

2—PROJECT DESCRIPTION

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2.1 INTRODUCTION

RMC Pacific Materials, LLC. (CEMEX) operates Eliot Quarry, an approximately 920-acre sand and gravel mining operation within the unincorporated area of Alameda County, between the cities of Livermore and Pleasanton, south of Stanley Boulevard and north of Vineyard Avenue (see Figure 1-1, “Regional Location” and Figure 1-2, “Site Location”). CEMEX and its predecessors-in-interest have been continuously mining for sand and gravel at the Eliot Quarry since at least 1906. CEMEX acquired the quarry in 2005. 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.

CEMEX’s mining operation at Eliot Quarry is vested under pre-1957 mining and as documented in County Quarry Permit Q-1 (1957), Q-4 (1957), and Q-76 (1969), as well as subsequent County documents (see Figure 2-1, “Vested Mining Permits”). Therefore, mining and processing at the site are not subject to the discretionary decisions that the County will make regarding the proposed reclamation plan amendment (the project). In 1987, the County approved Surface Mining Permit 23 (SMP-23) for a reclamation plan covering the Eliot facility (see Figure 2-2, “Approved 1987 Reclamation Plan”), and that plan is the “approved reclamation plan” currently applicable to the site. Surface mine operators in California are required by State law to have an approved reclamation plan if they operate after January 1, 1976.

Changes in circumstances at the site and in applicable regulatory requirements necessitate the preparation of an amended reclamation plan that addresses these changes and provides reclamation objectives that can be feasibly accomplished and permitted by regulatory agencies. CEMEX has therefore applied to the County for a reclamation plan amendment. In considering the application and the discretionary action of approving the project, the County is required to conduct environmental review pursuant to the California Environmental Quality Act (CEQA).

The proposed project (see Figure 2-3, “Reclamation Plan Overview” and Appendix B, “Proposed Reclamation Plan Amendment”) would:

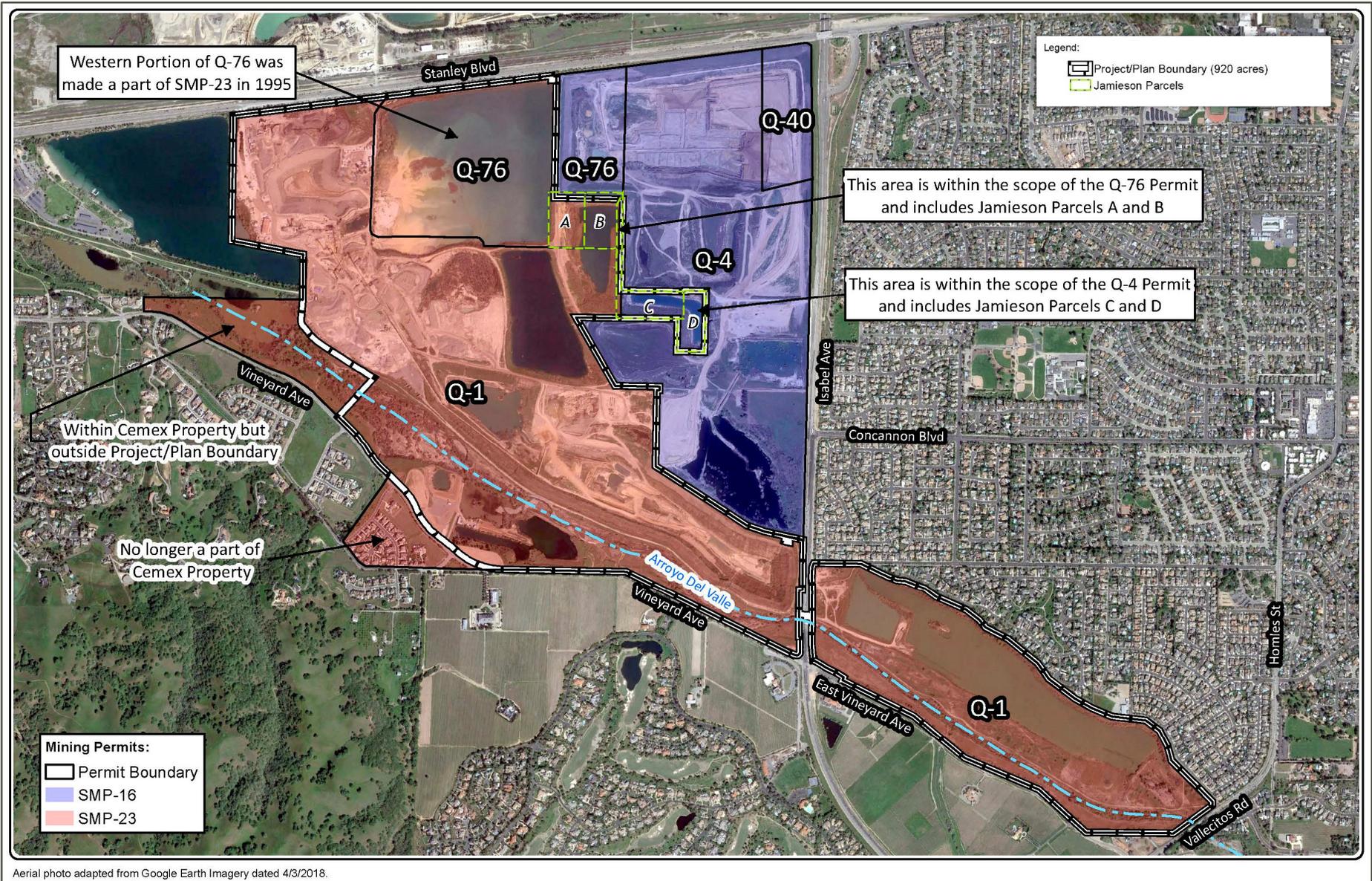
- adjust reclamation boundaries and contours;
- enhance drainage and water conveyance facilities;
- incorporate a public use pedestrian and bike trail, consistent with the *Specific Plan for Livermore-Amador Valley Quarry Area Reclamation* (LAVQAR) (Alameda County 1981), along the southern boundary of Lakes A and B near Vineyard Avenue;
- achieve current surface mining reclamation standards;
- realign and restore an approximately 5,800-linear-foot reach of the Arroyo del Valle (ADV) to flow around, rather than through (as currently anticipated in SMP-23), Lake B (see Figure 2-4, “Realigned Arroyo del Valle Concept”);
- reclaim Lake A with limited earthmoving, which shall include:
 - installation of a surface water diversion from the ADV to Lake A,

- conversion of a berm currently located in Lake A into 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),
- installation of an overflow outlet to allow water to flow back into ADV when Lake A water levels are high to prevent flooding in the localized area,
- a final surface area of 81 acres as compared to 208 acres in SMP-23, and
- no further mining of Lake A;
- reclaim Lake B, which shall include:
 - installation of a pipeline turn-out from Lake A,
 - installation of a water pipeline conduit to future Lake C,
 - installation of an overflow outlet to allow water to flow back into ADV when Lake B water levels are high;
 - a final bottom elevation at 150 feet mean sea level (msl), which is 100 feet deeper than the final bottom elevation of 250 feet msl approved in SMP-23; and
 - a final surface area of 208 acres as compared to 243 acres in SMP-23; and
- reclaim the Lake J excavation (not part of the Chain of Lakes), processing plant sites, process water ponds, and Ponds C and D, referenced as the “North Reclamation Area,” which shall include:
 - backfilling with overburden and process wash fines during the course of mining elsewhere at the site,
 - revegetation,
 - a return to open space and/or agriculture.

Upon reclamation, Lake A, Lake B, Pond C, and Pond D, along with their appurtenant water conveyance facilities, will be dedicated to the County Flood Control and Water Conservation District, Zone 7 (hereafter referred to as “Zone 7”) for water storage, conveyance, and recharge management (Zone 7 Agreement). The approximate areas to be dedicated to Zone 7 are shown in Figure 2-5, “Anticipated Zone 7 Land Dedications.” The proposed reclamation plan amendment would still achieve prior commitments to provide for water storage and water conveyance under reclaimed conditions. Except as outlined above, CEMEX proposes no change to any fundamental element of the existing operation (e.g., mining methods, processing operations, production levels, truck traffic, or hours of operation).

2.2 PROJECT PURPOSE

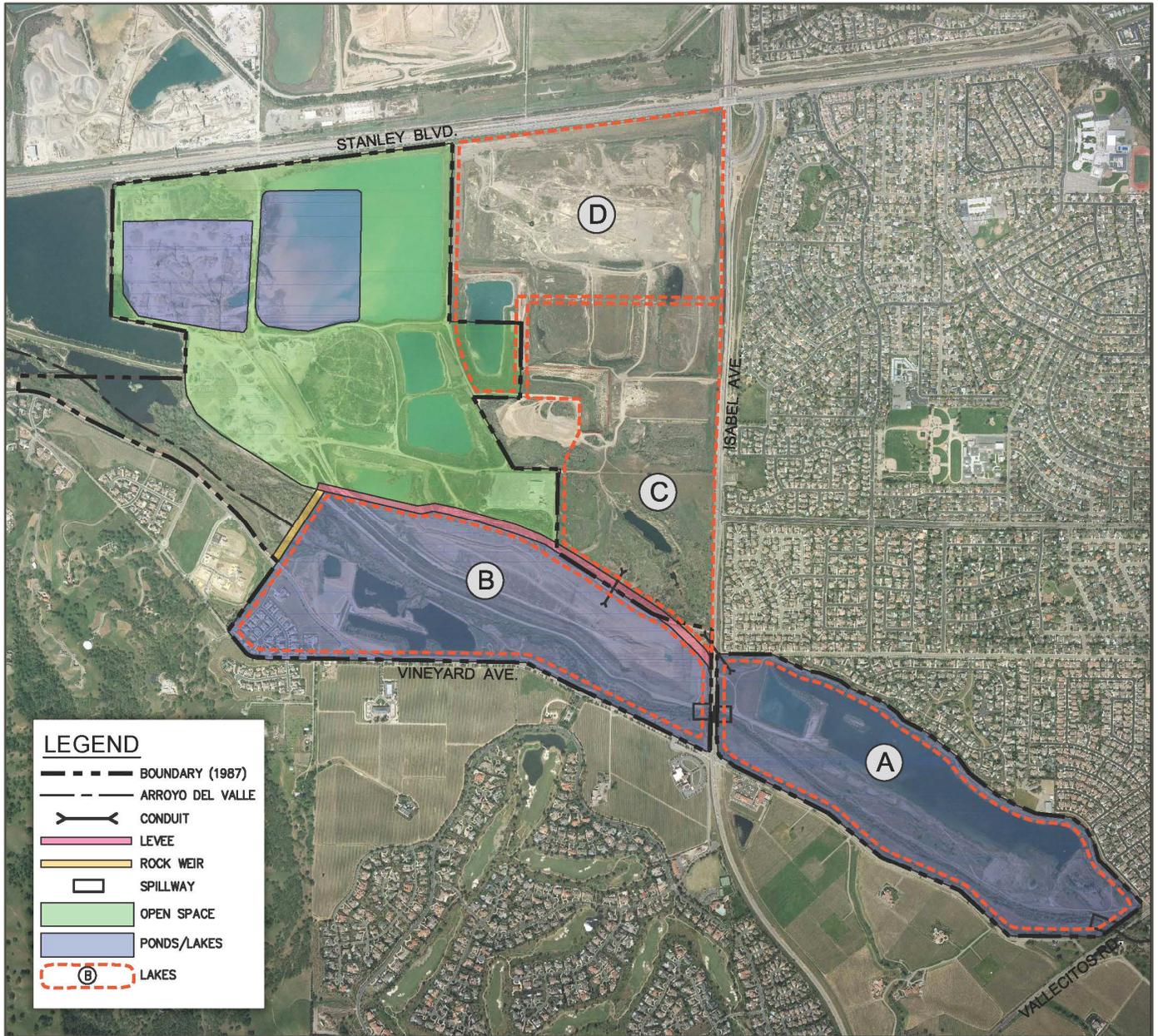
The project purpose is to revise the approved reclamation plan to accommodate changed circumstances and to reflect regulatory changes. Significant changes have occurred in both the regulatory setting that applies to the project site and physical conditions near the project site (e.g., new regulations related to biological resources, residential development in neighboring areas, widening of Isabel Avenue/State Route 84 [SR 84]), and sale of portions of the property. The changed circumstances prompted County staff to recommend revising the approved reclamation plan to reflect the changed physical and regulatory conditions and to ensure that reclamation is feasible and carried out in harmony with all controlling regulatory requirements. In addition, CEMEX would like to eliminate the two previously approved but not yet built concrete spillways because they are no longer necessary for the project and are not environmentally sensitive.



