UNAPPROVED PROPOSED DRAFT

REVISED RECLAMATION PLAN

FOR THE

ELIOT QUARRY (SMP-23)

(CA MINE ID #91-01-0009)

Operator:

CEMEX Construction Materials Pacific, LLC.
2365 Iron Point Road, Suite 120
Folsom, CA 95630

Prepared by:

Compass Land Group
3140 Peacekeeper Way, Suite 102
McClellan, CA 95652

February 2019

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RECLAMATION PLAN SUMMARY

Mine Name:	Eliot Quarry (SMP-23)
California Mine ID Number:	91-01-0009
Mine Operator:	CEMEX Construction Materials Pacific, LLC.
Mine Location:	1544 Stanley Blvd. Alameda County, CA 94566 Latitude 37.673° and Longitude -121.833°
Site Contact:	Grantt Franco, Plant Supervisor
Contact Phone:	925.846.2824
Property Owner(s):	RMC Pacific Materials, LLC, a wholly owned entity of CEMEX
Address:	2365 Iron Point Road, Suite 120 Folsom, CA 95630
Contact Person:	Alejandro Ortiz Robles VP Planning & Administration – West Region
Contact Phone:	909.974.5569
Assessor Parcel(s):	904-6-1-18, 904-6-2 (part), 904-8-1-3 (part), 904-8-1-2, 904-8-2-5, 946-1350-9-12, 946-1350-9-19, 946-1350-10-5, 946-4598-19, 950-6-3-9, 950-6-1-5, and 99-290-11-7
Total Parcel Size(s):	966± acres
Area to be Mined/Reclaimed:	920± acres
Type of Material to be Mined:	Sand and gravel
Quantity of Material to be Mined:	33.3 million cubic yards (est.)
Maximum Anticipated Depth:	260 feet from crest to floor (measured at “Lake J”)
Maximum Anticipated Floor Elev:	130’ mean sea level (measured at “Lake J”)
Proposed Initiation Date:	Active and continuous since 1906 or earlier
Proposed Termination Date:	2056 (anticipated)
Potential End Use(s):	Water management, open space, and agriculture (non-prime)

CHART OF SMARA CONTENTS [PRC §2770.5]

SMARA Section		Location in Plan (e.g., Page #s)	Lead Agency Checklist		
SMARA Statutes (California PRC Sections 2772, 2773 and 2773.3)					
2772(b)	Chart of contents	vi (this chart)	☐ YES	☐ NO	☐ N/A
2772(c)(1)	Operator and agent contact info	6	☐ YES	☐ NO	☐ N/A
2772(c)(2)	Quantity and type of materials	6	☐ YES	☐ NO	☐ N/A
2772(c)(3)	Initiation and termination dates	6	☐ YES	☐ NO	☐ N/A
2772(c)(4)	Maximum anticipated depth	6-7, Sheets	☐ YES	☐ NO	☐ N/A
2772(c)(5)	Reclamation plan maps	7-8, Sheets, Figures	☐ YES	☐ NO	☐ N/A
2772(c)(6)	Mining description and schedule	8-11	☐ YES	☐ NO	☐ N/A
2772(c)(7)	Proposed or potential end uses	21-22, Figure 4	☐ YES	☐ NO	☐ N/A
2772(c)(8)	Reclamation description	1-2, 10-23, 33-58	☐ YES	☐ NO	☐ N/A
2772(c)(9)	Effect on future mining in area	23	☐ YES	☐ NO	☐ N/A
2772(c)(10)	Statement of responsibility	58, Appendix D	☐ YES	☐ NO	☐ N/A
2772(c)(11)	Lead agency requirements	60-64	☐ YES	☐ NO	☐ N/A
2773(a)	Site specific reclamation plan	4, plus entirety of Plan	☐ YES	☐ NO	☐ N/A
2773.3	Requirements for metallic mines	N/A	☐ YES	☐ NO	☐ N/A
SMARA Regulations, Article 1, Surface Mining and Reclamation Practice (Title 14, California CCR §3500 et seq.)					
3502(a)	Reclamation objectives	4-5	☐ YES	☐ NO	☐ N/A
3502(b)(1)	Environmental setting	23-32, Appendices for detail	☐ YES	☐ NO	☐ N/A
3502(b)(2)	Public health and safety	11	☐ YES	☐ NO	☐ N/A
3502(b)(3)	Final slopes	33-35, Appendix I, J	☐ YES	☐ NO	☐ N/A
3502(b)(4)	Borrow and settlement of fills	35-40, Appendix I, J	☐ YES	☐ NO	☐ N/A
3502(b)(5)	Disposition of old equipment	57-58	☐ YES	☐ NO	☐ N/A
3502(b)(6)	Stream and watershed diversions	16-21, 47, Appendix B	☐ YES	☐ NO	☐ N/A
3503(a)	Soil erosion control	42-44, 46-47, 49-50	☐ YES	☐ NO	☐ N/A
3503(b)	Water quality / watershed control	40-44, Appendix H	☐ YES	☐ NO	☐ N/A
3503(c)	Protection of fish / wildlife habitat	48-49	☐ YES	☐ NO	☐ N/A
3503(d)	Disposal of waste / overburden	46-47	☐ YES	☐ NO	☐ N/A
3503(e)	Erosion and drainage	42-44	☐ YES	☐ NO	☐ N/A
3503(f)	Resoiling	49-50	☐ YES	☐ NO	☐ N/A
3503(g)	Revegetation	51-57	☐ YES	☐ NO	☐ N/A
SMARA Regulations, Article 9, Reclamation Standards (Title 14, California CCR §3700 et seq.)					
3703	Wildlife and habitat protection	48-49	☐ YES	☐ NO	☐ N/A
3704	Backfill, grading and slopes	33-40, 48-50, Appendix I, J	☐ YES	☐ NO	☐ N/A
3704.1	…for metallic mines	N/A	☐ YES	☐ NO	☐ N/A
3705	Revegetation	49-57	☐ YES	☐ NO	☐ N/A
3706	Water quality, drainage, runoff	40-46, Appendix B, H	☐ YES	☐ NO	☐ N/A
3707	Standards for prime agriculture	N/A (see 49-50, 57)	☐ YES	☐ NO	☐ N/A
3708	Standard for other agriculture	57	☐ YES	☐ NO	☐ N/A
3709	Equipment storage and removal	57-58	☐ YES	☐ NO	☐ N/A
3710	Surface / groundwater protection	41-42, 47	☐ YES	☐ NO	☐ N/A
3711	Topsoil salvage and redistribution	49-50	☐ YES	☐ NO	☐ N/A
3712	Mine waste disposal	46-47	☐ YES	☐ NO	☐ N/A
3713	Drill holes and water wells	58	☐ YES	☐ NO	☐ N/A

1.0 INTRODUCTION

This Revised Reclamation Plan ("Plan") has been prepared in support of ongoing and vested surface mining and reclamation activities at the CEMEX Construction Materials Pacific, LLC. ("CEMEX") Eliot Quarry in Alameda County, California. CEMEX owns and operates the Eliot Quarry, a ±920-acre sand and gravel mining facility, located between the cities of Livermore and Pleasanton, at 1544 Stanley Boulevard in unincorporated Alameda County (see Figure 1, Site Vicinity Map). CEMEX and its predecessors-in-interest have been continuously mining for sand and gravel at the Eliot Quarry since at least 1906. In addition to mining and reclamation, existing permitted and accessory uses at the Eliot Quarry include aggregate, asphalt and ready-mix concrete processing, as well as ancillary uses such as aggregate stockpiling, load-out, sales, construction materials recycling, and equipment storage and maintenance (see Figure 2, Existing Facilities). CEMEX's mining operations at the site are vested per pre-1957 mining activities and Alameda County Quarry Permits Q-1 (1957), Q-4 (1957), and Q-76 (1969) (see Figure 3, Vested Mining Permits). Surface mining reclamation activities at the site are currently conducted pursuant to Surface Mining Permit and Reclamation Plan No. SMP-23 ("SMP-23"), approved in 1987.

This Plan serves to adjust reclamation boundaries and contours, enhance drainage and water conveyance facilities, incorporate a public-use trail, and achieve current surface mining reclamation standards. The planned post-mining end uses are water management, open space and agriculture (see Figure 4, Reclamation Plan End Use Overview).

Consistent with prior approvals, this Plan will develop Lake A and Lake B, which are the first two lakes in the Chain of Lakes pursuant to the Alameda County Specific Plan for Livermore-Amador Valley Quarry Area Reclamation adopted in 1981 ("LAVQAR Specific Plan") (see Figure 5, Chain of Lakes). Upon reclamation, Lake A and Lake B, along with their appurtenant water conveyance facilities, will be dedicated to the Zone 7 Water Agency ("Zone 7")[1] for purposes of water storage, conveyance and recharge management. The approximate areas to be dedicated to Zone 7 are shown on Figure 6, Anticipated Zone 7 Land Dedications.

Lake A reclamation will include installation of a surface water diversion from the Arroyo del Valle ("ADV") to Lake A; conversion of a berm that crosses the west side of the lake to a small island to allow water to flow across the lake; installation of a water conveyance pipeline from Lake A to future Lake C (located off-site to the northwest); and an overflow outlet to allow water to flow back into ADV when Lake A water levels are high to prevent flooding the localized area. The final surface area of Lake A will be 81 acres as compared to 208 acres in SMP-23. No further mining will occur in Lake A.

Lake B reclamation will include installation of a pipeline turn-out from Lake A, a water pipeline conduit to future Lake C, and an overflow outlet to allow water to flow back into ADV when Lake

[1] The Zone 7 Water Agency was formerly known as Zone 7 of the Alameda County Flood Control and Water Conservation District. In 2005, AB1125 made Zone 7 an autonomous agency that is separate from the County's Flood Control District, resulting in the name change.

B water levels are high. The final bottom elevation of Lake B will be 150 feet above mean sea level ("msl"), in order to maximize the available aggregate resource. The final surface area of Lake B will be 208 acres as compared to 243 acres in SMP-23.

To facilitate the southerly progression of Lake B, this Plan includes realignment and restoration of a ±5,800 linear foot reach of the ADV (see Figure 7, Realigned Arroyo del Valle Concept). The proposed ADV realignment will result in an enhanced riparian corridor that flows around, rather than through (as originally anticipated in SMP-23), Lake B. The ADV realignment was contemplated in the LAVQAR Specific Plan and subject to CEQA environmental review in 1981.

Outside of Lake A and Lake B, reclamation treatment for other disturbed areas, including the Lake J excavation (not part of the Chain of Lakes), processing plant sites, and process water ponds will involve backfills and/or grading for a return to open space and/or agriculture. These areas are often referred to as the "North reclamation areas" in this Plan.

1.1 Plan Organization

Section 2.0 of this Plan provides an overview of reclamation activities and is generally organized around SMARA requirements, beginning with SMARA's key statutory requirements. Section 3.0 of this Plan addresses specific Alameda County (lead agency) requirements, where those requirements supplement or amplify the requirements covered in Section 2.0.

This Plan has been prepared pursuant to the following requirements associated with the reclamation of mined lands:

- California Surface Mining and Reclamation Act of 1975, as amended (Public Resource Code §2710 et seq.);
- State Mining and Geology Board SMARA implementing regulations (California Code of Regulations, Title 14, §3500 et seq.);
- Alameda County General Plan, including the LAVQAR Specific Plan; and
- Alameda County General Ordinance Code, Title 6, Chapter 6.80, Surface Mining and Reclamation ("ACSMO").

Many statutory and regulatory sections of SMARA are either presented verbatim or paraphrased throughout to facilitate a better understanding of Plan contents and requirements. Requirements found in Article 1 (14 CCR §3500 *et seq.*) and Article 9 (14 CCR §3700 *et seq.*) of SMARA's implementing regulations are addressed under combined resource headings where possible, to minimize duplication of Plan contents. SMARA citations and standards that follow section headings in *italics* have been abbreviated.

1.2 Site History and Current Operating Entitlements

CEMEX and its predecessors, including Lonestar Industries, Pacific Cement and Aggregates, Inc., and RMC Pacific Materials LLC, have been continuously mining for sand and gravel at the Eliot Quarry since 1906 or earlier. In September 2005, CEMEX acquired RMC, including all holdings, leases and permits pertaining to the site.

After decades of operations, and following the County's 1956 passage of Ordinance 181 N.S. governing quarries and gravel pits, CEMEX's predecessor obtained Quarry Permit No. 1 ("Q-1 Permit") from the County in January of 1957. In 1969, CEMEX's predecessor obtained Quarry Permit No. 76 ("Q-76 Permit") from the County to authorize sand and gravel mining operations on an additional 165 acres at the quarry.

In 1981, the County adopted the LAVQAR Specific Plan. As part of the LAVQAR Specific Plan, CEMEX and other quarry operators in the Livermore-Amador Valley are required to excavate basins for future operation by Zone 7 as water storage, conveyance and recharge facilities known as the "Chain of Lakes" (see Figure 5). CEMEX also has a contractual obligation with Zone 7 to do so ("Zone 7 Agreement").

In 1987, CEMEX's predecessors obtained SMP-23 [2], which was the first reclamation plan for the site adopted pursuant to SMARA and the ACSMO for areas covered under the Q-1 and Q-76 Permits. SMP-23 has been modified by the County several times since its initial approval.

In 1989-1992, CEMEX's predecessors purchased four parcels of land from Pleasanton Gravel Co. and Jamieson Co., which are collectively referred to as the "Jamieson Parcels." Jamieson Parcels Nos. 1 and 2 were within the scope of the Q-76 Permit, while Jamieson Parcels Nos. 3 and 4 were within the scope of Quarry Permit No. 4 ("Q-4 Permit") granted to California Rock and Gravel Company in 1957. The Jamieson Parcels also have vested mining rights. Since the Jamieson Parcels were acquired by CEMEX's predecessors after SMP-23 was approved by the County in 1987, those parcels were not included within the boundaries of SMP-23. Instead, surface mining operations at the Jamieson Parcels have occurred pursuant to Surface Mining Permit No. 16 ("SMP-16"), which is a reclamation plan entitlement that applies to the existing Vulcan Materials Company surface mining operation to the north and east of Eliot Quarry.

1.3 Vested Rights

SMARA exempts a vested rights holder from the need to acquire a permit to mine from the local permitting agency as long as such vested rights continue and as long as no substantial changes are made in the mining operation (Cal. Pub. Resources Code § 2776(a)). Under SMARA, a person is deemed to have a vested right if, "prior to January 1, 1976, the person has, in good faith and in reliance upon a permit or other authorization, if the permit or other authorization was required, diligently commenced surface mining operations and incurred substantial liabilities for work and materials necessary for the surface mining operations." (*Id.*) The ACSMO, enacted in

[2] SMP-23 was originally adopted via County Resolution No. 87-18 on April 6, 1987.

1977, similarly provides that any surface mining operation authorized to operate under a permit issued prior to January 1, 1976, is exempt from the requirement to obtain a surface mining permit (Alameda County General Ordinance Code, § 6.80.050(B)).

As stated in Section 1.2 above, the Eliot Quarry has been continuously mined for aggregates since 1906 or earlier, long before the effective dates of County's Ordinance 181 N.S. (1956), SMARA (1976), and the ACSMO (1977). Additionally, CEMEX's predecessors obtained the Q-1 and Q-4 Permits in 1957 and Q-76 Permit in 1969, well before the effective dates of SMARA and the ACSMO. Figure 3 shows areas covered by vested pre-SMARA permits. Alameda County has recognized the vested rights at the Eliot site for many years.

1.4 Purpose for Revised Reclamation Plan [CCR §3502(a)]

Consistent with the Surface Mining and Reclamation Act ("SMARA") Public Resources Code ("PRC") §2712, this Plan has been developed to assure that:

(a) Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land 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.

(c) Residual hazards to the public health and safety are eliminated.

While the purpose of this Plan is to describe reclamation activities, ongoing vested surface mining activities (e.g., excavation, overburden handling and aggregate processing) are also described and referenced throughout for contextual purposes.

This Plan addresses reclamation pursuant to SMARA and its implementing regulations for those areas subject to CEMEX's vested mining rights including under the Q-1, Q-4, and Q-76 Permits. Consistent with PRC §2773(a), this Plan is specific to these properties and based upon the character of the site and surrounding areas. Site-specific performance standards are included for evaluating compliance with this Plan.

This Plan has specifically been developed to provide a feasible and environmentally superior alternative to the original SMP-23 and to accomplish the following objectives:

1. **Produce and develop the available sand and gravel resources** to continue to supply a much-needed local source of construction materials, while giving consideration to values relating to recreation, watershed, wildlife, and aesthetic enjoyment. This is consistent with the State Legislature's finding that the production and development of local mineral resources is vital (PRC §2711(d)).

2. **Convert the Lake A and Lake B mined basins into water storage lakes for Zone 7** as required by the approved LAVQAR Specific Plan and Zone 7 Agreement to implement the "Chain of Lakes."

3. **Install water conveyance facilities to support the "Chain of Lakes,"** including a 500 cubic feet per second ("cfs") diversion from the ADV into Lake A, and a subsurface pipeline from Lake A to Lake B and future Lake C. These facilities will be operated by Zone 7 in the future.

4. **Adjust final reclamation contours at Lake A** to reflect no further mining as well as the buttress that has been installed in the Lakeside Circle corrective action plan area.

5. **Adjust final reclamation contours at Lake B** to reflect an increased maximum depth of mining.

6. **Restore and enhance the structure and biological functions and values of the ADV** by realigning it to flow along the southern boundaries of, rather than through, Lakes A and B. This will eliminate the need to construct large artificial concrete spillways and rip-rap aprons at Lakes A and B, in turn removing significant barriers for future fish and amphibious wildlife passage as compared to what was approved under SMP-23. The realigned ADV will restore a ±5,800 linear-foot reach of the channel and floodplain to a more natural, native and diverse ecosystem that supports aquatic, riparian and upland habitats.

7. **Return the North area (i.e., the Lake J area, processing plant sites, silt ponds, and surrounding lands) to open space and/or agriculture,** consistent with the LAVQAR Specific Plan and land uses that existed prior to the onset of mining and development in the area.

8. **Accommodate a public use pedestrian and bike trail**, consistent with the LAVQAR Specific Plan, along the southern boundary of Lakes A and B in the vicinity of Vineyard Avenue.

9. **Update the original reclamation plan boundary** to:

    a. Include the Jamieson Parcels, which are within the scope of the Q-4 and Q-76 Permits, but were acquired by CEMEX's predecessors from Jamieson and Company after SMP-23 was approved in 1987.

    b. Remove an approximately 20-acre triangular-shaped property bound by Old Vineyard Avenue, Safreno Way, and Vineyard Road, which was included within the scope of SMP-23 as approved in 1987 but later sold by CEMEX's predecessors.

    c. Address the widening of Isabel Avenue / State Route 84.

2.0 SURFACE MINING AND RECLAMATION ACT REQUIREMENTS

2.1 Description of Mining Operations

2.1.1 Name and Address of Operator and Agent [PRC §2772(c)(1)]

Operator:

CEMEX Construction Materials Pacific LLC
2365 Iron Point Road, Suite 120
Folsom, CA 95630

Contact: Alejandro Ortiz Robles, VP Planning & Administration – West Region
Telephone: 909.974.5569
Email: alejandro.ortizr@cemex.com

2.1.2 Quantity and Type of Mineral to be Mined [PRC §2772(c)(2)]

Moving forward, approximately 33.3 million cubic yards (54.9 million tons at 1.65 tons per cubic yard) of sand and gravel is anticipated be mined. Of this total, up to 30% (or 10.0 million cubic yards) is anticipated to be discharged to silt ponds as aggregate process wash losses. The remaining 23.3 million cubic yards (38.4 million tons) is anticipated to be produced as saleable product.

