

Table B-1: Ground Disturbances and Surface Mining Activity

Legend

M - Surface Mining Disturbance
R - Other Surface mining activity (Haul Roads, Stockpiles, etc.)
E - Exploration Activities (Drilling, Sampling, etc.)

Reference Type

Text: RFD Text
APP. B: Maps and Exhibits
APP. C: Historical Record
APP. D: Geotechnical Report

<i>Map I.D.</i>	<i>Date</i>	<i>Disturbance</i>	<i>Description</i>	<i>Text</i>	<i>App. B</i>	<i>App. C</i>	<i>App. D</i>
M-1	1853 - 1888	Tin-bearing tourmaline veins discovered in Temescal Mining District, leading to a “tin rush,” including exploration, prospecting, and mining of surface-level tourmaline outcrops and veins	In 1853, tin was “discovered” by Daniel Sexton, initiating a rush of individual miners and prospectors to the Temescal Mining District. In 1888, agents of the Sobrante owners describe to members of State Mineralogist survey hand excavation of tin bearing tourmaline veins dating from the time of tin discovery in 1853. The Sobrante property contains over fifty such veins, running northeasterly/southwesterly, through “granite” in a region approximately 7 miles long and 4 miles wide. As of 1890, the Sobrante owners had mapped the tin property, as depicted in Figure B-5.5.1.	Sections II.D.1, II.D.4, V.A.2, V.B.1	Figures 3.4, 3.6, 4.1, 4.6.1, 4.12, 6.1, 5.5.1, 7.1.1, 7.1.2, 7.1.3	Exhs. 2.3, 2.4, 2.5, 2.6, 2.8	N/A
R-2 ¹	Pre-1891	Construction and use of “Tin Mine Haul Road,” running northeast to southwest through HH VRA	Sobrante owners construct haul road to move produced tin to market, which ran through the HH VRA to move produced tin east of the HH VRA to market west of the HH VRA. The HH VRA provided access points to ATSF Railroad and Corona-Elsinore Highway.	Sections II.D.1, II.D.4, V.A.2, V.B.1	Figures 3.1, 3.3, 3.4, 3.6, 3.9, 4.1, 4.3, 4.4, 4.5, 4.6.1, 4.10, 4.12, 4.14, 4.16, 6.1, 7.1.1, 7.1.2, 7.1.3	Exhs. 2.8, 2.21, 2.21.2	N/A

¹ Note that Figure B-4.3 refers to “R-2” as “M-2,” the correct designation is R-2.

