

3.1.4 Mineral Resources

This section of the environmental impact report (EIR) analyzes Otay Ranch Village 14 and Planning Areas 16/19 (Proposed Project) potential impacts to mineral resources, and is based on the mineral resources technical report prepared by Leighton and Associates for the Proposed Project (Appendix 3.1.4-1 of this EIR) in accordance with the San Diego County Guidelines for Determining Significance and Report Format and Content Requirements: Mineral Resources (County of San Diego 2008).

This section tiers from the 1993 Otay Ranch Final Program EIR (Otay Ranch PEIR) (City of Chula Vista and County of San Diego 1993a) because the Proposed Project is within the boundaries of the Otay Ranch General Development Plan/Subregional Plan (Otay Ranch GDP/SRP) (City of Chula Vista and County of San Diego 1993b) and development of the Project Area was analyzed in the Otay Ranch PEIR. As indicated in the Otay Ranch PEIR, mineral resources of economic value in the Otay Ranch GDP/SRP area include sand, gravel, crushed rock (known collectively as construction aggregate), and bentonitic clay. The Otay Ranch PEIR analyzed mineral resources and determined that implementation of mitigation measures would reduce impacts to below a level of significance; however, the Otay Ranch PEIR also concluded that if the mitigation measures identified in the Otay Ranch PEIR become infeasible (such as project phasing to allow for extraction of mineral resources before conflicting development occurs), impacts would be significant and unavoidable. The Otay Ranch PEIR also indicates that the County of San Diego (County) does not consider bentonite deposits within the Otay Ranch GDP/SRP area to be regionally significant, and thus, no significant impacts related to this mineral resource within the County would occur.

As discussed below, development of the Proposed Project would not have significant impacts on mineral resources located on adjacent lands, since these lands are either already committed to non-mining uses or are dedicated as open space Preserves for habitat protection (see County of San Diego 2008 pp. 8, 15).

3.1.4.1 Existing Conditions

3.1.4.1.1 Environmental Setting

The total Project Area encompasses approximately 1,283.5 acres, of which 723.7 acres are within Otay Ranch Village 14 and 559.8 acres are within Planning Areas 16/19; there would also be 85.4 acres for off-site improvements. The Project Area is in a natural state and is covered with a light to dense growth of annuals and some chaparral. A network of improved and unimproved roads provides access throughout the Project Area.

Topography in the Project Area ranges from gently sloping terraces to moderately steep existing natural slopes approaching 1:1 (horizontal to vertical) slope inclinations. Two southerly flowing active drainages transect the Project Area, ultimately converging into a broad drainage adjacent to the existing Proctor Valley Road that drains into Upper Otay Lake. The existing elevations within the Project Area range from a high of approximately 1,345 feet above mean sea level in the northeastern portion of the Project Area to a low of approximately 550 feet above mean sea level within an active drainage near the southern limit of the proposed Project Area.

The Project Area is located near the eastern edge of the coastal plain at the contact point with the metavolcanic rocks of the Jamul Mountains. Geologically, the Project Area is underlain by two principle rock types, the late Jurassic-age to early Cretaceous-age metavolcanic rocks of the Santiago Peak Volcanics and the Tertiary-age sedimentary rocks of the Otay Formation.

As mandated by the Surface Mining and Reclamation Act (SMARA) of 1975 (Public Resources Code, Sections 2710–2796), the California State Mining and Geology Board classifies California mineral resources with the Mineral Resource Zones (MRZs) system. These zones have been established based on the presence or absence of significant sand and gravel deposits and crushed rock source (e.g., products used in the production of cement). The Project Area is predominantly a metavolcanic rock site, with an MRZ-3 zone defined by generally granitic geologic unit limits along the northern boundary of the Project Area (Appendix 3.1.4-1). The majority of the Project Area is located outside of the Production-Consumption (P-C) Boundary, which is an uncategorized zone. Specifically, all of Otay Ranch Village 14 is located in the uncategorized zone, and the northern portions of Planning Areas 16/19 are located in the MRZ-3 zone. Because the Project Area generally consists of a mountainous terrain, although bisected by an alluvial stream valley, the Project Area's resource designation of MRZ-3 results from the presence of crystalline and metavolcanic rocks which, when crushed to suitable sizes, could be considered for construction material in the form of aggregate materials.