SOURCE: CEMEX 2019, Project Description; modified by Benchmark Resources in 2020.

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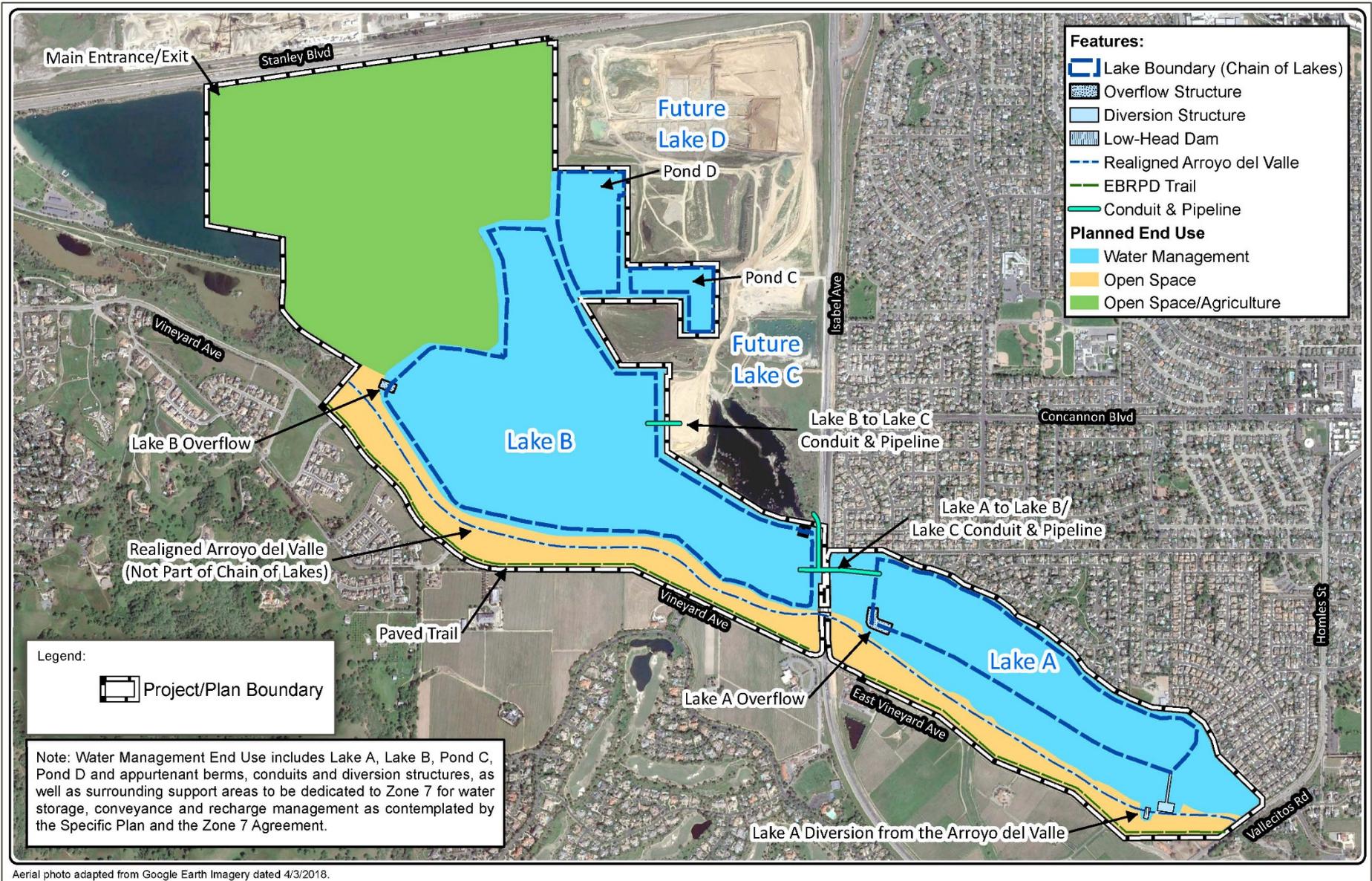
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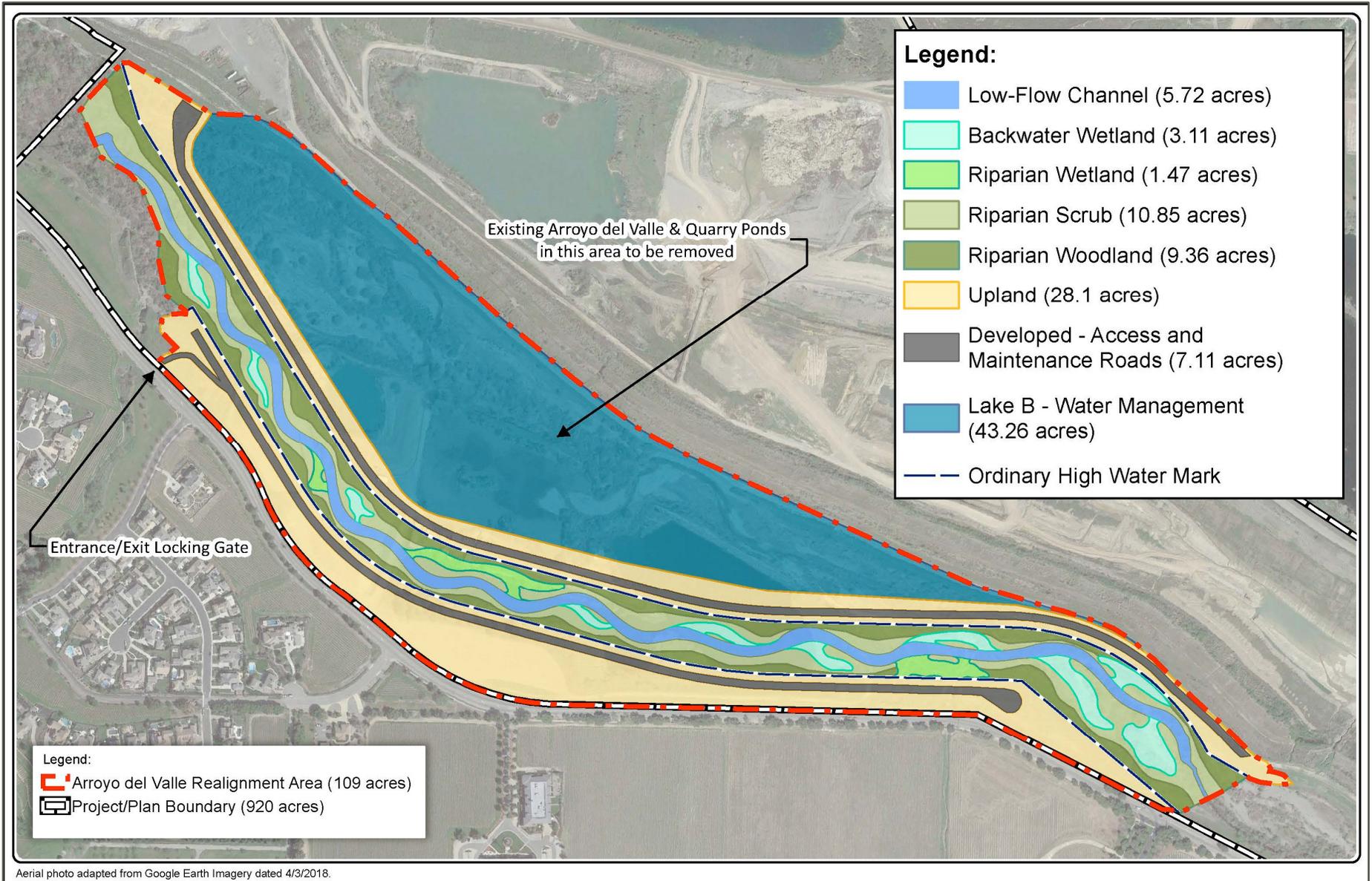
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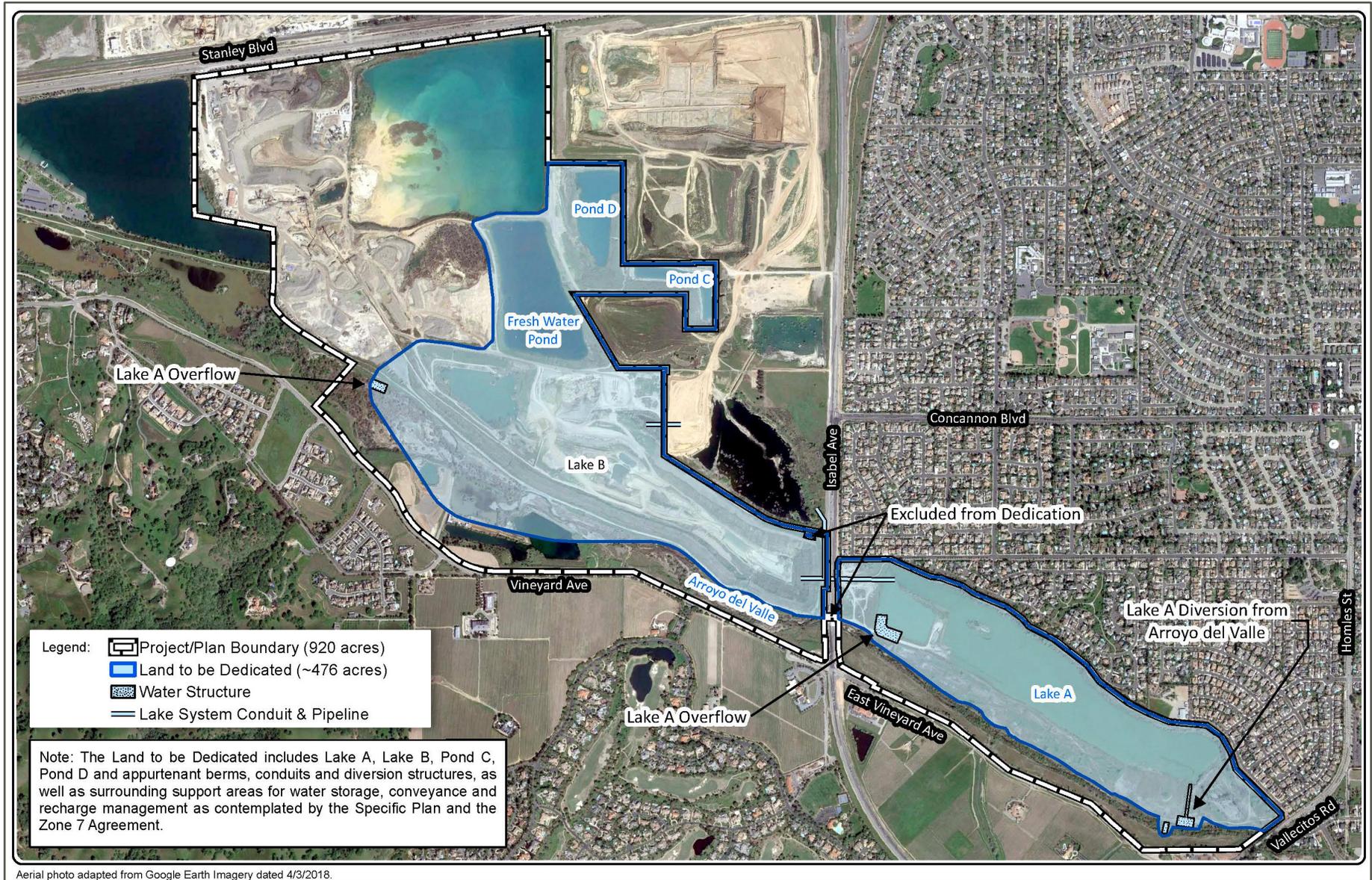
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The project is also proposed in response to the requirements of Condition 7 of SMP-23 (adopted under County Planning Commission Resolution 12-20 on December 17, 2012), quoted below:

Permittee shall file an application to amend SMP-23, for review in accordance with ACSMO, Article II (Application Procedure), within six months of this action and which addresses the following issues and provides for their resolution, as well as any other issues applicant desires to address:

- a) The need for mining and reclamation plans and corresponding documents to reflect the current boundaries of SMP-23 as referenced lands both presently owned by Permittee and previously authorized for mining operations and reclamation activities.
- b) As to Lake A, the need for long-term mining and reclamation plans to address geologic hazards associated with and remedied by the Lakeside Circle Corrective Action Plan.
- c) As to Lake B, the need for long-term mining and reclamation plans to address a depth and configuration which, due to recent and ongoing mining activities, are inconsistent with the approved reclamation plans.
- d) The need for SMP-23 to include provisions for the management of water flows, during both the pre- and post-reclamation conditions, between the groundwater basins, the Arroyo del Valle, and Lakes A, B and C of the Specific Plan for Livermore-Amador Valley Area Reclamation.
- e) The need for revised plans for all water conveyance facilities that: (i) reflect existing topographic conditions and desired future topographic conditions of the Permittee; (ii) fulfill the requirements and intent of the water management objectives of the Specific Plan for Livermore-Amador Valley Quarry Area Reclamation; and (iii) may be constructed in conformance with all laws and regulations.
- f) The need to coordinate the planning, design, and construction of all water conveyance structures between Lakes A, B and C with adjacent mine operator, property owners and the Zone 7 Water Agency.
- g) The geographic locations of approved end uses over the entire site once reclaimed.
- h) Relative to public roadways, the need to specify, in plan and text format, authorized vehicular access points and haul routes.
- i) The need to establish an estimated schedule which correlates the timing of completion for the reclamation components to specific stages in the mining plan.
- j) The need to establish reclamation plans that accommodate a trail, as depicted in the Specific Plan for Livermore-Amador Valley Quarry Area Reclamation, along the entire southern boundary of SMP-23 in the vicinity of Vineyard Avenue.

In addition to addressing the issues and topics identified above, the application shall be accompanied by the forms promulgated under ACSMO §6.80.090, as well as the information required under SMARA §§2772 and 2773.

2.3 PROJECT OBJECTIVES

The reclamation plan amendment provides site-specific actions designed to meet the applicable statutory and regulatory requirements. An overview of the end uses of the reclamation plan amendment is provided in Figure 2-3. The proposed project includes the following objectives:

- 1) Address the requirements of Condition 7 of Resolution No. 12-20.

- 2) Realign and restore an approximately 5,800-foot reach of the ADV resulting in an enhanced riparian corridor that flows south of, rather than through (as currently anticipated in SMP-23), Lake B.
- 3) Maximize the extraction of the remaining available on-site sand and gravel resources through the anticipated reclamation end date of 2056, including a change in the final bottom elevation of excavation in Lake B to 150 feet msl.
- 4) Continue to supply the regional demands for Portland Cement Concrete (PCC) grade aggregate.
- 5) Reduce Vehicle Miles Traveled (VMT) and the related air emissions by retaining a local source of aggregate.
- 6) Carry out the objectives of the LAVQAR and Zone 7 Agreement for implementation of the Chain of Lakes on the portions of land controlled by CEMEX.
- 7) Implement a public use pedestrian and bike trail on the southern perimeter of the CEMEX property.
- 8) Implement the proposed reclamation plan amendment to establish end uses of water management, open space, and nonprime agriculture in accordance with the California Surface Mining and Reclamation Act (SMARA) (Public Resources Code 2710, et seq.).

2.4 ENVIRONMENTAL SETTING

2.4.1 Project Location and Access

The project site consists of approximately 920 acres situated between the cities of Pleasanton and Livermore, south of Interstate 580 and Stanley Boulevard in the Livermore-Amador Valley, north of Vineyard Avenue, and both east and west of Isabel Avenue (SR 84), as shown in Figure 1-2.

2.4.2 Assessor Parcel Numbers

The project site's assessor parcels are listed in Table 2-1, "Assessor's Parcel Numbers."

TABLE 2-1
ASSESSOR'S PARCEL NUMBERS

Assessor's Parcel Numbers	Acres (Approximate)	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	

Source: Alameda County Assessor 2020

Note: The assessor's parcel acreages are taken from Alameda County Assessor data and are not as precise as the areas calculated on reclamation

Assessor's Parcel Numbers	Acres (Approximate)	Recordation
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plan sheets and figures using the Geographic Information System (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 approximately 966 acres (based on property survey) of which approximately 920 acres are within the proposed reclamation plan boundary.

2.4.3 Site and Entitlement History

CEMEX and its predecessors-in-interest (e.g., Pacific Cement and Aggregates, Inc. and Lonestar Industries) have been continuously mining for sand and gravel at the project site since 1906 or earlier. In September 2005, CEMEX acquired RMC Pacific, including all land, leases, and permits.

After decades of operations, CEMEX's predecessor obtained Quarry Permit Q-1 from the County in January of 1957, following the County's 1956 passage of Ordinance 181 N.S. governing quarries and gravel pits. In 1969, CEMEX's predecessor obtained Q-76 from the County via Resolution 129465, which authorized sand and gravel pit operations on an additional 165 acres of the site, 110 acres of which CEMEX owned. Figure 2-1 shows the vested mining areas (e.g., the pre 1956 mining areas, Q-1 and Q-76).

In compliance with SMARA, which became effective on January 1, 1976, the County adopted the Alameda County Surface Mining Ordinance (SMO) in July 1977. In 1981, the County adopted the LAVQAR. As part of the LAVQAR, quarry operators in the Livermore-Amador Valley, including CEMEX, would excavate basins for Zone 7's future operation of water storage, conveyance, and recharge facilities, known as the "Chain of Lakes." The potential environmental impacts of the LAVQAR and Chain of Lakes were analyzed in the LAVQAR EIR (Alameda County 1980), certified by the County in 1981.

On April 6, 1987, via County Resolution 87-18, CEMEX's predecessors obtained SMP-23, a reclamation plan for the project site located on the areas of CEMEX's existing permitted rights under Q-1 and Q-76. SMP-23 is not a conditional use permit for mining; rather, it is the reclamation plan for the site as required by SMARA and the SMO. The County prepared and approved a negative declaration for the SMP-23 reclamation plan on the basis that SMP-23 was consistent with the LAVQAR. The SMP-23 reclamation plan has been modified several times since its initial approval. See Figure 2-2 for a map of approved site boundaries.

In 1989–1992, CEMEX's predecessor purchased four parcels of land from Pleasanton Gravel Co. and Jamieson Co., which parcels are herein collectively referred to as the Jamieson Parcels (Figure 2-1). Jamieson Parcels 1 and 2 were within the scope of Q-76, while Jamieson Parcels 3 and 4 were within the scope of Q-4 initially granted to California Rock and Gravel Company in 1957. The Jamieson Parcels also have vested mining rights. The Jamieson Parcels were acquired by CEMEX's predecessors after the County had approved SMP-23 in 1987; therefore, those parcels were not included within the currently approved SMP-23 reclamation plan boundary. Instead, CEMEX conducted surface mining operations at the Jamieson Parcels in accordance with Surface Mining Permit and Reclamation Plan No. 16 (SMP-16), which applies to the surface mining operation adjoining the project site's eastern and northern boundary (operated by Vulcan Materials Company).

The following list is a chronological summary of approved permits and other relevant regulatory actions for the project site:

1957	Q-1 and Q-4 mining permits
1969	Q-76 mining permit, Resolution 129465
1975	Q-76 reclamation plan approval and EIR certification, Resolution 11145
1987	SMP-23 reclamation plan and negative declaration, Resolution 87-18
1988	Agreement between Zone 7 and RMC Lonestar
1992	SMP-23 periodic review, Resolution 92-29 (20 conditions)
1995	Q-76 permit time extension and incorporation into SMP-23, Resolution 95-34
1996	SMP-23 amendment to add signage to Lake A (five new conditions)
2006	<i>Lakeside Circle Corrective Action Plan for Lake A</i> (Cotton, Shires & Associates 2007))
2010	SMP-23 amendment to Condition 29 (Stanley Boulevard landscaping conditions), Resolution 10-09
2012	SMP-23 periodic review, Resolution 12-20 (35 conditions)
2013	<i>Lake B Corrective Action Plan</i> (Alameda County 2013), administrative approval pursuant to SMO Section 6.80.120; initial application for SMP-23 amendment
2014	Notice of reclamation plan approval recorded with the County recorder's office pursuant to California Public Resources Code Section 2772.7

In addition, in 2016 (superseded) and then in 2019 CEMEX submitted applications to revise the SMP-23 Reclamation Plan. CEMEX continues to operate the Eliot Quarry pursuant to vested rights and the Q-1, Q-4, Q-76, and SMP-23 (as amended) entitlements. The project does not include modifying the existing Q-1, Q-4, or Q-76 entitlements.