In addition, approximately 6.5 million cubic yards of non-marketable overburden clay lenses are anticipated to be handled during surface mining and reclamation operations.

2.1.3 Initiation and Termination Dates [PRC §2772(c)(3)]

Surface mining operations are active and have been continuous since 1906 or earlier. The estimated termination date for the surface mining operation is December 31, 2056, depending on market conditions.

2.1.4 Maximum Anticipated Depth of Mining [PRC §2772(c)(4)]

The maximum anticipated depth of the surface mining operation is ±260 feet below ground surface ("bgs") to a maximum bottom elevation of 130 feet msl. This max depth occurs at the area referred to as "Lake J," as described below. This Plan contemplates mining to the following depths:

- **Lake A –** No further mining to occur. Mining previously extended to a maximum bottom elevation of 350 feet msl but backfill was placed in a portion of the pit bottom and at its deepest point the current pit bottom elevation is ±360 feet msl.
- **Lake B –** Mining will continue to a maximum bottom elevation of 150 feet msl (see Sheet M-2).

- **North Area, Lake J –** Mining will continue to a maximum bottom elevation of 130 feet msl (see Sheet M-1). SMP-23 authorized mining of this area to the "bottom of aggregate deposit." Although for the purposes of this Plan the maximum depth planned is to elevation 130 feet msl, CEMEX reserves its vested right to mine to the bottom of the aggregate deposit should mining to depths below the elevation of 130 feet msl prove to be feasible in the future (subject to a future reclamation plan amendment).
- **North Area, Pond D –** Mining will continue to a maximum bottom elevation of 200 feet msl in the North Area Pond D (see Sheet M-1).

While this Plan reflects best available data, development of the mine excavations may vary due to geologic, engineering, economic and/or market conditions. As such, mining operations may or may not reach the maximum depths and/or extents shown, and mining depth may vary throughout the site. Reclamation would, in any case, be completed according to the standards described later in this Plan and would be consistent with the objectives identified in the LAVQAR Specific Plan. Deviations from the Plan would be evaluated pursuant to 14 CCR §3502(d).

2.1.5 Reclamation Plan Map Requirements [PRC §2772(c)(5)]

Size, Legal Description, and Owners of Surface and Mineral Interests [PRC §2772(c)(5)(A)]

Surface and mineral interests are owned by RMC Pacific Materials, LLC, a wholly owned entity of CEMEX. Ownership information and the overall Plan footprint acreage is shown on Sheet C-1. The Plan boundary encompasses ±920 acres. Additional information relating to the legal descriptions for the Plan boundary are found in Appendix A, Site Legal Description.

CEMEX is the sole owner/operator within the Plan boundary, except for a ±0.1-acre portion of the Plan boundary that passes under the State Route 84 / Isabel Avenue bridge that is owned by the State of California (Caltrans). CEMEX's ability to continue to use this portion of the Plan boundary (to travel between the Lake A and Lake B areas) is subject to a Caltrans Director's easement.

Property Lines, Setbacks, and Reclamation Plan Boundary [PRC §2772(c)(5)(B)]

Property lines, applicable setbacks and the Plan boundary are shown on Sheets C-1, M-1, M-2, and R-1 through R-4.

Existing and Final Topography [PRC §2772(c)(5)(C)]

Existing topography is shown on Sheet C-2, Topographic Map. The topography of the site has been almost entirely altered from its natural state as a result of historical mining land uses. The northern portion of the site is mostly flat with the exception of stockpiles, excavated quarry ponds, and operational silt ponds. The remaining portion of the site is characterized by slopes and embankments, which are a result of excavation activities. ADV is located within a channelized floodplain in the southern portion of the site. Elevations within the Project Site range from

approximately 254 feet msl (in the current floor of the Lake J excavation) to 460 feet msl (near Vallecitos Road at the east end of Lake A).

The planned final topography of the site is shown on Sheets R-1 through R-4.

Geologic Description [PRC §2772(c)(5)(D)]

See Figure 8, Site Geology Map.

Railroads, Utilities, Access, and Roads [PRC §2772(c)(5)(E)]

Access, and roads are shown on Sheets R-1 and R-2. Utility areas are shown on Figures 2a and 2b. The closest railroad line is north of the site, along the north side of Stanley Boulevard.

Preparation by Licensed Professionals As Required [PRC §2772(c)(5)(F)]

Plan Sheets (C-1, C-2, M-1, M-2, and R-1 through R-4) have been prepared and stamped by Karen Spinardi (Spinardi Associates), a California-licensed engineer.

2.1.6 Mining Description and Time Schedule [PRC §2772(c)(6)]

Current Mining Operations

Eliot Quarry is mined for aggregates that are used in the construction industry for road base, concrete, asphalt pavement, bedding and select fill. In addition, recycled aggregate, which is produced from the crushing and screening of returned concrete and asphalt that would have otherwise been directed to landfills, is produced and sold as road base or fill.

Lake A, located east of Isabel Avenue / State Route 84, will only be further disturbed to carry out reclamation activities only.

The primary areas that will be subject to further surface mining disturbances include:

1. "Lake B," including the ADV realignment area, located west of Isabel Avenue; and
2. "Lake J," located in the northern portion of the site south of Stanley Boulevard.

No further commercial mining is planned for Lake A, but some limited surface disturbances still need to occur to prepare the lake for installation of water conveyance facilities for future dedication to Zone 7. In the northern portions of the facility (north of Lake B), limited surface disturbances are also planned to occur on CEMEX property in areas identified as Ponds C and D (to be used as freshwater and silt ponds), which may in the future be merged with "Future Lake C" and "Future Lake D" of the Chain of Lakes. Pond D may be excavated down to elevation 200 feet msl (about 80 feet bgs) prior to its conversion to a silt pond. If this occurs, then it is anticipated to occur and be completed late in the quarry's life (e.g., year 2050). Other areas, such as the northern portions of the site adjacent to Stanley Boulevard, will continue to be used

for office, processing plants and silt ponds. Reclamation treatments for each of the areas described above are described in detail later in this Plan.

Equipment Use

Mining equipment employed at the site includes conventional scrapers, excavators, front-end loaders, motor graders and bulldozers. Other specialty mining equipment, such as dredges or drag-lines, have been mobilized and used as needed but much less frequently. Haul trucks and conveyors are used to transport materials from mining areas to the on-site processing plants. Aggregate processing operations employ conventional sand and gravel processing equipment, such as scrubbers (to wash aggregates), screens (to wash and sort aggregates), crushers (to resize and reshape materials), conveyors (to move material between processing plant components and stockpiles), bins (for storage), mixers and dryers. Specialized processing equipment is used in the production of asphaltic concrete and ready-mix concrete. Portable processing equipment (similar to that used at the main aggregate processing plant) is also used to process aggregates and recycled materials. Support equipment includes, but is not limited to, water trucks (for dust control), truck scales, portable and submersible water pumps, service/maintenance vehicles, trucks, cranes, loaders and fork-lifts.

Mining Methods

Mining operations are initiated by the removal of vegetation, topsoil/growth media, and other overburden materials (such as subsoils or clays) that lie above marketable sand and gravel deposits. The overlying materials are typically removed using scrapers aided by a motor grader and bulldozer as needed. Excavators and haul trucks are sometimes also used for this purpose. Overburden is either directly placed or stockpiled for later use to build berms and haul roads, raise banks, cap silt ponds, and prepare a revegetation substrate.

After overburden is removed, marketable sand and gravel is typically excavated using conventional mining equipment such as front-end loaders, excavators, and bulldozers. The underlying “pit run” sand and gravel material is usually mined by developing a working face through excavation or pushing the material down-slope into a “dozer trap,” and then transporting the material by overland conveyor, haul truck or a combination of both to the processing plant site for processing. For excavations below groundwater levels, dewatering is customarily conducted at the site to achieve planned mining depths and to allow mining to occur with bulldozers, excavators, loaders, and conveyor transport. Groundwater pumped from excavation areas is recycled on-site and used in aggregate washing, concrete operations, dust control and/or pumped into the adjacent Shadow Cliffs lake (as allowed under existing RWQCB authorizations) or fresh water ponds. Where dewatering is not practical, mining will continue to be conducted by conventional excavator, dredge, and/or drag-line excavator.

Schedule for Completion of Mining and Commencement of Reclamation

Total saleable sand and gravel reserves are estimated at 38 million tons. At an anticipated average production (matching sales) rate of 1,000,000 tons per year, the anticipated end date for the surface mining operation is December 31, 2056.

Mining will continue to progress in a manner that will allow for reclamation to be initiated at the earliest possible time on those portions of the mined lands that will not be subject to further surface mining disturbances. Final reclamation, consisting of finish slope contouring, revegetation and equipment removal will generally commence in each pit as soon as final excavation grades are achieved. An estimated time schedule for mining and reclamation is provided in Table 1, below.

TABLE 1
ANTICIPATED PROGRESSION OF MINING AND RECLAMATION

Area	Mining (End)	Reclamation (Start)	Reclamation (Finish)[2]
1. Lake A	**Complete**		
a. Convert berm to island	--	2022	2022
b. Berm between ADV and Lake A	--	2022	2022
c. Overflow outlet to ADV	--	2022	2022
d. Pipeline from Lake A to Lake C[3]	--	2022	2022
e. Diversion structure – ADV**	--	2023	2023
f. Fill percolation ponds	--	2023	2023
g. Revegetation	--	2023	2023
2. Lake B	**2056**		
a. Realigned Arroyo del Valle**	--	2022	2023
b. Berm between ADV and Lake B	--	2022	2022
c. Pedestrian and bike trail[4]	--	2028	2028
d. Conduit from Lake B to C[5]	--	2031	2031
e. Overflow outlet to ADV	--	2056	2056
f. Excavate Shark's fin drainage notch	--	2056	2056
g. Revegetation	--	2056	2056
3. North Area - Silt Ponds	**2050**		
a. Resoiling cap – main silt pond	--	2030	2030
b. Revegetation – main silt pond	--	2030	2030
c. Pond D excavation	2050	2050	2050
4. North Area - Plant Site and Lake J Area[6]	**2030 (Lake J)**		
a. Plant site removal	--	2056	2056
a. Contour grading / resoiling	--	2056	2056
b. Retention ponds	--	2056	2056
c. Revegetation	--	2056	2056

Notes:

** Timing for these reclamation items contingent on obtaining regulatory agency authorizations (e.g., 404, 401, and 1600 authorizations). The realigned ADV may be constructed in as little as one year.

1. Anticipated progression is approximate only. Actual timelines will vary depending on market and geologic conditions. Schedule assumes anticipated average production of 1,000,000 tons per year.
2. In order to demonstrate that performance standards for reclamation have been met (e.g., revegetation monitoring), final reclamation for specific reclamation features may not occur for at least three (3) years following anticipated progression of mining and reclamation. For the realigned ADV, it is currently anticipated that regulatory agencies will require a minimum monitoring period of five (5) years following the completion of construction for all restored habitats and biological features.
3. Pipeline from Lake A to Lake C includes turn-out into Lake B.
4. Pedestrian and bike trail south of the realigned ADV is assumed to be developed after an estimated five-year revegetation monitoring period for the realigned ADV.
5. The 30-inch Lake B to Lake C conduit is anticipated to be installed after completion of mining in the Lake J area, and generally concurrent with mining activity in the Lake B utility vault area.
6. The Lake J excavation will be repurposed as a silt pond after mining is complete (anticipated year 2030).

This anticipated sequence and schedule is dependent upon many factors such as securing regulatory entitlements, fluctuations in market demands, and need for specific aggregate products. Therefore, it is expressly understood that this anticipated schedule and sequence is subject to change. The reclamation finish dates listed represent the anticipated date by which physical reclamation activity is complete. In addition to market conditions, monitoring periods for specific aspects of reclamation (e.g., revegetation monitoring) may extend the final date of reclamation sign-off beyond these dates.

2.1.7 Public Health and Safety (Exposure) [CCR §3502(b)(2)]

Implementation of this Plan is not anticipated to jeopardize public health and safety during mining or reclamation activity. Eliot Quarry is located on private property and the public is neither presently exposed to the active mining and processing areas at the site, nor will be during mining or reclamation activity. All visitors to the site are required to sign-in and undergo site-specific safety training as appropriate. Safety measures such as fencing, signs, and setbacks are employed to ensure safety and restrict access. The pedestrian and bike trail that CEMEX developed along the southern boundary of Lake A is already fenced off from the mining areas. Gates providing access to the site are secured and locked when operations are inactive.

Upon completion of reclamation activity, Lakes A and B, as well as Ponds C and D, and appurtenant water conveyance facilities and surrounding support areas will be dedicated to Zone 7 for purposes of water management. CEMEX will continue to own, manage, and maintain the remainder of the reclaimed properties. Other than the pedestrian and bike trails along Vineyard Avenue, the site will not be used for recreational purposes.

2.2 Description of Reclamation Features and Facilities

This Plan is a revision to the SMP-23 reclamation plan originally approved by Alameda County in 1987. SMP-23 originally envisioned mining the Lake A and Lake B areas to create two large bodies of water for future operation and management by Zone 7. Under that plan, the natural channel of the ADV would have been eradicated and would instead flow through Lakes A and B in the reclaimed condition via spillways at Vallecitos Road and Isabel Avenue as well as a concrete and rip-rap apron at the downstream end of Lake B. SMP-23 also contemplated a conduit from Lake A to Lake C that could convey 500 cfs into the Chain of Lakes and a pipe from future Lake C to Lake B. SMP-23 provided CEMEX with an option to mine the existing plant site area and reclaim it as Lake J. Lake J has never been a part of the Chain of Lakes and post-mining will continue to be owned and used by CEMEX.

Under this Plan, the ADV will remain separate from Lake A and Lake B providing for passage of sensitive biological resources and eliminating the need for the two 40-foot high concrete spillways and the concrete and rip-rap apron. This Plan would continue to comply with the LAVQAR Specific Plan to develop the Lake A and Lake B mining pits to provide surface water storage, water conveyance and groundwater recharge. The lakes will continue to be connected by pipelines, but their primary surface water source to facilitate the objectives of the LAVQAR Specific Plan will now be an infiltration bed diversion structure at the southeast corner of Lake A, which is described in more detail below. Other than Lakes A and B, the remainder of the property will be reclaimed to open space and/or agriculture and will continue to be owned and maintained by CEMEX. The Plan also features a pedestrian and bike trail that will run roughly parallel to Vineyard Avenue along the south sides of Lakes A and B.

The Project Site's final reclamation overview is shown on Figure 4, as well as Sheet R-5. Each of the key reclamation features and facilities is discussed below.

2.2.1 Lake A

No further mining will occur in Lake A; however, numerous reclamation features, including water conveyance facilities, will be installed as part of reclamation. The final surface area of Lake A will be 81 acres, with a bottom elevation of 360 feet msl and projected water surface elevation of 420 feet msl.

To aid in the evaluation and design of water conveyance facilities at Lake A, which are paramount to this Plan's ability to meet the objectives of the LAVQAR Specific Plan, CEMEX commissioned Brown & Caldwell ("B&C") to develop design parameters. B&C's basis of design and design recommendations, which have been incorporated into this Plan and are included in Appendix B, Hydraulic Design Study.

The following reclamation features and activities are proposed for the Lake A area (see Sheet R-4 for details):

1. **Installation of a surface water diversion from the ADV to Lake A.** To meet the objectives of the LAVQAR Specific Plan and Zone 7 Agreement, a diversion structure from the ADV to Lake A capable of conveying up to 500 cfs will be installed in the southeast corner of Lake A. The diversion from ADV to Lake A will consist of an intake (fitted with a screen to prevent fish capture or trapping), a low-head diversion dam to control water levels in the channel, a bypass structure for fish passage, a flow control structure, and a conduit into Lake A. The diversion will feature an infiltration bed concept that includes a 100-foot-wide (extending in the horizontal direction perpendicular to the stream bank) by 200-foot-long gravel infiltration bed to be constructed along the north bank of ADV. The diversion structure will convey up to 500 cfs through an 84-inch-diameter pipe into Lake A. The diversion structure will require electrical power (to be supplied from a power pole or manhole near the east end of the property) to operate the slide gate as well as the flow measurement and/or water level instruments. The diversion structure will be operated by Zone 7 in the future. For additional design considerations and conceptual design plans, see Appendix B. Implementation of the diversion is subject to obtaining regulatory entitlements and authorizations from the US Army Corps of Engineers ("USACE"), California Regional Water Quality Control Board ("RWQCB"), and California Department of Fish and Wildlife ("CDFW").
2. **Installation of berms between the ADV and Lake A.** Berms will be installed between Lake A and the ADV to reduce the potential for ADV to overtop and for flood waters to flow into Lake A during reclamation operations and in future reclaimed conditions. B&C assessed surface water elevations during a 100-year flood in the ADV to inform the elevation of the berms. For additional design considerations and detail, see Appendix B.
3. **Minor excavations to convert an in-situ berm to an island.** Two small drainage slots will be excavated to convert a small in-situ berm at the western end of the lake to a small island to promote water flow across the lake. Based on input from EMKO Environmental, Inc. ("EMKO"), the excavations will be conducted to a bottom elevation of 405 feet msl (about 12 feet below existing ground) with a bottom excavation width of approximately 80 feet. The island will also provide habitat value for wildlife.
4. **Installation of a water conveyance pipeline from Lake A to future Lake C.** As described in the LAVQAR Specific Plan, future Lake C will be located off-site, west of Isabel Avenue and generally north of Lake B (see Figure 5). Conduits will be constructed between Lake A and future Lake C and Lake B and future Lake C, consistent with the original SMP-23. In addition, CEMEX will provide a turnout from Lake A into Lake B as part of the Lake A to Lake C conveyance. The pipeline from Lake A to Lake C will be 84 in diameter to provide a conveyance capacity of 500 cfs. The conduit to Lake C will be stubbed and capped at CEMEX's property lines until such time that future Lake C is developed. The pipeline will be operated by Zone 7 in the future. For additional design considerations and detail, see Appendix B.

5. **Installation of an overflow outlet.** An overflow outlet will be created in the crest of the berm installed along the southwest end of Lake A to allow water to flow back into ADV when water levels are high to prevent flooding in the localized area. The outlet will consist of a 270-feet wide shallow rock-line spillway that slopes south toward ADV at 3H:1V. For additional design considerations and detail, see Appendix B.
6. **Implementation of a landscape plan.** CEMEX commissioned Cunningham Engineering to develop an updated landscape plan for Lake A that features California native drought tolerant tree, shrub, and grass species that are well-adapted to Alameda County. See Appendix C, Lake A Landscape Planting & Restoration Plans. The plan consists of the planting and temporary irrigation of approximately 2,500 trees and shrubs, which will be installed and monitored as a component of reclamation. The plan features a low maintenance, low water use design that is exempt from State of California Model Water Efficient Landscape Ordinance requirements and was designed specifically to ensure compatibility with the reclaimed end use of water management to be operated by Zone 7.
7. **Pedestrian and bike trail.** CEMEX has developed a pedestrian and bike trail roughly parallel to Vineyard Avenue on the south side of Lake A, which is within the Plan boundary and will remain as part of reclamation.

Following reclamation, the Lake A areas north of ADV will be dedicated to Zone 7, and the pedestrian and bike trail will be granted through an easement or license to the East Bay Regional Park District ("EBRPD"). The remaining areas, including the ADV and the areas south of ADV, will continue to be owned and maintained by CEMEX.

