

WESTERN AGGREGATES LLC
Yuba County Operations
AMENDED RECLAMATION PLAN

Draft Environmental Impact Report

State Clearinghouse No. 2013042008

State Mining and Geology Board

801 K Street, Suite 2015

Sacramento, California 95814-3528

OCTOBER 2014

Western Aggregates LLC Yuba County Operations Amended Reclamation Plan

Draft Environmental Impact Report

SCH No. 2013042008

State Mining and Geology Board
801 K Street, Suite 2015
Sacramento, California 95814-3528

October 2014

Contents

Draft EIR

- CHAPTER 1 Introduction..... 1-1**
 - 1.1 Purpose of This Report1-1
 - 1.2 Project Overview1-1
 - 1.3 Scope of the EIR.....1-2
 - 1.4 CEQA Process1-3
 - 1.5 Levels of Impact Significance1-5
 - 1.6 How to Use This Report1-5

- CHAPTER 2 Summary..... 2-1**
 - 2.1 Introduction2-1
 - 2.2 Project Overview2-1
 - 2.3 Summary of Environmental Impacts and Mitigation Measures2-1
 - 3.3.1 Significant Impacts.....2-2
 - 3.3.2 Cumulative Impacts2-2
 - 2.4 Areas of Controversy Known to Lead Agency and Issues Raised by Agencies and the Public.....2-2
 - 2.5 Project Alternatives2-3

- CHAPTER 3 Project Description..... 3-1**
 - 3.1 Project Location.....3-1
 - 3.1.1 Surrounding Land Uses and Setting3-2
 - 3.2 Project Objectives.....3-2
 - 3.3 Mine Operations 3-11
 - 3.3.1 Current Operations 3-13
 - 3.3.2 Methods of Extraction 3-13
 - 3.3.3 Processing..... 3-21
 - 3.3.4 Mine Phasing..... 3-21
 - 3.4 Reclamation Plan 3-23
 - 3.4.1 Reclamation Overview..... 3-23
 - 3.4.2 Revegetation..... 3-35
 - 3.4.3 Revegetation Goals and Performance Standards..... 3-37
 - 3.4.4 Reclamation Phasing..... 3-39
 - 3.4.5 Processing Plant Demolition and Reclamation..... 3-43
 - 3.4.6 Monitoring..... 3-43
 - 3.5 Other Public Agencies Whose Approval Is Required..... 3-51

- CHAPTER 4 Environmental Analysis 4-1**
 - 4.0 Approach to the Environmental Analysis.....4-1
 - 4.0.1 Section Format.....4-2
 - 4.1 Hydrology/Water Quality 4.1-1
 - 4.1.1 Environmental Setting..... 4.1-1
 - 4.1.2 Regulatory Setting..... 4.1-18

4.1.3 Impacts and Mitigation Measures 4.1-20

4.2 Biological Resources..... 4.2-1

4.2.2 Environmental Setting..... 4.2-2

4.2.3 Regulatory Framework 4.2-15

4.2.4 Impacts and Mitigation Measures 4.2-20

4.3 Land Use/Planning 4.3-1

4.3.1 Environmental Setting..... 4.3-1

4.3.2 Regulatory Framework 4.3-6

4.3.3 Impacts and Mitigation Measures 4.3-11

CHAPTER 5 CEQA Statutory Requirements 5-1

5.1 Cumulative Impacts..... 5-1

5.1.1 Cumulative Context 5-1

5.1.2 Cumulative Impact Analysis 5-7

5.2 Growth-Inducing Effects 5-11

5.2.1 Elimination of Obstacles to Growth..... 5-12

5.2.2 Increased Demand on Secondary Markets..... 5-12

5.2.3 Increased Pressure on Land Use Intensification..... 5-12

5.3 Significant Irreversible Commitment of Resources..... 5-12

5.4 Significant and Unavoidable Effects..... 5-13

5.5 Energy Conservation..... 5-13

CHAPTER 6 Alternatives 6-1

6.1 Introduction..... 6-1

6.2 Project Objectives..... 6-1

6.3 Significant Effects of the Proposed Project..... 6-2

6.4 Project Alternatives 6-4

6.4.1 No Project Alternative..... 6-4

6.4.2 No Emergent Marsh and 2:1 Lake Slopes Alternative..... 6-6

6.4.3 Alternatives Considered But Rejected from Further Analysis in the
Draft EIR..... 6-8

6.5 Environmentally Superior Alternative..... 6-9

CHAPTER 7 References 7-1

7.1 Publications..... 7-1

7.2 Letters and Personal Communications..... 7-4

CHAPTER 8 Report Preparers..... 8-1

8.1 Lead Agency 8-1

8.2 EIR Preparer..... 8-1

8.3 Technical Contributors 8-1

8.4 Persons and Agencies Consulted..... 8-1

Appendices (on CD at the back of this report)

Appendix A	Western Aggregates LLC Amended Reclamation Plan (May 2012)
Appendix B	Initial Study (April 2013)
Appendix C	Notice of Preparation (NOP) and Comments Received on NOP
Appendix D	Hydrogeologic Impacts Report (Youngdahl 2013)
Appendix E	Biological Resources Species Lists

Figures

Figure 3-1	Area Map	3-3
Figure 3-2	Typical Existing Conditions	3-5
Figure 3-3a	Current Reclamation Plan Area.....	3-7
Figure 3-3b	Proposed Reclamation Plan Area	3-9
Figure 3-4	Current Plant Operations.....	3-15
Figure 3-5	Typical Extraction Methods A	3-17
Figure 3-6	Typical Extraction Methods B.....	3-19
Figure 3-7a	Conceptual Model for Final Reclaimed Configuration after 15 Years	3-25
Figure 3-7b	Conceptual Model for Final Reclaimed Configuration after 30 Years	3-27
Figure 3-7c	Conceptual Model for Final Reclaimed Configuration after 45 Years	3-29
Figure 3-8	Existing Cobble Berm.....	3-31
Figure 3-9	Lake Boundary Simulation	3-33
Figure 3-10	Phasing Plan.....	3-41
Figure 3-11	Typical Mining Cross Section.....	3-41
Figure 3-12	Typical Post Mining Cross Section	3-45
Figure 3-13	Conceptual Simulation of Final Reclaimed Lake Configuration	3-47
Figure 4.1-1	Surface Water Features	4.1-3
Figure 4.1-2	Yuba Groundwater Basins	4.1-5
Figure 4.3-1	Beale Joint Land Use Study Area.....	4.3-3
Figure 5-1	Cumulative Projects.....	5-3

Tables

Table 2-1	Summary of Impacts and Mitigation Measures.....	2-5
Table 3-1	Area and Volume By Quarry	3-23
Table 3-2	Emergent Marsh.....	3-35
Table 3-3	Riparian Wetland.....	3-36
Table 3-4	Riparian Upland.....	3-37
Table 3-5	Performance Goals for Final Revegetation.....	3-38
Table 3-6	Monitored Terrestrial Species.....	3-38
Table 3-7	Monitored Aquatic Species.....	3-38
Table 4.1-1	Yuba Basin and Project Site Geology and Water-Bearing Characteristics	4.1-2
Table 4.1-2	Estimated Cumulative Impact of Evapotranspiration on Yuba River Flows	4.1-31
Table 4.1-3	Average Annual Evapotranspiration Net Water Losses.....	4.1-34
Table 4.1-4	Predicted Decline in Groundwater Levels Near the Project Site Upon Completion Of Mining (Yuba River and YCWA Main Canal as Recharge Boundaries)	4.1-34

Table 4.1-5 Predicted Decline in Groundwater Levels Near the Project Site Upon Completion
Of Mining (Yuba Rive Only as Recharge Boundary)..... 4.1-34

Table 4.3-1 Yuba County General Plan Policy Considerations 4.3-10

Abbreviations

Abbreviation	Definition
µg/kg	micrograms per kilogram
µg/L	micrograms per liter
AB	Assembly Bill
AFB	air force base
afy	acre-feet per year
AICUZ	air installation compatible use zone
ALUC	Airport Land Use Commission
BASH	bird/wildlife aircraft strike hazard
bgs	below ground surface
BMO	basin management objective
Cal/EPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plant Council
Cal Sierra	Cal Sierra Development, Inc.
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
cfs	cubic feet per second
CLUP	comprehensive land use plan
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRLF	California red-legged frog
CTS	California tiger salamander
CWA	[federal] Clean Water Act
CWHR	California Wildlife Habitat Relationships
DDA	Designated Disposal Area

<i>Abbreviation</i>	<i>Definition</i>
DMG	[California Department of Conservation] Division of Mines and Geology
DTMC	Delta Tributaries Mercury Council
DTSC	[California] Department of Toxic Substances Control
EC	electrical conductivity
EIR	environmental impact report
ET	evapotranspiration
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
GGS	giant garter snake
GMP	groundwater management plan
gpd/ft	gallons per day per foot
gpm	gallons per minute
HCP	habitat conservation plan
IS	initial study
JLUS	joint land use study
LSCE	Luhdorff & Scalmanni Consulting Engineers
LUCP	land use compatibility plan
MBTA	Migratory Bird Treaty Act
MCL	maximum contaminant level
mcy	million cubic yards
mg/kg	milligram per kilogram
mg/L	milligrams per liter
MMP	mitigation monitoring plan
MMT	million metric tons
MRP	monitoring and reporting program
MRZ	mineral resource zone
msl	mean sea level
MT	metric tons
NCCP	Natural Community Conservation Planning Act

<i>Abbreviation</i>	<i>Definition</i>
NEPA	National Environmental Policy Act
ng/L	nanograms per liter
NOAA	National Oceanic and Atmospheric Administration
NOP	notice of preparation
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
PC	Production-Consumption
PLS	pure live seed
PRC	Public Resources Code
Qof	Older Alluvial Fan Deposits
Qya	Younger Alluvial Deposits
RP	Reclamation Plan
RWQCB	Regional Water Quality Control Board
SACOG ALUC	Sacramento Area Council of Governments Airport Land Use Commission for Sacramento, Sutter, Yolo, and Yuba Counties
SCH	State Clearinghouse
sf/day	square feet per day
SMARA	California Surface Mining and Reclamation Act
SMGB	State Mining and Geology Board
SRWP	Sacramento River Watershed Program
SWRCB	State Water Resources Control Board
SWRCB	State Water Resources Control Board
TAF	thousand acre-feet
TDS	total dissolved solids
TPH	total petroleum hydrocarbons
TRLIA	Three Rivers Levee Improvement Authority
UAV	unmanned aerial vehicles
USACE	U.S. Army Corps of Engineers
USAF	U.S. Department of the Air Force
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

<i>Abbreviation</i>	<i>Definition</i>
USGS	U.S. Geological Survey
VELB	valley elderberry longhorn beetle
WCB	Wildlife Conservation Board
WDR	waste discharge requirement
Western	Western Aggregates LLC Yuba County Operations
YCWA Main Canal	Yuba County Water Agency Canal
YWCA	Yuba County Water Agency

CHAPTER 1 Introduction

1.1 PURPOSE OF THIS REPORT

Western Aggregates LLC (Western) has prepared an Amended Reclamation Plan for its vested aggregate (sand and gravel) mining operations in Yuba County, California, to meet its obligations under the California Surface Mining and Reclamation Act (SMARA, California Public Resources Code [PRC] Sections 2710–2796). The Western Aggregates LLC Yuba County Operations Amended Reclamation Plan (proposed project) was submitted to the State Mining and Geology Board (SMGB) for review and approval. Prior to approval of the proposed project, however, an environmental review must be completed in keeping with the requirements of the California Environmental Quality Act (CEQA) of 1970 (as amended) (PRC Sections 21000 et seq.). The SMGB is serving as the CEQA lead agency for that review.

CEQA requires the preparation of an environmental impact report (EIR) when there is substantial evidence that a project could have a significant effect on the environment. The EIR is an informational document for use by decision-makers and the general public that fully discloses the potential environmental effects of the proposed project. The EIR process is specifically designed to evaluate the potentially significant direct, indirect, and cumulative impacts of the proposed project and to describe reasonable alternatives to the proposed project that could avoid or reduce those impacts. As provided for in the CEQA Guidelines,¹ public agencies are charged with the duty to avoid or minimize environmental damage where feasible (CEQA Guidelines Section 15021). In determining whether changes in a project are feasible, the public agency may consider specific economic, environmental, legal, technological, and social factors. In addition, CEQA requires that an EIR identify any adverse impacts determined to remain significant after mitigation.

Aggregate materials would be mined pursuant to Western's vested rights, which were confirmed in 2010 by the SMGB to cover 3,900 acres, and no CEQA analysis of this mining is required. The proposed project evaluated in this Draft EIR is reclamation of 1,960 acres of the vested rights area.

1.2 PROJECT OVERVIEW

The project is situated in the historic Yuba Goldfields mining area, south of the Yuba River, north of Hammonton-Smartsville Road, and approximately 6 miles northeast of the city of Marysville, California. The site has previously been greatly disturbed by gold and aggregate mining activities of predecessor companies prior to enactment of the SMARA. The historic mining operations dramatically altered the landscape, and the project site currently contains numerous dredge tailings with interspersed waterways and small ponds created by mining activities. Western plans to remove aggregates to a depth of approximately 100 feet below the average pond surface elevations over an approximately 1,960-acre area,

¹ The CEQA Guidelines are found in California Code of Regulations Title 14, Sections 15000 et seq.

during a phased 45-year surface mining operation, creating a series of five open-water ponds bordered by vegetation and dikes or berms.

The proposed reclamation project would be implemented in three phases to coincide with three contemplated phases of ongoing vested aggregate mining and processing operations. The final result of site reclamation would be a series of five discrete lakes varying in size with a shoreline bordered by vegetated areas. The final end use following reclamation would be open space and wildlife habitat consisting of aquatic lake, marsh, woodland, and upland vegetation communities. Activities required to carry out site reclamation include the re-contouring and grading of shorelines of lakes created during vested mining activities, the placement of fines to serve as substrate for vegetation, and implementation of a revegetation plan designed to enhance wildlife habitat in the reclamation plan area. Upon final completion of mining and during Phase 3 of the Amended Reclamation Plan, the aggregate processing plant would be razed and all equipment would be dismantled and removed. As part of final site reclamation, the plant site, temporary access roads, and utility facilities serving mining operations would be reclaimed.

1.2.1 Project Background

In 1980, Western's predecessor-in-interest (Yuba Consolidated) applied for and was granted approval for a reclamation plan (RP 80-01) by Yuba County for gold and aggregate operations, in accordance with the requirements of SMARA. RP 80-01 covered 2,000 acres, of which 1,420 acres applied to Western's aggregate operation. In May 2000, Yuba County issued a written determination letter confirming that Western held vested rights on 3,430 acres of land in the Yuba Goldfields. In November 2002, the results of the SMARA mine inspection concluded that the original reclamation plan, although adopted in accordance with the SMARA standards in 1980, did not meet current SMARA standards. Western subsequently prepared a reclamation plan, completed in April 2005, to include all of the area subject to the vested right confirmation (3,430 acres) within the boundaries of the new reclamation plan. In the process of conforming its new reclamation plan to the 2000 vested right determination, Western also sought to substantially upgrade the existing plan. The SMGB initiated a CEQA review of that plan, but it was suspended due to litigation, initiated in 2000, challenging the validity of Western's vested right to mine.

In January 2007, the California Court of Appeal, Third Appellate District, held that in 2000 the County of Yuba failed to provide a proper notice and hearing in its consideration of vested rights for the Western surface mining operation. The court ruling provided Western Aggregates could either (1) prove its claim of vested rights in a public adjudicatory hearing before the SMGB, or (2) obtain a permit to conduct surface mining from Yuba County. On February 8, 2007, Western submitted a notice to the SMGB that it intended to seek a confirmation of its vested rights.

The SMGB's responsibilities while serving as the SMARA lead agency in Yuba County include approving reclamation plans and financial assurances, conducting site inspections, and determining vested rights. As such, the SMGB recognized its authority to conduct a vested rights determination at its regular business meeting held on February 8, 2007, and adopted Resolution 2007-04, which defined the SMGB's authority as a SMARA lead agency to conduct a vested rights determination.

Between March 8, 2007, and September 14, 2007, the SMGB conducted several public hearings and received stakeholder input regarding promulgation of regulations for making vested rights determinations. The SMGB adopted the new regulations at its regular business meeting held on February 14, 2008. On August 14, 2008, the Office of Administrative Law approved the proposed regulations, and such regulations were codified in Title 14 of the California Code of Regulations (CCR), Section 3950 et seq., on September 13, 2008.

Western filed a vested right Request for Determination for its Yuba County operations with the SMGB on November 5, 2008. From November 2008 to March 2010, the SMGB undertook several administrative procedural actions as required by CCR Section 3950 in order to make a vested rights determination as requested by Western. Ultimately, on March 11, 2010, the SMGB adopted its findings and determinations, and adopted Resolution 2010-04, in recognition of the confirmation of Western's vested rights in connection with its Yuba Goldfield surface mining operation.

As noted above, the proposed project covers approximately 1,960 acres of the 3,900-acre vested rights area, including such portion of the 1,420-acre area within RP 80-01 as applies to aggregate operations. When approved, the Amended Reclamation Plan will supersede the 1,420-acre portion of RP 80-01 that applied to aggregate operations. However, the entire 1,960-acre area of RP 80-01 that applies to gold operations will remain valid and intact.

1.3 SCOPE OF THE EIR

As determined by the SMGB, Western has a vested right to excavate and process aggregate materials on the proposed project site. Mining and processing operations, therefore, are not subject to future approval and, as such, are not subject to review in this Draft EIR. Anticipated conditions resulting from ongoing mining operations, such as the expansion of existing aggregate pits and the creation of open-water ponds, as well as future mineral processing and transport activities, are considered part of the “environmental baseline conditions” for this EIR. The potential environmental impact of the proposed project, i.e., implementation of the Amended Reclamation Plan, is determined by assessing the extent to which future post-mining baseline conditions are adversely affected by implementation of the plan.

Using the environmental baseline conditions described above, the SMGB completed the *Western Aggregates LLC Yuba County Operation Amended Reclamation Plan Initial Study* (Appendix B, on CD) and circulated the document for public review in April 2013 (see Section 1.4 [CEQA Process]). For the following topics, the analysis in the April 2013 Initial Study (see Appendix B) concluded the proposed project would result in no impact or impacts that are less than significant: Aesthetics, Agriculture/Forestry Resources, Air Quality, Cultural Resources, Hazards/Hazardous Materials, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, Transportation/Traffic (exclusive of air traffic), and Utilities/Service Systems.

As defined in CEQA Guidelines Section 15161, this Draft EIR is a “Project EIR” and is intended to evaluate the environmental impacts of the proposed project. This Draft EIR evaluates only those issues identified in the April 2013 Initial Study (Appendix B) as having a potentially significant effect and issues of concern raised in written comments submitted on the Initial Study.

Draft EIR Chapter 4 (Environmental Analysis) describes the environmental setting, impacts, and mitigation measures for hydrology, geohydrology, and water quality (Section 4.1 [Hydrology/Water Quality]); biological resources (Section 4.2 [Biological Resources]); and land use (Section 4.3 [Land Use/Planning]). Descriptions of the environmental baseline conditions that are used as the basis for impact evaluations are presented in the April 2013 Initial Study and Draft EIR Chapter 4. In accordance with CEQA Guidelines Section 15125, project-caused changes to environmental baseline conditions serve as the basis for determining the environmental impact of the proposed project. Typically, baseline conditions are conditions that exist when the environmental review process is initiated. This approach, however, is often not appropriate for mine reclamation projects because site reclamation typically will not begin until after mining activities in the area to be reclaimed are completed. Site conditions that exist at the initiation of the environmental review process and prior to the completion of mining activities may be markedly different from those that will exist at the commencement of reclamation activities. Draft EIR Section 4.0 (Approach to the Environmental Analysis) describes the approach to defining the environmental baseline in greater detail.

The evaluation of cumulative impacts is presented on a resource-by-resource basis in Chapter 4 and is summarized in Chapter 5 (CEQA Statutory Requirements). Chapter 5 also presents the following CEQA-required assessments:

- Growth-Inducing Effects
- Significant Irreversible Impacts
- Significant and Unavoidable Effects
- Energy Conservation

Additionally, this Draft EIR evaluates two alternatives to the proposed project. This evaluation is presented in Chapter 6 (Alternatives to the Proposed Project).

1.4 CEQA PROCESS

As stated in the CEQA Guidelines, public agencies are charged with the duty to avoid or minimize significant environmental damage where feasible. In discharging this duty, the public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social issues (CEQA Guidelines Section 15021). The EIR is an informational document for use by decision-makers and the general public to identify the environmental effects of a proposed action. An EIR must identify feasible means to minimize any significant effects and describe reasonable alternatives to the proposed project. The lead agency, in this case the SMBG, is required to consider the information in the EIR, along with any other available information, in making its decision (CEQA Guidelines Section 15121).

An Initial Study and a Notice of Preparation (NOP) were provided to the State Clearinghouse (SCH) by the lead agency on April 4, 2013, and circulated for public review for a 30-day review period ending May 2, 2013.² A copy of the NOP is provided in Appendix C. Due to scheduling conflicts, the SMGB subsequently extended the review period to May 17, 2013, and rescheduled the public scoping meeting

² State Clearinghouse No. 2013042008.

originally scheduled for April 18, 2013, to May 15, 2013. Written notice of the review period extension and scoping meeting schedule change was provided to interested parties (copy of notice included in Appendix C).

The May 15, 2013, public scoping meeting was held at the Marysville City Hall City Council Chambers in Marysville, California. The proposed project and environmental review process were described, and the public was invited to provide comments on the project and the scope of the environmental review. No oral comments from the public were offered at the public scoping meeting. Written comments received on the NOP were received during the review period and were considered during preparation of this Draft EIR. The comment letters are included in Draft EIR Appendix C.

This Draft EIR was publicly circulated on October 6, 2014 for a 45-day period of review and comment by responsible agencies, interested parties, jurisdictions, and public/private organizations. The review period on the Draft EIR concludes on November 19, 2014. During the review period, written comments on this document may be submitted to:

Will Arcand, Senior Engineering Geologist
State Mining and Geology Board
801 K Street, Suite 2015
Sacramento, CA 95814-3528
Will.Arcand@conservation.ca.gov

Comments received during the Draft EIR comment period will be addressed in the Final EIR. The Final EIR will contain all written comments on the Draft EIR, written responses to all comments, and revisions to the Draft EIR made as a result of public comments. The Draft EIR will be included in the Final EIR by reference only. The SMBG will consider certification of the EIR as adequate under CEQA at a public hearing. The time and location of that hearing will be publicly noticed, and all parties that submitted written comments on the Draft EIR will be notified by mail.

Prior to certification of the EIR, the SMGB must prepare written findings of fact for each significant environmental impact identified in the EIR. For each significant impact, the lead agency must:

- Determine if the proposed project has been changed to avoid or substantially lessen the magnitude of the impact
- Find that changes to the proposed project are within another agency's jurisdiction, and such changes have been or should be adopted
- Find that specific economic, social, or other considerations make mitigation measures or proposed project alternatives infeasible

The findings of fact prepared by the SMGB must be based on substantial evidence in the administrative record and must include an explanation of any differences between evidence in the record and the conclusions required by CEQA.

CEQA Guidelines Section 15097 requires that when a public agency uses mitigation measures to reduce impacts, the public agency must adopt a Mitigation Monitoring and Reporting Program (MMRP) based on those measures which it has adopted or made a condition of the project approval. The MMRP must be designed to ensure compliance during project implementation. The MMRP for this project will be

prepared under separate cover for consideration by the SMGB in conjunction with certification of the Final EIR and approval of the project.

1.5 LEVELS OF IMPACT SIGNIFICANCE

The CEQA Guidelines define a significant effect on the environment as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic and aesthetic significance.” Definitions of significance vary with the physical conditions affected and the setting in which the change occurs. The CEQA Guidelines set forth physical impacts that trigger the requirements to make “mandatory findings of significance.”

The criteria used to determine the level of significance for impacts evaluated in this Draft EIR include the CEQA Guidelines, adopted federal and/or state standards, and recognized engineering or design standards. Wherever practical, impacts have been quantified to minimize the subjectivity of the evaluation. For impacts that cannot be readily quantified, events or occurrences that would be regarded as significant or potentially significant are identified.

This Draft EIR uses four terms to describe the level of significance of impacts:

- **Significant Impact:** Impacts that exceed the defined standards of significance and that can be eliminated or reduced to a less than significant level through the implementation of feasible mitigation measures.
- **Potentially Significant Impact:** Significant impacts that may ultimately be determined to be less than significant; the level of significance may be reduced in the future through implementation of local policies or guidelines (which are not required by statute or ordinance), or through further definition of the project detail in the future. Such impacts are equivalent to significant impacts and require the identification of feasible mitigation measures.
- **Less Than Significant Impact:** Impacts that do not exceed the defined standards of significance.
- **Beneficial Impact:** The proposed project may result in a net benefit to an affected resource.

1.6 HOW TO USE THIS REPORT

This report includes seven principal parts: summary of impacts and mitigation measures; project description; environmental analysis (environmental and regulatory setting, impacts, and mitigation measures); cumulative and growth-inducing impacts; project alternatives; references; and appendices.

- The **Summary** (Chapter 2) presents an overview of the results and conclusions of the environmental evaluation. This section summarizes the principal components of the Draft EIR including the project description, project impacts and mitigation measures, significant unavoidable impacts, cumulative impacts, and project alternatives.
- The **Project Description** (Chapter 3) provides a detailed description of the proposed project including project location, a description of project characteristics and phasing, project objectives, and required permits and approvals.

- The **Environmental Analysis** (Sections 4.1 through 4.3) includes a topic-by-topic analysis of project-specific and cumulative impacts that would or could result from implementation of the proposed project. A description of existing conditions (setting), standards to determine impact significance, and identification of impacts and mitigation measures are presented for each topic.
- **CEQA Statutory Requirements** (Chapter 5) includes an evaluation of issues required by CEQA including cumulative impacts, growth inducement, irreversible environmental changes, unavoidable adverse impacts, and energy conservation.
- **Alternatives to the Proposed Project** (Chapter 6) identifies a reasonable range of alternatives, including a “No Project” alternative, to the proposed project that is evaluated in this Draft EIR. The potential impacts of these alternatives are evaluated relative to those identified for the proposed project. This evaluation complies with CEQA requirements and is intended to provide adequate information for decision-makers to make a reasonable choice between the proposed project and the alternatives based on the environmental benefits and consequences of each.
- The **References** (Chapter 7) contains a list of literature cited in the Draft EIR and names of individuals contacted and correspondence.
- The **Appendices** contain the Amended Reclamation Plan, Initial Study/NOP, comments on the IS/NOP, and supporting documents and other technical materials used in the preparation of the Draft EIR.

[THIS PAGE INTENTIONALLY LEFT BLANK]

CHAPTER 2 Summary

2.1 INTRODUCTION

This Draft Environmental Impact Report (Draft EIR) has been prepared in conformance with the California Environmental Quality Act (CEQA) of 1970 (as amended) to evaluate the environmental impacts associated with the Western Aggregates Amended Reclamation Plan.

As required under CEQA Guidelines Section 15123, this Summary chapter includes a summary of the proposed project and its effects, areas of known controversy, and issues to be resolved, including the choice among alternatives.

2.2 PROJECT OVERVIEW

The proposed project evaluated in this Draft EIR is the implementation of the Amended Reclamation Plan for Western Aggregates LLC Yuba County operations (Amended Reclamation Plan). The Amended Reclamation Plan is included as Draft EIR Appendix A and addresses the reclamation of a 1,960-acre surface mining site in Yuba County, California, approximately 1 mile south of the Yuba River, north of Hammonton-Smartsville Road, approximately 2 miles north of Beale Air Force Base (AFB), and approximately 6 miles northeast of the city of Marysville. Under the proposed project, site reclamation would be implemented in three phases to coincide with three contemplated phases of ongoing vested aggregate mining and processing operations on the project site. Upon approval by the State Mining and Geology Board (SMGB), the Amended Reclamation Plan will comply with the California Surface Mining and Reclamation Act (SMARA) of 1975. The SMGB is the CEQA lead agency for the EIR.

As determined by the SMGB, the project applicant, Western Aggregates LLC (Western), holds a valid vested right to mine aggregates on the project site, and ongoing and proposed mining operations under this right are not subject to review in this Draft EIR. This Draft EIR addresses the potential direct, indirect, and cumulative impacts of implementing the Amended Reclamation Plan.

A detailed description of the proposed project is provided in Draft EIR Chapter 3 (Project Description).

2.3 SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Table 2-1 (Summary of Impacts and Mitigation Measures), at the end of this chapter, provides a summary of all impacts and mitigation measures presented in this Draft EIR. The information in Table 2-1 has been organized to correspond with environmental issues discussed in Chapter 4 (Environmental Analysis). The summary table is arranged in four columns: (1) environmental impact, (2) level of significance without mitigation, (3) additional mitigation measures required to reduce the level of impact, and (4) the level of significance after implementation of mitigation measures. For each impact listed as significant in Table 2-1, feasible mitigation measures are presented to reduce that impact to a level considered to be less than significant.

2.3.1 Significant Impacts

No project-specific or cumulative impacts were determined to be significant and unavoidable.

2.3.2 Cumulative Impacts

Cumulative impacts are analyzed in each technical subsection of Chapter 4, and a complete list is provided in Section 5.1 (Cumulative Impacts). The proposed project could result in cumulative impacts on groundwater in the South Yuba subbasin, Yuba River flow and temperature, and risk of bird/aircraft collision hazards for Beale AFB. Each of these cumulative impacts can be reduced to less than significant levels through mitigation measures identified in this Draft EIR.

2.4 AREAS OF CONTROVERSY KNOWN TO LEAD AGENCY AND ISSUES RAISED BY AGENCIES AND THE PUBLIC

The key issues of concern raised in written responses to the Initial Study and/or known to the lead agency include the following:

- Revegetation implemented as part of the Amended Reclamation Plan could attract increased use of the area by bird species and, in turn, increase the risk of bird/aircraft collisions due to the project's location within the flight path of Beale Air Force Base.
- Reclamation activities may harm sensitive species or resources (e.g., nesting birds or elderberry shrubs) if species occupy the site after mining activities.
- Site reclamation may disturb nesting migratory birds and raptors.
- Consistency with the Yuba Sutter Regional Conservation Plan (Natural Communities Conservation Plan/Habitat Conservation Plan), which is currently in preparation.
- Hazards related to the possible presence of mercury in fines used in proposed project revegetation activities.
- Project effects on groundwater and surface water supplies and quality.
- Cumulative impact of the project in relation to other mining and reclamation projects within the Yuba Goldfields region.
- Consideration of current and future flood protection programs in the Yuba Goldfields.

This list reflects the issues of key concern to the local community and agencies as identified during the public scoping process. All comments received were considered in the preparation of this Draft EIR.

2.5 PROJECT ALTERNATIVES

As required by CEQA, this Draft EIR evaluates alternatives to the proposed project. The evaluation addresses the No Project alternative (as defined in CEQA Guidelines Section 15126.4) and a range of feasible project alternatives designed to meet most of the basic project objectives while substantially reducing the anticipated environmental impact of the project. The alternatives, which are evaluated in detail in Chapter 6 (Alternatives to the Proposed Project), are:

- **Alternative 1: No Project**—Assumes the Amended Reclamation Plan is not approved and reclamation activities would occur on only 1,420 acres of Western’s 3,900 acres of vested aggregate mining operations in accordance with the existing reclamation plan RP 80-01.
- **Alternative 2: No Emergent Marsh and 2:1 Lake Slopes**—Assumes no emergent marsh vegetation would be created along the lake shorelines and at the settling pond and that the lakes and settling pond would be contoured with steeper, 2:1 horizontal to vertical slopes.

Alternative 2 was identified to specifically address the potential cumulative impacts of the proposed project on Yuba River conditions and groundwater, and project and cumulative impacts related to increased risk of bird/aircraft collision hazards because of the site’s proximity to Beale AFB.

Alternatives that were considered but rejected for further analysis in this EIR are an alternative that would fill the ponds created by vested mining with dredge tailings followed by minimal with vegetation restoration, and implementing the proposed project at an alternate location. The rationale for their rejection from further consideration is described in Chapter 6.

THIS PAGE INTENTIONALLY LEFT BLANK]

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
HYDROLOGY/WATER QUALITY			
Impact HY-1 Evaporative losses from the reclaimed lakes would have a limited effect on the operation of the Yuba County Water Agency (YCWA) Main Canal and Yuba River flow as a result of groundwater-surface water interactions.	LTS	No mitigation is required.	LTS
Impact HY-2 The establishment of emergent marsh along lake shorelines and the settling pond would result in evapotranspiration losses, but the effect on groundwater levels would be minor, confined to within 1 mile of the project site.	LTS	No mitigation is required.	LTS
Impact HY-3 Silts/fines used for pond revegetation during reclamation could contain forms of mercury that could undergo methylation, thus increasing the potential for mercury bioaccumulation in the environment.	LTS	No mitigation is required.	LTS
Impact HY-4 Evapotranspiration resulting from the long-term maintenance of reclaimed lakes at cumulative projects may affect Yuba River water flows and temperatures.	S	M-HY-1 Western Aggregates LLC shall revise the Amended Reclamation Plan to eliminate emergent marsh. Reclamation of the settling pond will be designed to establish slopes no steeper than 2:1 to discourage the establishment of emergent marsh. Alternatively, the pond will be filled, resoiled and reclaimed as native upland riparian and/or grassland habitat.	LTS
Impact HY-5 The establishment of emergent marsh habitat on the project site would result in increased rates of evapotranspiration that could contribute to cumulative reductions in local groundwater levels or storage.	S	M-HY-2 Implement mitigation measure M-HY-1.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
Impact HY-6 Cumulative projects implementing reclamation activities involving revegetation could use materials containing mercury that could undergo methylation, thus increasing the potential for mercury bioaccumulation in the South Yuba River watershed.	LTS	No mitigation is required.	LTS
BIOLOGICAL RESOURCES			
Impact BR-1 Implementation of the Amended Reclamation Plan could result in temporary and direct alteration of site conditions that could support special-status plant species in undisturbed or fallow areas where no mining has occurred for 1 year or more.	PS	M-BR-1 Prior to the onset of each phase of reclamation, Western Aggregates LLC shall retain a qualified biologist or botanist to conduct a habitat analysis to determine if the area identified for reclamation could support special-status plant species. In areas where potential habitat for special-status plant species occurs, a focused survey for special-status plant species, highlighting those species listed in EIR Table E-2 (Listed, Proposed, and Sensitive Species Potentially Occurring on the Project Site Requiring Further Study), shall be conducted. The survey shall be during a month when sensitive plants are likely to be in bloom. If sensitive plants are located during the surveys, the USFWS and/or CDFW (based on species regulatory status) shall be notified. Appropriate avoidance or minimization measures including translocation will be employed to ensure the long-term viability of plant populations within the proposed reclamation plan area. Restrictions may include establishment of avoidance buffer zones, installation of silt fences, or alteration of the project schedule. Furthermore, as phases of the proposed reclamation are completed, the reclaimed areas shall be completely avoided, except by those involved with vegetation and wildlife management. Setbacks shall be established between these areas and any ongoing mining operations and shall be no less than 50 feet wide.	LTS
Impact BR-2 Implementation of the Amended Reclamation Plan could result in temporary and direct disturbance to giant garter snake (GGS) habitat in undisturbed or fallow areas where no mining has occurred for 1 year or more.	PS	M-BR-2 Prior to the onset of each phase of reclamation, Western Aggregates LLC shall retain a qualified biologist to conduct a habitat analysis to determine if the area identified for reclamation could support giant garter snake. In areas where potential habitat for giant garter snake occur, a biologist approved by the USFWS will coordinate and supervise avoidance and minimization activities to protect occupying snakes, as well as ensure that restoration of giant garter snake habitat is undertaken as specified in the Guidelines for Restoration and/or Replacement of Giant Garter Snake Habitat established by the USFWS in 1997. Measures shall include (as outlined in the guidelines), but are not limited to: a. Minimizing impacts of project activities to existing habitat, including using silt fencing, designating sensitive areas to be avoided, using protective mats, preventing runoff, using existing roadways to move equipment (when possible), conducting on-site activity only from May 1 to October 1, and providing worker awareness training.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
		b. Surveying for garter snake 24 hours prior to the onset of major ground-disturbing activities and again should a lapse in activity two weeks or longer occur. c. Removing all project debris and stockpiled materials upon project completion. d. Regrading the area to the preexisting contour or a contour that would improve restoration potential. e. Replanting and hydroseeding the area following USFWS recommendations as found in the 1997 guidelines. ¹ Mitigation is not necessary for reclamation that begins in areas recently impacted (within 2 years) by vested mining activities.	
Impact BR-3 Implementation of the Amended Reclamation Plan could result in temporary and direct disturbance to nesting burrowing owl in undisturbed or fallow areas where no mining has occurred for 1 year or more.	PS	M-BR-3 Prior to the onset of each phase of reclamation, Western Aggregates LLC shall retain a qualified biologist familiar with burrowing owl life history to perform survey and mitigation requirements outlined in the CDFW Staff Report on Burrowing Owl Mitigation (2012). Per the staff report, to determine if nesting burrowing owl occurs on site, surveys involve a minimum of four site visits (one between February 15 and April 15 and three between April 15 and July 15 at least three weeks apart). If the reclamation schedule does not allow for spring survey, field efforts can be conducted throughout the nonbreeding season (September 1 through January 31) with the approval of the CDFW. Any burrow identified with a nesting pair (breeding occurs between February 1 and August 31) would have to be avoided at a distance up to 500 meters depending on the time of year, until the young had fledged and the burrow was abandoned. If owls do not vacate the site, exclusion plans can be discussed and approved at the discretion of the CDFW. Once owls do not occur within or near (up to 500 meters) planned activities, which would be confirmed with a survey to be performed no sooner than 14 days prior to ground disturbance, reclamation activities can proceed as planned. The CDFW staff report also includes mitigation methods for projects that impact burrowing owl should they occur within areas to be disturbed by reclamation activities. Recommended mitigation includes avoidance, site surveillance, minimizing disturbance impacts, establishing buffers, burrow exclusion and closure, translocation, permanent habitat protection to offset the acreage of habitat disturbed during activities, and installation of artificial burrows. Ultimately, all avoidance and mitigation measures would be developed in collaboration with the CDFW and approved prior to implementation of the measure and proposed site activities. Mitigation is not necessary for reclamation that begins in areas recently impacted (within 1 year) by vested mining activities.	LTS
Impact BR-4 Implementation of the Amended Reclamation Plan would result in temporary	PS	M-BR-4 Prior to the onset of each phase of reclamation in previously undisturbed grassland, Western Aggregates LLC shall retain a qualified biologist to perform a general survey for vernal features in the area of the	LTS

¹ USFWS, *Guidelines for Restoration and/or Replacement of Giant Garter Snake Habitat* (November 13, 1997).

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
and direct disturbance of vernal pools and swales that could support special-status species.		<p>project site that consists of grasslands which have not been disturbed by previous mining operations. If no vernal features are found, no further actions are required under this mitigation measure. If vernal features exist in the project site, Western Aggregates LLC shall implement a policy of total avoidance of the vernal area if feasible. If total avoidance is not possible during reclamation, further mitigation as outlined below must be performed.</p> <p>Western Aggregates LLC shall mitigate for the loss and disturbance of vernal pools within the project site through avoidance, preservation, and creation measures as recommended by the USFWS. Measures include, but are not limited to:</p> <ol style="list-style-type: none"> a. Designing reclamation activities, to the extent possible, to avoid all impacts (direct and indirect) to vernal pool areas. Direct impact refers to the destruction of a pool. Indirect impact refers to activities (i.e., loss of or damage to watershed, human intrusion, and increased pollution) affecting all upland areas and swales. If a limit to the area of impact cannot be easily delineated, all habitat within 250 feet of proposed activities may be considered to be indirectly affected. If any habitat within a vernal pool complex is destroyed, all remaining habitat within the complex may potentially be indirectly affected. Additionally, if any part of a vernal pool is destroyed, the entire pool is directly affected.² b. Purchasing a minimum of 2 acres of USFWS-approved vernal pool preservation bank credits for every 1 acre of directly or indirectly affected habitat directly affected by reclamation activities (2:1 ratio) c. Purchasing a minimum of one vernal pool creation credit at a USFWS-approved mitigation bank for every acre of habitat directly affected by reclamation activities (1:1 ratio) d. Protecting vernal pool habitat remaining at the proposed location from future adverse impacts (i.e., signage and fencing) e. Monitoring by a biologist approved by the USFWS shall be necessary for the duration of all major on-site disturbance f. Placing fencing and signage around any pools to be avoided to prevent vehicle ingress into the area g. Training all on-site personnel regarding the importance of avoiding impacts to these species and their habitat h. Prohibiting activities inconsistent with maintaining the suitability of remaining habitat and on-site watershed, such as (1) permanent alteration of topography, (2) placement of structures within the vernal complex, (3) dumping or burning of garbage or waste, (4) installing/using temporary access roads or trails, (5) disturbance or removal of any native vernal pool vegetation, (6) inappropriate placement of stormwater drains, (7) unnecessary fire protection methods, and (8) use of pesticides or toxic chemicals on site <p>If the southernmost portion of the project site is significantly disturbed and the vernal swales removed by vested</p>	

² USFWS, *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, California* (February 28, 1996).

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
		mining operations prior to the onset of reclamation, mitigation would not be necessary.	
Impact BR-5 Implementation of the Amended Reclamation Plan would result in temporary and direct alteration of site conditions that could support valley elderberry longhorn beetle (VELB).	PS	<p>M-BR-5 Prior to the onset of each phase of reclamation, Western Aggregates LLC shall retain a qualified biologist to perform a general survey for elderberry bushes. All elderberry bushes found during the survey shall be recorded on a map. If reclamation activities do not occur within 20 feet of any elderberry bush having stems no greater than 1 inch, no mitigation is required. If reclamation will occur within 20 feet of an elderberry bush having stems greater than 1 inch, Western Aggregates LLC shall retain a qualified biologist approved by the USFWS to coordinate and supervise avoidance protection measures for elderberry located within the project site following Conservation Guidelines for the Valley Elderberry Longhorn Beetle established by the USFWS in 1999. Measures shall include (as outlined in the guidelines), but are not limited to:</p> <ul style="list-style-type: none"> a. Creating an avoidance buffer zone as large as possible around the shrubs, but no less than 20 feet in diameter (where possible) around the subject elderberry bush. b. Fencing and flagging all elderberry bushes and setback areas to be avoided during reclamation activities c. Briefing contractors on the need to avoid damaging elderberry and the penalties for noncompliance d. Placing informational signs along the edge of an avoidance area to be maintained for the duration of activity e. Revegetating and providing erosion control within and around the avoidance area f. Maintaining the buffer area from adverse effects of site activities, by repairing fences, trash removal, weeding, etc. g. Prohibiting use of insecticides, herbicides, fertilizer, or other chemicals within the buffer area and immediate vicinity for the duration of activities, as these could harm the beetle or elderberry bushes h. Restricting mowing (if necessary for project implementation) to no closer than 5 feet of elderberry stems from July through August³ 	LTS

³ USFWS, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (July 9, 1999).

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
Impact BR-6 Implementation of the Amended Reclamation Plan could result in temporary and direct disturbance of nesting raptors and migratory birds.	PS	M-BR-6 Prior to the onset of each phase of reclamation in which reclamation activities will occur during the nesting season (March-August), Western Aggregates LLC shall retain a qualified biologist to conduct a focused survey for active nests of raptors and migratory birds within and in the vicinity of (no less than 100 feet outside disturbance boundaries, where possible) the proposed project site (at the onset of each phase) no more than 72 hours prior to ground disturbance. If no active nests are found, activities may proceed without further requirements under this mitigation measure. If an active nest is located during the survey, reclamation activities shall be restricted, as necessary, to avoid disturbance of the nest until it is abandoned or the consulting regulatory agency deems disturbance potential to be minimal. Minimum restrictions shall include establishment of a non-disturbance buffer of 50 feet radius around any active nest site for passerines and 250 feet radius around any active nest site for raptors.	LTS
Impact BR-7 Implementation of the Amended Reclamation Plan could result in temporary and direct disturbance of riparian habitat.	PS	M-BR-7 Prior to the removal of any riparian vegetation during each phase of reclamation and subsequent to restoration completion, Western Aggregates LLC shall have a qualified professional document the acreage and quality of any riparian habitat removed during reclamation activities and the acreage and quality of riparian vegetation provided as part of reclamation. Western shall retain the documentation for use during the monitoring period, described below. The acreage and quality of riparian vegetation provided as part of reclamation shall not be less than the original values documents prior to reclamation. The Amended Reclamation Plan shall be revised to require that all seed mixes or re-plantings shall consist of predominantly native species obtained from local sources (within 50 miles, if possible), and that the seed mix have a high percentage of native seeds. Revegetation activities shall include a minimum three-year monitoring program with photo documentation report showing pre- and post- project area conditions to confirm the success of the revegetated areas and invasive nonnative/noxious weed control. The plan shall identify a local reference site that can be used to determine species composition and success of revegetation efforts. CDFW may be consulted regarding the necessity of obtaining a Lake or Streambed Alteration Agreement for planned removal of any riparian vegetation. Western Aggregates LLC shall obtain an agreement if required by CDFW.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
Impact BR-8 Amended Reclamation Plan activities related to shoreline re-contouring, revegetation, and the demolition and removal of processing plant facilities could have short-term adverse effects on sensitive biological resources; however, the Amended Reclamation Plan in combination with other past and ongoing mining and reclamation projects within in the Yuba Goldfields, will result in substantial long-term gains in biological productivity and diversity.	B	M-BR-8 Implement mitigation measures M-BR-1 through M-BR-7.	B
LAND USE/PLANNING			
Impact LU-1 Implementation of the Amended Reclamation Plan could increase the potential for bird/aircraft collisions due to the project site's proximity to Beale AFB, may be inconsistent with recommended Strategy 54 in the Beale JLUS and the USAF BASH program.	PS	M-LU-1 (a) Implement mitigation measure M-HY-1 (eliminate emergent marsh at settling pond). (b) Prior to the start of Phase One, Western Aggregates shall implement an avian monitoring plan with adaptive management strategies to address the potential for an increase of birds within the area following completion of each phase of reclamation. A baseline study (implemented using the best, practicable scientific methodology) shall be completed to document the number and type of species using the reclamation plan area. Following implementation of the first phase of reclamation, a comparative study shall be completed to assess whether avian presence has increased and based on the species whether strike risks could increase. If no significant increase is seen after Phase One, Phase Two would proceed as planned and once completed another assessment of site use by birds would need to be completed. If the completion of any phase is found to attract additional or an increased number of bird species, control strategies shall be developed based on consultation with Beale AFB personnel and implemented to reduce the attractiveness of the area for those species. For example, future phases of reclamation would contour steeper pond edges or adjust vegetation to deter usage of the area and reduce strike risk to the maximum extent possible. If the No Emergent Marsh and 2:1 Lake Slopes Alternative is adopted instead of the proposed project, this mitigation measure is not required.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
Impact LU-2 Implementation of the Amended Reclamation Plan, in combination with projects in the vicinity of Beale AFB that could that attract birds, could increase the potential for bird/aircraft collisions, which may considered inconsistent with recommended Strategy 54 in the Beale JLUS and the USAF BASH program.	PS	M-LU-2 Implement mitigation measures M-LU-1(a) and M-LU-1(b).	LTS
MITIGATION MEASURES FROM INITIAL STUDY			
Potential to cause a substantial adverse change in the significance of a historical or archaeological resource pursuant to Section 15064.5	PS	<p>M-CR-1 Prior to the initiation of reclamation-related ground-disturbing activities, Western shall retain a qualified archaeologist who meets the Secretary of the Interior’s standards for Archaeology to locate and evaluate the previously recorded resources. The archaeologist shall determine, through existing records or by evaluation, if the previously recorded sites qualify as historical or archaeological resources under CEQA. If it is determined that the sites qualify as historical or archaeological resources under CEQA, the archaeologist shall determine if the sites would be damaged or destroyed by implementation of the proposed project. If it is determined that the sites would be damaged or destroyed by project implementation, the archaeologist shall recommend measures, including avoidance or data recovery, that would eliminate adverse impacts to the resources or reduce impacts to the resources to a less than significant level. The measures shall be consistent with the Secretary of the Interior’s standards for the evaluation and treatment of archaeological resources. The project proponent shall adhere to all measures recommend by the archaeologist for the treatment of the resources.</p> <p>M-CR-2 Prior to the initiation of reclamation-related ground-disturbing activities, Western shall retain a qualified archaeologist with knowledge of prehistoric and historic-period archaeology and paleontology to prepare and implement an Archaeological Monitoring and Data Recovery Plan (AMDRP).</p> <p>The AMDRP shall require that Western retain a qualified archaeologist who will be present for all ground-disturbing reclamation activities (i.e., excavation, grading, equipment removal, and demolition) conducted by Western that occur on the project site in areas not previously and substantially disturbed by mining activities. These areas total approximately 68.2 acres, according to the project applicant, and are shown in Figure 1 in “California Historical Resources Information System (CHRIS) Records Search Results, Native American Heritage Commission (NAHC) Sacred Lands Database Search Results and Sensitivity Designations for the Western Aggregates Reclamation Plan, Yuba County, California” (March 14, 2013) included as Appendix C of the Western Aggregates LLC Yuba County Operations Amended Reclamation Plan Initial Study (April 2013).</p> <p>The AMDRP shall define how archaeological monitoring will be conducted, the protocol to be followed in the event that significant resources are discovered during monitoring and where and how data recovery will be conducted for any important archaeological resources discovered. The AMDRP shall specify that all reclamation personnel will be alerted to the possibility of buried cultural resources prior to the initiation of ground-disturbing</p>	LTS

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
		activities. The AMDRP shall specify that if any cultural resources, such as structural features, unusual amounts of bone or shell, artifacts, human remains, or architectural remains, or significant paleontological resources are encountered during any reclamation activities, work shall be suspended within 100 feet of the find and the State Mining and Geology Board shall be immediately notified. Once the State Mining and Geology Board is notified, work may proceed on other portions of the project site while mitigation of impacts on archaeological or paleontological resources is implemented.	
Potential to disturb any human remains, including those interred outside of formal cemeteries	PS	M-CR-3 If human remains are discovered during reclamation, including disarticulated or cremated remains, all ground-disturbing activities should cease within 100 feet of the remains. In keeping with California State Health and Safety Code § 7050.5, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code (PRC) § 5097.98. If the remains are determined by the County Coroner to be Native American, the NAHC shall be notified within 24 hours, and the guidelines of the NAHC shall be adhered to in the treatment and disposition of the remains. A professional archaeologist with Native American burial experience shall conduct a field investigation of the specific site and consult with the Most Likely Descendant (MLD), if any, identified by the NAHC. As necessary and appropriate, a professional archaeologist may provide technical assistance to the MLD, including but not limited to, the excavation and removal of the human remains.	LTS
Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death, involving landslides	PS	M-GS-1 Any large unstable boulders on mine slopes above groundwater should be removed or stabilized prior to the end of reclamation. M-GS-2 Slopes should be protected with berms and/or levees as necessary to prevent slope erosion in the areas where slopes drain onto the reclaimed slopes. M-GS-3 Runoff should not be allowed to flow over natural, cut, or fill areas in such a way as to cause erosion and finished slopes should be planted with drought resistant native vegetation to protect from wind and rain. M-GS-4 Restrict future use to that identified in the Amended Reclamation Plan, namely open space and habitat.	LTS
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment	PS	M-HM-1 <i>Aboveground Storage Tank Fueling Station</i> . Western shall implement the following tasks to determine whether soil has been contaminated by AST operations, and if necessary, to remediate soil prior to re-use on site or disposal. (a) Western, as owner of an above-ground storage tank system shall notify the Yuba County CUPA no later than 30 days prior to permanently removing any above-ground storage tank. (b) When the AST system has been permanently removed from service, Western shall ensure that within 180 days: (i) petroleum products are removed and vapors purges from the storage tank, piping, dispensing, and transfer equipment; and (ii) the storage tank, piping, dispensing and transfer equipment is removed by an approved hazardous materials hauler. Removal activities shall comply with California Fire Code Section 3404.2.	LTS

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
		<p>(c) Western shall be responsible for contracting with an independent qualified third party to develop a work plan to collect soil samples from the tank location. The owner or agent shall have the samples analyzed at a California-approved analytical laboratory using U.S. Environmental Protection Agency sampling protocols and analytical methods specific to petroleum products. Western shall report the results of soil testing to Yuba County within 30 days.</p> <p>(d) If the results are indicative of contamination, as determined by Yuba County, Western shall submit a work plan prepared by an independent qualified third party to Yuba County to remediate the contamination. A post-remedial verification sampling and closure report shall be submitted to Yuba County.</p> <p>(e) All sampling and any necessary remediation shall be in accordance with California OSHA Health and Safety Plan regulations.</p> <p>M-HM-2 Septic Tanks. Western shall implement the following tasks to determine whether soil has been contaminated by laboratory liquid waste disposal to the septic tank, and if necessary, to remediate soil prior to re-use on site or disposal.</p> <p>(a) Western shall remove on-site septic tanks in accordance with Yuba County Environmental Health Department permitting and abandonment requirements.</p> <p>(b) Western shall be responsible for contracting with an independent qualified third party to test the septic tank contents to determine waste characteristics and whether special removal and disposal methods are required. Tank contents shall be removed and disposed of in accordance with all applicable regulations, prior to tank removal and soil overexcavation.</p> <p>(c) Western shall be responsible for contracting with an independent qualified third party to collect soil samples from the tank location, including piping, at the time of the tank removal. The owner or agent shall have the samples analyzed at a California-approved analytical laboratory using U.S. Environmental Protection Agency sampling protocols and analytical methods specific to the types of waste materials that may be present (e.g., organic and inorganic chemicals, metals). Western shall report the results of soil testing to Yuba County within 30 days.</p> <p>(d) If the results are indicative of contamination, as determined by Yuba County, Western shall submit a work plan prepared by an independent qualified third party to Yuba County to remediate the contamination. A post-remedial verification sampling and closure report shall be submitted to Yuba County.</p> <p>(e) All sampling and any necessary remediation shall be in accordance with California OSHA Health and Safety Plan regulations.</p> <p>M-HM-3 Asphalt Plant Decommissioning. Western shall implement the following tasks to decommission the asphalt plant and to determine whether soil has been contaminated by operation of the asphalt plant, and if necessary, to remediate soil prior to re-use on site or disposal.</p> <p>(a) Tank contents, tank removal, and disposal shall be performed by a qualified waste handler in accordance</p>	

Table 2-1 Summary of Impacts and Mitigation Measures			
B = beneficial; LTS = less than significant; PS = potentially significant; S = significant			
<i>Impact</i>	<i>Significance Before Mitigation</i>	<i>Mitigation Measures</i>	<i>Significance After Mitigation</i>
		<p>with applicable hazardous waste laws and regulations.</p> <p>(b) Western shall be responsible for contracting with an independent qualified third party to develop a work plan to collect soil samples from the tank location, including piping. The owner or agent shall have the samples analyzed at a California-approved analytical laboratory using U.S. Environmental Protection Agency sampling protocols and analytical methods specific to the types of waste materials that may be present (e.g., organic and inorganic chemicals, metals). Western shall report the results of soil testing to Yuba County within 30 days.</p> <p>(c) If the results are indicative of contamination, as determined by Yuba County, Western shall submit a work plan prepared by an independent qualified third party to Yuba County to remediate the contamination. A post-remedial verification sampling and closure report shall be submitted to Yuba County.</p> <p>(d) All sampling and any necessary remediation shall be in accordance with California OSHA Health and Safety Plan regulations.</p> <p>M-HM-4 Repair Shop and Equipment Storage Area. Western shall implement the following tasks to determine whether soil has been contaminated at the repair shop and equipment storage area, and if necessary, to remediate soil prior to re-use on site or disposal.</p> <p>(a) Western shall be responsible for contracting with an independent qualified third party to develop a work plan to collect soil samples from the repair shop and equipment storage area. The owner or agent shall have the samples analyzed at a California-approved analytical laboratory using U.S. Environmental Protection Agency sampling protocols and analytical methods specific to the types of contaminants that may be present (e.g., total petroleum hydrocarbons and related organic compounds, and metals). Western shall report the results of soil testing to Yuba County within 30 days.</p> <p>(b) If the results are indicative of contamination, as determined by Yuba County, Western shall submit a work plan prepared by an independent qualified third party to Yuba County to remediate the contamination. A post-remedial verification sampling and closure report shall be submitted to Yuba County.</p> <p>(c) All sampling and any necessary remediation shall be in accordance with California OSHA Health and Safety Plan regulations.</p>	

CHAPTER 3 Project Description

3.1 PROJECT LOCATION

Western operates an active aggregate (sand and gravel) mining operation pursuant to vested rights, which were confirmed in 2010 by the State Mining and Geology Board (SMGB) to cover an approximately 3,900-acre area (Western's Vested Rights Area) situated in the historic Yuba Goldfields in Yuba County, California (Figure 3-1 [Area Map]). The operations site is located approximately 6 miles northeast of Marysville, California.