2.4.4 Project Requirements Related to the LAVQAR

As noted in the previous section, the project site is subject to the LAVQAR (Alameda County 1981). The LAVQAR was adopted as a master reclamation plan for three different but contiguous mine sites that would shape mined pit areas into a Chain of Lakes and return the remaining mined lands to productive uses after the removal of sand and gravel reserves (Figures 2-3 and 2-5).

The general objectives of the LAVQAR are listed below:

- To enable the competing resources of land, water, and sand and gravel to be utilized with a minimum of conflict and disruption.
- To plan for reclamation, productive reuse, and rehabilitation of the Quarry Area.
- To mitigate adverse effects of mining.
- To satisfy requirements of SMARA and the Alameda County Surface Mining Ordinance.
- 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 relevant specific objectives of the LAVQAR are listed below:

- To mitigate alteration/impedance of groundwater movement and storage due to mining operations.
- To mitigate exposure of groundwater to evaporative losses due to mining operations.

- To mitigate exposure of groundwater to increased risk of quality degradation due to surface exposure as a result of mining operations.
- To provide uninterrupted and undiminished satisfactory water quantity and quality in the upper aquifer of the mined area for beneficial uses.
- To provide a surface water storage and transmission system to replace a portion of the existing subsurface system to mitigate mining impacts and enhance the ability to utilize, develop, and manage the water resources of the Livermore-Amador Valley for public benefit.
- To provide land areas capable of productive use and with minimum residual hazards.

Approved reclamation plans within the LAVQAR boundary provide each water body in the Chain of Lakes with an intended end use for water management. The LAVQAR requires the operators to dedicate to Zone 7, at no cost, all excavated Chain of Lakes basins within the LAVQAR, related exterior perimeter areas, interior perimeter areas sufficient to provide a minimum 25-foot-wide access, and appurtenant levees, conduits, and diversion structures. Areas not intended for water management in the LAVQAR area are designated, within approved reclamation plans, for agriculture, recreation, and open space land uses, consistent with the *East County Area Plan (ECAP)* of the *Alameda County General Plan (County General Plan)* (Alameda County 2002) and are retained by the mining companies.

While each approved surface mining permit and reclamation plan in the LAVQAR area (i.e., SMP-23, SMP-16) includes requirements providing for fulfillment of the Chain of Lakes, each mine operator also has a separate contract with Zone 7. Those contracts describe the details of property transfer, construction of facilities, monitoring and maintenance requirements for constructed facilities, and use of groundwater. CEMEX's predecessor entered into an agreement with Zone 7 (Zone 7 Agreement) on March 29, 1988.

Pursuant to Section III of the Zone 7 Agreement, CEMEX's predecessor undertook to "conduct its sand and gravel operations in such a manner as to create, at no cost to Zone 7, Lakes A and B and that portion of Lake C which is within the boundaries of CEMEX properties, the appurtenant levees and conduits, a diversion structure from Lake A into Lake C, and a conduit structure from Lake B to Lake C, all as shown on the Specific Plan." The Zone 7 Agreement contains the following provisions with respect to the contemplated diversion and conveyance facilities to be constructed at the project site and CEMEX's corresponding rights and obligations:

- The diversion structure shall have a capacity of diverting the first 500 cubic feet per second [cfs] of water into the Chain of Lakes.
- The conduit between Lake B and Lake C shall have a 30-inch inside diameter and be equipped with the appurtenances necessary for controlling the transfer of water from one lake to another.
- If modifications to the previously approved plans and specifications for the construction of levees, lakes, conduits and diversion structures are necessary, CEMEX should submit revised plans and specifications to Zone 7 for review and approval prior to construction. Such approval shall not be unreasonably withheld.
- Upon construction of the diversion and conveyance facilities contemplated by the Zone 7 Agreement, CEMEX shall grant to Zone 7 the real property containing all areas of the lakes, levees, conduits and diversion structures. Additionally, CEMEX shall grant to Zone 7 a perimeter strip of land at least 25 feet wide. However, the perimeter strip shall be 12.5 feet wide where CEMEX's properties abut those of Pleasanton Gravel Company (now operated by Vulcan).

The Zone 7 Agreement also requires CEMEX to take reasonable measures and actions to re-percolate, store, and reuse waters produced during its mining and processing operations. However, Sections VIII–IX of the Zone 7 Agreement authorizes CEMEX to discharge excess groundwater from its mining operations upon payment of a fee to Zone 7, even though such water may subsequently flow out of the Livermore-Amador Valley. These requirements relate to the vested, ongoing mining operations and not to the scope of reclamation covered by the project.

2.4.5 Project Site Land Uses

The project site is predominated by mining and processing facilities associated with CEMEX’s operation (see Figure 2-6, “Existing Facilities” and Figure 2-7, “Plant Site Area Utilities”). The eastern portion of the site (east of Isabel Avenue) contains Lake A, a formerly mined area that contains water primarily from groundwater infiltration. South of Lake A is the eastern portion of the ADV at the project site, which is a perennial drainage channel that runs east-west along the southern portion of the site. The portion of the site west of Isabel Avenue contains Lake B, which is a portion of the active mining area with a mine pit approximately 100 to 130 feet deep. The ADV continues east-west along the southern portion of this area of the site before merging with Alameda Creek near Interstate 680. North of Lake B are CEMEX’s currently operating materials processing facility, processing ponds, freshwater ponds, and stockpile areas. CEMEX’s current mining operations are also being conducted in an area referred to as Lake J. Additional uses include processing activities, stockpiles, administrative offices, a truck scale, and other facilities related to mining and processing. Topcon Positioning Systems, Inc. (a lessee) currently operates a heavy equipment geopositioning training facility within a southern portion of the project boundary. This use is temporary and it must be moved elsewhere to accommodate the ADV realignment (anticipated to occur in 2023).

2.4.6 Surrounding Land Uses

Land uses adjacent to the project site include other mining operations, open space areas, agricultural uses, recreational facilities, transportation corridors, and residential development (Figure 2-6). A separate mining operation subject to SMP-16, currently operated by Vulcan Materials Company, abuts the project site’s eastern and northern border of Lake B. The East Bay Regional Park District (EBRPD) Shadow Cliffs Recreation Area, a reclaimed surface mine that now includes a lake and shoreline facilities available for public use, abuts the project site’s northwestern border. The Ruby Hills residential subdivision in the city of Pleasanton is located across Vineyard Avenue to the south of the Lake B portion of the project site. Vineyards for two wineries (Ruby Hill Winery and Rubino Estates Winery) and two event centers (Casa Real at Ruby Hill Winery and Palm Event Center in the Vineyard) are also located along the south side of Vineyard Avenue. Residential uses are also located in the city of Livermore north of Lake A. The nearest residential developments are contiguous to the northern boundary of the Lake A area, with the nearest home approximately 35 feet from the northwest corner of the Lake A property.

2.4.7 General Plan Land Use Designations

The project is located within the ECAP. The ECAP designates the site as “Large Parcel Agriculture” and “Water Management” (see Figure 2-8, “General Plan Land Use Designations”). The Water Management land use designation provides for sand and gravel quarries, reclaimed quarry lakes, watershed lands, arroyos, and similar and compatible uses. Sand and gravel quarries allow a range of uses, including sand and gravel processing, associated manufacturing and recycling uses requiring proximity to quarries, reclamation pits, and public use areas.

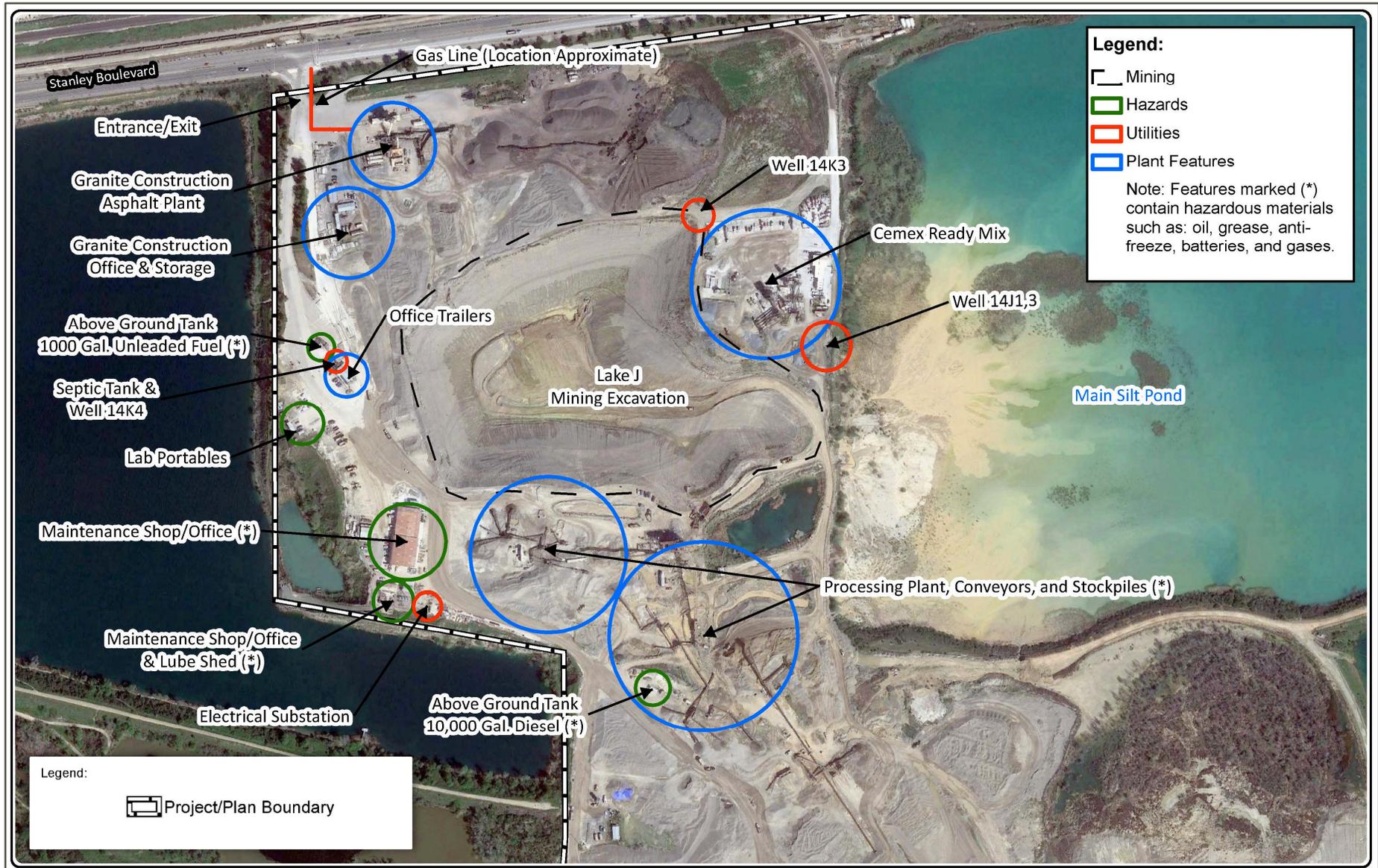


Aerial photo adapted from Google Earth Imagery dated 4/3/2018.