2.2.2 Lake B

The final surface area of Lake B will be 208 acres, with a bottom elevation of 150 feet msl and projected water surface elevation of 369 feet msl. The following reclamation features and activities are proposed for the Lake B area (see Sheets R-2 and R-3 for details):

1. **Realignment of the ADV.** To facilitate the southerly progression of Lake B, the Plan includes realignment and restoration of a ±5,800 linear foot reach of the ADV (see Figure 7). CEMEX plans to move the ADV closer to Vineyard Avenue in a realigned stream channel and floodplain, creating an enhanced riparian and aquatic habitat. The planned ADV realignment will result in a riparian corridor that flows around, rather than through (as originally anticipated in SMP-23), Lake B, providing a significant uplift in biological functions and values. The ADV realignment is described in more detail in Section 2.2.4.
2. **Installation of berms between the ADV and Lake B.** Berms will be installed between Lake B and the ADV to reduce the potential for ADV to overtop and for flood waters to flow into Lake B during reclamation operations and in future reclaimed conditions. The grade along the existing berm alignments will be raised where necessary to prevent overtopping of the ADV into the lake during the 100-year flood. For additional design considerations and detail, see Appendix B.

3. **Installation of a water conveyance pipeline between Lake A and future Lake C.** Conduits will be constructed between Lake B and future Lake C, consistent with the original SMP-23. The Lake B to Lake C conduit will be a 30-inch-diameter pipe placed at an invert elevation of 349 feet msl that allows gravity flow between the two lakes. The conduit to and from Lake C will be stubbed and capped at CEMEX's property lines until such time that future Lake C is developed. For additional design considerations and detail, see Sheet R-4 and Appendix B.
4. **Installation of an overflow outlet.** An overflow outlet will be created in the crest of the berm installed along the west end of Lake B to allow water to flow back into ADV through a controlled and stable pathway. The outlet will consist of an armored trapezoidal weir and chute, with an armored outlet apron. The outlet crest will be 60 feet wide perpendicular to the flow with 4H:1V side slopes, and the trapezoid will be at least 5 feet deep, thus resulting in a top width of 60 feet for the trapezoidal section. The outlet crest is 120 feet wide in the direction of the flow. The outlet flow path will be lined with riprap to mitigate the potential for erosion to occur. For additional design considerations and detail, see Sheet R-2 and Appendix B.
5. **Accommodate a pedestrian and bike trail.** In coordination with the East Bay Regional Park District, CEMEX will develop a public-use trail parallel to Vineyard Avenue on the south side of the ADV, which is within the Plan boundary and will remain as part of reclamation. The trail will be developed in a 20-foot corridor (typical), and feature a 10-foot wide paved section with two-foot shoulders on each side. Consistent with the existing trail on the south side of Lake A, trail development will include landscape improvements that feature California native, drought-tolerant plantings.

Following reclamation, the Lake B areas north of the realigned ADV will be dedicated to Zone 7, and the pedestrian and bike trail will be granted through an easement or license to the EBRPD. The remaining areas, including the realigned ADV and the areas south of ADV, will continue to be owned and maintained by CEMEX.

2.2.3 North Reclamation Areas – Lake J, Plant Site, Silt Ponds

Reclamation treatment for other disturbed areas, including the Lake J excavation (not part of the Chain of Lakes), processing plant sites, and process water ponds will generally involve backfills and/or grading for a return to open space and/or agriculture.

The final bottom mining elevation of Lake J will be 130 feet msl. However, upon the completion of mining, Lake J is planned to be repurposed as a silt pond and will ultimately be backfilled to approximate elevations ranging from 360 to 380 feet msl.

Ponds C and D in the North reclamation area may also be repurposed as silt ponds. For these ponds, silts may be deposited up to elevation 330 feet msl. Ultimately, these ponds will either

be reclaimed as independent open water bodies with a projected water surface elevation of 370 feet msl; or merged with the larger future Lakes C and D to be developed by Vulcan.[3]

Following reclamation, the North reclamation areas will continue to be owned and maintained by CEMEX, with the exception of Pond A that will be dedicated to Zone 7 as it will be encompassed within the ultimate footprint of Lake B after the design drainage notch is installed and water surface elevations rise in Lake B to the projected water surface elevation of 369 feet msl (see Sheet R-1 at Pond A drainage notch at elevation 350 feet msl).

2.2.4 Arroyo del Valle Realignment

To facilitate the southerly progression of Lake B, the Plan includes realignment and restoration of a ±5,800 linear-foot reach of the ADV (see Figure 7). The ADV realignment was contemplated in the LAVQAR Specific Plan and subject to CEQA in 1981. However, implementation of the ADV realignment is subject to obtaining regulatory entitlements and authorizations from the USACE, RWQCB, and CDFW.

Upon obtaining regulatory authorizations, CEMEX plans to move the ADV closer to Vineyard Avenue in a realigned stream channel and floodplain, creating an enhanced riparian and aquatic habitat. The planned ADV realignment will result in a riparian corridor that flows around, rather than through (as originally anticipated in SMP-23), Lake B, providing a significant uplift in biological functions and values.

Design Objectives and Performance Criteria

The primary goals of the ADV realignment project are:

1. To facilitate the southerly progression of Lake B mining; while
2. To enhance the riparian and aquatic habitat along ADV.

Given these goals, B&C defined the following design objectives for the ADV realignment project (further detailed in Appendix B at Section 5.4.2):

- **Realignment:** establish a new stream corridor (i.e., channel and floodplain) outside of Lake B mining operations.
- **Transitions:** conform to existing grade at upstream and downstream tie-in points using gradual and stable transitions.
- **Flood conveyance:** avoid adverse flooding impacts and/or substantive increases in flood risk to adjacent properties and infrastructure. This will include extending four existing Vineyard Avenue culvert drainage pipes into the realigned ADV floodplain in accordance with Alameda County Public Works and Flood Control criteria.

[3] The Pond D water surface will remain lower than the northern berm elevation 347 feet msl while Vulcan is mining and dewatering future Lake D.

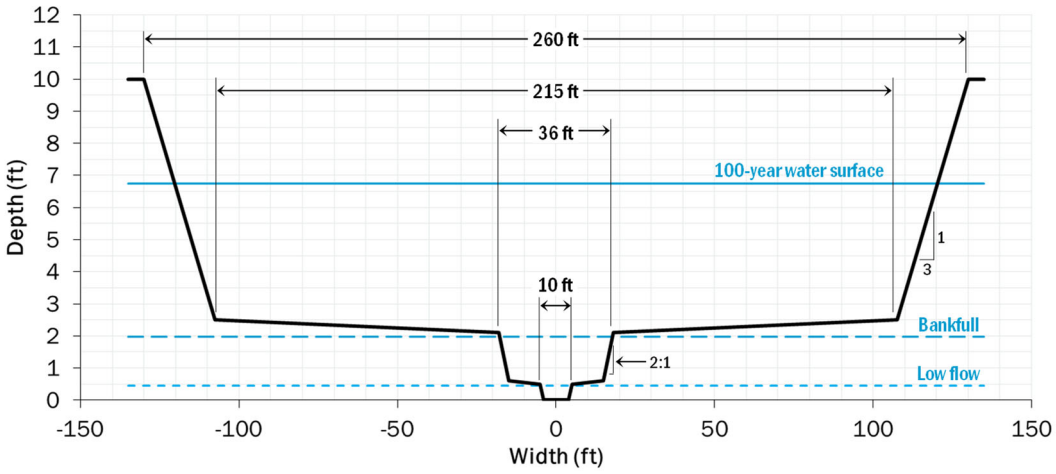
- **Erosion and bank stability:** minimize the risk of channel migration/avulsion that can threaten adjacent structures or cause the stream to be captured by Lake B, or flow into adjacent areas.
- **Long-term channel stability:** minimize the risk of long-term channel degradation that can result in channel incision, bank steepening/failures, substantial downstream sediment deposition, and/or upstream instability.
- **Geomorphic function:** create a fluvial stream system that generates natural geomorphic conditions and maintains a stable yet dynamic equilibrium within the context of overall watershed conditions.
- **Riparian and aquatic habitat:** create new habitat areas as part of a natural ecosystem that supports native flora and fauna.
- **Fish passage:** avoid barriers to fish migration and create fluvial formations and natural habitat features that allow for fish passage.

To accommodate these design objectives, the size and configuration of the resultant reach-averaged cross-section for the realigned ADV channel is as follows (see Appendix B at Section 5.4.3):

- **Low-flow channel:** The low-flow channel was designed to convey 9 cfs, which is roughly equivalent to the typical dry season flow releases in ADV. The basic trapezoidal shape has a bottom width of 8 feet and side slopes at 2H:1V. An assumed low-flow channel depth of 6 inches provides enough flow capacity, while also providing a bench less than 1 foot above the thalweg that can be used for freshwater marsh and stream habitats. The top width of the low-flow channel is 10 feet.
- **Bankfull channel:** The bankfull channel will contain the low-flow channel, but will also include a second stage sized to convey the estimated bankfull discharge of approximately 200 cfs. Observations in Sycamore Grove Park indicate that the bankfull channel width for ADV is likely around 31 to 34 feet at riffles, and 44 to 49 feet at pools. This is slightly wider than the 28 feet predicted by hydraulic geometry equations for the region, but is considered reasonable; a slightly wider channel is required to accommodate the compound channel configuration. Assuming a top width of 36.0 feet and 2H:1V side slopes, the depth of the bankfull channel must be 2.1 feet to convey the bankfull discharge, which matches the depth predicted by hydraulic geometry equations for the region.
- **Floodplain:** The stream corridor will widen considerably above the bankfull depth to provide a floodplain area for dispersing high flows, reducing velocities, and providing space for riparian habitat. Assuming a maximum top width of 260 feet and 3H:1V side slopes, the floodplain terrace will be approximately 215 feet wide. The floodplain terrace will generally be between 2.1 and 2.5 feet above the thalweg, with a gradual slope back toward the bankfull channel. The total depth of the floodplain corridor will depend on the final grading for the project, but will be around 10 feet above the thalweg. Preliminary

hydraulic modeling indicates that there will be more than 3 feet of freeboard between the 100-year water surface (based on the FEMA discharge of 7,000 cfs) and the top of the realigned corridor.

The following cross-section, included as Figure 5-12 in Appendix B, shows the general cross-section for the realigned ADV corridor with a compound channel and floodplain, including simulated water surface elevations for each of the design discharges. The actual position of the bankfull and low-flow channels will vary laterally across the floodplain because of meandering. Similarly, the depth and width of the bankfull channel will have localized variations when features such as bends, riffles, and pools are added to the design.



Channel Complexity and Habitat Diversity

B&C worked closely with geomorphologists, biologists and Compass to incorporate additional features into the design of the realigned ADV to add channel complexity and diversity for restored habitats. As detailed in Appendix B (at Section 5.4.8), the realigned ADV will feature:

1. **Flow-through, backwater, and tributary wetlands**, supporting willow riparian wetland habitat; and
2. **Channel bifurcations**, allowing for a more dynamic and active fluvial system while still maintaining a controlled and relatively stable condition.

Illustration 1 (included as Figure 5-20 in Appendix B) below shows the proposed realigned channel and floodplain with habitat and diversity features added. The revegetation and restoration objectives of the ADV realignment are described in more detail below in Section 2.10, Revegetation.

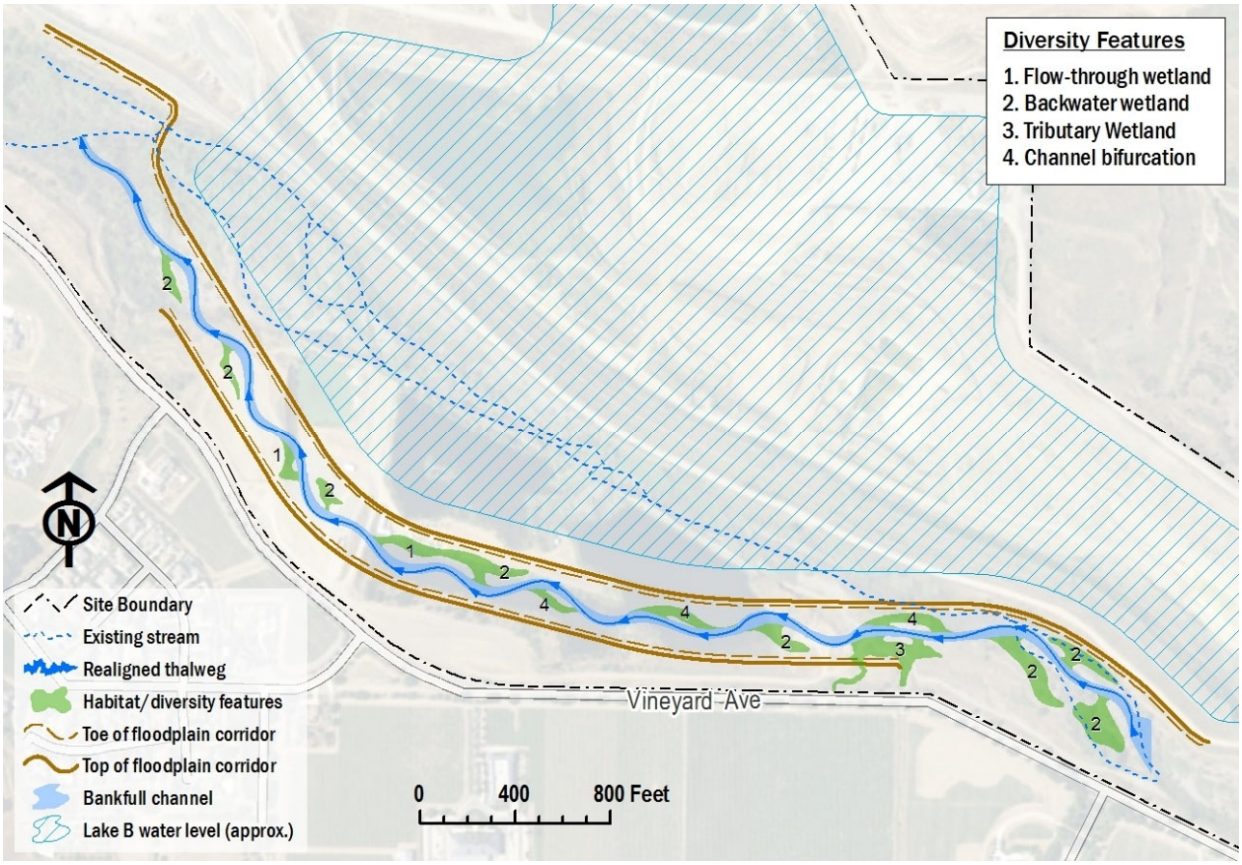


Illustration 1. Proposed realigned channel and floodplain with habitat and diversity features

B&C's hydraulic design study demonstrates that the realigned ADV channel will remain stable, and that neither the channel modification nor the Lake A diversion structure will increase flood risk to neighboring properties and infrastructure. For a complete discussion of design considerations and details, see Appendix B.

Anticipated Construction Sequencing

Construction of the realigned ADV is anticipated to occur in three key phases: central segment, upstream connection segment, and downstream connection segment. The central segment is the portion of the realigned channel that lies between the upstream and downstream connection segments. The upstream connection segment is the location where the existing ADV will gradually transition into the realigned ADV. The downstream connection segment is the location where the realigned ADV will gradually transition back into the existing ADV. Construction may be phased over approximately two years, but could be constructed in as little as one year. See Figure 9, Realigned Arroyo Del Valle Conceptual Construction Schedule, for identification of each construction segment and an anticipated schedule for construction.

Central Segment

Construction of the realigned ADV will begin in the central segment, allowing time to excavate, backfill, and contour the central segment prior to diverting flows out of the existing ADV. This construction sequencing will also allow time for landscaping and erosion control seed mixes to establish in the central segment prior to introducing flows from the existing ADV into the realigned ADV after construction of the upstream and downstream connection segments is complete. This, in turn, will reduce the potential for sediment entrainment and transport in the realigned channel following construction.

To facilitate construction of the central segment, CEMEX will need to dewater existing quarry ponds within the footprint of the central segment to facilitate excavation, backfill with engineered fill, and grading. Dewatering of the existing quarry ponds will occur with conventional pump and pipe, consistent with mining practices elsewhere at the site. However, under current conditions, the existing ADV flows through quarry ponds in the project footprint by way of a surface breach between the main ADV channel and quarry ponds (see Sheet M-2). In order to facilitate dewatering and construction, this breach will need to be blocked off and secured to establish and maintain hydrologic separation between the main ADV channel and the quarry ponds.

Accordingly, the regulatory permit applications for the ADV realignment project will include a request to place earthen fill between the existing ADV main channel and quarry ponds to provide this separation. Once hydrologic separation between the ADV and quarry ponds has been re-established, CEMEX can begin to dewater and construct the realigned ADV channel in the central segment. Water that is pumped from the quarry ponds will most likely either be discharged to the western pit floor of Lake B or to the ADV downstream of the quarry ponds (if authorized by the RWQCB).

Upstream and Downstream Connection Segments

Construction of the upstream and downstream connection segments are anticipated to occur in a single construction season after construction of the central segment is complete. Temporary dry season diversion of existing ADV flows around the construction site will be necessary to allow for the construction and the ultimate tie-in of the realigned ADV to the existing channel both at the upstream and downstream boundaries of the project. The diversion is anticipated to be needed between May and October of the year in which the work will occur. To facilitate the dry season diversion, a portable dam (such as a Portadam with steel support structure and vinyl liner membrane, or equivalent) will be installed at the upstream end of the upstream connection segment, with earthen fill placed behind it for reinforcement. A temporary pad will be constructed adjacent to the portable dam to support vehicle access and installation of several pumps (up to two primary and one backup). The primary and backup pumps will be connected to a surface pipe that will convey flows downstream of the realigned channel with an outfall back into ADV. The outfall will include energy dissipation, such as an end diffuser and rip-rap armoring, to reduce discharge velocities and minimize the potential for erosion or scour. Once the necessary diversion is in place and functioning, excavation and construction of the upstream and

downstream connection segments can proceed in accordance with the construction plans. Monitoring of the pumps and pipe diversion is anticipated to occur 24 hours per day until construction is complete.

Performance Standards for the Realigned ADV

Reclamation of the realigned ADV will be considered successful once as-built improvement plans showing substantial conformance with County-approved construction improvement plans are accepted by the County and appropriate regulatory agencies, and all monitoring requirements of the regulatory agency authorizations have been met. It is currently anticipated that regulatory agencies will require a minimum monitoring period of five years following the completion of construction for all restored habitats and biological features of the realigned ADV. To ensure compliance with any performance standards to be adopted by the County or regulatory agencies in the future, CEMEX will append and index any permit conditions of approval and CEQA mitigation measures that relate to reclamation of the realigned ADV with this approved Plan, pursuant to PRC Section 2772.1(b)(7)(B).

2.3 End Land Use

2.3.1 Proposed or Potential End Uses [PRC §2772(c)(7)]

The planned end uses are water management, open space, and agriculture (non-prime). See Figure 4.

The water management end use is planned for the pits, water conveyance facilities and surrounding support areas to be dedicated to Zone 7 for the purpose of water management (e.g., water storage, water conveyance, and groundwater recharge). See Figure 6. These end uses are consistent with the LAVQAR Specific Plan and Zone 7 Agreement and were originally adopted as part of SMP-23 approved by the County in 1987. More specifically, reclamation will result in the completion of Lake A and Lake B, the first two lakes in the Chain of Lakes from the LAVQAR Specific Plan. Lake A provides a mechanism to store and convey water from the ADV to future Lake C and the rest of the Chain of Lakes. Lake B provides a water storage and groundwater recharge basin as a component of the Chain of Lakes. Ponds C and D can be used for water storage, and may ultimately be merged with the much larger future Lakes C and D to be developed by Vulcan. Lake A and Lake B, as well as Pond C and Pond D, along with appurtenant berms, conduits and diversion structures north of ADV, will be dedicated to Zone 7 as contemplated by the LAVQAR Specific Plan and Zone 7 Agreement.