The project site and surrounding area has previously been greatly disturbed by gold and aggregate mining activities of predecessor companies that dramatically altered the landscape prior to the enactment of the Surface Mining and Reclamation Act (SMARA). The Yuba Goldfields is zoned M-2 (Extractive Industrial) and is designated as Natural Resources under the Yuba County 2030 General Plan. The project site is characterized by numerous dredge tailings with interspersed waterways and small ponds created by mining activities (Figure 3-2 [Typical Existing Conditions]). The M-2 zoning was established by Yuba County primarily for the extraction, processing, and distribution of minerals occurring naturally such as sand and gravel.

Western's site is located within the Yuba City-Marysville Minerals Production-Consumption (PC) Region, as defined in California Department of Conservation Division of Mines and Geology (DMG) *Special Report 132 (Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Yuba City Marysville Production Consumption Region* [1988]) (Special Report 132). The current Western mining site is classified under the SMARA mineral resource classification scheme as a Mineral Resource Zone 2 (MRZ-2), containing significant mineral deposits.¹

The project site is located south of the Yuba River, north of Hammonton-Smartsville Road, and north of Beale Air Force Base (see Figure 3-1). Western's Vested Rights Area is approximately 3,900 acres located in Section 1, T15N, R4E; Section 2, T15N, R4E; Section 11, T15N, R4E; Section 12, T15N, R4E; Section 4, T15N, R5E; Section 5, T15N, R5E; Section 6, T15N, R5E; Section 26, T15N, R5E; Section 27, T15N, R5E; Section 32, T15N, R5E; Section 33, T15N, R5E; and a portion of the northwest quarter of Section 34, T15 N, R5E. The area addressed in the Amended Reclamation Plan comprises approximately 1,960 acres located in Sections 1, 2, 11, and 12, T15N, R4E; Sections 4, 5, and 6, T15N, R5E; and Section 32 T16N, R5E (see Figure 3-3a [Current Reclamation Plan Area] and Figure 3-3b [Proposed Reclamation Plan Area]). The fact that the Amended Reclamation Plan addresses operations in some, but not all, of the Vested Rights Area is not intended as a waiver, abandonment, or relinquishment of any rights in other portions of the Vested Rights Area.

¹ California Department of Conservation, Division of Mines and Geology, *Special Report 132: Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Yuba City Marysville Production Consumption Region* (1988), pp. 8–10.

3.1.1 Surrounding Land Uses and Setting

The lands surrounding the Yuba Goldfields south of the Yuba River are zoned M-2 or A/RR5,² the latter of which allows mixed agricultural, ranching, and low-density residential uses. The Yuba River runs 1 mile north of the proposed project's northern boundary, beyond which are the Yuba Goldfields (historical dredger tailings). The Yuba River is used primarily for recreational activities such as fishing and rafting. Lands immediately north of the Yuba River support aggregate mining (by other companies). The lands to the east of the Goldfields are vacant and are used for cattle grazing. The lands to the south and west of the Goldfields, and north of Hammonton-Smartsville Road, support aggregate mining (by other mining companies), agricultural production, and cattle grazing. Beale Air Force Base is located to the south of the Goldfields and south of Hammonton-Smartsville Road.

3.2 PROJECT OBJECTIVES

The intent of SMARA is to “maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that (a) adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition that is readily adaptable for alternative uses; (b) the production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and (c) residual hazards to the public health and safety are eliminated.”³

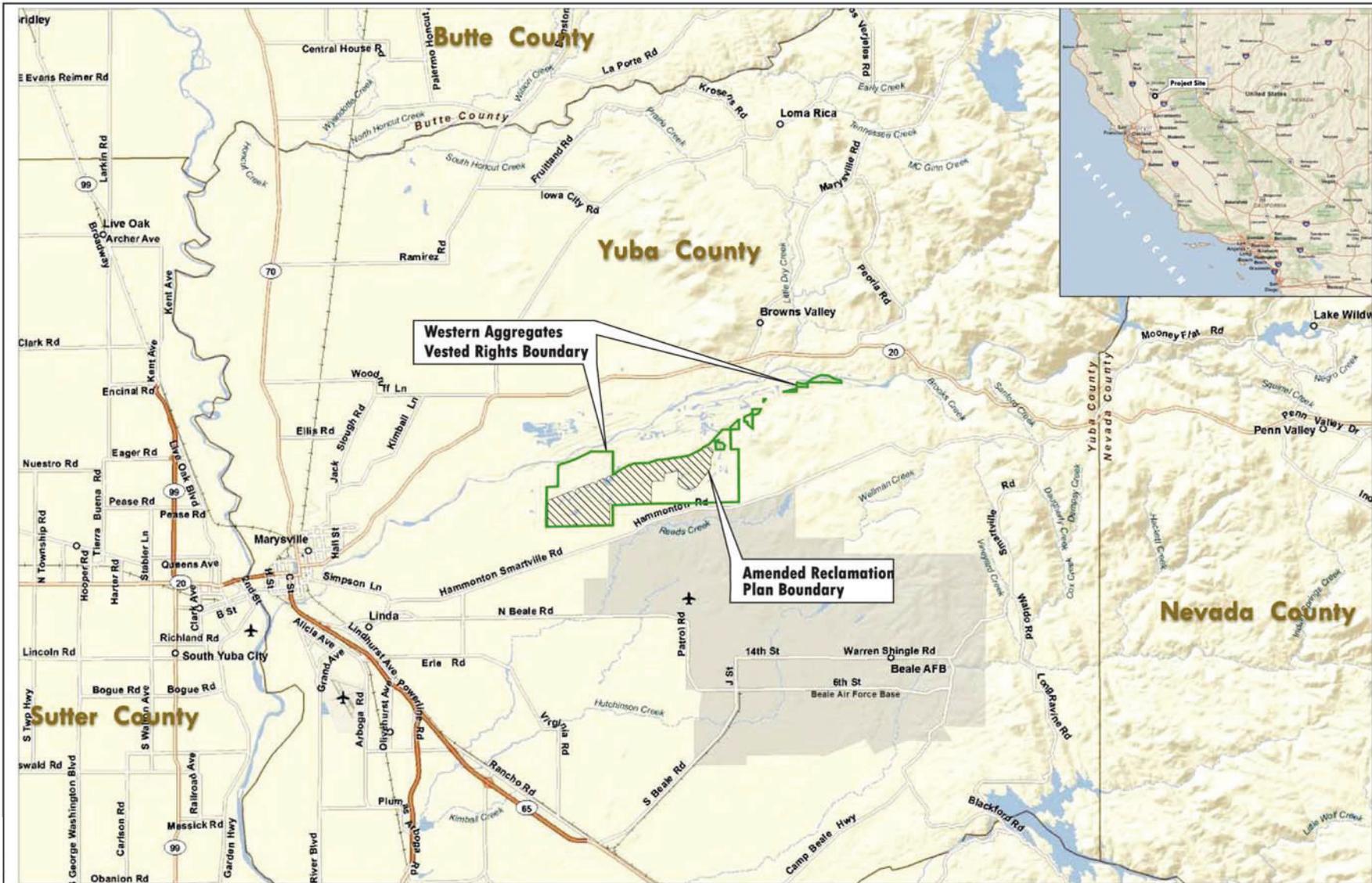
SMGB reclamation regulations (California Code of Regulations [CCR] Article 9, Section 3700) state the following: “Reclamation of mined lands will be implemented in conformance with standards in this Article (Reclamation Standards).” The standards will apply to each surface mining operation to the extent that:

- (1) They are consistent with required mitigation identified in conformance with CEQA; and
- (2) They are consistent with the planned or actual subsequent use or uses of the mining site.

As described in Chapter 1, Introduction, the results of the SMARA mine inspection in November 2002 concluded that the original reclamation plan (RP 80-01 approved by Yuba County), although adopted in accordance with the SMARA standards in 1980, did not meet current SMARA standards. RP 80-01 did not identify a maximum anticipated depth of extraction, but an average tailings deposit thickness of 80 feet was assumed. RP 80-01 indicated canals and lakes may be left by the dredging process to enhance the subsequent use of the area. Following land surface preparation, resoiling would be initiated. No specific reclamation objective, including vegetation, was described in RP 80-01, although several alternative land uses were proposed including recreation, aggregate mining, industrial and residential development, and agriculture.

² Yuba County Information Technology Division, Yuba County Zoning and Specific Plan Designations Map, <http://gis.co.yuba.ca.us/images/maps/ZoningMap.pdf> (accessed 12/15/2012).

³ Surface Mining and Reclamation Act, California Public Resources Code Section 2712.



Source: Lilburn Corporation, 2012.

LEGEND

- Vested Rights Boundary
- Amended Reclamation Plan Boundary and Operating Area for Aggregates

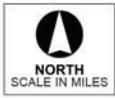


Figure 3-1
Area Map



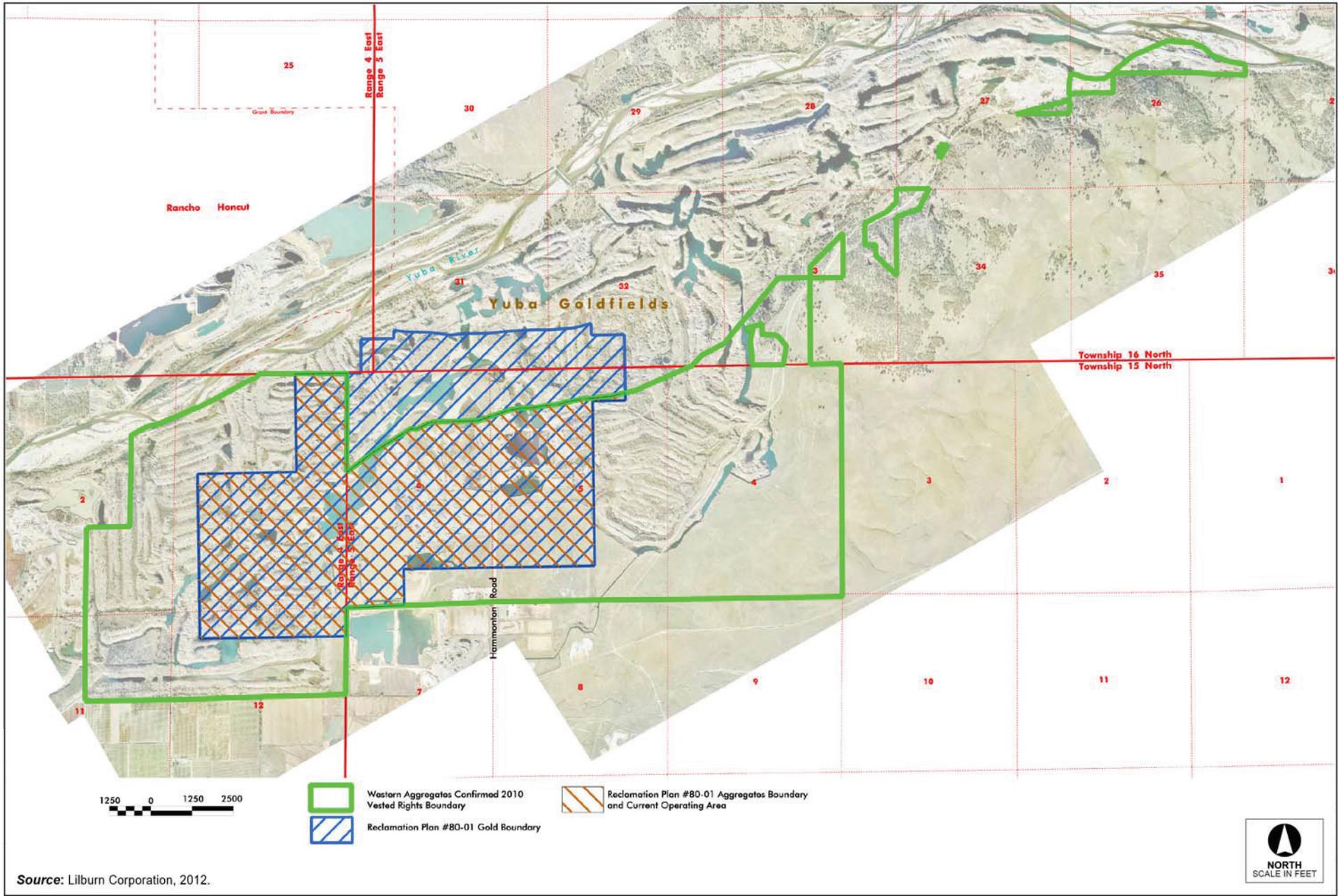
Existing conditions typical of the Goldfields operations

Existing conditions typically consist of sand and gravel stockpiles as a product of earlier gold dredging. Dredge piles consist of sand, and gravel with varying degrees of natural vegetation by grasses. Some pile areas have been seeded by Cal Sierra. The dredge piles border small valleys that have varying degrees of silts.



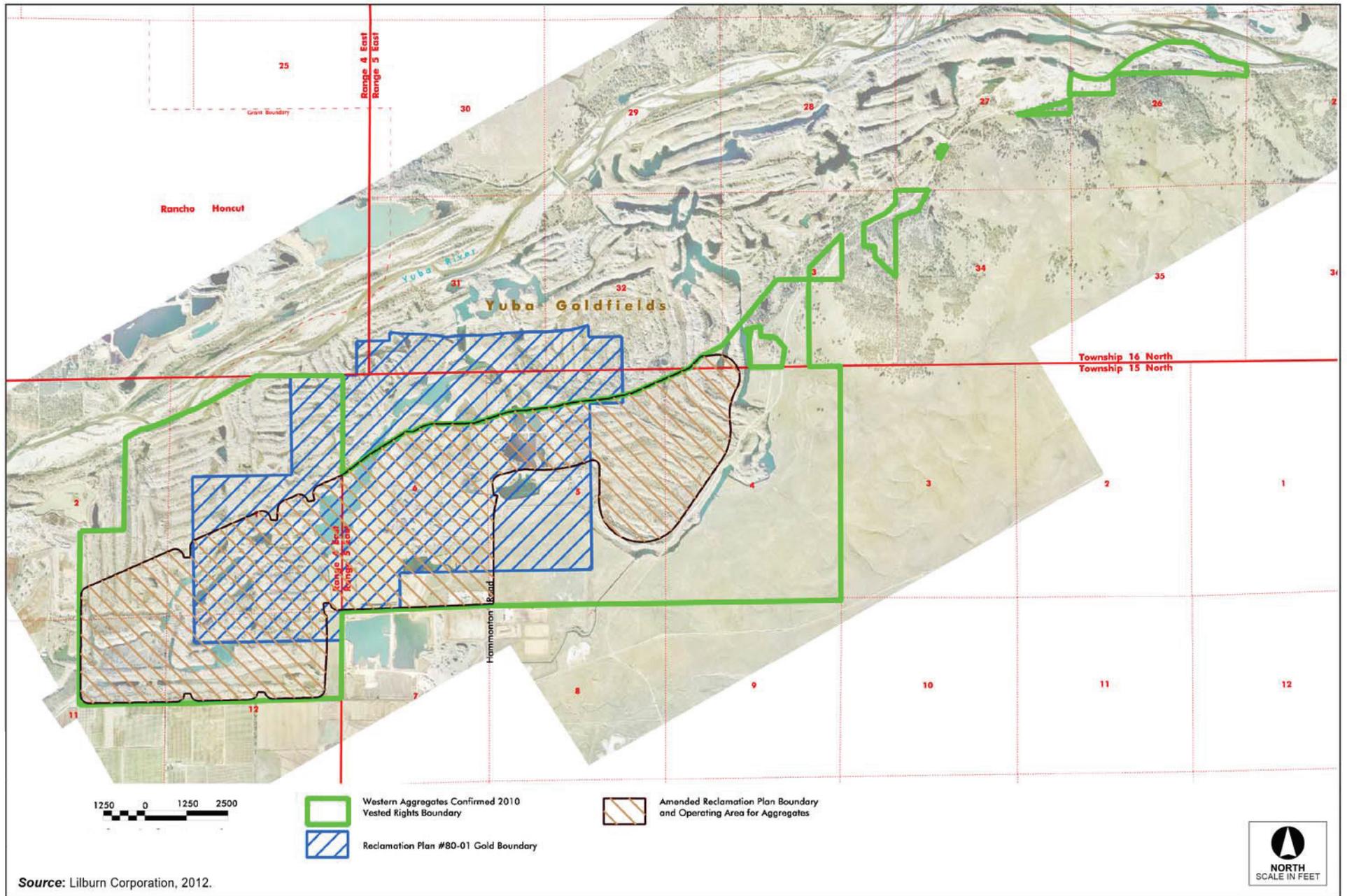
Source: Lilburn Corporation, 2012.

Figure 3-2
Typical Existing Conditions



Source: Lilburn Corporation, 2012.

Figure 3-3a
Current Reclamation Plan Area



Source: Lilburn Corporation, 2012.

Figure 3-3b
Proposed Reclamation Plan Area

Western subsequently prepared a reclamation plan in 2005 to include all of the area subject to the vested right confirmation within the boundaries of the new reclamation plan. In the process of conforming its new reclamation plan to the 2010 vested right determination, Western also sought to substantially upgrade the existing RP 80-01 plan to meet current SMARA standards.⁴

The Amended Reclamation Plan employs the standards of SMARA (California Public Resources Code [PRC] Section 2773) for both content and performance standards, including specifically Article 9 (Reclamation Standards), as contained in CCR Sections 3700 through 3711. Standards applicable to this application include Sections 3702, 3704(c–g), 3705, 3706, 3709, 3710(a), and 3711. Those standards defined as inapplicable include Sections 3703, 3704(a–b), 3704.1, 3707, 3708, 3710(b–d), 3712, and 3713.

Western’s objectives for the Amended Reclamation Plan are to:

- Provide for reclamation of vested right aggregate operations within a greater portion of the Vested Right Area (1,960 acres) than contemplated within Western’s anticipated mining area under the approved reclamation plan (approximately 1,200 acres), and otherwise comply with the 2010 vested right decision of the State Mining and Geology Board.
- Upgrade Western’s reclamation plan to current SMARA standards.
- Reclaim to a usable condition for post-mining end uses.
- Contour mining features and revegetate disturbed areas to promote aesthetic, biological, and hydrological effects.
- Reclaim the site as necessary to promote public health and safety.
- Preserve Western’s ability to mine vested areas outside of Reclamation Plan boundaries subject to future Reclamation Plans or Reclamation Plan amendments.
- Establish a stand-alone reclamation plan for aggregate operations (Cal Sierra Development, Inc., will continue under existing reclamation plan RP 80-01).

3.3 MINE OPERATIONS

Since the early twentieth century, gold and aggregate mining, production and related operations have been continuously active on Western’s 3,900-acre Vested Rights Area, as described above, as well as adjacent lands to the north subject to property interests of Western and/or Cal Sierra Development, Inc. (Cal Sierra). Pursuant to its vested rights, Western has the right to conduct surface mining operations within the area covered by the Amended Reclamation Plan. Although production is expected to increase in response to market dynamics, total anticipated production over the next few years is estimated to be consistent with production over the previous 8 to 10 years, which has peaked at approximately 3.5 million tons of sand and gravel per year. It is expected that in the longer term, production rates will

⁴ By comparison, RP 80-01 indicated canals and lakes may be left by the dredging process to enhance the subsequent use of the area. It would not include large pond areas with vegetated shorelines. Emergent marsh habitat, if any, would likely be through natural recruitment and may be limited in extent. No specific reclamation objective, including vegetation, is noted in RP 80-01, although several alternative land uses were proposed including recreation, aggregate mining, industrial and residential development, and agriculture.

increase substantially to meet market demand, changes in market dynamics, and/or technological improvements occurring in the due course of business. Production within the approximately 1,960-acre Amended Reclamation Plan area is projected to take place for approximately 45 years from the date the SMGB approves the Amended Reclamation Plan. The Amended Reclamation Plan is based on mining depth anticipated to be approximately -20 feet below mean sea level (msl) (100 feet below the average lake surface level). However, mining depths may vary in certain areas and may reach -85 feet below msl (165 feet below the average lake surface level) based on local ground conditions, geology, changes in market conditions, and changes in mining technology, where such changes may be implemented without materially disrupting the shorelines, marshes, or other habitats contemplated by the proposed project. Based on mining to a depth of -20 feet below msl (100 feet below the average lake surface level), the reserves within the area covered by the proposed project are estimated at 414 million tons. However, slope stability to a maximum mining depth (85 feet below msl or 165 feet below the average lake surface level) is demonstrated by slope stability analysis.⁵

Western's operation is currently subject to Reclamation Plan (RP) 80-01, which was approved by the County of Yuba in 1980 for Yuba Consolidated's gold and aggregate operations. Gold mining operations, conducted by a separate company (Cal Sierra) occur concurrently with operations of Western, on the same Yuba Goldfields property. The operations and assets of Western and Cal Sierra were, through 1987, owned and controlled by a common entity, Yuba Goldfields, Inc. (together, with its predecessors, Yuba Consolidated). While Cal Sierra owns the precious metals estate and other related assets in the Yuba Goldfields, Western owns the surface estate and the rights to sand, gravel, rock, stone, cobbles, hardrock, decorative rock, silica, riprap and asphalt rock, and other aggregates (collectively referred to herein as either aggregates or sand and gravel) in the Yuba Goldfields (and certain limited gold, precious metals, and other related assets in a small portion of the Goldfields). Cal Sierra's administrative offices are located in the approximate center of Section 5 (Figure 3-3a and Figure 3-3b). RP 80-01 now applies to both Western's aggregate operations and Cal Sierra's gold operations, covering approximately 2,000 acres. Of the total 2,000 acres, approximately 1,420 acres apply to Western's aggregate operations, while the entire 2,000 acres apply to Cal Sierra's operations. Western's operations under RP 80-01 are located in Sections 1 and 12, Township 15 North, Range 4 East, and Sections 5 and 6, Township 15 North, Range 5 East, as shown in Figure 3-3a. Western's aggregate plant operations are currently located in Section 6. This 1,420-acre area is oriented northeast-southwest and is within an irregularly shaped area. Much of the perimeter of the active mining area site is characterized by old dredged tailings that exist as narrow ridges separated by intervening topographic lows. Historically, most of the area has been mined with bucket-line dredges, with these areas having been dredged at least twice and in some parts of the property three to four times, each time to a greater depth with more efficient recovery equipment.

The proposed Amended Reclamation Plan covers approximately 1,960 acres of the 3,900-acre Vested Rights Area, including the 1,420-acre area within RP 80-01 that applies to aggregate operations. If approved, the Amended Reclamation Plan will supersede the 1,420-acre portion of RP 80-01 that applies

⁵ Amended Reclamation Plan: Appendix D (Slope Stability Investigation Report. The Amended Reclamation Plan is included in this Draft EIR as Appendix A.

to aggregate operations. However, the entire 2,000-acre area of RP 80-01 that applies to gold operations will remain valid and still intact (see Figure 3-3b).

In the southern portion of the RP 80-01 site is the Processing Plant area where Western maintains processing equipment (i.e., crushers, screens, and conveyors, maintenance structures, fuel storage area, product stockpiles, etc.), a scale house, shop building, fuel island, administrative offices, and equipment storage. A large settling pond situated in the central portion of the site north of the processing area (referred to in Western's Waste Discharge Requirements as a "Designated Disposal Area" or "DDA") serves as the sediment settling pond. Product stockpiles are situated adjacent to the processing area (see Figure 3-4 [Current Plant Operations]).

3.3.1 Current Operations

Western's existing operations consist primarily of sand and gravel removal and processing. Current mining operations by Western involve excavation using a clamshell dredge, excavators, draglines, and other equipment. Material is removed, transported, or conveyed to a processing plant and then sorted, and, for certain materials, crushed and/or washed and stockpiled for use in the manufacturing and/or sale of construction aggregates and road base and other aggregate material. Wash water and silts are pumped into a settling pond (Figure 3-4).

3.3.2 Methods of Extraction

Western has employed or currently employs several methods in its production of aggregates in the Goldfields. The methods of excavation include the use of dredges, draglines, scrapers, excavators, and any other appropriate techniques to remove the resource. See Figure 3-5 (Typical Extraction Methods A) and Figure 3-6 (Typical Extraction Methods B). The following is a brief description of each.

■ Dredges

Dredge designs include the following (refer to Figure 3-5 and Figure 3-6):

- Hydraulic—suction with or without a cutter head
- Bucket line
- Clam shell

Each of these dredge types removes, dewater, or processes the material, then places it on a conveyor or truck and/or deposits it in a process area to be collected by a scraper and/or a front-end loader. The material is then transported to the processing plant or stockpile.

Dredges require an assortment of support equipment used to level ground, move overburden, position the dredge, and maintain dust control. These include dozers, loaders, scrapers, haul trucks, water trucks, graders, conveyors, and work boats.

[THIS PAGE INTENTIONALLY LEFT BLANK]

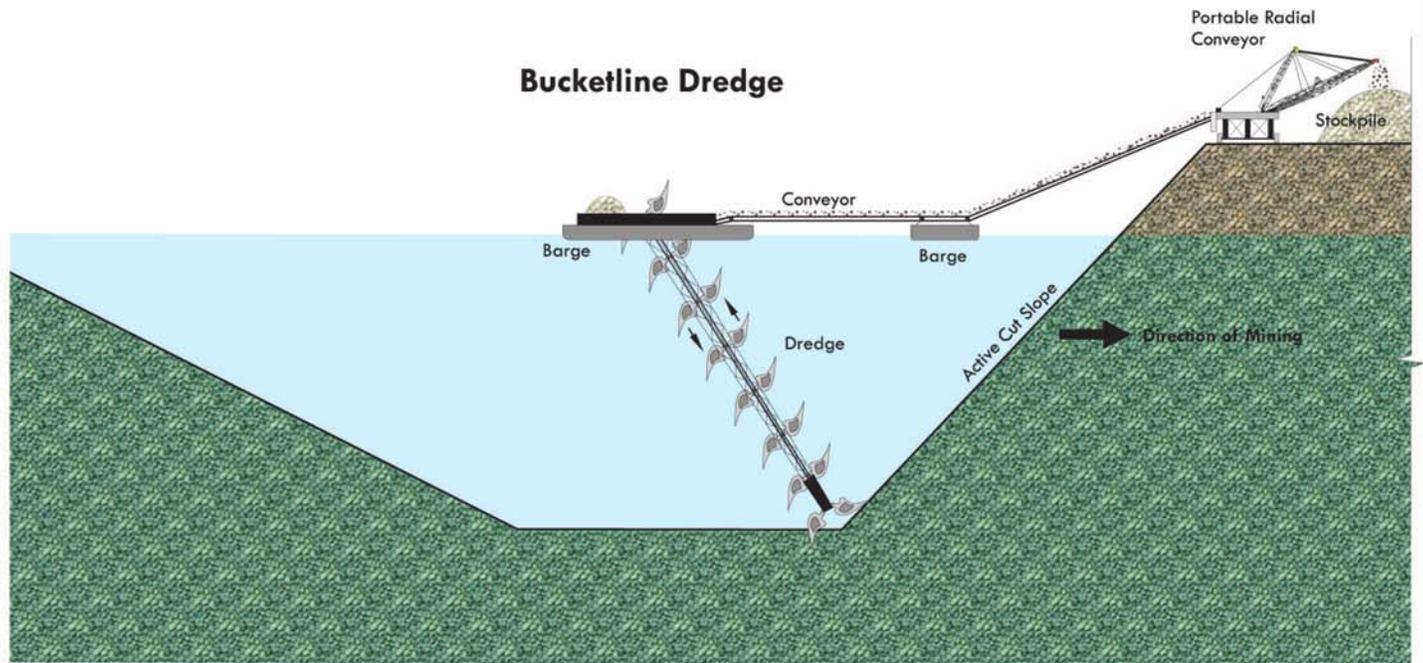
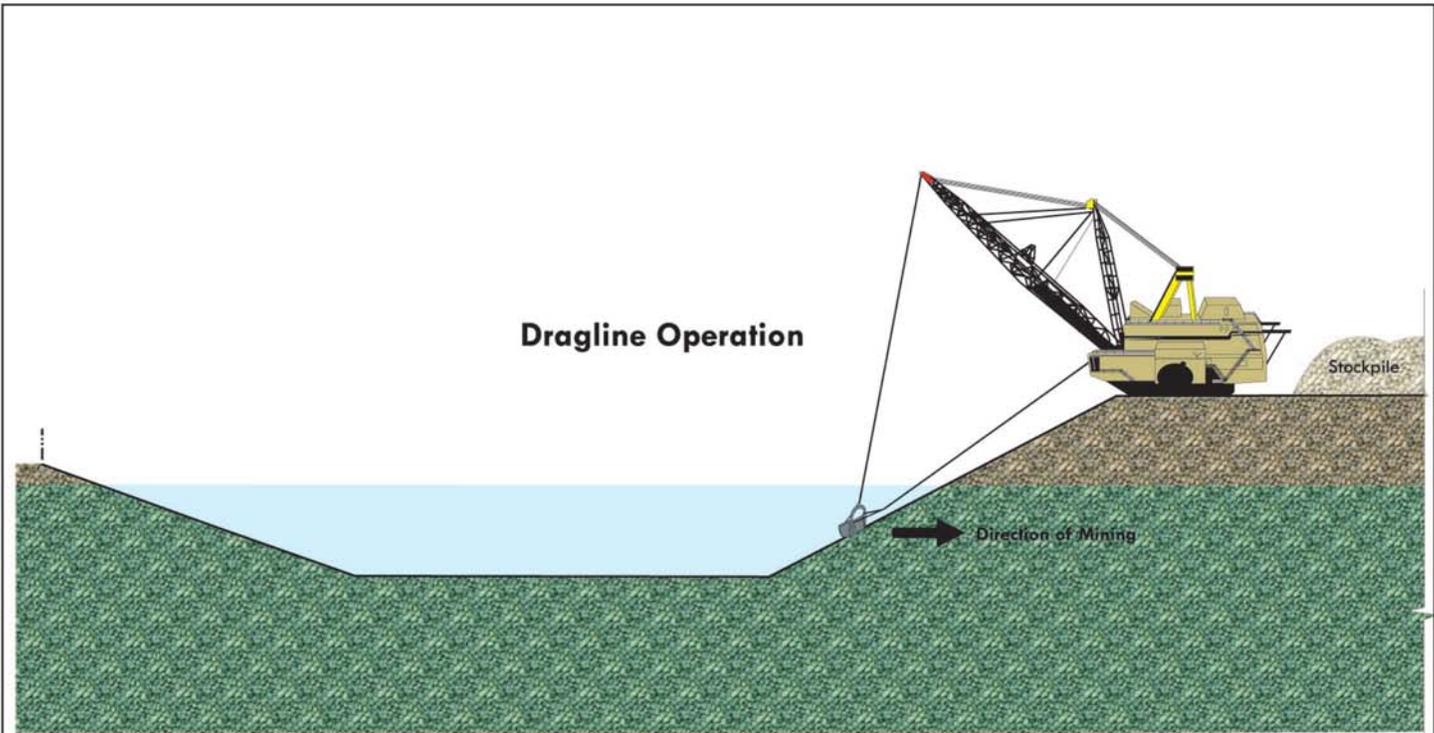


Current Plant Operations - May 2012

Western Aggregates LLC
Yuba County, California

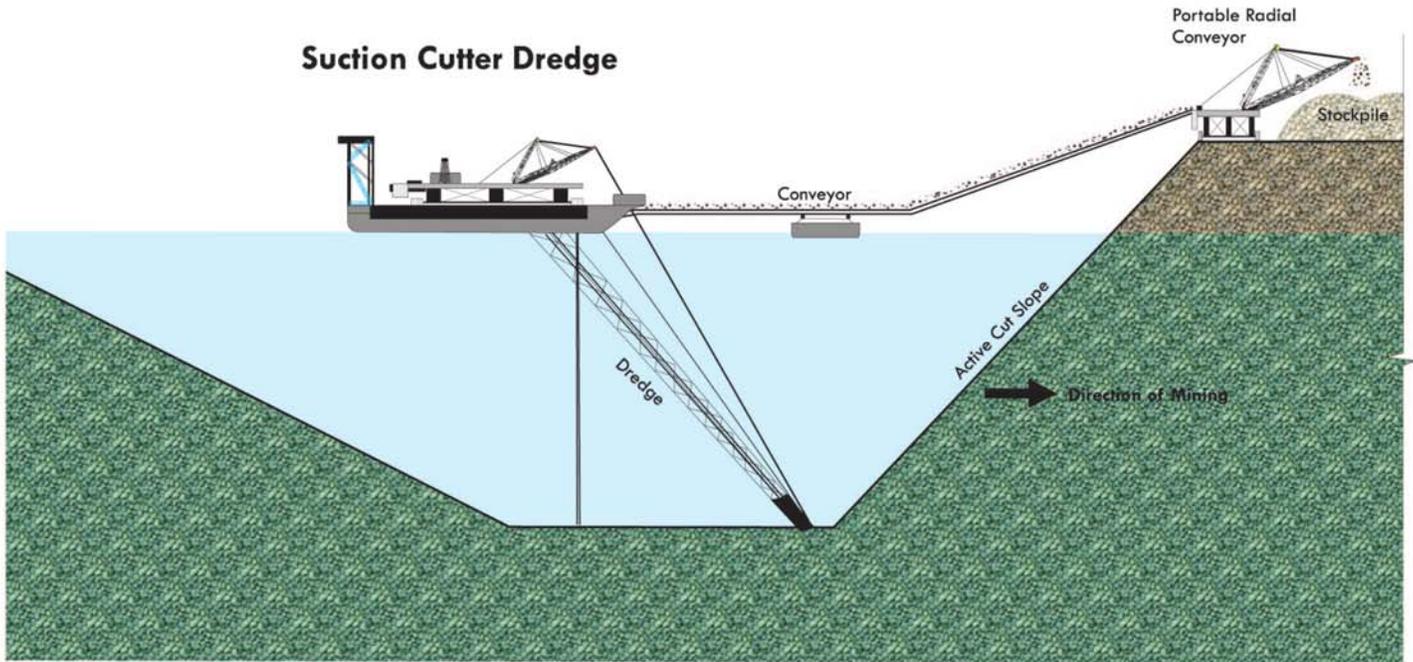
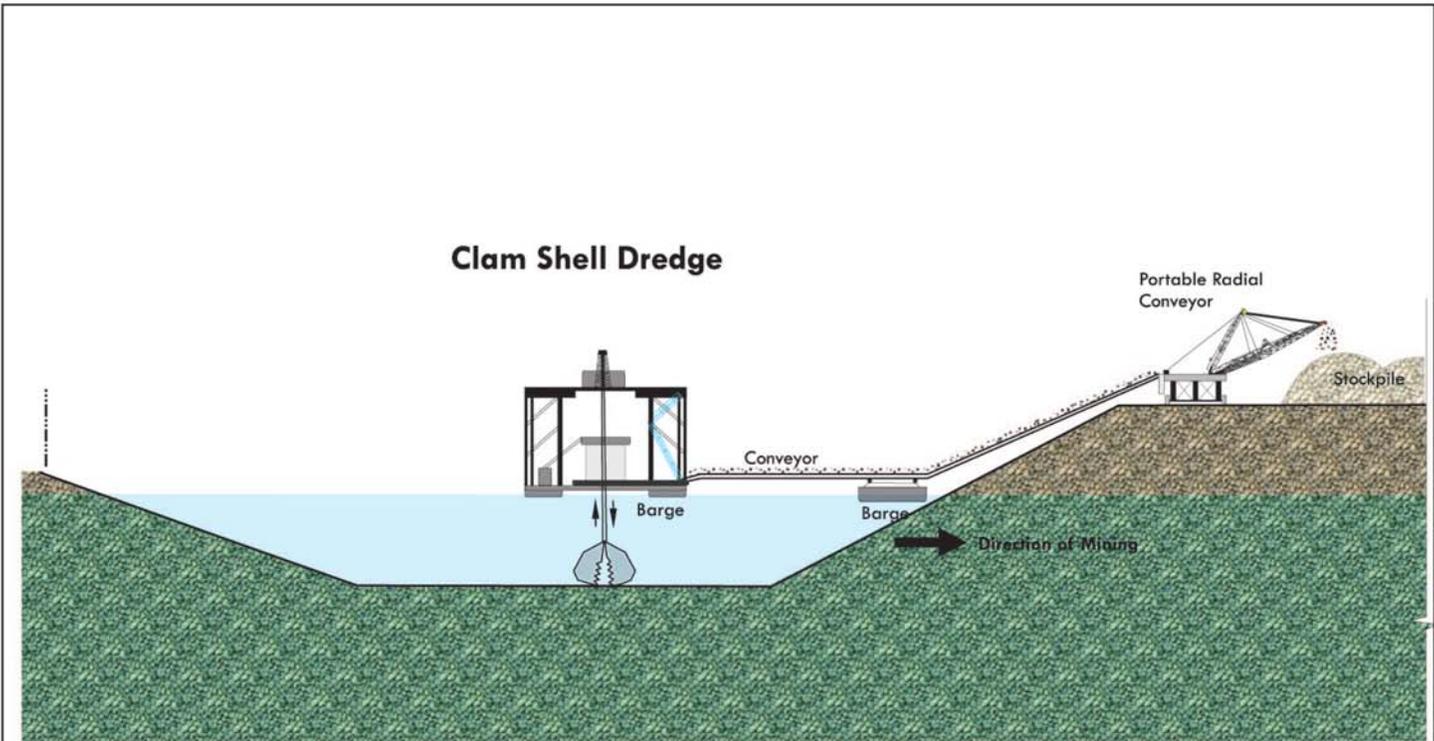
Figure 3-4





Source: Lilburn Corporation, 2012.

Figure 3-5
Typical Extraction Methods A



Source: Lilburn Corporation, 2012.

Figure 3-6
Typical Extraction Methods B

Historically, Cal Sierra has used bucket line dredges that harvested materials from a depth of well over 120 feet below water elevation, separated the fines and precious metals from the ore, and deposited the cobble tailings in its wake via a stacker or monitor. Western retrieved those tailings from the conveyor stockpile with a backhoe or front-end loader and transported them via truck to their aggregate plant for processing (Figure 3-5).

■ Dragline

A dragline drags a bucket across a mined surface, harvesting aggregates in the process and depositing the material in a stockpile or hopper. The material is then picked up by appropriate loading equipment and placed on a conveyor or truck for transport to the processing plant. Support equipment includes dozers, loaders, scrapers, haul trucks, water trucks, graders, and conveyors (Figure 3-5).

■ Excavator

An excavator is positioned on dry land and used to excavate above and below the water level. Collateral equipment is the same as for a drag line.

Western's current mining operation employs dry mining as well as a clamshell dredge to mine to the depth of existing dredged material, which is typically around 85 feet below water level in its current mining area. Although the depth of mining may vary from place to place, -20 feet below msl (100 feet below the average lake surface level) has been used as the approximate mining depth for purposes of the Amended Reclamation Plan due to current economic and technological conditions. Current mining employs a Rohr Clamshell dredge type RS 12.5/450B with a 16-cubic-yard bucket. Excavated sand and gravel is discharged from the clamshell into a hopper that has a grizzly to prevent oversize materials and miscellaneous debris from getting into the system and damaging equipment. The sand and gravel is dewatered on the dredge by means of a dewatering screen and cyclones before being conveyed by the on-board belt conveyor to a series of floating belt conveyors. These conveyors transport the material to a land conveyor and stacker that stockpiles the material over a 14-foot-diameter tunnel with four belt feeders. These belt feeders are used to supply the existing processing plant. All equipment on board the dredge is powered and supplied by electrical cable that is supported on the floating conveyors (refer to Figure 3-6).

3.3.3 Processing

Once the removed material reaches the plant, it is processed through a primary screen. Certain sizes of material are washed through a series of screens. Larger rock is conveyed to the crushing plant. The aggregate products are stockpiled by size for shipment.

The amount of material processed is dictated by the capacity of the crushers, screens, and conveying equipment, and the daily hours of operation. Site facilities also include administrative offices, scalehouse, shop, fuel island, and equipment storage area. A plot plan aerial of the existing plant is shown in Figure 3-4.

■ Settling Pond

Settling pond activities are located within the processing area and are moved as needed to accommodate operations. The processing activities separate clay or fine silt (fines), which are deposited into a settling pond (described in Western's Waste Discharge Requirements as a DDA). The fines settle out and the water is allowed to evaporate or recirculate into Western's plant process. The fines may be used for resoiling the site for revegetation purposes, and possibly for other uses. Other uses of the fines may include sale or processing into salable products. The current settling pond is located north of the plant (see Figure 3-4).

■ Depth of Excavation

The depth of mining for the 1,960-acre area addressed by the Amended Reclamation Plan will be approximately -20 feet below msl (100 feet below the average lake surface level). However, mining depths may vary in certain areas and may reach 85 feet below msl (165 feet below the average lake surface level) based on local ground conditions, geology, changes in market conditions, and changes in mining technology, where such changes may be implemented without materially disrupting the shorelines, marshes, or other habitats contemplated by the Amended Reclamation Plan.

■ Total Acreage

It is projected that approximately 1,960 acres of the 3,900-acre Vested Rights Area will be affected by Western's surface mining operations during the 45-year period.

■ Estimated Quantities

The reserves within the Amended Reclamation Plan area, assuming mining to a depth of approximately -20 feet below msl (100 feet below the average lake surface level), are estimated to be 414 million tons of aggregates. Area and volumes by individual quarries are presented in Table 3-1 (Area and Volume by Quarry). The estimated termination date of the surface mining operations to which the Amended Reclamation Plan applies is projected to be 45 years following approval of the Amended Reclamation Plan, now estimated to be on or about December 31, 2059.

3.3.4 Mine Phasing

Mine phasing will take place in a manner preceding and consistent with reclamation phasing as described in detail in Section 3.4.4 (Reclamation Phasing).

<i>Quarry/Lake</i>	<i>Area (acres)</i>	<i>Perimeter (feet)</i>	<i>Volume @ 100 Feet (mcy)</i>	<i>Reserves (MT)</i>
1	494.0	21,355	104.6	156.9
2	292.8	18,735	45.7	68.5
3	224.1	14,962	35.6	53.4
4	290.5	15,211	43.4	65.1
5	300.8	14,378	46.8	70.2
Operations Areas (Plants, Stockpiles, Settling Ponds, etc.)	238.5			
Open Area	119.4			
Total	1960.1	84,641	276.1	414.1

mcy = million cubic yards; MT = million tons

3.4 RECLAMATION PLAN

3.4.1 Reclamation Overview

Western proposes to reclaim the mine site to maintain five large pond/lake areas created by mining, including revegetating the area to provide for an end land use consisting of open space and wildlife habitat with aquatic lake, marsh, woodland, and upland vegetation communities. The Amended Reclamation Plan employs the standards of SMARA for both content and performance standards, including specifically Article 9 (Reclamation Standards), as contained in CCR Sections 3700 through 3711.

The Amended Reclamation Plan would use existing mining equipment and methods to remove dredge piles or excavate previously undredged lands in a manner supportive of aquatic and terrestrial wildlife habitat. The plan is consistent with the existing vegetation and habitat characteristics and in a manner compatible with ongoing aggregate operations. The contemplated approach supports wildlife and emergent marsh via the creation of habitat, which includes discrete polygons that would function as lake boundaries. In addition, the Amended Reclamation Plan includes a significant buffer from the Yuba River. Because the majority of the existing landscape is dominated by cobble piles that maintain only intermittent vegetation, reclamation activities are intended to yield a substantial improvement over existing conditions.

Western plans to remove aggregates to a depth of approximately -20 feet below msl (100 feet below the average lake surface level) over an approximately 1,960-acre area, during a phased 45-year surface mining operation, creating a series of five discrete lakes with a shoreline bordered by vegetated woodlands and dikes or berms. The area covered by the Amended Reclamation Plan is depicted in Figure 3-7a (Conceptual Model for Final Reclaimed Configuration After 15 Years), Figure 3-7b (Conceptual Model for Final Reclaimed Configuration After 30 Years), and Figure 3-7c (Conceptual Model for Final Reclaimed Configuration After 45 Years). These figures depict utility easements and natural and man-made lake boundaries and individual lakes, numbered 1 through 5 for reference. The boundary lines shown on the Amended Reclamation Plan's aerial photograph and mapped exhibits representing section

lines were compiled from record information and U.S. Geological Survey (USGS) Quadrangle Maps, and thus are approximate. An in-field survey may result in slightly differing boundary locations from those depicted on the exhibits.

Lake depth will vary with location due to aggregate quality and demand, but would range between approximately 85 to 100 feet. The angle of repose or shoreline would also vary from 2:1 to 4:1 to create diverse habitats including beaches and shallows for wildlife and vegetation enhancement. The contouring of the shoreline would be completed concurrent with operations in a manner to provide the optimum habitat value. In the event field observations indicate that strength parameters used in the design of the mined slopes are not adequate, the slopes would be inspected and reanalyzed by a registered professional engineer or geologist and modified as necessary to provide a factor of safety suitable for the proposed end use and the Amended Reclamation Plan revised as may be required prior to implementing any such modifications.

Western's mining operations will create lakes with segments of irregular, meandering shorelines to support wildlife habitat and vegetation. In the event that large deposits of silts are encountered in the mining process, they may be retained and used in reclamation efforts. Three types of vegetative communities are proposed: emergent marsh, riparian woodland, and riparian upland.

The final result within the Amended Reclamation Plan boundary would be a series of five lakes varying in size. A simulation of the lake configuration appears in Figure 3-7a through Figure 3-7c, and graphic simulations of a reclaimed lakeshore environment appear in Figure 3-8 (Existing Cobble Berm) (before) and Figure 3-9 (Lake Boundary Simulation) (after). Figure 3-8 depicts the actual existing conditions of an in-place dredge pile naturally revegetated with grasses. The process would ultimately result in a series of lakes similar to the configuration depicted in Figure 3-7c and the simulated illustration in Figure 3-9. The final anticipated end use following reclamation is open space and wildlife habitat consisting of aquatic lake, marsh, woodland, and upland habitat.

Western would use fines available from mining operations, including residual dredge fines, fines from the settling pond(s), and overburden, to meet the revegetation requirements of the Amended Reclamation Plan. In addition, Western would spread a layer of fines to cover cobbles and provide an adequate rooting zone for revegetation.

Commercially available native seeds would be applied to these areas for erosion control purposes and to enhance natural revegetation. No off-site import of fines is proposed. In areas where topsoil would be disturbed, the soil would be salvaged and stockpiled for use in revegetation to the extent necessary. Western may re-enter an area covered by a prior mining phase and subsequently mine to a greater depth in the lake portion of the phased area. However, to the extent possible given operational constraints, such mining in prior mining phases would not adversely affect any revegetation areas created pursuant to the Amended Reclamation Plan. To the extent it is necessary for Western to disturb any such revegetation areas, Western will restore any such impacted areas to the condition prior to being impacted. This may include breaching lake perimeters in order to relocate dredging equipment. These perimeter breaches would be restored upon reclamation.