The majority of the western San Diego region is mapped as a MRZ-3 zone (Appendix 3.1.4-1). Generally, these areas geologically consist of the older bedrock units, including the crystalline and metavolcanic rocks that are mapped over nearly two-thirds of the County. These areas are also commonly rugged, mountainous terrain, relatively isolated from existing development and infrastructure. As noted in the Update of Mineral Land Classification report, these materials can be crushed to yield Portland Cement Concrete (PCC)-grade aggregate provided they possess the appropriate chemical characteristics (CDC 1996).

3.1.4.1.2 Regulatory Setting**State****Surface Mining and Reclamation Act of 1975**

As mandated by SMARA, the California State Mining and Geology Board classifies the state's mineral resources with the MRZ system. This system includes identification of presence/absence conditions for meaningful sand and gravel deposits.

The classification system emphasizes PCC aggregates, which are used in manufacturing strong, durable concrete, and have stricter specifications than other aggregate materials.

Mineral land classification for the region is designated as follows (Public Resources Code, Sections 2710–2796):

- MRZ-1** Areas where adequate information indicates that no significant mineral deposits are present or where it is judged that little likelihood exists for their presence.
- MRZ-2** Areas where adequate information indicates that significant mineral deposits are present or where it is judged that there is a high likelihood for their presence.
- MRZ-3** Areas containing mineral deposits, the significance of which cannot be evaluated from available data.
- MRZ-4** Areas where available information is inadequate for assignment to any other MR zone.

Additionally, Sections 2762 and 2763 of SMARA require that jurisdictions issue a Statement of Reasons for projects that include the elimination of the potential for extraction in areas of regionally significant minerals resources. SMARA requires that the County decision makers consider this elimination of extraction potential in their decision on land use. The Statement of Reasons lists potential reasons to approve the Proposed Project and to include elimination of the potential for extraction of all of this resource; decision makers may adopt or modify any of these. The Statement of Reasons must be submitted to the State Geologist and California State Mining and Geology Board for their review for a period of 60 days in conjunction with the environmental review of the Proposed Project.

Local

County of San Diego Zoning Ordinance

Sections 2820 and 6550 of the County Zoning Ordinance, Extractive Use Regulations, are zoning designations that may be used to signify the presence of mineral deposits and/or to preserve areas with valuable mineral deposits until the deposits can be extracted. The Special Purpose Regulation (S82), Extractive Use Designation (25), and Impact Sensitive Land Use Designation (24) are zoning and land use designations that are used by the County to group lands of known, existing, and potential mineral resources. The S82 Extractive Use Regulations identify and establish zones within the County where mining and quarrying uses are permitted. The Extractive Use Designation (25) and the Impact Sensitive Land Use Designation (24) are applied to areas containing economically extractable mineral resources. None of these zones are present on the Project Area.

County of San Diego General Plan Conservation and Open Space Element

The County's General Plan Conservation and Open Space Element contains plans, goals, and policies regarding mineral resources within the County. In the County, there are three general categories of important mineral resources, including construction materials, industrial and chemical mineral materials, and metallic and rare materials. Although mineral resources of all types are economically important, the continued availability of construction aggregate for the development of roads, homes, buildings, and other infrastructure is essential to the economy of the County. While the County is underlain by vast quantities of mineral deposits from which aggregate can be produced, urban development has encroached upon many existing and potential future mining sites. This development and other non-compatible land uses have reduced or eliminated access to many of the local important mineral deposits. Select applicable General Plan policies are listed below (County of San Diego 2011):