The remainder of the property (including the reclaimed Lake J excavation area, plant site, and main silt pond) will be reclaimed to open space and/or non-prime agriculture. These end uses are also consistent with the LAVQAR Specific Plan and Zone 7 Agreement and were originally adopted as part of SMP-23 approved by the County in 1987. The realigned ADV to the south of Lake B will be reclaimed to open space. These areas will not be dedicated to Zone 7 and will be owned by CEMEX. The pedestrian and bike trails along Vineyard Avenue (south of the ADV) will be granted through an easement or license to the EBRPD.

Implementation of this Plan will restore the mined lands to a usable condition consistent with SMARA, ACSMO and the LAVQAR Specific Plan. The end uses are consistent with the Alameda County General Plan/East County Area Plan designation of the site as "Large Parcel Agriculture and Water Management," and with the Project Site's current zoning classification of "Agricultural – 100 acre minimum district" (A-100).

The owner's acknowledgment of the potential end uses is evidenced by the execution of the statement of reclamation responsibility found at the end of this Plan (see Appendix D, Statement of Reclamation Responsibility). The portion of the Plan boundary that passes under the State Route 84 / Isabel Avenue bridge right-of-way (±0.1 acre) will continue to be controlled by the State of California as right-of-way following reclamation – thus, no change to the existing use is planned.

2.3.2 Reclamation Measures Adequate for the End Use [PRC §2772(c)(8)]

As detailed throughout this Plan, reclamation will generally involve the following actions to support the planned end uses:

1. Installation of water conveyance facilities at Lakes A and B, including the Lake A diversion structure, upon County approval of construction improvement plans and upon obtaining necessary authorizations from the USACE, RWQCB, and CDFW.
2. Realignment of the ADV, upon County approval of construction improvement plans and upon obtaining necessary authorizations from the USACE, RWQCB, and CDFW.
3. Finish grading of pit slopes and surrounding areas to Plan specifications.
4. Decommissioning and removal of aggregate processing plant facilities, conveyors and mining equipment.
    - The following may be left to facilitate the planned end uses: buildings, office trailer, fencing, perimeter and screening berms, site access roads, groundwater wells, and utilities.
5. Decommissioning of *temporary* interior access roads and conveyor corridors by removing conveyor footings and road base materials.
6. Redistributing stockpiled topsoil/growth media in preparation for revegetation.
7. Ripping, discing and/or scarifying revegetation areas as needed to relieve compaction and remove rills or other surface irregularities to establish a suitable root zone in preparation for plantings.
8. For areas reclaimed to open space, revegetation and landscaping with native-dominant seed mixes and plantings as set forth in this Plan.
9. For areas reclaimed to agriculture (e.g., capable of supporting dryland pasture), backfilling as appropriate, grading for positive drainage, discing/prepping for crop plantings, and conducting soil testing (if needed to fulfill reclamation success criteria).

10. Implementation of best management practices as needed to minimize erosion and sedimentation pursuant to applicable standards.
11. Collecting and disposing of any incidental refuse or garbage in accordance with applicable standards.

2.3.3 Impact of Reclamation on Future Mining in the Area [PRC §2772(c)(9)]

Implementation of this Plan will not preclude future mining in the area, subject to first obtaining necessary approvals to do so. However, remaining sand and gravel resources may be covered by overburden, silts, and/or water, and Lakes A and B will become part of the Chain of Lakes water management system to be operated by Zone 7, making future mining of these areas difficult and potentially infeasible.

2.4 Environmental Setting [CCR §3502(b)(1)]

2.4.1 Site Location

Eliot Quarry encompasses 920± acres of the 966± acre CEMEX property and is located within the unincorporated area of Alameda County, between the cities of Livermore and Pleasanton, in the Livermore-Amador Valley ("Valley"). The site sits south of Stanley Boulevard, north of Vineyard Avenue, and both east and west of Isabel Avenue / State Route 84. See Figures 1 and 2.

The site is located within unsectioned portions of Township 3 South, Range 1 East and Township 3 South, Range 2 East on the 7.5-minute USGS Livermore, California quadrangle, and is centered at approximate UTM 4168100 Northing / 605350 Easting.

The 44-acre difference between the 966± acre CEMEX property and 920± acre Plan boundary is almost entirely due to the exclusion of the downstream reach of the ADV on CEMEX property that has not been subject to surface mining disturbances since January 1, 1976 and is therefore not subject to reclamation per SMARA §2776 as there is no intent to conduct any surface mining activities in this area (see Sheet C-1 for reference). In much smaller measure, 0.2± acre of the difference is due to the exclusion of two small cellular tower facilities from the Plan boundary. These cellular tower facilities are located near the northeast corner of the main silt pond (see Sheet R-1) and northeast corner of Lake B on the west side of Isabel Avenue (see Sheet R-2).

2.4.2 Assessor Parcels, Zoning and General Plan Designations

Eliot Quarry Assessor Parcel Numbers are shown on Table 2, below. The Alameda County General Plan/East County Area Plan designates the site as "Large Parcel Agriculture and Water Management," and the site's current zoning classification is "Agricultural – 100 acre minimum district" (A-100).

TABLE 2
ASSESSOR PARCEL NUMBERS

APN	Acres (approx.)	Recordation
904-6-1-18	84.8	87-036266
904-6-2 (part)	57.4	87-036266
904-8-1-3 (part)	90.2	87-036266
904-8-1-2	66.0	87-036266
904-8-2-5	6.6	87-036266
946-1350-9-12	29.3	87-036266
946-1350-9-19	209.7	87-036266
946-1350-10-5	23.7	87-036266
946-4598-19	6.9	2007290105
950-6-3-9	48.6	2007290105
950-6-1-5	129.0	87-036266
99-290-11-7	209.7	2000116048
Total:	**961.9**	

Note: The assessor parcel acreages are taken from Alameda County Assessor data and are not as precise as the areas calculated on Plan Sheets and figures using GIS and AutoCAD (based on the property boundary survey performed by Kier and Wright, a licensed survey firm, in 2013). The overall CEMEX property is 966± acres (based on property survey) of which 920± acres are within the Plan boundary.

2.4.3 Access and Utilities

Access roads, waterways and utilities are shown on Figures 2a and 2b as well as Sheets M-1 and M-2. Access to the site is currently provided via the main entrance at 1544 Stanley Boulevard. In addition to the main entrance, the site can be accessed from the following locations:

1. **To the Lake A area**, from:
    a. The north side of old Vineyard Avenue, to access the existing pedestrian and bike trail at the east end of Lake A;
    b. The south side of Alden Lane, through a private locked gate at the northwest corner of Lake A;
    c. The north side of the pedestrian and bike trail along Vineyard Avenue, through private locked gates (to enter restricted quarry areas); and
    d. Under the Isabel Avenue bridge, along the existing access road that connects the Lake B area to the Lake A area (to enter restricted quarry areas).
    e. The southwest corner of Lake A, to cross the new pedestrian / bike bridge parallel to and east of Isabel Avenue to the north side of the ADV, then through a private locked gate (to enter restricted quarry areas).

2. **To the Lake B area**, from:
    a. The frontage road that parallels the west side of Isabel Avenue, which is accessible from Concannon Boulevard north of the ADV, through a private locked gate (to enter restricted quarry areas); and
    b. The north side of Vineyard Avenue, through a private locked gate (to enter restricted quarry areas).
3. **To the North areas**, from:
    a. The south side of Stanley Boulevard, through a private locked gate near the northwest corner of the main silt pond (to enter restricted quarry areas).

The following utilities serve the site (locations are shown on Figures 2b):

1. A water well equipped with a purification system that supplies domestic water, located between the aggregate processing plant and ready-mix concrete plant in the North reclamation area.
2. A septic tank to collect sewage, located near the office trailers near the processing plant site in the North reclamation area.
3. A natural gas line from Stanley Boulevard that supplies gas to the asphalt concrete plant operated by Granite Construction Company in the North reclamation area.
4. An electrical substation, located near the maintenance shop in the North reclamation area.

The access points and roads that will remain to facilitate the planned end uses are shown on Sheets R-1 through R-4.

2.4.4 Geology

The Eliot Quarry is located within the Livermore-Amador Valley, an east-west trending inland alluvial basin located in northeastern Alameda County. The Valley is partially filled with Pleistocene-Holocene age (recent alluvium) alluvial fan, stream and lake deposits, which range in thickness from a few feet along the margins to as much as 800 feet in the west-central part of the basin. The alluvium consists of unconsolidated gravel, sand, silt, and clay. The southern region of the Valley consists mainly of sand and gravel that was deposited by the ancestral and present ADV and Arroyo Mocho.

The Livermore Formation underlies the recent alluvium in the vicinity and forms the Livermore uplands to the south of the site. The Livermore Formation consists of beds of clayey gravels and sands, silt, and clay that are unconsolidated to semi-consolidated. These deposits are estimated to be up to 4,000 feet thick. Although the Livermore Formation produces groundwater in some areas, the yields are generally much lower than the alluvium in the central part of the Valley.

The geologic deposits at Eliot Quarry consist of Quaternary Alluvium, the Upper Livermore Formation, and the Lower Livermore Formation. The Quaternary Alluvium and Upper Livermore Formation consist of discontinuous clay and silt layers within a predominantly sand and gravel matrix, indicating deposition in a braided stream environment. CEMEX's mining occurs in these two geologic units. Much of the Quaternary Alluvium consists of material eroded from the Upper Livermore, making it difficult to distinguish between the two geologic units. The Lower Livermore also includes alternating and discontinuous layers of clay, silt, sand and gravel, but contains a higher proportion of fine-grained material. Volcanic activity was occurring in the region at the time that the Lower Livermore Formation was deposited, resulting in the presence of volcanic ash layers known as tuff deposits within the Lower Livermore.

The geology of the site is further informed by a Becker hammer drilling program performed in 2013 and a sonic coring program performed in 2018, which reflects the alternating and discontinuous layers of clay, silt, sand and gravel at the site (see Appendix E, 2013 Becker Hammer and 2018 Sonic Drill Logs).

2.4.5 Soils

Table 3 below summarizes the soil units mapped for the site by the Natural Resources Conservation Service. The distribution of these soil types across the property is shown on Figure 10, NRCS Soils Map.

TABLE 3
NRCS SOIL SUMMARY

Map Unit Symbol	Map Unit Name	Typical Profile
Gp	Gravel pit	H1 - 0 to 6 inches: extremely gravelly sand H2 - 6 to 60 inches: extremely gravelly sand
Lg	Livermore gravelly loam	H1 - 0 to 12 inches: gravelly loam H2 - 12 to 34 inches: very gravelly coarse sandy loam H3 - 34 to 60 inches: very gravelly loamy coarse sand
Lm	Livermore very gravelly coarse sandy loam	H1 - 0 to 12 inches: very gravelly coarse sandy loam H2 - 12 to 34 inches: very gravelly coarse sandy loam H3 - 34 to 60 inches: very gravelly loamy coarse sand
PgA	Pleasanton gravelly loam, 0 to 3 percent slopes	H1 - 0 to 21 inches: gravelly loam H2 - 21 to 64 inches: gravelly clay loam H3 - 64 to 72 inches: gravelly silt loam
PgB	Pleasanton gravelly loam, 3 to 12 percent slopes	H1 - 0 to 21 inches: gravelly loam H2 - 21 to 64 inches: gravelly clay loam H3 - 64 to 72 inches: gravelly silt loam
PoC2	Positas gravelly loam, 2 to 20 percent slopes, eroded	H1 - 0 to 11 inches: gravelly loam H2 - 11 to 29 inches: clay H3 - 29 to 54 inches: clay loam H4 - 54 to 60 inches: gravelly sandy clay loam
Rh	Riverwash	Undefined
W	Water	Not applicable

TABLE 3 (CONTINUED)

YmA	Yolo loam, calcareous substratum, 0 to 6 percent slopes, MLRA 14	A - 0 to 16 inches: loam C1 - 16 to 24 inches: very fine sandy loam C2 - 24 to 46 inches: fine sandy loam C3 - 46 to 60 inches: loam
Ys	Yolo sandy loam, 0 to 3 percent slopes	H1 - 0 to 16 inches: sandy loam H2 - 16 to 60 inches: stratified gravelly sandy loam to gravelly loam
Za	Zamora silt loam, 0 to 4 percent slopes	H1 - 0 to 18 inches: silt loam H2 - 18 to 60 inches: clay loam

2.4.6 Seismicity

Eliot Quarry is not located on any known active earthquake fault trace. The site is also not contained within an Alquist-Priolo Earthquake Fault Zone. Therefore, the potential for ground rupture due to onsite active faulting is considered low. The site is in proximity to the Pleasanton and Livermore faults, but the closest known active fault is the Calaveras fault located approximately 4 miles from the site (California Geologic Survey 2010).

2.4.7 Biological Resources and Communities

CEMEX commissioned Foothill Associates ("Foothill") to assess the potential for sensitive biological communities, special-status plant and wildlife species, and sensitive biological resources at the site (see Appendix F, Biological Resources Assessment). No designated critical habitat for federally threatened or endangered species are located on site. Foothill also conducted a preliminary delineation of Waters of the United States for the site (see Appendix G, Aquatic Resources Delineation Report). The key findings of the biological assessments are summarized below.

Sensitive Biological Communities

Based on the results of Foothill's Biological Resources Assessment, biological communities that occur within Plan boundary include marsh, intermittent stream, breached quarry pond, sycamore woodland, willow riparian woodland, gravel bar, ruderal grassland, native revegetation area, quarry pond, silt pond, percolation pond, and developed. These communities provide habitat to a number of common species of wildlife and may provide suitable habitat for special-status plant and wildlife species. Historic and ongoing mining activities have reduced the habitat function and values of many of these communities. In addition, the ADV has extensive expanses of exotic, invasive plant species within the ordinary high-water mark of the channel including common reed, giant reed, and pampas grass.

Of these biological communities, Foothill considers the following to be sensitive:

1. Sycamore woodland.
    - *Note:* Although the sycamore woodland meets the criteria to be considered a sensitive community, it is very low quality due to small patch size, declining tree health, lack of supporting hydrology, and fragmented patches.
2. Potentially jurisdictional waters of the U.S. (including applicable portions of marsh, intermittent stream, breached quarry pond, willow riparian wetland, and gravel bar habitats).

The Plan area also contains native oak species that warrant consideration under CEQA.

Special Status Plant Species

Based on the results of Foothill's Biological Resources Assessment, no special-status plant species were considered to have a high potential to occur within the Plan area due to the high degree of historic and ongoing disturbance that is occurring within the area due to gravel mining operations. Only three special-status plant species were determined to have any potential to occur, including:

1. Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*), Rank 1B.1. Low potential.
    - *Note:* Focused surveys for Congdon's tarplant were conducted within the Plan area in 2016 by WRA, Inc. with negative results (WRA 2016, as cited in Appendix F).
2. Mt. Diablo buckwheat (*Eriogonum truncatum*), Rank 1B.1. Low Potential.
3. Mt. Diablo fairy-lantern (*Calochortus pulchellus*), Rank 1B.1. Low Potential.

None of these species were found on the site.

Special Status Wildlife Species

Based on the results of Foothill's Biological Resources Assessment, the following special status wildlife species are known to occur or may have moderate to high potential to occur on site:

1. Bald eagle (*Haliaeetus leucocephalus*), State Endangered, Bald and Golden Eagle Protection Act, California Fully Protected Species. High Potential.
2. Golden eagle (*Aquila chrysaetos*), California Fully Protected Species, Bald and Golden Eagle Protection Act. High Potential.
3. Hoary bat (*Lasiurus cinereus*), California Special Animal. High Potential.
4. Pallid bat (*Antrozous pallidus*), California Species of Special Concern. High Potential.
5. Yuma myotis (*Myotis yumanensis)*, California Special Animal. High Potential.

6. Western pond turtle (PPT; *Actinemys marmorata*), California Species of Special Concern. Present.
7. American Peregrine Falcon, California Fully Protected Species. Present.
8. White-tailed kite (*Elanus leucurus*), California Fully Protected Species. Present.

Fisheries

The ADV historically supported steelhead (*Oncorhynchus mykiss*) during certain times of year. However, flood control structures and other barriers to fish migration downstream of the Plan area decades ago removed the potential for steelhead and other special-status fish species to occur on the site (Hanson *et al.* 2004, as cited in Appendix F).

Although no special-status fisheries are present or have moderate to high potential to occur at the site, the possibility of restoring a run of steelhead trout to Alameda Creek has been the topic of sporadic discussion and study for over 50 years. In 1996, Central Coast steelhead was listed as threatened pursuant to the federal Endangered Species Act. The Alameda Creek Fisheries Restoration Workgroup was formed in 1999 as a collaborative effort among many parties to pursue steelhead restoration. To formalize the activities of the workgroup, and to design and conduct hydrologic studies to estimate the range, magnitude, timing, duration, frequency and location of flows necessary to restore steelhead fisheries (while minimizing the impacts to water supply operations), a Memorandum of Understanding ("MOU") was executed in 2007 by Alameda County Flood Control and Water Conservation District, Alameda County Resource Conservation District, Alameda Creek Alliance, Alameda County Water District, California State Coastal Conservancy, California Department of Fish and Game, East Bay Regional Park District, National Marine Fisheries Service, Pacific Gas and Electric Company, San Francisco Public Utilities Commission, and Zone 7. Since 2007, the workgroup has facilitated a series of projects to establish the physical data needed to meet the MOU objective, including preparing an overall Study Plan (January 2008) that identified priority management issues associated with steelhead recovery.

Implementation of SMP-23 as approved in 1987, with the ADV flowing through Lakes A and B with spillways, would have introduced a new challenge in the steelhead recovery effort. This Plan instead supports the recovery effort by providing for the ADV to flow separate from Lakes A and B, with consideration for fish passage incorporated into the designs for both the realigned ADV and the 500 cfs diversion structure from the ADV into Lake A.

2.4.8 Hydrology

Surface Waters and Drainage

The area in the vicinity of the quarry is drained by ADV, a perennial stream trending east to west. ADV and Arroyo Mocho are two major streams draining into the southern portion of the Valley. Over the years, mining and development activities have rerouted and channelized much of the lower reaches of the ADV and Arroyo Mocho. The ADV is located in the upper Alameda Creek

watershed, and its existing channel flows along the southern portion of the site adjacent to existing Lakes A and B. The ADV flows through two small lakes along the south side of the Shadow Cliffs Regional Park and then continues west through the City of Pleasanton. The ADV drains an area of approximately 172 square miles before it discharges to Arroyo de la Laguna west of Pleasanton.

Approximately 85 percent (146 square miles) of the ADV basin is located upstream of Del Valle Reservoir, constructed in 1968 to serve as off-channel storage for water delivered through the South Bay Aqueduct and for flood control. Zone 7 is one of the three water agencies served by the South Bay Aqueduct. Del Valle Reservoir has altered the hydraulic flow regime in the lower reaches of the ADV. Peak flows have decreased and large-magnitude flood flows have been virtually eliminated. Managed releases during the dry season have resulted in perennial flow conditions along the valley floor rather than the historical intermittent flow conditions when the arroyo would become dry in the summertime. Directly downstream of the dam, the ADV flows through a narrow, sinuous canyon until it reaches the valley floor about one mile downstream, near the Veterans Administration hospital. At this point, the channel and floodplain become wider and, in the past, more active and braided. Altered flows have also contributed to changes in the ADV channel; the once actively braided channel network along the valley floor now has shifted to a more defined central channel system.

In addition to the mining excavations at Lakes A, B and J, several smaller quarry ponds are located south of Lake B along the south side of the ADV in the "Topcon" area.[4] The quarry ponds at the Topcon site are aggregate mining pits excavated along the ADV in areas that were historically upland areas.

Groundwater

EMKO conducted an analysis of hydrology and water quality in support of this Plan, which describes in detail the existing hydrogeology conditions at the site (see Appendix H, Groundwater Hydrology and Water Quality Analysis Report). The following summary presents a brief overview from the report.