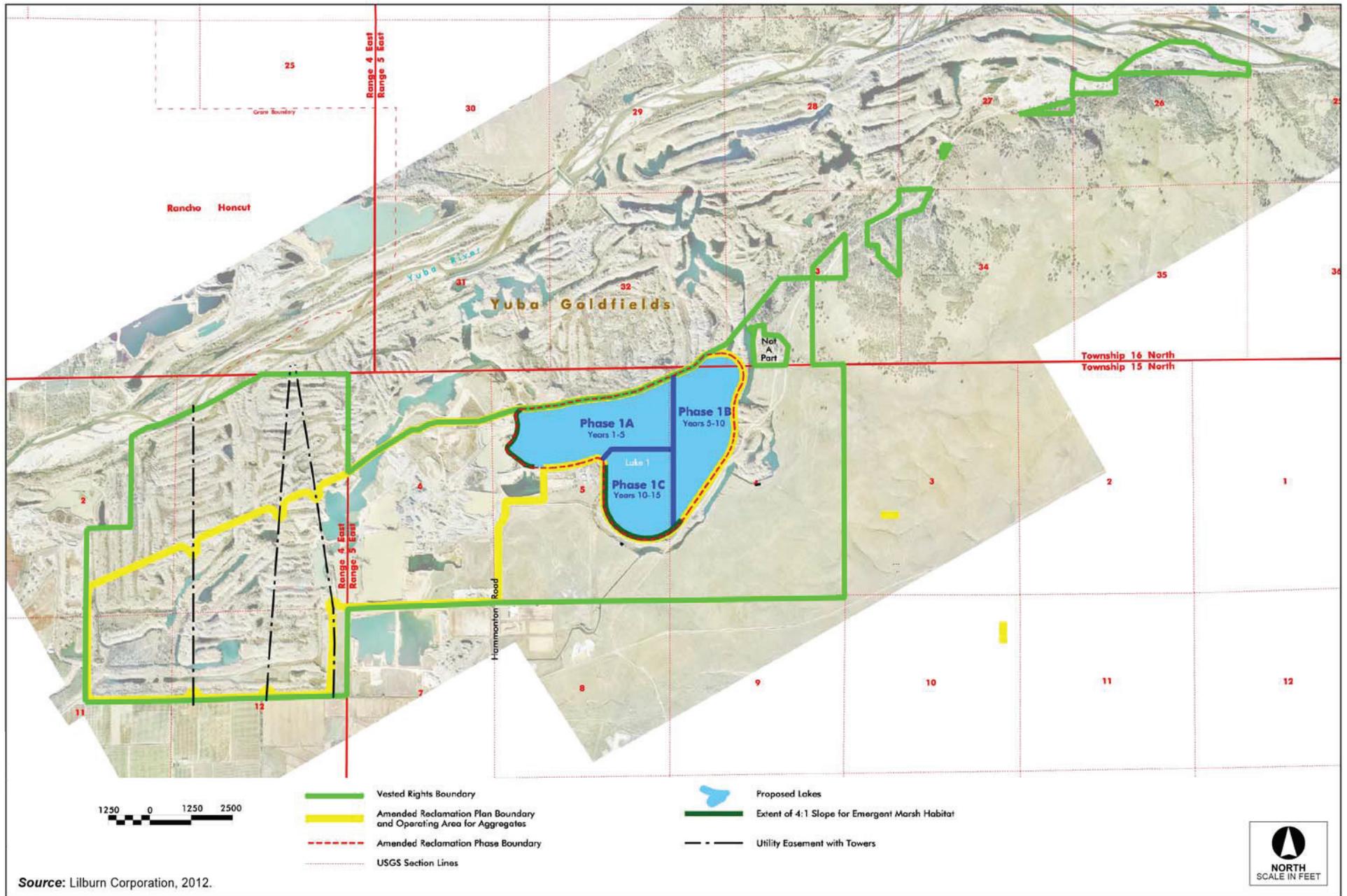


Figure 3-7a
 Conceptual Model for Final Reclaimed Configuration after 15 Years

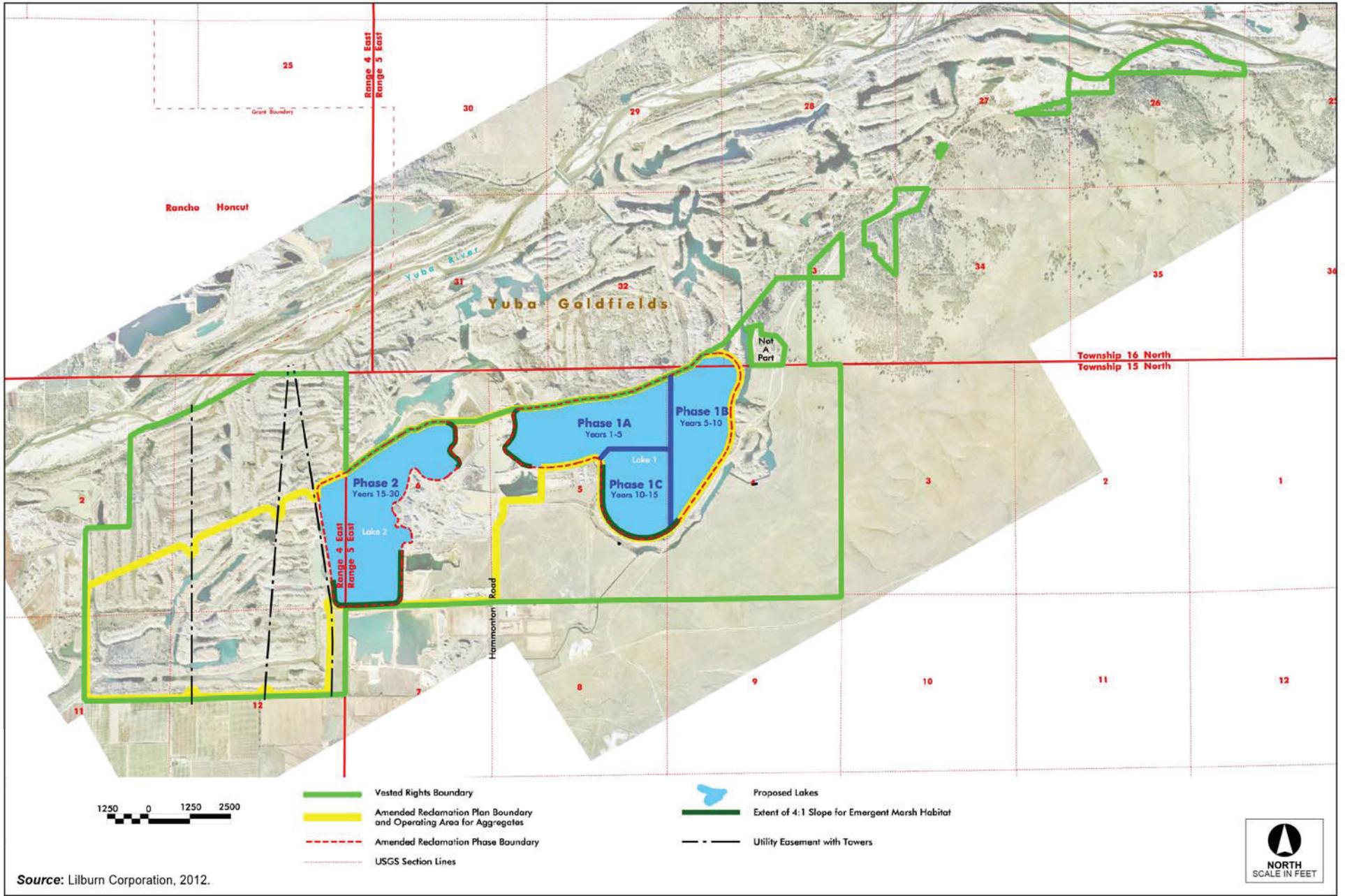
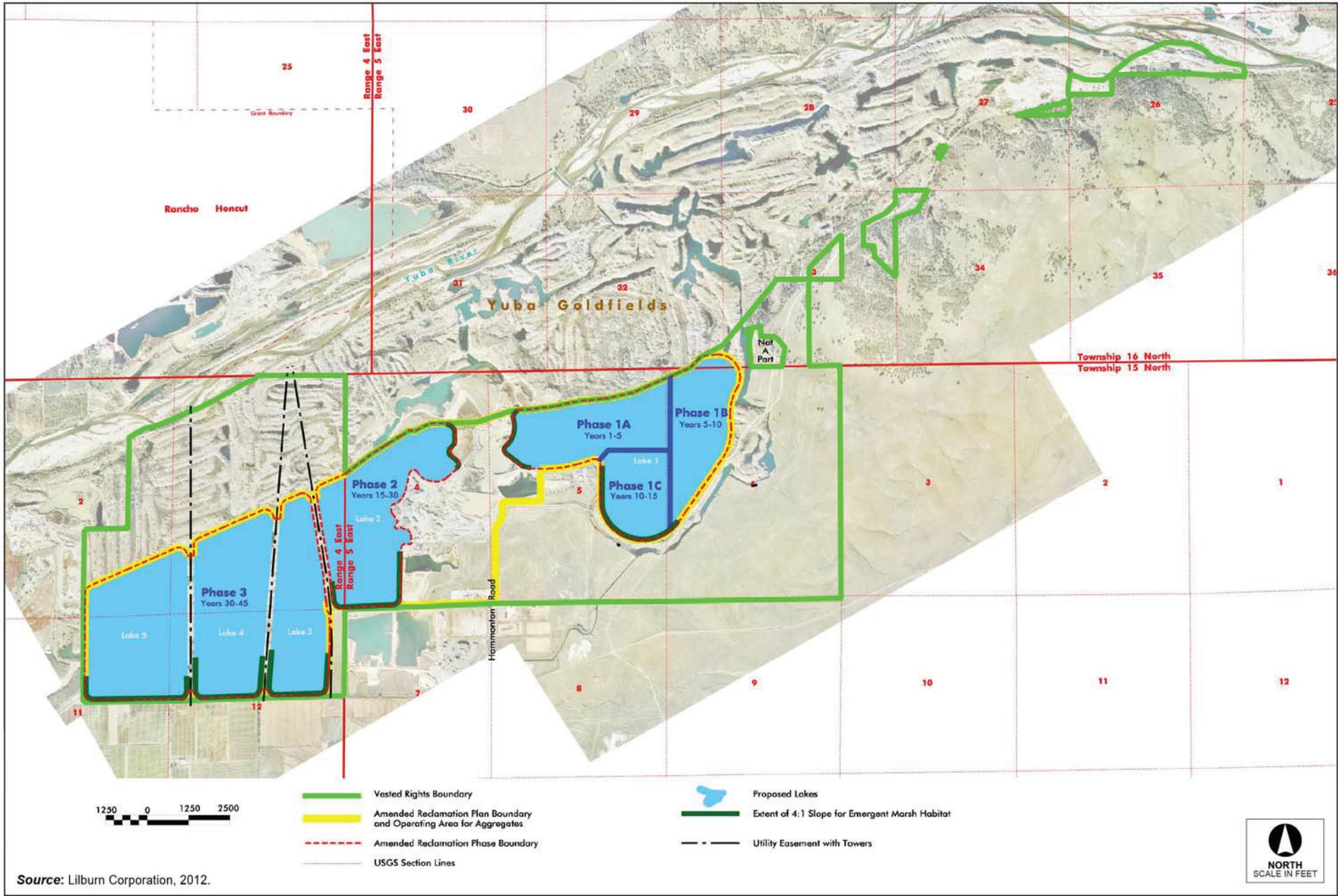


Figure 3-7b
 Conceptual Model for Final Reclaimed Configuration after 30 Years



Source: Lilburn Corporation, 2012.

Figure 3-7c
 Conceptual Model for Final Reclaimed Configuration after 45 Years



Source: Lilburn Corporation, 2012.

Figure 3-8
Existing Cobble Berm



Source: Lilburn Corporation, 2012.

Figure 3-9
Lake Boundary Simulation

Western anticipates that mining will continue in the Vested Rights Area beyond the 45-year phased plan proposed herein due to the extensive amount of aggregate within the Vested Rights Area and the anticipated and projected market for aggregate resources, and may include continued mining in areas addressed by the Amended Reclamation Plan. Western anticipates the plant site will retain its usefulness and viability beyond the culmination of the third 15-year phase; thus, subject to favorable conditions, Western may choose to retain some or all of the plant facilities.

Upon final completion of mining, the aggregate processing plant would be razed and all equipment would be dismantled and removed. As discussed in greater detail below, the plant site and roads and utilities serving the site would be prepared, revegetated, and reclaimed.

3.4.2 Revegetation

Western would conduct revegetation with commercially available native species concentrating on three vegetation types.

■ Emergent Marsh

Emergent marsh would consist of approximately 4 miles of shoreline over 25 feet in width of 4:1 sloped benches resulting in approximately 12 acres of emergent marsh. The settling pond area (DDA), see Figure 3-7a through Figure 3-7c, to be reclaimed to a vegetative condition may also contribute to the total planned revegetation. Vegetation in this community is present where surface water persists and is at least occasionally inundated. Water depths typically range from 0 to 4 feet. Approximately 6 inches of process fines would be deposited on these 4 horizontal:1 vertical (4:1) slopes.

Planting would occur to establish revegetation and habitat diversity. Planting specifications for the emergent marsh community are shown in Table 3-2 (Emergent Marsh).

<i>Species</i>	<i>Common Name</i>	<i>Propagule Type</i>	<i>Quantity^a</i>
<i>Carex nebrascensis</i>	Nebraska sedge	Plug	200
<i>Cyperus eragrostis</i>	Nut sedge	Plug	150
<i>Eleocharis macrostachya</i>	Pale spikerush	Plug	150
<i>Juncus balticus</i>	Baltic rush	Plug	200
<i>Juncus effusus</i>	Soft rush	Plug	200
<i>Scirpus acutus</i> var. <i>occidentalis</i>	Hard-stemmed rush	Plug	300

a. Amount or number per acre

■ Riparian Woodland

The riparian woodland represents the transition area between the emergent marsh and riparian upland. The development of this area would be accomplished by spreading fines to a minimum depth of 4 inches. Plants tolerant of saturated soils and occasional inundation are characteristic in this community. Table 3-3 (Riparian Woodland) lists the planting specifications for riparian woodland.

<i>Species</i>	<i>Common Name</i>	<i>Propagule Type</i>	<i>Quantity^a</i>
<i>Acer negundo</i> var. <i>californica</i>	California box elder	Seedling	20
<i>Alnus rhombifolia</i>	White alder	Seedling	20
<i>Cephalanthus occidentalis</i>	California button bush	Seedling	30
<i>Fraxinus latifolia</i>	Oregon ash	Seedling	20
<i>Platanus racemosa</i>	California sycamore	Seedling	20
<i>Populus fremontii</i>	Fremont cottonwood	Cuttings	30
<i>Rosa californica</i>	California wild rose	Seedling	30
<i>Salix laevigata</i>	Red willow	Cuttings	30
<i>Salix lasiolepis</i>	Arroyo willow	Cuttings	30
<i>Muhlenbergia rigens</i>	Deer grass	Plug	100
<i>Leymus triticoides</i>	Creeping wildrye	Seed ^b	10

a. Amount or number per acre
b. Pounds per acre pure live seed (PLS)

■ Riparian Upland

The riparian upland habitat consists of the constructed slopes, roadways, and lake boundaries that form the perimeters of the portions of the revegetated shoreline. The total area is unknown due to the phased nature of the lake designs. Elevations will range from 5 to 20 feet above the average lake level. Vegetation in this area is typically represented by relatively drought-tolerant riparian species. Table 3-4 (Riparian Upland) lists the planting specifications for riparian upland.

■ Planting Methods

Planting of commercially available species would be conducted in the fall following the first soaking rain of the season. Planting may include broadcast seeding followed by hand racking or a harrow in upland areas. Typical soil surface would consist of a minimum of 4 inches of fines. Willow and cottonwood cuttings would consist of live dormant stems placed in contact with saturated soils. Upon placement, these would be hand-irrigated to remove air pockets in the stem section. Trees would be placed in 1-cubic-yard excavated holes backfilled with fines and surrounded by an irrigation berm. Supplemental irrigation of upland seeding species would be provided by hand as needed for up to 2 years.

In areas that are compacted from previous use, such as roadways, stockpiles, or production areas, and subsequently abandoned, the surface would be scarified to a depth of at least 18 inches prior to adding fines and planting.

Table 3-4 Riparian Upland			
<i>Species</i>	<i>Common Name</i>	<i>Propagule Type</i>	<i>Quantity^a</i>
<i>Aesculus californica</i>	California buckeye	Seedling	15
<i>Baccharis pilularis</i>	Coyote brush	Seedling	20
<i>Ceanothus cuneatus</i>	Buckbrush	Seedling	25
<i>Heteromeles arbutifolia</i>	Toyon	Seedling	20
<i>Pinus sabiniana</i>	Gray pine	Seedling	15
<i>Quercus douglasii</i>	Blue oak	Seedling/acorns ^b	25
<i>Quercus lobata</i>	Valley oak	Seedling/acorns ^b	20
<i>Quercus wislizenii</i>	Interior live oak	Seedling/acorns ^b	20
<i>Rhamnus tomentella</i>	Hoary coffeeberry	Seedling	25
<i>Achillea millefolium</i>	Yarrow	Seed ^c	2
<i>Poa secunda</i>	Blue grass	Seed ^c	3
<i>Elymus glaucus</i>	Blue wildrye	Seed ^c	5
<i>Eriogonum nudum</i>	Naked buckwheat	Seed ^c	2
<i>Leymus triticoides</i>	Creeping wildrye	Seed ^c	3
<i>Lupinus microcarpus</i>	Chick lupine	Seed ^c	3
<i>Nasella pulchra</i>	Purple needlegrass	Seed ^c	3

a. Amount or number per acre
b. Three acorns per planting hole (e.g., *Q. douglasii*; 3 x 25 = 75 acorns/acre)
c. Pounds per acre pure live seed (PLS)

3.4.3 Revegetation Goals and Performance Standards

Performance goals for final revegetation are shown in Table 3-5 (Performance Goals for Final Revegetation). Revegetation monitoring would be conducted annually for a minimum of 5 years with at least 2 years without human intervention. Failure to achieve the performance standards at the end of the monitoring period would require remedial measures and further monitoring until the revegetation performance standards have been achieved.

■ Plant Protection

In order to prevent destruction of seedlings and cuttings, revegetation crews would use various methods of protection including paper or plastic sleeves, wire guards, and wire cages. Size, material, and mesh would vary based on plant type, type of herbivore being targeted, and proven effectiveness.

Table 3-5 Performance Goals for Final Revegetation		
Coverage	Species Richness	Density
Emergent Marsh		
80 percent cover	5 native emergent species/200 m ²	—
Riparian Woodland		
70 percent cover	8 native species/acre	150 native trees and shrubs/acre 60 deer grass/acre
Riparian Upland		
60 percent Absolute Cover (native woody species, grasses, and forbs)	4 native species of trees/acre 4 native species of shrubs/acre 3 native herbaceous perennial species/100 m ²	60 native trees/acre 55 native shrubs/acre
m ² = square meters		

■ Weed Management

Western would perform weed control using a variety of methods as required including hand removal, mechanical removal, herbicides, and biological predation. Annual spring monitoring would be conducted on the active mine area and the reclaimed areas. If weeds exceed 10 percent of vegetative cover in the reclaimed area, weed control measures would be initiated. Weeds in operations areas would be controlled if weed levels exceed those in non-mining areas on adjacent property. Potential terrestrial species that would be monitored are listed in Table 3-6 (Monitored Terrestrial Species).

Table 3-6 Monitored Terrestrial Species	
Giant reed (<i>Arundo donax</i>)	Perennial pepperweed (<i>Lepidium latifolium</i>)
Italian thistle (<i>Carduus pycnocephalus</i>)	Purple loosestrife (<i>Lythrum salicaria</i>)
Klamath weed (<i>Hypericum perforatum</i>)	Star thistle (<i>Centaurea solstitialis</i>)
Medusahead (<i>Taeniatherum caput-medusae</i>)	Tree of heaven (<i>Ailanthus altissima</i>)
Pampas grass (<i>Cortaderia selloana</i>)	Tree tobacco (<i>Nicotiana glauca</i>)
White top (<i>Cardaria draba</i>)	

Potential aquatic species are listed in Table 3-7 (Monitored Aquatic Species).

Table 3-7 Monitored Aquatic Species	
Hydrilla (<i>Hydrilla verticillata</i>)	Water hyacinth (<i>Eichornia crassipes</i>)

Hydrilla is a California Department of Food and Agriculture (CDFA) A-rated noxious weed. If hydrilla is detected, the Yuba County Agricultural Commissioner would be notified. Controls would be conducted in accordance with CDFA integrated pest control branch policies and procedures.

3.4.4 Reclamation Phasing

As noted above, aggregate operations would occur in three 15-year phases according to an aggregate phasing plan developed by Western. Western currently estimates that the average number of acres on which it will conduct surface mining operations in any 1 year during the life of the Amended Reclamation Plan will be approximately 35 acres and that it will mine to an anticipated depth of -20 feet below msl (100 feet below the average lake surface level). However, due to the long life of the operations, the number of acres affected and the depth of mining could change as a consequence of changed market conditions or changes in mining technology. A projected plan for aggregate removal advancement developed for planning purposes is depicted in Figure 3-10 (Phasing Plan) outlining operations for the next 15 years. For planning purposes, approximate potential future phases are also identified for years 16 to 30 and 31 to 45 (Figure 3-7a through Figure 3-7c). A total of approximately 1,960 acres of the Yuba Goldfields would be affected within the 45-year period of surface mining operations. These operations will involve removing sand and gravel to an initial depth of -20 feet below msl (100 feet below the average lake surface level) within the five planned lakes. The projected reserves are based on existing plant processing limitations and the wide variations in the aggregate layers re-deposited by the gold mining. Changes to any of these factors could decrease or accelerate the projected annual operations, as could changes in demand.

Figure 3-10 provides a plot plan for excavation phasing with a corresponding cross section in Figure 3-11 (Typical Mining Cross Section). The shoreline would be revegetated using the seed and plant mixes outlined above. Once established, it is expected that during the life of the Amended Reclamation Plan, this shoreline would be unaltered by future Western operations (excluding access roads), which would gradually move away from the shore. Figure 3-12 (Typical Post-Mining Cross Section) illustrates a cross section of a post-mining condition. Figure 3-8 is an actual photo of a naturally revegetated cobble berm. Figure 3-9 illustrates the berm following mining and reclamation. Figure 3-13 (Conceptual Simulation of Final Reclaimed Lake Configuration) provides an oblique simulation of the final lake configuration. Figure 3-5 and Figure 3-6 illustrate the methods of extraction and equipment types. Phases may vary in size, depth and location. At a time specified by the SMARA lead agency, but not less than 2 years prior to completion of a 15-year phase, Western would submit to the lead agency an updated 15-year phasing map reflecting any reclaimed areas and a detailed anticipated phasing scenario for the next 15 years at the same level of detail as the current phasing information. Such phasing maps may reconfigure the size and location of the mining during the phases, but will be consistent with the reclamation standards and phasing concepts set forth in the Amended Reclamation Plan. In addition, to the extent warranted by market conditions, site geology, or other factors, Western in its discretion may complete, or otherwise discontinue mining in, a particular phase in a time period of less than 5 years. Under such circumstances, prior to the completion of the abbreviated phase Western will submit to the SMARA lead agency an updated 15-year phasing map reflecting reclaimed areas and a detailed map of the next 15 years at the same level of detail as the current phasing information.

Western would begin final reclamation activities necessary to establish the surface features proposed in the plan concurrent with final aggregate removal by phase, including any areas subject to phases of less than 15 years. Newly created slopes would not exceed 2:1 horizontal to vertical. Approximately 25 percent of the reclaimed lake perimeter will be mined at a 4:1 slope extending approximately 25 feet

[THIS PAGE INTENTIONALLY LEFT BLANK]

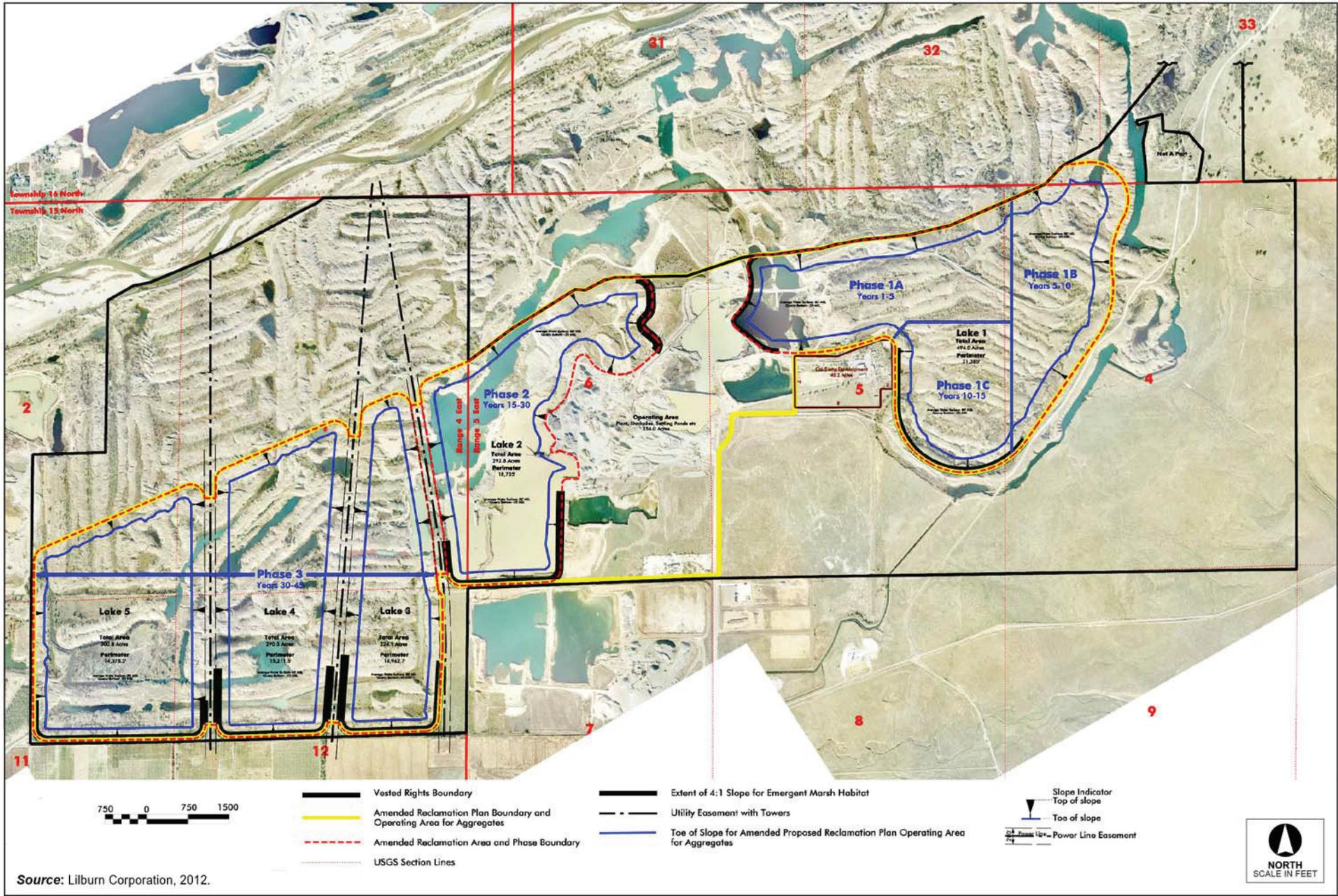


Figure 3-10
Phasing Plan

landward from the average low-water mark of 80 feet above msl. These slopes will be subject to partial inundation by water, 1 foot at the lowest level and no more than 6 feet of water at the highest lake level. These slopes would be reclaimed into emergent marsh. Following slope creation, revegetation associated with lake perimeters would be initiated. All temporary roads used only for mining operations would be decompacted and revegetated or mined through and reclaimed as part of a lake. Roads to be retained for access or revegetation efforts will be identified on the 15-year phase maps. A typical cross section of lake perimeters is shown in Figure 3-11.

3.4.5 Processing Plant Demolition and Reclamation

After mining operations are complete, the aggregate processing plant would be razed and all equipment would be dismantled and removed. Foundations would be broken, crushed, and recycled into aggregates or deposited on the site as infill. According to the Amended Reclamation Plan preparer,⁶ equipment typical of the demolition and grading process would include a rock hammer, excavator, loader, and haul truck used to demolish and transport the crushed concrete and a track dozer and motor grader for land contouring. Total area of demolition would be specific to pads and footings used in the processing and administration area. Total square footage should be approximately 2,000 to 5,000 square feet. Recycled concrete and material would be used as infill on site as needed and in a location to be determined or transported off site to a designated recycler.

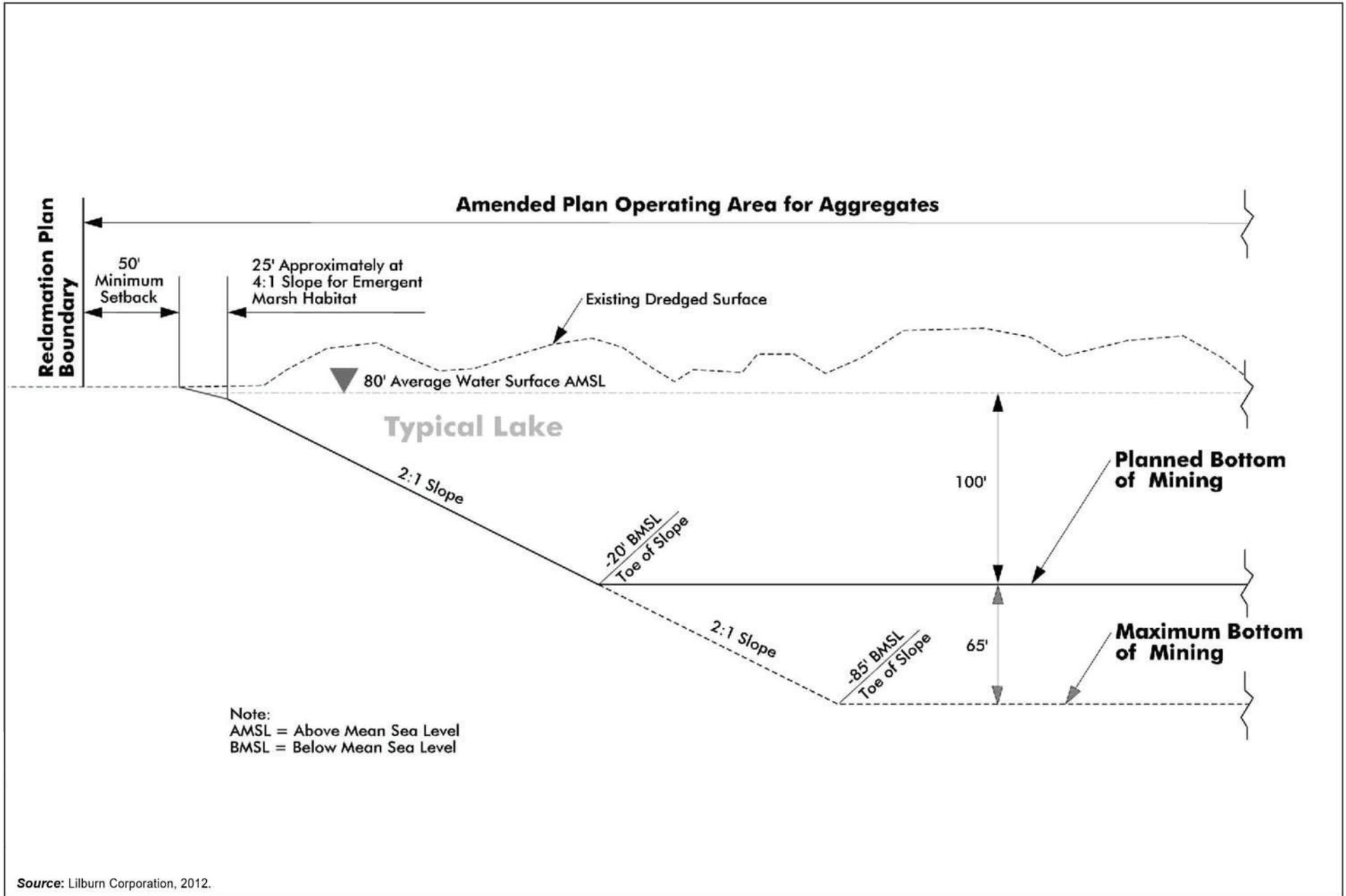
Roads and utilities exclusive to the plant operations would be removed. Surfaces would be cleared and scarified prior to revegetation. Appropriate revegetation per the proposed revegetation plan would then be applied to the plant footprint. Additional detail concerning activities and equipment associated with proposed plant demolition and plant site reclamation is presented in Amended Reclamation Plan Section 4.3 (Mine Waste Disposal) and Amended Reclamation Plan Appendix C (Revised Financial Assurance Cost Estimate) (see Draft EIR Appendix A).

3.4.6 Monitoring

Western would perform revegetation monitoring annually for a minimum of 5 years with at least 2 years without human intervention. Failure to achieve the performance standards at the end of the monitoring period would require remedial measures and further monitoring until the revegetation performance standards have been achieved.

⁶ S. A. Lilburn, e-mail communication to R. Hanson, Atkins, Subject: Western Aggregates Project Description (January 15, 2013).

THIS PAGE INTENTIONALLY LEFT BLANK]



Source: Lilburn Corporation, 2012.

Figure 3-11
 Typical Mining Cross Section

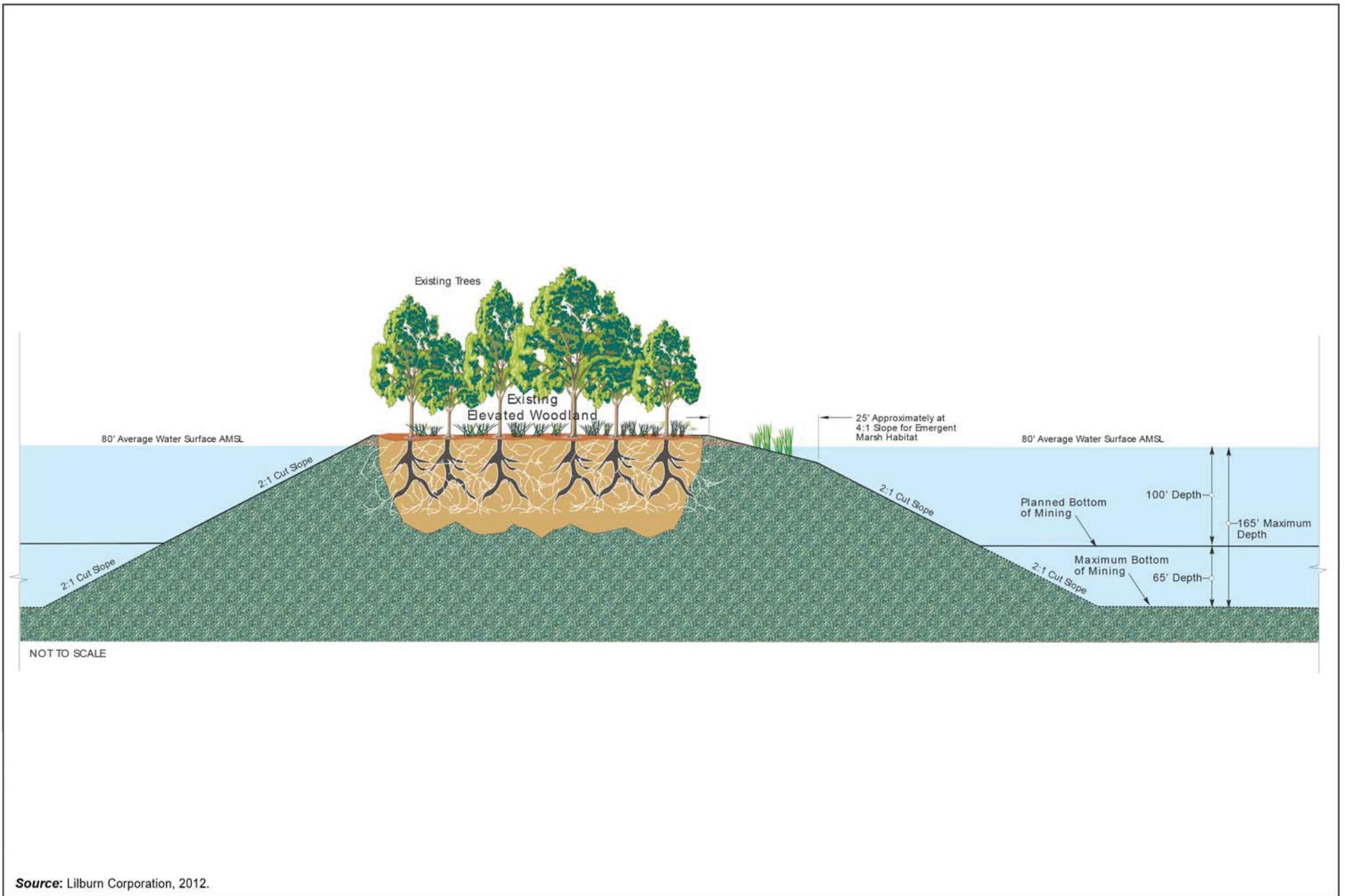


Figure 3-12
 Typical Post Mining Cross Section

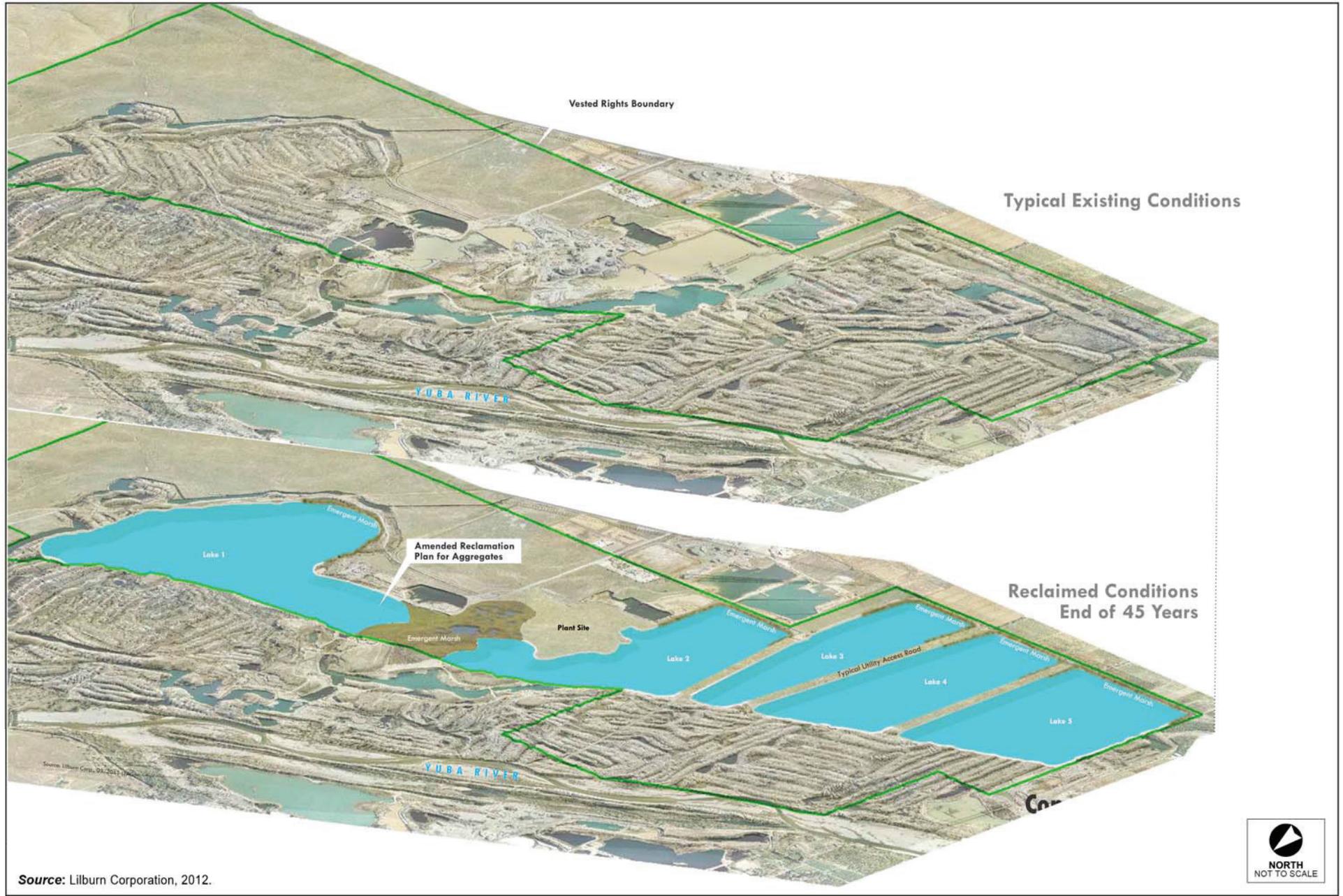


Figure 3-13
 Conceptual Simulation for Final Reclaimed Lake Configuration

After completion of reclamation activities, a relatively flat land contour with five large lakes would remain. Historically, volunteer riparian growth usually establishes within 6 to 8 months of inactivity around the circumference of ponds in the Goldfields. According to the Amended Reclamation Plan, “(a)reas above the water table which are revegetated should not require follow-up monitoring based upon the demonstrated success of revegetation completed on the subject property by Cal Sierra Development, Inc.” However, the financial assurance for the Amended Reclamation Plan includes funding the monitoring revegetation performance for 5 years following the conclusion of the reclamation phasing plan.

3.5 OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED

It is believed that adoption of the Amended Reclamation Plan will require the approval of no public agencies other than the SMGB, although it is the intention of the SMGB that the EIR apply to any other approvals necessary or desirable to implement the proposed project.

[THIS PAGE INTENTIONALLY LEFT BLANK]

CHAPTER 4 Environmental Analysis

4.0 APPROACH TO THE ENVIRONMENTAL ANALYSIS

This chapter analyzes the environmental effects of the proposed project and indicates ways to reduce or avoid potential environmental damage resulting from the project. The purpose of this EIR is to provide the public and decision-makers with an objective analysis of these issues. The EIR does not recommend either approval or denial of the project, but provides information to aid in the decision-making process, taking the environmental consequences of the proposed project into account.

Past, ongoing, and future mining and processing operations on the Western Aggregates LLC (Western) site have and will substantially modify physical conditions that currently exist on the project site. These modifications will occur as a result of Western's vested right to mine and process aggregate from on-site dredge tailing piles and subsurface deposits. The direct impacts of mining operations on site conditions that exist today are not subject to review in this Draft EIR because these effects will result from vested mining operations, which are not subject to discretionary action on the part of the State Mining and Geology Board (SMGB) or any other regulatory agency. The effects of mining operations are, however, critical to the evaluation of the potential impact of the Amended Reclamation Plan (the proposed project) because they are key to defining baseline environmental conditions that will exist when the proposed project, i.e., site reclamation, is implemented.

Project-caused changes to environmental baseline conditions serve as the basis for determining the environmental impact of the proposed project. Typically, baseline conditions are conditions that exist when the environmental review process is initiated. This approach, however, is often not appropriate for mine reclamation projects because site reclamation typically will not begin until after mining activities in the area to be reclaimed are completed. Site conditions that exist at the initiation of the environmental review process and prior to the completion of mining activities are likely to be markedly different from those that will exist at the commencement of reclamation activities.

For the following topics, the analysis in the April 2013 Initial Study (Appendix B in this Draft EIR) concluded that the proposed project would result in no impact or impacts that are less than significant: Aesthetics, Agriculture/Forestry Resources, Air Quality, Cultural Resources, Hazards/Hazardous Materials, Mineral Resources, Noise, Population/Housing, Public Services, Recreation, Transportation/Traffic (exclusive of air traffic), and Utilities/Service Systems. These topics are not addressed further in this Draft EIR, but the analyses and conclusions presented in the April 2013 Initial Study are incorporated herein by reference.

This chapter (Environmental Analysis) discusses the environmental setting, impacts, and mitigation measures for each of the following topics:

- Hydrology/Water Quality (Section 4.1)
- Biological Resources (Section 4.2)
- Land Use/Planning (Section 4.3)

4.0.1 Section Format

Each technical section is divided into subsections that provide the environmental setting, regulatory setting, standards of significance, project impacts, and feasible mitigation measures for significant impacts. A cumulative analysis is included at the end of each section. Each section begins with a description of the proposed project’s environmental setting and a regulatory framework as it pertains to a particular issue. The environmental setting provides a point of reference for assessing the environmental impacts of the proposed project and alternatives. The approach to defining the environmental setting (baseline conditions) is described above.

Standards of significance are identified for each technical issue area. The standards of significance are used to determine if the impact of the proposed project, when evaluated against the environmental setting, could result in a significant environmental impact. The standards of significance are specific to each technical issue area. The standards of significance are intended to provide a “bright line” of demarcation between a less than significant impact and a significant impact.

The setting description in each section is followed by an impact analysis, and where required, mitigation measures. The impacts and mitigation portion of each section includes impact statements, prefaced by a number in bold-faced type. An explanation of each impact is followed by an analysis of its significance. Mitigation measures pertinent to each individual impact appear after the impact section. The extent to which a mitigation measure would avoid or lessen an impact is also described. An example of the format is shown below.

Impact AB-1 **Statement of impact for the proposed project.**

Impact analysis for the proposed project in paragraph form. Statement of the *level of significance* before mitigation in italics.

Mitigation Measures

M-AB-1 *Recommended mitigation measure in italics.*

Description of how the mitigation measure(s) would reduce impacts and the residual ***level of significance with mitigation*** in bold italics.

■ Cumulative Impacts

Cumulative impacts follow the project-specific impacts and mitigation in each section. An introductory statement that defines the cumulative context is included in each section of Chapter 4, but a more detailed discussion of the cumulative context and regulatory requirements for the evaluation of cumulative impact is presented in Section 5.1 (Cumulative Impacts) in Chapter 5 (CEQA Statutory Requirements). As noted in Section 5.1, an EIR must determine whether the cumulative effect on a particular resource caused by the proposed project and other related projects is significant. If that effect is found to be potentially significant, the EIR must determine if the proposed project’s contribution to that impact is “cumulatively considerable” (refer to CEQA Guidelines Section 15064(h)(1)).

4.1 HYDROLOGY/WATER QUALITY

This section of the EIR evaluates impacts of the proposed project on local and regional surface water and groundwater conditions. The scope and content of this section reflect the findings of the April 2013 Initial Study (see Appendix B), which determined the proposed reclamation activities may potentially have significant impacts on groundwater supply, Yuba River flows, and on the quality of surface water and groundwater sources. This section also addresses comments received in response to the Notice of Preparation (NOP) from the Yuba County Water Agency and the Three Rivers Levee Improvement Authority (see Appendix C). The concerns relate to the potential effects of site reclamation on surface water supply and quality, groundwater movement, and local flooding conditions on the Yuba River.

Unless otherwise noted, the description of existing conditions (environmental setting) and the impact analysis presented in this chapter are based on *Western Aggregates Reclamation Plan Environmental Impact Report: Assessment of Hydrogeologic Conditions and Potential Impacts of Mine Reclamation* (Youngdahl Consulting Group, December 17, 2013 [referred as the Youngdahl study]). The study report is included as Draft EIR Appendix D. Literature and data sources used to establish existing conditions and support the impact analysis are listed in Section 7.0 (References) of the Youngdahl study. The methods Youngdahl used to evaluate potential impacts are described in the Methods of Analysis subsection, below.

4.1.1 Environmental Setting

■ Project Location

The Western Aggregates LLC (Western) mine is located in an unincorporated portion of Yuba County, California, south of the Yuba River, north of Hammonton-Smartsville Road, approximately 6 miles northeast of Marysville. The site is situated at the western edge of the Sierra Nevada foothills near the south bank of the Yuba River, north of Beale Air Force Base. The mine extracts gravels (dredger tailings) that have been previously mined by dredges principally for gold recovery and produces various types of aggregate from these gravels that are sold commercially.

The area surrounding the project site is known locally as the Yuba Goldfields. Currently, the surrounding land is mined for gold and aggregate (sand and gravel) and used for aggregate processing. The majority of the existing mining operations area is characterized by active mining operations, processing facilities, numerous dredge tailing ridges interspersed with waterways, and small to large siltation and freshwater ponds created by mining and reclamation activities.

The eastern side of the project site is bounded by the Yuba County Water Agency Canal (YCWA Main Canal), which collects water from the Yuba River Diversion Works at the Daguerre Point Dam northeast of the project site (Figure 4.1-1 [Surface Water Features]). The northern extent of the project site is bordered by a low levee known as the Linda Levee, north of which is the Yuba River, which is approximately 3,500 to 4,500 feet from the edge of the planned reclamation area. The project site is bounded on the south by unmined fields used for agriculture and cattle grazing. The western side of the plan area is bounded by dredger tailings piles.

■ Regional Hydrogeology

Hydrogeologic conditions that are relevant to the proposed project are the geologic units, major water-bearing formations, regional groundwater resources and historical levels, and groundwater quality.

The project site overlies the eastern edge of the Sacramento Valley Groundwater Basin in an area described as the Yuba Groundwater Basin, which is further divided into the North Yuba Subbasin (north of the Yuba River) and South Yuba Subbasin (south of the Yuba River) (Figure 4.1-2 [Yuba Groundwater Basins]). The Yuba Basin is bounded along its eastern flanks by the Sierra Nevada range. The project site is on the northern edge of the South Yuba Subbasin.

Geology and Water-Bearing Formations

Table 4.1-1 summarizes the geologic units that are present in the Yuba Basin, along with their water-bearing characteristics.

Table 4.1-1 Yuba Basin and Project Site Geology and Water-Bearing Characteristics

<i>Geologic Units</i>	<i>Description</i>	<i>Water-Bearing Characteristics</i>	<i>Location Relative to Western Aggregates Amended Reclamation Plan Area</i>
Surface Geology			
Surficial deposits – Sierra Nevada foothills draining into Yuba Basin*	Primarily metamorphosed volcanic rocks along with serpentine and greenstone exposed sporadically at the surface throughout the Sierra Nevada foothills. Extend into the subsurface of the Yuba Basin, forming the bottom of the basin.	Surface deposits exhibit low hydraulic conductivity, mostly as secondary porosity (fractures).	Potentially at base of the water-bearing geologic units. Cannot be affected by reclamation due to separation from surface by shallower water-bearing units.
Surficial deposits – Yuba Basin	Soils at ground surface and upper sedimentary deposits consist of silts, siltstones, and fine-grained cemented geologic materials.	Groundwater percolation from these materials to higher conductivity sands present at greater depths is anticipated to be low over a fairly large extent.	Not a significant source of groundwater that could be affected.
Dredge tailings (Holocene)*	Large piles of very coarse gravels and cobbles extending along the Yuba River for approximately 15 miles from the Sierra Nevada foothills. Piles have been dredged for gold mining and range in thickness between 60 to 80 feet in the eastern area and 100 to 125 feet in the west. Described as Fill (f1 and f2) in the Amended Reclamation Plan.	Dredge tailings along the Yuba River are highly conductive to groundwater flow, acting as an extremely porous unconfined shallow aquifer.	Present throughout site and surrounding area. Almost all of the hydrogeologic effects of reclamation occur in this unit.
Recent stream channel and floodplain deposits (Holocene)*	Alluvial deposits located along the present-day stream channels of the Yuba, Bear, and Feather rivers and Honcut Creek, as well as within the incised channels of the smaller drainages. Found at relatively shallow depths that appear to be hydraulically continuous with the present stream channels, floodplains,	High permeability soils of these stream channel and floodplain deposits allow them to act as a large recharge area. Reported well yields within these deposits are from 2,000 to 4,000 gpm.	Located under dredge tailings, with little potential for impact.