<i>Map I.D.</i>	<i>Date</i>	<i>Disturbance</i>	<i>Description</i>	<i>Text</i>	<i>App. B</i>	<i>App. C</i>	<i>App. D</i>
M-3	1888	Porphyry quarrying begins at Temescal Rock Quarry	Quarry established by Sobrante owners north of HH VRA, along same porphyry occurrence as the HH VRA, demonstrates intent to develop all mineral resources in Temescal Mining District. This occurrence of suitable porphyry rock is “a mile or two in width stretch[ing] a considerable distance in a northwest and southeast direction along the western side of the Rancho El Sobrante de San Jacinto, and extends east to within about one mile of the tin mines” with crushing works ¼ mile below the quarry along Temescal Creek.	Sections II.D.1, II.D.4, V.A.2, V.B.2	Figures 3.4, 3.6, 5.2	Exhs. 2.3, 2.4, 2.7, 2.21, 3.2	N/A
M-4	1891	Tourmaline surface excavation and production of tin	First year of commercial excavation and production from Cajalco Tin Mine, resulting in 125,289 pounds of tin. Work in 1891 was limited to surface excavations.	Sections II.D.1, II.D.4, V.A.2, V.B.1	Figures 3.4, 3.6, 4.6.1, 4.12, 6.1, 7.1.1, 7.1.2, 7.1.3	Exhs. 2.8, 2.10, 2.21	N/A
M-5	1892	Tourmaline surface excavation; construction of ancillary facilities in support of tin mining operations; and production of tin	Second year of commercial excavation and production from Cajalco Tin Mine, resulting in 126,000 pounds of tin. Work in 1892 included both surface tourmaline vein excavation, as well as underground workings consisting of 2 shafts, 180 feet deep, 300 feet long.	Sections II.D.1, II.D.4, V.A.2, V.B.1	Figures 3.4, 3.6, 4.6.1, 4.12, 7.1.1, 7.1.2, 7.1.3	Exhs. 2.8, 2.10, 2.21	N/A
M-6	1911	Small porphyry quarries (rip-rap and aggregate) established along eastern bank of Temescal Wash by Sobrante owners, including one within HH VRA	Corona “Rock Boom” leads to multiple quarrying operations along the known porphyry body on the east and west sides of Temescal Canyon. Multiple quarries, including one on the HH VRA were established to meet demands of Los Angeles construction needs. These early quarries, known for high-quality building material, demonstrated the intent of Sobrante owners to utilize HH VRA in conjunction with neighboring quarry operations to produce mineral materials as needed.	Sections II.D.1, II.D.4, V.A.2, V.B.2	Figures 3.1, 3.3, 3.4, 3.6, 3.9, 4.2, 4.7, 4.8, 4.9, 4.11, 4.13, 7.3.1, 7.3.2, 7.4.1	Exhs. 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.6, 3.9, 3.10, 3.12, 3.13	N/A
M-7	1911	Clay prospecting and quarrying throughout the Temescal Mining District, including within the northern portion of the HH VRA	Clay mineral resources evaluated for development throughout the Temescal Mining District, including within the HH VRA. This evaluation was focused on determining viable deposits of high aluminum clay and resulted in surface scrapings. Demonstrates the intent of Sobrante owners to fully develop all mineral resources with Temescal Mining District.	Sections II.D.1, II.D.4, V.A.2, V.B.2	Figures 3.1, 3.3, 3.4, 3.6, 3.9, 4.3, 4.10,	Exhs. 2.1, 2.2, 3.8, 3.9	Area 7 (pp. 3-4, 11)
R-8	1911	Road construction in Temescal (Hoag’s) Canyon connecting Temescal Mining District with broader regional markets and other regional surface mining operations	Sobrante owners construct a road through Hoag’s (Temescal) Canyon to provide connectivity with multiple mining operations within the Temescal Mining District. This road allowed multiple mineral developments to access the Corona market, thus facilitating development throughout the Temescal Mining District. The location of the road next to the HH VRA also established the property as a central location for hauling mineral materials	Sections V.A.2, V.B.2	Figures 3.1, 3.3, 3.4, 3.6, 3.9	Exhs. 3.10, 3.11, 3.12, 3.15, 3.16.	N/A