- **Policy COS-10: Protection of Mineral Resources.** The long-term production of mineral materials adequate to meet the local County average annual demand, while maintaining permitted reserves equivalent to a 50-year supply, using operational techniques and site reclamation methods consistent with SMARA standards such that adverse effects on surrounding land uses, public health, and the environment are minimized.
- **Policy COS-10.1: Siting of Development.** Encourage the conservation (i.e., protection from incompatible land uses) of areas designated as having substantial potential for mineral extraction. Discourage development that would substantially preclude the future development of mining facilities in these areas. Design development or uses to minimize the potential conflict with existing or potential future mining facilities. For purposes of this policy, incompatible land uses are defined by SMARA Section 3675.

- **Policy COS-10.2: Protection of State-Classified or Designated Lands.** Discourage development or the establishment of other incompatible land uses on or adjacent to areas classified or designated by the State of California as having important mineral resources (MRZ-2), as well as potential mineral lands identified by other government agencies. The potential for the extraction of substantial mineral resources from lands classified by the State of California as areas that contain mineral resources (MRZ-3) shall be considered by the County in making land use decisions.
- **Policy COS-10.3: Road Access.** Prohibit development from restricting road access to existing mining facilities, areas classified MRZ-2 or MRZ-3 by the State Geologist, or areas identified in the County Zoning Ordinance for potential extractive use in accordance with SMARA Section 2764.a.
- **Policy COS-10.4: Compatible Land Uses.** Discourage the development of land uses that are not compatible with the retention of mining or recreational access to non-aggregate mineral deposits. See Policy COS-10.1 for a definition of incompatible land uses.

3.1.4.2 Analysis of Project Effects and Determination as to Significance

Guidelines for the Determination of Significance

The following guidelines are based on the County Guidelines for Determining Significance and Report Format and Content Requirements: Mineral Resources (County of San Diego 2008):

The Proposed Project would have a significant impact to mineral resources if:

- The project is on or within the vicinity (generally up to 1,500 feet from the site) of an area classified as MRZ-2; or
- On land classified as MRZ-3; or
- Underlain by Quaternary alluvium; or
- On a known sand and gravel mine, quarry, or gemstone deposit; and
- The project will result in the permanent loss of availability of a known mineral resource that would be of value to the region and the residents of the state; and
- The deposit is minable, processable, and marketable under the technologic and economic conditions that exist at present or which can be estimated to exist in the next 50 years and meets or exceeds the following minimum values (in 1998 equivalent dollars):
 - Construction materials (sand and gravel, crushed rock) \$12,500,000.00
 - Industrial and chemical mineral materials (limestone, dolomite, and marble [except where used as construction aggregate]; specialty sands, clays, phosphate, borates and

gypsum, feldspar, talc, building stone and dimension stone) \$2,500,000.

- Metallic and rare minerals (precious metals [gold, silver, platinum], Iron and other ferro-alloy metals, copper, lead, zinc, uranium, rare Earths, gemstones, and semi-precious materials, and optical-grade calcite) \$1,250,000.00.
- The project would result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

These significance guidelines are qualified by certain factors that affect whether the Project Area and/or adjacent lands are compatible with future mining activity. For example, under the heading “Open Space for Sensitive Environmental Resources,” the County Guidelines state that (County of San Diego 2008 p. 8.):

Permanent open spaces placed on parcels for the protection of sensitive environmental resources permanently remove the ability of that land to be utilized for future extraction of mineral resources. Such open spaces often exist in prime aggregate extraction areas such as floodways and provide another difficulty in finding suitable lands for new mines.