Table 4.1-1 Yuba Basin and Project Site Geology and Water-Bearing Characteristics			
<i>Geologic Units</i>	<i>Description</i>	<i>Water-Bearing Characteristics</i>	<i>Location Relative to Western Aggregates Amended Reclamation Plan Area</i>
	and natural levees. Mainly highly permeable, coarse-grained gravels containing boulders and rounded cobbles as well as sands and can be up to 110 feet thick. These deposits were found at about 70 to 100 feet bgs and could be an indication of a paleochannel of the ancestral Yuba River. Described as Younger Alluvial Deposits (Qya) in the Amended Reclamation Plan.		
Older Alluvium (Pleistocene)*	Composed of older floodplain deposits (Modesto Formation), bordering existing rivers and streams, estimated to be approximately 15 feet thick, and alluvial fan deposits (Riverbank Formation), approximately 100 to 150 feet thick in Yuba River vicinity. Described as Older Alluvial Fan Deposits (Qof) in the Amended Reclamation Plan.	Older floodplain deposits not a major water storage unit, but provide for infiltration of precipitation and irrigation water. Alluvial fan deposits are major water-bearing formation. Several wells 150 feet bgs or less have yielded 1,000 to 1,200 gpm.	Located under dredge tailings, with little potential for impact.
Subsurface Geology			
Laguna Formation (Pleistocene)*	Composed of gravel, sand, and silt derived mainly from granitic and metamorphic sources. Exposed along the eastern basin boundary and found in deep wells to the west. Thickness ranges between 180 and 400 feet depending on specific locations and variable underlying and overlying contact units.	Major water-bearing formation. Wells screened in the Laguna Formation are capable of producing up to 2,000 gpm.	Located under dredge tailings, with little potential for impact.
Mehrten Formation (Late Miocene to Pliocene)	Composed of volcanically derived sediments mixed with volcanic mudflows. Surficial exposures of this unit are limited to a few square miles in the eastern central portion of the basin south and east of the Yuba Goldfields, dipping to the west and extending to great depths.	Major water-bearing formation Yields large quantities of fresh water to wells, although hydraulic conductivity varies from place to place.	Not present beneath site.
* unit present beneath Western project site bgs – below ground surface gpm – gallons per minute Source: Compiled from MWH, 2008; YCWA 2010.			

The Older Alluvium, the Laguna, and the Mehrten formations are significant water-bearing formations in the groundwater basin, comprising over 95 percent of the basin volume.

[THIS PAGE INTENTIONALLY LEFT BLANK]

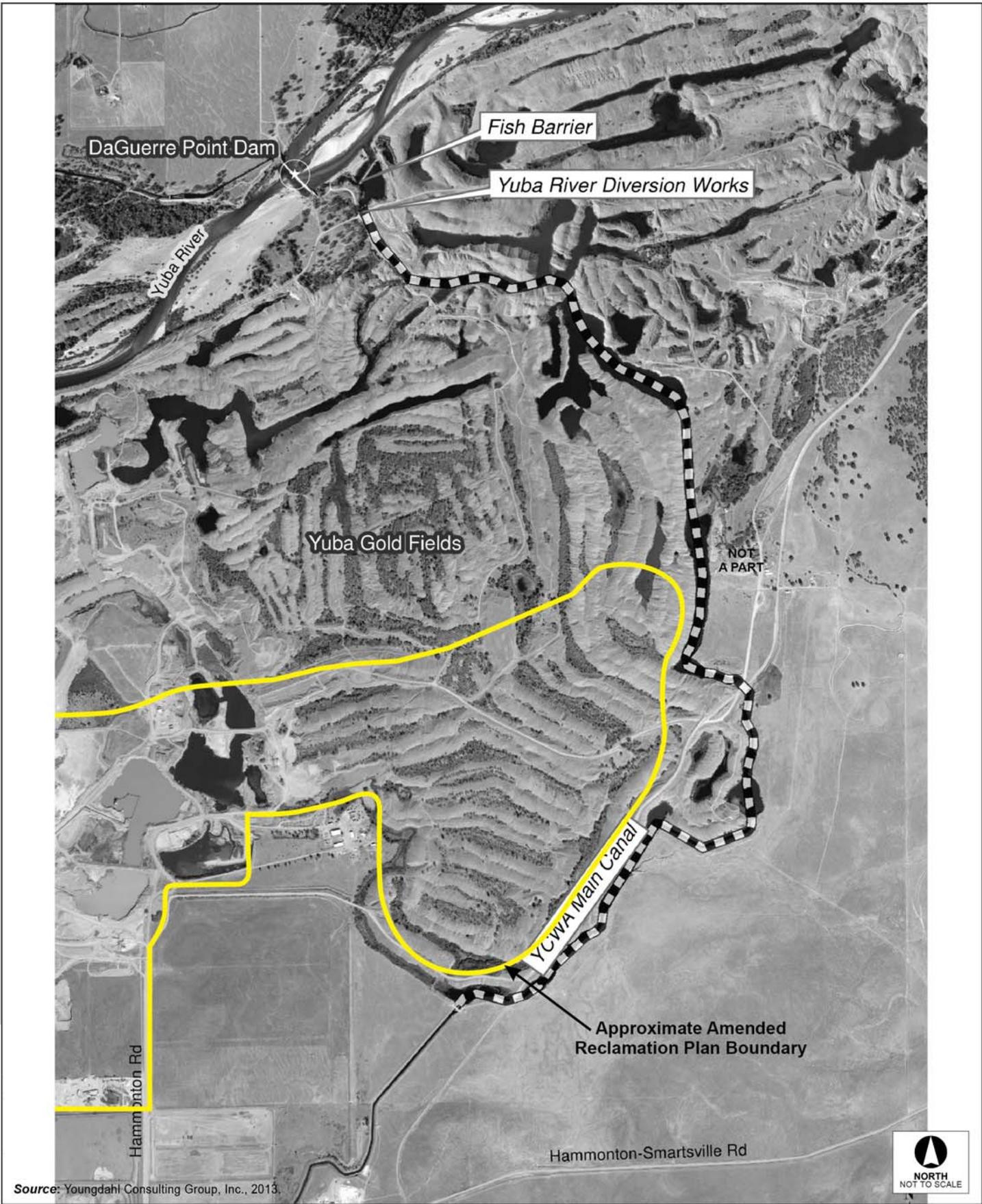
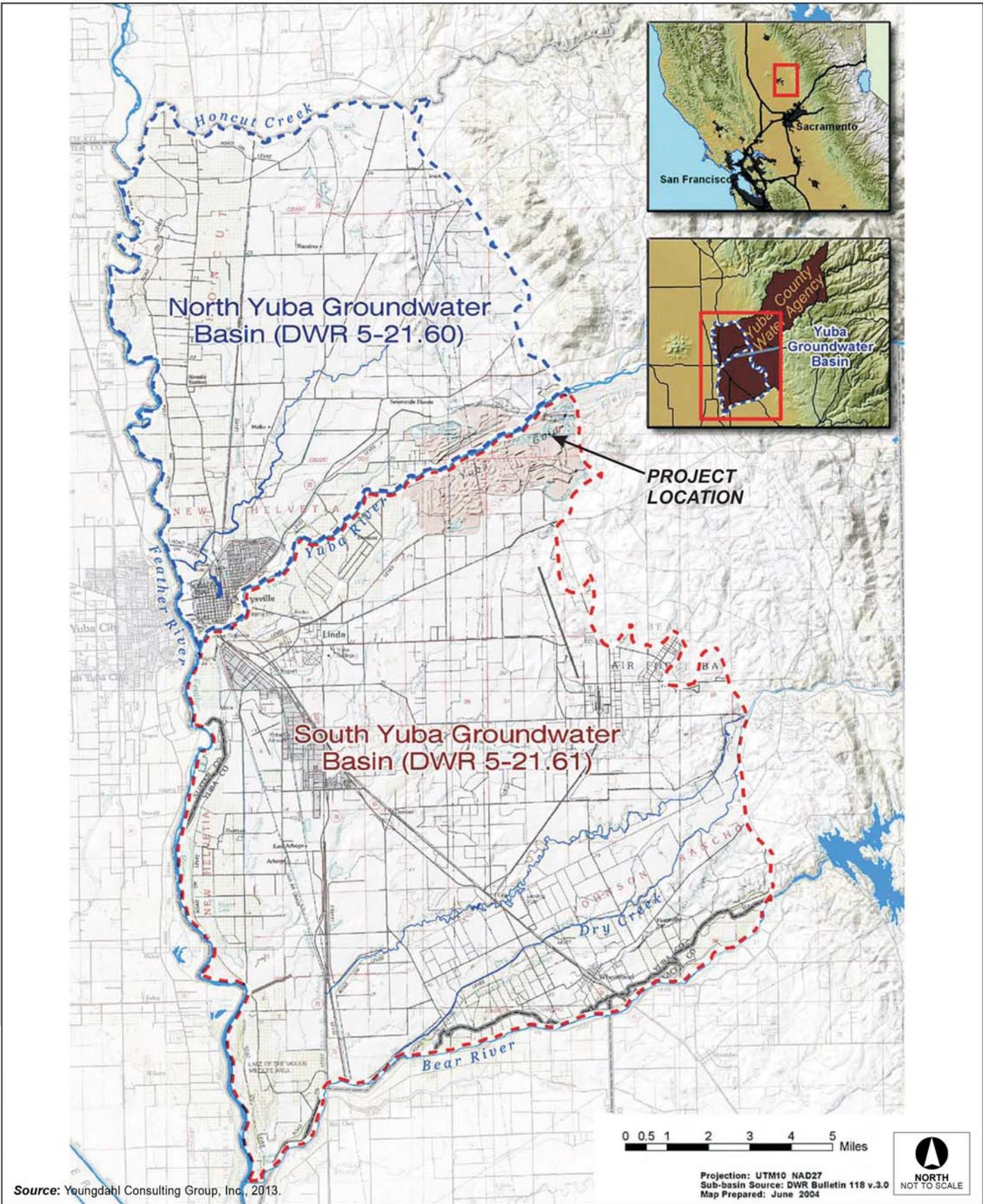


Figure 4.1-1
Surface Water Features



Source: Youngdahl Consulting Group, Inc., 2013.

Figure 4.1-2
 Yuba Groundwater Basins

■ Yuba Goldfields Hydrogeology

Western Aggregates mines aggregates from the Yuba Goldfields that are mostly tailings resulting from gold dredging previously conducted by others. This makes the mined and placed sediments highly conductive to groundwater flow. Flow in the mine tailings varies and is likely controlled by the geometry of the previous dredging activity and material types. These conditions result in the dredger tailings behaving as an extremely porous unconfined shallow aquifer. The Yuba Goldfields is an inferred location of substantial groundwater recharge due to the following:

1. The presence of large piles of coarse gravels and cobbles with high transmissivity and storativity in the present Yuba River channel and Yuba Goldfields
2. The deep original river channel in the metavolcanic bedrock and groundwater flow occurrence between the bedrock and coarse gravel lenses
3. The occurrence of continuous high winter flow recharging the Yuba Goldfields
4. The high topographic gradients toward the south and increasing groundwater flow toward deeper bedrock and toward zones of lower elevation throughout the Yuba Goldfields

A Preliminary Engineering Report for the Yuba Goldfields Fish Barrier Project prepared by the California Department of Water Resources (DWR) describes the hydrology of the Yuba Goldfields as follows:

- Groundwater hydrology within the Goldfields is greatly influenced by Daguerre Point Dam and the Yuba River. Daguerre Point Dam, constructed in the early 1900s to control migration of hydraulic mining debris, creates a river stage differential; river stage above Daguerre Point Dam is more than 20 feet greater than river stage below the dam. As a result of this differential and with the Goldfield's highly permeable soil, Yuba River water enters the Goldfield area from above Daguerre Point Dam, then migrates downgradient through the Goldfields, forming interconnected ponds and canals throughout the area. Water within many of these pools and canals is directed back to the Yuba River via an outlet canal that is located approximately 1 mile downstream of Daguerre Point Dam.
- Seasonal variations in Yuba River flow also affect groundwater hydrology of the Goldfields. River flows during winter and spring months are generally greater than flows during summer and fall months. As river flows change, so do river stages. The Goldfields' highly permeable soil allows water elevations within the Goldfields to rise and fall quickly according to Yuba River stage.
- As a result of the Goldfields' hydrology, water elevations within the outlet canal always exceed water elevations in the Yuba River at the confluence of the outlet canal. Consequently, water within the outlet canal always flows to the river, never the opposite. Currently, during river flows less than 20,000 cubic feet per second (cfs), water elevations within the outlet canal exceed river elevations by approximately 6 feet. As river flows increase above 20,000 cfs, so does the difference in water elevations.
- The Goldfields' outlet canal is used throughout the year to direct Goldfields water into the Yuba River, preventing high water levels from adversely impacting current mining and aggregate operations. Canal flows during summer and fall months are estimated to range from 5 to 50 cfs; canal flows during winter and spring months can exceed 1,000 cfs. The canal is especially important for the prevention of flooding in certain areas of the Goldfields during high flow

periods. During these periods, the canal is used to direct large quantities of water back to the Yuba River.

- The Yuba-Brophy diversion also influences flow in the outlet canal. This diversion, located at Daguerre Point Dam, is used by the Yuba County Water Agency to distribute water from the Yuba River to nearby farms for irrigation. During high diversion periods, water levels within the diversion canal elevate, inducing additional seepage into the Goldfields.

A slope stability analysis was prepared for the proposed project (included as Appendix D in the Amended Reclamation Plan [Draft EIR Appendix A]).¹ In order to characterize subsurface conditions for the slope stability assessments, subsurface drilling was performed across the area planned for mining. A total of seven borings were advanced to a maximum depth of 200 feet. The first five of the seven borings were described as being relatively coarse materials (gravel and cobbles), as well as relatively unconsolidated lenses/layers of sand and silt. The last two of the seven borings reported similar lithologies underlain by hard metavolcanic bedrock at a depth of 162 feet (-54 feet above mean sea level) in Boring No. 6 and 175 feet (-42 feet above mean sea level) in Boring No. 7. Groundwater was encountered in all of the exploratory borings.

Based on geologic mapping, reported surface and near subsurface conditions as follows:

- **Fill (f2)**—Fill (f2) associated with aggregate mining activities was observed in the central portion of the site. The fill consists of large gravel to cobble-sized clasts in a silty, fine- to coarse-grained sand matrix. It should be anticipated that other areas of fill and/or disturbed soils and localized areas of deeper fill may exist.
- **Fill (f1)**—Fill (f1) comprising mine tailings associated with historic dredging activities was mapped on large portions of the site. The tailings are layers of silty to clean, fine- to coarse-grained sand matrix with some beds containing large gravel to boulder-sized clasts.
- **Younger Alluvial Deposits (Qya)**—Younger alluvium on the site consists of bedded silty to clean, fine- to coarse-grained sand with some beds containing large gravel to cobble-sized clasts. The younger alluvium was not observed in outcrop at the site but was observed in subsurface samples collected during our exploration.
- **Older Alluvial Fan Deposits (Qof)**—Older alluvium of probable Pleistocene age (Burnett and Jennings, 1965), comprising bedded layers of silty to clean, fine- to coarse-grained sand matrix with some beds containing large gravel to cobble-sized clasts, was observed in the southeastern portion of the site. The upper portion of the older alluvium includes moderately to weakly developed argillic (clayey) and cemented soil horizons, as observed in the bank of a drainage channel near the eastern site boundary. These upper portions have a reddish-brown hue. Below the upper soils the color range is olive gray, dark gray, blue gray, and greenish gray. The development of the reddish-brown argillic soil horizons such as those observed in the older alluvium support the interpretation that the older alluvium is Pleistocene age.
- **Miscellaneous**—Fills associated with aggregate mining activities are relatively shallow (up to approximately 10 feet deep) except in the two silt ponds where the fill could be significantly

¹ CHJ Consultants, *Slope Stability Investigation Proposed Western Aggregates LLC Quarry Reclamation, Marysville Area, Yuba County, California* (2011).

deeper. Fills associated with mine tailings were encountered in our exploratory borings to a maximum depth of 97 feet.

In general, the depths to native (nonmine tailings) materials in the borings ranged from 0 feet (Boring B-1 in an unmined area south of the proposed reclamation area) to 100 feet (Boring B-7 in the eastern portion of the proposed reclamation area). Groundwater was encountered within all of the borings at depths ranging from 15 to 45 feet. Groundwater depths corresponded to the surface elevations of the existing bodies of water nearest each of the borings as shown on the Reclamation Plan and observed in the field.²

There is limited groundwater data available for the aquifers beneath the Western Aggregates site; however, the aquifer and groundwater has been characterized by Youngdahl based on the available data. Work completed by Luhdorff & Scalmanni Consulting Engineers (LSCE) for the nearby Teichert Aggregates Yuba Hoffman Facility, south of the project site, and for the Teichert Aggregates' Hallwood Plant across the Yuba River to the northwest of the project site was reviewed to provide information regarding groundwater conditions adjacent, south, and northwest of the Western site. LSCE described the sediments as stream channel and floodplain deposits of Holocene age forming a 1- to 3-mile-wide Yuba River terrace downstream from the Yuba Goldfields. The materials are loosely compacted, coarse sand and rounded gravel, cobbles, and boulders, with minor amounts of sand and clay. The Holocene deposits are described as being underlain by older terrace deposits, which are, in turn, underlain by the Pleistocene Victor Formation and the Plio-Pleistocene Laguna Formation. The cumulative thickness of the alluvial deposits ranges from 105 feet in the eastern part of the Teichert property to as much as 185 feet in the western part of the property. LSCE concluded these materials are underlain by Tertiary-aged fluvial volcanics and undifferentiated sedimentary rocks emplaced on the basement complex of the Sierra Nevada. The effective base of the groundwater reservoir is within the shallow section of the undifferentiated sedimentary rocks. However, for the Teichert project, the effective base of the main water-bearing unit is reported to be the base of the alluvium due to the reported poorer yield and quality of water from wells completed in the volcanics.

Data from three shallow monitoring wells and well drillers reports for three wells on the Teichert plant suggest there are two aquifers separated by discontinuous layers of clay and silt beneath the Teichert property. Groundwater elevations beneath the Teichert property from spring 1991 through summer of 2004 indicated a groundwater flow direction trend (based on 97 measurements) that is predominantly west-southwest.

Youngdahl is of the opinion that the data from the Teichert property most likely identifies more low permeability materials than are present to the depths planned for mining beneath the Western Aggregates reclamation area. Not all borings contained clay and where identified, the clay would be difficult to interpret as being in continuous layers. Instead of two aquifers separated by discontinuous layers, the drilling information shows mostly sands, gravels, and silts containing what are likely to be discontinuous lenses of clay. Based on the boring logs, the practical thickness of the potentially affected aquifer ranges from approximately 142 to 155 feet.

² CHJ Consultants, *Slope Stability Investigation Proposed Western Aggregates LLC Quarry Reclamation, Marysville Area, Yuba County, California* (2011).

Based on the literature review and review of boring logs conducted by Youngdahl for this Draft EIR, Youngdahl is of the opinion that the shallowest water-bearing sediments are the dredger tailings and possibly some Holocene alluvial deposits. This is underlain by fan deposits of the Riverbank Formation as evidenced by the high percentages of sands and gravels. There is a limited possibility that the Laguna Formation is also present in the deepest portions of the borings beneath the area of planned reclamation as represented by some of the clays and silts.

The Yuba Goldfields have some of the highest transmissivities in the region. In a report prepared by Montgomery Watson Harza (MWH) "Hydrogeologic Understanding of the Yuba Basin," in 2008 for the Yuba County Water Agency, MWH estimated a transmissivity of 260,000 gallons per day per foot (gpd/ft) of aquifer width. Testing at the Hallwood Irrigation Company and the Ramirez Water District showed aquifer transmissivities ranging from 23,000 square feet per day (sf/day) to 34,000 sf/day (172,000 gpd/ft to 250,000 gpd/ft). The MWH report described several aquifer tests conducted at Beale Air Force Base by others, indicating transmissivities ranging from 0.5 sf/day to 15,700 sf/day (3.7 gpd/ft to 117,000 gpd/ft).

MWH identified storage coefficients in the Yuba Basin and estimated the highest specific yields of 10 to 12 percent in the upper zones along the Yuba River. As a part of their analyses for the Yuba Basin, they assigned values of 22 percent for gravel.

■ Regional Groundwater Occurrence and Historical Levels

The Yuba Basin is hydraulically isolated from the rest of the Sacramento Valley basin by the streams that surround it. Additionally, the South Yuba Subbasin is hydraulically isolated from the North Yuba Subbasin by the Yuba River. The Yuba County groundwater subbasins encompass an area of approximately 270 square miles. Groundwater in the basins occurs under mostly unconfined conditions, with some possible local confinement due to lenses of clay and silt within the alluvial deposits. Well drillers reported no change in water levels during drilling in many wells, including shallow and moderately deep, indicating a lack of confinement in the area, with some exceptions in wells deeper than 300 to 440 feet into the Laguna Formations. Wells of different depths near Beale Air Force Base had similar non-pumping water levels, indicative of unconfined conditions. Groundwater elevation data indicate that groundwater, in general, flows from east to southwest in the South Yuba Subbasin.

The South Yuba Subbasin has historically relied heavily on groundwater supplies. The California Department of Water Resources and more recently, the Yuba County Water Agency have monitored groundwater levels in wells of the South Yuba Subbasin. The hydrograph for the closest well (Well 15N04E23A001M, located approximately 3 miles southwest of the project site) shows groundwater elevations dropping from approximately 60 feet above mean sea level in the late 1940s to 0 feet in the 1976/77 drought.

Between 1948 and 1981, groundwater elevations in the South Yuba Subbasin declined an estimated 130 feet, representing serious overdraft conditions. In 1984, the Yuba County Water Agency began delivering surface water from its New Bullards Bar Reservoir to offset groundwater extraction, resulting in a groundwater rise to near-historical levels. Hydrographs for wells in the South Yuba Subbasin show a reverse in the declining trend of groundwater levels, starting in the 1980s, which coincides with the

extension of surface water deliveries to the South Yuba Subbasin. These hydrographs in the central parts of the North and South Yuba subbasins also show the effect of groundwater substitution transfers³ (during 1991, 1994, 2001, 2002, 2008, 2009, and 2010), in the form of reduced groundwater levels followed by recovery to pre-transfer levels.⁴

Regional Groundwater Sustainability

Groundwater is used throughout the basin by agricultural, municipal, industrial, and residential users, and many of those users rely solely on groundwater for their water supply. Under the Yuba Accord, Member Units make decisions about the volume and distribution of pumping during groundwater substitution transfers. For a long-term viable supply of groundwater, the YCWA and its member units are seeking ways to increase the conjunctive management abilities in the subbasins over the long term. In 2009, the YCWA and the Wheatland Water District completed Phase 1 construction of infrastructure needed to deliver surface water to approximately 7,750 acres of land within the district. This project allows groundwater elevations underlying the Wheatland Water District to increase naturally (in-lieu recharge) by providing surface water to an area that has historically relied on groundwater. Recharge can also occur via direct recharge. At present, the YCWA is not currently investigating direct recharge because natural recharge and in-lieu recharge have proved sufficient to maintain the health of the basin. However, the Groundwater Management Plan (GMP) identifies future actions the YCWA is planning to undertake to analyze potential effects of climate change on recharge in the Yuba Groundwater Basin and develop and implement a plan to characterize recharge of the groundwater basin from the Yuba Goldfields.⁵

■ Project Area Conditions

The Yuba River forms a recharge boundary to the north of the project site, and the Yuba County Water Agency Main Canal forms a recharge boundary to the east. Both the Yuba River and the YCWA Main Canal are in direct contact with the highly porous mine tailings. Water from the Daguerre Point Dam diversions passes through the dredger tailings of the Yuba Goldfields. While the canal draws water from a diversion at the Daguerre Point Dam, it also must draw water flowing westerly through the dredger tailings.

The convex nature of the contours along the Yuba River supports the assumption that the Yuba River is a major source of groundwater recharge. Operators at Western have reported that groundwater levels fluctuate as a result of canal operations. The Youngdahl study contends that groundwater levels in the area planned for reclamation are heavily influenced by Yuba River flows and flows within the YCWA Main Canal through the dredger tailings field.

³ Groundwater substitution transfer planning commences early in the water year and continues through the winter and early spring, with an assessment of basin conditions, determination of expected groundwater levels under various pumping plans, and determinations that expected levels will not result in either overdraft of the basin or substantial impacts to third parties. Source: Yuba County Water Agency (YCWA), *Groundwater Management Plan* (December 2010), Section 2.3.5.

⁴ YCWA, *Groundwater Management Plan* (December 2010), Section 1.1 and Section 2.3.3.

⁵ *Ibid.*, Section 3.7.

Comments on the Notice of Preparation

In response to the NOP (Appendix C), the Yuba County Water Agency submitted a letter expressing concerns that the creation of a large amount (250,000 acre-feet) of stored water in the excavated ponds could affect groundwater levels and storage in the Yuba Groundwater Basin, which could affect the operation of irrigation water canals in close proximity to the ponds. The agency further noted that the close proximity of the ponds and the large amount of water stored have the potential to affect flows and water temperatures in the Yuba River.

The YWCA requested that Western Aggregates LLC coordinate with the YCWA in the development of the ponds to ensure no significant negative impacts occur. To address the concerns raised by the YCWA, Youngdahl, as part of this Draft EIR, examined the potential impact of the proposed Amended Reclamation Plan on operation of the YCWA Main Canal, which is presented in Impact HY-1. The potential impact on Yuba River flow and temperature is addressed separately under Impact HY-4.

■ Regional and Local Groundwater Quality

Groundwater quality in the Yuba Groundwater Basin appears to be generally very good. Saline conditions have been observed in two deep agricultural wells in the southern end of the South Yuba Subbasin. Most areas in the North and South Yuba subbasins show increasing trends for calcium, calcium carbonate, chlorides, alkalinity, and electrical conductivity (EC). Total dissolved solids (TDS) are either near or exceed the secondary maximum contaminant level (MCL) of 500 milligrams per liter (mg/L).

As noted in the MWH 2008 study, the results of groundwater quality testing by the DWR met all of the primary state and federal MCLs. In the Brophy Water district, which is the closest water district to the south of the area planned for reclamation, the average concentrations of the constituents analyzed show that only dissolved manganese and total dissolved solids exceeded secondary MCLs. The maximum concentrations exceeded secondary MCLs for conductance, dissolved iron, and dissolved manganese. The maximum concentration of total dissolved solids exceeded the primary MCL for dissolved solids.

Groundwater quality at the Teichert Aggregates' Marysville Aggregate Mining and Processing Site (adjoining Western to the southwest) is monitored at four monitoring wells. In June 2004, TDS levels were reported to range from 110 to 190 mg/L. The EC values ranged from 140 to 330 micromhos per centimeter, and pH ranged from 6.4 to 7.4. Metal concentrations, including mercury, were all below their respective reporting limits and below their respective MCLs. Deeper groundwater was of slightly better quality, with TDS values ranging from 92 to 120 mg/L, EC values between 170 and 210 micromhos per centimeter, and pH ranging between 7.0 and 7.3. Surface water sampling in the Teichert wet pit reported pH values ranging from 7.41 to 7.52 and in the settling/recycling pond system from 7.62 to 7.73. Recoverable mercury was reported at 0.0031 and 0.012 µg/L in the wet pit and between 0.0040 and 0.100 µg/L in the settling/recycling ponds.

■ Surface Water Hydrology and Water Quality

The eastern side of the project site is bounded by the YCWA Main Canal, which consists of a series of unlined ponds and channels that pass through dredger tailings fields east and southeast of the site

(Figure 4.1-2). An average of 99,000 acre-feet per year (afy) is diverted from the Yuba River from the Daguerre Point Dam impoundment through this canal to serve customers south of the Yuba River. An 8,400-foot stretch of canal passes within 350 feet of the margins of planned Reclamation Lake No. 1. The northern extent of the project site is bordered by a low levee known as the Linda Levee, north of which are areas of additional mine tailings and the Yuba River. The edge of the area planned for reclamation is a distance approximately 3,500 feet to 4,500 feet from the lower Yuba River, with extensive dredger tailings present between the mine and the river.

Yuba River

The lower Yuba River refers to the 24-mile section of the river between Englebright Dam and the confluence with the Feather River southwest of Marysville. In recent years, irrigation diversions from the lower Yuba River at Daguerre Point Dam and upstream at the Browns Valley Irrigation District Pumpline diversion facility have totaled approximately 300 thousand acre-feet (TAF) per year.⁶

For the period January 1, 1993, through September 15, 2013, the range of recorded flows at the Marysville gage was 90 cfs to 83,958 cfs. The first quartile flow was 696 cfs and the median flow was 1,220 cfs. The 90 cfs flow on November 29, 2000, was preceded by an average daily flow of 357 cfs on November 28 and followed by an average daily flow of 523 cfs on November 30, which is probably not representative of typical low-flow conditions. The most consistent low-flow conditions appeared to be flows from 286 cfs to 406 cfs for the months of May and June of 2001. The median flow for those months was 353 cfs.⁷

On March 1, 2001, the State Water Resources Control Board (SWRCB) issued Water Right Decision 1644 (D-1644) and on July 16, 2003, the SWRCB issued RD-1644, which defines minimum in-stream flows in the lower Yuba River. In-stream flow requirements are specified for the lower Yuba River at the Smartsville gage and at the Marysville gage. The Marysville gage (river mile 6.2) is the closest to the site and is approximately 15,000 feet downstream. Long-term in-stream flow requirements range from 1,500 cfs during May to 250 cfs for the period July 4 through October 14 in wet, above-normal, below-normal, and dry years. For the same period in critical years, flow requirements range from 1,000 cfs to 250 cfs. In extreme critical years, the May value decreases to 500 cfs.⁸

In a Technical Memorandum prepared by the YCWA regarding water temperature models for the Yuba River Development Project (FERC Project No. 2246), a comparison of the water temperature model for the stretch of Yuba River below Daguerre Point Dam showed that simulated temperatures were cooler than the historical temperatures. This implies that the prediction of impacts on temperatures due to

⁶ California Department of Water Resources, Yuba County Water Agency, and U.S. Department of the Interior Bureau of Reclamation, *Draft Environmental Impact Report/Environmental Impact Statement for the Proposed Lower Yuba River Accord* (June 2007), p 5-4.

⁷ California Department of Water Resources California Data Exchange Center, as reported in the Youngdahl study (2013).

⁸ California Department of Water Resources, Yuba County Water Agency, and U.S. Department of the Interior Bureau of Reclamation, *Draft Environmental Impact Report/Environmental Impact Statement for the Proposed Lower Yuba River Accord* (June 2007), Table 5-15 (Revised Decision 1644 Long-Term In-stream Flow Requirements).

changing flows in the stretch of Yuba River flowing through the Goldfields below Daguerre Point Dam may be difficult with the available information.

Mercury

Regional Context

The northwestern Sierra Nevada region, which encompasses the Yuba, Feather, Bear, and American river watersheds, was mined extensively for lode-gold and placer-gold deposits beginning in the mid-1800s. During the late 1800s to the late 1900s, gold mining operations used mercury (quicksilver) to recover gold from dredged floodplain deposits in the Yuba Goldfields. Some mercury was lost to the environment during the processing of gold ore. Mercury concentrations have been detected in present-day mine water and sediments, although such concentrations are often similar to background concentrations found elsewhere in California.⁹

Results of several ongoing studies that began in the late 1990s indicate that the highest average levels of mercury bioaccumulation in the northwestern Sierra Nevada region occur in the South Yuba River and Bear River watersheds. The distribution and fate of the mercury used in historic gold mining remains largely unknown, however, and is the focus of ongoing studies. These studies show a positive correlation between mercury concentration and the abundance of fine particles.¹⁰ In general, the finer the average particle size, the higher the concentration of total mercury.¹¹ The most significant pathway for human and wildlife exposure to methylmercury is through the consumption of mercury-laden fish or shellfish. At specific dosages and exposures, methylmercury in humans has been shown to affect the immune system, alter genetic and enzyme systems, and damage the nervous system. Risks to wildlife consuming mercury-laden prey are species-specific and largely unknown.¹²

The *South Yuba River Comprehensive Management Plan* (draft January 2005) noted that although elemental mercury has not been identified as having a major effect on water quality in the South Yuba River, the potential for methylation does exist. Management actions included in the plan focused on the collection and evaluation of mercury and sediment data and identification/prioritization of stream tributaries requiring remediation.

⁹ Mercury occurs in several geochemical forms, including elemental (inorganic) mercury, ionic (or oxidized), and in various organic compounds. Methylmercury (one of the organic compounds) is the form most readily incorporated into biological tissues. The chemical reaction in which inorganic mercury combines with organic compounds in the natural environment is referred to as mercury methylation. Methylmercury is the most toxic and bioaccumulative form of mercury. The *South Yuba River Comprehensive Management Plan* (draft January 2005) notes that mercury used in mining operations remains in sediment deposits as elemental mercury.

¹⁰ Charles N. Alpers and Michael P. Hunerlach, *Mercury Contamination from Historic Gold Mining in California*, United States Geological Survey (USGS) Fact Sheet FS-061-00, May 2000.

¹¹ Michael P. Hunerlach and others, *Geochemistry of Mercury and Other Trace Elements in Fluvial Tailings Upstream of Daguerre Point Dam, Yuba River, California*. USGS Scientific Investigations Report 2004-5165. August 2001.

¹² Charles N. Alpers and Michael P. Hunerlach, *Mercury Contamination from Historic Gold Mining in California*, United States Geological Survey (USGS) Fact Sheet FS-061-00, May 2000; Delta Tributaries Mercury Council and Sacramento River Watershed Program, *Strategic Plan for the Reduction of Mercury-Related Risk in the Sacramento River Watershed*. December 2002.

The Delta Tributaries Mercury Council (DTMC) with support from the Sacramento River Watershed Program (SRWP) developed a strategic plan (*Strategic Plan for Mercury Risk in the Sacramento River Watershed*) that describes an approach to reduce mercury bioaccumulation in the Sacramento River watershed. The Yuba River above, from, and below the Yuba Goldfields is one of several major tributary waterways recommended in the plan for research and monitoring. The plan provides for ongoing monitoring and research, risk evaluation, and pilot remediation projects. The plan identifies numerous tasks and implementation options for addressing the mercury issue, but there are no policies or regulations that direct how reclamation activities should be performed to reduce mercury risk.

In a mercury characterization study performed at the Teichert Hallwood Plant (across the Yuba River from Western Aggregates), mercury was determined to be present in the sediment in many different forms with varying solubility and mobility. Methylmercury was present in some sediment and water samples in extremely low concentrations, typically less than 0.1 micrograms per kilogram ($\mu\text{g}/\text{kg}$) and 0.000050 micrograms per liter ($\mu\text{g}/\text{L}$), respectively. The study preparers concluded the Hallwood ponds are not conducive to methylation of the mercury present in the sediment, likely because the ponds are not organic rich and biologically active.¹³

■ Project Site Water and Sediment Quality

Western is required to implement Monitoring and Reporting Program No. 5-00-107 (MRP) in accordance with the federal Clean Water Act and state Porter-Cologne Water Quality Act. MRP 5-00-107 is part of the Waste Discharge Requirements (WDR) Order No. 5-00-107 for Western (see Section 4.1.2 [Regulatory Framework]). This monitoring program requires measurements of daily flow (continuous), freeboard (weekly), pH (monthly), and electrical conductivity (monthly) of water at the Designated Disposal Area (DDA). Western is required to analyze grab samples from water that accumulates in the DDA on a semiannual basis to analyze for total mercury and for total petroleum hydrocarbons (TPH). The MRP also requires that any area where aggregate excavation is greater than 3 feet below the water table to be sampled monthly for pH and EC and semiannually for total mercury. Grab samples must also be collected from two sampling locations along the Yuba River, and analyzed for turbidity, pH, and EC.

From January 2013 through July 2013, Western reported that pH ranged from 7.61 to 8.0. Electrical conductivity (EC) (micromhos per centimeter at field temperature) ranged from 87 to 106. The pH of the water at the clamshell dredge ranged from 7.51 to 8.08. The electrical conductivity ranged from 228 to 235. The mercury concentrations in water in the DDA ranged from 18 nanograms per liter (ng/L) to 28 ng/L. The TPH concentrations were reported to be 490 $\mu\text{g}/\text{L}$ in January 2013 and in July 2013. For the period January 2013 through July 2013, water quality remained within the parameters required by the MRP.

Mercury testing of DDA sediment at the project site has shown that mercury occurs at levels below human health and ecological screening levels and is within the lower end of the background range for mercury concentration. The data are consistent with regional findings. Mercury levels ranged from

¹³ California State Mining and Geology Board, *Focused Draft Environmental Impact Report Hallwood Reclamation Plan 2003 (Updating Approved Reclamation Plan #89-03)*. SCH # 2004092049 (June 2005), Section 4.4 (Hazards and Hazardous Materials).

0.030 milligram per kilogram (mg/kg) to 0.591 mg/kg in 37 samples. Soluble mercury at 0.0006 milligram per liter (mg/L) was present just above the laboratory method detection limit in one of nine samples analyzed. These results indicate that mercury in DDA sediment is highly unlikely to leach to groundwater and is also unlikely to be present in any stormwater runoff. Because of the absence of soluble mercury, methylation is unlikely at the project site because mercury must be in a soluble form for the chemical reaction to occur.¹⁴

Western has indicated that they have no monitoring wells and, therefore, have collected no groundwater quality data at the project site because they are not currently required by the WDR/MRP to test groundwater quality.

■ Flood Hazards

The Three Rivers Levee Improvement Authority (TRLIA) has been working on the Reclamation District (RD) 784 levee systems since 2004 to meet both 100-year and 200-year flood protection requirements. TRLIA has stated that both U.S. Army Corps of Engineers (USACE) and TRLIA evaluations suggest that erosion on the south bank of the Yuba River Tailings Mounds is increasing the risk of flooding from the Yuba River through the Goldfields. TRLIA has developed a work plan to mitigate the areas posing the greatest risks, including mining areas identified as being flow paths.

Implementation of Western's reclamation activities under the Amended Reclamation Plan would occur in areas in which mining has concluded. Reclamation activities such as equipment and road removal, revegetation, soil placement, and shoreline recontouring would not cause or exacerbate flood risk in the Yuba Goldfields area or affect planned 100-year or 200-year flood protection improvements that would be implemented by TRLIA. Therefore, flood hazard risk is less than significant and does not require further evaluation in this Draft EIR.

4.1.2 Regulatory Setting

■ Federal and State

Water Quality

Federal Clean Water Act (CWA) Section 303 requires states to adopt water quality standards for all surface waters of the United States. Where multiple uses exist, water quality standards must protect the most sensitive use. Water quality standards are typically numeric, although narrative criteria based upon biomonitoring methods may be employed where numerical standards cannot be established or where they are needed to supplement numerical standards. The SWRCB and the Regional Water Quality Control Board (RWQCB) are responsible for ensuring implementation and compliance with the provisions of the federal CWA and California's Porter-Cologne Water Quality Control Act. Along with the SWRCB and RWQCB, water quality protection is the responsibility of numerous water supply and

¹⁴ MACTEC, *Mercury Fate and Transport Investigation, Western Aggregates LLC, Yuba County California* (February 2004), p. 16; MACTEC, *Addendum: Mercury Fate and Transport Investigation, Western Aggregates LLC, Yuba County California* (January 2005), p. 11.

wastewater management agencies, as well as city and county governments, and requires the coordinated efforts of these various entities.

The project site is within the jurisdiction of the Central Valley Region of the RWQCB (Region 5). The Central Valley RWQCB has the authority to implement water quality protection standards through the issuance of permits for discharges to waters at locations within its jurisdiction. Water quality objectives for the Sacramento River and its tributaries are specified in the *Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin* (Basin Plan) prepared by the Central Valley RWQCB in compliance with the federal CWA and the state Porter-Cologne Water Quality Control Act. The Basin Plan establishes water quality objectives and implementation programs to meet stated objectives and to protect the beneficial uses of water in the Sacramento-San Joaquin River Basin. Because the project site is located within the Central Valley RWQCB's jurisdiction, all discharges to surface water or groundwater are subject to the Basin Plan requirements.

SWRCB Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California) states that wherever the existing quality of surface water or groundwater is better than the objectives established in the Basin Plan, the existing quality will be maintained unless otherwise provided in the resolution. The resolution provides for changes in water quality “only if the change is consistent with maximum benefit to the people of the state, does not unreasonably affect present and anticipated beneficial uses, and does not result in water quality less than that prescribed in water quality control plans or policies.” SWRCB Resolution No. 88-63 has important implications for beneficial use designation. This policy specifies that, “except under specifically defined exceptions, all surface and groundwater of the State are to be protected as existing or potential sources of municipal and domestic supply.” If the results of ongoing monitoring programs prior to, during, or post-reclamation operations indicate degradation of water quality or potential impact to groundwater quality that could affect beneficial uses, formal oversight by the RWQCB would be triggered.

State Water Resources Control Board Water Right Decision 1644 and Lower Yuba River Accord

On March 1, 2001, the SWRCB issued Water Right Decision 1644 (D-1644) and on July 16, 2003, issued RD-1644, which defines minimum in-stream flows in the lower Yuba River. The YCWA and parties executed the four agreements in 2007, which together constitute the Yuba Accord. The Lower Yuba River Fisheries Agreement specifies the Yuba Accord's lower Yuba River minimum streamflows and creates a detailed fisheries monitoring and evaluation program. The other three agreements address water and power purchases and conjunctive use. Together, this package of agreements provides more water for in-stream flows and greater reliability for both in-stream and consumptive uses than would have been possible without the agreements.

Hazardous Constituents in Groundwater

There are numerous regulatory requirements for reporting spills, releases of hazardous substances of reportable quantities, or release of substances of quantities that may pose a significant threat to public health and safety or to the environment (Health and Safety Code Sections 25270.8, 25359.4). At any time during reclamation activities, the project operator and contractors are responsible for knowledge of and

compliance with applicable hazardous materials management regulations. The California Department of Toxic Substances Control (DTSC) is the state agency responsible for hazardous materials spills; however, as previously noted, the Central Valley RWQCB regulates water quality at the project site.

National Pollutant Discharge Elimination System

The National Pollutant Discharge Elimination System (NPDES) permit system was established in the CWA to regulate municipal and industrial discharges to surface waters of the U.S. Each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge. CWA Sections 401 and 402 contain general requirements regarding NPDES permits. CWA Section 307 describes the factors that the U.S. Environmental Protection Agency must consider in setting effluent limits for priority pollutants.

NPDES requirements at the project site are implemented through Waste Discharge Requirements Order No. 5-00-107, which includes MRP No. 5-00-107. Corrective action may be required by the Central Valley RWQCB if the MRP detects water quality parameters outside of the ranges specified by the MRP. The testing requirements of the MRP are described above under the “Project Site Water and Sediment Quality” subheading.

■ Local

Yuba County Water Agency Groundwater Management Plan (GMP)

The YCWA has a long history of actively managing the county’s water resources for beneficial use in cooperation with member units, stakeholders, and local, state, and federal agencies. The YCWA has adopted a GMP in accordance with Assembly Bill (AB) 3030 and the California Water Code Sections 10750 et seq. The goal of the GMP is to maintain a viable groundwater resource for the beneficial use of the people of Yuba County. The GMP formalizes the historically successful management strategies of the county’s groundwater resource and provides a framework for implementing future activities. The 2010 GMP reflects groundwater conditions through spring 2010, summarizes the status of management actions documented in the previous (2005) GMP, provides information on other YCWA water management activities within the basin, and presents an updated list of groundwater management actions. The GMP notes that the Yuba River watershed has been significantly affected for gold mining, debris control, water supply, power generation, flood control, fish enhancement, and recreation.

The YCWA has adopted seven specific basin management objectives (BMOs), four of which are relevant to the proposed project: maintain groundwater elevations that provide for sustainable use of the groundwater basin; maintain and improve groundwater quality in the Yuba basin for the benefit of groundwater users; manage groundwater to protect against adverse impacts to surface water flows in the Yuba River, Feather River, Honcut Creek, and Bear River within Yuba County; and improve understanding of the Yuba Groundwater Basin and its stressors.

The impact analysis provided in this section of the Draft EIR demonstrates how the proposed project would not conflict with or impair implementation of the GMP on a project and cumulative level.

Yuba County Integrated Regional Water Management Plan (IRWMP)

The GMP will become the groundwater management component in the Yuba County IRWMP, which is currently being updated. However, the GMP only pertains to the alluvial portion of the IRWMP planning area.

Yuba County General Plan

The proposed project is not a discretionary action subject to Yuba County approvals. However, the project site is within the county planning area, and Western voluntarily seeks to demonstrate general conformance with environmental protection policies. Section 4.3 (Land Use/Planning) of this Draft EIR identifies relevant water resource policies and describes how the Amended Reclamation Plan would not conflict with applicable policies.

4.1.3 Impacts and Mitigation Measures

■ Methods of Analysis

Assumptions

Revegetation

As described in the Amended Reclamation Plan, vested mining operations will create five lakes bordered by vegetated woodlands and dikes or berms. The final anticipated end use following reclamation is open space and wildlife habitat consisting of aquatic lake, marsh, woodland, and upland communities. Reclamation does not include the lakes created by mining, but does include the establishment of vegetation on the shore, berms, and areas surrounding the lakes.

The lakes will have irregular meandering shorelines to support wildlife habitat and vegetation. The slope gradients of the shoreline would vary from two horizontal units to one vertical unit (2H:1V) to 4H:1V to create diverse habitats including beaches and shallows for wildlife and vegetation enhancement. The lakes would comprise approximately 4 miles of shoreline over 25 feet in width of 4H:1V sloped bench, resulting in approximately 12 acres that would be emergent marsh. For purposes of the assessment, Youngdahl conservatively assumed that the settling pond would also be reclaimed to emergent marsh. The total acreage of reclaimed emergent marsh at the project site was conservatively assumed to be 100 acres.

The woodland (riparian upland) would range from 5 to 20 feet above the average lake level. The upland habitat (riparian upland) would consist of the constructed slopes, roadways, and lake boundaries that form the perimeters of the portions of the revegetated emergent marsh shoreline and the area containing the processing plant facilities, which would be removed.

Reclaimed Lake Acreage

The Amended Reclamation Plan indicates that vested aggregate mining operations will occur in three 15-year phases and will ultimately result in a total of 1,602 acres of lakes (including both mined lakes and reclaimed areas). According to Western Aggregates LLC, as of June 2012, there were approximately

342 acres of existing ponds in the area to be mined. Vested mining operations will therefore result in an additional surface area of 1,260 acres (including both mined lakes and reclaimed areas).¹⁵

Evaporation and Evapotranspiration

The proposed project would maintain the five existing lakes created by vested mining operations and would revegetate certain areas of the site, as described in the Project Description (Chapter 3). The analysis of potential effects on groundwater supplies considers project-generated changes in evaporation from the lakes and evapotranspiration from revegetation. These terms and assumptions are defined below.

Pond Evaporation

Evaporation is important in determining the potential effects that a pond or lake would have on existing surface water and groundwater supplies and movement. A “lake evaporation rate” is the rate at which water evaporates from an enclosed surface-water body such as a lake or pond. Rainfall falling on a lake and not lost to evaporation is assumed to be recharged into the lake and surrounding porous materials.

Evapotranspiration

Evapotranspiration (ET) is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). For purposes of the analysis, the 342 acres of ponds are estimated to have an average annual loss due to evapotranspiration of 0.82 mgd, and a peak (July) loss of 2.6 mgd, based on June 2012 conditions.

Groundwater-Surface Water Interactions

The Youngdahl study assumed there is a direct hydrologic connection between the ponds created by vested mining operations and groundwater. The Yuba River and the YCWA Main Canal are in direct contact with the highly porous mine tailings. Daguerre Point Dam diverts water to pass through the dredger tailings of the Yuba Goldfields. While the canal draws water from a diversion at the Daguerre Point Dam, it also must draw water flowing westerly through the dredger tailings. As such, it is also assumed because there is a direct connection to the aquifer, there would be an indirect connection to the YCWA Main Canal, the outlet channel, and the Yuba River.

Yuba River Flows

As stated above, vested mining operations will create five lakes bordered by vegetated woodlands and dikes or berms. Reclamation does not include the lakes created by mining, but does include the establishment of vegetation on the shore, berms, and areas surrounding the lakes.

The lakes that would be created as a result of vested mining operations are approximately 3,500 feet to 4,500 feet from the Yuba River, with extensive dredger tailings present between the mine and the river. As such, the proposed project would be unlikely to have a *direct effect* on the Yuba River. However,

¹⁵ Calculated as follows: planned mined lakes and reclaimed areas (1,602 acres) – existing ponds (342 acres) = 1,260 acres mined lakes and reclaimed areas.

increases in evapotranspiration could reduce groundwater elevations that could, in turn, draw water flow from the river to compensate. The assumptions for estimating evapotranspiration losses are described below.

The analysis assumes the primary water loss upon the completion of vested mining operations that would create the lakes would be through evapotranspiration from the lakes and the reclaimed emergent marsh (included in the lake areal extents). The peak monthly (July) evapotranspiration loss is estimated to be approximately 19 cfs. The average annual evapotranspiration loss is estimated to be approximately 6 cfs. These would be the amounts drawn in from the gravels surrounding the lakes, the Yuba River, and the YCWA Main Canal during peak flow and annual average flow conditions. These effects on flow would not be the result of reclamation activities, but would be the result of vested mining as the ponds are created. The inflow-outflow conditions would eventually reach equilibrium when final reclamation is achieved. This represents the baseline condition for evaluating the effects of implementing the Amended Reclamation Plan with regard to river flow.

As such, the analysis assumes the effect of implementing the Amended Reclamation Plan on river flows would be associated exclusively with the evapotranspiration losses from the emergent marsh habitat (approximately 100 acres, as noted above) under the final reclamation configuration.

Cumulative Projects

Four other nearby aggregate mines in the Yuba Goldfield gravels are considered in the analysis of potential impacts on groundwater and river flows. Hallwood Mine, on the north side of the Yuba River from Western Aggregates, will have a mining area of 520 acres. Located adjacent to the Teichert Hallwood operation is the Knife River (formerly Baldwin) Hallwood mine. Upon completion of proposed mining operations at the Knife River Hallwood mine, the site is expected to contain approximately 202 acres of open ponds with vegetated shorelines. The Teichert Marysville aggregate mining site is located southwest of and adjacent to Western Aggregates and will have a mining area of 420 acres. The Dantoni Pit (located adjacent to the western boundary of Western Aggregates) is anticipated to be 180 acres in size upon the completion of mining. The locations of these four mines are shown in Figure 5-1 (Cumulative Projects) in Section 5.1.1 (Cumulative Context) of Chapter 5 (CEQA Statutory Requirements). The Youngdahl study assumed the combined acreage of ponds would be 2,582 acres, not including emergent marsh that might be associated with each project.

Analytical Methods

Effects on Yuba County Water Agency Main Canal and Yuba River Flows

Groundwater Levels

The Youngdahl study used the Papadopulos-Cooper solution for large-diameter wells to estimate the impact of the increased water loss on groundwater levels to predict drawdown. The Papadopulos-Cooper solution, developed in 1967, was originally developed as a method for analyzing the effects of pumping from a non-flowing, large-diameter well. This approach treats multiple wells as a single well with an equivalent radius encompassing all of the wells and accounts for water derived from storage in the

proposed reclamation lake scenario. It is an appropriate method for analyzing the proposed project's effects on groundwater.

Youngdahl used a conservative storage coefficient of 0.1 and a conservative transmissivity of 100,000 gpd for the Yuba Groundwater Basin. These values were based on the 2008 MWH report noted above, a report prepared in 1992 by Bookman and Edmonstron, and a 1978 study prepared by the DWR (as described by Luhdorff and Scalmanini in its 2003 report). A storativity of as much as 0.22 and transmissivity as high as 260,000 gpd/ft could have been used based on some of the available data; however, this would have resulted in calculated drawdown values less than one-half of the calculated estimates for the proposed project and would have been less conservative.

Effects on YCWA Main Canal (Reclamation Lake No. 1)

An 8,400-foot-long section of the canal passes within 350 feet of the margins of planned Reclamation Lake No. 1, on the eastern side of the mine (see Figure 3-7a). Lake No. 1 was selected for analysis because it is closest to the canal and would be the first lake that would be reclaimed and, therefore, would function for the longest period of time (assumed to be 50 years). Using the Yuba River as a recharge boundary and the YCWA Main Canal as a recharge boundary at 350 feet east of the edge of the lake (1,477 feet from the center of the lake), Youngdahl performed calculations for 1, 5, and 50 years using solutions by Moench and Tartakovsky-Neuman, with the estimated drawdowns being close to that of the Papadopulos-Cooper solution.