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R-9	1911	Railroad construction, connecting the Temescal Mining District with primary rail lines and broader regional market	ATSF constructs a spur line from the ATSF mainline at Corona, south of the mouth of Cajalco Canyon, terminating at the northwest corner of the HH VRA. This spur line becomes the main loading and export point for multiple minerals (tin and porphyry) produced in the Temescal Mining District. The location of the railroad siding to the northwest of the HH VRA also established the property as a central location for hauling mineral materials.	Sections V.A.2, V.B.2	Figures 3.1, 3.3, 3.4, 3.6, 3.9	Exhs. -2.4, 2.5, 3.12, 3.15.	N/A
R-10	1911 - 1926	Construction and use of clay haul road running south to northwest through the HH VRA	Sobrante owners construct and use clay haul road, running from clay pits on the border of the Temescal Mining District and Alberhill Clay District (including Harrington Clay Pit), to the ATSF railroad and Corona-Elsinore Highway, through the HH VRA.	Sections II.D.1, V.A.2	Figures 3.1, 3.3, 3.4, 3.5, 3.6, 3.9, 4.2, 4.9, 7.2.1, 7.2.2	Exhs. 2.1, 2.2, 3.12, 3.13	N/A
M-11	1917	Increased quarrying activities and improvements within Temescal Mining District	Sobrante owners undertake activities at the Temescal Rock Quarry, including construction of private railway line and crushing plant at the Temescal Rock Quarry. The Sobrante owners' continued investment in regional mining operations demonstrates intent to fully develop the Temescal Mining District as a regional mining hub.	Sections II.D.1, V.B.2	Figures 3.4, 3.6	Exhs. 2.3, 2.4, 2.5, 2.9, 2.10, 3.11, 3.18	N/A
R-12	1917 - 1923	Establishment and use of borrow pits to restore and maintain tin mine haul road; use of tin mine haul road	Sobrante owners open rock, sand, and gravel borrow pits, including at least one within the HH VRA, to provide material for repairs and improvements to "tin mine haul road," in preparation for resumption of operations at Cajalco Tin Mine.	Sections II.D.1, V.B.1	Figures 3.1, 3.3, 3.4, 3.6, 3.9, 4.4, 4.5, 4.6.1, 4.10, 4.12, 4.14, 4.16, 7.1.1, 7.1.2, 7.1.3	Exhs. 2.3, 2.4, 2.5, 2.10, 2.15, 2.16, 2.18, 3.16, 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, 3.23, 3.25, 3.27, 3.28	Area 7 (pp. 3-4, 11)
M-13	1918 - 1923	Refurbishment of Cajalco Tin Mine, including surface facilities	The Sobrante owners begin restoring surface facilities at the Cajalco Tin Mine, including restoration of surface buildings and historic (1890-1892) tin mine workings.	Sections II.D.1, V.B.1	Figures 3.4, 3.6, 4.6.1, 4.12, 6.1, 7.1.1, 7.1.2, 7.1.3	Exhs. 2.3, 2.4, 2.5, 2.10, 2.15, 2.16, 2.18, 3.16, 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, 3.23, 3.25, 3.27, 3.28	N/A

Map I.D.	Date	Disturbance	Description	Text	App. B	App. C	App. D
M-14	1918 - 1923	Tourmaline vein excavation	The Sobrante owners begin increased excavation (surface and tunnel) of Vein No. 1 in Cajalco Hill. Vein is excavated to 650 feet and ore is removed for smelting and assaying.	Sections II.D.1, V.B.1	Figures 3.4, 3.6, 6.1, 7.1.1, 7.1.2, 7.1.3	Exhs. 2.3, 2.4, 2.5, 2.10, 2.15, 2.18, 3.1.6, 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, 3.23, 3.25, 3.27, 3.28	N/A
M-15	1918 - 1923	Tourmaline vein excavation and exploration	The Sobrante owners undertake exploration and excavation of at least ten (10) surface tourmaline veins in the vicinity of Cajalco Tin Mine.	Sections II.D.1, V.B.1	Figures 3.1, 3.3, 3.4, 3.6, 3.9, 4.6.1, 4.6.2, 4.6.3, 4.12, 6.1, 6.2, 6.3, 7.1.1, 7.1.2, 7.1.3	Exhs. 2.3, 2.4, 2.5, 2.10, 2.15, 2.16, 2.18, 3.1.6, 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, 3.23, 3.25, 3.27, 3.28	Area 3 (pp. 2-4, 10, 13)
E-16	1920 - 1923	Surveying and exploration for developable silica sand deposits	Corona Sand & Silica Co. undertakes exploration, sampling, and testing of silica sand resources within the Temescal mining district, generally located within and just to the west of the HH VRA (and specifically areas along east and west banks of Temescal Wash) to determine viability of establishing silica sand mining and processing operation. This exploration demonstrates the continued intent to fully develop all mineral resources in the Temescal Mining District.	Section V.B.2	Figures 3.1, 3.3, 3.4, 3.6, 3.9, 7.3.1, 7.3.2	Exhs. 2.3, 2.4, 2.5, 2.17, 2.18, 3.25, 3.29, 3.31	N/A
M-17	1923	Continued quarrying activities and investment within the Temescal Mining District	Activities to modernize equipment at Temescal Rock (“Blue Diamond”) Quarry and expanded surface mining activities. The Sobrante owners’ continued investment in regional mining operations demonstrates intent to fully develop the Temescal Mining District as a regional mining hub.	Section V.B.2	Figures 3.4, 3.6	Exhs. 2.3, 2.4, 2.5, 2.10, 2.15, 3.30, 3.32	N/A
M-18	1923	Corona Sand and Silica Co. constructs a production plant and begins pit excavations along the east and west sides of Temescal Wash	The Sobrante owners began initial silica sand mining operation along the western edge of the HH VRA, which would later significantly expand, first under P.J. Weisel, and later under the Owens-Illinois Glass Co. The initial development of the site demonstrates the Sobrante owners’ continued intent to fully develop all mineral resources in the Temescal Mining District.	Section V.B.2	Figures 3.1, 3.3, 3.4, 3.6, 3.9, 4.7, 4.13, 7.3.1, 7.3.2	Exhs. 2.3, 2.4, 2.5, 2.18, 3.29, 3.31, 3.32, 3.37, 3.38, 3.39	N/A
M-19	1927	Expansion of porphyry quarrying within the HH VRA to provide material for railroad expansion	Rock quarrying operations resume at porphyry quarry originally established c. 1911, within S-4 VRA, along western edge of HH VRA to provide materials (<i>i.e.</i> railroad track ballast, rip rap) for 5,000 yards of track for the ATSF Railroad. This demonstrates the intent of the HH VRA owners to continue utilizing the property for surface mining.	Section V.C.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.2, 4.7, 4.8, 4.9, 4.11, 4.13, 7.3.1, 7.3.2, 7.4.1	Exhs. 2.3, 2.4, 2.18, 3.26, 3.36, 3.42	N/A