The Eliot Quarry is in the Livermore Valley Groundwater Basin located in the central part of the Livermore-Amador Valley. The Livermore Valley Groundwater Basin is located within the Valley and beneath the Livermore Uplands to the south of the Valley. The Main Basin is located in the central part of the Livermore Valley Groundwater Basin. In the Main Basin area, the groundwater flow direction is generally from southeast to northwest. The Eliot Quarry is located within the southeast corner of the Main Basin. East of Isabel Avenue, in the Lake A area, groundwater occurs within a relatively thin layer of alluvium (approximately 80 to 100 feet thick) and within the underlying Lower Livermore Formation. West of Isabel Avenue, groundwater occurs entirely

[4] Topcon Positioning Systems, Inc. is a lessee that currently operates a heavy equipment geopositioning training facility within a portion of the Plan boundary. This use is temporary as it will need to be moved elsewhere to accommodate the realigned ADV.

within the alluvium, which extends to at least 600 feet below the surface in the area of Lake B and Lake J.

In general, groundwater within the alluvium under the Eliot site and west of Isabel Avenue has been classified as being part of two main aquifer zones. As stated in *Hydrostratigraphic Investigations of the Aquifer Recharge Potential for Lakes C and D of the Chain of Lakes, Livermore, California* (Zone 7, 2011, page 5), the two aquifer zones are designated as the Upper Aquifer and the Lower Aquifer.

Throughout much of the Main Basin, these two aquifer zones are separated by a silty clay layer that prevents or limits the vertical migration of groundwater between the two zones. This silty clay layer is referred to as an aquitard. The aquitard layer is not present everywhere, as it may contain zones of coarser-grained material, or may become very thin in some locations. In areas where these variations occur, the aquitard is referred to as "leaky" because it may allow groundwater to be transmitted between the two aquifers. There is substantial evidence that the aquitard layer is both thin and discontinuous in the area of the Eliot Quarry (EMKO 2019). Based on subsequent site-specific drilling performed in 2013 and 2018, and published reports, EMKO reports that it is apparent that there are not any continuous aquitard units present across the Eliot facility and that the various aquifer units are in hydraulic communication with each other (meaning that the sand and gravel deposits are interconnected and not separated by low-permeability, fine-grained material).

Groundwater contours prepared by Zone 7 (2012, 2013, 2014a, 2015, 2016) indicate that groundwater flow within the alluvium is toward the northwest. Dewatering of mine pits at the Eliot Quarry and adjacent operations has resulted in local drawdowns that currently alter the natural groundwater flow gradient. Near Lake B, groundwater levels may fluctuate by more than 10 feet on an annual basis and have varied by more than 70 feet over the last 60 years in response to wet and drought periods. East of Isabel Avenue and south of Lake A, groundwater levels have been much more consistent, fluctuating annually by about five feet on average and varying less than 10 feet over the last 40 years. (EMKO 2019).

Water Quality

EMKO evaluated existing water quality for the site using data obtained from Zone 7 for wells and surface water locations in the vicinity of the Eliot Quarry (see Appendix H). The following summary presents a brief overview from the report.

Regarding groundwater quality, EMKO indicates that Zone 7 has reported that there are not any distinct water quality characteristics that uniquely distinguish an individual well or aquifer unit within the basin (Zone 7 2011, as cited in EMKO 2019). The groundwater is primarily a calcium-bicarbonate water type. For groundwater, TDS levels range from about 300 milligrams per liter (mg/L) to about 550 mg/L. The pH ranges from 6.8 to 8.0. The predominant anion (negatively charged ion) is bicarbonate. Calcium is the predominant cation (positively charged ion). Evaluation of past water quality data indicates that water quality parameters have been

consistent over time and that there have not been any significant trends in these parameters over the last 40 to 50 years. (EMKO 2019).

Regarding surface water quality, EMKO reports that surface water samples were collected from the east and west parts of Lake A, the pond at the bottom of Lake B, the quarry ponds along ADV at the Topcon site, Island Pond, and Lake Boris. The quarry ponds at the Topcon Site, Island Pond, and Lake Boris are historical aggregate mining pits along ADV. Island Pond and Lake Boris are located south of Shadow Cliffs Lake. The surface water data suggest that the general water chemistry is slightly different at Lake A compared to downstream locations. At Lake A, the water chemistry is similar to that for groundwater in nearby wells, with TDS levels in the range of 450 mg/L to 490 mg/L. At the locations downstream from Lake A, the TDS is less than 340 mg/L, the predominant cation alternates between calcium and sodium, and the predominant anion is bicarbonate. The pH at all surface water locations ranges from 8.4 to 8.9. (EMKO 2019).

EMKO's analysis indicates that the surface water related to ADV has a lower TDS concentration than the groundwater in the vicinity of the Eliot facility. The predominant anions and cations for both surface water and groundwater are comparable.

Regulated Wetlands and Waters

Foothill prepared an aquatic resources delineation report for the site in January 2019 based on the results of field delineations performed in November 2017 and April 2018 (see Appendix G). Foothill identified approximately 87.44 acres of potentially jurisdictional waters of the U.S. within the Plan boundary, including:

1. Depressional season marsh - 0.06 acre
2. Riverine seasonal marsh - 0.09 acre (496 linear feet)
3. Willow riparian wetland - 2.69 acres (1,410 linear feet)
4. Intermittent stream - 0.34 acre (597 linear feet)
5. Perennial stream (ADV) – 67.36 acres (13,307 linear feet)
6. Breached quarry pond – 16.90 acres

2.5 Effect on Surrounding Land Uses [CCR §3502(b)(1)]

2.5.1 Surrounding Land Uses

The predominant land uses in the general vicinity of the site are aggregate mining, recreational, and residential. A separate mine operated by Vulcan Materials Company (subject to separate reclamation entitlements referred to as "SMP-16") abuts the site's eastern and northern border. The ADV flows along the southern border from southeast to northwest, and is currently, but not historically, separate from the active operating areas at the Eliot Quarry. The East Bay Regional Park District ("EBRPD") Shadow Cliffs Recreation Area, also a reclaimed surface mine, abuts the site's western border. The Ruby Hills subdivision and other residential developments in the City

of Pleasanton are located across Vineyard Avenue to the south of Lake B. Residential uses are also located in the City of Livermore to the north of Lake A.

2.5.2 Effect that Reclaimed Site Conditions May Have on Surrounding Land Uses

As described above, the planned end uses for Eliot Quarry include water management, open space, and non-prime agriculture. These end uses are consistent with the LAVQAR Specific Plan and were included as part of SMP-23 as originally approved by the County in 1987. Reclamation to the planned end uses is not anticipated to adversely affect existing and future uses of surrounding lands. Open space and agricultural end uses are compatible with the underlying zoning of the site and consistent with historic pre-mining uses of the land. In addition, the site is subject to the LAVQAR Specific Plan, which was adopted as a master reclamation plan that would shape mined pit areas into the Chain of Lakes and return the remaining mined lands to productive uses after the removal of sand and gravel reserves.

The LAVQAR Specific Plan's objectives are listed in Section 3.2 below and its potential impacts on surrounding land uses were analyzed in the Specific Plan EIR prior to the Specific Plan's adoption. Accordingly, as compared to present conditions at the site, implementation of this Plan consistent with the Specific Plan objectives should have a beneficial (rather than adverse) effect on surrounding land uses.

2.6 Slope Stability and Disposition of Fill Materials

2.6.1 Final Slopes; Slope Angles Flatter than Critical Gradient [CCR §3502(b)(3)]

CCR §3704(f). *Final cut slopes have minimum factor of safety for end use and conform with surrounding topography and/or approved end use.*

CEMEX commissioned Geocon Consultants, Inc. ("Geocon") to perform a slope stability analysis in support of this Plan and provide fill material and compaction specifications for reclamation (see Appendix I, Geotechnical Investigation). Geocon's evaluation of final cut slopes was based on the Plan sheets prepared by Spinardi and Associates (i.e., Sheets M-1, M-2, and R-1 through R-4 of this Plan). The scope of the investigation included field exploration, laboratory testing, and engineering analysis and evaluated slope stability for both static and seismic conditions. The report also presents recommendations related to construction (e.g., fill material specifications and compaction). Construction recommendations are detailed in Section 2.6.2, below.

Based on prior County direction, acceptable factors of safety against slope instability are considered to be 1.5 or greater for static conditions and 1.0 or greater for seismic.[5] Where a modeled factor of safety indicates less than 1.0, Geocon performed a second-tier analysis, referred to as a Newmark slope displacement analysis, in accordance with California Geological

[5] Factor of safety is the ratio of the summation of driving forces divided by the summation of resisting forces. A factor of safety of 1.0 indicates that the driving and resisting forces are equal and the slope is in a state of equilibrium. A factor of safety greater than 1.0 indicates the presence of reserve strength; however, does not guarantee that failure will not occur. Rather, the probability of failure generally decreases as the factor of safety increases. (Geocon 2018).

Survey Special Publication 117A ("SP117A"). Consistent with prior geotechnical investigations conducted at the site by others, such as the Lake A Corrective Action Plan prepared by Cotton Shires and Associates to address prior slope stability concerns at Lake A (which was extensively peer reviewed by the County), Geocon indicates that displacements of less than 6 inches (i.e., 15 centimeters) are generally considered minor, and thus reasonable for the planned end uses.

Geocon's conclusions related to final cut slopes are separately presented for each past and present mining area, below.

Lake A Mining Area

No new mining is proposed at Lake A and only minor reclamation improvements are planned (see Section 2.2.1). Geocon concluded that this Plan's Lake A reclamation improvements all have negligible effect on the stability of existing slopes and as such slope stability analyses for reclamation activities were not warranted for Lake A. Nevertheless, existing slope conditions were analyzed. At the request of Alameda County, Geocon also analyzed the northern slope of Lake A for a temporary equipment loading condition to address a scenario in which heavy equipment may temporarily operate on the slope for future access and maintenance purposes.

Geocon concluded that the existing Lake A slopes possess factors of safety against deep-seated instability that meet or exceed the applicable minimums with the exception of the block failure mode in the seismic case. For block failure modes in the seismic case, Geocon performed a Newmark slope displacement analysis in accordance with SP117A that shows that all slope displacements under block failure seismic conditions in Lake A would be less than 15 centimeters (approximately 6 inches). SP117A indicates that displacements less than 15 cm are unlikely to correspond to serious damage and are considered small. For detailed results, please refer to Appendix I at Section 6.6.

Lake B Mining Area

Geocon concluded that the planned final slopes for Lake B, including the embankment slope between Lake B and the freshwater pond to the north, possess factors of safety against deep-seated instability that meet or exceed the applicable minimums (i.e., 1.5 or greater for static conditions and 1.0 or greater for seismic conditions). For detailed results, please refer to Appendix I at Section 6.3.

North Area - Lake J Mining Area

Geocon evaluated the proposed final cut slopes in the Lake J mining area, including the southwestern slope of Lake J that separates it from the existing off-site Shadow Cliffs Recreational Area. Geocon concluded that the planned final mining cut slopes for Lake J possess factors of safety against deep-seated instability that meet or exceed the applicable minimums (i.e., 1.5 or greater for static conditions and 1.0 or greater for seismic conditions). For detailed results, please refer to Appendix I at Section 6.2.

North Area - Embankments Between Main Silt Pond and Neighboring Future Lake D

Geocon evaluated the existing slopes between the main silt pond and future Lake D (off-site), as well as between Pond D and future Lake D (see Sheet R-1). Geocon concluded that the existing and planned final slopes possess factors of safety against deep-seated instability that meet or exceed the applicable minimums (i.e., 1.5 or greater for static conditions and 1.0 or greater for seismic conditions). For detailed results, please refer to Appendix I at Section 6.4.

North Area - Embankments Between Pond C and Neighboring Future Lake C, and Ponds C and D

Geocon evaluated the existing slopes between Pond C and future Lake C (off-site). No future mining is proposed in this area; the reclaimed condition is essentially the same as the existing condition (see Sheet R-2). Geocon also evaluated the planned 45-foot embankment berm between Ponds C and D (see Sheet R-1 or R-2). Geocon concluded that the existing and planned final slopes possess factors of safety against deep-seated instability that meet or exceed the applicable minimums (i.e., 1.5 or greater for static conditions and 1.0 or greater for seismic conditions). For detailed results, please refer to Appendix I at Section 6.5.

2.6.2 Fill Slopes and Compaction Standards

CCR §3502(b)(4). *The source and disposition of fill materials used for backfilling or grading shall be considered in the reclamation plan. Where end uses are sensitive to settlement, include compaction of the fill materials in conformance with good engineering practice.*

CCR §3704(a). *For urban use, fill compacted in accordance with UBC, local grading ordinance, or other methods approved by the lead agency.*

CCR §3704(b). *For resource conservation, compact to standard for that end use.*

CCR §3704(d). *Final reclamation fill slopes not exceed 2:1, except when allowed by site-specific engineering analysis, and can be revegetated.*

CCR §3704(e). *At closure, final landforms of fills conform with surrounding topography and/or approved end use.*

Final reclamation fill slopes will not exceed 2H:1V. Backfill for urban uses, human occupancy, or resource conservation purposes is not proposed. Final landforms have been specifically designed to be suitable for the planned end uses.

Fill materials (sourced on-site) will be actively placed during backfilling and grading in support of the following reclamation activities:

1. **At Lakes A and B**, for installation and raising of berms between the lakes and the ADV (see Sheets R-2 and R-4). The berms will be constructed in compacted lifts with 2H:1V or flatter slopes.

2. **At Lake B**, for construction of the realigned ADV on the south side of the lake (see Sheet R-2). The realigned ADV channel bed and embankments will be constructed in compacted lifts with 2H:1V or flatter slopes.
3. **At Lake B**, for construction of the berm at the north end of the lake (in an area referred to as the "Shark's fin") to develop separation between the mining area and the fresh water Pond A to the north (see Sheet M-2). The berm will be constructed in compacted lifts to elevation 370 feet msl. In the final condition, a drainage notch will be excavated in the berm (to elevation 350 feet msl) to join the freshwater Pond A with Lake B (see Sheet R-2).
4. **At Lake B**, to develop the westerly embankment (berm) for the dry silt and overburden fill material containment area in the eastern pan-handle of the lake (see Sheet M-2 and final condition on Sheet R-2). The berm will be constructed in compacted lifts as dry silt and overburden materials are placed behind it with a 2H:1V exterior (west-facing) slope. Ultimately, in the final condition the west-facing berm will stand approximately 100 feet tall under water.
5. **At the North areas**, to raise the existing berms on the west and south sides of the main silt pond and west side of the existing fresh water Pond A located north of Lake B (see Sheet M-1, and final condition on Sheet R-1). The berms will be constructed in compacted lifts with 2H:1V or flatter slopes.
6. **At the North areas**, including Lake J and the main silt pond, for backfills, mass grading, and capping silt ponds (see Sheet R-1). These areas will be reclaimed to open space and/or agriculture end uses that are not sensitive to minor settlements; therefore, specific compaction parameters are not proposed. A suitable level of compaction will be achieved as a result of heavy equipment traversing the fills during grading activity.

Geotechnical Recommendations – Fill Slopes, Berms, and Embankments

Geocon provided fill material and compaction specifications for reclamation fill activities (see Appendix I, at Section 8). Geocon's recommendations, which are hereby incorporated into this Plan, are summarized as follows:

1. **Fill slope geometry.** Fill slopes for the proposed ADV berms, embankments between Pond C and Pond D, embankment for fill storage at the east end of Lake B, and shark's fin embankment should be constructed at 2H:1V or flatter. Mid-height bench(es) should be considered for fill slopes exceeding 50 feet in height above the water surface to provide access for slope maintenance.
2. **Fill materials.** Geocon anticipates that predominantly clayey materials will be used as fill for the ADV berms, embankments between Pond C and Pond D, embankment for fill storage at the east end of Lake B, and Lake B shark's fin embankment. Given expected variability in the borrow materials used, periodic sampling and laboratory testing is recommended to verify that minimum fill material properties (e.g., gradation, plasticity,

unit weight, cohesion and conductivity) are met to achieve the recommended compaction. Specifications are detailed in Tables 8.2A and 8.2B of Appendix I.

3. **Berm grading:**

   a. All earthwork operations should be observed and all fills tested for recommended compaction and moisture content by a Geocon representative.

   b. Prior to commencing grading, a pre-construction conference with the Operator and Geocon representatives should be held at the site. Site preparation, soil handling and/or the grading plans should be discussed at the pre-construction conference.

   c. Prior to commencing grading within embankment and slope areas, surface vegetation should be removed by stripping to a sufficient depth to remove roots and organic-rich topsoil. Geocon estimate stripping depth will be on the order of 2 to 4 inches. Material generated during stripping is not suitable for use as embankment or reclamation slope fill but may be stockpiled for future use as topsoil. Any existing trees and associated root systems should be removed. Roots larger than 1 inch in diameter should be completely removed. Smaller roots may be left in-place as conditions warrant and at the discretion of our field representative.

   d. To increase stability and to provide a stable foundation for the berm embankments, the full length of the embankments should be provided with embankment-width keyways. The keyways should have a minimum embedment depth of 3 feet into firm, competent, undisturbed soil. The actual depth of the keyway should be evaluated during construction by a Geocon representative. Keyway back-slopes should be no flatter than 1H:1V.

   e. In general, where fill is placed on sloping ground steeper than 5H:1V, the fill should be benched into the adjacent native materials as the fill is placed. Benches should roughly parallel slope contours and extend at least 2 feet into competent material. In addition, a keyway should be cut into the slope at the base of the fill. In general, keyways should be at least 15 feet wide and extend at least 2 feet into competent material. Bench and keyway criteria may need revision during construction based on the actual materials encountered and grading performed in the field.

   f. Pipe penetrations through the berms should be avoided. If pipe penetrations are unavoidable, Geocon recommends providing concrete cut-off collars at the penetration to reduce potential for seepage. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized such that they are 12 to 18 inches larger than the nominal outside diameter of the pipe. Thickness should be at least 6 inches. Water-tight filler should be used between collars and pipes.

   g. Bottoms of keyways and areas to receive fill should be scarified 12 inches, uniformly moisture-conditioned at or above optimum moisture content and compacted to at least 90% relative compaction. Scarification and recompaction operations should be performed in the presence of a Geocon representative to evaluate performance of the subgrade under compaction equipment loading.

h. Engineered fill consisting of onsite or approved import materials should be compacted in horizontal lifts not exceeding 8 inches (loose thickness) and brought to final subgrade elevations. Each lift should be moisture-conditioned at or above optimum and compacted to at least 90% relative compaction at least 2% above optimum moisture content. Fills for the eastern Lake B embankments and Pond C/D separation be compacted to at least 95% relative compaction above optimum moisture content.

i. Fill slopes should be built such that soils are uniformly compacted to at least 90% relative compaction at least 2% above optimum moisture content to the finished face of the completed slope. Fill slopes for the eastern Lake B fill embankments and Pond C/D separation should be compacted to at least 95% relative compaction above optimum moisture content.

4. **Slope maintenance.** Proper surface drainage facilities directing runoff away from slopes, vegetation, erosion control measures, and best management practice (BMP) devices should be maintained to reduce long-term slope degradation from erosion. Periodic inspections should be performed on a regular basis to identify and address maintenance needs. Geocon should be contacted to observe erosional features and provide specific maintenance and repair recommendations, as needed. In general, localized slumps deeper than about 2 to 3 feet should be excavated/removed and replaced with engineered fill (compacted to at least 90% relative compaction, or at least 95% relative compaction for the eastern Lake B embankments and Pond C/D separation) that is keyed and benched into the existing, intact slope. Significant erosional features such as deep rills and gullies should be re-graded (smoothed, backfilled, and tracked/compacted). Any repaired areas should be re-vegetated as soon as possible.