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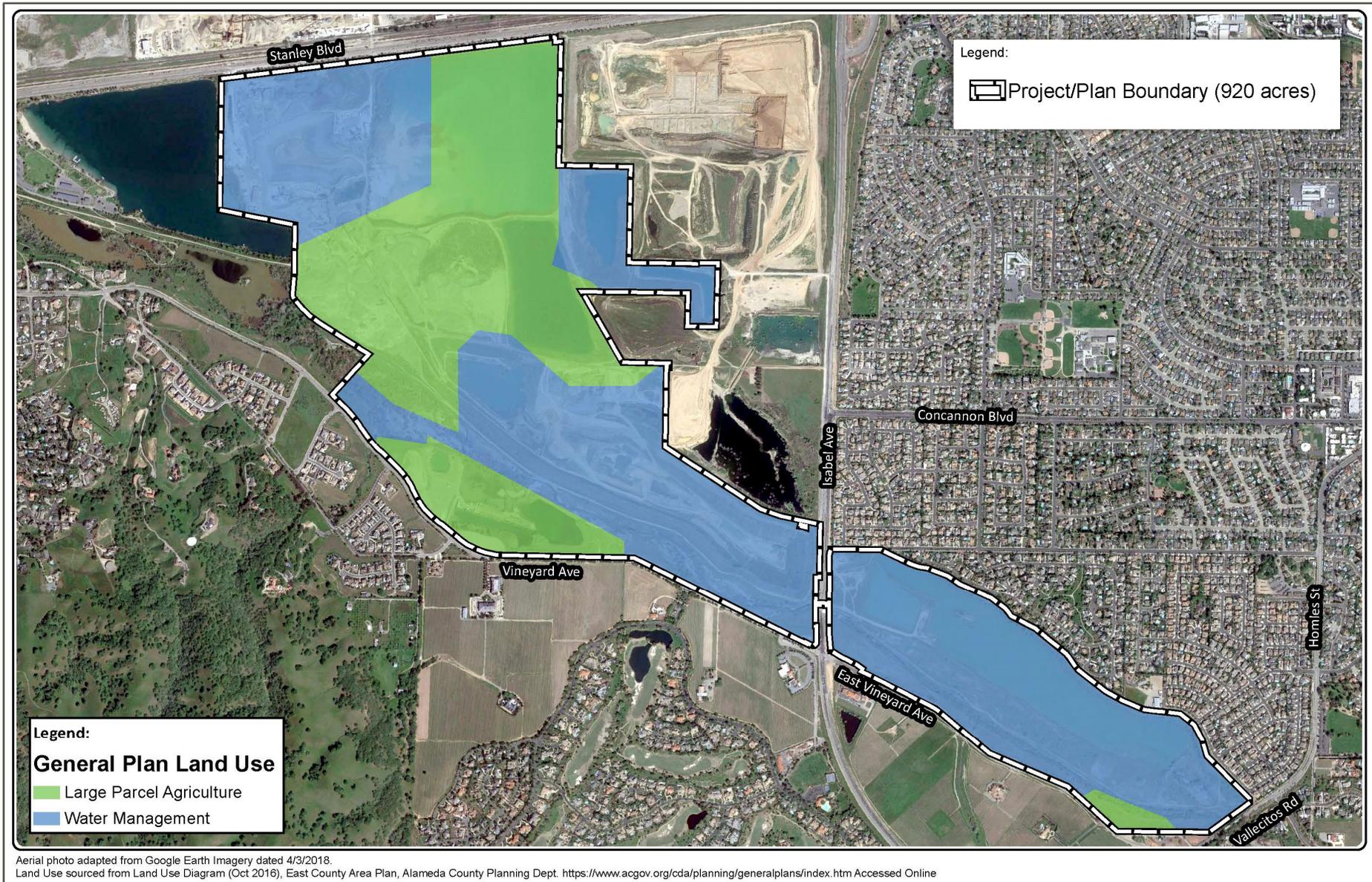


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2.4.8 Zoning Classifications

As the local land use authority, the County authorizes mining activities on unincorporated lands through the issuance of surface mining permits and approval of reclamation plans pursuant to County Code of Ordinances Title 6, Health and Safety, Section 6.80, Surface Mining and Reclamation. The provisions of the County SMO apply to all lands within the County, both public and private. As provided by this ordinance, surface mining operations are permitted within any County zoning designation, including lands designated as Agricultural, upon County approval of a surface mining permit (or existence of vested rights), reclamation plan, and financial assurances for reclamation.

The site's current zoning classifications are Agriculture (A), Unclassified (U), and Planned Development (PD) (see Figure 2-9, "Zoning Designations"). County Code Section 17.50.010 prescribes that every use in the Unclassified zoning district not otherwise prohibited by law is a conditional use and shall be permitted only if approved by the board of zoning adjustments as provided in Section 17.54.130. Existing uses are permitted to continue as provided in Section 17.54.180. The Planned Development district allows those uses allowed in the Agriculture district, as well as precast concrete manufacture (Andrade, pers. comm., 2019). The portions of the property subject to the Planned Development district are reflected on Figure 2-9, which is based on the County's parcel-specific zoning information

2.4.9 Mineral Resource Designations

An objective of SMARA is to create a mineral lands inventory by designating certain areas of California as being important for the production and conservation of existing and future supplies of mineral resources. Pursuant to Section 2790 of SMARA, the State Mining and Geology Board has designated certain mineral resource areas to be of regional significance. The project site and much of the surrounding areas, which are currently in active quarrying operations, have been designated as a "Regionally Significant Construction Aggregate Resource Area." The California Department of Conservation designated the project site Mineral Resource Zone (MRZ) 2(a). This designation indicates that a high likelihood exists that significant aggregate deposits are present.

2.4.10 Utilities

The following utilities currently serve the site (see Figure 2-7):

- 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;
- a septic tank to collect sewage, located near the office trailers near the processing plant site in the North Reclamation Area;
- a natural gas line from Stanley Boulevard that supplies gas to the asphalt batch plant operated by Granite Construction Company in the North Reclamation Area; and
- an electrical substation located near the maintenance shop in the North Reclamation Area.

2.4.11 Equipment

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 draglines, have been mobilized and used as needed, though 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 to and 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 water trucks (for dust control), truck scales, portable and submersible water pumps, service/maintenance vehicles, trucks, cranes, loaders, and forklifts.

2.4.12 Approved Reclamation Plan Components

2.4.12.1 Lake A Area

Lake A is a mined area located north of Vineyard Avenue, between Isabel Avenue/SR 84 and Vallecitos Road. It was approved in SMP-23 (1987) for a 208-acre lake. Lake A has not been mined to the full extent anticipated in the approved reclamation plan. No further mining is planned in Lake A.

Mining in the Lake A area, north of the ADV, began in the late 1990s. The approved reclamation plan was originally approved when the property to the north of Lake A was zoned agricultural and within the jurisdiction of Alameda County. Over the years, the zoning was changed to residential, the property was annexed to the City of Livermore, and houses were built adjacent to Lake A.

To accommodate mining, the ADV along the southern boundary of Lake A was relocated to the south in the mid-1990s with the authorization of a Section 1602 lake and streambed alteration agreement from the California Department of Fish and Wildlife (CDFW) (Notification 1600-2004-0214-3). Once the ADV was moved, that agreement expired on December 31, 2009.

Mining in the Lake A area continued until approximately 2003, when CEMEX discontinued mining to address neighborhood concerns caused by a potential subsurface slide. In November 2001, cracks were noticed in the pavement on Lakeside Circle, which led to initiating a geological investigation.

All Lake A slopes are currently 2:1 (horizontal to vertical) (2H:1V) or flatter with maximum depths of 100 feet below ground surface.

2.4.12.2 Lake B Area

Lake B is a mined area located north of Vineyard Avenue, west of Isabel Avenue/SR 84. It was approved in SMP-23 (1987) for a 243-acre lake. Mining is ongoing in this area. Lake B has not been mined to the full extent anticipated in the approved reclamation plan. Portions of Lake B as identified in the approved reclamation plan now include a segment of Vineyard Avenue and residential development to the south of Vineyard Avenue, which will no longer be subject to mining (Figure 2-2).

2.4.12.3 Lake J Area

The Lake J area is located in the northwestern portion of the site, to the south of Stanley Boulevard and to the east of the Shadow Cliffs Regional Recreation Area. Mining is ongoing in this area, and processing facilities previously located here were relocated to areas south of the Lake J mining area. Lake J has never been a part of the Chain of Lakes (LAVQAR). When reclaimed, Lake J would not be part of the Chain of Lakes and would not be granted to Zone 7. Lake J was specified as Option 2 in the approved reclamation plan. As part of the proposed project, Lake J would be backfilled with overburden and process wash fines during the course of mining elsewhere at the site and returned to open space and/or agriculture.



Aerial photo adapted from Google Earth Imagery dated 4/3/2018.
 Zoning Data provided by Alameda County Planning Department. 1/28/2018. Data mapped using Alameda County GIS Assessor Parcels (Edited). Accessed online September 2018.

SOURCE: CEMEX 2019, Project Description; modified by Benchmark Resources in 2020.

NOTE: Figure is not printed to scale.

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2.4.12.4 Arroyo del Valle

The LAVQAR and related 1981 EIR depict, as an option, the rerouting of the ADV along the southern boundaries of Lake A and Lake B. However, the SMP-23 reclamation plan approved in 1987 provides for the ADV to be eliminated in the project reach and diverted into the eastern end of Lake A and then into Lake B over 40-foot tall concrete spillways. The 1987 reclamation plan concept for the diversion/elimination of the ADV, which would be subject to federal and state regulatory agency authorizations, has not been implemented by CEMEX.

2.4.12.5 Water Conveyance Facilities

After the 1987 reclamation plan was approved, CEMEX's predecessor prepared plans for water conveyance facilities. Those plans, which the County subsequently approved, have not been implemented. Those water conveyance facilities included:

- a 40-foot concrete spillway collecting flows from the ADV (under Vallecitos Road) before those flows descend 50 feet, at a slope of 2H:1V, into Lake A;
- an earth- and rock-lined structure to collect overflows within Lake A before conveying them under Isabel Avenue/SR 84 in a 40-foot concrete spillway to Lake B;
- an underground concrete pipe between Lake A and Lake C, which terminates at a spillway dropping water up to 70 feet down a 2H:1V slope;
- an underground 30-inch concrete pipe between Lake C and Lake B; and
- a concrete and riprap apron along the western boundary of Lake B allowing overflow to continue down the ADV channel.