Map I.D.	Date	Disturbance	Description	Text	App. B	App. C	App. D
M-20	1927 - 1928	Third wave of surface improvements, excavation, and exploration at Cajalco Tin Mine and associated surface tourmaline veins and tourmaline blowouts	Restoration and mining at the Cajalco Tin Mine resume, including restoration of underground mines and exploration and excavation of tin-bearing, surface level tourmaline veins, including veins located in the northeast of the HH VRA. The tin mine rejuvenation continues to utilize the tin mine haul road through the HH VRA.	Section V.C.2	Figures 3.5, 3.6, 4.6.1, 4.12, 6.1, 7.1.1, 7.1.2, 7.1.3	Exhs. 2.3, 2.4, 2.5, 2.15, 2.16, 2.18, 3.33, 3.34, 3.36, 3.39, 3.40, 3.43	N/A
M-21	1927 - 1928	Expansion of P.J. Weisel silica sand excavation and production facilities	P.J. Weisel takes over operations of Corona Sand & Silica, Co., expands processing facility, and undertakes new plant construction. Silica sand mining occurs along the western edge of the HH VRA and the Weisel operation utilizes access roads in the HH VRA to transport produced materials to the ATSF railroad	Section V.D.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.7, 4.13, 7.3.1, 7.3.2	Exhs. 2.3, 2.4, 2.5, 2.18, 3.47, 3.48	N/A
M-22	1928	Continued clay excavation and transfer of material through HH VRA	Sobrante owners and other clay mining entities continue clay mining operations (<i>i.e.</i> , El Sobrante Pit) to the south of the HH VRA, and utilize the clay haul road to access ATSF Railroad.	Section V.C.D	Figures 5.5.1, 7.2.1, 7.2.2; <i>see also</i> Figures 3.4, 3.5, 3.6 (associated with R-10)	Exhs. 2.1, 2.2, 2.3, 2.4, 2.5, 3.44	N/A
E-23	1930	Exploration related to economic and strategic mineral development describes occurrences of dumortierite	Geology survey describes rock formations in Section 10 and potential economic uses, including surveys of dumortierite occurrences. This demonstrates continued intent to fully develop all possible mineral resources within the HH VRA.	Section V.E	<i>See</i> Figure 5.6	Exhs. 2.4, 2.5, 2.9, 2.10, 3.44, 3.48	N/A
E-24	1931 - 1938	Exploration and sampling for high aluminum clays and bauxite, primarily north of Cajalco Road as part of strategic mineral evaluation	Exploration within the HH VRA (and adjacent areas) related to occurrence of bauxite and other high-aluminum clays, including sampling and analysis by state laboratory to determine future development feasibility. This demonstrates continued intent to fully develop all possible mineral resources within the HH VRA.	Section V.E	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.10	Exhs. 2.2, 2.3, 2.4, 2.5, 2.11, 2.12, 2.13	Area 7 (pp. 3-4, 11)
M-25	1931 - 1938	Initial excavation and mining at Cajalco Clay Pit	Pacific Clay Products begins operations at Cajalco Clay Pit, located primarily, but not entirely, within S-4 VRA. This initial clay mining would later expand east across the HH VRA and demonstrates continued intent to fully develop all mineral materials within the HH VRA.	Sections II.D.1, V.C.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.9, 7.3.1, 7.3.2	Exhs. 2.3, 2.4, 2.5	N/A
R-26	1931	Rock, sand, and gravel borrow pits opened to supply materials to improvements to tin mine haul road and Cajalco Canyon trails	Multiple rock, sand, and gravel borrow pits open to supply materials related to improvements made along the tin mine haul road (1927-1929) and Cajalco Canyon Trails (and in preparation for construction of Cajalco Road), demonstrating an intent to utilize all mineral resources within the HH VRA.	Sections II.D.1, V.C.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.5, 4.14, 6.4	Exhs. 2.3, 2.4, 2.5, 2.18, 3.44, 2.47, 2.48, 2.50, 3.51	Areas 7, 9 (pp. 3-4, 11)