Geotechnical Recommendations – ADV Realignment

In addition, CEMEX commissioned Geocon to perform slope stability evaluations and provide fill material and compaction specifications specific to the ADV realignment construction project (see Appendix J, Slope Stability Analysis – Arroyo del Valle Realignment at Lake B). As part of this effort, Geocon analyzed slope stability conditions within the "ADV embankment" (i.e., the new embankment fill separating the realigned ADV channel from the Lake B mining slope) as well as the adjacent Lake B slope under both temporary and permanent conditions. Geocon concluded that the construction of the realigned ADV and associated embankments will be stable and possess factors of safety that meet or exceed the applicable minimums (i.e., 1.5 or greater for static conditions and 1.0 or greater for seismic conditions), provided that their construction recommendations are observed.

Geocon's recommendations specific to the ADV realignment are hereby incorporated into this Plan and summarized as follows:

1. **Slope geometry.** All slopes should be constructed at 2H:1V or flatter. For the Lake B slope and any slopes exceeding 50 feet high, consideration should be given to providing a maintenance bench at the approximate mid-height of the slope to provide access for maintenance operations.

2. **Fill materials.** In general, excavated soils generated from cut operations along the ADV realignment are suitable for use as engineered fill/embankment construction provided they do not contain deleterious matter, organic material, or rock/cementations larger than 6 inches in maximum dimension. Geocon anticipate that the majority of these materials will consist of gravel deposits. Based on the results of Geocon's investigation, the identified borrow materials ("clay" and "silt") are also acceptable for use as fill. However, Geocon expects some variability in soil conditions throughout the area, particularly in the "silt" material (defined as Borrow Area #2). Therefore, periodic sampling and laboratory testing should be performed to verify that minimum fill material properties (e.g., gradation, plasticity, unit weight, cohesion and conductivity) are met. Specifications are detailed in Table 8.2 of Appendix J.

3. **Grading / embankments / slopes:**

    a. All earthwork operations should be observed and all fills tested for recommended compaction and moisture content by a Geocon representative.

    b. Prior to commencing grading, a pre-construction conference with the Operator and Geocon representatives should be held at the site. Site preparation, soil handling and/or the grading plans should be discussed at the pre-construction conference.

    c. Prior to commencing grading within embankment and slope areas, surface vegetation should be removed by stripping to a sufficient depth to remove roots and organic-rich topsoil. Geocon estimates stripping depth will be on the order of 2 to 4 inches. Material generated during stripping is not suitable for use as embankment or reclamation slope fill but may be stockpiled for future use as topsoil. Any existing trees and associated root systems should be removed. Roots larger than 1 inch in diameter should be completely removed. Smaller roots may be left in-place as conditions warrant and at the discretion of our field representative.

    d. Prior to placing fill in the existing ponds, the ponds should be dewatered and allowed to dry for some time. Geocon expects that clay soils exposed in the pond bottoms will be wet and unstable, even after dewatering. Geocon recommends placing a bridging layer of rock (local gravel deposits) to stabilize the bottom and to allow access for grading equipment. For planning purposes, placing a 2- to 3-foot layer of gravel should provide adequate stabilization. Geocon should observe conditions exposed at the time of grading and provide specific stabilization recommendations during construction based on conditions encountered.

    e. To increase stability and to provide a stable foundation for the embankments, the full length of the embankments should be provided with embankment-width keyways. The keyways should have a minimum embedment depth of 3 feet into firm, competent, undisturbed soil. The actual depth of the keyway should be evaluated during construction by a Geocon representative. Keyway backslopes should be no flatter than 1:1.

    f. In general, where fill is placed on sloping ground steeper than 5H:1V, the fill should be benched into the adjacent native materials as the fill is placed. Benches should

roughly parallel slope contours and extend at least 2 feet into competent material. In addition, a keyway should be cut into the slope at the base of the fill. In general, keyways should be at least 15 feet wide and extend at least 2 feet into competent material. Bench and keyway criteria may need revision during construction based on the actual materials encountered and grading performed in the field.

g. Pipe penetrations through the new ADV embankment should be avoided. If pipe penetrations are unavoidable, Geocon recommends providing concrete cut-off collars at the penetration to reduce potential for seepage. Reinforced concrete cut-off collars should completely encircle the pipe and should be sized such that they are 12 to 18 inches larger than the nominal outside diameter of the pipe. Thickness should be at least 6 inches. Water-tight filler should be used between collars and pipes.

h. Bottoms of keyways and areas to receive fill should be scarified 12 inches, uniformly moisture-conditioned at or above optimum moisture content and compacted to at least 90% relative compaction. Scarification and recompaction operations should be performed in the presence of a Geocon representative to evaluate performance of the subgrade under compaction equipment loading.

i. Engineered fill consisting of onsite or approved import materials should be compacted in horizontal lifts not exceeding 8 inches (loose thickness) and brought to final subgrade elevations. Each lift should be moisture-conditioned at or above optimum and compacted to at least 90% relative compaction.

j. Fill slopes should be built such that soils are uniformly compacted to at least 90% relative compaction to the finished face of the completed slope. This may require over-building the slopes and cutting them back.

4. **Slope maintenance.** Proper surface drainage facilities directing runoff away from slopes, vegetation, erosion control measures, and best management practice (BMP) devices should be maintained to reduce long-term slope degradation from erosion. Periodic inspections should be performed on a regular basis to identify and address maintenance needs. Geocon should be contacted to observe erosional features and provide specific maintenance and repair recommendations, as needed. In general, localized slumps deeper than about 2 to 3 feet should be excavated/removed and replaced with engineered fill (compacted to at least 90% relative compaction) that is keyed and benched into the existing, intact slope. Significant erosional features such as deep rills and gullies should be re-graded (smoothed, backfilled, and tracked/compacted). Any repaired areas should be re-vegetated as soon as possible.

Although the recommendations outlined in this Section 2.6.2 specifically reference participation by representatives of Geocon, it is expressly understood that the Operator may carry out these recommendations with the assistance of other qualified and licensed geotechnical professionals as well.

2.7 Hydrology and Water Quality

2.7.1 Surface and Groundwater Quality Protected in Accordance with Porter-Cologne and Clean Water Acts [CCR §3710(a)]

CCR §3706(a). *Mining and reclamation to protect downstream beneficial uses.*

CCR §3706(b). *Water quality, recharge, and groundwater storage that is accessed by others shall not be diminished, except as allowed by plan.*

CCR §3503(b)(2). *Substantially prevent siltation of groundwater recharge areas.*

A key reclamation end use objective of this Plan is water management, to implement the LAVQAR Specific Plan by reclaiming the Lake A and Lake B excavated areas as basins for the future creation of water storage, conveyance and recharge facilities for the Chain of Lakes. The implementation of the Chain of Lakes concept will allow Zone 7 to enhance groundwater recharge and improve reliability and sustainability of groundwater supplies in the Valley.

In furtherance of these objectives, surface and groundwater will continue to be protected from siltation and pollutants as required by the Federal Clean Water Act, the California Porter-Cologne Water Quality Control Act, County ordinances, Regional Water Quality Control Board ("RWQCB") and the State Water Resources Control Board.

SMP-23 currently operates under Waste Discharge Requirements Regionwide National Pollutant Discharge Elimination System ("NPDES") Permit No. CAG982001 under Order No. R2-2015-0035 for the discharge of aggregate wash water and groundwater to Shadow Cliffs and the ADV, as originally documented in a Notice of General Permit Coverage issued on March 25, 2003 ("WDRs"). The WDRs will continue to apply to future mining operations at the site. If, however, process water was planned to be discharged to an offsite location other than Shadow Cliffs or the ADV, then CEMEX would submit a new Notice of Intent ("NOI") to RWQCB to modify the existing WDRs.

The site is also subject to storm water events but does not discharge surface water from mined areas. The mining areas effectively function as self-contained basins. If required in the future, the Operator will comply with NPDES Industrial Storm Water General Permit requirements, including implementation of a Storm Water Pollution Prevention Plan ("SWPPP") with Best Management Practices ("BMPs") to control erosion, sedimentation, and pollution. For the ADV realignment construction project, the Operator will comply with the NPDES Construction Storm Water General Permit Requirements, including implementation of a construction SWPPP with BMPs. The SWPPP and Notice of Intent to comply with the General Permit will be prepared and filed with the RWQCB ahead of construction.

As required, the Operator will also continue to implement a Spill Prevention, Control, and Countermeasure Plan ("SPCC Plan") and Hazardous Materials Business Plan pursuant to 40 CFR Part 112 and 19 CCR Section 2729, respectively.

EMKO conducted an analysis of hydrology, water quality, and groundwater storage and recharge in support of this Plan (see Appendix H). Based on the results of EMKO's assessment, surface mining and reclamation activities are not expected to affect downstream beneficial uses of water, or the quality of water, recharge potential, or storage capacity of groundwater aquifers. Regarding the silt deposition in the Lake B and North reclamation areas (e.g., Lake J), from a regional groundwater basin context the area affected by silt deposition is small and would not appreciably reduce the amount of groundwater flowing through the site. For example, although the deposition of silts and overburden in Lake B may reduce transmissivity for the thickness of the silt profile (from the mine floor up to elevation 340 feet msl), the remaining area above the silts but below the groundwater level (from elevation 340 to 369 feet msl) would have unobstructed flow and thus the net transmissivity in that area is approximately equivalent.

Reclamation under this Plan will provide for the diversion of water by Zone 7 from the ADV through Lake A and into future Lake C (off-site) in support of the LAVQAR Specific Plan's Chain of Lakes concept. This Plan should also reduce the evaporative loss of water as compared to the original SMP-23 approval because of the substantially reduced water surface acreage. Therefore, the changes adopted under this Plan are consistent with the objectives of the LAVQAR Specific Plan while reducing evaporative losses of groundwater as compared to those that would have occurred under the original SMP-23.

2.7.2 Drainage, Sediment and Erosion Control [PRC §2773(a)]

CCR §3503(a)(3). *Erosion control facilities constructed and maintained where necessary.*

CCR §3503(b)(1). *Settling ponds used where they will provide significant benefit to water quality.*

CCR §3503(e). *Grading and revegetation to minimize erosion and convey surface runoff to natural drainage courses or interior basins. Spillway protection.*

CCR §3706(c). *Erosion and sedimentation controlled during all phases of construction, operation, reclamation, and closure of surface mining operation to minimize siltation of lakes and water courses per RWQCB/SWRCB.*

CCR §3706(d). *Surface runoff and drainage controlled to protect surrounding land and water resources. Erosion control methods designed for not less than 20 year/1 hour intensity storm event.*

CCR §3706(e). *Altered drainages shall not cause increased erosion or sedimentation.*

Drainage and Erosion Control

During mining operations, surface runoff that collects in the mine floor will be allowed to evaporate, infiltrate, or be used on-site (e.g., for dust control). The Operator will also continue to comply with the requirements of its WDRs and as needed the NPDES General Permit requirements, including a SWPPP with BMPs, during surface mining and reclamation activities.

To facilitate the southerly progression of Lake B, this Plan includes realignment and restoration of a ±5,800 linear foot reach of the ADV. The ADV realignment will result in an enhanced riparian corridor that flows around, rather than through (as originally anticipated in SMP-23), Lake B. The hydraulic modeling conducted for the ADV realignment by Brown & Caldwell demonstrates that the stream channel will be stable and will not result in additional aggradation or degradation of the stream bed (see Appendix B). The channel profile is designed specifically to prevent erosion and siltation and allow the development of appropriate aquatic habitat. Design features that offer increased stability are included in the design parameters, including rip-rap, check dams, rock slopes for tributary inlets, and stone j-hooks. These types of features offer a dual purpose by both promoting a stable channel configuration and providing a more reliable platform for ecological restoration as plant communities are established and fish-passable features are created. Construction improvement plans that will be processed later by the County for the ADV realignment will further detail these features in a project-specific erosion control plan.

The ADV realignment project will also be subject to the requirements of its own construction SWPPP. These mitigating measures are all planned to ensure that runoff will not cause increased erosion or sedimentation.

In addition, the following erosion control facilities are incorporated into this Plan in other locations to control erosion:

1. **At Lake A**, a rip-rap apron at the base of the ADV diversion structure outlet in the southeast corner of the lake (see Sheet R-4).
2. **At Lake A**, a rock-lined overflow outlet on the crest of the berm in the southwest corner of the lake to allow water to flow back into ADV when water levels are high (see Sheet R-4).
3. **At Lake B**, rip-rap slope protection at the base of the east end of the lake to prevent erosion from future discharges from the Lake A to future Lake C pipeline turn-out into Lake B, if operated by Zone 7 (see Sheet R-2 and cross-section A on Sheet R-4). Alternatively, a rock-lined ditch may be installed above the surface water elevation to convey water around and to the west of the silt backfill area.
4. **At Lake B**, an overflow outlet on the crest of the berm in the west end of the lake to allow water to flow back into ADV through a controlled and stable pathway, consisting of an armored trapezoidal weir and chute, with a rip-rap outlet flow path and apron (see cross section 2 on Sheet R-2 and Appendix B at Section 5.3 for detailed specifications).

In addition, this Plan features grading and revegetation (discussed in more detail in Sections 2.9 and 2.10) that is designed to minimize erosion and convey surface runoff to natural drainage courses or interior basins, and eliminate catchments. Slopes will be vegetated with appropriate native seed mixes once final reclamation grades are achieved.

As one example, small retention ponds are planned in the northeast corner of the main silt pond and north and south ends of the Lake J area (identified as Ponds 1, 2, and 3 on Sheet R-1) to

prevent future agricultural runoff from entering Lake B. As another example, at Lake A the existing small percolation ponds (or catchments) on the south side of the lake will be filled in to prevent them from serving as breeding areas for mosquitoes.

All of the erosion control methods discussed here will accommodate the 20-year/1-hour, and 100-year/24-hour intensity storm events.

Settling Ponds and Basins (CCR §3503(b)(1))

This Plan incorporates the use of settling ponds to capture and settle aggregate process wash fines (or silts) from the aggregate production process as is typical of aggregate mines. Settling ponds have been used at the site since the onset of aggregate processing activities. The existing main silt pond and future silt pond locations (i.e., Pond C, Pond D, and Lake J) are shown on Sheet M-1. The Operator will continue to use the main pond as its primary silt settling pond until it reaches its capacity, at which time a 3-foot soil cap will be graded atop the pond. The Lake J excavation area is then intended to serve as the facility's primary silt pond, but depending on timing of aggregate excavation in the Lake J area, Ponds C and D may be used first.[6] In addition, dry silts and overburden may also be placed in the pit floor of the eastern end of Lake B below the future water surface elevation of the lake (as shown on Sheet R-2). The use of these settling ponds and silt storage areas prevents the potential sedimentation of the ADV with process wash fines, particularly since these basins do not have an outlet to lower ground.

2.7.3 Performance Standards for Water Conveyance Facilities

Lake A Diversion Structure

The diversion from ADV to Lake A will consist of an intake (fitted with a screen to prevent fish capture or trapping), a low-head diversion dam to control water levels in the channel, a bypass structure for fish passage, a flow control structure, and a conduit into Lake A. The diversion will feature an infiltration bed concept that includes a 100-foot-wide (extending in the horizontal direction perpendicular to the stream bank) by 200-foot-long gravel infiltration bed to be constructed along the north bank of ADV. The design accommodates CDFW approach velocity criteria for fish screens to prevent fish entrapment against the intake screen. To meet the objectives of the LAVQAR Specific Plan, the diversion structure will convey up to 500 cfs through an 84-inch-diameter pipe into Lake A.

After the diversion is constructed, the 500-cfs design discharge capacity will be verified by either physically testing the system or performing desktop analysis using as-built dimensions. If desktop analysis is performed, then a hydraulic analysis should be conducted to confirm diversion parameters will achieve the design discharge capacity. Reclamation will be considered successful once either performance testing or the as-built analysis confirms the 500-cfs design capacity.

[6] It is currently anticipated that Pond D will be excavated to its final bottom elevation in approximately 2050 and be converted to the final silt pond at that time.

Lake A to C Pipeline

To demonstrate the proposed pipeline is capable of conveying 500 cfs, B&C conducted a series of hydraulic modeling simulations using water surface elevations at Lake A varying from 395 feet msl to 420 feet msl (see discussion in Appendix B at Section 5.2.1). B&C also evaluated multiple discharge loss coefficients to account for potential variations in minor losses within the system. The results from these simulations indicate that Lake A water levels of roughly 405 feet msl and above will have sufficient capacity to convey water to Lake C at a rate of 500 cfs. With Lake A water levels planned for 420 feet msl, the Lake A to Lake C pipeline will have more than sufficient hydraulic head to convey the desired 500 cfs specified in the LAVQAR Specific Plan and in the Zone 7 Agreement.

After the pipeline is constructed, the 500-cfs design discharge capacity will be verified by desktop analysis using as-built dimensions. Field testing will not be possible because water cannot be run through the pipeline until future Lake C is excavated by others. Therefore, B&C recommends a similar hydraulic analysis be conducted including confirming the pipeline dimensions, invert elevations, water surface elevations, and assumptions regarding losses. Reclamation will be considered successful once the as-built analysis confirms the 500-cfs design capacity and physical construction in substantial conformance with the design parameters.

Lake B to C Conduit

The embankment between Lake B and future Lake C is natural and will not be mined or reconstructed. CEMEX will install a 30-inch-diameter pipe in the unmined berm between Lake B and Lake C (either by jack and bore or open excavation methods). The invert elevation for the pipe will be approximately 349 feet msl. Appropriate gates or other devices will be installed to control the transfer of water from one lake to another, as required by the Zone 7 Agreement. Flow between the lakes will occur by gravity, based on the head differences between Lake B and Lake C, and mechanical pumping facilities will not be installed. Depending on the head difference between the two lakes, water may flow from Lake B to Lake C or from Lake C to Lake B when the control gates are open. However, until future Lake C is constructed, the conduit will require stub and cap at CEMEX's property line and may require the installation of a temporary blind flange at the invert end of the pipe in Lake B.[7] A damage-resistant marker detectable by metal detectors will be placed at the surface of the stub and cap location to demarcate the location of the pipe.

Reclamation will be considered successful once desktop as-built analysis confirms the conduit has been installed on-site to the recommended design parameters, with a stub and cap at the property line.

[7] A blind flange is a solid flange that is intended to block off a section of pipe that is not used. In the future, after the stub and cap at the property line is removed to extend the conduit into future Lake C, the temporary blind flange would be removed.

Lake A and B Outlets

An overflow outlet will be created in the crest of the berm installed along the southwest end of Lake A to allow water to flow back into ADV when water levels are above 420 feet msl to prevent flooding in the localized area. The outlet will consist of a 270-feet wide shallow rock-lined spillway that slopes south toward ADV at 3H:1V. In addition, an overflow outlet will be created in the crest of the berm installed at the west end of Lake B at an elevation of 369 feet msl to allow water to flow back into ADV through a controlled and stable pathway. The outlet will consist of an armored trapezoidal weir and chute, with an armored outlet apron. The outlet crest will be 60 feet wide perpendicular to the flow with 4H:1V side slopes, and the trapezoid will be at least 5 feet deep, thus resulting in a top width of 60 feet for the trapezoidal section. The outlet crest is 120 feet wide in the direction of the flow. The outlet flow path and apron will be lined with riprap to mitigate the potential for erosion to occur.

Reclamation will be considered successful once desktop as-built analysis confirms the outlets have been installed in substantial conformance with the design parameters.