2.5 PROPOSED PROJECT ELEMENTS

2.5.1 Final Reclamation Overview

CEMEX seeks to amend the approved reclamation plan, summarized above in Section 2.4. Under the proposed reclamation plan amendment, the ADV would 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 riprap apron, while complying with the LAVQAR to create pits to provide surface water storage, water conveyance, and groundwater recharge. Lakes A, B, and C would be connected by underground conduits. The ADV would be connected to Lake A via a diversion structure and a downstream overflow. Lake B would be connected to the ADV with a downstream overflow. These features are described in more detail below. Note that while the infrastructure connecting Lake A to Lake C would be constructed, water would not be transferred to Lake C until after Lake C is constructed.

After final reclamation, CEMEX will grant to Zone 7, in accordance with the Zone 7 Agreement, Lake A, Lake B, Pond C, Pond D and related levees, conduits, diversion structures, and a 25-foot-wide perimeter strip, except where Lake B abuts Lake C, where the perimeter strip will be 12.5 feet wide. CEMEX will own and reclaim the remaining areas not to be dedicated to Zone 7 to open space or agriculture. Note that while CEMEX will continue to own the remaining property post-reclamation, CEMEX possesses no post-reclamation obligation once the County approves final reclamation and the County and DMR have deemed the site closed and released the Financial Assurance Mechanism for the site.

2.5.2 Reclamation Plan Boundary

The reclamation plan boundary and the property boundary are the same except for the southwestern most portion of the property, located south of Shadow Cliffs Recreation Area (Figure 2-1). Although the westernmost portion of the property was mined by CEMEX’s predecessors at some point prior to 1970s, no mining has been conducted there since 1976, when SMARA became effective. Pursuant to Section 2776(c) of SMARA, no reclamation plan or reclamation activities are required for mined lands on which surface mining operations were conducted prior to January 1, 1976. Accordingly, the westernmost portion of the project site is not included within the reclamation plan boundary. This area is naturally vegetated and will not be mined or disturbed by CEMEX’s surface mining operations.

This reclamation plan amendment makes the following changes to the existing reclamation plan boundary (compare Figures 2-2 and 2-3):

- Includes 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.
- 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.
- Address the widening of Isabel Avenue/SR 84.

2.5.3 Reclamation of the Lake A Area

Table 2-2, “Comparison of Approved and Proposed Reclamation for Lake A Area,” provides a comparison of the proposed reclamation elements discussed above with reclamation under the existing approved reclamation plan for the Lake A area.

TABLE 2-2
COMPARISON OF APPROVED AND PROPOSED RECLAMATION FOR LAKE A AREA

Approved Reclamation Plan	Proposed Reclamation Plan Amendment
Entire lake mined to 100 feet bgs (330 feet msl)	No further mining; additional excavation is required as part of the final reclamation for operation of the Chain of Lakes: <ul style="list-style-type: none"> • Install berms between the ADV and Lake A. • Convert berm at the western end of the lake to an island to promote water flow across the lake, includes excavating an area 12 feet deep (i.e., 405 feet msl) by 80 feet wide.
208-acre lake (25-foot setback with open space)	81-acre lake, 137 acres of open space (including the 25-foot setback)
ADV to flow directly through Lake A.	ADV remains separate from Lake A and Lake B
Conduct necessary grading/excavation to install the water pipeline under Isabel Avenue to connect Lake A to Lake C.	Similar, except that the smaller lake requires a longer pipeline (see Figures 2-2 and 2-3.)
Water would flow from Lake A to Lake C and then Lake B.	Lake A would continue to convey water from ADV to Lake A to Lake C, and include a turn-out to Lake B at the request of Zone 7.
Lake A would extend to the property boundary that encloses the southeastern area (with 25-foot setback).	Lake A would not extend to the property boundary. The remaining area surrounding the lake would be revegetated and left in open space.

Note: ADV = Arroyo del Valle; bgs = below ground surface; cfs = cubic feet per second; msl = mean sea level.

No further mining would occur in Lake A; however, numerous reclamation features, including water conveyance facilities, would be installed as part of reclamation. In addition, some material would need to be excavated as part of the final reclamation for operation of the Chain of Lakes, and Lake A would be used to store excess water from the Lake B mining operations and to convey water from the ADV to Lake C (after Lake C is completed). The final surface area of Lake A would be 81 acres, with a bottom elevation of 360 feet msl and projected water surface elevation of 420 feet msl.

As part of the project, a small overflow channel would be installed at the top of the berm along the southwest corner of Lake A, near the western end of the berm. If a flooding event on ADV or a mechanical failure were to affect the shut-off ability of the upstream diversion structure into Lake A, and Lake A began to overflow, the overflow channel would allow the excess water into the ADV before flooding adjacent properties or eroding the berm. The overflow channel would be rock lined to prevent erosion and siltation.

2.5.4 Mining and Reclamation of the Lake B Area

Table 2-3, “Comparison of Approved and Proposed Reclamation for Lake B Area,” provides a comparison of the proposed reclamation elements discussed above against reclamation under the existing approved reclamation plan for the Lake B area.

**TABLE 2-3
COMPARISON OF APPROVED AND PROPOSED RECLAMATION FOR LAKE B AREA**

Approved Reclamation Plan	Proposed Reclamation Plan Amendment
Bottom elevation of 250 feet msl (approximately 150 feet bgs) (under 2013 Lake B corrective action plan) and projected water surface elevation of 355 feet msl based on the design spillway at the downstream end of Lake B	Bottom elevation of 150 feet msl (approximately 250 feet bgs) and projected water surface elevation of 369 feet msl, with less water spilling over the design overflow at the downstream end of Lake B
The ADV to flow through Lake B, conveyed from a spillway between Lake A and Lake B	Realignment and restoration of an approximately 5,800-linear-foot reach of the ADV (Figure 2-4) that would go around to the south, rather than through, Lake B
243-acre lake (25-foot setback)	208-acre lake (25-foot setback from edge of lake)
Lake B will be excavated to a depth of 250 feet msl (approximately 150 feet bgs) with no backfill material being deposited in Lake B	The eastern end of Lake B will be excavated to an elevation of 220 ft msl at the lowest elevation and subsequently backfilled to 340 ft msl at the top elevation with approximately 2.1 million cubic yards of overburden and sediment material that was previously stored in other areas on the site. The central and western portion of Lake B will be excavated to a depth of 150 feet bgs, as discussed above.

Note: ADV = Arroyo del Valle; bgs = below ground surface; cfs = cubic feet per second; msl = mean sea level.

As part of the reclamation plan amendment, CEMEX would continue mining in the Lake B area, including the ADV realignment area, located west of Isabel Avenue. Mining at this location is expected to be complete in 2056. The final surface area of Lake B would be 208 acres, with a bottom elevation of 150 feet msl. The eastern panhandle of Lake B will be mined to a bottom elevation of 220 feet msl. The post-reclamation water surface elevation is projected to be 369 feet msl. If the reclamation amendment is approved, implementation of mining at the Lake B area would require no additional County approvals and/or entitlements.

To facilitate the southerly progression of mining of Lake B, the proposed project includes realignment and restoration of an approximately 5,800-linear-foot reach of the ADV (Figure 2-4). 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 would 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.

After the planned realignment of ADV, the southern cut slope of Lake B will progress southward to be generally parallel to Vineyard Avenue. An embankment fill at the northern portion of Lake B (referred to as the “shark’s fin” area) will separate Lake B from an existing freshwater pond to the north (See Figure 2-6). Fills on the order of 120 feet thick will be required for the embankment. The embankment prism will increase storage capacity in the freshwater pond and may allow the freshwater pond to be repurposed as a silt storage cell and filled to 370 feet MSL during mining operations. The embankment prism will ultimately be breached with a drainage slot to merge the freshwater pond with Lake B in the reclaimed condition. In addition, an approximately 120-foot-thick embankment fill is planned near the eastern end of Lake B. The embankment will create an overburden and silt storage cell for future mining activities. West of this embankment, the southern slope of Lake B will be constructed with a 40-foot horizontal bench at approximately elevation 260 feet MSL, or the slope will be cut at an inclination of 2.25H:1V, at applicant’s option.

In addition, berms would 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 would be raised where necessary to prevent overtopping of the ADV into the lake during a 100-year flood.

A conduit would be constructed between Lake B and the future Lake C, consistent with the original SMP-23. The Lake B to Lake C conduit would be a 30-inch-diameter pipe placed at an invert elevation of 349 feet msl. The conduit would allow a gravity-feed flow of water between the two lakes. The conduit to and from Lake C would be stubbed and capped at CEMEX’s property line until the future Lake C is developed (by others).

An overflow outlet would 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 would consist of an armored trapezoidal weir and chute with an armored outlet apron. The outlet crest would be 60 feet wide perpendicular to the flow with 4H:1V side slopes, and the trapezoid would be at least 5 feet deep, resulting in a top width of 60 feet for the trapezoidal section. The outlet crest would be 120 feet wide in the direction of the flow. The outlet flow path would be lined with riprap to mitigate the potential for erosion. Sheet 6 of Appendix B-1, “Proposed Reclamation Plan Amendment,” provides a detailed cross section of the overflow outlet.

In addition, silt and fined-grained materials that are washed from the aggregate would be deposited in several areas of the site, including Lake J and the east end of Lake B. Approximately 2.1 million cubic yards of dry silt and overburden may be placed in the east end of Lake B, as shown on Sheets R-2 and R-3 of Appendix B-1. The lowest elevation of silt would be at approximately 230 ft msl, whereas the top elevation would be 340 ft msl, which is 29 feet below the anticipated water surface elevation in Lake B of 369 ft msl. The width of the top silt elevation would be approximately 630 feet.

Furthermore, approximately 6.4 million cubic yards of backfill materials (silts and overburden) be placed in Lake J, to an elevation of 360 ft msl to 380 ft msl, and be contoured in to the final reclaimed ground

surface, as shown on Sheets R-1 and R-3. Silts and overburden may be blended as backfill occurs. The lowest elevation of silt would be at approximately 130 ft msl while the anticipated post-mining groundwater elevation at Lake J is anticipated to be 330 ft msl, coincident with the water level in the Shadow Cliffs Lake to the west. Thus, the silt backfill would extend 30 feet to 50 feet above the groundwater surface after reclamation. The width of the top of the silt backfill at the groundwater surface elevation would be approximately 1,450 feet, in the direction perpendicular to groundwater flow. The width of the silt at the bottom of Lake J, at 130 ft msl, would be about 200 feet.

In coordination with the EBRPD, CEMEX would develop a public-use trail parallel to Vineyard Avenue on the south side of the ADV, which is within the reclamation plan boundary. The trail would be developed in a 20-foot corridor (typical) and feature a 10-foot-wide paved section with 2-foot shoulders on each side. Consistent with the existing trail on the south side of Lake A, trail development would include landscape improvements that feature California native, drought-tolerant plantings (see Appendix B-2, “Lake A Landscape Plan,” and Appendix B-3, “Lake A Landscape Plan Functions and Value Memorandum”).

