Appendix N

Mineral Resource Technical Study

MINERAL RESOURCE TECHNICAL STUDY
PROPOSED STARLIGHT SOLAR PROJECT
SAN DIEGO COUNTY, CALIFORNIA

Prepared For

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Project No. 13999.001

April 5, 2024

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April 5, 2024

Project No. 13999.001

Empire II, LLC
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Los Angeles, California 90064

Attention: Ms. Kara Laurenson-Wright

Subject: Mineral Resource Technical Study
Starlight Solar Project
San Diego County, California

In accordance with your request, we have performed a review and prepared this Mineral Resource Technical Study for the proposed Starlight Solar Project (Proposed Project) in San Diego County, California (Figure 1 – Site Location Map). The Proposed Project is a solar energy generation and storage facility. To assist us in the preparation of this Study, we have reviewed the conceptual graphics along with the Major Use Permit plans for the Project that you have provided. In addition, we have performed a geotechnical site reconnaissance of the Proposed Project area and have discussed the Project with you and the project team.

This report has been prepared for submittal to the County of San Diego, per the County of San Diego Land Use and Environment Group's Guidelines for Mineral Resource Technical Report Format and Content requirements (2008).

If you have any questions regarding our report, please contact this office. We appreciate this opportunity to be of service.

Respectfully submitted,
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1.0 EXECUTIVE SUMMARY

In accordance with your request and authorization, this report was prepared to evaluate potential impacts to mineral resources due to implementation of the Starlight Solar Project (Proposed Project) as depicted in Figure 1 and 2 (Site Location Map and Property Overview Map). This report provides a discussion of the Proposed Project and existing site conditions; a description of site geologic conditions and mineral resource potential; a discussion of relevant mineral resource regulations and guidelines; and an evaluation of the significance of impacts to local mineral resources due to implementation of the Proposed Project.

The Proposed Project is located south of the community of Boulevard in southern unincorporated San Diego County. The project encompasses a total of approximately 1,076 acres within the Mountain Empire Subregional Plan area. Specifically, the project includes a Major Use Permit (MUP) area of approximately 581 acres, an off-site generation tie-line (gen-tie) area of 7 acres, an off-site vehicle turnaround area of 0.06 acre, and a biological open space conservation easement of 448 acres. The Proposed Project is located south of Interstate 8 (I-8) and Old Highway 80, and east of Tierra Del Sol Road.

The Proposed Project would designate land uses to accommodate solar panels, a battery energy storage system, inverter/transformer platforms, a substation for electrical distribution, among other things. The County's General Plan designates the Project Site as Rural Lands 80 (RL-80) and the County's Zoning Ordinance identifies the site as General Rural (S92). The County's General Regulation states that solar power plant projects are considered Major Impact Service and Utility in all zones and thus require the approval of an MUP). In addition, the biological open space easement would be granted to the County or other approved conservation entity to protect sensitive biological resources.

Our analysis of potential impacts to mineral resources included a review of State and County technical guidance documents, mineral resource classifications and maps, and local land use plans. Based on that analysis, it was concluded that implementation of the Proposed Project would not result in significant unavoidable impacts to mineral resources.

Based on the results of this research and review, the site is similar to many valleys of southeastern San Diego County in that it is underlain by colluvium and weathered Tonalite rock that could possibly be mined and processed and utilized as a source of sand, gravel, and rock. As the site is similar to much of the regional area, it is not unique in this regard. Specifically, the Proposed Project is underlain by Quaternary colluvium and Cretaceous-age crystalline Tonalite rock. The County of San Diego considers Quaternary alluvium as a potential mineral resource for use as aggregate materials in construction. Although alluvium was not mapped or observed on the site, we have conservatively considered the observed colluvium to be a potential mineral resource for use in construction. Further, the County of

San Diego also considers Cretaceous-Age crystalline rocks as a potential mineral resource for use for aggregate materials in construction, as well as for decorative and dimension stone.

The Proposed Project site is not zoned MRZ-3 or MRZ-2. In addition, the portions of the site that are surrounded and transected by land uses (e.g., railroad tracks, electrical transmission lines, and County and State roadways) would have 100-foot setbacks. Accordingly, in some instances, mineral resources onsite are already lost due to land use incompatibility due to restrictions posed by required setbacks.

Based on our analysis, the Proposed Project development will encroach into potential colluvial and Tonalite (crystalline rock) resource areas (per County Guidelines). The majority of colluvium within the Project Site is fine- to medium-grained clayey to silty sand having significant material waste amounts and substandard gradation accounting for an estimated waste value of greater than 20 percent (most commercial mining operations use a 20% waste factor as an economic feasibility threshold). This waste factor means that 20% percent of the material underlying portions of the Project Site is unmarketable and, as a result, that mining, processing and marketing the resources underlying the site would be economically infeasible. Further, the majority of the observed Tonalite is intensely weathered, very soft, and intensely fractured.