<i>Map I.D.</i>	<i>Date</i>	<i>Disturbance</i>	<i>Description</i>	<i>Text</i>	<i>App. B</i>	<i>App. C</i>	<i>App. D</i>
M-27	1931	Mining disturbances consistent with clay prospecting and sampling	Surface mining disturbance along hillside consistent with clay prospecting and sampling, demonstrating a continued intent to mine the entirety of the property.	Section V.C.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9	Exhs. 2.2, 2.3, 2.4, 2.5, 2.10, 2.11	Area 8 (pp. 4, 11)
M-28	1931	Extent of tin mine exploration and excavation	As of 1931, the area of influence of the Cajalco Tin Mine includes the northeastern corner of the HH VRA, and utilizes the Tin Mine Haul Road through the HH VRA.	Sections VB.1, V.C.2	Figures 3.5, 3.6, 4.6.1, 4.12, 4.13, 4.14, 6.1	Exhs. 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 3.16, 3.17, 3.18, 3.19, 3.20, 3.21, 3.22, 3.33, 3.34, 3.35, 3.40, 3.43, 5.1, 5.2, 5.3, 5.4.	N/A
M-29	1931	Extent of silica sand plant excavations	Silica sand mining occurs along the western edge of the HH VRA and the Weisel operation utilizes access roads in the HH VRA to transport produced materials to the ATSF Railroad.	Sections V.B.2, V.D.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.7, 4.13, 7.3.1, 7.3.2	Exhs. 2.3, 2.4, 2.5, 2.17, 3.50, 3.52, 5.1, 5.2, 5.3, 5.4	N/A
E-30 ²	1932 - 1941	Boundary outlines of completed and published geologic surveys, studies, and economic analyses	Geologic surveys and studies of the Temescal Mining District, including the HH VRA, conducted to determine presence of strategic minerals and economic feasibility of development. These studies determine the presence of multiple economically feasible strategic minerals, including porphyry, multiple clay varieties (including fire clays), tourmaline, and dumortierite.	Section V.E	See Figure 5.6	Exhs. 2.4, 2.11, 2.12, 2.13, 2.14, 3.60	N/A
R-31 ³	1935	Silica sand rail siding expansions constructed both along P.J. Weisel spur line and Temescal Wash Siding to accommodate increased production	Silica sand mining occurs along the western edge of the HH VRA and the Weisel operation utilizes access roads in the HH VRA to transport produced materials to the ATSF Railroad.	Section V.D.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.8, 4.13, 7.3.1, 7.3.2	Exhs. 2.3, 2.4, 2.13, 2.17, 3.61	N/A
R-32	1935	Multiple borrow pits opened up to construct and surface Cajalco Road	Use of rock, sand and gravel borrow pits to assist with construction of Cajalco Road.	Sections II.D.1 V.C.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.14, 4.15	Exhs. 2.4, 2.5, 2.18, 3.53, 3.56, 3.57	N/A
M-33	1938	Expansion of known clay resource within HH VRA	Red clay worked in irregular quarry of approximately 100 feet, east of Temescal Wash and ATSF Railroad.	Sections II.D.1, V.C.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.9, 4.13, 7.3.1, 7.3.2	Exhs. 2.3, 2.4, 2.5, 2.18	N/A