The section of the unlined canal was evaluated as a one-sided trench dewatering the adjoining aquifer using the Dupuit equation for steady state flow into a trench from an unconfined aquifer. Assuming a hydraulic conductivity of 2,250 gpd/sf, a 0.5-foot drop in groundwater height as it drains into the canal, a lateral drainage distance (where the effective aquifer thickness drops from 20 feet to 19.5 feet) into the adjoining aquifer of 50 feet, a canal depth of 20 feet (effective aquifer thickness), and a trench length of 8,400 feet, the unit drop would result in an estimated inflow of more than 7.5 million gallons per minute from the dredger tailings adjoining the 8,400-foot stretch of the canal.

Effects on YCWA and Yuba River Flows (All Reclamation Pond Areas)

All of the lakes created by vesting mining operations were considered a single circular lake with a surface area equal to the sum of the surface areas of all of the lakes. The radius of a round lake with a surface area of 1,602 acres is therefore 2,660 feet. Recharge boundaries associated with the Yuba River to the north and the YCWA Main Canal to the east were assumed in the analysis.

The Yuba River and the YCWA Main Canal are in direct contact with the highly porous mine tailings. Daguerre Point Dam diverts water to pass through the dredger tailings of the Yuba Goldfields. While the canal draws water from a diversion at the Daguerre Point Dam, it also must draw water flowing westerly through the dredger tailings. To account for these conditions, Aqtesolv Version 4.5 software was used to implement a solution with recharge boundaries. For the purposes of drawdown calculations within the limitations of the software, the YCWA Main Canal recharge boundary was estimated to be from 8,700 to 9,700 feet east of the center of the reclamation lake system, although the Main Canal does pass within 350 feet of the edge of the easternmost reclamation lake (Lake No. 1; see Figure 3-7a). The Yuba River recharge boundary was estimated to be from 4,160 to 4,800 feet north of the center of the lakes.

Youngdahl obtained mean daily flow data from the California Department of Water Resources Data Exchange Center for the Yuba River near Marysville (Station MRY), approximately 15,000 feet downstream from Western, for the period January 1, 1993, through September 15, 2013. These data were reviewed to characterize the contribution of the Amended Reclamation Plan to the cumulative effect of Yuba Goldfields mine and reclamation projects' effects on Yuba River flow conditions.

Surface Water and Groundwater Quality

Surface water and groundwater quality impacts were qualitatively evaluated based on readily available data and published information, which are cited in the footnotes, and a review of Western's WDR 5-00-107 and associated MRP and Cal Sierra's WDR and MRP 5-00-102.

■ Thresholds of Significance

For purposes of this EIR, project-specific and cumulative impacts associated with hydrology and water quality would be considered significant if the proposed project would:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table that would interfere with adjacent uses
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site
- Create or contribute surface runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff or otherwise substantially degrade water quality
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map
- Place within a 100-year flood hazard area structures which would impede or redirect flood flows
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam
- Inundation by seiche, tsunami, or mudflow
- Substantially deplete surface water supplies such that there would be a net reduction in flows to levels that would not support existing land uses or planned uses for which entitlements or permits have been granted

■ Impacts Identified in the Initial Study Not Requiring Detailed Analysis in the Draft EIR

The Initial Study (Appendix B, Section 5.IX [Hydrology/Water Quality]) concluded the proposed project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site; or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. The Initial Study determined there would be no impact or less than significant impacts as a result of implementing the proposed project concerning these topics. No comments were received on the NOP indicating these topics should be evaluated in the Draft EIR. No additional analysis beyond that presented in the Initial Study is necessary.

■ Project Impacts and Mitigation Measures

YCWA Canal Operation and Yuba River Flow

Impact HY-1 **Evaporative losses from the reclaimed lakes would have a limited effect on the operation of the Yuba County Water Agency (YCWA) Main Canal and Yuba River flow as a result of groundwater-surface water interactions. The impact is *less than significant*.**

The YCWA Main Canal conveys Yuba River water from the Daguerre Point Dam through the Yuba Goldfields through a series of unlined channels and ponds in direct contact with the porous dredger tailings. An average of 99,000 afy is diverted from the Yuba River through this canal to serve customers south of the Yuba River. An 8,400-foot section of the canal passes in close proximity (within 350 feet) to the margins of planned Reclamation Lake No. 1, on the eastern side of the mine.

The calculated average groundwater level declines when considering both the Yuba River and the YCWA Main Canal as recharge boundaries after 50 years are 5.1 feet at the lakes and 2.1 feet at 0.5 mile from the center of the lakes. The estimated drawdown due to reclamation will be about 10 percent of this. For an unlined canal with a surface elevation equal to the groundwater elevation, this would represent the maximum declines in surface water elevation that might be expected if flows are not increased to compensate for losses.

The evaporation loss for Lake No. 1 is estimated to be 1,330 afy on an annual basis and 363 acre-feet for the month of July. This equates to approximately 1.2 mgd on a yearly basis and approximately 3.8 mgd for July. For all time frames (31 days, 92 days, 1 year, 5 years, and 50 years), the drawdown in Lake No. 1 would be negligible. It is likely that water lost from the YCWA Main Canal to Lake No. 1 would be quickly replenished by inflow from the section of the canal with northeast adjoining gravels until equilibrium is achieved, after which there would be no losses.

There is an estimated inflow of more than 7.5 million gallons per minute from the dredger tailings adjoining the 8,400-foot stretch of canal, as explained in the Methods of Analysis, above. The winding canal length and pond shores through the tailings are much longer than this 8,400-foot stretch (at least an

additional 6,100 feet) and so would probably have substantially more groundwater available from the dredger tailings.

The canal flow would only be affected where the inflow to the canal causes the water surface to exceed the groundwater elevation adjoining the canal. Under normal conditions, substantial losses from the canal to the adjoining dredger tailings would occur whenever flows are introduced that exceed groundwater elevations. If drawdowns are increased due to evaporation losses from the lakes, larger volumes of water may be required to sustain flows when the water surface of the canal is above the adjoining groundwater elevations.

If the water flow is increased into the canal to compensate for evaporative losses from the lakes, drawdown of the canal water surface would likely become negligible. If the flow is not increased, drawdown of the canal water surface would likely occur with the surface falling to somewhere well above the maximum lake drawdown value of 5.9 feet after 50 years for the entire lake systems or well above the 2-foot drawdown estimate if only Lake No. 1 is considered. The inflow of water to the unlined canal from the adjoining saturated dredger tailings and the Yuba River (through the dredger tailings) would substantially compensate for the evapotranspiration losses.

The overall effect on the canal system would be that when higher flows are needed for irrigation (such as in summer), the amount of water diverted through the canal may have to be increased to compensate for slightly lower groundwater levels. However, the drawdown effects due to reclamation specifically would not be measurable. As such, the proposed project would not result in an adverse effect on the YCWA Main Canal or Yuba River flows. Impacts would be *less than significant*.

While the impact of proposed reclamation activities, exclusively, would have a less than significant impact on Yuba River flow, the effect of reclamation activities in combination with Western's vested mining operations (i.e., post-mining conditions) and other mining and reclamation projects in the Yuba Goldfields would be cumulatively significant. Impact HY-4, below, presents the analysis of cumulative impacts of the proposed project on Yuba River flow and temperature.

Mitigation Measures

No mitigation is required.

Project Effects on Groundwater Supply from Evapotranspiration Losses

Impact HY-2 **The establishment of emergent marsh along lake shorelines and the settling pond would result in evapotranspiration losses, but the effect on groundwater levels would be minor, confined to within 1 mile of the project site. The impact is *less than significant*.**

Reclamation would result in the creation of approximately 12 acres of emergent marsh around the perimeter of the lakes. Additionally, the Amended Reclamation Plan indicates that the settling pond area would be reclaimed to a vegetative condition. For purposes of this assessment, it is conservatively assumed approximately 100 acres of emergent marsh would be associated with these features. These revegetated areas would be subject to evapotranspiration losses.

The average water loss from a vegetated pond area of 100 acres would be approximately 270 afy or 0.24 mgd. For the month of highest evapotranspiration (July), the water loss would be about 73.5 afy or 0.77 mgd. The peak (July) evapotranspiration loss associated specifically with the 12 acres of emergent marsh associated with the lake shorelines would be approximately 8.8 afy or 0.09 mgd.

The additional average annual loss from 1,260 acres of lakes created by vested mining and that would exist at time final reclamation commences is estimated to be 3,402 afy or about 3.0 mgd, and 9.7 mgd for a July loss. By comparison, the evapotranspiration losses from the 100 acres of emergent marsh would be less than 10 percent of the losses resulting from the lakes. The losses to evapotranspiration would be replenished mostly by inflows from the Yuba River and the YCWA Main Canal through the gravels to the lakes. However, the groundwater drawdown due to reclamation would be an order of magnitude less than that of the lakes. The 50-year drawdown at the lakes due to reclamation with emergent marsh can be expected to be 0.5 foot or less. It can be expected to be less than 0.25 foot at 0.5 mile from the lakes after 50 years and probably not detectable at a mile from the lakes. The anticipated reduction in groundwater elevation on the project site due to reclamation would be relatively small (0.5 foot or less), and no measurable reduction would occur beyond 1 mile from the project site. Therefore, the proposed project would not deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the groundwater table that would interfere with adjacent uses. Impacts would be *less than significant*.

While the impact of proposed reclamation activities, exclusively, would have a less than significant impact on groundwater characteristics, the effect of reclamation activities in combination with Western's vested mining operations (i.e., post-mining conditions) and other mining and reclamation projects in the Yuba Goldfields would be cumulatively significant. Impact HY-5, below, presents the analysis of cumulative impacts of the proposed project on groundwater resources.

Mitigation Measures

No mitigation is required.

Groundwater and Surface Water Quality

Impact HY-3 **Silts/fines used for pond revegetation during reclamation could contain forms of mercury that could undergo methylation, thus increasing the potential for mercury bioaccumulation in the environment. The impact is *less than significant*.**

Western would use fines available from mining operations, including residual dredge fines, fines from the settling pond(s), and overburden, to meet the revegetation requirements of the Amended Reclamation Plan. In addition, Western would spread a layer of fines to cover cobbles and provide an adequate rooting zone for revegetation. Reclamation activities would correspond to the three 15-year phases of mining operations.

Reclamation activities to develop the emergent marsh areas along the lakes and the settling pond could result in the placement of fines below the water table, an environment that may be conducive to mercury methylation. However, as described in the Environmental Setting, project site and local assessments of mercury in fines indicated that the mercury concentrations are within naturally occurring background

levels. Additionally, the water quality monitoring under MRP 5-00-107 is intended to detect any increase in total and/or soluble mercury concentrations. As stated in MRP 5-00-107, Western must sample the wastewater and excavation ponds for total mercury on a twice-yearly basis. Samples would be collected from the water column at a time when Western is actively discharging washwater to the settling pond. The water samples are an indicator whether there is potential for sediment in the pond to contain mercury at levels that may be of concern for potential bioaccumulation. WDR 5-00-107 Provision F.5 requires that if mercury is found in the water column of any pond at greater than 50 ng/L, Western would be required within 90 days to submit a work plan to Central Valley RWQCB staff describing how it will characterize the water and sediment within the DDA and/or excavation area, and to submit a report to Central Valley RWQCB staff within 120 days following staff approval of the work plan. If mercury is present at levels that could cause bioaccumulation after final site reclamation, then within 120 days, Western would be required to submit a report evaluating alternatives to reduce mercury to acceptable levels. If requested by the Executive Officer of the Central Valley RWQCB, Western would be required to create a financial assurance account to mitigate bioaccumulation effects of the available mercury.¹⁶ Implementation of these requirements would ensure that materials used for revegetation purposes do not contain mercury at levels that could pose an environmental risk due to mercury bioaccumulation.

WDR 5-00-107 prohibits the discharge of stormwater, process water, and water in the DDA to the Yuba River, and all stockpiled materials must be managed to prevent erosion of sediment to surface drainage courses.¹⁷ Reclamation would be limited to regrading/revegetation of mine pits and ponds and removal of equipment and structures, which would not affect drainage patterns. As such, there is minimal risk of any sediments containing mercury (or other pollutants) affecting surface water quality during or after reclamation. The proposed reclamation plan would not involve any discharges or modifications of streams (i.e., off-channel mining) that would directly affect the Yuba River. The management actions in the *South Yuba River Comprehensive Management Plan* and the *Strategic Plan for Mercury Risk in the Sacramento River Watershed* concerning mercury would not directly apply to the project, so there would be no conflict with those plans.

Therefore, groundwater or surface quality degradation would not occur as a result of the proposed project, and impacts would be *less than significant*.

Mitigation Measures

No mitigation is required.

¹⁶ California Regional Water Quality Control Board, Notice of Adoption of Updated Waste Discharge Requirements for Western Aggregates, Incorporated, U.S. Army Corps of Engineers, Yuba County, Order No. 5-00-107 (June 15, 2000), Section F (Provisions).

¹⁷ Ibid., Section B (Discharge Specifications).

■ Cumulative Impacts and Mitigation Measures

Yuba River Flow and Temperature

Impact HY-4 **Evapotranspiration resulting from the long-term maintenance of reclaimed lakes at cumulative projects may affect Yuba River water flows and temperatures. The cumulative impact is *significant*.**

Cumulative Context

The cumulative context for the analysis of Yuba River flow and temperature impacts is the lower Yuba River below the Daguerre Point Dam. Four other nearby aggregate mines in the Yuba Goldfield gravels are assumed to contribute to evapotranspiration losses that could result in reductions in flow: Hallwood Mine, Knife River (formerly Baldwin) Hallwood, Teichert Marysville, and Dantoni Pit. The combined acreage of ponds, including Western Aggregates, would be 2,582 acres, not including emergent marsh that might be associated with each project.

Cumulative Conditions

Background

Data from the DWR California Data Exchange Center for the Yuba River at the Marysville station, approximately 15,000 feet downstream from the project site, indicate the most consistent low-flow conditions appeared to be flows of from 286 cfs to 406 cfs for the months of May and June 2001. The median flow for those months was 353 cfs.

Water that passes through the Yuba Goldfields is at least partially drained back into the Yuba River via an outlet canal. The Goldfields' outlet canal flows are 5 to 50 cfs during the summer and fall months. Water quality conditions for fish within the Yuba Goldfields, especially temperature, are generally poor. The Youngdahl study noted that in a Technical Memorandum prepared by the YCWA regarding water temperature models for the Yuba River Development Project, a comparison of the water temperature model for the stretch of Yuba River below Daguerre Point Dam showed that simulated temperatures were cooler than the historical temperatures. As indicated above, the YCWA has expressed concerns that water flowing through the Yuba Goldfields affects flows and water temperatures in the Yuba River.

Cumulative Impacts Analysis

Impact of Cumulative Projects

The annual average loss to evapotranspiration of the cumulative projects is estimated to be 6.2 mgd, equating to about 9.6 cfs. The peak monthly (July) evapotranspiration loss is estimated to be 18.4 mgd, equating to approximately 31 cfs (see Table 4.1-2 [Estimated Cumulative Impact of Evapotranspiration on Yuba River Flows]).

Proposed Project Contribution

The proposed project would be unlikely to have a direct effect on the Yuba River flows. This is because lakes that would be created as a result of vested mining operations are approximately 3,500 feet to 4,500 feet from the Yuba River, with extensive dredger tailings present between the mine and the river.

However, the lakes would draw groundwater flow from the river to compensate for water lost to evapotranspiration.

At final reclamation and thereafter, as shown in Table 4.1-2, the emergent marsh habitat (assumed to be approximately 100 acres) would result in a peak flow reduction of 1.2 cfs in Yuba River flow under median low-flow conditions (a 0.34 percent reduction). The estimated annual average peak flow reduction attributable to the emergent marsh is estimated to be 0.37 cfs, which would be 0.10 percent under median low-flow conditions. The percentage reduction under median flow conditions would be less: 0.010 percent reduction in peak flow and 0.030 percent reduction in annual average flow.

Cumulative Impact

The Goldfields’ outlet canal flows are 5 to 50 cfs during the summer and fall months. It is likely that most of the flow reduction for the Yuba River would be expressed in reduced flows from the outlet canal draining into the Yuba River. The impact of increased evapotranspiration losses from the reclamation lakes within the project site would be to reduce the amount of outflow via the outlet canal back into the Yuba River. At times of year when water temperatures in the Yuba Goldfields might be expected to become elevated relative to the Yuba River, this could reduce temperature impacts on the Yuba River, possibly improving water quality conditions for fish. However, overall reduced flows in the Yuba River may also allow more warming, which would be an adverse effect on temperature conditions for fish. The contribution of the proposed project to this impact would be considered cumulatively considerable, and this would be a *significant cumulative* impact.

	<i>Proposed Project Contribution (at Final Reclamation)</i>				<i>Cumulative Mine Pond Areas^b</i>	
	<i>Flow Reduction Attributable to 100 Acres of Emergent Marsh^a</i>		<i>Flow Reduction Attributable to 12 Acres of Emergent Marsh Only</i>			
	<i>Flow</i>	<i>Percentage</i>	<i>Reduction</i>	<i>Percentage</i>	<i>Reduction</i>	<i>Percentage</i>
Average Annual Flow Reduction (<i>Median Flow</i>) ^c	0.37 cfs	0.030	0.04 cfs	0.0033	9.6 cfs	0.79
Peak (July) Flow Reduction (<i>Median Flow</i>) ^c	1.2 cfs	0.10	0.14 cfs	0.011	31 cfs	2.5
Average Annual Flow Reduction (<i>Median Low Flow</i>) ^d	0.37cfs	0.10	0.04 cfs	0.011	9.6 cfs	2.7
Peak (July) Flow Reduction (<i>Median Low Flow</i>) ^d	1.2 cfs	0.34	0.14 cfs	0.040	31 cfs	8.7

SOURCE: Youngdahl Consulting Group, Inc., *Western Aggregates Reclamation Plan Environmental Impact Report: Assessment of Hydrogeologic Conditions and Potential Impacts of Mine Reclamation* (December 17, 2013), Table 4.

- a. Includes 12 acres of reclaimed lake shoreline.
- b. Includes Western Aggregates, Teichert Hallwood, Knife River (formerly Baldwin) Hallwood, Teichert Marysville, and Dantoni Pit.
- c. 1,220 cfs
- d. 353 cfs

Mitigation Measure

M-HY-1 *Western Aggregates LLC shall revise the Amended Reclamation Plan to eliminate emergent marsh. Reclamation of the settling pond will be designed to establish slopes no steeper than 2:1 to discourage the establishment of emergent marsh. Alternatively, the pond will be filled, resoiled, and reclaimed as native upland riparian and/or grassland habitat.*

Implementation of mitigation measure M-HY-1 would result in the creation of a deep open-water pond with shorelines to discourage the establishment of emergent marsh. Instead of 100 acres of emergent marsh, there would only be approximately 12 acres of emergent marsh associated with the lake shorelines. As shown in Table 4.1-2, for the 12 acres of reclaimed emergent marsh associated with lake shorelines, the annual average median low-flow reduction of 0.04 cfs would be 0.011 percent and 0.0033 percent for median flow conditions. The peak median low-flow reduction of 0.14 cfs would be 0.040 percent for median low-flow and 0.01 percent for median flow conditions.

This would substantially reduce the project's unmitigated contribution to cumulative reductions in Yuba River flow from 1.2 cfs (flow reduction due to peak monthly evapotranspiration loss from settling pond and shoreline marsh habitat) to a mitigated 0.14 cfs (flow reduction for shoreline marsh habitat only). This would represent an approximately tenfold decrease in the flow reductions. Consequently, there would only be a negligible increase in groundwater draw from the YCWA Main Canal; therefore, river diversions into the canal would not be increased in order to compensate for the loss, and outflow from the Western site back to the river would not be reduced. Because the proposed project's contribution to cumulative flow reduction would be negligible with implementation of this mitigation measure, the proposed project would not be expected to have an adverse effect on temperature changes in the Yuba River.

If the settling pond were reclaimed as grassland, this would not only eliminate any increase in evapotranspiration to support marsh vegetation but would also have the additional effect of reducing the evaporative loss associated with the mining pond that would be present at project initiation, i.e., the start of final pond reclamation. If the No Emergent Marsh and 2:1 Lake Slopes Alternative (see Chapter 6 [Alternatives to the Proposed Project]) is implemented, there would be no emergent marsh and, therefore, no contribution of the proposed project to cumulative reductions in river flow. That is, there would be no change from the pre-final (baseline) reclamation condition.

In summary, the project's contribution to the cumulative impact would be reduced to a level that is less than cumulatively considerable, and, with mitigation, this would be a *less than significant cumulative* impact.

Effects of Evapotranspiration Losses on Groundwater

Impact HY-5 **The establishment of emergent marsh habitat on the project site would result in increased rates of evapotranspiration that could contribute to cumulative reductions in local groundwater levels or storage. The cumulative impact is *significant*.**

Cumulative Context

The cumulative context for the analysis of groundwater impacts is the South Yuba Subbasin.

Cumulative Conditions

Between 1948 and 1981, groundwater elevations in the South Yuba Subbasin declined an estimated 130 feet. In 1984, the YCWA began delivering surface water from its New Bullards Bar Reservoir to offset groundwater extraction, resulting in a groundwater rise to near-historical levels. Hydrographs for wells in the South Yuba Subbasin show a reverse in the declining trend of groundwater levels, starting in the 1980s, which coincides with the extension of surface water deliveries to the South Yuba Subbasin. These hydrographs in the central parts of the North and South Yuba subbasins also show the effect of groundwater substitution transfers (during 1991, 1994, 2001, 2002, 2008, and 2009) in the form of reduced groundwater levels followed by recovery to pre-transfer levels.¹⁸

Cumulative Impacts Analysis

Impacts of Cumulative Projects

The four other cumulative projects considered in the analysis would result in the creation of open water ponds, resulting in a combined acreage of ponds of 2,582 acres, not including emergent marsh or other vegetated habitat that might be associated with each project. Each of these projects would be likely to affect groundwater levels and storage as a result of evaporative losses from ponds that may be created during mining and reclamation to habitats, which would be a source of evapotranspiration losses. These projects could result in a decrease in groundwater elevations.

Proposed Project Contribution

Evapotranspiration Losses. Implementation of the proposed project would result in the establishment of emergent marsh habitat along the shorelines of the five lakes and at the settling pond, conservatively assumed to total approximately 100 acres. The primary source of water loss within the project site upon the completion of mining would be through evapotranspiration from the lakes created by vested mining activities, which would be maintained as part of reclamation that would be maintained post-reclamation, and the emergent marsh vegetation. The average estimated annual net water loss due to evapotranspiration would be 32.39 inches per year (see Table 4.1-3 [Average Annual Evapotranspiration Net Water Losses]). The existing ponds (342 acres) are estimated to have an average annual evapotranspiration loss of 0.82 mgd, and a July loss of 2.6 mgd. By comparison, at the end of mining (1,260 acres of lake), the additional average annual loss is estimated to be 3,402 afy or about 3.0 mgd, and 9.7 mgd for a July loss.

¹⁸ YCWA, *Groundwater Management Plan* (December 2010), Section 2.3.3.

Table 4.1-3 Average Annual Evapotranspiration Net Water Losses

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average Rainfall (inches per year)	4.55	3.42	2.40	1.65	0.44	0.24	0.07	0.10	0.31	1.30	2.70	3.37	
Average ET (inches per year)	0.74	1.52	2.78	4.17	6.45	7.93	8.89	7.94	5.96	3.91	1.65	1.00	
Difference	-3.81	-1.9	0.38	2.52	6.01	7.69	8.82	7.84	5.65	2.61	-1.05	-2.37	32.39

SOURCE: Youngdahl Consulting Group, Inc., *Western Aggregates Reclamation Plan Environmental Impact Report: Assessment of Hydrogeologic Conditions and Potential Impacts of Mine Reclamation* (December 17, 2013), Table 1.

ET = evapotranspiration

Groundwater Levels. At the completion of vested mining operations, the predicted changes in groundwater levels associated with the expected increase in lake evaporation at the peak evapotranspiration time of July (9.7 mgd), after 3 months at the peak rate (to simulate end of summer conditions), and for 1, 5, and 50 years at the average annual evapotranspiration rate of 3.0 mgd are listed in Table 4.1-4 (Predicted Decline in Groundwater Levels Near the Project Site Upon the Completion of Mining [Yuba River and YCWA Main Canal as Recharge Boundaries]) and Table 4.1-5 (Predicted Decline in Groundwater Levels Near the Project Site Upon the Completion of Mining [Yuba River Only as Recharge Boundary]). Because conservative aquifer parameters were used in the analysis, calculated drawdown values may be less than one-half of those listed in Table 4.1-4.

Table 4.1-4 Predicted Decline in Groundwater Levels Near the Project Site Upon the Completion of Mining (Yuba River and YCWA Main Canal as Recharge Boundaries)

Time	Groundwater Level Decline (feet)		
	Reclaimed Ponds	0.5 Mile	1 Mile
July—31 days	-1.6	-0.2	-0
Summer—92 days	-4.0	-1.1	-0.3
1 Year	-2.9	-1.2	-0.3
5 Years	-4.6	-2.0	-0.35
50 Years	-5.1	-2.1	-0.35

SOURCE: Youngdahl Consulting Group, Inc., *Western Aggregates Reclamation Plan Environmental Impact Report: Assessment of Hydrogeologic Conditions and Potential Impacts of Mine Reclamation* (December 17, 2013), Table 2.

Table 4.1-5 Predicted Decline in Groundwater Levels Near the Project Site Upon the Completion of Mining (Yuba River Only as Recharge Boundary)

Time	Groundwater Level Decline (feet)		
	Reclaimed Ponds	0.5 Mile	1 Mile
July—31 days	-1.6	-0.2	0
Summer—92 days	-4.0	-1.2	-0.35
1 Year	-3.0	-1.21	-0.6
5 Years	-5.2	-2.5	-1.5
50 Years	-5.9	-3.2	-1.9

SOURCE: Youngdahl Consulting Group, Inc., *Western Aggregates Reclamation Plan Environmental Impact Report: Assessment of Hydrogeologic Conditions and Potential Impacts of Mine Reclamation* (December 17, 2013), Table 3.

The calculated values represent the estimated levels of aquifer drawdown due to evaporative losses at the lakes. The water level declines lessen with distances from the lakes to a little more than 2 feet after 50 years at 0.5 mile if both the Yuba River and the YCWA Main Canal act as recharge barriers. The decline is estimated to be approximately 3.2 feet at 0.5 mile after 50 years if the YCWA Main Canal is not in use, is lined, or is otherwise reconfigured such that water does not flow into the surrounding gravels. The estimated drawdowns listed in Table 4.1-4 and Table 4.1-5 indicate that groundwater level declines associated with the lakes created by vested mining operations and that would be reclaimed with vegetated shorelines can be expected to be relatively small as compared to past drawdowns in the South Yuba Subbasin. Between 1948 and 1981, groundwater elevations in the South Yuba Subbasin declined an estimated 130 feet. The maximum 3.2-foot decline at 0.5 mile after 50 years is small in comparison.

Groundwater Storage. In terms of storage, the lakes created by vested mining operations will provide substantially more storage than the saturated gravels they replace. Assuming a conservative specific yield value of 10 percent, for a given volume of aquifer, 90 percent of the volume is therefore not water. The void left from mining will be completely filled with water. The volume of space occupied by the water in the lakes that replace the gravels would therefore be increased about tenfold. The lakes will be unlined and will be in direct hydraulic contact with the gravel aquifer. This water would still be available to the aquifer, and the increased water availability would moderate the effects of local major groundwater withdrawals, reducing the drawdown due to these withdrawals.

Cumulative Impact

As described above, the groundwater level within the project site is anticipated to reach a maximum 3.2-foot decline at a distance of 0.5 mile in roughly 50 years as mining operations and site reclamation continue within the project site. While this is small in comparison to declines of approximately 130 feet experienced in the South Yuba Subbasin between 1948 and 1981, the anticipated additional decline of 3.2 feet is considered to be a cumulatively significant impact on groundwater resources when viewed in the context of cumulative projects (although as previously stated, the decline is the result of vested mining operations, not the result of reclamation). The majority of this reduction is due to evapotranspiration from approximately 1,260 acres of open water created by past and future vested mining operations. The proposed project would contribute to this reduction due to evapotranspiration through the establishment of roughly 100 acres of emergent marsh. The contribution attributable to the decline associated with evapotranspiration losses from reclaimed emergent marsh could be considered cumulatively considerable, and this would be a *significant cumulative* impact.

Mitigation Measure

M-HY-2 *Implement mitigation measure M-HY-1.*

Implementation of mitigation measure M-HY-1 would reduce the proposed project's contribution to cumulative groundwater impacts due to evapotranspiration losses associated with reclaimed emergent marsh vegetation to a level that is less than cumulatively considerable. If the settling pond is not converted to emergent marsh but is deep open-water pond with steep edges or if it is filled, the reclaimed area contributing to evapotranspiration would only be 12 acres associated with the lake shorelines. The evapotranspiration would then be 32 afy or 0.03 mgd. For the month of highest evapotranspiration (July), the water loss would be about 8.8 acre-feet or 0.09 mgd. The 50-year drawdown at the lakes due to

reclamation would then be expected to be less than 0.1 foot and probably not detectable at one-half mile from the lakes. The cumulative groundwater impact would be *less than significant with mitigation*.

Cumulative Water Quality Effects

Impact HY-6 Cumulative projects implementing reclamation activities involving revegetation could use materials containing mercury that could undergo methylation, thus increasing the potential for mercury bioaccumulation in the South Yuba River watershed. The cumulative impact is *less than significant*.

Cumulative Context

The cumulative context for the analysis of water quality effects is the South Yuba River watershed.

Cumulative Impacts Analysis

The highest average levels of mercury bioaccumulation in the northwestern Sierra Nevada region occur in the South Yuba River and Bear River watersheds, which ultimately discharge to the Sacramento River. The U.S. Geological Survey and federal land management agencies, along with other state and local agencies, are studying the watershed to determine the distribution of mercury in relation to historic mine sites. On a cumulative level, mercury contamination from historic gold mines represents a potential risk to human health and the environment. Regional efforts to address concerns about mercury in the food chain include the Delta Tributaries Mercury Council/Sacramento River Watershed Program's *Strategic Plan for the Reduction of Mercury-Related Risk in the Sacramento River Watershed*. For cumulative projects that would involve the use of fines for revegetation in a water environment, there is the potential for mercury methylation if the chemical forms or concentrations exceeding baseline conditions are present at those mines and if precautions are not taken to reduce that risk. In combination with mercury levels already known to be present the watershed, the cumulative impact could be potentially significant.

The proposed project would not contribute substantially to this cumulative impact. As explained in Impact HY-3, water quality monitoring under MRP 5-00-107 is intended to detect any increase in total and/or soluble mercury concentrations. The WDR requires that if mercury is found in the water column of any pond at greater than 50 ng/L, Western must determine whether mercury is present at levels that could cause bioaccumulation after final site reclamation, in accordance with a Central Valley RWQCB staff-approved work plan. If there is a problem, Western would be required to submit a report evaluating alternatives to reduce mercury to acceptable levels. If requested by the Executive Officer of the Central Valley RWQCB, Western would be required to create a financial assurance account to mitigate bioaccumulation effects of the available mercury.¹⁹ Implementation of these requirements would ensure that materials used for revegetation purposes do not contain mercury at levels that could pose an environmental risk due to mercury bioaccumulation in the watershed.

¹⁹ California Regional Water Quality Control Board, Notice of Adoption of Updated Waste Discharge Requirements for Western Aggregates, Incorporated, U.S. Army Corps of Engineers, Yuba County, Order No. 5-00-107 (June 15, 2000), Section F (Provisions).

Therefore, the proposed project's contribution to the cumulative condition would not be cumulatively considerable, and this would be a *less than significant cumulative* impact.

Mitigation Measures

No mitigation is required.

[THIS PAGE INTENTIONALLY LEFT BLANK]

4.2 BIOLOGICAL RESOURCES

This section of the Draft EIR analyzes the potential environmental effects on biological resources from implementation of the Amended Reclamation Plan. The scope and content of this section reflect the conclusions of the April 2013 Initial Study (see Draft EIR Appendix B), which determined the proposed reclamation activities may potentially have significant impacts on special-status species, riparian and other sensitive habitats, vernal pools, and raptors and migratory birds. This section also addresses comments received in response to the Notice of Preparation (NOP) from the California Department of Fish and Wildlife (CDFW) recommending that the Draft EIR evaluate impacts on sensitive species, nesting migratory birds and raptors, and habitat conservation planning. Those comments (see Draft EIR Appendix C) are considered in the analysis, and mitigation provided in this section. Comments were also submitted by the U.S. Department of the Air Force (USAF) at Beale Air Force Base (AFB). USAF comments focused on the potential for bird strikes with implementation of the Amended Reclamation Plan, which is evaluated in Section 4.3 (Land Use/Planning).

■ Impact Considerations

Past, ongoing, and future mining and processing operations on the Western Aggregates LLC (Western) site have and will substantially modify physical conditions that currently exist on the project site. These modifications will occur as a result of Western's vested right to mine and process aggregate from on-site dredge tailing piles and subsurface deposits.

Vested mining operations are ongoing and will continue prior to the start of implementation of the Amended Reclamation Plan. As such, most of the project site will be significantly disturbed when the Amended Reclamation Plan is implemented. The ultimate goal of proposed activities under the Amended Reclamation Plan is to reclaim the disturbed areas of the mine site currently in operation by Western in compliance with the California Surface Mining and Reclamation Act (SMARA) and State Mining and Geology Board (SMGB) regulations. To that end, plan objectives include contouring mining features and revegetating disturbed areas to minimize biological effects. Implementation of the Amended Reclamation Plan would result in the restoration of five ponds created by vested mining operations into lakes with vegetated shorelines and upland revegetation in three phases over a 45-year period. Western would begin final reclamation activities necessary to establish the surface features proposed in the plan concurrent with final aggregate removal by phase, including any areas subject to phases of less than 15 years. Section 3.4.4 (Reclamation Phasing) in Chapter 3 (Project Description) describes the activities in detail. Figure 3-7a (Conceptual Model for Final Reclaimed Configuration After 15 Years), Figure 3-7b (Conceptual Model for Final Reclaimed Configuration After 30 Years), and Figure 3-7c (Conceptual Model for Final Reclaimed Configuration After 45 Years) illustrate the vested mining phases.

The direct impacts on biological resources from mining operations on project site conditions that exist today are not subject to review in this Draft EIR because these effects will result from vested mining operations, which are not subject to discretionary action on the part of SMGB or any other regulatory agency. The effects of mining operations are, however, critical to the evaluation of the potential impacts of the Amended Reclamation Plan (the proposed project) because they are key to defining baseline environmental conditions that will exist when the proposed project, i.e., site reclamation, is implemented.

4.2.2 Environmental Setting

■ Regional Setting

The Western project site is located in the south-central portion of Yuba County, California, in the Yuba Goldfields. The project site is situated between the Yuba River (approximately 1 mile to the north with dredger tailings between the project site and the river) and Hammonton-Smartsville Road (to the south). The general vicinity includes adjacent industrial mining operations, agriculture, open space, and Beale AFB (to the south just beyond the road). The project site is in the U.S. Geological Survey (USGS) 7.5-minute Browns Valley topographical quadrangle map. As described by the CDFW from *A Guide to Wildlife Habitats of California* (1988), habitat within Yuba County is extremely diverse and includes 33 different general habitat types.

■ Project Site

The project site and surrounding area has previously been greatly disturbed by gold and aggregate mining activities of predecessor companies prior to the enactment of the Surface Mining and Reclamation Act (SMARA). The historic mining operations dramatically altered the landscape in the Yuba Goldfields, and the project site is characterized by numerous dredge tailings with interspersed waterways and small ponds created by mining activities.

The project site is situated within the Yuba River watershed; however, the northern edge of the area planned for reclamation is a distance approximately 3,500 feet to 4,500 feet south of the Yuba River and associated biological resources. Between the reclamation area and the river are extensive dredger tailings, the Linda Levee, and a fish exclusion device near Daguerre Point Dam (see Figure 4.1-2 [Yuba Groundwater Basins] in Section 4.1 [Hydrology/Water Quality]). The eastern side of the project site is bounded by the Yuba County Water Agency Canal (YCWA Main Canal), which consists of a series of unlined ponds and channels that pass through dredger tailings field east and southeast of the site. An 8,400-foot stretch of canal passes within 350 feet of the margins of planned Reclamation Lake No. 1.

The nature of mining activities within the project site is such that portions of the landscape are left undisturbed or fallow for lengthy periods of time, sometimes extending more than 1 year without any significant disturbance. Figure 3-2 (Typical Existing Conditions) in Chapter 3 illustrates such conditions. Other lands are more recently disturbed with significant landscape changes, resulting in open water and barren shores from the ongoing vested mining activities. Reclamation plan areas in the project site that are recently (within a single year) disturbed by mining activities typically lack vegetation that would support special-status species. In addition, human intrusion and the persistent operation of large mining equipment make recently disturbed areas less attractive to species. Consequently, recently disturbed areas are unlikely to support species that may occur in undisturbed or fallow areas.

■ Biological Communities

Habitat within the project site consists predominantly of annual grassland and lacustrine, which is consistently impacted by the ongoing aggregate vested mining operations. Areas that are left fallow over time have also developed stands of blue oak woodland, fresh emergent wetland, valley foothill riparian,

and valley oak woodland habitats. Habitat surrounding the project site is a combination of annual grassland, developed areas (agriculture and urban), riverine, and various woodland. Habitat occurring within the project site is described below. Sensitive habitats and natural communities that are known in the vicinity of the project site are also described. This information provides the basis for evaluating the potential for occurrence of special-status species within the project site.

Annual Grassland

In California, annual grassland generally occurs on flat plains to gently rolling foothills throughout the Central Valley, in the coastal mountain ranges to Mendocino County, and in scattered locations in the south portion of the state. Dominant species found within this habitat include introduced grasses such as brome (*Bromus* sp.), soft chess (*Bromus mollis*), and wild oat (*Avena fatua*). Common forbs associated with annual grassland include clover (*Medicago* sp.), filaree (*Erodium* sp.), and turkey mullein (*Eremocarpus setigerus*).¹

The structure of this habitat varies from year to year based largely on precipitation, season, and presence of livestock. Annual plant seeds are germinated by rain in the fall months. Following these rains, plants grow slowly throughout the winter remaining relatively small until the spring when rising temperature stimulates rapid growth.² Most annuals mature between April and June, although some species, such as tarweed (*Madia sativa*) and turkey mullein, continue to grow into the summer.³ Grazing by livestock typically supports a greater abundance of shorter grass (less than 12 inches tall), such as filaree and turkey mullein. Without the presence of livestock, annual grassland generally grows tall (greater than 12 inches) and dense with species such as ripgut brome (*Bromus rigidus*) and wild oat.⁴

Annual grassland supports many wildlife species by providing suitable areas for foraging, nesting, and cover. Annual grassland may also support vernal pool areas, which contain their own unique flora. Most of California's grassland is dominated by nonnative plant species, but vernal pool communities tend to be dominated by native species that persist even when surrounded by nonnative vegetation. In addition, vernal pools support unique species of crustaceans and rare amphibians, and provide foraging area for many bird and mammal species. Upland plant and animal communities surrounding vernal pools also contribute to their continued existence, because they relegate runoff, remove nutrients, filter out sediment, pollinate native plant species, assist with thatch accumulation, and provide important physical disturbances. Habitat loss from changes in natural hydrology, invasive species, infrastructure projects (i.e., roads and utilities), recreational activities, and inadequate management, as well as fragmentation, is the biggest threat to vernal pool communities.⁵

Within the project site, annual grassland dominates the landscape, occurring on rolling hills and dredge tailings. The habitat is dominated by wild oat, various bromes, and other ruderal species. The height and

¹ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

² Ibid.

³ H. F. Heady, Valley grassland, in *Terrestrial Vegetation of California*, edited by M.G. Barbour and J. Major, pp. 491–514 (New York: John Wiley and Sons, 1977).

⁴ D. W. Freckman, D. A. Duncan, and J. R. Larson, Nematode Density and Biomass in Annual Grassland Ecosystem, *Journal of Range Management*, 32(6):418–422 (November 1979).

⁵ USFWS, *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (August 2005).

complexity varies throughout the area depending on the intensity of mining activity in a particular location. The southernmost portion of the project site has not been substantially disturbed by previous mining and includes vernal pool swales.

Blue Oak Woodland

In California, blue oak woodland is generally found in a nearly continuous ring formation among higher elevations of the foothills around the Central Valley. Blue oak woodlands are characterized by having an overstory of scattered trees (canopy cover varies) with blue oak (*Quercus douglasii*) being the dominant species, comprising 85 to 100 percent of the trees present. In the lower elevation ranges, this habitat is found among annual grasslands and valley oak woodlands. At higher ranges, blue oak woodlands are typically found in association with blue oak-foothill pine habitat.⁶

The structure of this habitat is typically three-tiered with an overstory, shrub layer, and understory. The overstory, which is predominantly blue oak, varies in density and composition depending on geography. For example, common species occurring in the canopy with blue oak include coast live oak (*Quercus agrifolia*) in the Coast Range, interior live oak (*Q. wislizenii*) in the Sierra Nevada, western juniper (*Juniperus occidentalis*) in the Cascade Range, and valley oak (*Q. lobata*) where deep soils have formed. The shrub layer is rarely extensive and often occurs on rock outcrops. Typical shrub species include poison-oak (*Toxicodendron diversilobum*), California coffeeberry (*Rhamnus californica*), buckbrush (*Ceanothus cuneatus*), redberry (*Rhamnus crocea*), California buckeye (*Aesculus californica*), and a variety of manzanita (*Arctostaphylos* sp.) species. The understory is usually an extension of annual grassland from surrounding areas. The ground cover typically comprises brome grass, wild oat, foxtail (*Alopecurus* sp.), needlegrass (*Achnatherum* sp.), filaree, fiddleneck (*Amsinckia* sp.), and other annuals.⁷

Many species of wildlife benefit from the use of oaks in this habitat and even contribute to oak germination. However, few areas in California can be found where successful recruitment of blue oaks, to maintain the long-term existence of these woodlands, has occurred since the turn of the century.⁸ Changes in land use, increased consumption of acorns by wildlife and domestic stock, competition between seedlings, and climate change have contributed to the decline of this habitat.⁹

In the project site, blue oak woodland is limited by previous mining activity and, typical of lower elevations, occurs among the annual grassland and valley oak woodland. Under the Amended Reclamation Plan, blue oak and associates would be restored in upland areas.

Fresh Emergent Wetland

Fresh emergent wetlands occur throughout California in basins or depressions that are saturated or periodically flooded. They are most common on level to gently rolling topography at the edge of rivers or

⁶ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

⁷ Ibid.

⁸ V.L. Holland, In defense of blue oaks, *Fremontia* 4:3–8 (1976).

⁹ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

lakes.¹⁰ Consequently, fresh emergent wetlands typically occur as buffer areas between other terrestrial and aquatic habitats. The terrestrial limit of a fresh emergent wetland is defined by the boundary between primarily hydrophytic vegetation and mesophytic or xerophytic vegetation as well as the boundary between hydric and nonhydric soils.¹¹ The aquatic limit is defined as the deep water edge of emergent vegetation, generally no more than 2 meters (approximately 6.5 feet) maximum depth of water, which is the limit to which emergent plants normally grow.^{12, 13}

The structure of this habitat is characterized by erect, rooted herbaceous hydrophytes located in areas flooded frequently enough so that their roots grow in anaerobic conditions.¹⁴ The configuration and type of vegetation generally reflects the contours, relative depth, and duration of flooding in an area. Typical species associated with fresh emergent wetland include Baltic rush (*Juncus balticus*), big leaf sedge (*Carex amplifolia*), redroot nutgrass (*Cyperus erythrorhizos*), and saltgrass (*Leptochloa* spp.) under more alkaline conditions. Dominant species associated with wetter sites include arrowhead (*Sagittaria* spp.), broadleaf cattail (*Typha latifolia*), river bulrush (*Scirpus fluviatilis*), and other bulrush (*Scirpus* spp.) varieties.^{15, 16, 17}

Fresh emergent wetlands are one of the most biodiverse habitats in California.¹⁸ Many wildlife species depend on fresh emergent wetlands as their primary habitat throughout their life cycle.

The edges of lakes within the project site support fresh emergent wetland habitat that consists primarily of cattail with some rush and bulrush species. The density and composition of this habitat varies throughout the project site depending on the intensity of mining activity at a particular location. Emergent marsh would be restored with native species under the Amended Reclamation Plan.

Lacustrine

Lacustrine habitats comprise inland depressions or riverine channels containing standing water due to dams or other barriers.¹⁹ This habitat is found throughout California at most elevations, but is less abundant in arid regions. Typical lacustrine features include permanently flooded lakes and reservoirs,

¹⁰ W.A. Wentz, *Wetlands Values and Management* (U.S. Government Printing Office, Washington, D.C., 1981).

¹¹ L.M. Cowardin, V. Carter, F.C. Golet, and E.T. La Roe, *Classification of Wetlands and Deepwater Habitats of the United States* (U.S. Department of the Interior, Fish and Wildlife Service, 1979).

¹² C.D. Sculthorpe, *The Biology of Aquatic Vascular Plants* (London: Edward Arnold Ltd., 1967).

¹³ P.S. Welch, *Limnology*, 2nd ed. (New York: McGraw-Hill, 1952).

¹⁴ J.G. Gosselink and R.E. Turner, The role of hydrology in fresh water wetland systems, in *Freshwater wetlands, ecological processes and management potential*, edited by R.E. Good, D.F. Whigham, and R.L. Simpson (New York: Academic Press, 1978), pp. 63–67.

¹⁵ N.H. Cheatham, and J.R. Haller, An annotated list of California habitat types (University of California Natural Land and Water Reserve System, unpublished manuscript, 1975).

¹⁶ U.S. Army Corps of Engineers (USACE), *Preliminary Guide to Wetlands of the West Coast States*, U.S. Army Waterway Technical Report Y-78-4 (1978).

¹⁷ W.A. Wentz, *Wetlands Values and Management* (U.S. Government Printing Office, Washington, D.C., 1981).

¹⁸ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

¹⁹ L.M. Cowardin, V. Carter, F.C. Golet, and E.T. La Roe, *Classification of Wetlands and Deepwater Habitats of the United States* (U.S. Department of the Interior, Fish and Wildlife Service, 1979).

intermittent lakes, and ponds. Size and depth of these features can vary greatly, so the structure and composition of this habitat is also varied.²⁰

In general, lacustrine habitat is described in terms of zones. The limnetic or open water zone extends from the deepest part to the depth of effective light penetration. This zone is often inhabited by suspended organisms, such as phytoplankton and filamentous green algae as well as zooplankton. The littoral or submerged zone is shallow enough to permit light penetration and occurs at the edges of lakes and throughout most ponds. Species in the littoral zone vary by water depth and can include a surface floating layer of plants such as duckweed (*Araceae* family) or water lily (*Nymphaeaceae* family). Shoreline is defined as a water border with less than 2 percent vegetation. Borders that exceed 2 percent vegetation are considered wetland or riparian areas.²¹

It is estimated that lacustrine habitats are utilized by about 25 percent of terrestrial wildlife species in California, including some special-status species.²² This habitat provides forage important to a variety of wildlife. Associated habitats, such as fresh emergent wetland and valley foothill riparian, also provide areas for cover and reproduction.

Lacustrine habitat within the project site consists of lakes and ponds of various sizes and depths that are interconnected by narrow channels and depressions. This habitat is impacted by ongoing aggregate vested mining operations. However, mining activity does not significantly deter wildlife from utilizing these areas. Several species are known within the project site, including (but not limited to) Canada goose (*Branta canadensis*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), and nesting osprey (*Pandion haliaetus*).

Valley Foothill Riparian

Valley foothill riparian habitat is generally found in the valley and foothill regions of California along low-gradient streams. Typically, this habitat consists of an overstory tree layer, subcanopy tree layer, understory shrub layer, and herbaceous layer. Valley areas supply deep alluvial soils that are usually permanently moist and well aerated to provide for a variety of lush vegetation.

Species dominating the overstory of valley foothill riparian habitat include Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), and valley oak. Typical subcanopy trees are white alder (*Alnus rhombifolia*), box elder (*Acer negundo*), and Oregon ash (*Fraxinus latifolia*). Common understory shrubs include wild grape (*Vitis californica*), wild rose (*Rosa californica*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus mexicana*), poison oak, button bush (*Cephalanthus occidentalis*), and willows (*Salix* sp.). The herbaceous layer consists of sedges (*Cyperus* sp.), rushes (*Juncus* sp.), miner's lettuce (*Claytonia perfoliata*), poison hemlock (*Conium maculatum*), hoary nettle (*Urtica dioica holosericea*), and various grasses. This habitat supports an abundance of wildlife, which uses the area for food, water, migration, cover, dispersal, and nesting.²³

²⁰ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

²¹ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

²² Ibid.

²³ Ibid.

Isolated, dense stands of valley foothill riparian habitat occur throughout the project site along the border of local waterways and in lowland depressions. The age and composition of the various stands depend largely on mining activity in the immediate vicinity. Riparian woodland would be restored using native species with implementation of the Amended Reclamation Plan.

Valley Oak Woodland

Valley oak woodland habitat occurs in a wide variety of settings generally below a 610-meter (2,000-foot) elevation in remnant patches in the Sacramento Valley south of Redding, in the San Joaquin Valley to the Sierra Nevada foothills, in the Tehachapi Mountains, and in valleys of the Coast Range. Typically, this habitat is best developed on deep, well-drained alluvial soils in valley bottoms. Soils and drainage generally determine the structure, which varies from open, savanna-like stands to dense, forest areas with partially closed canopies.²⁴

This habitat is composed of three tiers: overstory, shrub layer, and ground cover. The overstory is dominated almost exclusively by valley oaks, but can also include California sycamore, Hinds black walnut (*Juglans hindsii*), interior live oak, boxelder, and blue oak.²⁵ The shrub layer is typically composed of poison oak, blue elder (*Sambucus cerulea*), California wild grape, toyon (*Heteromeles arbutifolia*), California coffeeberry, and California blackberry. Ground cover consists of wild oat and a variety of brome, barley, and other grass species.²⁶

Valley oak woodland provides food and cover for many species of wildlife, especially those that utilize acorns. Additionally, the range of some mammals in California shows substantial overlap with the distribution of valley oaks, which provide species with food and cover.²⁷ This habitat is threatened by urban and agricultural development as well as slower recruitment of young oaks.²⁸

Limited, isolated stands of valley oak woodland occur in association with blue oak woodland within the project site. Restoration of valley oak is included in the Amended Reclamation Plan.

Critical Habitat

Critical habitat is designated by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act of 1973 (ESA). Critical habitat refers to a specific geographic area(s) that contains features essential for conservation of a threatened or endangered species and that may require

²⁴ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

²⁵ S. Conrad, R. McDonald, and R. Holland, Riparian vegetation and flora of the Sacramento Valley, in *Riparian Forests in California: Their Ecology and Conservation*, edited by A. Sands (University of California, Davis, Institute of Ecology Publication Number 15, 1977).

²⁶ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

²⁷ R.H. Barrett, Mammals of California oak habitats: management implications, in T.R. Plumb, *Technical Coordination Ecology, Management, and Utilization of California Oaks*, General Technical Report, PSW-44 (Berkeley, California: U.S. Department of Agriculture, Forest Service, 1980), pp. 275–291.

²⁸ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

special management and protection. This designation may include an area that is not currently occupied by the species but that will be needed for recovery.

The Yuba River provides critical habitat for steelhead (*Oncorhynchus mykiss irideus*). Also, critical habitat for vernal pool fairy shrimp (*Branchinecta lynchi*) and vernal pool tadpole shrimp (*Lepidurus packardii*) occurs about 2 miles south of the Yuba Goldfields. However, no critical habitat is identified within the project site or is expected to be impacted by the proposed project.

Sensitive Natural Communities

Sensitive habitats include (a) areas of special concern to resource agencies, (b) areas protected under the California Environmental Quality Act (CEQA), (c) areas designated as sensitive natural communities by CDFW, and (d) areas protected under local regulations and policies.

The California Natural Diversity Database (CNDDDB) identified four sensitive natural communities as potentially occurring in the general vicinity of the project site: great valley cottonwood riparian forest, great valley mixed riparian forest, great valley valley oak riparian forest, and northern hardpan vernal pool. The project site includes isolated stands of riparian vegetation and an area not substantially disturbed by previous mining activity with vernal swales.

Wetlands and Jurisdictional Waters

The definition and regulatory framework of wetlands and jurisdictional waters are described in the “Clean Water Act” subsection, below.