The County Guidelines also address mining “incompatibility” in the context of determining which lands adjacent to a project must be assessed for mining impacts. Generally, mining-related noise requires a 1,300-foot setback from any proposed development, which means that a proposed residential project could render mining activities an “incompatible use” within a 1,300-foot radius of the project boundary, leading to potentially significant effects (County of San Diego 2008 p. 15). For this reason, project applicants are often required to evaluate the mining resources within the 1,300-foot area that surrounds a project site. However, the lands within that 1,300-foot area may already be incompatible to mining, which would obviate the need for additional analysis. The County defines compatible uses as follows (County of San Diego 2008 p. 15):

Compatible uses may include non-urbanized areas, very low density residential development, land that does not have high-cost improvements, and lands used for agriculture, silviculture, grazing or open space. (Note: there may be cases where open space designated to protect sensitive environmental resources is not compatible to mining.)

The guidelines regarding incompatibility are important for the Proposed Project, as it is surrounded by residential uses and the habitat preserve established under the County’s Multiple Species Conservation Program (MSCP) and other habitat conservation areas, including City of San Diego MSCP Cornerstone Lands.

Analysis

The vast majority of existing MRZ-2 zones in southwestern San Diego County are mapped in Quaternary alluvial areas and Tertiary conglomerate deposits and have irregular, organic limits defined by low-lying topographic drainages. These areas are generally characterized by the presence of younger (Quaternary-aged) river channel, floodplain, and terrace deposits that have been eroded from the older (Tertiary-aged to Cretaceous-aged) bedrock units, transported, and re-deposited. They consist of naturally loose mixtures of sands and rounded gravels. Laboratory testing has also confirmed the physical and chemical characteristics of these mapped deposits are appropriate for PCC-grade aggregate. No portion of the Project Area has been classified as MRZ-2, and the nearest MRZ-2 classified area is located southeast of the Project Area, roughly 2 miles away (see Figure 3.1.4-1, Mineral Resource Zones). Further, no known mapped industrial and chemical materials nor metallic and rare minerals are known in the Project Area. Therefore, the Proposed Project is not on or within the vicinity of an area classified as MRZ-2.

The Project Area is underlain by Quaternary alluvium and metavolcanic rock that has the potential to be mined, processed, and used as a source of sand, gravel, and rock, similar to much of southwestern San Diego County. Lacking substantial laboratory confirmation testing (i.e., grainsize analysis), the Quaternary alluvium may be considered consistent with an MRZ-2 resource. However, compared to other MRZ-2 classified areas in southwestern San Diego County, the Project Area is located in an entirely different geologic province typical of the MRZ-2 zone described above; that is, it is a predominantly metavolcanic rock site, with an MRZ-3 zone defined by generally granitic geologic unit limits along the north boundary of the Project Area. In addition, the majority of the Project Area is located to the east and outside of the Production-Consumption (P-C) Boundary, which is an uncategorized zone. Specifically, all of Otay Ranch Village 14 is located in the uncategorized zone, and only the northern portions of Planning Areas 16/19 are located in the MRZ-3 zone. Documented historical aggregate extraction operations have not been identified on the Project Area.

As described above, the northernmost portion of the Project Area has been locally classified by the State of California as an MRZ-3 zone, and the Project Area is bisected by a Quaternary alluvial stream deposit, both of which indicate the potential for mineral resources in the form of aggregate materials. Approximately 206 acres of development within the Project Area would impact the mapped MRZ-3 zone and fall outside of 1,300 feet from existing development to the north. Approximately 28 acres of the Project Area are underlain by Quaternary alluvium. Both the MRZ-3 zone and areas underlain by Quaternary alluvium are within or adjacent to dedicated City of San Diego and MSCP County Subarea Plan Preserve land, resulting in those portions likely being lost to future mining efforts due to compatibility with sensitive biological resources, as described below.

Within the MRZ-3 zone, alluvial deposits are shallow and are not considered of significant volume for extraction. Additionally, within the MRZ-3 zone, rock deposits are highly weathered and of a substandard quality (Appendix 3.1.4-1). Due to the weathered nature of the impacted mapped metavolcanic rock, and based on the findings of Appendix 3.1.4-1, the metavolcanic rock is not considered to be a quality minable resource because it is not considered minable, processable, or marketable under the technologic and economic conditions existing today or that can be estimated 50 years from today. To mine such materials, deep removals of overburden generally greater than 20 feet are necessary, and only then may limited hard rock of adequate quality for mining purposes be exposed. Considering the above conditions, the marketability is considered nil and the minimum dollar value of the deposit therefore is not determined.