² E-30 is not specifically designated on any Figures. It is represented by the 1935 Geology Study and 1938 Sampling and Prospecting Outlines in Figure B-5.6.

³ Note that Figures B-4.8 and B-4.13 designate “R-31” as “M-31,” the correct designation is R-31.

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E-34	Pre-1931	Clay prospecting and sampling in Section 10 to determine presence of bauxite and or other high-aluminum clays	Aerial photo shows small spur road and excavation in canyon north of HH VRA, likely consistent with clay prospecting and sampling in Section 10 to determine presence of bauxite and or other high-aluminum clays.	N/A	Figures 3.2, 3.3, 3.5, 3.6, 3.9	Exhs. 2.11, 2.12, 2.13, 2.14, 2.15, 2.20	N/A
M-35	1938 - 1945	Expansion of silica sand production and surface mining adjacent to HH VRA	P.J. Weisel uses a rail siding on the ATSF Railroad to export materials. Silica sand mining occurs along the western edge of the HH VRA and the Weisel operation utilizes access roads in the HH VRA to transport produced materials to the ATSF Railroad.	Section V.D.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.8, 4.13, 7.3.1, 7.3.2	Exhs. 2.3, 2.5, 2.5.1, 2.18, 3.78, 3.79, 3.87	N/A
M-36	1938 - 1939	Expansion of porphyry quarry located within HH VRA and establishment of the "Blarney Stone Quarry"	Increased production of porphyry from HH VRA and establishment of the Blarney Stone Quarry, primarily associated with contract to supply 450,000 tons of materials to Prado Dam construction. Production increases to meet regional demand.	Sections II.D.1, V.C.2.	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.11, 7.3.1, 7.3.2, 7.4.1	Exhs. 2.4, 2.5, 2.18, 2.19, 2.20, 3.69, 3.72, 3.73, 3.74, 3.75, 3.77	N/A
M-37	1943	Expansion of sand and silica mining, including surface mining within HH VRA	P.J. Weisel Sand and Silica excavation includes excavation of sandstone cliffs along east side of Temescal Wash. Surface mining activities within the HH VRA, in conjunction with regional mining operations, and outside the S-4 VRA demonstrate an intent to mine the HH VRA to meet demand for multiple mineral materials.	Section V.D.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9., 4.13, 7.3.1, 7.3.2	Exhs. 2.3, 2.5, 2.5.1, 2.18, 3.78, 3.79, 3.87	N/A
E-38	1942 - 1945	Surveying and sampling of tourmaline veins and tin resources	USGS conducts survey of six square miles around Cajalco Hill (site of Cajalco Tin Mine, located northeast of HH VRA), to map, sample, and evaluate suitability of tin resources to supply U.S. war effort. This evaluation of mineral materials useful to the U.S. war effort, including evaluation of mineral resources in the northeast corner of HH VRA, outside the S-4 VRA.	Section V.C.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.12, 7.1.2, 7.1.3	Exhs. 2.16, 3.83, 3.85	N/A
M-39	1945 - 1947	Expanded silica sand mining and processing operations adjacent to and within the HH VRA	Owens-Illinois Glass Co. leases the P.J. Weisel silica sand operation, expands silica tailings, and constructs a new production plant Silica sand mining occur along the western edge of the HH VRA and the silica sand operation utilizes access roads in the HH VRA to transport produced materials to the ATSF Railroad. Additionally, the operation mines certain portions of the HH VRA. Finally, Harlow seeks to compete with the silica sand and attempts to purchase neighboring silica sand resources, demonstrating intent to fully exploit known mineral resources.	Section V.D.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9, 4.13, 7.3.1, 7.3.2	Exhs. 2.3, 2.4, 2.5, 2.18, 3.88, 3.89	N/A
M-40	1948	Clay side-cut exploration and mining operations north of the Blarney Stone Quarry	Liston Brick Co. begins small side-cut clay exploration and mining operations north of the Blarney Stone quarry. Surface mining activities within the HH VRA and outside the S-4 VRA demonstrate an intent to mine the entirety of the property based on mineral demand.	Sections II.D.1 V.C.2	Figures 3.2, 3.3, 3.5, 3.6, 3.9., 4.14, 6.6, 6.7, 7.3.1, 7.3.2, 7.4.1	Exhs. 2.4, 2.5, 2.18, 3.19	Areas 11, 12, 13 (pp. 5, 12)