2.7.4 Contaminant Control and Mine Waste Disposal [PRC §2772(c)(8)(A)]

CCR §3503(a)(2). *Overburden stockpiles managed to minimize water and wind erosion.*

CCR §3503(d). *Disposal of mine waste and overburden shall be stable and not restrict natural drainage without suitable provisions for diversion.*

CCR §3712. *Mine waste and tailings, and mine waste disposal units governed by SWRCB/IWMB (Article 1, Subchapter 1, Chapter 7, Title 27, CCR).*

Mine waste will be limited to overburden (clay lenses), wash fines (silts) generated from aggregate processing, and general refuse/trash. Overburden will be used in reclamation (e.g., for fills and to serve as a revegetation substrate). Wash fines will similarly be used to backfill silt ponds for return to other beneficial uses such as open space and/or agriculture, or blended with overburden and native substrate materials for soil upgrade. The main silt pond and Lake J silt pond will be capped with a suitable growth medium prior to revegetation. Wet wash fines will not be used for any construction or engineer fill applications. General refuse/trash will be hauled and disposed of off-site in accordance with applicable standards.

Overburden and wash fines storage areas have been designed to a generally even profile and are planned to be located in the least visible locations that are practical. For example, overburden and wash fines will be used to backfill open pit excavations such as the Lake J mining pit, which will be graded and revegetated for return to open space and/or agriculture. In addition, overburden and dry silt will placed in the east end of Lake B, below the anticipated final water surface elevation of Lake B where it will not be visible following reclamation.

Fill slopes, perimeter berms, and temporary stockpiles will be seeded and wetted as needed to minimize water and wind erosion, and will not restrict natural drainage courses. No material

stockpiles will be left following reclamation. However, any berms installed for safety along roads may be left in place, where those roads remain to facilitate the planned end uses.

2.7.5 In-stream Activities [CCR §3710(b)]

PRC §2772(c)(8)(B). Rehabilitation of streambanks/beds to minimize erosion.

CCR §3502(b)(6). Temporary stream and water diversions shown.

CCR §3706(f)(1). Stream diversions constructed in accordance with Fish and Game Code.

CCR §3706(f)(2). Stream diversions constructed in accordance with Federal Clean Water Act and Rivers and Harbors Act of 1899.

CCR §3706(g). All temporary stream diversions eventually removed.

CCR §3710(c). In-stream channel elevations and bank erosion evaluated annually using extraction quantities, cross-sections, aerial photos.

CCR §3710(d). In-stream mining not cause fish to be trapped in pools or off-channel pits, or restrict migratory or spawning activities.

This Plan includes realignment and restoration of a ±5,800 linear foot reach of the ADV to facilitate the southerly progression of the Lake B mining pit. The ADV realignment will only commence upon County approval of construction improvement plans and upon obtaining all necessary authorizations from the USACE, RWQCB and CDFW. Other than this planned relocation/mining of the ADV and related construction/restoration activity, no-instream mining is proposed.

In order to carry out the ADV realignment project, temporary stream diversions will be required to direct dry season flows in the active ADV channel around the project construction footprint and back into the ADV channel downstream (see Section 2.2.4). The temporary stream diversions will be constructed in accordance with a Lake and Streambed Alteration Agreement between the Operator and CDFW. The diversions will also be subject to the jurisdiction of the USACE, who will ensure through Department of the Army 404 permit authorizations that any necessary diversions are conditioned to comply with the Federal Clean Water Act. The Rivers and Harbors Act is not applicable. The temporary diversions will be removed once construction of the realigned ADV is complete.

A description of the manner in which ADV will be rehabilitated to a condition that minimizes erosion and sedimentation is included in Section 2.7.2. For additional detail, please see also Appendix B, which details B&C's design considerations related to the ADV realignment.

2.8 Protection of Fish and Wildlife Habitat [CCR §3503(c)]

CCR §3703(a). Sensitive species conserved or mitigated.

CCR §3703(b). Wildlife habitat at least as good as pre-project, if approved end use is habitat.

CCR §3703(c). Wetlands avoided or mitigated at 1:1 minimum.

CCR §3704(g). Piles or dumps not placed in wetlands without mitigation.

The Plan footprint is permitted for surface mining disturbances pursuant to CEMEX's existing vested rights and quarrying entitlements. Nearly all of the Plan boundary has already been disturbed by past and present surface mining activity. However, as discussed in Section 2.4.7, Foothill has found the site to contain sensitive biological communities and to provide habitat for sensitive plant and wildlife species.

Habitat disturbances associated with carrying out the objectives of this Plan will primarily be associated with the planned ADV diversion structure at Lake A and ADV realignment along the south side of Lake B. The ADV diversion structure at Lake A will feature an intake (fitted with a screen to prevent fish capture or trapping) and a bypass structure for fish passage. Both the ADV diversion structure and ADV realignment will be the subject of extensive regulatory review and oversight, including review by USACE, U.S. Fish and Wildlife Service, RWQCB, and CDFW, all of whom may impose specific measures for conservation or mitigation of potential impacts. The Operator will avoid sensitive habitats until such time as it obtains the required approvals from appropriate regulatory agencies. Where wetland features are present, they will either be avoided or mitigated at 1:1 minimum ratios. No fills will be placed in wetlands without proper authorizations. To ensure compliance with CCR Section 3703, CEMEX will append any permit conditions of approval and CEQA mitigation measures that relate to reclamation of mined lands to this approved Plan, pursuant to PRC Section 2772.1(b)(7)(B). Appendix K, Reclamation Related Conditions of Approval [Reserved], is included as a placeholder for this purpose.

The ADV in the Lake B reach is a highly degraded and disturbed system that hosts an abundance of non-native invasive species. Artificial stream impoundments are also present adjacent to the existing ADV channel in the Lake B reach, as a result of past mining excavations. An upstream dam and hydrologic alterations within the channel and in adjacent areas have impacted stream flow, bank condition, flooding, and riparian vegetation from historical conditions in the ADV.

Although reclamation to an end use of wildlife habitat is not proposed, the realigned ADV will provide habitat functions and values that represent a vast improvement compared to existing conditions in the ADV corridor. The ADV realignment will result in an enhanced riparian corridor that flows around, rather than through (as originally anticipated in SMP-23), Lake B. The degraded stream and artificial impoundments will be replaced by a complex mosaic of riparian wetlands within a floodplain. The ADV realignment will create a new perennial stream channel containing a low-flow channel, backwater wetlands, riparian wetlands, riparian scrub, riparian

woodland, as well as upland habitats. In effect, the ADV realignment project will be self-mitigating in that it will restore these portions of the ADV to a more natural state with a significant uplift in ecological functions and values. It is anticipated that once restored and mining is complete in Lake B, the realigned ADV will be placed under a conservation easement for the permanent protection of restored habitats.

2.9 Resoiling [CCR §3503(f)]

CCR §3704(c). *Mine waste stockpiled to facilitate phased reclamation and separate from growth media.*

CCR §3503(a)(1). *Removal of vegetation and overburden preceding mining kept to a minimum.*

CCR §3711(a). *All salvageable topsoil removed. Topsoil and vegetation removal not precede mining by more than one year.*

CCR §3711(b). *Topsoil resources mapped prior to stripping, location of stockpiles on map. Topsoil and growth media in separate stockpiles.*

CCR §3711(c). *Soil salvage and phases set forth in plan, minimize disturbance, designed to achieve reveg success.*

CCR §3711(d). *Topsoiling phase ASAP. Topsoil stockpiles not be disturbed until needed. Topsoil stockpiles clearly identified and planted with vegetation or otherwise protected.*

CCR §3711(e). *Topsoil redistributed in stable site and consistent thickness.*

CCR §3707(b). *Segregate and replace topsoil by horizon.*

CCR §3705(e). *Soil altered or other than native topsoil, requires soil analysis. Amend if necessary.*

Growth media for revegetation will consist of native topsoil and overburden. However, the availability of native topsoil on the site is very limited. The majority of topsoil that may have existed at the onset of quarrying operations (dating at least as far back as 1906) has been removed and comingled with other overburden materials, consistent with the surface mining practices that were considered acceptable at the time.

The NRCS soils map (Figure 10) provides an indication of areas that may still contain topsoil sources, to the extent that these areas have not already been disturbed as part of past mining activity. Lacking an abundance of topsoil resources, the overburden materials likely constitute the best available substrate material in the quarry. If necessary to achieve the planned end uses, then these overburden materials can be blended with wash fines generated by native on-site materials through aggregate processing operations (contained in silt ponds) to enhance nutrient

and water holding capacity of the soils. Soil amendments, if required during revegetation efforts, will be applied according to manufacturer's specifications. If soil amendments, other than native materials, are used then soil analysis will be conducted to show that soils will be suitable for their intended use.

The majority of the mining areas will not require resoiling or revegetation because the planned end use of water management provides for the pits to fill with water to form lakes. For other areas, prior to revegetation, the Operator will generally handle soils and prepare a revegetation substrate in the following manner:

1. Remove soils only as necessary to access new mining areas and use them for reclamation as soon as it can be accommodated by the mining schedule.

2. Remove all salvageable topsoil as a separate layer.

3. Limit topsoil and vegetation removal to not precede mining by more than one year, unless a longer time period is administratively approved by the County.

4. Where possible, place soils that have been removed for direct use in reclamation. Where salvaged topsoil cannot be used immediately for reclamation, stockpile it separately from other overburden and do not disturb until needed for reclamation. See Sheets M-1 and M-2 for approximate temporary stockpile locations.

5. Install signage for topsoil stockpiles to keep them clearly distinguishable from other stockpiled materials.

6. Seed soil stockpiles with an appropriate seed mixture as needed to prevent water and wind erosion and to discourage weed growth.

7. Prior to resoiling, rip, disc and/or scarify fill areas as needed to relieve compaction and remove rills, ruderal vegetation, or other surface irregularities.

8. Redistribute topsoil (or blended suitable growth media) in preparation for revegetation, with a target uniform thickness of 12-inches of topsoil atop overburden and/or other native substrate materials in the mine floor.

    - The thickness of topsoil salvaged and redistributed on the site during reclamation will vary. The target thickness of 12-inches is only a guideline based on available site specific soil information.

The site is not located on *prime* agriculture ground and reclamation to *prime* agriculture is not proposed; therefore, segregation and replacement of topsoil by horizons (CCR §3707(b)) is not required.

2.10 Revegetation [CCR §3705]

2.10.1 Vegetative Cover and Planting Procedures

CCR §3503(g). *Revegetation and plant survival (use available research).*

CCR §3705(a). *Vegetative cover, suitable to end use, self-sustaining. Baseline studies documenting cover, density and species richness.*

CCR §3705(c). *Decompaction of site.*

CCR §3705(g). *Use native plant species, unless exotic species meet end use.*

CCR §3705(h). *Plant during correct season.*

CCR §3705(i). *Use soil stabilizing practices and irrigation, when necessary to establish vegetation.*

CCR §3707(d). *Fertilizers and amendments not contaminate water.*

This revegetation plan is specific to the property and includes site-specific criteria for evaluations of compliance with this Plan's revegetation objectives. Consideration has been given to the topography, resoiling characteristics (including limited soil availability), and climate of the mined areas.

As part of reclamation, significant portions of the mine will be returned to open space and/or non-prime agriculture through revegetation and preparation for plantings. As disturbed areas become available for reclamation, revegetation will generally proceed in the following manner:

1. *Substrate Preparation*. As described in Section 2.9, each area to be re-vegetated will be treated as necessary to create or improve the soil substrate. These measures will include scarification of existing substrate to relieve compaction as well as addition of growth media available at the site to areas that lack suitable soil substrate. Scarification may consist of discing, ripping, deep ripping, or a combination of these methods depending on the texture of the substrate and the extent of compaction.

2. *Application of Herbicides*. Application of herbicides may be used ahead of planting to minimize potential for weed growth.

3. *Seeding*. Following substrate preparation a seed mix (described below) will be applied via hydro-seed (most effective for slopes) or broadcast seed (suitable for other graded areas such as the reclaimed plant site and silt ponds). Ideally, hydroseeding will be conducted in the early fall season (October-November) to take advantage of the natural rainfall for seed germination. The seed will be mixed with mulch, fertilizer and tackifier as needed for each situation.

4. *Monitoring.* For open space end uses, qualified biologists or botanists will monitor re-vegetated areas annually for a minimum of three years to assess whether revegetation is proceeding successfully. Revegetation success will be judged pursuant to the performance standards outlined later in this Plan. The monitoring program shall be considered complete if during the last two years plantings required no human intervention. If intervention is necessary after the second year of monitoring, then remedial measures will be implemented and monitoring will continue until such time as the performance standards can be met or this Plan is modified. Monitoring reports will summarize the reclamation responsibilities, construction and revegetation completed, monitoring implemented, and revegetation results compared to established success criteria. Photo documentation and field data will also be provided in appendices to the monitoring reports. If it is apparent that some reclamation features may not achieve intended success criteria, potential remediation opportunities will be evaluated or suggested and provided in the report.

   For agriculture end uses, the Operator will either demonstrate capability of sustaining grazing land or crops.

Open Space Areas

Experience by the mine Operator at the site, and surrounding mine operators, has shown that the mined slopes revegetate naturally over time. All final slopes and disturbed areas where natural revegetation of grasses has not already occurred to the required standard of coverage density (detailed later in this Plan) would be hydroseeded. Table 4, below, shows the seed mix proposed for open space end uses. This mix includes naturalized species commonly found in the Livermore Amador Valley (excluding noxious weeds) that are suitable for dryland grazing to reduce future fire hazards at the site. In addition, the native topsoil will contain a full seedbank of annual grasses, so these species are also likely to come in. The seeding is primarily proposed to ensure that there is sufficient grass cover to stabilize reclaimed areas for erosion control and promote dryland grazing to reduce fire hazards.

The species chosen for inclusion in the seed mixes are intended to be self-sustaining without dependence on irrigation, or ongoing applications of soil amendments or fertilizers, provided that planting takes place in the fall and subsequent rainfall is not abnormally low. As such, irrigation should not be needed.

TABLE 4
OPEN SPACE REVEGETATION SEED MIX

Plant Species[1]	Common Name	Application Rate
Bromus hordeaceus	Blando Brome	30 lbs/acre
Vulpia microstachys	Zorro Fescue	10 lbs/acre
Eschscholzia californica	California Poppy	0.5 lbs/acre
Trifolium hirtum	Rose Clover - inoc	4 lbs/acre
Lupinus succulentus	Valley Lupine	2.5 lbs/acre

Notes:
1. Seed mix recommended by Gates and Associates (San Ramon, CA).
2. Composition of seed mix (and appropriate modifications) to be determined based on availability from suppliers, cost, test plot results (if applicable) and species determined most suitable at the time of planting.
3. The seed mix may be supplemented with other California native species such as California Brome, Blue Wildrye, and Three Weeks Fescue at the time of reclamation.
4. Ideally, revegetation will occur in early fall (i.e., October/November).

Realigned Arroyo del Valle

CEMEX is also planning to enhance the realigned ADV streambed to create a complex, varied streambed habitat. Subject to regulatory agency approvals, plantings in the realigned ADV will feature a combination of riparian wetland, riparian scrub, riparian woodland, and upland. The following species are included in the revegetation pallet, with specific planting densities to be established in coordination with the approving agencies (see Figure 11, Illustrative Cross-Section of Revegetation Plantings in the Realigned ADV):

Riparian Wetland

Riparian wetland species planted in the intermediate channel and floodplain channel will include white alder, Fremont cottonwood, sandbar willow, red willow, arroyo willow, tall flatsedge, Bigelow's sneezeweed, watercress, common reed, tule, and cattails.

Riparian Scrub

Riparian scrub species planted in the floodplain channel will include white alder, Fremont cottonwood, red willow, arroyo willow, mule fat, California wild rose, Califiornia blackberry, mugwort, Santa Barbara sedge, tall flatsedge, and California gray rush.

Riparian Woodland

Riparian woodland species planted in the floodplain channel will include boxelder, California sycamore, Fremont cottonwood, valley oak, California wild rose, California wild grape, mugwort, Santa Barbara sedge, and creeping wildrye.

Upland

Upland species planted in the uplands adjacent to the realigned ADV channel will include California buckeye, Northern California black walnut, coast live oak, valley oak, coastal sage brush, coyote bush, California coffeeberry, toyon, deerweed, meadow barley, and purple needlegrass.

Agriculture Areas

For areas reclaimed to non-prime agriculture, fields will be backfilled/leveled as appropriate, graded for positive drainage, and prepared for dryland grazing or crop plantings. Dryland pasture crop would not require irrigation. The ultimate dryland grazing vegetation or crop to be planted is at the discretion of the landowner.

Soil Stabilizing Practices and Irrigation

Should any supplemental soil stabilizing practices be needed, straw mulch, fiber rolls, erosion control blankets and/or other BMPs will be used as necessary to control soil erosion.

2.10.2 Revegetation Test Plots [CCR §3705(b)]

A revegetation test plot for open space revegetation seed mixes will be placed at the southern perimeter of the old waste / silt pond as shown on Sheet M-2, unless the County waives the requirement to conduct test plots pursuant to 14 CCR § 3705(b). The test plot will be conducted simultaneously with mining. The appropriate application rates for the seed mix presented in Section 2.10.1 may be adjusted based on the results of test plot monitoring to the extent required by and consistent with 14 CCR § 3705(b).

2.10.3 Revegetation of Roads and Traffic Routes

CCR §3705(d). *Roads stripped of roadbase materials, resoiled and revegetated, unless exempted.*

CCR §3705(f). *Temporary access not bladed. Barriers installed.*

The existing and future road network are planned to be left in place for safety, fire protection, and to facilitate the planned end uses. Barriers such as berms and k-rails will continue to be used to restrict access around the mine to keep unauthorized vehicles out. No new temporary access routes are anticipated to be needed for reclamation.

2.10.4 Noxious Weed Management [CCR §3705(k)]

During the revegetation establishment period, noxious weeds will be managed: (1) when they threaten the success of the proposed revegetation; (2) to prevent spreading to nearby areas; and (3) to eliminate fire hazard. Noxious weeds will be removed using a combination of herbicides, mechanical controls, and hand weeding. In some cases, complete eradication may not be feasible

unless the weed-infested patches are small. Noxious weeds include all species classified as highly invasive by the California Exotic Pest Plant Council (CalEPPC).

2.10.5 Plant Protection Measures, Fencing, Caging [CCR §3705(l)]

Shrubs and trees that are planted as part of reclamation may be subject to herbivory that could result in damage or loss of plants. Any or all of the following corrective measures may be implemented during plant installation if it is determined that plants may be jeopardized by wildlife:

- Plants susceptible to browsing will be protected using wire cages, tree shelters (e.g., hardware wire cages, etc.), or exclosure fencing (e.g., temporary rabbit fences).
- Wire screening may be installed around the roots of plants to prevent damage attributed to subterranean herbivores (e.g., gophers).
- Protective devices (e.g., wire cages), if necessary, will be maintained in place for at least three years, or until herbivory is no longer a threat to the survival of the plants.
- During annual monitoring visits, the restoration monitor will observe for evidence of browsing and direct implementation of the measures outlined above as appropriate.

If deemed necessary to install fencing around revegetation areas to prevent herbivory, then fencing will be maintained until revegetation efforts are successfully completed and the lead agency authorizes removal.

2.10.6 Revegetation Performance Standards and Monitoring [PRC 2773(a)]

CCR 3705(m). *Success quantified by cover, density and species-richness. Standards proposed in plan. Sample method set forth in plan and sample size provide 80 percent confident level, as minimum.*

CCR §3705(j). *If irrigated, demonstrate self-sustaining without for two years minimum.*

Revegetation Performance Standards for Open Space

For areas reclaimed to open space, other than the ADV realignment (discussed separately below), reclamation will be measured against the following success criteria. Monitoring will include a minimum of twenty, 1 meter x 1 meter plots to determine total average cover, species richness, and noxious weed establishment. For open space revegetation, irrigation is not proposed.