Although the Proposed Project would encroach into uncategorized areas with the potential for mineral extraction, the Project Area is adjacent to Otay Ranch RMP/MSCP Preserve areas. In particular, the Project Area is adjacent to both City of San Diego MSCP Cornerstone Lands and MSCP County Subarea Plan Preserve areas. These biological Preserve areas are subject to adjacency guidelines and any extractive uses would require appropriate buffering, including noise, air quality, and water quality regulation requirements. Any mining adjacent to these Preserve lands, while not necessary precluded, requires compliance with the controlling document(s) and appropriate permitting, and are considered restricted due to the MSCP Preserve goals.

The largest area of potential mineral resources in the southwest portion of Proctor Valley is owned and managed as “Cornerstone Lands,” pursuant to the City of San Diego MSCP. As defined by Section 1.2 of the City of San Diego MSCP Subarea Plan, these lands are owned by the City of San Diego Water Department and the City of San Diego’s Charter “restricts the use and disposition of water utility assets.” To comply with the requirements of the City of San Diego MSCP and the City Charter, “the City of San Diego intends to enter into a Conservation Land Bank Agreement with the wildlife agencies for the Cornerstone Lands,” through which “the City will commit to phasing in conservation easements over all 10,400 acres of the Cornerstone Lands.” Implementation of conservation easements “will restrict those lands from being used for other purposes inconsistent with habitat preservation” (City of San Diego 1997).

Section 1.4.2 of the City of San Diego MSCP states “New or expanded mining operations on lands conserved as part of the MHPA are incompatible with MSCP preserve goals for covered species and their habitats” subject to permitting and concurrence by the Wildlife Agencies (i.e., California Department of Fish and Wildlife and U.S. Fish and Wildlife Service) “at the time the parcel is conserved” (City of San Diego 1997). This would include assessing impacts and incorporating appropriate conditions to mitigate biological impacts, including impacts to covered species, and restoring mined areas. In addition, all other requirements of City of San Diego land use policies

and regulations (e.g., Adjacency Guidelines, Conditional Use Permit) must be satisfied, and the mining operation shall meet noise, air quality, and water quality regulation restrictions.

There are known sensitive resources on the lands owned by the City of San Diego and underlain by Quaternary alluvium. These resources include a vernal pool restoration site, coastal sage scrub, Hermes copper (*Lycaena hermes*) habitat, and jurisdictional resources such as ephemeral drainages. In order to mitigate for impacts to these resources, appropriate permits would be required, including compliance with the requirements of the federal government (Army Corps of Engineers), State of California (California Department of Fish and Wildlife), and Regional Water Quality Control Board (i.e., 401/404/1600 permits). Such permitting requirements would substantially limit if not entirely preclude these mineral resources from being mined due to the timeframe, costs, and probability of success in securing the appropriate approvals, especially in light of the geological constraints identified above.

Based on site observations and the results of the geotechnical report (Appendix 2.6-1), approximately 28 acres of the Project Area is underlain by Quaternary alluvium and would need to be removed to an average depth of roughly 10 feet below the ground surface. Based on a density of 0.055 tons per cubic foot, this amounts to roughly 670,800 tons of sand and aggregate. Assuming a price of \$20.00 per ton, and a waste factor of approximately 20%, the value of material lost would be roughly \$10,700,000, which is below the threshold (\$12,500,000) for the County's definition of a significant impact. Further, as noted above, the Project Area is adjacent to and includes both City of San Diego MSCP Cornerstone and MSCP County Subarea Plan Preserve areas; therefore, the mineral extraction surrounding the Project Area is considered to be restricted due to the incompatibility with MSCP Preserve goals, including protecting sensitive habitats and plant and wildlife species (described further in Section 2.4, Biological Resources, of this EIR). Thus, the Proposed Project's impact would be **less than significant** and no mitigation is required.