<i>Map I.D.</i>	<i>Date</i>	<i>Disturbance</i>	<i>Description</i>	<i>Text</i>	<i>App. B</i>	<i>App. C</i>	<i>App. D</i>
M-41	1938 - 1948	Surface mining of alluvial gravel, including aerial photograph showing extent of access to and excavation from gravel resource	Carl Bliss mines alluvial gravel resource south of Cajalco Road to supply aggregate for Prado Dam, including for use in concrete. The 1948 aerial photograph shows extent of access and excavation of these alluvial gravel resources, south of Cajalco Road. Surface mining activities within the HH VRA and outside the S-4 VRA demonstrate an intent to mine the entirety of the property based on mineral demand.	Sections II.D.1, V.C.2	Figures 3.2, 3.3, 3.5, 3.6, 3.8, 3.9, 4.14, 6.5, 6.6, 6.7	Exhs. 2.4, 2.5, 2.18, 2.20, 3.74, 3.75, 3.76, 3.77, 5.5, 5.6, 5.7	Areas 10, 11 (pp. 4-5, 11-12)
M-42	1949	Aerial photograph shows extent of 3M (“Temescal Rock”) quarry operations	Continued expansion of quarry along porphyry ore body indicates continued intent to fully exploit known mineral resources within Temescal Mining District, including mining of same ore body found within HH VRA.	Section V.D.1	Figures 3.5, 3.6	Exhs. 5.5, 5.6, 5.7	N/A
M-43	1948 - 1960s	Clay, rock, sand, and gravel mining to supply Liston Brick Co. manufacturing plant	Liston Brick Co. begins operations, mining (i) miocene diatomaceous shale; (ii) quaternary alluvium; and (iii) local soil and sandstone. Liston uses unnamed plots on the east side of Temescal Canyon, along Cajalco Road within the HH VRA, for metasedimentary rocks used in brick production.	Sections V.C.2, V.F.3	Figures 3.8, 3.9, 4.15, 4.16, 4.17, 6.4, 6.5, 6.6, 6.7, 7.3.1, 7.3.2, 7.4.2	Exhs. 2.3, 2.4, 2.5, 2.51, 2.52, 2.18, 3.91	Areas 9, 10, 11, 12, 13 (pp. 4-5, 11-12)
M-44	1954	Clay discovery and mining	Gladding discovers viable source of red clay adjacent to and within the HH VRA.	Sections II.D.2, V.F.3.	Figures 3.8, 3.9, 4.16, 7.3.1, 7.3.2	Exhs. 2.3, 2.4, 2.5, 2.5.1, 2.5.2, 2.18	N/A
M-45	1953 - 1959	Continued porphyry mining	Mining within the HH VRA provides multiple water infrastructure projects with porphyry, including: Orange County Santa Ana River Levee and Long Beach flood control channels. Production is noted on a per-project basis, with 250,000 tons produced in 1958 for the Santa Ana River Levee, and 500,000 tons produced in 1958 for other flood control channels. Quarrying capacity is given at 6,000 tons per day (over 2 million tons per year).	Sections II.D.2, V.F.3	Figures 3.8, 3.9, 4.14, 4.17, 4.18, 6.6, 6.7, 7.3.1, 7.3.2, 7.4.1	Exhs. 2.3, 2.4, 2.18, 3.105, 3.107, 3.108, 3.109	Areas 11, 12, 13, 14 (pp. 5-6, 12)
M-46	1959	Aerial photograph shows extent of surface mining activities within the HH VRA	Aerial photograph shows continued mining of multiple resources, including porphyry and clay, within the HH VRA. This mining, without permits, is consistent with the exercise of vested rights.	Sections II.D.2, V.F.3	Figures 3.8, 3.9, 4.17, 7.3.1, 7.3.2, 7.4.1	Exh. 5.10	Areas 11, 12, 13, 14 (pp. 5-6, 12)
M-47	1963	Aerial photograph shows extent of surface mining activities within the HH VRA	Aerial photograph shows continued mining of multiple resources, including porphyry and clay, within the HH VRA. This mining, without permits, is consistent with the exercise of vested rights.	Sections II.D.2, V.F.3	Figures 3.8, 3.9, 4.18, 7.4.1	Exh. 5.11	Areas 11, 12, 13, 14 (pp. 5-6, 12)
M-48	1967	Change in road status—private to public	Riverside County Board of Supervisors approves construction of “Eagle Valley Road” as a County road to replace the formally private tin mine road. This County action removed the Tin Mine Haul Road.	Section V.F.3	Figures 3.8, 3.9	Exh. 3.111	N/A