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

2.5.5 Mining and Reclamation of the North Reclamation Area—Lake J, Plant Site, Silt Ponds, and Ponds C and D

Table 2-4, “Comparison of Approved and Proposed Reclamation for the North Reclamation Area,” provides a comparison of the proposed reclamation elements discussed above with reclamation under the existing approved reclamation plan for the North Reclamation Area, including Lake J, the plant site, silt ponds, and Ponds C and D.

**TABLE 2-4
COMPARISON OF APPROVED AND PROPOSED RECLAMATION FOR NORTH RECLAMATION AREA**

Approved Reclamation Plan	Proposed Reclamation Plan Amendment
Option 1: Keep the plant in its original location and mine north of this area. Option 2: Move the plant and mine this area.	Option 2 is being implemented. After mining is complete, the Lake J area would be backfilled for a return to open space and/or agriculture.
Mine Lake J to bottom of aggregate deposit.	Continue to mine Lake J to 130 feet msl then repurpose Lake J as a silt pond with backfill with overburden and silt to approximately 360 to 380 msl.
Pond C and northern portion of Pond D are not included in approved reclamation plan boundary.	Repurpose Ponds C and D as silt ponds, with a silt deposit allowance of up to 330 feet msl. Prior to converting Pond D to a silt pond, mining could continue to 200 feet msl. Reclaim as either independent open water bodies or merge with larger future Lakes C and D.

Note: bgs = below ground surface; cfs = cubic feet per second; msl = mean sea level.

Reclamation treatment for the North Reclamation Area, which includes the Lake J excavation (not part of the Chain of Lakes), processing plant sites, and process water ponds, would generally involve backfills and/or grading for a return to open space and/or agriculture.

The final bottom mining elevation of Lake J would be 130 feet msl (i.e., approximately 260 feet bgs). However, upon the completion of mining, Lake J would be repurposed as a silt pond and would be backfilled with overburden and silt to approximately 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. These ponds would 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.

Following reclamation, the North Reclamation Area would be owned by CEMEX, with the exception of Pond A that would be dedicated to Zone 7 because it would 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 the Pond A drainage notch at 350 feet msl in Sheet R-1, "North Area Reclamation," of Appendix B-1.).

2.5.6 Equipment

Equipment employed at the site for reclamation activities would be similar to that employed under existing conditions. Equipment related to mining operations, processing plant operations, and mobile sources used for mining are not part of the proposed project. Equipment used for reclamation would include motor graders, dozers, excavators, compactors, loaders, scrapers, forklifts, cranes, haul trucks, a boring machine, and a pad drum roller.

2.5.7 Maximum Mining Depth

Sheet M-1, "North Area Mining Plan," and Sheet M-2, "Lake B Mining Plan," of Appendix B-1 and Tables 2-2, 2-3, and 2-4 depict the proposed maximum mining depths at the project site. CEMEX has a vested right to mine to these depths but must update their reclamation plan amendment. Mining depth may be adjusted during mining operations, for example, as clay lenses or silts are encountered, or as market demand for certain products varies for reasons such as sand availability. Mining to the maximum permitted depths may prove infeasible and/or uneconomical for CEMEX. The mining depth may also vary throughout the project site based on the actual geology.

Development of the mine excavations may vary due to geologic, engineering, economic and/or market conditions. Thus, mining operations may or may not reach the maximum depths and mining depth may vary throughout the site. Reclamation would, in any case, be completed according to the standards described in the reclamation plan amendment and would be consistent with the objectives identified in the LAVQAR.

2.5.8 Slope Design

Future finish slope excavations would adhere to the final design slope angles of 2H:1V or flatter. Final reclamation fill slopes would not exceed 2H:1V. Reclamation fill slopes would be constructed consistent with the recommendations found in Section 2.6.2 of the proposed reclamation plan amendment, based on input from Geocon Consultants, Inc. (the project geotechnical engineer).

2.5.9 Mining and Reclamation Sequence and Schedule

The mining sequence and schedule depends on many factors, such as securing entitlements, fluctuations in market demands, and need for specific aggregate product. 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. 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 signoff beyond these dates.

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

Table 2-5, “Anticipated Mining and Reclamation Sequence and Schedule,” lists the approximate beginning and ending dates for each phase of mining and reclamation activities at the project site and provides a description of those activities. After mining is completed in Lake B and/or the North Reclamation Area, reclamation will begin and be finished within approximately 3 years.

**TABLE 2-5
ANTICIPATED MINING AND RECLAMATION SEQUENCE AND SCHEDULE¹**

Mining (End)	Description	Reclamation (Start)	Reclamation ² (Finish)
LAKE A			
Complete	Berm converted to island	2022	2022
	Berm between ADV and Lake A	2022	2022
	Overflow outlet to ADV	2022	2022
	Pipeline from Lake A to Lake C	2022	2022
	Diversion structure—ADV*	2023	2023
	Fill of percolation ponds	2023	2023
	Revegetation	2023	2023
LAKE B			
2056	Realigned ADV*	2022	2023
	Berm between ADV and Lake B	2022	2022
	Pedestrian and bike trail ⁴	2028	2028
	Conduit from Lake B to C ⁵	2031	2031
	Overflow outlet to ADV	2056	2056
	Excavate shark’s fin drainage notch	2056	2056
	Revegetation	2056	2056
NORTH RECLAMATION AREA—SILT PONDS			
2050	Resoiling cap—main silt pond	2030	2030
	Revegetation—main silt pond	2030	2030
	Pond D excavation	2050	2050
NORTH RECLAMATION AREA—PLANT SITE AND LAKE J AREA⁶			
2030 (Lake J)	Plant site removal	2056	2056
	Contour grading/resoiling	2056	2056
	Retention ponds	2056	2056
	Revegetation	2056	2056

Notes: ADV = Arroyo del Valle

* Timing for these reclamation items contingent on obtaining regulatory agency authorizations (e.g. Permits 404 and 401 and Section 1600 authorizations). The realigned ADV may be constructed in as little as 1 year.

¹ This schedule assumes project approval in 2021.

Mining (End)	Description	Reclamation (Start)	Reclamation ² (Finish)
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- 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 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 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 5 years following the completion of construction for all restored habitats and biological features.
- ³ Pipeline from Lake A to Lake C includes turnout into Lake B.
- ⁴ Pedestrian and bike trail south of the realigned ADV is assumed to be developed after an estimated 5-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).

The County has requested that CEMEX finish reclamation of the Lake A area, including construction of the ADV diversion structure, and grant Lake A and associated water conveyance facilities to Zone 7 by 2023. However, due to the anticipated duration of reclamation activity, this would only be possible if the project is approved prior to the start of the 2022 construction season and regulatory entitlements (to be issued by the US Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife, as applicable) for the Lake A diversion from the ADV are approved prior to the start of the 2023 construction season. Section VI of the Zone 7 Agreement provides that CEMEX shall grant Lakes A and B, levees, conduits, and diversion structures to Zone 7 at the same time and similarly provides for Zone 7's acceptance of both lakes and all water conveyance facilities constructed by CEMEX pursuant to the LAVQAR and the Zone 7 Agreement. Section VI of the Zone 7 Agreement allows CEMEX to grant a portion of the real property containing the lakes and water conveyance facilities to Zone 7 if Zone 7 agrees to such a partial conveyance. Accordingly, the proposed reclamation schedule is contingent upon Zone 7's willingness to accept Lake A and the associated water conveyance facilities within the time frame the County requested.

2.5.10 Drainage, Diversion Structures, Waterways, and Erosion Control

This section provides a general overview of the proposed plan to realign and enhance the ADV corridor and of the proposed water diversion and conveyance structures that would be installed as part of the reclamation conducted under the amended reclamation plan. Final engineered plans and specifications for those structures and facilities would be submitted to Zone 7 for review and approval before construction begins.

2.5.10.1 Arroyo del Valle Realignment and Enhancement

The reclamation plan amendment includes plans for the ADV to be separate from Lakes A and B while enabling Zone 7 to manage water flows for water storage, water conveyance, and groundwater recharge. Flows from the ADV would be unobstructed except for an environmentally sensitive in-channel structure covered with rocks and designed to control grade for the Lake A diversion structure. This structure would be constructed near the southeast corner of Lake A and would support diversion of surface flows into Lake A.

The reclamation plan amendment does not involve constructing structures that would impede flood flows. CEMEX retained Brown and Caldwell to perform hydrologic and hydraulic analyses (see Appendix F-1, "Hydraulic Design Study") to evaluate water diversion, conveyance, and flood potential associated with this reclamation plan amendment. The study demonstrates that the diversion and

conveyance into the Chain of Lakes can be feasibly constructed in compliance with known regulatory requirements. The study also demonstrates that the realigned ADV would remain stable and neither the channel modifications nor the ADV to Lake A diversion structure would increase flood risk to neighboring properties or infrastructure. The study includes conceptual designs for the realigned ADV and the ADV to Lake A diversion structure.

CEMEX is proposing to enhance the ADV streambed and riparian corridor along Lake B to create a complex, varied streambed to feature a complex mosaic of riparian wetlands within a wide floodplain with adjacent native upland restoration (see Appendix B-4, “Improvement Plans for Arroyo del Valle Realignment”). The realignment would remove artificial quarry impoundments and restore an approximately 6,200 linear foot enhanced ADV riparian corridor that would flow south of the Eliot Facility Lake B mining area. Following the realignment of ADV, CEMEX’s Lake B mining excavation would progress south into the current alignment of the ADV. Plantings in the realigned ADV would feature a combination of California native riparian wetland, riparian scrub, riparian woodland, and upland species, such as western sycamore, valley oak, red and arroyo willow, mulefat, California buckeye, Fremont cottonwood, shrubs, and native grasses.

2.5.10.2 Diversion from Arroyo del Valle to Lake A

CEMEX retained Brown & Caldwell to develop a design concept and demonstrate that the elements of the reclamation plan designed to address diversion and conveyance into the Chain of Lakes can be feasibly constructed in compliance with the known regulatory requirements. The following subsections provide a summary of the design (see Appendix F-1).

Diversion Criteria

The LAVQAR states that the “diversion structure from ADV within Lake A into Lake C will be capable of diverting at least the first 500 cfs of flow from the Arroyo.” The LAVQAR does not explicitly discuss water diversion from the ADV to Lake A. This lack of clarity was not an issue for the approved reclamation plan because the ADV was to continue flowing directly into Lake A after the project site was reclaimed. Because the project calls for the ADV channel to remain intact south of Lakes A and B, direct transfer from the ADV to the Chain of Lakes would require a diversion structure.