The improvements for the Proctor Valley Road North and Perimeter Trial Option improvements would be subject to the same conditions as analyzed above, and impacts would be **less than significant**. No physical improvements are proposed for the Preserve Trail Option, therefore, no additional impacts would occur from implementation of this Option.

3.1.4.3 Cumulative Impact Analysis

Most aggregate mining in the County is, and has been, associated with river valleys. Flowing water not only carries materials into the valleys for deposition, but over time, replenishes quarried areas with upstream materials. Within southwestern San Diego County, a vast majority of existing MRZ-2 zones are mapped in Quaternary alluvial areas and Tertiary conglomerate deposits and therefore have irregular, organic limits defined by low-lying topographic drainages. Geologically, these areas are generally characterized by the presence of younger (Quaternary-aged) river channel,

floodplain, and terrace deposits that have been eroded from the older (Tertiary-aged to Cretaceous-aged) bedrock units, transported, and re-deposited. They consist of naturally loose mixtures of sands and rounded gravels. Laboratory testing has also confirmed the physical and chemical characteristics of these mapped deposits are appropriate for PCC-grade aggregate.

For purposes of this cumulative analysis, the geographic area considers the entire subregion, and includes the cumulative projects listed in Table 1-7, Cumulative Projects List, and depicted in Figure 1-16, Cumulative Projects, in Chapter 1, Project Description, of this EIR. The nearest cumulative project includes Otay Ranch Village 13 (1,938 residential units and a 200-room hotel located in Otay Ranch), which was determined not to have potentially significant impacts to mineral resources.

As described in Section 3.1.4.1, Existing Conditions, the Special Purpose Regulation (S82) contains zoning and land use designations that are used by the County to group lands of known, existing, and potential mineral resources. The S82 Extractive Use Regulations identify and establish zones within the County where mining and quarrying uses are permitted. The S82 Zone is not present on the Project Area or in its immediate vicinity. As described previously, the Project Area is bordered to the north by single-family residences, and to the west are lands encompassed within the City of San Diego's MSCP Subarea Plan and the MSCP County Subarea Plan.