<i>Map I.D.</i>	<i>Date</i>	<i>Disturbance</i>	<i>Description</i>	<i>Text</i>	<i>App. B</i>	<i>App. C</i>	<i>App. D</i>
M-49	1972	Extent of surface mining activities related to silica sand and rock, sand, and gravel	Aerial photograph shows the extent of Owens-Illinois Glass Co. silica sand plant mining and operations, including connectivity with HH VRA via conveyer and roads.	Section V.F.3	Figures 3.8, 3.9	Exh. 5.13	N/A
M-50	1984	Analysis of historic rock, sand, gravel, and clay disturbances	Investigation and analysis of known, historic mining features within the HH VRA, including multiple heavily disturbed clay pits, all outside the S-4 VRA boundary.	Section V.G	Figures 3.8, 3.9, 6.4, 7.4.1, 7.4.2	Exh. 4.4	Area 7 (pp. 3-4, 11)
M-51	1962	Surface mining activity consistent with clay scraping and exploration	Surface disturbance visible in aerial imagery in area of property associated with clay mining during tenancy of Corona Quarries, Inc. and construction of MWD lower-feeder line. Site investigation and LiDAR analysis determine disturbance may be associated with either clay exploration or construction of MWD lower-feeder line.	Sections II.D.2, V.F.3	Figures 3.8, 3.9, 4.19, 6.2, 6.3	Exh. 5.11	Area 5 (pp. 3, 10)
M-52	1962 - 1967	Surface mining activity consistent with clay scraping and exploration	Surface disturbance visible in aerial imagery, dated 1967, in area of property associated with clay mining during tenancy of Corona Quarries, Inc. Site investigation and LiDAR analysis determine ground disturbance and several roads consistent with clay mining/exploration, including a trench-like feature.	Sections II.D.2, V.F.3	Figures 3.8, 3.9, 4.19	Exh. 5.12	Area 2 (pp. 2, 10)
M-53	1980s	Surface mining activity consistent with exploration and bedrock exposure/evaluation	A road cut/dozer scrape path trending along a bedrock ridgeline visible in aerial imagery dated 2020, and LiDAR. This feature is consistent with surface explorations for mining using a bulldozer to create shallow bedrock exposure along a transect and could be associated with a reported prior attempt to develop a quarry (Harlow Hill Development report (1984)).	Sections V.F.3, V.G	Figures 3.8, 3.9	Exhs. 4.4, 5.13	Areas 2, 3, 5 (pp. 2-3, 10, 13).
M-54	2019	Mining activity as of 2019 in accordance with approved reclamation plan amendments	Extent of surface mining activity conducted as of 2019, based on compliance with County-approved reclamation plan and amendments.	Sections II.D.3, V.G	Figure 4.20	Exhs. 1.4, 1.5, 1.6	N/A