriate

5.6 Soils and Geology

Impacts are considered significant if the action results in extensive soil erosion, sedimentation, or contamination. To ensure that impacts from the Proposed Action are less than significant mining and reclamation plans, SWPPPs, and erosion- and sediment-control facilities are required for each quarry. The

retention of runoff in the pit floor will prevent runoff and sediment from leaving the excavated areas. Erosion will be controlled through BMPs. Disturbed areas will be reclaimed or “erosion-proofed” prior to the next storm event, in accordance with SWPPPs and the mining and reclamation plans. Inspections will ensure compliance to the performance standards presented in the mining and reclamation plans.

5.7 Land Use

Impacts are considered significant if the Proposed Action conflicts with existing land uses or recreational opportunities. To minimize or avoid impacts to land use Reclamation shall:

- Coordinate existing or new quarries and/or access roads with the appropriate agencies or tribal government
- Obtain access and ROW permits, prior to operation of any of the quarries, from the appropriate land-managing agency

5.8 Socioeconomic

The Proposed Action will not result in adverse socioeconomic impacts by displacing persons or housing, inducing substantial changes in employment or population growth in the area. No mitigation measures are identified for this resource area.

5.9 Aesthetic Values

Impacts to aesthetics are considered significant if the Proposed Action has an adverse effect on a view, substantially damages scenic resources, or degrades the existing visual quality (or character) of the site and its surroundings. To ensure that impacts to visual resources are minimized Reclamation shall:

- Repair washes with terrain impacts to minimize further erosion of visual quality
- Select proposed new quarry locations away from public view and avoid areas of aesthetic value
- Coordinate and provide public notice when using quarries near sensitive areas (agencies/organizations intending to use areas in the vicinity of the quarries should also notify Reclamation)
- Prepare Mining and Reclamation Plans, as required
- Remediate and revegetate quarry sites to blend with the surrounding area when operations are completed as expressed in the mining and reclamation plan

5.10 Indian Trust Assets

No activity associated with quarry operations will be initiated on reservation land(s) without the cooperation and permission of the land-holding tribe. Appropriate mitigation and/or compensation measures will be agreed upon. If an agreement is not attainable, then the quarry will not be used and there will be no effect to ITAs.

5.11 Environmental Justice

The Proposed Action will not result in adverse environmental justice impacts by disproportionately affecting the human health or environment of minority and/or low-income populations. No mitigation measures are identified for this resource area.

5.12 Noise

Impacts are considered significant if generated noise levels exceed noise regulations established by local jurisdictions and/or noise receptors are impacted. To ensure that impacts from the Proposed Action are less than significant Reclamation shall:

- Coordinate with NWRs and wilderness area management agencies regarding noise impacts
- Limit quarry operations to non-mating, non-nesting seasons of noise-sensitive species whenever possible
- Use natural topography as a barrier when feasible
- Notify adjacent property owners/managers in advance of when excessive noise may occur
- Reclamation will coordinate with BLM, and BLM should coordinate with Reclamation when there are activities in the vicinity of relevant quarries
- Keep idling equipment to a minimum
- Install temporary acoustic barriers and/or standard noise control devices on equipment, as necessary

6.0 Coordination and Consultation

To determine the scope of issues related to this project, Reclamation corresponded with agencies and organizations via letters, emails, and telephone. Responses to scoping identified various issues and concerns regarding:

- Desert tortoise
- Cultural resources
- Land designations and transfers
- Aesthetics/visual resources
- Recreational use and public safety
- Impacts to PM₁₀ nonattainment areas and county roads from hauling trucks
- Wilderness areas

Reclamation also requested BLM participate as a Cooperating Agency, an Interagency Acquisition between Reclamation and BLM, California Desert District was finalized in February 2006.

6.1 Distribution List

Ak-Chin Indian Community
 Arizona Department of Agriculture
 Arizona Department of Environmental Quality
 Arizona Department of Transportation
 Yuma District office
 Arizona Game and Fish Department
 Headquarters
 Kingman District Office
 Arizona State Historic Preservation Office
 Arizona State Land Department
 Bill Williams River National Wildlife Refuge
 Bureau of Indian Affairs
 Bureau of Land Management
 Arizona State Office
 California Desert District
 El Centro Field Office
 Kingman Field Office
 Lake Havasu Field Office
 Needles Field Office
 Palm Springs/South Coast Field Office
 Phoenix Field Office
 Yuma Field Office

Programmatic Environmental Assessment

California Department of Fish and Game
Headquarters
Eastern Sierra and Inland Deserts Region
California Department of Transportation
Headquarters
District 8 (San Bernardino & Riverside)
District 11 (San Diego & Imperial)
California Office of Historic Preservation
Campo Band of Kumeyaay
Chemeheuvi Indian Tribe
Cibola National Wildlife Refuge
City of Blythe
City of Bullhead City
City of Earp
Public Works Department
City of Ehrenberg
Chamber of Commerce
City of Needles
City of Palo Verde
City of Ripley
Community Service District Office
City of Topock
Public Works Department
Clark County Regional Gov't Center
Cocopah Indian Tribe
Colorado River Indian Tribal Council
County of Imperial
County of Mohave
County of Riverside
County of San Bernardino
Fort McDowell Yavapai Nation
Fort Mojave Indian Tribe
Fort Yuma Quechan Indian Tribe
Gila River Indian Community
Havas National Wildlife Refuge
Hia C'ed O'odham Alliance
Hopi Tribe of Arizona
Hualapai Tribe
Imperial National Wildlife Refuge
Kaibab-Paiute Tribe
Kofa National Wildlife Refuge
La Paz County
La Paz County Community Development
Lake Havasu City
Marine Corp Air Station, Yuma
Community Planning and Liaison Office

Navajo Nation
Pascua Yaqui Tribe
Salt River Pima-Maricopa Indian Community
San Carlos Apache Tribe
Tohono O’ dham Nation
 Cultural Preservation Committee
Town of Parker
U.S. Environmental Protection Agency
 Region IX
U.S. Fish and Wildlife Service
 Carlsbad Office
 Phoenix Office
 Ventura Office
U.S. Geological Survey
 Water Resources Division
USGS Western Region Offices
 Menlo Park Campus, Bldg. 3
Wellton-Mohawk Natural Resources
 Conservation Service
Yavapai-Apache Nation
Yavapai-Prescott Indian Tribe
Yuma County
Yuma County Planning and Zoning Division

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