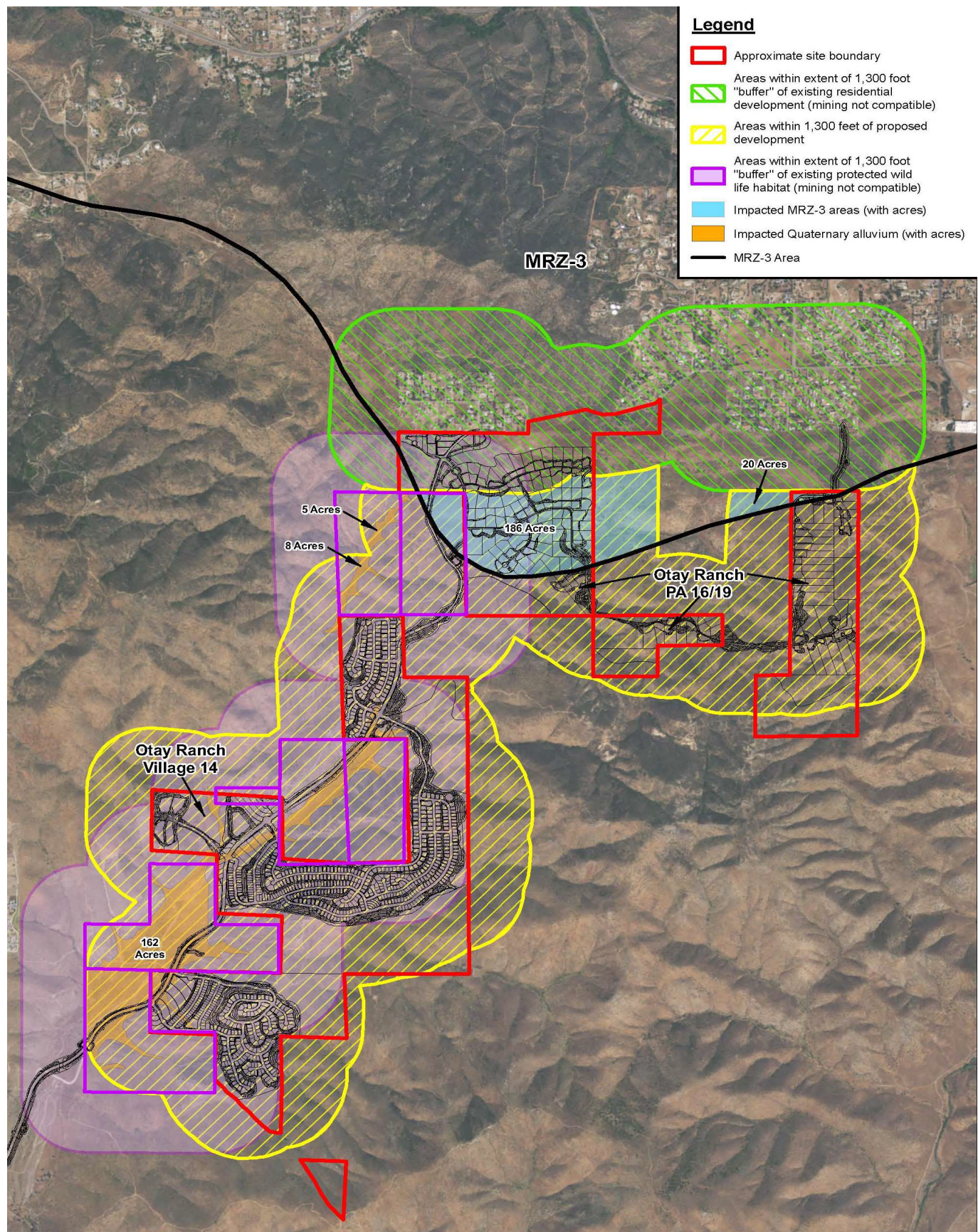
The northern portion of the Project Area, because it is within a 1,300-foot buffer zone of existing adjacent residential development, would not be available to mining activity. Additionally, Proposed Project lands adjacent to both MSCP areas are incompatible for mining activities due to the MSCP Preserve goals. The Project Area is also located in an area classified as MRZ-2 and does not meet the criteria for marketability of mineral resources. Therefore, the Proposed Project **would not contribute to a cumulative considerable impact** related to mineral resources or the loss of availability of a locally important mineral resources recovery site delineated on a local general plan, specific plan, or other land use plan.

3.1.4.4 Conclusion

As stated in Section 3.1.4.2, Analysis of Project Effects and Determination as to Significance, portions of the Project Area are situated on areas classified as MRZ-3 and are underlain by Quaternary alluvium, and the remaining portions of the Project Area are located outside of the Production-Consumption (P-C) Boundary and are therefore uncategorized. Development of the Project Area would impact Quaternary alluvium, which is not considered a high-quality (PCC-grade) aggregate source, and MRZ-3 areas, which consist of weathered metavolcanic materials and are not considered a quality PCC aggregate source in practice.

Additionally, a portion of the MRZ-3 is already effectively lost due to the presence of adjacent existing residential development and the MSCP Preserves. In addition, the Quaternary alluvium in the Project Area is generally not considered as a high-quality (PCC-grade) aggregate source, and its estimated value does not exceed the County's significance threshold because mineral extraction surrounding the Project Area is considered to be restricted due to the incompatibility with MSCP Preserve goals. Therefore, impacts related to mineral resources would be **less than significant**.

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SOURCE: Leighton and Associates 2018

FIGURE 3.1.4-1
Mineral Resource Zones

Otay Ranch Village 14 and Planning Areas 16/19

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