The U.S. Army Corps of Engineers (USACE), which administers Clean Water Act of 1977 (CWA) regulations, does not consider the artificial lakes, ponds, and any associated wetlands within the Yuba Goldfields (and project site) to be jurisdictional under the industrial process exemption. The entire project site (and proposed project activities) occurs within lands exempted by the USACE. Therefore, although the project site includes wetlands and bodies of water, none of them would be considered jurisdictional features.

Wildlife Corridors

Wildlife corridors refer to established migration routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link undisturbed areas that would otherwise be fragmented. Maintaining the continuity of established wildlife corridors is important to (a) sustain species with specific foraging requirements, (b) preserve a species’ distribution potential, and (c) retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource.

No wildlife movement corridors or regional wildlife linkages have been identified within the project site.

■ Special-Status Species

For the purposes of this investigation, special-status species include plants and wildlife that are any of the following:

- Listed and protected under the ESA and/or the California Endangered Species Act (CESA)
- Listed and protected under other federal and/or state regulations
- Sufficiently rare to qualify for listing or protection under federal and/or state regulations
- Considered unique or in decline by the scientific community

Table E-1 (Listed, Proposed, and Sensitive Species Potentially Occurring on the Project Site) (presented in Draft EIR Appendix E) lists special-status species identified by the USFWS that may be affected by projects in Yuba County and the nine USGS quadrangles surrounding the Yuba Goldfields.²⁹ Table E-1 also includes species identified in the CNDDDB and California Native Plant Society (CNPS) inventories within a nine USGS topographical quadrangle search range of the Browns Valley quadrangle where the project site is located.^{30, 31} Quadrangles included in the data search were Browns Valley, Camp Far West, Honcut, Loma Rica, Olivehurst, Oregon House, Smartsville, Wheatland, and Yuba City. Species listed as being unlikely to occur within the project site are considered to be beyond their known range or to have low habitat suitability for reproduction, cover, and/or foraging. The CNDDDB further showed that six special-status species have been recorded within the project site: burrowing owl (*Athene cunicularia*), dwarf downingia (*Downingia pusilla*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), and western pond turtle (*Emys marmorata*).

Species potentially needing further study, based on the analysis presented in Table E-1, are listed in Table E-2 (Listed, Proposed, and Sensitive Species Potentially Occurring on the Project Site Requiring Further Study), included in Appendix E. These species are also addressed in the following pages.

Listed and Sensitive Plants

Several special-status plant species are documented as having the potential to occur within or immediately adjacent to the project site. With consideration of habitat and known distribution, ten sensitive plant species have the potential to occur in areas relatively undisturbed by vested mining activities or recruit to the area during reclamation. These species are discussed below.

Ferris' Milk-Vetch (*Astragalus tener* var. *ferrisiae*)

Ferris' milk-vetch is a CNPS 1B.1 annual herb in the Fabaceae family. Habitat for this species includes meadows and seeps (vernally mesic) and valley and foothill grassland (subalkaline flats) from 2 to 75 meters (approximately 6 to 250 feet) elevation. This species is endemic to California with a

²⁹ USFWS, *Federal Endangered and Threatened Species That May Occur in or Be Affected by Projects in Yuba County and USGS 7.5-Minute Quads Requested* (Sacramento, CA, 2013) (accessed October 17, 2013).

³⁰ California Department of Fish and Wildlife, Biogeographic Data Branch, California Natural Diversity Database Rarefind 5 (Sacramento, CA, 2013) (accessed October 9, 2013).

³¹ CNPS, *Inventory of Rare and Endangered Plants, Online Inventory—8th Edition* (2013), <http://www.rareplants.cnps.org/> (accessed October 9, 2013).

distribution that includes the Yuba City quadrangle; however, the species may be extirpated from this region. The typical blooming period is April through May.

Dwarf Downingia (*Downingia pusilla*)

Dwarf downingia is a CNPS 2B.2 annual herb in the Campanulaceae family. Habitat for this species includes valley and foothill grassland (mesic) and vernal pools from 1 to 445 meters (approximately 3 to 1,460 feet) elevation. This species is not endemic to California, but distribution includes Yuba County and the Browns Valley quadrangle. The typical blooming period is March through May.

Ahart's Dwarf Rush (*Juncus leiospermus* var. *ahartii*)

Ahart's dwarf rush is a CNPS 1B.2 annual herb in the Juncaceae family. Habitat for this species includes valley and foothill grassland (mesic) from 30 to 229 meters (approximately 100 to 750 feet) elevation. This species is endemic to California with a distribution that includes Yuba County and the Honcut quadrangle. The typical blooming period is March through May.

Red Bluff Dwarf Rush (*Juncus leiospermus* var. *leiospermus*)

Red Bluff dwarf rush is a CNPS 1B.1 annual herb in the Juncaceae family. Habitat for this species includes vernal pools from 35 to 1,250 meters (approximately 115 to 4,100 feet) elevation. This species is endemic to California with a distribution that includes the Honcut quadrangle. The typical blooming period is March through June.

Legenere (*Legenere limosa*)

Legenere is a CNPS 1B.1 annual herb in the Campanulaceae family. Habitat for this species is limited to vernal pools from 1 to 880 meters (approximately 3 to 2,900 feet) elevation. This species is endemic to California with a distribution that includes Yuba County and the Browns Valley quadrangle. The typical blooming period is April through June.

Veiny Monardella (*Monardella venosa*)

Veiny monardella is a CNPS 1B.1 annual herb in the Lamiaceae family. Habitat for this species includes heavy clay cismontane woodland as well as valley and foothill grassland from 60 to 410 meters elevation. This species is endemic to California with a distribution that includes Yuba County and the Yuba City quadrangle. The typical blooming period is May through July.

Ahart's Paronychia (*Paronychia ahartii*)

Ahart's paronychia is a CNPS 1B.1 annual herb in the Caryophyllaceae family. Habitat for this species includes cismontane woodland, valley and foothill grassland, and vernal pools from 30 to 510 meters (approximately 200 to 1,675 feet) elevation. This species is endemic to California with a distribution that includes the Honcut quadrangle. The typical blooming period is February through June.

Hartweg's Golden Sunburst (*Pseudobahia bahiifolia*)

Harweg's golden sunburst is a listed federal and state endangered, CNPS 1B.1 annual herb in the Asteraceae family. Habitat for this species includes clay, often acidic, cismontane woodland as well as valley and foothill grassland from 15 to 150 meters (approximately 50 to 490 feet) elevation. This species is endemic to California with a distribution that includes Yuba County and the Yuba City quadrangle; however, the species may be extirpated from this region. The typical blooming period is March through April.

Sanford's Arrowhead (*Sagittaria sanfordii*)

Sanford's arrowhead is a CNPS 1B.2 perennial rhizomatous herb in the Alismataceae family. Habitat for this species includes marshes and swamps (assorted shallow freshwater) from 0 to 650 meters (0 to 2,130 feet) elevation. This species is endemic to California with a distribution that includes Yuba County. The typical blooming period is May through October.

Brazilian Watermeal (*Wolffia brasiliensis*)

Brazilian watermeal is a CNPS 2B.3 perennial herb in the Araceae family. Habitat for this species includes marshes and swamps (assorted shallow freshwater) from 20 to 100 meters (approximately 65 to 330 feet) elevation. This species is not endemic to California, but distribution includes Yuba County and the Camp Far West quadrangle. The typical blooming period is April through December.

Listed and Sensitive Wildlife

Based on USFWS and CNDDDB information, several special-status animals have a potential for occurrence within the project vicinity (see Appendix E, Table E-1). However, habitat in the project site provides low suitability for many of these species; therefore, they are not expected to be present within the area. After further review of species' life history and habitat suitability data, as well as consulting the Yuba County General Plan, thirteen individual species as well as nesting raptors and migratory birds (protected under California Fish and Game Code [CFGC] Section 3503.5 and the Migratory Bird Treaty Act [MBTA]) have a potential for occurrence within the project site and possibly require further study. These species are discussed below.

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)

Vernal pool fairy shrimp is a listed federally threatened species. The CNDDDB shows this shrimp as occurring about 2 miles south of the Yuba Goldfields and the project site in designated critical habitat. This species is distributed more widely than most other rare fairy shrimp, but is uncommon throughout its range, which includes 27 counties across the Central Valley. Although this species can occupy a variety of pool habitats, it most frequently inhabits smaller pools measuring less than 0.5 acre. Vernal pool fairy shrimp have a relatively short life span, reaching maturity in as few as 18 days, water temperature allowing. Threats to this species include loss of habitat from development and expanding agriculture.³²

³² USFWS, *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (August 2005).

Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*)

Valley elderberry longhorn beetle (VELB) is a listed federally threatened species. The CNDDDB reports multiple occurrences of this species within the Yuba Goldfields and the project site. This beetle is completely dependent on its host plant, elderberry (*Sambucus* sp.), which is commonly found in riparian areas. Use of the elderberry bush by the beetle is not usually apparent, except for the occasional exit hole created by beetle larva on elderberry stems. This beetle spends most of its life cycle in the larval stage within the stems of the elderberry plants. Adults emerge from the plant in late May and June, about the same time as the elderberry blooming period.³³

Vernal Pool Tadpole Shrimp (*Lepidurus packardii*)

Vernal pool tadpole shrimp is a listed federally threatened species currently distributed across the Central Valley. The CNDDDB shows this shrimp as occurring about 2 miles south of the Yuba Goldfields and the project site in designated critical habitat. This species occurs in a wide variety of ephemeral wetland habitats and may be able to tolerate temporary drying conditions. Vernal pool tadpole shrimp have a relatively long life span compared to other vernal pool crustaceans, continually growing throughout their lives and periodically molting their shells. Reasons for this species' decline include development, agricultural conversion, and encroachment of nonnative annual grasses.³⁴

Giant Garter Snake (*Thamnophis gigas*)

Giant garter snake is a federal listed and California listed threatened species. This snake forages primarily in and along streams eating fish, amphibians, and amphibian larvae. Giant garter snake typically retreats to the water when threatened and is considered the most aquatic garter snake in California. Breeding occurs in the spring, and litters are usually born in July and August. This snake's population has decreased through loss of natural sloughs and marshy areas as well as heavy use of pesticides.³⁵

Burrowing Owl (*Athene cunicularia*)

Burrowing owl is a California species of special concern found commonly in fallow agricultural fields and low-growing grassland. This gregarious owl also frequents habitats such as airport fields, highway shoulders, golf courses, and vacant lots. As a subterranean nester, the burrowing owl is dependent on ground squirrels or other small mammals for ideal nest sites and tends to reuse the same burrows year after year. Man-made structures such as cement culverts, debris piles, or openings beneath pavement can also provide suitable nest areas. Burrowing owls can often be seen during the day perching near their burrow.³⁶

Nesting season begins as early as February 1 and continues through August 31, peaking between April 15 and July 15. An average nest consists of 6 to 11 white eggs that need to be incubated for 21 to 28 days.³⁷ The young are initially dependent on their parents for food and warmth and generally leave the nest

³³ USFWS, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (July 9, 1999).

³⁴ USFWS, *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (August 2005).

³⁵ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

³⁶ Ibid.

³⁷ Donald and Lillian Stokes, *Stokes Field Guide to Birds, Western Region* (Boston, MA: Little, Brown and Company, 1996).

about 28 days from hatching. Disturbance of nest sites (harassment within 160 feet of the burrow) and habitat loss contribute to the decline of this species.³⁸

Burrowing owl has been documented (on the CNDDDB) within the project site.

Swainson's Hawk (*Buteo swainsoni*)

Swainson's hawk is a California listed threatened species. This raptor catches prey in flight, including mice, gophers, ground squirrels, rabbits, amphibians, reptiles, other birds, and bats. Swainson's hawk roosts in large trees and occasionally on the ground. Reproduction occurs from late March to late August, with peak activity from late May through July. Loss and/or disturbance of roost sites contribute to the decline of the species.³⁹

Swainson's hawk has been documented (on the CNDDDB) within the project site.

Western Yellow-Billed Cuckoo (*Coccyzus americanus occidentalis*)

Western yellow-billed cuckoo is proposed for federal listing as a threatened species and a California listed endangered species. This bird preys mostly on insects, but also eats frogs, lizards, and fruit. Roosting sites consist of densely vegetated riparian areas, typically with willows. Reproduction occurs from mid June to mid July. Loss of riparian habitat contributes to the decline of this species.⁴⁰

Although CDFW staff comments on the NOP noted that this species could utilize the area for reproduction, it is outside the species' known range.⁴¹

White-Tailed Kite (*Elanus leucurus*)

White-tailed kite is a CDFW fully protected species. This raptor preys primarily on voles and small mammals, but also eats other birds, insects, reptiles, and amphibians. Broad-leafed deciduous trees with dense canopies provide cover for this species. Reproduction occurs from February to October, with peak activity from May to August. Nest predation and loss of habitat contribute to the decline of this species.⁴²

California Black Rail (*Laterallus jamaicensis coturniculus*)

California black rail is a state listed threatened and a CDFW fully protected species. This bird inhabits marsh area (salt and freshwater), preferring larger wetlands dominated by pickleweed or California bulrush. Nesting occurs generally from March to June in areas where the water depth is about 1 inch consistently and the vegetation is dense enough to provide cover. Three primary reasons for species decline are habitat loss, predation, and contamination.

³⁸ The California Burrowing Owl Consortium, *Burrowing Owl Survey Protocol and Mitigation Guidelines* (April 1993).

³⁹ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

⁴⁰ Ibid.

⁴¹ Ibid.

⁴² Ibid.

California black rail is found in north coastal areas around the San Francisco Bay as well as inland waterways in Butte, Nevada, Placer, San Joaquin, and Yuba counties. The CNDDB shows several records of California black rail directly adjacent to the Yuba Goldfields.

Bank Swallow (*Riparia riparia*)

Bank swallow is a California listed threatened species. This bird forages primarily over open riparian areas for a variety of insects including flies, bees, and beetles. Bank swallow uses holes in cliffs and river banks as well as shoreline vegetation for cover. Reproduction occurs from early May through July, with peak activity from May to June. Alteration of rivers and streams have disturbed historic nesting areas and contributed to the decline of this species. The project is outside the known range for this species.⁴³

Raptors and Migratory Birds

Trees within and adjacent to the project site provide potential nest sites for common raptors that could also forage within the area. Migratory birds forage and nest in a variety of habitats, including developed or disturbed lands. Any active bird nests found within the project site are protected under the MBTA and CFGC Section 3503.5, which prohibits nest disturbance or destruction.

4.2.3 Regulatory Framework

This section describes specific environmental review and consultation requirements as well as identifies permits and approvals that must be obtained from local, state, and federal agencies before implementation of the Amended Reclamation Plan.

■ Federal

Endangered Species Act

The ESA (16 USC 1531 et seq.) requires all federal departments and agencies to provide for the conservation of threatened and endangered species and their ecosystems. The Secretary of the Interior maintains a list of species likely to become endangered within the foreseeable future throughout all or a significant portion of its range (threatened) and that are currently in danger of extinction throughout all or a significant portion of its range (endangered). The ESA prohibits “take” of threatened and endangered species except under certain circumstances and only with authorization from the USFWS or the National Oceanic and Atmospheric Administration (NOAA) Fisheries through a permit under Section 7 (for federal entities) or Section 10(a) (for nonfederal entities) of the act. Take under the ESA includes activities such as “harass, harm, pursue, hunt shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” USFWS regulations define harm to include “significant habitat modification or degradation.” On June 29, 1995, a U.S. Supreme Court ruling further defined harm to include habitat modification “...where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”

⁴³ CDFW, California Interagency Wildlife Task Group, CWHR version 8.0 personal computer program (Sacramento, CA, 2002).

Clean Water Act

The CWA of 1977, as amended, establishes the basic structure for regulating discharges of pollutants into waters of the U.S. It gives the U.S. Environmental Protection Agency (USEPA) the authority to implement pollution control programs, including setting wastewater standards for industry and water quality standards for contaminants in surface waters. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters, without a permit under its provisions.

Discharge of fill material into waters of the U.S., including wetlands, is regulated by the USACE under CWA Section 404 (33 USC 1251–1376). USACE regulations implementing Section 404 define waters of the U.S. to include intrastate waters (such as lakes, rivers, streams, wetlands, and natural ponds) whose use, degradation, or destruction could affect interstate or foreign commerce. Wetlands are defined for regulatory purposes as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3; 40 CFR 230.3). The placement of structures in “navigable waters of the U.S.” is also regulated by the USACE under federal Rivers and Harbors Appropriation Act Section 10 (33 USC 401 et seq.). Projects are approved by the USACE under standard (i.e., individual) or general (i.e., nationwide, programmatic, or regional) permits. The type of permit is determined by the USACE and based on project parameters.

The Fish and Wildlife Coordination Act requires consultation with the USFWS, NOAA Fisheries, and responsible state wildlife agency for any federally authorized action to control or modify surface waters. Therefore, any project proposed or permitted by the USACE under CWA Section 404 must also be reviewed by the federal wildlife agencies and the CDFW.

CWA Section 401 requires any applicant for a federal license or permit which involves an activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge will comply with applicable effluent limitations and water quality standards. CWA Section 401 certifications are issued by Regional Water Quality Control Boards (RWQCBs) under the California Environmental Protection Agency (Cal/EPA).

Migratory Bird Treaty Act

Migratory birds are protected under the MBTA of 1918 (16 USC 703–711). The MBTA prohibits the take, possession, buying, selling, purchasing, or bartering of any migratory bird listed in 50 CFR Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21).

Bald and Golden Eagle Protection Act

The bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*) are federally protected under the Bald Eagle Protection Act (16 USC 668–668c). It is illegal to take, possess, sell, purchase, barter, offer to sell or purchase or barter, transport, export or import at any time or in any manner a bald or golden eagle, alive or dead; or any part, nest or egg of these eagles unless authorized by the Secretary of the Interior. Violations are subject to fines and/or imprisonment for up to 1 year. Active nest sites are also protected from disturbance during breeding season.

■ State

California Environmental Quality Act

CEQA requires that biological resources be considered when assessing the environmental impacts resulting from proposed actions. Lead agencies are charged with evaluating available data and determining what specifically should be considered an “adverse effect.”

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act provides for statewide coordination of water quality regulations by establishing the California State Water Resources Control Board. The State Board is the statewide authority that oversees nine separate RWQCBs that collectively oversee water quality at regional and local levels.

California Regional Water Quality Control Board

California RWQCBs issue CWA Section 401 Water Quality Certifications for possible pollutant discharges into waters of the U.S.

California Department of Fish and Wildlife

The CDFW enforces and permits actions regulated by the CFGC, which governs the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as wetlands and waters of the state. The code includes the CESA (Sections 2050–2115), Lake or Streambed Alteration Agreement regulations (Sections 1600–1616), Native Plant Protection Act (NPPA) (Sections 1900–1913), and Natural Community Conservation Planning (NCCP) Act (Sections 2800 et seq.) as well as provisions for legal hunting and fishing, and tribal agreements for activities involving take of native wildlife.

California Endangered Species Act

The CESA generally parallels the main provisions of the ESA and is administered by the CDFW, which maintains a list of state threatened and endangered species as well as candidate and species of special concern. The CESA prohibits the take of any species listed as threatened or endangered unless authorized by the CDFW in the form of an Incidental Take Permit. Under the CFGC, take is defined as to “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Lake or Streambed Alteration Agreement

Construction activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the CDFW are governed by the CFGC and require a Lake or Streambed Alteration Agreement. As a general rule, an agreement should be submitted to the CDFW for any work undertaken within the 100-year floodplain of a stream or river containing fish or wildlife resources and any waterway with an established bed and bank.

Native Plant Protection Act

The NPPA directs the CDFW to “preserve, protect and enhance rare and endangered plants” in California. The NPPA prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered.

Natural Community Conservation Planning Act

The CDFW is also the principal state agency responsible for implementing the NCCP Act of 1991. The act is designed to conserve natural communities at the ecosystem scale while accommodating compatible land use. NCCP plans developed in accordance with the act seek to ensure the long-term conservation of multiple species, while allowing compatible and appropriate economic activity to proceed. A description of efforts to develop a Yuba-Sutter Natural Regional Conservation Plan is presented under the “Regional” subheading, below.

Birds of Prey

Under CFGC Section 3503.5, it is unlawful to take, possess, or destroy any birds in the orders of Falconiformes or Strigiformes (birds of prey or raptors) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the code.

Fully Protected Species

The CFGC also accords fully protected status to a number of specifically identified fish, reptiles and amphibians, birds, and mammals. As fully protected species, the CDFW cannot authorize any project or action that would result in take of these species even with an incidental take permit.

California State-Listed Noxious Weeds

Invasive nonnative plant species, including noxious weeds, can be threats to natural habitats in California. In addition to designated noxious weeds, there are invasive nonnative plants termed “non-noxious invasive weeds” that can adversely affect natural ecosystems. Many of these species colonize habitats following ground disturbance when seeds are introduced from regions where these species are common. Invasive plant species occur predominantly in plant communities subject to periodic natural disturbance in areas where native species cover and natural regeneration have been displaced.

Under California law (Food and Agriculture Code Section 5004 and CCR Title 3), certain invasive nonnative plants are designated as noxious weeds because they are, or are likely to be, “troublesome, aggressive, intrusive, detrimental, or destructive to agriculture, silviculture, or important native species, and difficult to control or eradicate.” These noxious weeds are ranked by the California Department of Food and Agriculture, which identifies actions (eradication, containment, etc.) to be taken when such species are detected. In addition, the nonprofit California Invasive Plant Council (Cal-IPC) maintains a database of these weeds.

■ Regional

Yuba-Sutter Regional Conservation Plan

In November 2011, Yuba County, in cooperation with Sutter County, the U.S. Fish and Wildlife Service, the California Department Fish and Game, and the Cities of Yuba City, Wheatland, and Live Oak, approved an agreement to prepare a Natural Communities Conservation Plan and Habitat Conservation Plan (“NCCP/HCP Planning Agreement”) for a broad area that includes the Goldfields and the project site. The Yuba-Sutter Regional Conservation Plan has not been completed or adopted, but an agreement between the participating agencies calls for the review of projects subject to approval by those agencies for consistency with interim plan objectives. Section 6.6 (Interim Project Processing) of the agreement establishes that projects or activities approved or initiated in the NCCP/HCP planning area before the plan is completed should they demonstrate consistency with the conservation objectives. Section 6.6.1 (Reportable Interim Project) identifies the specific types of projects subject to the interim project processing condition, as follows: “... proposed development, construction, subdivisions, rezones, or other projects or activities requiring discretionary approvals from the Local Agencies...”⁴⁴ As stated in the Initial Study (Appendix B, Section V.5(f)), because the Amended Reclamation Plan is not a discretionary action subject to approval by any of the plan’s participating Local Agencies, the process requirements of Section 6.6 do not apply, and no determination of consistency with the NCCP/HCP Planning Agreement is necessary.

Although the proposed project is not subject to the agreement conditions, to the extent that implementation of the Amended Reclamation Plan could result in take of covered species or impacts on natural communities that will be identified in the plan (Section 6.5 [Covered Activities] of the NCCP/HCP Planning Agreement), this Draft EIR identifies mitigation measures to mitigate potential effects in compliance with the NCCP Act, ESA, and CESA.

■ Local

Yuba County General Plan

The proposed project is not a discretionary action subject to Yuba County approvals. However, the project site is within the county planning area, and Western voluntarily seeks to demonstrate general conformance with environmental protection policies. Section 4.3 (Land Use/Planning) of this Draft EIR identifies relevant biological resources policies and describes how the Amended Reclamation Plan would not conflict with applicable policies.

4.2.4 Impacts and Mitigation Measures

A discussion of potential impacts and an evaluation of their significance to biological resources related to the Amended Reclamation Plan are included in the following sections.

⁴⁴ The County of Yuba, the County of Sutter, the City of Yuba City, the City of Live Oak, the City of Wheatland, the California Department of Fish and Game, and the United States Fish and Wildlife Service, Planning Agreement regarding the Yuba-Sutter Natural Community Conservation Plan and Habitat Conservation Plan (November 2011), p. 14.

■ Methods of Analysis

Literature and Database Review

Available information pertaining to biological resources directly or indirectly affected by proposed actions was reviewed during this analysis, including (but not limited to):

- Aerial imagery of the Yuba Goldfields, project site, and vicinity
- Yuba County 2030 General Plan (adopted 2011)⁴⁵
- CNPS Inventory of Rare and Endangered Plants for the Browns Valley, Camp Far West, Honcut, Loma Rica, Olivehurst, Oregon House, Smartsville, Wheatland, and Yuba City USGS topographic quadrangles (2013)⁴⁶
- The Jepson Manual: Higher Plants of California⁴⁷
- CDFW, California Natural Diversity Database records for the Browns Valley, Camp Far West, Honcut, Loma Rica, Olivehurst, Oregon House, Smartsville, Wheatland, and Yuba City USGS topographic quadrangles (2013)⁴⁸
- CDFW California Wildlife Habitat Relationships (CWHR) Database (2002)⁴⁹
- USFWS list of federal endangered and threatened Species that occur in or may be affected by projects in Yuba County and the Browns Valley, Camp Far West, Honcut, Loma Rica, Olivehurst, Oregon House, Smartsville, Wheatland, and Yuba City USGS topographic quadrangles (2013)⁵⁰
- Western Aggregates LLC Yuba County Operations Amended Reclamation Plan Initial Study (2013)⁵¹
- USGS 7.5-minute Browns Valley topographic quadrangle

Site Reconnaissance

Atkins biologists surveyed the project site on June 12, 2013. Field investigations included a general inspection to adequately characterize existing habitat with emphasis on areas with the potential to support special-status species or critical habitats. The site visit also included a tour of ongoing mining operations and a comparison of areas within the Yuba Goldfields currently being impacted versus portions of the landscape that have been mined previously and left fallow for over a decade. The

⁴⁵ Yuba County Community Development and Services Agency, *Yuba County 2030 General Plan* (adopted June 7, 2011), <http://www.yubavision2030.org/2030%20General%20Plan.aspx>.

⁴⁶ California Native Plant Society (CNPS), *Inventory of Rare and Endangered Plants*. Online Inventory—8th Edition (2013), <http://www.rareplants.cnps.org/> (accessed October 9, 2013).

⁴⁷ J. Hickman, ed., *The Jepson Manual: Higher Plants of California* (Berkeley, CA: University of California Press, 1993).

⁴⁸ California Department of Fish and Wildlife (CDFW), *California Natural Diversity Database, CNDDDB Rarefind version 3.1.1 personal computer program* (Sacramento, CA, 2003).

⁴⁹ CDFW, *California Interagency Wildlife Task Group. CWHR version 8.0 personal computer program* (Sacramento, CA, 2002).

⁵⁰ U.S. Fish and Wildlife Service (USFWS), *Federal Endangered and Threatened Species That May Occur in or Be Affected by Projects in Yuba County and USGS 7.5-Minute Quads Requested* (Sacramento, CA, 2013) (accessed October 17, 2013).

⁵¹ Western Aggregates LLC, *Western Aggregates LLC Yuba County Operations Amended Reclamation Plan Initial Study* (April 2013).

environmental setting evaluated in this section is based on conditions observed in the previously mined areas. It is assumed that these conditions will be consistent with the landscape setting prior to implementation of the Amended Reclamation Plan once mining activities are complete.

During the pedestrian survey, general plant and wildlife species observed in the area were recorded. Plants noted on site during the reconnaissance included a mixture of upland ruderal grasses, riparian vegetation, and hydrophytes. Characteristic species were black mustard (*Brassica nigra*), blue elderberry, common cattail (*Typha latifolia*), cottonwood (*Populus* sp.), curly dock (*Rumex crispus*), foxtail barley (*Hordeum murinum*), field bindweed (*Convolvulus arvensis*), brome varieties (*Bromus* sp.), prickly lettuce (*Lactuca serriola*), valley oak, wild oat, willow (*Salix* sp.), and yellow star thistle (*Centaurea solstitialis*). Several bird species were also noted during the site visit, ranging in variety from smaller passerines, such as house finch (*Carpodacus mexicanus*), mourning dove (*Zenaida macroura*), and song sparrow (*Melospiza melodia*), to larger wading species like great blue heron. Various raptors were observed in flight while on site as well as, most notably, a breeding pair of osprey utilizing a platform nest adjacent to one of the lake features.

■ Thresholds of Significance

For purposes of this EIR, project-specific and cumulative impacts associated with biological resources would be considered significant if the proposed project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFW or USFWS
- Have a substantial adverse effect on federally protected wetlands as defined by CWA Section 404 (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan

■ Impacts Identified in the Initial Study Not Requiring Detailed Analysis in the Draft EIR

The Initial Study (Appendix B, Section V.5, [Biological Resources]) concluded the proposed project would not have a substantial adverse effect on a federally protected wetland, conflict with local policies or ordinances protecting biological resources such as tree preservation ordinances, or conflict with provisions of an adopted HCP, NCCP, or other approved conservation plan. The Initial Study determined there would be no impact as a result of implementing the proposed project concerning

wetlands or local policies/ordinances, and no comments were received indicating these topics required further evaluation. In its comment letter on the NOP, the CDFW recommended the Draft EIR include an analysis of the proposed project's consistency with the Yuba-Sutter NCCP/HCP Planning Agreement. As described above, the proposed project is not a discretionary action subject to approval by Local Agency signatory to the agreement. No additional analysis beyond that presented in the Initial Study is necessary.

■ Project Impacts and Mitigation Measures

Impacts in Undisturbed or Fallow Areas

Impact BR-1 **Implementation of the Amended Reclamation Plan could result in temporary and direct alteration of site conditions that could support special-status plant species in undisturbed or fallow areas where no mining has occurred for 1 year or more. The impact is *potentially significant*.**

Special-status plant species, including those listed in Table E-2 (see Appendix E), could occur on undisturbed lands and/or be recruited to the area with implementation of the Amended Reclamation Plan. Implementation of the Amended Reclamation Plan could impact special-status plants occurring in the project site, both directly (removal) and indirectly (altered site conditions).

Federal and state regulatory agencies consider sensitive plants to be a significant biological resource. Therefore, because the proposed project could have a substantial adverse effect, either directly or through habitat modifications, on special-status plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS, this would be a *potentially significant* impact.

Mitigation Measure

M-BR-1 *Prior to the onset of each phase of reclamation, Western Aggregates LLC shall retain a qualified biologist or botanist to conduct a habitat analysis to determine if the area identified for reclamation could support special-status plant species. In areas where potential habitat for special-status plant species occurs, a focused survey for special-status plant species, highlighting those species listed in EIR Table E-2 (Listed, Proposed, and Sensitive Species Potentially Occurring on the Project Site Requiring Further Study), shall be conducted. The survey shall be conducted during a month when sensitive plants are likely to be in bloom. If sensitive plants are located during the surveys, the USFWS and/or CDFW (based on species regulatory status) shall be notified. Appropriate avoidance or minimization measures including translocation will be employed to ensure the long-term viability of plant populations within the proposed reclamation plan area. Restrictions may include establishment of avoidance buffer zones, installation of silt fences, or alteration of the project schedule. Furthermore, as phases of the proposed reclamation are completed, the reclaimed areas shall be completely avoided, except by those involved with vegetation and wildlife management. Setbacks shall be established between these areas and any ongoing mining operations and shall be no less than 50 feet wide.*

Implementation of mitigation measure M-BR-1 would reduce impacts on special-status plant species to a ***less than significant*** level by requiring Western to identify special-status plants that could be affected by reclamation and to implement actions to avoid the plants or to transplant them based on appropriate

agency guidance. See also Impact BR-7 regarding seed mix for revegetation and control of invasive, nonnative plants.

Impact BR-2 **Implementation of the Amended Reclamation Plan could result in temporary and direct disturbance to giant garter snake (GGS) habitat in undisturbed or fallow areas where no mining has occurred for 1 year or more. The impact is *potentially significant*.**

Suitable habitat for giant garter snake (GGS) occurs within the proposed Amended Reclamation Plan area. In addition to potential direct mortality of individuals, indirect effects such as ground vibration, noise, and fugitive dust emissions may harm giant garter snake and its habitat. Although implementation of the Amended Reclamation Plan includes restoration of areas considered to be habitat for this species, disturbance or temporary loss of areas that could result in the take of giant garter snake, which is a federal and state listed species, would be considered *potentially significant*.

Mitigation Measure

M-BR-2 *Prior to the onset of each phase of reclamation, Western Aggregates LLC shall retain a qualified biologist to conduct a habitat analysis to determine if the area identified for reclamation could support giant garter snake. In areas where potential habitat for giant garter snake occur, a biologist approved by the USFWS will coordinate and supervise avoidance and minimization activities to protect occupying snakes, as well as ensure that restoration of giant garter snake habitat is undertaken as specified in the Guidelines for Restoration and/or Replacement of Giant Garter Snake Habitat established by the USFWS in 1997. Measures shall include (as outlined in the guidelines), but are not limited to:*

- a. *Minimizing impacts of project activities to existing habitat, including using silt fencing, designating sensitive areas to be avoided, using protective mats, preventing runoff, using existing roadways to move equipment (when possible), conducting on-site activity only from May 1 to October 1, and providing worker awareness training.*
- b. *Surveying for garter snake 24 hours prior to the onset of major ground-disturbing activities and again should a lapse in activity two weeks or longer occur.*
- c. *Removing all project debris and stockpiled materials upon project completion.*
- d. *Regrading the area to the preexisting contour or a contour that would improve restoration potential.*
- e. *Replanting and hydroseeding the area following USFWS recommendations as found in the 1997 guidelines.⁵²*

Mitigation is not necessary for reclamation that begins in areas recently impacted (within 2 years) by vested mining activities.

Implementation of mitigation measure M-BR-2 would reduce impacts on GGS to a ***less than significant*** level by requiring Western to survey for GGS, implement measures to minimize habitat disturbance, and retain a qualified biologist approved by the USFWS to coordinate and supervise restoration of giant garter snake habitat following USFWS guidelines.

⁵² USFWS, *Guidelines for Restoration and/or Replacement of Giant Garter Snake Habitat* (November 13, 1997).

Impact BR-3 Implementation of the Amended Reclamation Plan could result in temporary and direct disturbance to nesting burrowing owl in undisturbed or fallow areas where no mining has occurred for 1 year or more. The impact is *potentially significant*.

Habitat with the potential (and known) to support burrowing owl occurs within disturbed and fallow lands of the project site. Therefore, implementation of the Amended Reclamation Plan could impact burrowing owl both directly (removal of habitat) and indirectly (disturbance). Burrowing owls are protected under the MBTA and CFGC; this would be a *potentially significant* impact.

Mitigation Measure

M-BR-3 *Prior to the onset of each phase of reclamation, Western Aggregates LLC shall retain a qualified biologist familiar with burrowing owl life history to perform survey and mitigation requirements outlined in the CDFW Staff Report on Burrowing Owl Mitigation (2012).*

Per the staff report, to determine if nesting burrowing owl occurs on site, surveys involve a minimum of four site visits (one between February 15 and April 15 and three between April 15 and July 15 at least three weeks apart). If the reclamation schedule does not allow for spring survey, field efforts can be conducted throughout the nonbreeding season (September 1 through January 31) with the approval of the CDFW. Any burrow identified with a nesting pair (breeding occurs between February 1 and August 31) would have to be avoided at a distance up to 500 meters depending on the time of year, until the young had fledged and the burrow was abandoned. If owls do not vacate the site, exclusion plans can be discussed and approved at the discretion of the CDFW. Once owls do not occur within or near (up to 500 meters) planned activities, which would be confirmed with a survey to be performed no sooner than 14 days prior to ground disturbance, reclamation activities can proceed as planned.

The CDFW staff report also includes mitigation methods for projects that impact burrowing owl should they occur within areas to be disturbed by reclamation activities. Recommended mitigation includes avoidance, site surveillance, minimizing disturbance impacts, establishing buffers, burrow exclusion and closure, translocation, permanent habitat protection to offset the acreage of habitat disturbed during activities, and installation of artificial burrows. Ultimately, all avoidance and mitigation measures would be developed in collaboration with the CDFW and approved prior to implementation of the measure and proposed site activities.

Mitigation is not necessary for reclamation that begins in areas recently impacted (within 1 year) by vested mining activities.

Implementation of mitigation measure M-BR-3 would reduce impacts on burrowing owl to a ***less than significant*** level by requiring Western to survey for burrowing owl using CDFW guidance, to implement measures to avoid burrow disturbance if nesting a nesting pair is present, and to develop necessary mitigation in consultation with the CDFW.

Impacts on Vernal Pools and Swales

Impact BR-4 **Implementation of the Amended Reclamation Plan could result in temporary and direct disturbance of vernal pools and swales that could support special-status species. The impact is *potentially significant*.**

Vernal pools consist of depressions among swales that fill with water temporarily during the rainy season and then disappear until the following season. The ephemeral nature of these pools supports a unique wetland flora and fauna, including several special-status plant and invertebrate species. The southernmost portion of the project site includes areas within these features and has not been substantially disturbed by previous vested mining operations to date. Currently, substantial mining activities are not planned for this area. However, it is possible future activities may impact or remove the vernal swales prior to the onset of reclamation. If reclamation activities were to occur within the southernmost area and vernal pools are present, the loss of vernal pool habitat would be considered *potentially significant*. Disturbance or loss that could result in the take of a special-status species dependent on this habitat would also be considered *potentially significant*.

Mitigation Measure

M-BR-4 *Prior to the onset of each phase of reclamation in previously undisturbed grassland, Western Aggregates LLC shall retain a qualified biologist to perform a general survey for vernal features in the area of the project site that consists of grasslands which have not been disturbed by previous mining operations. If no vernal features are found, no further actions are required under this mitigation measure. If vernal features exist in the project site, Western Aggregates LLC shall implement a policy of total avoidance of the vernal area if feasible. If total avoidance is not possible during reclamation, further mitigation as outlined below must be performed.*

Western Aggregates LLC shall mitigate for the loss and disturbance of vernal pools within the project site through avoidance, preservation, and creation measures as recommended by the USFWS. Measures include, but are not limited to:

- a. *Designing reclamation activities, to the extent possible, to avoid all impacts (direct and indirect) to vernal pool areas. Direct impact refers to the destruction of a pool. Indirect impact refers to activities (i.e., loss of or damage to watershed, human intrusion, and increased pollution) affecting all upland areas and swales. If a limit to the area of impact cannot be easily delineated, all habitat within 250 feet of proposed activities may be considered to be indirectly affected. If any habitat within a vernal pool complex is destroyed, all remaining habitat within the complex may potentially be indirectly affected. Additionally, if any part of a vernal pool is destroyed, the entire pool is directly affected.⁵³*
- b. *Purchasing a minimum of 2 acres of USFWS-approved vernal pool preservation bank credits for every 1 acre of directly or indirectly affected habitat directly affected by reclamation activities (2:1 ratio).*
- c. *Purchasing a minimum of one vernal pool creation credit at a USFWS-approved mitigation bank for every acre of habitat directly affected by reclamation activities (1:1 ratio).*
- d. *Protecting vernal pool habitat remaining at the proposed location from future adverse impacts (i.e., signage and fencing).*

⁵³ USFWS, *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, California* (February 28, 1996).

- e. *Monitoring by a biologist approved by the USFWS shall be necessary for the duration of all major on-site disturbance.*
- f. *Placing fencing and signage around any pools to be avoided to prevent vehicle ingress into the area.*
- g. *Training all on-site personnel regarding the importance of avoiding impacts to these species and their habitat.*
- h. *Prohibiting activities inconsistent with maintaining the suitability of remaining habitat and on-site watershed, such as (1) permanent alteration of topography, (2) placement of structures within the vernal complex, (3) dumping or burning of garbage or waste, (4) installing/using temporary access roads or trails, (5) disturbance or removal of any native vernal pool vegetation, (6) inappropriate placement of stormwater drains, (7) unnecessary fire protection methods, and (8) use of pesticides or toxic chemicals on site.*

If the southernmost portion of the project site is significantly disturbed and the vernal swales removed by vested mining operations prior to the onset of reclamation, mitigation would not be necessary.

Implementation of mitigation measure M-BR-4 would reduce impacts on vernal pools to a ***less than significant*** level by requiring Western to perform a general survey for vernal pools in any area of the project site that consists of grasslands not substantially disturbed by previous mining operations prior to implementation of the Amended Reclamation Plan and to avoid them and their immediate surroundings to the satisfaction of the USFWS. If avoidance is not possible, Western would be required to provide compensatory mitigation to achieve no net loss.

Impacts That Could Occur in All Areas of the Project Site

Impact BR-5 **Implementation of the Amended Reclamation Plan could result in temporary and direct alteration of site conditions that could support valley elderberry longhorn beetle (VELB). The impact is *potentially significant*.**

Reclamation activities that would re-contour mined areas could occur where elderberry bushes and associated riparian areas that currently support the bushes are present. Impacts could occur regardless of the frequency or level of disturbance within the project site. These actions could result in direct loss (or take) of a valley elderberry longhorn beetle (VELB) through habitat (elderberry bush) removal as well as increase incidental take from degradation of the immediate riparian area. This would be considered a *potentially significant* impact.

Mitigation Measure

M-BR-5 *Prior to the onset of each phase of reclamation, Western Aggregates LLC shall retain a qualified biologist to perform a general survey for elderberry bushes. All elderberry bushes found during the survey shall be recorded on a map. If reclamation activities do not occur within 20 feet of any elderberry bush having stems no greater than 1 inch, no mitigation is required. If reclamation will occur within 20 feet of an elderberry bush having stems greater than 1 inch, Western Aggregates LLC shall retain a qualified biologist approved by the USFWS to coordinate and supervise avoidance protection measures for elderberry located within the project site following Conservation Guidelines for the Valley Elderberry Longhorn Beetle established by the USFWS in 1999. Measures shall include (as outlined in the guidelines), but are not limited to:*

- a. *Creating an avoidance buffer zone as large as possible around the shrubs, but no less than 20 feet in diameter (where possible) around the subject elderberry bush.*
- b. *Fencing and flagging all elderberry bushes and setback areas to be avoided during reclamation activities.*
- c. *Briefing contractors on the need to avoid damaging elderberry and the penalties for noncompliance.*
- d. *Placing informational signs along the edge of an avoidance area to be maintained for the duration of activity.*
- e. *Revegetating and providing erosion control within and around the avoidance area.*
- f. *Maintaining the buffer area from adverse effects of site activities, by repairing fences, trash removal, weeding, etc.*
- g. *Prohibiting use of insecticides, herbicides, fertilizer, or other chemicals within the buffer area and immediate vicinity for the duration of activities, as these could harm the beetle or elderberry bushes.*
- h. *Restricting mowing (if necessary for project implementation) to no closer than 5 feet of elderberry stems from July through August.*⁵⁴

Furthermore, elderberry that cannot be avoided shall be transplanted in accordance with USFWS guidelines established in 1999. The relocation site and the supervising biologist shall be approved by the USFWS.

Implementation of mitigation measure M-BR-5 would reduce impacts on VELB to a ***less than significant*** level by requiring Western to provide appropriate elderberry bush protection/avoidance measures. If avoidance is not possible, Western would coordinate elderberry bush relocation in consultation with the USFWS.

Impact BR-6 Implementation of the Amended Reclamation Plan could result in temporary and direct disturbance of nesting raptors and migratory birds. The impact is *potentially significant*.

Habitat within the project site provides suitable nesting opportunities for many avian species, including some raptors and migratory birds. Raptors and raptor nests are considered to be a protected resource by federal and state agencies under the MBTA and the California Code of Regulations. Proposed reclamation activities could result in increased noise, dust, and other indirect impacts to nesting raptors or migratory bird species in the project vicinity. Possible nest abandonment as well as mortality to eggs and chicks could also occur. Such impacts could occur regardless of the frequency or level of disturbance within the project site and are considered a *potentially significant* impact.

Mitigation Measure

M-BR-6 *Prior to the onset of each phase of reclamation in which reclamation activities will occur during the nesting season (March-August), Western Aggregates LLC shall retain a qualified biologist to conduct a focused survey for active nests of raptors and migratory birds within and in the vicinity of (no less than 100 feet outside disturbance boundaries, where possible) the proposed project site (at the onset of each phase) no more than 72 hours prior to ground disturbance. If no active nests are found,*

⁵⁴ USFWS, *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (July 9, 1999).

activities may proceed without further requirements under this mitigation measure. If an active nest is located during the survey, reclamation activities shall be restricted, as necessary, to avoid disturbance of the nest until it is abandoned or the consulting regulatory agency deems disturbance potential to be minimal. Minimum restrictions shall include establishment of a non-disturbance buffer of 50 feet radius around any active nest site for passerines and 250 feet radius around any active nest site for raptors.

Implementation of mitigation measure M-BR-6 would reduce impacts on raptors and migratory birds to **less than significant** level by requiring Western to perform focused surveys for active nests in the vicinity of the ground disturbance area during the local nesting season. If an active nest is found, reclamation activities would be restricted as described in M-BR-6.

Riparian Habitat

Impact BR-7 **Implementation of the Amended Reclamation Plan could result in temporary and direct disturbance of riparian habitat. The impact is potentially significant.**

It is possible that undisturbed or fallow areas in the project site could develop more mature (beyond a seedling stage) stands of riparian vegetation. Riparian habitat is considered to be a sensitive natural community by the USFWS, CDFW, and Yuba County. Removal of more mature, isolated riparian stands from areas of the project site that have been mostly undisturbed over time could occur with implementation of the Amended Reclamation Plan, which would be a *potentially significant* impact.

The Amended Reclamation Plan includes revegetation of the project site with commercially available native riparian species, which are listed in Table 3-4 (Riparian Upland) in Chapter 3. No net loss of riparian habitat is expected with completion of the Amended Reclamation Plan. However, it would take several years for mature riparian stands to redevelop, and monitoring would be required to ensure success. In addition, there is the potential for invasive nonnative weeds to develop if commercially available seed species that are proposed for use in the Amended Reclamation Plan include varieties and propagates not native to California or the region, and/or if measures are not in place to control weeds, which could be detrimental to the revegetation program.

Mitigation Measure

M-BR-7 *Prior to the removal of any riparian vegetation during each phase of reclamation and subsequent to restoration completion, Western Aggregates LLC shall have a qualified professional document the acreage and quality of any riparian habitat removed during reclamation activities and the acreage and quality of riparian vegetation provided as part of reclamation. Western shall retain the documentation for use during the monitoring period, described below. The acreage and quality of riparian vegetation provided as part of reclamation shall not be less than the original values documented prior to reclamation.*

The Amended Reclamation Plan shall be revised to require that all seed mixes or re-plantings shall consist of predominantly native species obtained from local sources (within 50 miles, if possible) and that the seed mix have a high percentage of native seeds. Revegetation activities shall include a minimum three-year monitoring program with photo documentation report prepared by a qualified professional showing pre- and post- project area conditions to confirm the success of the revegetated

areas and invasive nonnative/ noxious weed control. The plan shall identify a local reference site that can be used to determine species composition and success of revegetation efforts.

The CDFW may be consulted regarding the necessity of obtaining a Lake or Streambed Alteration Agreement for planned removal of any riparian vegetation. Western Aggregates LLC shall obtain an agreement if required by the CDFW.

Implementation of mitigation measure M-BR-7 would provide documentation verifying the success of riparian habitat revegetation and invasive/nonnative noxious weed control, which would reduce the impact to a *less than significant* level.

■ Cumulative Impacts and Mitigation Measures

Impact BR-8 Amended Reclamation Plan activities related to shoreline re-contouring, revegetation, and the demolition and removal of processing plant facilities could have short-term adverse effects on sensitive biological resources; however, the Amended Reclamation Plan, in combination with other past and ongoing mining and reclamation projects within in the Yuba Goldfields, will result in substantial long-term gains in biological productivity and diversity. This is a *cumulative beneficial* impact.

Cumulative Context

The cumulative context for the evaluation of impacts on biological resources is past, present, and foreseeable future projects within the Yuba Goldfields region. As noted in Section 5.1 (Cumulative Impacts) and as shown in Figure 5-1 (Cumulative Projects), these projects are Western's vested mining operations, which includes the Cal Sierra operation; Teichert Marysville mine and reclamation project; Dantoni Property mine and reclamation project; Teichert Hallwood mine and reclamation project; and Knife River (formerly Baldwin) Hallwood mine and reclamation project.

Each of these projects is a surface mine and/or reclamation operation located in the Yuba Goldfields with the potential to result in physical changes to the environment that are similar in nature to those of the proposed project. Therefore, these projects have the potential to affect any cumulative impact the proposed project may have on biological resources. A description of each of these projects is provided in Section 5.1, Cumulative Impacts.

Cumulative Impact Analysis

The operation of heavy equipment on site, the dismantling, demolition, and removal of aggregate processing plant facilities, and the transport of equipment and waste materials off site for sale, recycling, or disposal, in combination with other reclamation activities such as resoiling and re-contouring lake shorelines, could result in short-term impacts on biological resources. These impacts are identified above and include impacts on special-status plant species (Impact BR-1), giant garter snake (Impact BR-2), burrowing owl (Impact BR-3), vernal pools and swales (Impact BR-4), valley elderberry longhorn beetle (Impact BR-5), nesting raptors and migratory birds (Impact BR-6), and riparian habitat (Impact BR-7). The implementation of mitigation measures specific to each of these potential impacts would reduce each impact to levels considered less than significant. Even prior to the implementation of mitigation, however, the level of impact from reclamation activities is slight relative to the short-term biological

impact of activities associated with past and ongoing mining activities on the Western Aggregates' site and the other Yuba Goldfields mining operations listed above.

The productivity and diversity of existing plant and wildlife habitat on the project site is relatively limited due to radical modifications to native habitat adjacent to the Yuba River that occurred as a result of hydraulic mining upstream of the project site in the late 1800s and extensive remedial dredging operations in the early to mid-twentieth century that occurred throughout the Yuba Goldfields. Those operations resulted in the vast "moonscape" of expansive dredge tailing "hedgerows" that have characterized the Goldfields for over a century. Biological productivity and diversity in the Goldfields is limited due primarily to the lack of topsoil within the dredge tailings where only sparse vegetation can establish itself. Pockets of higher quality riparian and emergent marsh habitat have developed over time within the tailings, but these are concentrated primarily in depressions between the tailing piles in areas where soil deposition has occurred and where water is available on a consistent basis. In addition to pockets of naturally occurring habitat between tailings rows, the Goldfields support increasingly diverse and productive areas of upland, riparian, and emergent marsh habitat established through past and ongoing reclamation activities associated with the mining operations noted above.

The proposed project would use existing mining methods to remove dredge tailings or excavate previously undredged lands in a manner supportive of aquatic and terrestrial wildlife habitat. Western plans to remove aggregates to a depth of approximately 100 feet below the average lake surface level over an approximately 1,960-acre area to create a series of five discrete lakes bordered by vegetated woodlands and dikes or berms. Reclamation would occur during a phased 45-year surface mining operation. As described in Chapter 3, three types of vegetative communities would be developed during reclamation: emergent marsh, riparian woodland, and riparian upland.

Lower-quality plant and wildlife habitats removed during vested mining activities would be reclaimed and restored concurrently with each phase of the mining activities as they are completed such that overall restoration of mined areas is in place shortly after mining is completed. Reclaimed habitat would be subject to at least 5 years of monitoring to ensure survival and establishment of vegetation. Existing riparian reserve areas would be protected during and after mining activities, and the project site would be restored to open space to create lakes and associated natural habitat.

At each of the Yuba Goldfield mining sites identified above, lower quality plant and wildlife habitats have been and/or are being removed during mining activities and reclaimed in accordance with SMARA. These activities are expected to result in a net increase in regional biodiversity through the reclamation and conversion of historically disturbed tailings fields to natural riparian, emergent wetland, and grassland habitats. Collectively, the individual reclamation activities at each of the mines in the Goldfields represent an overall reclamation of both the historic and current mining effects in the Goldfields themselves. This reflects part of a key legislative finding within SMARA (Public Resources Code Section 2711[a]) that reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment. The habitats created by reclamation will be of substantially higher value to regional wildlife than those present after remedial dredging operations in the Yuba Goldfields. Because some of these newly created habitats are contiguous to the Yuba River corridor, their value to regional wildlife would be even greater because it would function as an island of habitat diversity along this corridor. The

proposed project would result in a cumulatively considerable contribution to regional biological diversity and productivity in a manner that be considered a *cumulative beneficial* impact.