Fish Passage and Exclusion

This portion of the watershed does not currently support anadromous fish. Although some uncertainties exist regarding the future ability of the watershed to support anadromous fish, it is assumed that a diversion structure on the ADV would need to meet requirements for anadromous fish passage and screening. Specific criteria are described as follows:

- **Fish passage:** Cross-channel structures should include a passable flow bypass structure, and off-channel flow diversions should include return flow channels to avoid trapping.
- **Bypass flows:** Zone 7 requested that the ADV diversion allow for controlled diversion bypass flows of up to 40 cfs in winter/spring and 15 cfs in summer/fall (CEMEX 2019).
- **Fish screening:** CDFW criteria require fish screens to be sized such that the approach velocity entering the screen does not exceed 0.33 feet per second (ft/s) for all self-cleaning screens located in on-stream installations. For screens without automatic cleaning, the approach velocity is limited to one-fourth of the self-cleaning screens. Fish screens are typically sized

by dividing the desired diversion flow (e.g., 500 cfs) and the limiting approach velocity (e.g., 0.33 ft/s), which results in the minimum area of fish screen required.

These criteria will be revisited during detailed design as part of consultation with CDFW and, if necessary, the National Marine Fisheries Service. It may be feasible to request a variance from CDFW for the approach velocity restrictions during certain times of year when fish fry are not present. For example, with such a variance, a diversion structure designed to screen 210 cfs at 0.33 ft/s approach velocity during periods when fry may be present could also be used to screen 500 cfs at 0.8 ft/s (maximum velocity allowed by CDFW) during periods of the year when anadromous fish fry are not present (likely during summer and fall).

Diversion Structure Design

Key components of the diversion include the type and height of grade control structure (i.e., diversion dam) needed and providing for fish screening and bypass in accordance with CDFW criteria. Based on the detailed engineering analysis, Brown & Caldwell identified an infiltration bed as the best alternative to divert up to 500 cfs and meet the Zone 7 and CDFW design criteria. The diversion structure would consist of a 100- by 200- by 4-foot-deep gravel infiltration bed adjacent to the stream channel. A rock-covered, concrete, grade-control structure with fish bypass would provide the necessary head to inundate the gravel infiltration bed. The grade-control structure would be placed to a top elevation that is 3.2 feet above the creek bed and would not increase the area inundated by a 100-year flood event. Forty 100-foot-long, perforated, horizontal drainpipes would be buried near the base of the gravel bed. The horizontal drainpipes would join along a manifold pipe connected to a flow control gate. When the flow-control gate is opened, water from the ADV would infiltrate through the gravel, be collected in the drainpipes through the manifold, and pass through the flow-control gate. The connection to Lake A would be completed with an 84-inch pipe with a riprap outfall extending into Lake A (see Figure 2-10, “Proposed Lake A Diversion Plan”).

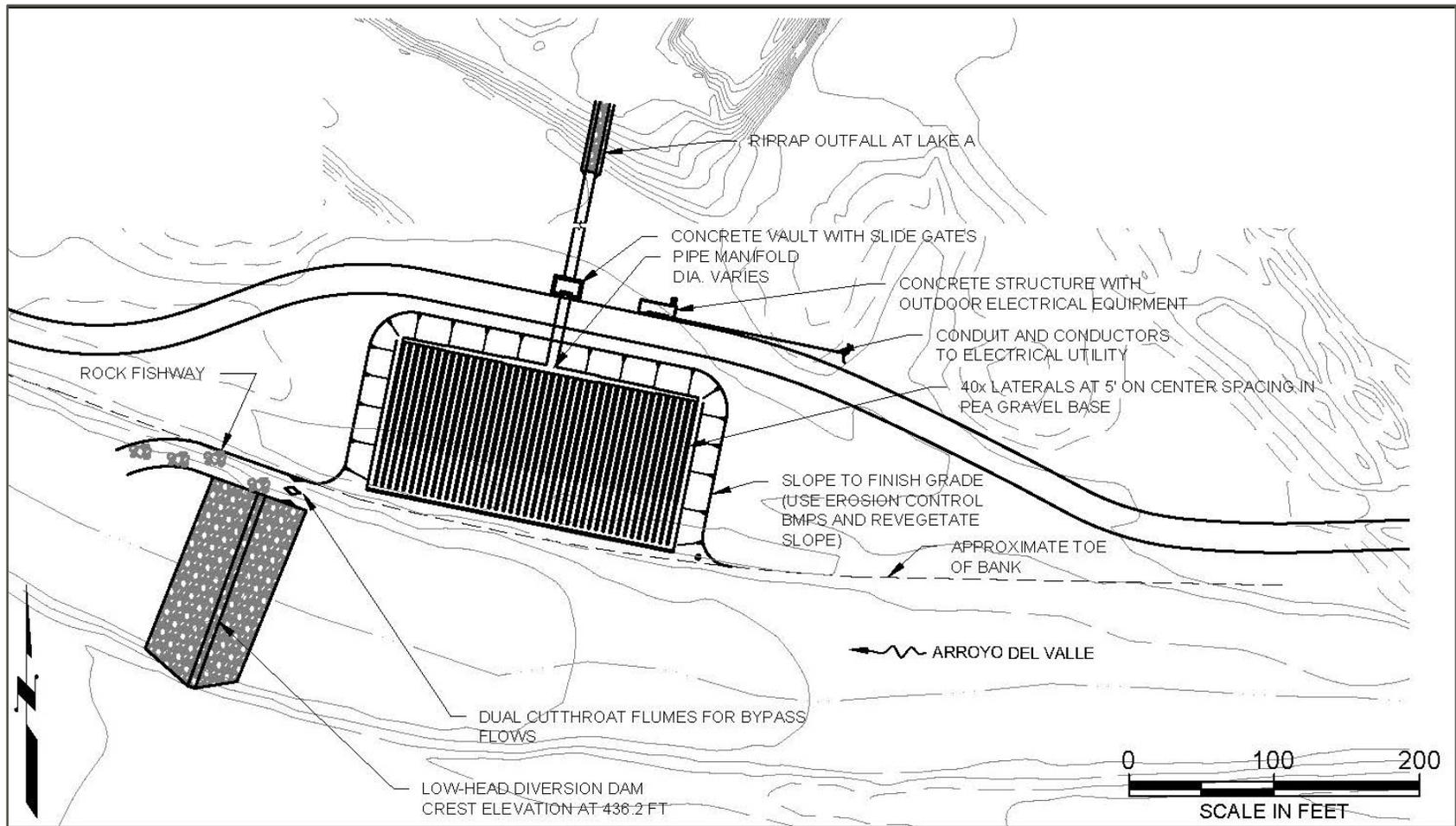
A conceptual site layout for the proposed diversion system with locations of major features is provided in the “Biological Resources” section of this subsequent EIR (SEIR).

Diversion Location

The ADV diversion structure would be located near the southeast corner of Lake A, as shown in Figure 2-3. This location would provide the most flexibility with respect to elevations and hydraulic head. At CEMEX’s direction, Brown & Caldwell investigated the possibility of moving the diversion structure downstream toward Isabel Avenue. Brown & Caldwell concluded that diversion locations closer than about 2,970 feet upstream of Isabel Avenue would not provide enough elevation difference to meet the hydraulic head requirements.

2.5.10.3 Conveyance from Lake A to Lake C

A pipe structure capable of conveying 500 cfs is approved to be constructed under Isabel Avenue from Lake A to Lake C; however, the placement and design of the pipe has changed from a direct, diagonal route to the configuration shown in Figure 2-3. This structure would allow water diverted from the ADV into Lake A to flow into the rest of the Chain of Lakes system, meeting the objectives of the LAVQAR and the requirements of the Zone 7 Agreement.



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HYDRAULIC DESIGN
1544 STANLEY BOULEVARD
PLEASANTON, CA 94566
CA MINE ID NO: 91-01-0009

SOURCE: B&C 2020, Hydraulic Design Study Figure E-2; modified by Benchmark Resources in 2020.

NOTE: Figure is not printed to scale.

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The pipeline would be buried, 84 inches in diameter, corrugated, and made of high-density polyethylene. The pipeline would be placed at an invert elevation of 390 feet msl at Lake A and would pass under Isabel Avenue within a steel, 108-inch-diameter bore and jacked casing that conforms to California Department of Transportation standards. The pipeline would then turn 90 degrees north into Lake C, exiting at an invert elevation of 380 feet msl. The control valve would be at the Lake A end of the pipeline. The pipeline would be stubbed and capped at CEMEX's property line until such time as future Lake C is developed by Vulcan.

2.5.11 Regional Trail

In coordination with EBRPD, CEMEX would develop a public-use trail near Vineyard Avenue on the south side of the ADV, which is within the reclamation plan boundary and would remain as part of reclamation. The trail would be developed in a 20-foot corridor (typical) and feature a 10-foot-wide paved section with 2-foot-wide shoulders on each side. Consistent with the existing trail on the south side of Lake A, trail development would include landscape improvements that feature California native, drought-tolerant plantings (see Appendix B-2 and B-3).

Following reclamation, the pedestrian and bike trail is expected to be granted through an easement or license to the EBRPD.

The proposed timing of reclamation activities related to the construction of the regional trail is discussed in Section 5.6.2 of the reclamation plan amendment (see Appendix B-1) and summarized in Table 2-5 above.

2.5.12 Revegetation

Experience by the mine operator at the project 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 would be hydroseeded consistent with applicable regulatory requirements. Section 4.3, "Biological Resources," of this subsequent environmental impact report (SEIR) evaluates the vegetation component of the project in detail. The reclamation plan amendment application package, on file with the County, also specifies revegetation requirements.

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 would feature a combination of riparian wetland, riparian scrub, riparian woodland, and upland. Plantings would include native vegetation such as California sycamore, valley oak, red and arroyo willow, mulefat, California buckeye, Fremont cottonwood, shrubs, and native grasses.

2.6 INTENDED USES OF THE SEIR

2.6.1 County

It is anticipated that this SEIR will provide environmental review for all discretionary approvals and actions necessary for this project. Permits and approvals would be required before the changes in operation at the project site could proceed, although quarrying operations pursuant to the currently effective SMP-23 permit are anticipated to continue throughout the environmental review process period.

As lead agency for the proposed project, the County is primarily responsible for the approvals required. The primary approval being sought is a revision to the current approved reclamation plan to enable those

changes and/or revisions to the approved reclamation plan described above. As part of any approval action for the project, the County would be required to certify the final SEIR, adopt findings of fact and overriding considerations (if necessary), and adopt a mitigation monitoring and reporting program. In Alameda County, the County Planning Commission is the approval authority for the surface mining permit and reclamation plan amendment, which action is appealable to the County Board of Supervisors.

2.6.2 Other Agencies Whose Approval May Be Required

In addition to County approval, other permits and approvals would be required before the changes in operation at the project site could proceed. The other agencies whose approval may be required include:

- California Department of Conservation, Division of Mine Reclamation (reclamation plan advisory review and release of financial assurance);
- San Francisco Bay Regional Water Quality Control Board (Section 401 certification and Waste Discharge Requirements, as applicable);
- CDFW (a lake or streambed alteration agreement and possibly a California Endangered Species Act permit);
- National Marine Fisheries Service (Section 7 consultation; incidental take statement);
- U.S. Fish and Wildlife Service (Section 7 consultation; incidental take statement); and
- U.S. Army Corps of Engineers (Section 404 permit and NEPA compliance).
- Zone 7 Water Agency (provides drinking water to community and will be end owner and operator of water management facilities)