Cover / Density:	Minimum 50% total cover (excluding noxious weeds)
Species richness:	Minimum 2 species per 1 meter x 1 meter plot (excluding noxious weeds)
Noxious weeds:	Not to exceed greater than 10% total cover

Note: Success criteria will be updated, if necessary, in consultation with the Lead Agency following monitoring of the proposed test plot.[8]

Monitoring

Qualified biologists, botanists or revegetation specialists will monitor re-vegetated areas annually for a minimum of three years after seeding to assess whether revegetation is proceeding successfully. Revegetation success will be judged pursuant to the performance standards presented above. Performance standards will only be considered to be met if the plantings required no human intervention during the preceding two years. If intervention is necessary after the second year of monitoring, then remedial measures will be implemented and monitoring will continue for another two years.

Qualitative Monitoring. Under most circumstances the success or failure of revegetated areas in relation to established performance standards should be immediately evident. In these circumstances, qualitative monitoring is sufficient documentation of the condition and cover of the revegetated areas. Qualitative monitoring consists of a visual determination of the percentage of cover of each plant species in each restoration area.

Quantitative Monitoring. Quantitative monitoring will only be conducted if revegetation monitors have significant doubt as to whether a particular area meets the standards outlined above. In each year that quantitative monitoring is conducted, square meter plots will be randomly placed in each reclamation unit (i.e., quarry pit slopes, plant site, silt ponds). No less than 20 randomly located plots will be distributed across each site, and additional plots will be established as necessary to reach the 80 percent confidence interval. Where cover differs markedly within a particular reclamation unit, monitors will stratify the unit into different cover types and sample within each type until 80 percent confidence is reached. The locations of each plot will be recorded on a map or will be recorded using a GPS receiver.

Revegetation Performance Standards for ADV Realignment

For areas reclaimed to open space as part of the ADV realignment footprint, reclamation will be measured against the performance standards adopted by the USACE, RWQCB, and CDFW in their respective project authorizations. The description of existing biological communities in Foothill's biological resources assessment will be used to inform these performance standards. It is anticipated that these standards will be detailed in a separate mitigation and monitoring plan specific to the ADV realignment project. To ensure compliance with any performance standards to be adopted by the regulatory agencies in the future, CEMEX will append and index any permit conditions of approval that relate to reclamation of the realigned ADV with this approved Plan, pursuant to PRC Section 2772.1(b)(7)(B). Appendix K is included as a placeholder for this purpose.

[8] The open space revegetation success criteria were reviewed and deemed acceptable by the California Department of Conservation's Division of Mine Reclamation for the Vineyard South Mine Project in Sacramento County, approved January 15, 2019.

2.10.7 Agricultural Fertility Performance Standards [CCR §3707 and CCR §3708]

CCR §3707(a). *Return prime agriculture to fertility level specified in approved plan.*

CCR §3707(c). *Productivity rates equal pre-project or similar site for two consecutive years. Rates set forth in plan.*

CCR §3708. *Other ag capable of sustaining crops common to area.*

The Mine is not located on *prime* agricultural lands. Therefore, performance standards set forth in CCR §3707 (required for agriculture end uses on *prime* agricultural lands) do not apply.

The following success criteria, consistent with CCR §3708 (performance standards for *other* agricultural land) is proposed where the Operator elects to return the site to agriculture.

Crop Yields:[9] In addition to the standards for topsoil salvage, maintenance, and redistribution, non-prime agricultural lands will be reclaimed so as to be capable of sustaining economically viable production of crops commonly grown in the surrounding areas. The operator may demonstrate capability by one of two methods (at the operator's option, either shall be deemed sufficient to demonstrate that reclamation success criteria have been met):

1. Prepare and submit to the Lead Agency a soils capability report prepared by a soils scientist concluding that the reclaimed condition is capable of sustaining economically viable dryland grazing of land or production of crops commonly grown in the surrounding areas; *or*
2. Planting at least one crop commonly grown in the surrounding areas and demonstrating for two years that yields for the chosen crop are within 80% of crop yields (based on available information) for the surrounding areas.

2.11 Equipment Removal and Incidental Waste Disposal

CCR §3709(a). *Equipment stored in designated area and waste disposed of according to ordinance.*

CCR §3709(b). *Structures and equipment dismantled and removed.*

CCR §3502(b)(5). *Disposition of old equipment.*

[9] *These agricultural performance standards were reviewed and deemed acceptable by the California Department of Conservation's Division of Mine Reclamation for the Vineyard South Mine Project in Sacramento County, approved January 15, 2019.*

Equipment used in mining and reclamation will be stored in designated areas as shown on Sheet 2 and removed from the site following final reclamation.

All processing facilities (including the aggregate, asphaltic-concrete, and ready-mix concrete plants), conveyors, and truck scales will be dismantled and removed as part of reclamation. Buildings (such as the office and shop buildings), fences and the road networks servicing the quarry may be left in place to facilitate the planned end use.

Any incidental refuse or garbage will be collected, hauled off-site and disposed of in accordance with state and local standards.

2.12 Closure of Portals, Shafts and Openings

CCR §3713(a). *Drill holes, water wells, monitoring wells completed or abandoned in accordance with laws.*

CCR §3713(b). *All portals, shafts, tunnels, or openings, gated or protected from public entry, but preserve access for wildlife.*

No portals, shafts, tunnels or other openings to underground workings are mapped or proposed. No drill holes (other than temporary drill holes that may be used for geologic exploration) are proposed. Any water wells or monitoring wells installed in support of surface mining or reclamation activities will be left in place to facilitate the water management end use or abandoned in accordance with state and local laws and regulations.

Zone 7 manages wells at the west end and south side of the ADV in the Lake A area (see Sheet R-4), numerous wells in the North reclamation areas near the main silt pond, fresh water ponds, and aggregate plant (see Sheet R-1), and a well south of the ADV near Vineyard Avenue in the Lake B area (see Sheet R-2). These wells will remain to enable Zone 7 to take groundwater level measurements and water quality samples as needed.

2.13 Administrative Requirements

2.13.1 Statement of Reclamation Responsibility [PRC §2772(c)(10)]

Please see Appendix D, Statement of Reclamation Responsibility.

2.13.2 Financial Assurances [PRC §2773.1]

Please see Appendix L, Financial Assurance Cost Estimate. Financial assurances will remain in effect for the duration of the mining operation and any additional period until reclamation is complete. CEMEX's Financial Assurance Cost Estimate ("FACE") will continue to be updated annually and submitted to the County for review. Financial assurances mechanisms ("FAM"), which provide financial security for reclamation requirements, may be adjusted (up or down as appropriate) based on the updated FACE.

2.13.3 Lead Agency Approvals and Annual Inspection [PRC §§2772.1 and 2774]

Upon Plan approval, and subsequent County and regulatory agency approvals for the realigned ADV, the conditions of approval and/or mitigation measures pertinent to reclamation of mined lands will be added to this Plan pursuant to PRC §2772.1(b)(7)(B). Appendix K is included as a placeholder for this purpose.

The Operator will submit a Mining Operation Annual Report to DMR and the County. This report will summarize the previous year's production and reclamation activities. SMARA also requires the County to conduct an annual inspection of the site to ensure compliance with the approved Plan.

2.13.4 All Mining Operations Since 1/1/76 Included in Reclamation Plan [PRC §2776]

No reclamation or reclamation plan approval is required for lands disturbed by surface mining operations conducted before January 1, 1976, which have not since been disturbed by surface mining operations (SMARA §2776). All areas subject to mining operations since January 1, 1976 as well as areas planned to be disturbed in the future are included in this Plan.

As discussed in Section 2.4.1, the 44-acre difference between the 966± acre CEMEX property and 920± acre Plan boundary is almost entirely due to the exclusion of the downstream reach of the ADV on CEMEX property that has not been subject to surface mining disturbances since January 1, 1976 and is therefore not subject to reclamation per SMARA §2776 as there is no intent to conduct any surface mining activities in this area. In much smaller measure, 0.2± acre of the difference is due to the exclusion of two small cellular tower facilities from the Plan boundary at the suggestion of County staff since these uses will remain following reclamation.

2.13.5 Mining in 100-year Floodplain and Within One Mile of State Highway Bridge [PRC §2770.5]

Portions of the mine are located within the 100-year floodplain of ADV, Zone A, as mapped by the Federal Emergency Management Agency ("FEMA") on its Flood Insurance Rate Map ("FIRM") Nos. 06001C0337G and 06001C0343G, which became effective August 3, 2009. In addition, the mine is located adjacent to the State Route 84 Isabel Avenue expressway bridge at ADV.

Whenever a new surface mining operation or renewal of an existing surface mining operation is proposed, the County (lead agency) is required to notify the State Department of Transportation ("DOT") that the application has been received. In this case, CEMEX is not requiring or requesting issuance of a new permit or renewal of an existing permit, as the project has a vested right and is a revision to the existing SMP-23 to reflect changed circumstances at the mine and in the vicinity. Therefore, notification is technically not required. If, however, the County still decides it is necessary to provide notification to DOT, then the DOT shall have a period of not more than 45 days to review and comment on the proposed surface mining operations with respect to any potential damage to the state highway bridge from the proposed surface mining operations. If DOT notification is determined to be necessary, then the County shall not issue or renew the

permit until the DOT has submitted its comments or until 45 days from the date the application for the permit was submitted, whichever occurs first.

3.0 LEAD AGENCY REQUIREMENTS [PRC §2772(C)(11)]

Section 3.0 of this Plan addresses specific lead agency reclamation requirements, where it is believed those requirements either supplement or amplify the requirements of SMARA as outlined in Section 2.0. This part is not intended to restate or address every SMARA code section or policy related to the reclamation of mined lands.

Surface mine reclamation is regulated by Alameda County primarily through three documents:

1. **County Wide General Plan –** contains language that provides general guidance on how and where mining should occur in the County.

2. **Alameda County Specific Plan for Livermore-Amador Valley Quarry Area Reclamation adopted in 1981 –** contains policies aimed at a coordinated plan for reclamation that mitigates the adverse effects of mining and promotes development of a "chain of lakes" concept.

3. **Alameda County General Ordinance Code, Title 6, Chapter 6.80, Surface Mining and Reclamation ("ACSMO") –** addresses County regulations and procedures governing the establishment, use and reclamation of mined lands in accordance with the County General Plan, including mining reclamation plans, financial assurances, reporting, inspections and violations.

Given CEMEX's vested rights to mine, this Section 3.0 only addresses requirements that specifically relate to the reclamation of mined lands, and not those requirements associated with regulation of the mining activities, including any associated environmental review or land use approvals.

3.1 County Wide General Plan

The County General Plan recognizes sand and gravel sourced from Alameda County as "a principle source of aggregate materials for the San Francisco Bay Area," and identifies the ADV as one of the primary sources of sand and gravel (General Plan Conservation Element, p. I-83 and I-84, 1994). An explicit goal of the General Plan is "to insure extraction of minerals and reclamation of land to the fullest extent possible consistent with sound management policies." (Id. At p. I-89). However, the General Plan does not appear to contain specific policies relating to the reclamation of mined lands.

3.2 LAVQAR Specific Plan

The LAVQAR Specific Plan is adopted as part of the County General Plan for the 3,820 acre area designated for "sand and gravel quarry" use between Pleasanton and Livermore in the

Livermore-Amador Valley Planning Unit General Plan ("Quarry Area"), adopted November 3, 1977. The general objectives of the LAVQAR Specific Plan are:

1. To enable the competing resources of land, water, and sand and gravel to be utilized with a minimum of conflict and disruption;
2. To plan for reclamation, productive reuse, and rehabilitation of the Quarry Area;
3. To mitigate adverse effects of mining;
4. To satisfy the requirements of the State Surface Mining and Reclamation Act of 1975 and the Alameda County Surface Mining Ordinance; and
5. To provide a coordinated plan for arrangement of mining-produced land and water masses into a coherent, flexible form, reflecting interrelatedness of geology, hydrology, land use, and other factors throughout the Quarry Area."

The LAVQAR Specific Plan also recognized as an adopted policy that "maximum flexibility in reclamation planning is desirable." (Specific Plan, Section VI., Policy 2). The LAVQAR Specific Plan policies that are germane to the substantive reclamation elements of this Plan are addressed below.

3.2.1 Details of Facilities to be Built, Components of Reclamation, and Estimated Costs [Policy 4]

Details of facilities to be built as a component of reclamation are addressed in Section 2.2 and shown on Sheets M-1, M-2 and R-1 through R-4.

Estimated costs for reclamation will be reflected in the Operator's first FACE update following Plan approval. The FACE, once approved by the County and DMR, will be used to set the amount of the necessary financial security (or FAM) as required by Policy 5. See also Section 2.13.2.

The anticipated sequencing of reclamation is addressed in Section 2.1.6.

3.2.2 Security for the Timely Performance of Reclamation Requirements [Policy 5]

These requirements are addressed in Section 2.13.2.

3.2.3 Water Conveyance Facilities Guaranteed by Operator [Policy 6]

These requirements are addressed in greater detail in the Zone 7 Agreement. Any levees and dikes constructed as part of the water management system will be guaranteed by the Operator for five years after construction, and maintained in a sound and acceptable condition until dedicated to Zone 7. Water conveyance structures (conduits, appurtenances, diversion structure, etc.) will be guaranteed for two years after construction, and maintained in a sound and acceptable condition until dedication to Zone 7 and further guaranteed for one year after acceptance of dedication by Zone 7 if more than one-half of the two year guarantee period has

expired. All other reclamation features will be guaranteed by the Operator for two years after completion of the component.

3.2.4 Operator Commits to Reclamation of its Own Lands [Policy 7]

As evidenced by the Operator's execution of the Statement of Reclamation Responsibility (Appendix D), the Operator is explicitly committed to reclamation of its own land to carry out the overall reclamation concept.

3.2.5 Operator Pays Fair Share of Studies to Demonstrate Viability of Proposal [Policy 8]

As appropriate, the Operator will continue to pay its fair share of studies and review necessary to demonstrate viability of this Plan in an amount to be fixed by the Planning Commission.

3.2.6 No Water Rights Abridged [Policy 9]

No water rights will be abridged as a result of carrying out reclamation under this Plan.

3.2.7 Field Inspection in Critical Phases of Reclamation [Policy 10]

The County performs annual surface mining inspections as required by SMARA, and may inspect the reclamation activity more frequently for critical phases of reclamation as deemed necessary. For example, it is anticipated that the County will conduct inspections at the time of construction of the realigned ADV. The Operator will continue to pay the County for the actual cost of the inspection and SMARA compliance. See also Section 2.13.3.

3.2.8 Dedication of Water Areas to Zone 7 to Operate Chain of Lakes [Policy 11]

Upon completion of reclamation, CEMEX will dedicate to Zone 7 Lakes A and B as well as Ponds C and D (which may ultimately become part of Future Lakes C and D) and necessary supporting land areas to operate the chain of lakes in the public interest. More specifically, these water features along with appurtenant berms, conduits and diversion structures, and surrounding support areas north of ADV would be dedicated to Zone 7 at no cost to Zone 7 for the purpose of water management (water storage, conveyance and recharge management) as contemplated by the LAVQAR Specific Plan and in the Zone 7 Agreement.

3.2.9 Reclaimed Land Capable of Supporting Beneficial Uses [Policy 13]

These requirements are addressed in Section 2.3.1.

3.2.10 Land Areas Necessary to Support or Protect Water Uses Shown on Plans [Policy 14]

Planned end uses for each primary area of the site are shown on Sheet R-5. Land areas necessary to support or protect water uses are also reflected. Minimum 25-foot buffers are provided around all lakes, and provisions for access have been included at and near all water conveyance facilities to support Zone 7's future use of the property for water management. All future surface

mining activity will observe a minimum 50-foot setback from existing public streets (see Sheets M-1 and M-2).

3.2.11 Final Side Slopes of Pits Governed by County Surface Mining Ordinance [Policy 17]

Final side slopes adhere to the requirements of the County Surface Mining Ordinance. See Sections 2.6 and 3.3.5.

3.2.12 Plans Shall Indicate How Drainage is to be Provided which will not Pollute the Lakes [Policy 18]

These requirements are addressed in Sections 2.7.1 and 2.7.2.

3.2.13 Plans Shall Include Provisions to Retain All Overburden and Soils Necessary to Complete Reclamation [Policy 19]

Consistent with SMP-23 conditions of approval, all overburden will be retained on-site for use in reclamation. All topsoil, to the extent available, will also be retained on-site to promote resoiling and revegetation (as described in Sections 2.9 and 2.10). Sufficient quantities of overburden and soils are available to carry out reclamation for the planned end uses.

3.2.14 Negotiation of Future Revisions to Reclamation Plan in Good Faith [Policy 21]

In the event the Operator's ability to carry out reclamation under this Plan is demonstrably prevented or substantially impaired, then the Operator will negotiate in good faith with the County to reach an agreement on a revised reclamation plan. The need for future Plan modification would most likely be identified through periodic review of the surface mining permit and this Plan pursuant to ACSMO §6.80.190.

3.3 Surface Mining and Reclamation Code [Chapter 6.80]

The ACSMO recognizes that the extraction of minerals is essential to the continued economic well-being of the County and to the needs of society, and that the reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety (ACSMO §6.80.030). The ACSMO incorporates SMARA (including the SMGB's implementing regulations) by reference, except when the provisions of the ACSMO are more restrictive than correlative state provisions, the ACSMO prevails. The following sections outline the ACSMO's requirements related to the reclamation of mined lands, with references to where the required standards are addressed in this Plan.

3.3.1 General Requirements [ACSMO §6.80.240(A)]

These requirements are addressed in Section 2.0. Please see also the "Chart of SMARA Contents" at the beginning of this Plan for appropriate references to SMARA requirements.

3.3.2 Progressive and Interim Reclamation [ACSMO §6.80.240(B)]

Reclamation of mined lands will take place as soon as practical following completion of mining operations at successive locations within the mining site. For each primary area to be reclaimed (e.g., Lake A, Lake B, realigned ADV, Lake J excavation, plant site, silt ponds), reclamation is anticipated to occur upon completion of all excavation, fill and construction activities as approved under this Plan. However, concurrent reclamation will also occur, such as the excavation of mining slopes to an inclination of 2H:1V at Lakes B and J. In other words, Lake B and Lake J slopes will be in their reclaimed condition (excepting any active revegetation that may need to occur) at the end of mining, and no further reclamation actions should be required to finish grading these slopes.

A description of all reclamation activities is included in Section 2.0. Reclamation phasing is described in Section 2.1.6, including the beginning and expected ending dates for each phase (or area) of reclamation. Criteria for measuring completion of specific reclamation activities are included in Sections 2.2.4 (for the realigned ADV), 2.7.3 (for water conveyance facilities), 2.10.6 (for revegetation), and 2.10.7 (for areas reclaimed to agriculture). The estimated costs for completion of each phase of reclamation will be included as part of the Operator's FACE and FAM to be updated at the time of Plan approval, as described in Section 2.13.2.

3.3.3 Disposal of Overburden and Mining Waste [ACSMO §6.80.240(C)]

These requirements are addressed in Section 2.7.1 and 2.7.4.

3.3.4 Drainage, Erosion and Sediment Control [ACSMO §6.80.240(D)]

These requirements are addressed in Sections 2.7.1, 2.7.2 and 2.7.5.

3.3.5 Final Slope Gradient [ACSMO §6.80.240(E)]

These requirements are addressed in Section 2.6.

3.3.6 Backfilling and Grading [ACSMO §6.80.240(F)]

These requirements are addressed in Section 2.6.2.

3.3.7 Resoiling [ACSMO §6.80.240(G)]

These requirements are addressed in Section 2.9.

3.3.8 Revegetation [ACSMO §6.80.240(H)]

These requirements are addressed in Section 2.10.