Mitigation Measure

M-BR-8 *Implement mitigation measures M-BR-1 through M-BR-7.*

4.3 LAND USE/PLANNING

This section of the Draft EIR analyzes the potential environmental effects of the proposed project on topics related to land use and planning. One comment letter addressing land use/planning was received from Beale Air Force Base (AFB) in response to the Notice of Preparation (NOP) circulated for the proposed project concerning the potential for bird strike hazards. This issue is evaluated in this section. In preparing the analysis, the EIR report preparers reviewed the materials provided by Beale AFB, which are included in Draft EIR Appendix C, and consulted with Beale AFB staff to obtain additional information.

Implementation of the Amended Reclamation Plan for Western's vested mining operations would continue an existing mining use. Neither the vested mining operations (not required to be evaluated in this Draft EIR) nor the proposed Amended Reclamation Plan (evaluated in this Draft EIR) are subject to Yuba County discretionary approval actions.¹

4.3.1 Environmental Setting

■ Project Site Land Use

Western Aggregates LLC (Western) operates an active aggregate (sand and gravel) mining operation pursuant to vested rights, which were confirmed in 2010 by the State Mining and Geology Board (SMGB) to cover an approximately 3,900-acre area situated in the historic Yuba Goldfields mining area in Yuba County, California (Figure 3-1 [Area Map] in Chapter 3 [Project Description]). The operations site is located approximately 6 miles northeast of Marysville. Western's aggregate operations are located in Sections 1 and 12, Township 15 North, Range 4 East, and Sections 5 and 6, Township 15 North, Range 5 East, as shown in Figure 3-3a (Current Reclamation Plan Area).

Western's operation is currently subject to Reclamation Plan (RP) 80-01, which was approved by the County of Yuba in 1980, originally for Yuba Consolidated's gold and aggregate operations. Gold mining operations, conducted by a separate company called Cal Sierra Development, Inc. (Cal Sierra), occur concurrently with operations of Western on the same Yuba Goldfields property. The proposed Amended Reclamation Plan covers approximately 1,960 acres of the 3,900-acre Vested Rights Area, including such portion of the 1,420-acre area within RP 80-01 as applies to aggregate operations. If approved, the Amended Reclamation Plan will supersede the 1,420-acre portion of RP 80-01 that applies to aggregate operations. However, the entire 2,000-acre area of RP 80-01 that applies to gold operations will remain valid and still intact (see Figure 3-3b [Proposed Reclamation Plan Area]). Historically, most of the area has been mined with bucket-line dredges, with these areas having been dredged at least twice and in some parts of the property three to four times, each time to a greater depth with more efficient recovery equipment.

Western's existing operations consist primarily of sand and gravel removal and processing. Current mining operations by Western involve excavation using a clamshell dredge, excavators, draglines, and

¹ The lead agency for this Draft EIR is the State Mining and Geology Board. Refer to Chapter 3 (Project Description) for information concerning vested mining rights.

other equipment. Material is removed, transported, or conveyed to a processing plant and then sorted and, for certain materials, crushed and/or washed and stockpiled for use in the manufacturing and/or sale of construction aggregates and of road base and other aggregate material. A scale house, shop building, fuel island, administrative offices, and equipment storage are also on-site. A large settling pond situated in the central portion of the site north of the processing area (referred to in Western's Waste Discharge Requirements as a Designated Disposal Area or DDA) serves as the sediment settling pond. Product stockpiles are situated adjacent to the processing area (see Figure 3-4 [Current Plant Operations]).

■ Surrounding Land Uses

The Yuba River is approximately 1 mile north of the proposed project's northern boundary, beyond which are the Yuba Goldfields (historical dredger tailings), an area that has been greatly disturbed by historic gold and aggregate mining activities that dramatically altered the landscape. The Yuba River is used primarily for recreational activities such as fishing and rafting. Lands immediately north of the Yuba River support aggregate mining (by other companies). The lands to the east of the Goldfields are vacant and are used for cattle grazing. The lands to the south and west of the Goldfields, and north of Hammonton-Smartsville Road, support aggregate mining (by other mining companies), agricultural production, and cattle grazing.

Beale AFB is located approximately 2 miles south of the Goldfields and south of Hammonton-Smartsville Road. The project site is within the planning area for the Beale Joint Land Use Study (JLUS) (see Figure 4.3-1 [Beale Joint Land Use Study Area]) and the Beale AFB Comprehensive Land Use Plan.

Beale Air Force Base Operations

The Beale AFB installation has had a variety of primary missions since converting to an air force base in 1948. Most recently, Beale AFB has been an Air Combat Command installation and considered the center for the U.S. aerial reconnaissance force providing a home to U-2 reconnaissance aircraft, T-38 Talon aircraft (training and chase planes for U-2 operations), KC-135E stratotanker (for aerial refueling), and RQ-4 Global Hawk unmanned aerial vehicles (UAV). In a 2006 Beale AFB Air Installation Compatible Use Zone (AICUZ) study, the average number of daily operations (one takeoff, landing, or half a closed pattern) per aircraft was reported as 79 for U-2; 71 for T-38; forty-one for KC-135E, and 10 for Global Hawk. Additionally, aircraft from other military installations use the airfield at Beale AFB, increasing the overall number of aircraft operations.²

Beale AFB has one primary runway situated in a northwest/southeast direction located near the western and northern edges of the installation. The Western Aggregates property is located in direct alignment with this runway (Runway 15). In response to the NOP, the Department of the Air Force Headquarters 9th Operations Group, Beale Air Force Base, submitted a comment letter indicating U.S. Air Force (USAF) concerns regarding creation of habitat, especially lakes or marsh, on the approach corridor to Runway 15 at Beale AFB and potential inconsistencies with the Beale JLUS.³

² California Governor's Office of Planning and Research, *Beale Joint Land Use Study* (May 2008).

³ Comment letters dated April 23 and May 2, 2013, are included in Draft EIR Appendix C.

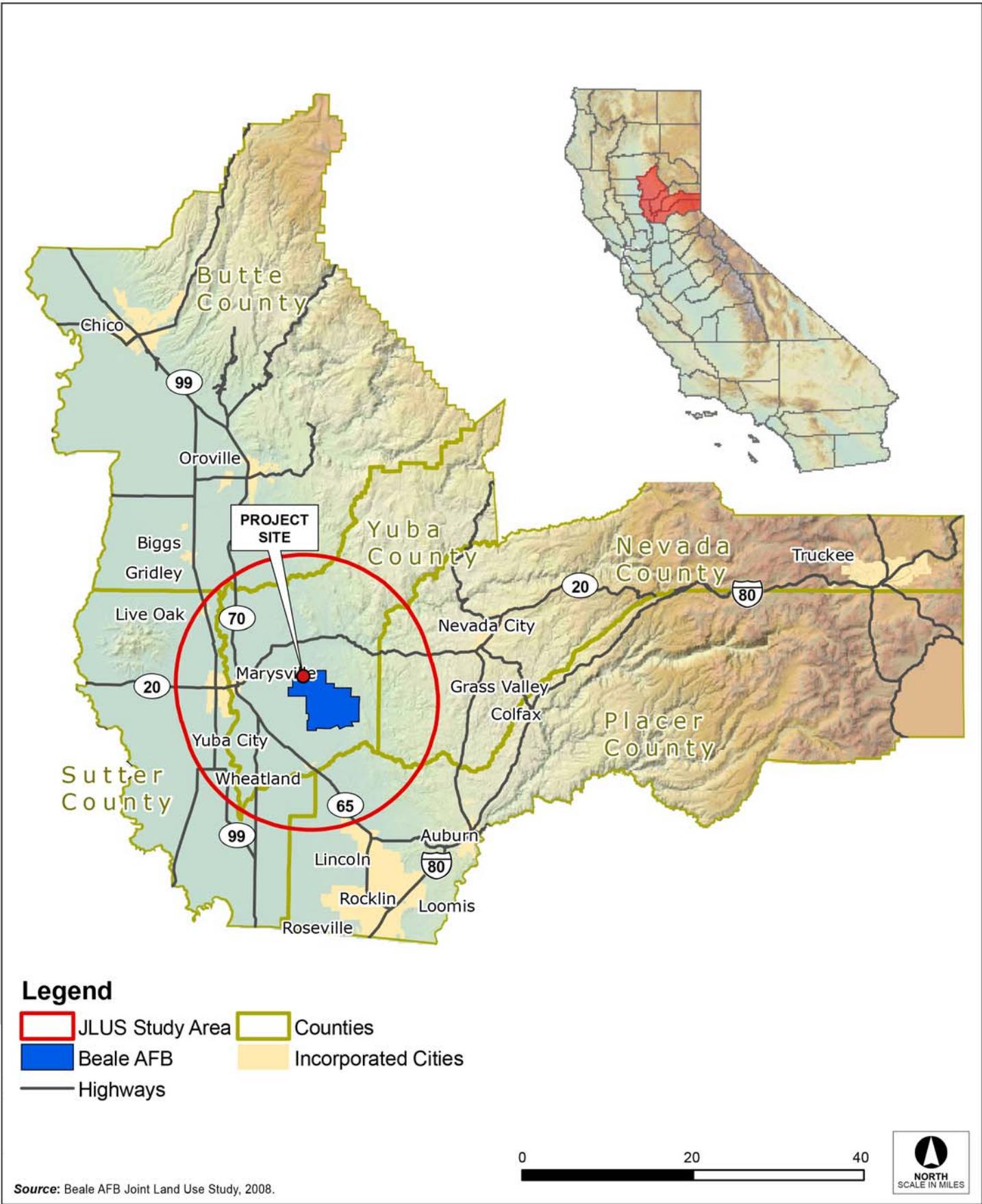


Figure 4.3-1
Beale AFB Joint Land Use Study Area

Existing Bird/Aircraft Strike Hazards at Beale AFB

During surveys of the flight line between November 2000 and February 2001, blackbirds, waterfowl, gulls, and grassland species comprised the majority of bird types detected. The highest level of bird activity normally occurs one hour before and after dawn and dusk as birds leave and return to their roosts. These birds are commonly involved in bird-aircraft strikes, and all represent a significant threat to aircraft. Raptor abundance was low compared to other species, but their continued presence and flight characteristics (i.e., hovering, soaring, and circling) increase the potential for strikes. In the 2000–01 flight line study, 63 percent of observed birds were flying from Beale AFB toward the north, northwest, west, and southwest, generally toward rice fields. Approximately 69 percent of the birds observed during the 2000–01 flight line study were noted flying at altitudes less than or equal to 100 meters (328 feet). In terms of bird roosting and feeding locations in and around Beale AFB, the majority (70 percent) of birds were in rice fields, 18 percent in pastures, 9 percent in a nearby landfill south of the base, 2 percent in riparian areas, and only 1 percent in an aggregate mine just north of the Beale AFB boundary at the time of the study. Operations at Beale often include “no flap/low approaches” that require air clearance up to 7 miles from the runway. Any bird within a 7-mile radius of the airstrip is a bird/wildlife strike hazard (BASH) concern, because the majority of bird strikes occur at low altitudes and during takeoff and landing.⁴ Any bird found up to 500 feet above ground level should be considered a hazard for possible strikes.⁵ Between 1997 and 2000, 56 bird-aircraft strikes occurred at Beale AFB. Fifty percent of those strikes occurred between the months of November and February.⁶

Current BASH management practices at Beale AFB consist of a combination of active and passive control measures. They include vegetation maintenance (e.g., mowing, adding bird spikes to signage, and removal of trees) and the occasional use of pyrotechnics as well as live fire with the occasional “take.” Herbicides are also applied in certain areas along the runway and the edge effect is deterred.⁷

Project Site Bird Species

Bird species that pose threats to aircraft safety are not all equally hazardous.⁸ Table E-3 (Bird Species Observed along the Flight Line at Beale AFB That Could Also Occur within the Project Site and Associated Hazard Information) in Draft EIR Appendix E lists bird species observed during flight line surveys on Beale AFB that could also inhabit the Amended Reclamation Plan project site. Species that

⁴ James W. Cain, et al., Bird Habitat Use and Bird-Aircraft Strikes at Beale Air Force Base, California, in *Transactions of the Western Section of the Wildlife Society*, vol. 40:90–100 (2004).

⁵ Gerald Sikorski, personal communication from 9OSS/OSAA Beale AFB to Jessica A. Nadolski, Sr. Biologist, Atkins (August 8, 2013).

⁶ James W. Cain, et al., Bird Habitat Use and Bird-Aircraft Strikes at Beale Air Force Base, California, in *Transactions of the Western Section of the Wildlife Society*, vol. 40:90–100 (2004).

⁷ Gerald Sikorski, personal communication from 9OSS/OSAA Beale AFB to Jessica A. Nadolski, Sr. Biologist, Atkins (August 8, 2013); James Laughlin, personal communication from lead BASH management Beale AFB to Jessica A. Nadolski, Sr. Biologist, Atkins (August 22, 2013).

⁸ Federal Aviation Administration (FAA), Advisory Circular: Hazardous Wildlife Attractions on or Near Airports, AC No. 150/5200-33B (August 2007). [Included in Draft EIR Appendix C]

are of the greatest concern to Beale AFB include pelicans (*Pelecanus* sp.), Canada geese (*Branta canadensis*), and waterfowl, because they are large enough to cause complete aircraft failure and pilot bailout.⁹

Other Land Uses in the Vicinity That Attract Birds

In general, the presence of food, water, and perching sites may increase the potential for bird strikes near airfields.¹⁰ Land use practices (within a 5-mile radius of an airfield) having the potential to increase bird-aircraft strike risks are waste disposal operations, such as solid waste landfills; water management facilities, including ponds created from mining activities; wetlands; dredge spoil containment areas; agricultural activities; and other landscapes, such as wildlife habitat.¹¹

Agriculture and other land uses surrounding the base can attract birds and may increase bird activity in and around the flight line. Local agriculture and the Ostrom Landfill south of Beale AFB attract a large number of birds, including those with a high risk of aircraft collision, such as turkey vultures (*Cathartes aura*) and gulls.¹² Municipal solid waste landfills are considered the most significant attractant of hazardous bird species.¹³ The Spenceville Wildlife and Recreation Area to the east of Beale AFB is another source of large numbers of birds.

In addition to Western (which includes the Cal Sierra operation, as noted above), four other active mining operations in the Goldfields are within 2 to 3 miles north of Beale AFB: Teichert Marysville, Dantoni Pit, Knife River (formerly Baldwin) Hallwood, and Teichert Hallwood. The locations of these mining operations are shown in Figure 5-1 (Cumulative Projects) in Section 5.1.1 (Cumulative Context). These operations have open ponds and varying amounts of wetland and riparian vegetation that attract birds. However, as noted above, the 2000–01 flight line study determined that mining operations at a nearby aggregate mine had the lowest percentage of birds and that nearby agricultural activities comprised nearly 90 percent of the observed birds.¹⁴

4.3.2 Regulatory Framework

■ Federal

Federal Aviation Administration (FAA)

Federal Aviation Regulations (FAR) Part 77 establishes standards for identifying obstructions to navigable airspace, sets forth requirements for notice to the FAA of certain proposed construction or

⁹ Gerald Sikorski, personal communication from 9OSS/OSAA Beale AFB to Jessica A. Nadolski, Sr. Biologist, Atkins (August 8, 2013).

¹⁰ James W. Cain, et al., Bird Habitat Use and Bird-Aircraft Strikes at Beale Air Force Base, California, in *Transactions of the Western Section of the Wildlife Society*, vol. 40:90–100 (2004).

¹¹ FAA, Advisory Circular: Hazardous Wildlife Attractions on or Near Airports, AC No. 150/5200-33B (August 2007). [Included in Draft EIR Appendix C]

¹² James W. Cain, et al., Bird Habitat Use and Bird-Aircraft Strikes at Beale Air Force Base, California, in *Transactions of the Western Section of the Wildlife Society*, vol. 40:90–100 (2004).

¹³ U.S. Department of the Air Force (USAF), *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques*, Air Force Pamphlet 91-212 (February 2004), <http://www.e-publishing.af.mil>.

¹⁴ James W. Cain, et al., Bird Habitat Use and Bird-Aircraft Strikes at Beale Air Force Base, California, in *Transactions of the Western Section of the Wildlife Society*, vol. 40:90–100 (2004).

alteration, and provides for aeronautical studies of obstructions to determine their effect on the safe and efficient use of airspace. Title 14 Code of Federal Regulations, Part 139.337 and FAA Advisory Circular 150/5200-33 advise to alleviate or eliminate wildlife hazards near airports in order to prevent bird strikes.¹⁵

U.S. Air Force Bird/Wildlife Strike Hazard (BASH) Program

Collisions between aircraft and wildlife cause millions of dollars in damage annually and may even result in the loss of aircraft and crews. The USAF BASH program was established to minimize collisions between military aircraft and birds or other wildlife as well as to minimize damage and injuries when collisions occur. The program considers strike hazards within the limits of the installation and in immediately surrounding areas. The BASH program also identifies land management practices that minimize bird attractants and promotes safety procedures to recognize, control, and avoid hazardous bird concentrations. Both active and passive hazard control methods are recommended by the USAF to reduce strike threats. Active controls cause wildlife to disperse from an airfield, allowing short-term remediation of hazards, which would pertain only to aircraft operations at Beale AFB and not the proposed project. Passive controls eliminate or reduce the conditions that attract wildlife to the locale and provide longer-term solutions for reducing risks from wildlife. No single control measure is appropriate for all species. The USAF stresses the importance of proper identification of local species and using the most appropriate deterrence method for that species.¹⁶

A Memorandum of Agreement signed between the FAA, USAF, U.S. Army Corps of Engineers, Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S. Department of Agriculture acknowledges their respective missions in protecting aviation from wildlife hazards in an environmentally responsible manner.¹⁷ To that end, USAF BASH controls are required to be implemented by those entities in accordance with other applicable environmental policies, such as the Clean Water Act, federal Endangered Species Act, and Migratory Bird Treaty Act.

■ Regional

Beale Air Force Base Comprehensive Land Use Plan (1987, as amended 1992)

The current land use plan for Beale AFB was adopted in 1987 and amended in 1992. It was prepared under the jurisdiction of the Sacramento Area Council of Governments (SACOG) acting in its capacity as the Airport Land Use Commission (ALUC) for Sacramento, Sutter, Yolo, and Yuba counties. The Comprehensive Land Use Plan (CLUP) describes existing and planned airport facilities, existing airport activity, and off-airport land use patterns. It establishes planning boundaries for height, noise, and safety, and defines compatible and incompatible land uses within each planning boundary. According to the “Land Use Compatibility Guidelines for Safety” table in the CLUP, mining and quarrying is a compatible

¹⁵ FAA, Advisory Circular: Hazardous Wildlife Attractions on or Near Airports, AC No. 150/5200-33B (August 2007). [Included in Draft EIR Appendix C]

¹⁶ USAF, *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques*, Air Force Pamphlet 91-212 (February 2004), <http://www.e-publishing.af.mil>.

¹⁷ FAA, Advisory Circular: Hazardous Wildlife Attractions on or Near Airports, AC No. 150/5200-33B (August 2007). [Included in Draft EIR Appendix C]

use in approach-departure and overflight zones if it does not result in a possibility that a water area may cause ground fog or result in a bird hazard.¹⁸ The CLUP does not contain any specific policies that are directly applicable to the proposed project.

Beale Air Force Base Land Use Compatibility Plan (Draft 2010)

The draft 2010 Beale Air Force Base Land Use Compatibility Plan (Beale AFB LUCP) was developed to promote compatibility between Beale AFB and the land uses surrounding it to the extent that these areas have not already been devoted to incompatible uses. The plan accomplishes this function through establishment of a set of compatibility criteria and policies applicable to *new development* around the airport, and the process for ALUC consistency review. The Beale AFB LUCP September 2010 draft states specifically, “neither the Beale AFB LUCP nor the ALUC have authority over existing land uses or over operation of the airport.”¹⁹ As of the date of publication of this Draft EIR, the LUCP has not been adopted.

The AFB LUCP specifically notes that “the lands surrounding Beale AFB remain predominantly rural ... Most of the nearby area consists of open range and agricultural crop lands. Extensive gravel mining takes place along the Yuba River 3.5 miles north of the runway. All these uses are compatible with aircraft activity at the base.”²⁰

Western’s mining activities are an existing vested operation, and reclamation is a requirement under the California Surface Mining and Reclamation Act (SMARA) for the existing as well as future mining activities. The vested mining operation at Western is an existing condition, and the proposed Amended Reclamation Plan is not subject to local agency approvals that would require ALUC review. The proposed project would not introduce new development or uses that are inconsistent with mining and, therefore, would not affect the AFB LUCP general conclusion concerning compatibility. Because the Amended Reclamation Plan would not be a new use and would involve the continuation of an existing activity, the land use compatibility criteria set forth in the AFB LUCP would not be applicable. Therefore, there would be no conflict with the AFB LUCP.

Beale Joint Land Use Study

The Beale Joint Land Use Study is a collaborative planning effort between Beale AFB and surrounding cities and counties and resource agencies. It addresses all lands near Beale AFB with a current or potential future impact on military operations at the base and lands upon which military operations at the base have an actual or potential impact. The 15-mile oval study area includes the western half of Yuba County and portions of Butte, Nevada, Placer, and Sutter counties (see Figure 4.3-1). The overall goal of the JLUS is to reduce potential conflicts while accommodating growth, sustaining the economic health of the region, and protecting public health and safety. The JLUS identifies recommended strategies that can be applied by local jurisdictions, agencies, and organizations to address specific issues. The JLUS is not a policy document.

¹⁸ Sacramento Area Council of Governments Airport Land Use Commission for Sacramento, Sutter, Yolo, and Yuba Counties (SACOG ALUC), *Beale Air Force Base Land Use Compatibility Plan* (1987, revised 1992), p. 51.

¹⁹ SACOG ALUC, *Beale Air Force Base Land Use Compatibility Plan*, Draft (September 2010), p. 1-1.

²⁰ *Ibid.*, p. 3-2 and Exhibit 6.

The Beale JLUS noted that mining activities can pose compatibility issues to aircraft operations by attracting wildlife, specifically birds, especially during the reclamation phase when water would accumulate in previously mined areas.²¹ However, because the vested mining operations at Western have involved and will continue to involve excavation below the water table, the ponds will already exist at the time reclamation commences. That is, the proposed project would not be creating new or larger ponds as part of reclamation.

The JLUS recognizes the importance of BASH coordination, noting that it promotes both land management practices that minimize bird attractants and safety procedures to recognize, control, and avoid hazardous bird concentrations. Recommended Strategy 54 (Reduce Bird and Wildlife Attraction Near Base) addresses surface mining specifically and encourages projects to include measures to reduce bird and wildlife attractions as part of mining applications, remediation plans, and other SMARA reviews. It also notes the need for consultation with Beale officials during plan review. The primary responsibility for implementing this strategy is listed in the JLUS as “California Department of Mines and Geology.” However, it is assumed this should have referred to the State Mining and Geology Board, which is responsible for implementing SMARA throughout Yuba County. In accordance with CEQA Guidelines Section 15082, and consistent with the consultation element of Strategy 54 in the JLUS, the SMGB provided written notice to Beale AFB and requested comments on the proposed project.²²

Yuba-Sutter Regional Conservation Plan

In November 2011, Yuba County, in cooperation with Sutter County, the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the Cities of Yuba City, Wheatland, and Live Oak, approved an agreement to prepare a Natural Communities Conservation Plan and Habitat Conservation Plan (“NCCP/HCP Planning Agreement”) for a broad area that includes the Goldfields and the project site. The Yuba-Sutter Regional Conservation Plan has not been completed or adopted, but an agreement between the participating agencies calls for the review of projects subject to approval by those agencies for consistency with interim plan objectives. Section 6.6 (Interim Project Processing) of the agreement establishes that projects or activities approved or initiated in the NCCP/HCP planning area before the plan is completed should demonstrate consistency with the conservation objectives. Section 6.6.1 (Reportable Interim Project) identifies the specific types of projects subject to the interim project processing condition, as follows: “...proposed development, construction, subdivisions, rezones, or other projects or activities requiring discretionary approvals from the Local Agencies...”²³ As stated in the Initial Study (Appendix B, Section V.5(f)), because the Amended Reclamation Plan is not a discretionary action subject to approval by any of the plan’s participating Local Agencies, the process requirements of Section 6.6 do not apply, and no determination of consistency with the NCCP/HCP Planning Agreement is necessary.

²¹ California Governor’s Office of Planning and Research, *Beale Joint Land Use Study* (May 2008).

²² A copy of the letter dated April 4, 2012, from SMGB to Beale AFB is included in Draft EIR Appendix C.

²³ The County of Yuba, the County of Sutter, the City of Yuba City, the City of Live Oak, the City of Wheatland, the California Department of Fish and Game, and the United States Fish and Wildlife Service, Planning Agreement regarding the Yuba-Sutter Natural Community Conservation Plan and Habitat Conservation Plan (November 2011), p. 14.

■ Local

Yuba County General Plan and Zoning

The project site is within the planning area for the Yuba County General Plan. The Yuba Goldfields, including the proposed project site, are zoned M-2 (Extractive Industrial) and designated as Natural Resources under the Yuba County 2030 General Plan. The M-2 zoning was established by Yuba County primarily for the extraction, processing, and distribution of minerals occurring naturally such as sand and gravel. The lands surrounding the Yuba Goldfields south of the Yuba River are zoned M-2 or A/RR5, the latter of which allows mixed agricultural, ranching, and low-density residential uses.²⁴

The proposed project is not a discretionary action subject to Yuba County approvals. However, Western voluntarily seeks to demonstrate conformance with general environmental protection policies that are relevant to existing mining and reclamation operations. Table 4.3-1 (Yuba County General Plan Policies Considerations) describes the features of the proposed project that address the elements of relevant policies.

Table 4.3-1 Yuba County General Plan Policies Considerations	
<i>Yuba County General Plan Policy</i>	<i>Proposed Project</i>
Community Development Element	
Policy CD3.9 The County will discourage uses that increase the potential for interference with Beale AFB operations related to birds and other wildlife.	The Amended Reclamation Plan would be implemented to reclaim and restore existing and future vested mining operations, which do not require County approvals. No new or different uses would occur at the project site. See Impact LU-1 for analysis of potential bird/aircraft collision hazards as it relates to the USAF BASH program.
Natural Resources Element	
Policy NR5.1 New developments that could adversely affect special status species habitat shall conduct a biological resources assessment and identify design solutions that avoid such adverse effects. If, after examining all feasible means to avoid impacts to special status species habitat through project design, adverse effects cannot be avoided, then impacts shall be mitigated in accordance with guidance from the appropriate state or federal agency charged with the protection of the subject species, including pre-construction surveys conducted according to applicable standards and protocols, where necessary.	Implementation of the Amended Reclamation Plan would occur primarily on lands previously disturbed by mining activities and involves habitat restoration. The biological resources section of this EIR evaluates the potential for occurrence of special-status species within the reclamation area and provides mitigation to reduce impacts as necessary.
Policy NR5.3 The County will support the continued development and implementation of the Yuba-Sutter Natural Community Conservation Plan/Habitat Conservation Plan, once adopted.	The SMGB is not a signatory to the Planning Agreement. The Amended Reclamation Plan is not a reportable interim project subject to discretionary approval by any of the Planning Agreement's participating Local Agencies.
Policy NR5.4 New developments shall be located and designed to preserve and incorporate existing native vegetation to the maximum extent feasible. Fire safety standards may override consideration of retaining existing vegetation in certain circumstances.	Implementation of the Amended Reclamation Plan would occur primarily on lands previously disturbed by mining activities and involves habitat restoration using native emergent marsh and riparian vegetation.

²⁴ Yuba County Community Development and Services Agency, *Yuba County 2030 General Plan* (adopted June 7, 2011), <http://www.yubavision2030.org/2030%20General%20Plan.aspx>, General Plan Land Use Diagram, and Zoning and Specific Plan Designations.

<i>Yuba County General Plan Policy</i>	<i>Proposed Project</i>
Policy NR5.5 The County will support cooperative restoration, development, and promotion of natural resources with the US Fish and Wildlife Service, the Army Corps of Engineers, the Bureau of Reclamation, the US Forest Service, and other public agencies with an interest in the Yuba County's water and wildlife assets.	The Amended Reclamation Plan includes revegetation and restoration activities that would enhance the water and wildlife assets of the site, consistent with SMARA regulations.
Policy NR8.5 Mining operations shall be reviewed and conditioned to mitigate impacts to water quality and flood protection facilities.	Vested mining operations are not subject to environmental review by the SMGB or the County. Yuba County does not have authority to approve/disapprove or condition the reclamation project; however, the proposed project has been designed to comply with applicable SMARA requirements for water quality and flood protection. Western implements a water quality monitoring and reporting program (MRP 05-00-107).
<p>SOURCE Yuba County Community Development and Services Agency, <i>Yuba County 2030 General Plan</i>, Community Development Element and Natural Resources Element (adopted June 7, 2011), http://www.yubavision2030.org/2030%20General%20Plan.aspx (accessed December 15, 2012).</p>	

4.3.3 Impacts and Mitigation Measures

■ Methods of Analysis

The potential for the proposed project to result in a land use/planning compatibility impact with respect to bird/aircraft collision hazards is evaluated qualitatively and is based on a review of relevant plans and regulations, which are described in the Regulatory Framework, above, published literature, comments provided by Beale AFB, consultation with Beale AFB personnel, and the professional opinion of the Draft EIR technical specialists. An important consideration in the analysis is that bird species that pose threats to aircraft safety are not all equally hazardous. Further, it cannot be predicted with any degree of certainty which bird species may or may not be attracted to the project site as a result of reclamation activities.

Baseline Assumption

Ponds (up to a total of five) will continue to be created at the project site as the vested mining operations continue throughout the approximately 45-year life of mining. The baseline condition against which the proposed project is evaluated consists of the post-mining configuration and extent of lakes, which are shown in Figure 3-7a (Conceptual Model for Final Reclaimed Configuration After 15 Years), Figure 3-7b (Conceptual Model for Final Reclaimed Configuration After 30 Years), and Figure 3-7c (Conceptual Model for Final Reclaimed Configuration After 45 Years) in Chapter 3. The Amended Reclamation Plan will not create the ponds, but the ponds will be present at the time reclamation commences and thereafter. As such, their presence is assumed in the analysis because they would continue to provide waterfowl habitat, assuming revegetated and restored emergent marsh and upland habitat areas.

Reclamation Assumptions

The Amended Reclamation Plan indicates that vested aggregate mining operations will occur in three 15-year phases and will ultimately result in a total of 1,602 acres of lakes (including both mined lakes and

reclaimed areas). According to Western Aggregates LLC, as of June 2012, there were approximately 342 acres of existing ponds in the area to be mined. Vested mining operations will, therefore, result in an additional surface area of 1,260 acres (including both mined lakes and reclaimed areas).²⁵ The total acreage of emergent marsh is conservatively assumed to be 100 acres (lake shorelines and reclaimed settling pond). While the land use type would not change relative to existing conditions, the analysis assumes the intensity of pond/lake development would increase between now and the end of mining operations. The effect of reclamation relative to mining probably is limited, but the difference between conditions as they exist now and conditions at the completion of mining/reclamation with regard to the acreage of open water and vegetative habitats (to a lesser extent) would be substantial in terms of whether the proposed project would attract more birds.

■ Thresholds of Significance

For purposes of this EIR, project-specific and cumulative impacts associated with land use/planning would be considered significant if the proposed project would:

- Physically divide an established community
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect
- Conflict with any applicable habitat conservation plan or natural community conservation plan

■ Impacts Identified in the Initial Study Not Requiring Detailed Analysis in the Draft EIR

The Initial Study prepared for the proposed project (Appendix B, Section X [Land Use/Planning]) concluded the proposed project would not divide an established community, and there would be no impact. The Initial Study (Section X(b)) also concluded there would be no conflict with the Open Space designation in the Natural Resources Element of the Yuba County 2030 General Plan (although the proposed project is not subject to any county discretionary land use approvals). No comment letters were received on the NOP indicating these topics require evaluation in the EIR, and these impacts do not require further evaluation.

In its comment letter on the NOP, the California Department of Fish and Wildlife (CDFW) recommended the Draft EIR include an analysis of the proposed project's consistency with the Yuba-Sutter NCCP/HCP Planning Agreement. As described above, the proposed project is not a discretionary action subject to approval by Local Agency signatory to the agreement. No additional analysis beyond that presented in the Initial Study is necessary.

²⁵ Calculated as follows: planned mined lakes and reclaimed areas (1,602 acres) – existing ponds (342 acres) = 1,260 acres mined lakes and reclaimed areas.

■ Project Impacts and Mitigation

Impact LU-1 **Implementation of the Amended Reclamation Plan could increase the potential for bird/aircraft collisions due to the project site's proximity to Beale AFB, which may be inconsistent with recommended Strategy 54 in the Beale JLUS and the USAF BASH program. This is a *potentially significant* impact.**

The applicable plan considered in the following analysis of potential land use incompatibility impacts associated with bird/aircraft collision hazards is the Beale JLUS, which recommends coordination with local jurisdictions to help implement the Beale AFB BASH program.

Many bird species are present or may be present at the project site (as described in Section 4.2 [Biological Resources] and as listed in Table E-3 in Appendix E). These birds use the small pond areas created by vesting mining operations and surrounding habitat within the project site, and it would be expected that birds would continue to be present at the site throughout the life of the project, including post-reclamation if suitable habitat for breeding, foraging, and loafing is present. Bird species that pose threats to aircraft safety are not all equally hazardous.²⁶ Species that are of the greatest concern to Beale AFB include pelicans, Canada geese, and waterfowl, because they are large enough to cause complete aircraft failure and pilot bailout.²⁷

As noted in the Environmental Setting, a flight line study at Beale AFB determined that birds observed during the study within the Beale overflight zone predominantly originate from agricultural fields and on-base wetlands, with only 1 percent of the birds originating from an aggregate mining operation north of Beale AFB. It is reasonable to assume that birds originating from the Western project site during and after reclamation would continue to represent a small percentage of all birds that may pose bird/aircraft collision hazards in the vicinity of Beale AFB relative to the percentage of bird populations associated with other types of land uses such as agriculture.

The proposed Amended Reclamation Plan end use is the long-term maintenance of five lakes created through vested mining operations that would have emergent marsh shorelines, emergent marsh habitat at the reclaimed DDA settling pond, and restored upland riparian habitat in other locations. The additional emergent marsh (totaling approximately 100 acres within the 1,960-acre project site), in combination with the ponds created by vested mining that would be maintained post-reclamation (an additional 1,260 acres of pond area), has the potential to result in the attraction of more resident and migratory waterfowl than currently exists. This could increase the risk for bird/aircraft collision hazards.

This is considered a *potentially significant* impact because it could be considered inconsistent with the Beale JLUS Strategy 54 and the USAF BASH program.

²⁶ FAA, Advisory Circular: Hazardous Wildlife Attractions on or Near Airports, AC No. 150/5200-33B (August 2007). [Included in Draft EIR Appendix C]

²⁷ Gerald Sikorski, personal communication from 9OSS/OSAA Beale AFB to Jessica A. Nadolski, Sr. Biologist, Atkins (August 8, 2013).

Mitigation Measure

- M-LU-1**
- (a) *Implement mitigation measure M-HY-1 (eliminate emergent marsh at settling pond).*
 - (b) *Prior to the start of Phase One, Western Aggregates shall implement an avian monitoring plan with adaptive management strategies to address the potential for an increase of birds within the area following completion of each phase of reclamation. A baseline study (implemented using the best, practicable scientific methodology) shall be completed to document the number and type of species using the reclamation plan area. Following implementation of the first phase of reclamation, a comparative study shall be completed to assess whether avian presence has increased and based on the species, whether strike risks could increase. If no significant increase is seen after Phase One, Phase Two would proceed as planned and once completed, another assessment of site use by birds would need to be completed. If the completion of any phase is found to attract additional or an increased number of bird species, control strategies should be developed based on consultation with Beale AFB personnel and implemented to reduce the attractiveness of the area for those species. For example, future phases of reclamation would then contour steeper pond edges or adjust vegetation to deter usage of the area and reduce strike risk to the maximum extent possible. If the No Emergent Marsh and 2:1 Lake Slopes Alternative is adopted instead of the proposed project, this mitigation measure is not required.*

Bird/aircraft collision hazards cannot be completely eliminated. However, risks can be reduced through design controls and monitoring, which is consistent with the BASH program and federal guidance. Implementation of Hydrology/Water Quality mitigation measure M-HY-1 would reduce this impact to a **less than significant** level by eliminating the creation of emergent marsh at the settling pond and, instead, creating a deep open water pond with steep slopes. An open water area with steep 2:1 slopes would likely attract fewer birds than an emergent marsh because it would not provide foraging, breeding, nesting, roosting, or loafing habitat that many species (e.g., Canada geese) prefer. Gentler slopes for pond entry and exit that some species (e.g., dabbling ducks) prefer would not be present.²⁸ Implementation of the No Emergent Marsh Habitat and 2:1 Lake Slopes Alternative could further lessen this impact, as described in Chapter 6 (Alternatives to the Proposed Project).

Implementation of an avian monitoring/adaptive management program (M-LU-1) would determine if reclamation of the site appears to be attracting additional waterfowl and birds and to consider options to modifying the design of future phases of reclamation in a manner that would deter avian species use of the area, to the extent that such modifications, if any, remain consistent with SMARA requirements for reclamation.

²⁸ The general observation that deep open water pond areas with limited or no vegetative fringe would be less likely to attract many waterfowl than would ponds with vegetated perimeters is based on a study prepared for a mining and reclamation project in Fresno County in close proximity to a public-use airport. (ESR, Inc., *Carmelita Mine and Reclamation Project Bird Aircraft Strike Hazard Report, Fresno County, CA* [March 2012].)

■ Cumulative Impacts and Mitigation Measures

Impact LU-2 **Implementation of the Amended Reclamation Plan, in combination with projects in the vicinity of Beale AFB that could that attract birds, could increase the potential for bird/aircraft collisions, which may considered inconsistent with recommended Strategy 54 in the Beale JLUS and the USAF BASH program. This is a *potentially significant cumulative* impact.**

Cumulative Context

The cumulative context for the analysis of land use effects with respect to bird/aircraft collision hazards consists of mining projects in the Yuba Goldfields (see Figure 5-1 in Section 5.1.1), surrounding agricultural fields, the Ostrom Landfill, and the Spenceville Wildlife and Recreation area, all of which are in the Beale JLUS planning area.

Cumulative Impacts

The Yuba Goldfields currently consist of lakes and ponds with standing fresh water as well as marsh and riparian vegetation. Additional ponds and restored habitat will be created as a result of mining and reclamation activities. Habitat within the Yuba Goldfields already supports species of birds that increase strike hazards, especially to low-level flight operations that must occur over the area due to the alignment of Beale AFB's primary runway. Extensive agricultural areas, particularly rice fields, are the predominant source of birds in the vicinity of Beale AFB, as noted above.

From a land use planning perspective, the Yuba County 2030 General Plan would continue the predominantly agricultural land use pattern west, north, and east of the Goldfields and the Beale AFB primary runway.²⁹ Therefore, it is assumed the greatest percentage of birds that could pose hazards would continue to be the agricultural fields west, north, and east of Beale AFB and not the Goldfields exclusively.

The increased potential for bird strikes due to the project, if any, when considered in the context of the areal extent of mining and reclamation projects in the Goldfields, could be cumulative considerable, and this would be a *potentially significant cumulative* impact.

Mitigation Measure

M-LU-2 *Implement mitigation measures M-LU-1(a) and M-LU-1(b).*

Implementation of mitigation measures M-LU-1(a) and M-LU-1(b) would reduce the project's contribution to this impact to a level that would be ***less than cumulatively considerable***. Implementation of the No Emergent Marsh Habitat and 2:1 Lake Slopes Alternative could provide further reduction.

²⁹ Yuba County Community Development and Services Agency, *Yuba County 2030 General Plan* (adopted June 7, 2011), <http://www.yubavision2030.org/2030%20General%20Plan.aspx>, General Plan Land Use Diagram.

[THIS PAGE INTENTIONALLY LEFT BLANK]

CHAPTER 5 CEQA Statutory Requirements

5.1 CUMULATIVE IMPACTS

In accordance with California Environmental Quality Act (CEQA) Guidelines Section 15130, an environmental impact report (EIR) must address the cumulative and long-term environmental impact of a proposed project. The CEQA Guidelines define a cumulative impact as an impact that is created as a result of the adverse effect of the proposed project, combined with related effects of other past, ongoing, and reasonably foreseeable probable future projects.

CEQA Guidelines Section 15355 further states that “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be physical changes to the environment resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Impacts from a project or projects can be caused either by *direct* physical changes to the environment or by triggering reasonably foreseeable *indirect* physical changes. Physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. An EIR must determine whether the cumulative effect on a particular resource caused by the proposed project and other related projects is significant. If that effect is found to be potentially significant, the EIR must determine if the proposed project’s contribution to that impact is cumulatively considerable (see CEQA Guidelines Section 15064(h)(1)).

5.1.1 Cumulative Context

CEQA Guidelines Section 15130(b)(1)(A) provides two methods for an adequate analysis of cumulative impacts: the “list approach” or the “projection approach.”

For purposes of this EIR, the list approach is used to establish the cumulative context for evaluating the potential cumulative impact of the proposed project. This EIR identifies all of the past, present, and probable future projects that could substantially contribute to the cumulative impact of the proposed project. This approach was selected for the following reasons:

1. The proposed project is a reclamation plan and, therefore largely a restoration project. As such, the range of potential impacts is relatively narrow. Potential project impacts for the Amended Reclamation Plan are limited to surface water and groundwater hydrology, biological resources, and land use issues pertaining to project compatibility with nearby Beale Air Force Base (AFB).
2. Impacts of the proposed project are geographically limited, i.e., largely confined to the Yuba Goldfields region.
3. The list of projects with impacts similar to those identified for the proposed projects is relatively discrete and limited to mining and reclamation operations within the Yuba Goldfields region.

For purposes of this EIR, the list of projects that are relevant to the determination of the cumulative impact of the implementing the Amended Reclamation Plan is as follows:

- Western Aggregates Amended Reclamation Plan
- Teichert Marysville mine and reclamation project
- Dantoni Property mine and reclamation project
- Cal Sierra Development mine and reclamation project
- Teichert Hallwood mine and reclamation project
- Knife River (formerly Baldwin) Hallwood mine and reclamation project

Each of these projects is a surface mine and/or reclamation operation located in the Yuba Goldfields (see Figure 5-1 [Cumulative Projects]), and each has the potential to result in physical changes to the environment that are similar in nature to those of the proposed project. In addition to these mine and reclamation projects, two other projects considered in the cumulative analysis are the Three Rivers Levee Improvement Authority (TRLIA) Yuba Goldfields 100-Year Flood Protection Project and the Yuba Goldfields 200-Year Flood Project.

To provide a context for determining the potential cumulative impact of the proposed project in relation to the projects listed above, brief descriptions of each of these projects are provided below.

Western Aggregates Amended Reclamation Plan. As noted previously in this EIR, the proposed project addressed in this EIR is the implementation of the Amended Reclamation Plan for Western Aggregates LLC Yuba County Operations. The proposed project is the reclamation of a 1,960-acre surface mining site in Yuba County, California, south of the Yuba River, north of Hammonton-Smartsville Road, and approximately 6 miles northeast of Marysville. Site reclamation would be implemented in phases to coincide with ongoing vested aggregate mining and processing operations.

As determined by the State Mining and Geology Board (SMGB), Western Aggregates has a vested right to excavate and process aggregate materials on the proposed project site. Mining and processing operations therefore are not subject to future approval and are not considered part of the proposed project for this EIR. As such, the cumulative contributions of ongoing and future mining operations are not subject to review or mitigation in this EIR. The potential cumulative environmental impact of the proposed project, i.e., implementation of the proposed Amended Reclamation Plan, is assessed by the extent to which future post-mining baseline conditions would be adversely affected by implementation of the Amended Reclamation Plan, in combination with other cumulative projects.

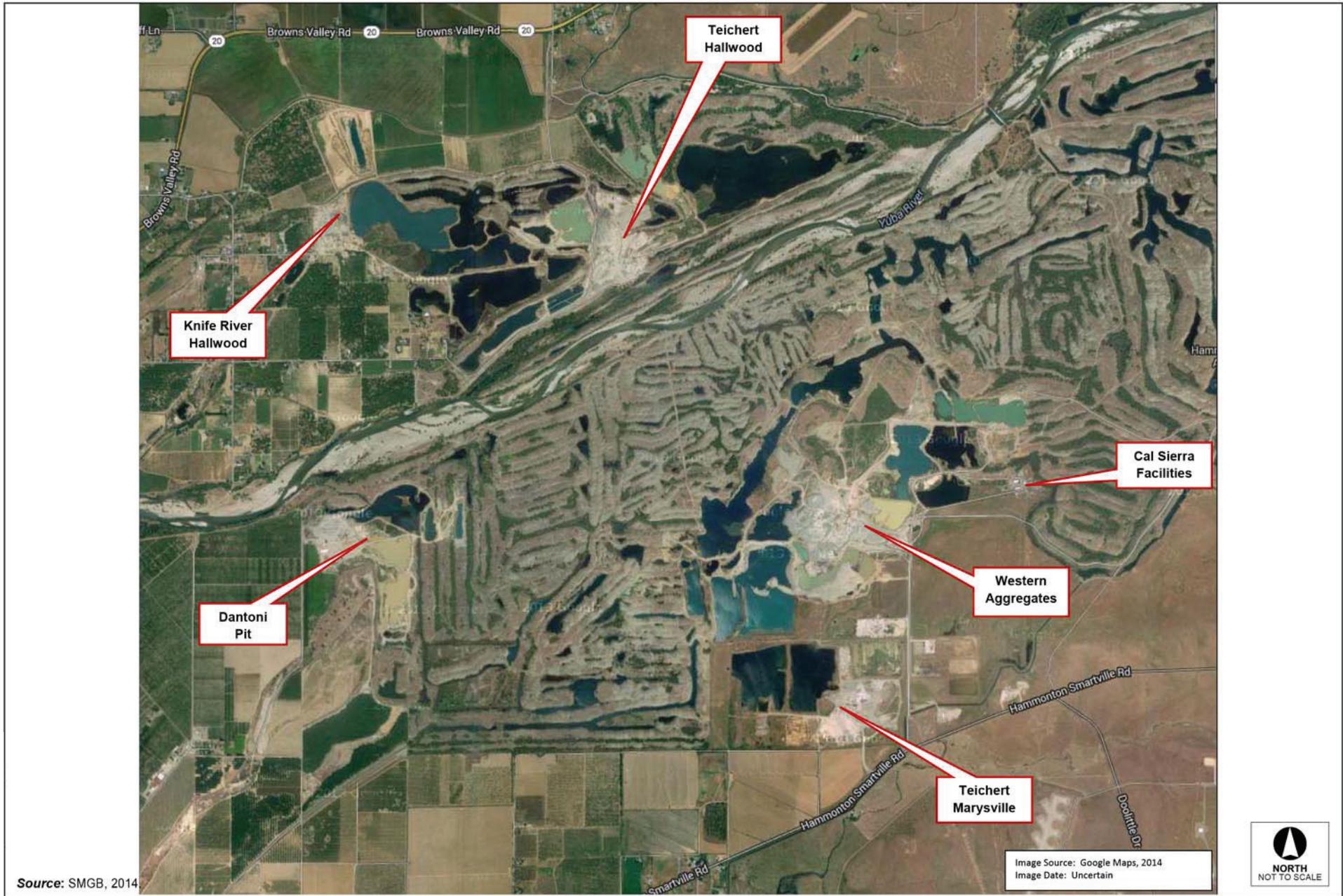


Figure 5-1
Cumulative Projects

Teichert Marysville. The Teichert Marysville operation (formerly known as the Yuba-Hoffman facility) is located at 4249 Hammonton-Smartsville Road, Yuba County, adjacent to and south of the Western Aggregates site. The operation, which operates under use permit from Yuba County, mines and processes sand and gravel deposits in addition to hard rock, approximately 1 mile south of the Yuba River on the north side of Hammonton-Smartsville Road in east-central Yuba County. The mine operates on an approximately 590-acre site and mines to depths of approximately 200 feet. Mining operations use pit dewatering techniques and/or draglines and hydraulic excavators to extract mined materials in saturated conditions (below groundwater levels). Permitted production is 500,000 tons per year to 1 million tons per year, depending on specific market demands. Reclamation of the Teichert Marysville site will create open water with shoreline habitat encompassing approximately 420 acres of the site.

Dantoni Property. The Dantoni Property mining and reclamation operations are located approximately 6 miles east of Marysville in unincorporated Yuba County. The project site is situated immediately west of the western boundary of the Western Aggregates operations along the south bank of the Yuba River. The mine is approximately 1.5 miles northeast from the terminus of Dantoni Road in East Linda, and there is a barrier levee constructed at the abandoned river channel on the southwest property line. The Dantoni Property encompasses approximately 197 acres. Aggregate mining, processing, and reclamation operations are ongoing on the Dantoni site. Excavation below 60 feet below grade would be accomplished using a bucket line dredge, suction cutter dredge, or other excavation equipment. The maximum depth of surface mining operations would be approximately 40 feet below average groundwater levels, but it is predicted that excavation would not be able to exceed a depth of minus 100 feet mean sea level. Wet mining operations would create areas of open water in several areas of the project site.

A total of approximately 180 acres of the 197-acre site would be mined and reclaimed within the 40-year projected planning period. Reclamation of the project site will create open water ponds with vegetated shorelines. A 10- to 60-foot-wide band of riparian vegetation would surround the northern perimeter of the lake. Mining operations within the 2006 reclamation plan boundary are proposed to be terminated approximately 40 years from approval of the reclamation plan (near the years 2046 or 2047).¹

Cal Sierra mining and reclamation operations are located on and adjacent to the Western Aggregates Amended Reclamation Plan area. Cal Sierra's and Western Aggregates' operations are currently subject to Reclamation Plan (RP) 80-01, which was approved by the County of Yuba in 1980, originally for Yuba Consolidated's gold and aggregate operations. Gold mining operations on the Western Aggregates site are conducted by a separate company called Cal Sierra Development, Inc. ("Cal Sierra") and, typically, occur concurrently with operations of Western on the same Yuba Goldfields property. RP 80-01 covers approximately 2,000 acres, all of which apply to Cal Sierra's gold operations. Of the total 2,000 acres, approximately 1,420 acres apply to Western's aggregate operations. The proposed Amended Reclamation Plan covers approximately 1,960 acres of the 3,900-acre Vested Rights Area, including such portion of the 1,420-acre area within RP 80-01 as applies to aggregate operations. If approved, the Amended Reclamation Plan will supersede the 1,420-acre portion of RP 80-01 that applies to aggregate operations.

¹ State Mining and Geology Board, *Initial Study and Proposed Mitigated Negative Declaration: Dantoni Property 2006 Reclamation Plan* (July 2007), prepared by PBS&J.

However, the entire 2,000-acre area of RP 80-01 that applies to gold operations will remain valid and still intact.

Historically, Cal Sierra used bucket-line dredges that harvested materials from a depth of well over 120 feet below water elevation, separated the fines and precious metals from the ore, and deposited the cobble tailings in their wake via a stacker or monitor. Western retrieved those tailings from the conveyor stockpile with a backhoe or front-end loader and transported them via truck to their aggregate plant for processing. Areas dredged by Cal Sierra that are not incorporated in the Western Aggregates Amended Reclamation Plan will be reclaimed under RP 80-01 and will consist primarily of recontoured and revegetated dredger tailings.

Teichert Hallwood mining and reclamation operations are located in unincorporated Yuba County, approximately 3 miles northeast of Marysville and adjacent to the north bank of the Yuba River. The project site encompasses 752 acres, is owned by Triangle Properties, Inc., and is operated by Teichert Aggregates.² Approximately 488 acres of the project site are considered by Teichert to be mineable. The majority of the project site is characterized by active mining operations, including processing facilities, siltation and freshwater ponds, and a partially paved, private road that connects to Walnut Avenue at the west end of the project site. A contiguous ridge of dredger tailings along the north bank of the Yuba River south of the mining operations (locally referred to as a “training wall”) separates mining and reclamation activities from the Yuba River.

The reclamation plan assumes the estimated quantity of aggregate to be mined on the project site is approximately 57 million tons. Teichert will continue to employ the mining methods described above. However, when excavation exceeds depths of 60 feet below the groundwater table, a dredge will be used. The maximum depth of surface mining operations will be approximately 200 feet below dry season groundwater levels. Wet mining operations will create areas of open water in the West Lake, East Lagoon, and Lower Fin portions of the project site. Only West Lake would be excavated to a depth of approximately 200 feet below groundwater, with the depth of East Lagoon and Lower Fin limited to approximately 60 feet below groundwater.

Mining operations will be conducted in four separate phases based on the locations of viable aggregate material and operational considerations. To the extent practical, reclamation will occur concurrently with mining operations within each phase as mining in specific areas is completed. Reclamation and revegetation will commence in areas where mining activities are complete and future disturbance from adjacent activities can be avoided.

Upon completion of mining operations and implementation of the reclamation plan, the Hallwood site would consist of natural buffer areas around three lakes of varying sizes and depths. The two largest lakes, West Lake and East Lagoon, will cover approximately 134 and 83 acres, respectively. In accordance with the reclamation plan, the site would ultimately support 5.5 acres of emergent marsh habitat, 44.0 acres of riparian wetland habitat, and 25.7 acres of riparian upland habitat.

² State Mining and Geology Board, *Focused Draft Environmental Impact Report Hallwood Reclamation Plan 2003 (Updating Approved Reclamation Plan #89-03)* (June 2005), prepared by EIP Associates.

Knife River (formerly Baldwin) Hallwood. Knife River currently conducts aggregate mining and reclamation operations on a site encompassing approximately 400 acres located adjacent to SR 20 in unincorporated Yuba County, approximately 3 miles northeast of Marysville. The Knife River Hallwood site is adjacent to (and north and west of) the Teichert Hallwood site described above. Based on information provided by the SMGB,³ reclamation of the Knife River Hallwood site would occur under RP 92-01, which was clarified in 1999 via a minor amendment submitted to Yuba County by the operator (*Clarification of Reclamation Plan #92-01 for Baldwin Hallwood Mine [CID #91-58-0002], Yuba County, California*, October 1999). Implementation of this plan would create a series of open ponds with vegetated shorelines with a combined acreage of 202.76 acres.

Yuba Goldfields 100-Year Flood Protection Improvements. TRLIA has approved the construction of facilities in the Yuba Goldfields required to provide 100-year flood protection to the Reclamation District (RD) 784 service area. This project is one of several projects TRLIA has undertaken in the RD 784 service area to meet Federal Emergency Management Agency (FEMA) criteria for a 100-year flood event as well as to ultimately provide 200-year flood protection. The 100-year flood protection project consists of constructing an embankment in the Goldfields designed to intercept and block breach flows, holding them long enough to allow flood peaks to pass. The blocked flows would then return to the Yuba River or percolate into underlying groundwater aquifers. The embankment would extend continuously for approximately 2.1 miles within the Goldfields. TRLIA intends to build the embankment using the Goldfields' existing dredge tailings, which may require an agreement with one or more private entities engaged in mining activities in the Goldfields. TRLIA adopted a mitigated negative declaration (MND) for this project in 2014. The analysis in the MND concluded that air quality, biological resources, cultural resources, and stormwater runoff impacts could be reduced to less than significant levels with implementation of mitigation measures identified in the MND.⁴

Yuba Goldfields 200-Year Flood Protection Improvements. TRLIA is proposing to implement 200-year flood protection improvements within or just south of the Yuba Goldfields to reduce the flood risk to southwest Yuba County. The 200-year project would include either: (i) construction of an embankment along one of three alternative alignments within the Yuba Goldfields that is high enough and stable enough to protect against the 200-year flood or (ii) construction of a levee south of the Goldfields. Any of the proposed alternatives would meet the U.S. Army Corps of Engineers (USACE) and California Department of Water Resources (DWR) requirements for 200-year flood protection.⁵

5.1.2 Cumulative Impact Analysis

Implementation of the proposed project would require the operation of heavy equipment on site; dismantling, demolition, and removal of aggregate processing plant facilities; and the transport of equipment and waste materials off site for sale, recycling, or disposal. These activities, in combination with other reclamation activities such as resoiling and recontouring lake shorelines and revegetation to

³ W. Arcand, personal communication by State Mining and Geology Board with R. Hanson, Atkins (January 14, 2014).

⁴ Three Rivers Levee Improvement Authority, Yuba Goldfields 100-Year Flood Protection Improvement Project Final Initial Study/Mitigated Negative Declaration (SCH No. 2014022010), March 2014.

⁵ Three Rivers Levee Improvement Authority, Yuba Goldfields 200-Year Flood Protection Improvement Project Notice of Preparation (SCH No. 2014062045), June 12, 2014.

create emergent marsh and riparian habitat, could result in short-term impacts on biological resources and hydrology. The contribution of these impacts on local and regional conditions could be considered cumulatively considerable and therefore require consideration in this Draft EIR.

In addition, the long-term impact of maintaining large bodies of open water and wildlife habitat on the project site may, in combination with other mining and reclamation projects in the vicinity of the proposed project, present a safety hazard to aircraft using Beale Air Force Base by attracting higher numbers of birds into the base's overflight zone.

A summary of the cumulative impacts addressed in Chapter 4 (Environmental Analysis) is presented below.

With regard to the combination of the cumulative mining and reclamation projects and the two TRLIA projects from a cumulative analysis perspective, the two distinct types of projects differ in three ways. Each of the TRLIA projects is a construction project that would occur over a short time-frame and in the near-term, as compared to the cumulative mining and reclamation projects that would occur over many years to reach a post-reclamation condition. With regard to the cumulative projects, an important distinction is that the baseline for the TRLIA projects is current conditions in 2014. For the proposed project specifically, however, the baseline condition is the post-mining condition when reclamation commences, as explained in Chapter 1, Introduction, and in Section 4.0, Approach to the Environmental Analysis. In addition, the TRLIA projects and the proposed project are independent and unrelated. As noted in Section 4.1, Hydrology/Water Quality, the Amended Reclamation Plan activities would occur in areas in which mining has concluded. The reclamation activities such as final grading, shoreline contouring, revegetation, and equipment and road removal are not activities that would combine with the TRLIA activities in a manner that would produce a cumulative hydrology/water quality or biological resources effect because they would not be implemented concurrently. Further, no aspects of the Amended Reclamation Plan would interfere with the design of the flood protection improvements in a manner that could produce a hydrologic effect that would diminish the effectiveness of the flood protection improvements.

■ Hydrology/Water Quality

Yuba River Flow and Temperature

The cumulative context for the analysis of Yuba River flow and temperature impacts is the lower Yuba River below the Daguerre Point Dam. Impact HY-4 in Section 4.1 presents the complete cumulative impact analysis. The combined annual loss to evapotranspiration of the cumulative projects is estimated to be 6.2 mgd, equating to about 9.6 cfs. The peak monthly (July) evapotranspiration loss is estimated to be 18.4 mgd, equating to approximately 31 cfs.

At final reclamation and thereafter, the emergent marsh habitat (assumed to be approximately 100 acres) would result in a peak flow reduction of 1.2 cfs in Yuba River flow under median low-flow conditions (a 0.34 percent reduction). The estimated annual average peak flow reduction attributable to the emergent marsh is estimated to be 0.37 cfs, which would be 0.10 percent under median low-flow conditions. The percent reduction under median flow conditions would be less: 0.010 percent reduction in peak flow and 0.030 percent reduction in annual average flow.

The Goldfields' outlet canal flows are 5 to 50 cfs during the summer and fall months. It is likely that most of the flow reduction for the Yuba River would be expressed in reduced flows from the outlet canal draining into the Yuba River. The impact of increased evapotranspiration losses from the reclamation lakes within the project site would be to reduce the amount of outflow via the outlet canal back into the Yuba River. At times of year when water temperatures in the Yuba Goldfields might be expected to become elevated relative to the Yuba River, this could reduce temperature impacts on the Yuba River, possibly improving water quality conditions for fish. However, overall reduced flows in the Yuba River may also allow more warming, which would be an adverse effect on temperature conditions for fish. The contribution of the proposed project to this impact could be considered cumulatively considerable.

If the settling pond is not reclaimed as emergent marsh, as recommended in mitigation measure M-HY-1, this would substantially reduce the project's unmitigated contribution to cumulative reductions in Yuba River flow from 1.2 cfs (flow reduction due to peak monthly evapotranspiration loss from settling pond and shoreline marsh habitat) to a mitigated 0.14 cfs (flow reduction for shoreline marsh habitat, only). This would represent an approximately tenfold decrease in the flow reductions. Consequently, there would only be a negligible increase in groundwater draw from the YCWA Main Canal; therefore, river diversions into the canal would not be increased in order to compensate for the loss, and outflow from the Western site back to the river would not be reduced. Because the proposed project's contribution to cumulative flow reductions would be negligible with implementation of this mitigation measure, the proposed project would not be expected to have an adverse effect on temperature changes in the Yuba River. The cumulative impact would be *less than significant with mitigation*.

Effects of Evapotranspiration Losses on Groundwater

The cumulative context for the analysis of groundwater impacts is the South Yuba Subbasin. Impact HY-5 in Section 4.1 presents the complete cumulative impact analysis.

Between 1948 and 1981, groundwater elevations in the South Yuba Subbasin declined an estimated 130 feet. In 1984, the YCWA began delivering surface water from its New Bullards Bar Reservoir to offset groundwater extraction, resulting in a groundwater rise to near-historical levels. Hydrographs for wells in the South Yuba Subbasin show a reverse in the declining trend of groundwater levels, starting in the 1980s, which coincides with the extension of surface water deliveries to the South Yuba Subbasin. Groundwater substitution transfers in the form of reduced groundwater levels followed by recovery to pre-transfer levels have occurred in central parts of the North and South Yuba subbasins.

The groundwater level within the project site is anticipated to reach a maximum 3.2-foot decline at a distance of 0.5 mile in roughly 50 years as mining operations and site reclamation continue within the project site. While this is small in comparison to declines of approximately 130 feet experienced in the South Yuba Subbasin between 1948 and 1981, the anticipated additional decline of 3.2 feet is considered to be a cumulatively significant impact on groundwater resources. The majority of this reduction is due to evapotranspiration from approximately 1,260 acres of open water created by past and future vested mining operations. The proposed project would contribute to this reduction due to evapotranspiration through the establishment of roughly 100 acres of emergent marsh. This contribution could be considered cumulatively considerable.

If the settling pond is not reclaimed as emergent marsh, as recommended in mitigation measure M-HY-1, the reclaimed area contributing to evapotranspiration would only be 12 acres. The evapotranspiration would then be 32 acre-feet per year or 0.03 mgd. For the month of highest evapotranspiration (July) the water loss would be about 8.8 acre-feet or 0.09 mgd. The 50-year drawdown at the lakes due to reclamation would then be expected to be less than 0.1 foot and probably not detectable at 0.5 mile from the lakes. The cumulative groundwater impact would be *less than significant with mitigation*.

Mercury Bioaccumulation

The cumulative context for the analysis of water quality effects is the South Yuba River watershed. Impact HY-6 in Section 4.1 presents the complete cumulative impact analysis.

For cumulative projects that would involve the use of fines for revegetation in a water environment, there is the potential for mercury methylation if the chemical forms or concentrations exceeding baseline conditions are present at those mines and if precautions are not taken to reduce that risk. In combination with mercury levels already known to be present the watershed, the cumulative impact could be potentially significant.

The proposed project would not contribute substantially to this cumulative impact. The proposed project would continue to implement water quality monitoring under MRP 5-00-107, which is intended to detect any increase in total and/or soluble mercury concentrations. The Waste Discharge Requirements (WDR) require that if mercury is found in the water column at certain levels, Western must work with Central Valley Regional Water Quality Control Board staff to determine appropriate corrective action. Implementation of these requirements would ensure that materials used for revegetation purposes do not contain mercury at levels that could pose an environmental risk due to mercury bioaccumulation in the watershed. Therefore, the proposed project's contribution to the cumulative condition would not be cumulatively considerable, and this would be a *less than significant cumulative* impact, and no mitigation is required.

■ Biological Resources

The cumulative context for the evaluation on biological resources is the Yuba Goldfields. Each of the cumulative projects shown in Figure 5-1 is a surface mine and/or reclamation operation located in the Yuba Goldfields with the potential to result in physical changes to the environment that are similar in nature to those of the proposed project. Impact BR-8 in Section 4.2 presents the complete cumulative impact analysis.

Regional Biological Diversity

The productivity and diversity of existing plant and wildlife habitat at the cumulative projects is relatively limited due to radical modifications to native habitat adjacent to the Yuba River that occurred as a result of hydraulic mining upstream of the project site in the late 1800s and extensive remedial dredging operations in the early to mid-twentieth century that occurred throughout the Yuba Goldfields. Pockets of higher-quality riparian and emergent marsh habitat have developed over time within the tailings, but these are concentrated primarily in depressions between the tailing piles in areas where soil deposition has occurred and where water is available on a consistent basis. In addition to pockets of naturally

occurring habitat between tailings rows, the Goldfields support increasingly diverse and productive areas of upland, riparian, and emergent marsh habitat established through past and ongoing reclamation activities associated with the cumulative projects.

At each of the Yuba Goldfield mining sites identified above, lower-quality plant and wildlife habitats have been and/or are being removed during mining activities and reclaimed in accordance with the California Surface Mining and Reclamation Act (SMARA). These activities are expected to result in a net increase in regional biodiversity through the reclamation and conversion of historically disturbed tailings fields to natural riparian, emergent wetland, and grassland habitats. These habitats will be of substantially higher value to regional wildlife than those present after remedial dredging operations in the Yuba Goldfields. Because some of these newly created habitats are contiguous to the Yuba River corridor, their value to regional wildlife would be even greater because they would function as an island of habitat diversity along this corridor. Collectively, the individual reclamation activities at each of the mines in the Goldfields represent an overall reclamation of both the historic and current mining effects in the Goldfields themselves. This reflects part of a key legislative finding within SMARA (Public Resources Code Section 2711[a]) that reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety.

At the project site, lower quality plant and wildlife habitats removed during vested mining activities would be reclaimed and restored concurrently with each phase of the mining activities as they are completed such that overall restoration of mined areas is in place shortly after mining is completed. Reclaimed habitat would be subject to at least 5 years of monitoring to ensure survival and establishment of vegetation. Existing riparian reserve areas would be protected during and after mining activities, and the project site would be restored to open space to create lakes and associated natural habitat. The proposed reclamation activities could result in impacts on special-status species, vernal pools, nesting raptors, and migratory birds (Impacts BR-1 through BR-7), for which mitigation measures (M-BR-1 through M-BR-7) have been identified to reduce impacts to less than significant levels. Even prior to the implementation of mitigation, however, the level of impact from reclamation activities is slight relative to the short-term biological impact of activities associated with past and ongoing mining activities on the Western Aggregates' site and the other Yuba Goldfields' mining operations listed above.

For those reasons, while the proposed project would result in a cumulatively considerable contribution to regional biological diversity and productivity, it would be in a manner that would be considered a *cumulative beneficial* impact. No additional mitigation measures are required.

■ Land Use/Planning

The cumulative context for the analysis of land use effects with respect to bird/aircraft collision hazards consists of mining projects in the Yuba Goldfields (see Figure 5-1 in Section 5.1.1), surrounding agricultural fields, the Ostrom Landfill, and the Spenceville Wildlife and Recreation Area, all of which are in the Beale Joint Land Use Study (JLUS) planning area. Impact LU-2 in Section 4.3 presents the complete cumulative impact analysis.

The Yuba Goldfields currently consist of lakes and ponds with standing fresh water as well as marsh and riparian vegetation. Additional ponds and restored habitat will be created as a result of mining and

reclamation activities. Habitat within the Yuba Goldfields already supports species of birds that increase strike hazards, especially to low-level flight operations that must occur over the area due to the alignment of Beale AFB's primary runway. Extensive agricultural areas, particularly rice fields, are the predominant source of birds in the vicinity of Beale AFB. From a land use planning perspective, the Yuba County 2030 General Plan would continue the predominantly agricultural land use pattern west, north, and east of the Goldfields and the Beale AFB primary runway. Thus, the greatest percentage of birds that could pose hazards would continue to be the agricultural fields west, north, and east of Beale AFB and not the Goldfields or the project site exclusively.

The increased potential for bird strikes due to the project, if any, when considered in the context of the areal extent of mining and reclamation projects in the Goldfields, would not be expected to be cumulatively considerable with implementation of recommended mitigation measures M-LU-1(a) and M-LU-1(b), and the cumulative impact would be *less than significant with mitigation*.

5.2 GROWTH-INDUCING EFFECTS

An EIR must discuss the ways in which a proposed project could foster economic or population growth or the construction of additional housing in the vicinity of the project and how that growth would, in turn, affect the surrounding environment (see CEQA Guidelines Section 15126.2 (d)). Growth can be induced in a number of ways, including through the elimination of obstacles to growth (such as expansion of a wastewater treatment plant would allow for more construction within its service areas) or through the stimulation of economic activity within the region. The discussion of the removal of obstacles to growth relates directly to the removal of infrastructure limitations or regulatory constraints that could result in growth not related to the proposed project.

5.2.1 Elimination of Obstacles to Growth

The proposed project is the reclamation of mined areas within Western Aggregates LLC vested mining property. Reclamation would entail the revegetation of mined areas, the creation of habitat, the removal of mining and processing equipment and facilities from the project site, and the restoration of these areas with native vegetation. The proposed project does not include any actions or provide any infrastructure improvements that would remove obstacles to population growth. Additionally, the project would not involve any land use changes (such as from an industrial to a commercial designation) that would allow an increase in growth or development. The land uses for the project site after reclamation would be open space and habitat.

5.2.2 Increased Demand on Secondary Markets

Because the proposed project would create private open space and habitat, with no public access upon completion of site reclamation, the proposed project would not result in substantial economic, population, or housing growth in the immediate project area. While the project might generate some additional demand for activity during active reclamation such as extra daily truck trips to and from the project site, the number of these trips is relatively small and would not be expected to increase the demand significantly for secondary services in the vicinity of the project site.

5.2.3 Increased Pressure on Land Use Intensification

Under the proposed project, the mine site would be reclaimed as open space and habitat. These uses are not expected to result in pressure to intensify use on surrounding properties that support agricultural lands, open space preserves, and other mining operations.

5.3 SIGNIFICANT IRREVERSIBLE COMMITMENT OF RESOURCES

Under CEQA, an EIR must analyze the extent to which a project's primary and secondary effects would commit resources to uses that future generations will probably be unable to reverse (CEQA Guidelines Section 15126.2(c)). An EIR is also required to evaluate the commitments of natural resources to ensure that such consumption is justified.

Implementation of the proposed project would reclaim previously mined areas within Western's vested rights boundary. Neither reclamation nor the possible future uses of the project site as open space and wildlife habitat with lakes would irreversibly commit resources in a manner that would preclude future mining within the vested rights area, should any additional recoverable mineral resources be desired for extraction from the site.

Implementation of the proposed project would result in the use of energy, primarily in the form of fossil fuels used in heavy equipment and trucks. This equipment would be used for grading and contouring and for on-site transport of fine materials for revegetation substrates. Such use would be temporary and would cease upon completion of reclamation activities. It would not result in a substantial or long-term commitment of natural resources that future generations would be unable to reverse.

5.4 SIGNIFICANT AND UNAVOIDABLE EFFECTS

According to CEQA Guidelines Section 15126.2(b), a Draft EIR must include a description of those impacts identified as significant and unavoidable should the proposed action be implemented. These impacts are unavoidable because it has been determined that either no mitigation, or only partial mitigation, is feasible. Based on the technical analyses presented in Chapter 4, no significant and unavoidable impacts would result from the proposed project.

5.5 ENERGY CONSERVATION

The proposed project has been analyzed for potential impacts on energy, conservation, and sustainability in accordance with Appendix F of the CEQA Guidelines. According to Appendix F, significant long-term operational or direct energy impacts would occur if a proposed project would place a substantial demand on regional energy supply or require significant additional capacity, or significantly increase peak and base period electricity demand. Impacts on energy, conservation, and sustainability would also be considered significant if a proposed project would cause wasteful, inefficient, and unnecessary consumption of energy during project construction, operation, and/or maintenance, or preempt future energy development or future energy conservation. CEQA Guidelines Section 15126.4(a)(1) states that an EIR shall describe feasible measures that could minimize significant adverse impacts, including, where relevant, inefficient and unnecessary consumption of energy.

Following cessation of mining, as part of the Amended Reclamation Plan, all equipment that uses energy would be removed from the site. The proposed reclamation activities would not involve processing operations that would use energy. Reclamation activities would be temporary and would mainly involve diesel-fueled heavy equipment. The amount of fuel use would be minimal. Further, as described in Section III(b) (Air Quality) in the Initial Study (Appendix B), the proposed project would operate in accordance with Feather River Air Quality Management District regulations that, among others, require limiting equipment idling time (saves fuel), using existing power sources or clean fuel rather than temporary power generation, and implementing traffic-reduction measures.

As such, the proposed project would not require new or expanded energy facilities that would place a demand on regional supply or require additional capacity, or use energy in a wasteful, inefficient, or unnecessary manner. Impacts would be *less than significant*, and no mitigation measures are required.

CHAPTER 6 Alternatives

6.1 INTRODUCTION

The California Environmental Quality Act (CEQA) (Public Resources Code [PRC] Sections 21000 et seq.) and the CEQA Guidelines (California Code of Regulations Title 14, Sections 15000 et seq.) require that an environmental impact report (EIR) “describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives” (CEQA Guidelines Section 15126.6(a)). If mitigation measures or a feasible project alternative that would meet most of the basic project objectives would substantially lessen the significant environmental effects of a proposed project, the lead agency should not approve the proposed project unless it determines that specific technological, economic, social, or other considerations make the mitigation measures and the project alternative infeasible (PRC Section 21002, CEQA Guidelines Section 15091(a)(3)). The EIR must also identify alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process and should briefly explain the reasons underlying the lead agency’s determination (CEQA Guidelines Section 15126.6(c)).

6.2 PROJECT OBJECTIVES

Western Aggregates LLC (Western) proposes to reclaim the mine site that would maintain five large pond/lake areas created by mining and to revegetate the area to provide for an end land use consisting of open space and wildlife habitat with aquatic lake, marsh, woodland, and upland vegetation communities.

Western’s objectives for the Amended Reclamation Plan are to:

- Provide for reclamation of vested right aggregate operations within a greater portion of the Vested Rights Area (1,960 acres) than contemplated within Western’s anticipated mining area under the approved reclamation plan (approximately 1,200 acres), and otherwise comply with the 2010 vested right decision of the State Mining and Geology Board (SMGB).
- Upgrade Western’s reclamation plan to current SMARA standards.
- Reclaim to a usable condition for post-mining end uses.
- Contour mining features and revegetate disturbed areas to promote aesthetic, biological, and hydrological effects.
- Reclaim the site as necessary to promote public health and safety.
- Preserve Western’s ability to mine vested areas outside of Reclamation Plan boundaries subject to future reclamation plans or reclamation plan amendments.
- Establish a stand-alone reclamation plan for aggregate operations (Cal Sierra Development, Inc., will continue under existing reclamation plan RP 80-01).

6.3 SIGNIFICANT EFFECTS OF THE PROPOSED PROJECT

Based on the analysis presented in this Draft EIR for topics evaluated in detail, the proposed project would result in the following significant or potentially significant impacts, all of which can be reduced to levels that would be insignificant with mitigation identified in this Draft EIR, as summarized below.

■ Hydrology/Water Quality

Groundwater Levels and Yuba River Flow and Temperature Conditions

The proposed project could result in cumulative impacts on Yuba River flow and temperature conditions and groundwater supply resulting from evapotranspiration losses from emergent marsh revegetation along the lake shorelines and at the settling pond (Impact HY-4 and Impact HY-5). The project-level impacts would be less than significant, but the proposed project would result in a cumulatively considerable contribution to cumulative impacts.

Mitigation Measures to Reduce Hydrology/Water Quality Impacts

The cumulative impacts could be substantially lessened by limiting emergent marsh revegetation efforts to the lakes' shorelines only (mitigation measure M-HY-1). The settling pond could either be contoured with steeper sides, allowing it to fill with water with no shoreline revegetation other than natural recruitment, or filling the pond and reclaiming it as native upland riparian and/or grassland habitat.

■ Biological Resources

Special-Status Species

The proposed project could result in project-level impacts on special-status plant species, giant garter snake (GGS), and burrowing owl habitat in undisturbed or fallow areas where no vested mining operations have occurred for 1 year or more if reclamation were to occur in those areas (Impact BR-1 through Impact BR-3). Impacts could occur both directly (removal) and indirectly (altered site conditions). There are numerous elderberry bushes throughout the entire project site, and reclamation activities could result in valley elderberry longhorn beetle (VELB) loss or take or through habitat removal (Impact BR-5). This impact could occur regardless of the frequency or level of disturbance within the project site.

Vernal Pools and Swales

The proposed project could affect vernal pools and swales in primarily undisturbed areas that could support special-status species (Impact BR-4) -if reclamation were to extend into those areas.

Raptors and Migratory Birds

Proposed reclamation activities could result in increased noise, dust, and other indirect impacts to nesting raptors or migratory bird species in the project vicinity. Possible nest abandonment as well as mortality to eggs and chicks could also occur. Such impacts could occur regardless of the frequency or level of disturbance within the project site (Impact BR-6).

Riparian Habitat

It is possible that undisturbed or fallow areas in the project site could develop more mature (beyond a seedling stage) stands of riparian vegetation. Removal of more mature, isolated riparian stands from areas of the project site that have been mostly undisturbed over time could occur with implementation of the Amended Reclamation Plan (Impact BR-7).

Regional Biological Productivity and Diversity

At each of the Yuba Goldfield mining sites, lower quality plant and wildlife habitats have been and/or are being removed during mining activities and reclaimed in accordance with SMARA. These activities are expected to result in a net increase in regional biodiversity through the reclamation and conversion of historically disturbed tailings fields to natural riparian, emergent wetland, and grassland habitats. These habitats will be of substantially higher value to regional wildlife than those present after remedial dredging operations in the Yuba Goldfields. Because some of these newly created habitats are contiguous to the Yuba River corridor, their value to regional wildlife would be even greater because they would function as an island of habitat diversity along this corridor. The proposed project would result in a cumulatively considerable contribution to regional biological diversity and productivity in a manner that be considered a cumulative beneficial impact (Impact BR-8).

Mitigation Measures to Reduce Biological Resources Impacts

The Draft EIR identifies mitigation measures M-BR-1 through M-BR-7 to reduce project impacts to less than significant levels. These mitigation measures specify the requirements for site surveys using appropriate techniques, approaches to avoiding impacts, consultation/coordination with resource agencies, as appropriate, and monitoring for revegetation success. No additional mitigation measures are required for the cumulative impact.

■ Land Use/Planning

Compatibility with Beale AFB Joint Land Use Study and US Air Force BASH Program

The project site is within the policy and planning area for Beale Air Force Base and is in direct alignment to its primary runway. Freshwater habitats such as those at the project site and other mines in the Goldfields attract waterfowl and increase the potential for bird strikes. The Amended Reclamation Plan would not create new ponds or habitat types at the project site, but it would maintain the ponds created by vested mining operations and create emergent marsh vegetation comprising approximately 100 acres of habitat. The Amended Reclamation Plan, in combination with other mining projects in the Goldfields that have ponds and habitat, has the potential to attract additional waterfowl that may not already be present at the project site. However, the number and types of birds attracted to the Goldfields that could pose hazards would constitute a very small percentage of birds within the flight line, compared to agricultural lands and a nearby landfill. Nonetheless, the impact analysis concluded there could be increased risk of bird strikes, which could conflict with Beale AFB policies and programs intended to ensure safe air operations for military personnel.

Mitigation Measures to Reduce Potential Land Use Incompatibility Impacts Due to Bird Strikes

Implementation of land use/planning mitigation measure M-LU-1(b) would reduce this impact to a less than significant level with implementation of an avian monitoring/adaptive management program to determine if reclamation of the site appears to be attracting additional waterfowl and birds and to consider options to modifying the design of future phases of reclamation in a manner that would deter use of the area, to the extent that such modifications, if any, remain consistent with SMARA requirements for reclamation. Implementation of hydrology/water quality mitigation measure M-HY-1, also listed as mitigation measure M-LU-1(a), would eliminate the creation of emergent marsh at the settling pond, which would also help reduce the impact to a less than significant level.

6.4 PROJECT ALTERNATIVES

6.4.1 No Project Alternative

CEQA requires the evaluation of the comparative impacts of a “no project” alternative (CEQA Guidelines Section 15126.6(e)). The CEQA Guidelines require that the no project alternative address “existing conditions” as well as “what would be reasonably expected to occur in the foreseeable future if the project were not approved” (CEQA Guidelines Section 15126.6(e)).

■ Description of Alternative

If the proposed Amended Reclamation Plan were not approved, the activities listed in the Amended Reclamation Plan would not be implemented, and reclamation would be required in accordance with Reclamation Plan (RP) 80-01.¹ Proposed plan modifications and improvements to bring the plan into compliance with current SMARA requirements would not be made.

RP 80-01 covers approximately 2,000 acres, all of which apply to Cal Sierra’s gold operations. Of the total 2,000 acres, RP 80-01 covers approximately 1,420 acres of Western’s vested aggregate mining operations (as compared to approximately 1,960 acres under Western’s proposed Amended Reclamation Plan).

There is no maximum anticipated depth of extraction noted in RP 80-01, but an average tailings deposit thickness of 80 feet was assumed. RP 80-01 indicated canals and lakes may be left by the dredging process to enhance the subsequent use of the area. Following land surface preparation, resoiling would be initiated. No specific reclamation objective, including vegetation, is noted in RP 80-01, although several alternative land uses are proposed including recreation, aggregate mining, industrial and residential development, and agriculture. Some revegetation has been performed.²

¹ As explained in Chapter 2 (Project Description), RP 80-01 was approved by the County of Yuba in 1980, originally for Yuba Consolidated’s gold and aggregate operations. RP 80-01 applies to both Western’s aggregate operations, and Cal Sierra’s gold operations.

² General characteristics compiled from California State Mining and Geology Board SMARA Mine Inspection Reports for Cal Sierra Development, Inc.

■ Comparative Analysis of No Project Alternative

Impacts That Would Be Reduced Compared to the Proposed Project

Hydrology/Water Quality

The No Project Alternative would not result in the creation of emergent marsh habitat or long-term post-reclamation of large lakes, as would occur with the proposed project. Consequently, it would be less likely to result in project and cumulative effects on groundwater supply and Yuba River flow. Waste Discharge Requirements (WDR) and a Monitoring and Reporting Program (MRP) (5-00-102) and WDR and MRP 5-00-107 that apply to RP 80-01 would address potential impacts from mercury bioaccumulation, identical to the proposed project.

Biological Resources

It is assumed some revegetation/restoration efforts could temporarily affect the same special-status plants and species, vernal swales, raptors and migratory birds, and riparian habitat as the proposed project, but to a lesser degree because there would be less ground disturbance for reclamation. The mitigation measures identified for the proposed project (M-BR-1 through M-BR-7) would not be implemented because they would not be required under the No Project Alternative.

Reclamation under RP 80-01 would be expected to result in some benefit to regional biological productivity and diversity, although perhaps not to the same extent as the proposed project because specific revegetation and restoration goals have not been identified. Further, the final configuration of the landscape may not provide as many opportunities for habitat to support species as may occur with the proposed project.

Land Use/Planning

RP 80-01 indicates canals and lakes may be left by the dredging process to enhance the subsequent use of the area. It would not include large pond areas with vegetated shorelines. Emergent marsh habitat, if any, would likely be through natural recruitment and may be limited in extent. As such, the No Project Alternative would be likely to attract fewer avian species that could pose bird/aircraft collision hazards. However, the risk would still exist.

Impacts That Would Be Similar to the Proposed Project

As explained above, impacts would be reduced compared to the proposed project.

Impacts That Would Be More Severe Than the Proposed Project

No impacts of implementing the No Project Alternative would be more severe than the proposed project.

Relationship to Project Objectives

The No Project Alternative would not provide for reclamation of vested right aggregate operations within a greater portion of the Vested Rights Area (1,960 acres) than allowed under the existing reclamation plan (1,420 acres). RP 80-01 does not meet current SMARA standards. Some revegetation to

minimize the aesthetic and biological effects of mining would continue to be implemented, but there are no specific restoration goals.

6.4.2 No Emergent Marsh and 2:1 Lake Slopes Alternative

■ Description of Alternative

The No Emergent Marsh and 2:1 Lake Slopes Alternative was identified as an approach to reducing the Yuba River flow and groundwater hydrologic impacts and the bird/aircraft collision hazard impacts of the proposed project. All five lake slopes would be contoured to have no greater than 2:1 horizontal to vertical side slopes, and the Designated Disposal Area (DDA) settling pond would be steepened to 2:1 slopes and would fill with water. Under this alternative, no emergent marsh would be created along the lake shorelines or at the settling pond. Upland riparian habitat restoration would occur as described in the Amended Reclamation Plan. This alternative would create an open space end land use with aquatic lakes and woodland and upland riparian vegetation that would support wildlife.

■ Comparative Analysis of No Emergent Marsh and 2:1 Lake Slopes Alternative

Impacts That Would Be Reduced Compared to the Proposed Project

Hydrology/Water Quality

As with the proposed project, it is unlikely that the No Emergent Marsh and 2:1 Lake Slopes Alternative would have a direct effect on the Yuba River because the site is approximately 3,500 to 4,500 feet from the river. However, the emergent marsh vegetation that contributes to evapotranspiration losses would not occur with this alternative. In the final post-reclamation condition, evapotranspiration losses from the lakes would be the same as baseline post-mining/pre-reclamation conditions for the proposed project. Because there would be no emergent marsh-related increases in evapotranspiration losses, there would be no additional cumulative reduction in the amount of flow via the outlet canal back into the Yuba River. No changes in Yuba River temperature conditions would be expected. Similarly, there would not be the additive contribution of evapotranspiration loss on groundwater levels because there would be no emergent marsh.

Under this alternative, fines would not be placed in water environments to create emergent marsh habitat. This would reduce the potential for mercury bioaccumulation, as compared to the proposed project. However, such impacts were determined to not be significant for the proposed project with implementation of required water testing under MRP 5-00-107.

Land Use/Planning

The alternative would not eliminate the potential for bird/aircraft collision hazards, nor can such hazards be completely eliminated because there are many locations in the vicinity where birds are present and already pose a hazard to military aircraft operations. However, this alternative would be likely to attract fewer avian species that could pose bird/aircraft collision hazards. Deep open water areas with steep 2:1 slopes and no emergent marsh would likely attract fewer birds because it would not provide foraging,

breeding, nesting, roosting, or loafing habitat that many species (e.g., Canada geese) prefer. Gentler slopes for pond entry and exit that some species (e.g., dabbling ducks) prefer would not be present.³ This alternative would generally conform to Beale JLUS Strategy 54 and the BASH program because it would provide a means of controlling bird populations. In addition, with implementation of an avian monitoring/adaptive management program (proposed project mitigation measure M-LU-1(b)), Western would be able to determine if reclamation of the site as described for this alternative appears to be attracting additional waterfowl and birds and to consider options to modifying the design of future phases of reclamation in a manner that would deter avian species use of the area, to the extent that such modifications, if any, remain consistent with SMARA requirements for reclamation.

Impacts That Would Be Similar to the Proposed Project

Biological Resources

Earthwork activities to implement this alternative would have the potential to temporarily affect the same special-status plants and species, vernal pools and swales, raptors and migratory birds, and riparian habitat as the proposed project, but to a lesser degree because there would be less ground disturbance for reclamation. Mitigation measures M-BR-1 through M-BR-7 identified for the proposed project would still be required to reduce potential impacts on special-status species, vernal pools and swales, VELB, raptors and migratory birds, and riparian habitat, respectively, if this alternative is adopted. This alternative would still contribute to regional biological productivity and diversity.

Impacts That Would Be More Severe Than the Proposed Project

For the three technical topics evaluated in detail in this Draft EIR, no impacts of implementing this alternative would be more severe than the proposed project. The aesthetic benefit of the proposed project may be reduced. However, given the project's location within the Goldfields, it would remain consistent with the surrounding visual landscape.

Relationship to Project Objectives

This alternative would achieve all of the project objectives, with the slight exception of the objective pertaining to post-mining end uses. The site could be usable for post-mining end uses such as open space and wildlife habitat. However, it would likely have fewer aesthetic and biological resource benefits. However, these reduced benefits would not be substantial enough to result in adverse impacts.

³ The general observation that deep open water pond areas with limited or no vegetative fringe would be less likely to attract many waterfowl than would ponds with vegetated perimeters is based on a study prepared for a mining and reclamation project in Fresno County in close proximity to a public-use airport. (ESR, Inc., *Carmelita Mine and Reclamation Project Bird Aircraft Strike Hazard Report, Fresno County, CA* [March 2012].)

6.4.3 Alternatives Considered but Rejected from Further Analysis in the Draft EIR

■ Drain and Fill the Ponds and Minimal Vegetation Restoration

An alternative to the proposed reclamation plan was considered that would involve the use of mine tailings to backfill pits excavated by vested mining operations. The ponds would need to be drained and would be backfilled with on-site and off-site dredge tailings. This alternative could require the importation or relocation of several million tons of dredge tailings to fill the ponds. Under this alternative, these tailings would be transported to the project site from other locations within the Yuba Goldfields. The site would then be resoiled using project fines and soil imported to the project site from off-site locations. Fill areas could be reclaimed as grassland or agricultural use, with some limited riparian habitat remaining where filling and grading does not result in disturbance of those areas. However, poor soil quality could limit the range of productive agricultural uses.

This alternative was rejected from further consideration in this Draft EIR. First, the Yuba Goldfields supports the project site with groundwater inflow from the Yuba River. This would make draining the ponds in order to fill them infeasible and would substantially alter Yuba River flows. In comparison to the proposed project, removal of the ponds and vegetation that exists post-mining could reduce the attractiveness of the site to avian species, which could substantially reduce the potential for bird/aircraft collision hazard risk (unless the site were converted to agriculture). It would also avoid all of the Yuba River and groundwater impacts of the proposed project that were determined to be significant but mitigable. However, this alternative would result in substantially more severe impacts on air quality, traffic, and noise generated by the truck trips that would be required to transport tailings and soil to the project site to implement the alternative (extensive earthwork). The anticipated beneficial impact of habitat enhancement and creation due to the proposed project and that contribution to regional biological productivity and diversity would not be achieved under this alternative. This alternative could also result in the removal of habitat and sensitive natural communities.

■ Alternative Location

CEQA Guidelines Section 15126.6(f)(2) addresses the evaluation of alternative locations for proposed projects as part of an EIR alternatives analysis. This discussion falls under the Guidelines' explanation of the "rule of reason" governing the selection of an adequate range of alternatives for evaluation in the EIR. The key question concerning the consideration of an alternate location to the proposed project is whether any of the significant effects identified for a given project would be avoided or substantially lessened by putting the project in another location.

The project site has historically supported mining operations, either gold dredging activities or, more recently, aggregate mining and processing operations. As noted above, the proposed project would reclaim areas disturbed by vested mining and processing operations upon completion of those operations in three phases over a 45-year period. The primary purpose of the proposed project is to reclaim the Western Aggregates mine site in order to ensure compliance with current SMARA reclamation requirements. Clearly, reclamation activities must occur at Western's site in order to accomplish this.

As noted above, the proposed project would not result in significant impacts that cannot be avoided; therefore, the selection of an alternate location, clearly, would not meet this criterion for selection and analysis. For this reason, an alternative location for the proposed project was rejected from further consideration in this Draft EIR.

6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA Guidelines Section 15126(d) requires an EIR to identify the “environmentally superior” alternative from among the range of reasonable alternatives that is evaluated. CEQA Guidelines Section 15126(d)(2) states that if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative from among the other alternatives.

The No Emergent Marsh and 2:1 Lake Slopes Alternative would be the environmentally superior alternative. It would lessen the hydrology/water quality and bird strike hazard impacts of the proposed project. It would achieve all of the project objectives, with the slight exception of the objective pertaining to post-mining end uses. The alternative would likely have fewer aesthetic benefits. However, these reduced benefits would not be substantial enough to result in adverse impacts. It should be noted that this alternative limits the opportunity to enhance regional biological productivity and diversity that would occur with the proposed project, but there would still be a net benefit, particularly when viewed in combination with other reclamation projects in the Goldfields

[THIS PAGE INTENTIONALLY LEFT BLANK]

CHAPTER 7 References

7.1 PUBLICATIONS

- Alpers, Charles N., and Michael P. Hunerlach. Mercury Contamination from Historic Gold Mining in California, United States Geological Survey (USGS) Fact Sheet FS-061-00, May 2000.
- Barrett, R.H. "Mammals of California oak habitats: management implications." In T. R. Plumb, *Technical Coordination Ecology, Management, and Utilization of California Oaks*, pp. 275–291. Berkeley, CA: U.S. Department of Agriculture, Forest Service. General Technical Report, PSW-44, 1980. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Cain, et al., "James W. Bird Habitat Use and Bird-Aircraft Strikes at Beale Air Force Base, California." In *Transactions of the Western Section of the Wildlife Society*, Vol. 40:90–100, 2004.
- California Burrowing Owl Consortium, The. *Burrowing Owl Survey Protocol and Mitigation Guidelines*, April 1993.
- California Department of Conservation, Division of Mines and Geology. *Special Report 132: Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Yuba City Marysville Production Consumption Region*, 1988.
- California Department of Conservation, State Mining and Geology Board (SMGB). *Focused Draft Environmental Impact Report Hollywood Reclamation Plan 2003 (Updating Approved Reclamation Plan #89-03)*, SCH # 2004092049, prepared by EIP Associates, June 2005.
- . *Initial Study and Proposed Mitigated Negative Declaration: Dantoni Property 2006 Reclamation Plan*, prepared by PBS&J, July 2007.
- . *Western Aggregates LLC Yuba County Operations Amended Reclamation Plan Initial Study*. Prepared by Atkins, April 2013.
- California Department of Fish and Wildlife (CDFW). Biogeographic Data Branch. California Natural Diversity Database Rarefind 5. Sacramento, 2013 (accessed October 9, 2013).
- . Biogeographic Data Branch. Wildlife Habitats by County. Online Inventory. Sacramento, 2013 (accessed October 9, 2013).
- . California Interagency Wildlife Task Group. CWHR version 8.0 personal computer program. Sacramento, 2002.
- . California Natural Diversity Database. CNDDDB Rarefind version 3.1.1 personal computer program. Sacramento, 2003.
- . *Staff Report on Burrowing Owl Mitigation*, March 2012.
- California Department of Water Resources, Yuba County Water Agency, and U.S. Department of the Interior Bureau of Reclamation. *Draft Environmental Impact Report/Environmental Impact Statement for the Proposed Lower Yuba River Accord*, June 2007.

- California Governor's Office of Planning and Research (California OPR). *Beale Air Force Base Joint Land Use Study*, May 2008.
- California Native Plant Society (CNPS). Inventory of Rare and Endangered Plants. Online Inventory—8th Edition, 2013. <http://www.rareplants.cnps.org/> (accessed October 9, 2013).
- California Regional Water Quality Control Board. Notice of Adoption of Updated Waste Discharge Requirements for Western Aggregates, Incorporated, U.S. Army Corps of Engineers, Yuba County, Order No. 5-00-107, June 15, 2000.
- Cheatham, N.H., and J.R. Haller. An annotated list of California habitat types. University of California Natural Land and Water Reserve System, unpublished manuscript, 1975. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- CHJ Consultants. *Slope Stability Investigation Proposed Western Aggregates LLC Quarry Reclamation, Marysville Area, Yuba County, California*, 2011.
- Conrad, S., R. McDonald, and R. Holland. Riparian vegetation and flora of the Sacramento Valley. In *Riparian Forests in California: Their Ecology and Conservation*, edited by A. Sands. University of California, Davis, Institute of Ecology Publication Number 15, 1977. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. La Roe. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, 1979. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Delta Tributaries Mercury Council and Sacramento River Watershed Program. *Strategic Plan for the Reduction of Mercury-Related Risk in the Sacramento River Watershed*. December 2002.
- ESR, Inc. *Carmelita Mine and Reclamation Project Bird Aircraft Strike Hazard Report, Fresno County, CA*, March 2012.
- Federal Aviation Administration (FAA). Advisory Circular: Hazardous Wildlife Attractions on or Near Airports. AC No. 150/5200-33B, August 2007.
- Freckman, D.W., D.A. Duncan, and J.R. Larson. Nematode Density and Biomass in Annual Grassland Ecosystem. *Journal of Range Management*. 32(6):418–422, November 1979. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Gosselink, J.G., and R.E. Turner. The role of hydrology in fresh water wetland systems. In *Freshwater wetlands, ecological processes and management potential*, edited by R.E. Good, D.F. Whigham, and R.L. Simpson, pp. 63–67. New York: Academic Press, 1978. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Heady, H.F. Valley grassland. In *Terrestrial Vegetation of California*, edited by M.G. Barbour and J. Major, pp. 491–514. New York: John Wiley and Sons, 1977. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Hickman, J., ed. *The Jepson Manual: Higher Plants of California*. Berkeley, CA: University of California Press, 1993.

- Holland, V.L. In defense of blue oaks. *Fremontia* 4:3–8, 1976. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Hunerlach, Michael P., et al.. *Geochemistry of Mercury and Other Trace Elements in Fluvial Tailings Upstream of Daguerre Point Dam, Yuba River, California*. USGS Scientific Investigations Report 2004-5165. August 2001.
- Lilburn Corporation. *Amended Reclamation Plan for Western Aggregates LLC Yuba County Operations*, May 2012. [Included as Draft EIR Appendix A]
- MACTEC. *Addendum: Mercury Fate and Transport Investigation, Western Aggregates LLC, Yuba County California*, January 2005.
- . *Mercury Fate and Transport Investigation, Western Aggregates LLC, Yuba County California*, February 2004.
- Sacramento Area Council of Governments Airport Land Use Commission for Sacramento, Sutter, Yolo, and Yuba Counties (SACOG ALUC), *Beale Air Force Base Land Use Compatibility Plan* (1987, revised 1992).
- . *Beale Air Force Base Land Use Compatibility Plan*. Draft, September 2010.
- Sculthorpe, C.D. *The Biology of Aquatic Vascular Plants*. London: Edward Arnold Ltd., 1967. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Stokes, Donald and Lillian. *Stokes Field Guide to Birds, Western Region*. Boston, MA: Little, Brown and Company, 1996.
- Three Rivers Levee Improvement Authority. *Yuba Goldfields 100-Year Flood Protection Improvement Project Final Initial Study/Mitigated Negative Declaration* (SCH No. 2014022010), March 2014.
- . *Yuba Goldfields 200-Year Flood Protection Improvement Project Notice of Preparation* (SCH No. 2014062045), June 12, 2014.
- U.S. Army Corps of Engineers (USACE). *Preliminary Guide to Wetlands of the West Coast States*. U.S. Army Waterway Technical Report Y-78-4, 1978. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- U.S. Department of the Air Force (USAF). *Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques*. Air Force Pamphlet 91-212, February 2004. <http://www.e-publishing.af.mil>.
- . Memorandum Re: Notice of Preparation and Initial Study, Amended Reclamation Plan for Western Aggregates, LLC (CA Mine ID #91-58-0001). Yuba County, April 2013.
- U.S. Fish and Wildlife Service (USFWS). *Conservation Guidelines for the Valley Elderberry Longhorn Beetle*, July 9, 1999.
- . *Federal Endangered and Threatened Species That May Occur in or Be Affected by Projects in Yuba County and USGS 7.5-Minute Quads Requested*. Sacramento, 2013 (accessed October 17, 2013).
- . *Guidelines for Restoration and/or Replacement of Giant Garter Snake Habitat*, November 13, 1997.

- . *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander*, October 2003.
- . *Programmatic Formal Endangered Species Act Consultation on Issuance of 404 Permits for Projects with Relatively Small Effects on Listed Vernal Pool Crustaceans within the Jurisdiction of the Sacramento Field Office, California*, February 28, 1996.
- . *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon*. Portland, Oregon, 2005.
- . *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog*, August 2005.
- . *Species Account California Red-Legged Frog Rana draytonii*. Sacramento Office, updated March 17, 2010.
- Welch, P.S. *Limnology*, 2nd ed. New York: McGraw-Hill, 1952. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Wentz, W.A. *Wetlands Values and Management*. U.S. Government Printing Office, Washington, D.C., 1981. [As cited in CDFW California Interagency Wildlife Task Group, 2002]
- Western Aggregates LLC. *Western Aggregates LLC Yuba County Operations Amended Reclamation Plan Initial Study*, April 2013.
- Youngdahl Consulting Group, Inc. *Western Aggregates Reclamation Plan Environmental Impact Report: Assessment of Hydrogeologic Conditions and Potential Impacts of Mine Reclamation*, December 17, 2013.
- Yuba, County of, the County of Sutter, the City of Yuba City, the City of Live Oak, the City of Wheatland, the California Department of Fish and Game, and the United States Fish and Wildlife Service. Planning Agreement regarding the Yuba-Sutter Natural Community Conservation Plan and Habitat Conservation Plan, November 2011.
- Yuba County Community Development and Services Agency (YCCDSA). *Yuba County 2030 General Plan*, adopted June 7, 2011. <http://www.yubavision2030.org/2030%20General%20Plan.aspx>.
- Yuba County Information Technology Division. Yuba County Zoning and Specific Plan Designations Map. <http://gis.co.yuba.ca.us/images/maps/ZoningMap.pdf>.
- Yuba County Water Agency. *Groundwater Management Plan*, December 2010.

7.2 LETTERS AND PERSONAL COMMUNICATIONS

- Arcand, W. Personal communication by State Mining and Geology Board with R. Hanson, Atkins, January 14, 2014.
- Barlett, Tina. Letter from CDFW Regional Manager to Will Arcand, State Mining and Geology Board. Re to Comments on the Notice of Preparation and Initial Study for the Amended Reclamation Plan for Western Aggregates, LLC, May 16, 2013.
- Jones, M. Electronic communication from Lilburn Corporation (1905 Business Center Drive, San Bernardino, CA, 92408), representing Western Aggregates LLC, to State Mining and Geology Board via Project FTP site, December 4, 2012.

Laughlin, James. Personal communication from lead BASH management Beale AFB to Jessica A. Nadolski, Sr. Biologist, Atkins, August 22, 2013.

Lilburn, S.A. Email communication to R. Hanson, Atkins, Subject: Western Aggregates Project Description, January 15, 2013.

Sikorski, Gerald. Personal communication from 9OSS/OSAA Beale AFB to Jessica A. Nadolski, Sr. Biologist, Atkins, August 8, 2013.

Three Rivers Levee Improvement Authority. Letter to Will Arcand, State Mining and Geology Board, Subject: Western Aggregates LLC Yuba County Operations Amended Reclamation Plan Initial Study, dated April 2013, May 15, 2013.

[THIS PAGE INTENTIONALLY LEFT BLANK]

CHAPTER 8 Report Preparers

8.1 LEAD AGENCY

California Department of Conservation

State Mining and Geology Board

801 K Street, Suite 2015

Sacramento, CA 95814

Agency Contact: Will J. Arcand, P.G., C.E.G., Senior Engineering Geologist
(916) 322-1082

8.2 EIR PREPARER

PMC

2729 Prospect Park Drive, Suite 220

Rancho Cordova, CA 95670

(916) 361-8384

Project Manager: Alice Tackett

8.3 TECHNICAL CONTRIBUTORS

David C. Sederquist, C.E.G., C.HG.

Youngdahl Consulting Group, Inc.

El Dorado Hills, CA

Rick Hanson, Technical Advisor

Jessica Nadolski, Atkins

8.4 PERSONS AND AGENCIES CONSULTED

Will Arcand, P.G., C.E.G., Senior Engineering Geologist, State Mining and Geology Board

Lloyd Burns, Western Aggregates LLC

James Laughlin, Beale AFB

Stephen Lilburn, Lilburn Corporation

Gerald Sikorski, Beale AFB