It is our opinion that the rock on the Proposed Project does not provide the qualities required to be of value as decorative and dimension stone, nor for use as aggregate material. As such, the marketability of the resource underlying much of the site is considered nil.

2.0 INTRODUCTION

2.1 Purpose and Scope

The Proposed Project site has not been classified by the California Department of Conservation – Division of Mines and Geology (Update of Mineral Land Classification as an area of "Potential Mineral Resource Significance" (MRZ-3). However, the site is in a mapped area of Cretaceous-age crystalline Tonalite rock and unmapped area of colluvium. It should be noted the Project Area is unclassified and located approximately 30 miles east of any CGS mapped Potential Mineral Resource areas.

The County of San Diego has requested that a Mineral Resource Investigation Report be prepared to investigate mineral resources on and within 1,300 feet of the Proposed Project to determine if they are significant, if their access would be permanently lost, and whether the loss would be considered significant under CEQA. This report is prepared in accordance with County of San Diego Guidelines for determining Significance and Report Formant and Content Requirements, Mineral Resources, dated July 30, 2008. Specifically, this report presents the results of our review and assessment of the mineral resources for the 1,076-acre project site located south of the community of Boulevard in southern unincorporated San Diego County, California, as depicted in Figure 1 and 2 (rear of text). Additionally, the project would include the creation of a biological open space conservation easement within portions or all of assessor parcel numbers (APNs) 659-130-03, 659-140-01, and 659-140-02 as depicted in Figure 1 and 2. No project impacts or development would occur within the conservation easement parcels. The scope of services included:

- A review of in-house geotechnical reports and aerial photographs pertinent to the area.
- A reconnaissance of the site and limited geologic mapping.
- Review of the site location relative to the current Mineral Resource Zonation (MRZ) and designations per the California Surface Mining and Reclamation Act (SMARA) of 1975.
- Preparation of this report summarizing the results of our technical study, including:
  - A discussion of the MRZs located on, adjacent, and within the vicinity of the Proposed Project, (none of which currently exist).
  - A discussion of all mines, quarries, and gemstone deposits (both historic and existing) within the vicinity of the Proposed Project.
  - A discussion of the regional and local geologic setting as it pertains to any mineral resources identified.
  - Analysis of both existing and proposed on-site and off-site impacts to the mineral resource, including indication of whether any mineral resources on the

Proposed Project would be minable, processable, and marketable in the near future.

- A generalized discussion of the economic value and significance of any impacts (if present) considering land-use compatibility with the Proposed Project.
- A discussion of any appropriate mitigation measures and project design considerations.

- Preparation of supporting maps and figures including site geologic maps, location of nearby quarries, site development plans overlain by potential mineral resource zones overlain by onsite and offsite buffers.

2.2 Proposed Project Location and Description

The Proposed Project site encompasses approximately 1,076 acres within the Mountain Empire Subregional Plan area in unincorporated San Diego County. The project includes the MUP area project site of approximately 581 acres, an off-site generation tie-line (gen-tie) area of 7 acres, an off-site vehicle turnaround of 0.06 acres, and a biological open space conservation easement of 448 acres . The Proposed Project is located generally south of Interstate 8 (I-8) and Old Highway 80, and east of Tierra Del Sol Road. Regional access to the site would be provided by State Route 94 highway and I-8 freeway, respectively. Access to the site would also be provided by Jewel Valley Road and Tule Jim Lane, which each connect to Old Highway 80 in the town of Boulevard.

The project will consist of a remotely-operated photovoltaic (PV) electric generation and storage system in unincorporated San Diego County. The County's General Plan designates the Proposed Project as Rural Lands 80 (RL-80) and the County's Zoning Ordinance identifies the site as General Rural (S92). The County's General Regulation states that solar power plant projects are considered Major Impact Service and Utility in all zones and thus require the approval of a Major Use Permit (MUP). The remotely controlled renewable solar energy generation and storage facility would provide a total rated capacity of 100 megawatts (MW) of alternating current (AC) solar energy at the utility scale. The power produced by the proposed solar facility would interconnect into the Boulevard East Substation via an underground generation tie-line (gen-tie) located generally on the west side of Tule Him Lane. The project would also include a battery storage system (BESS) that would store up to approximately 217.4 MW of electricity for dispatch into the local San Diego Gas and Electric (SDG&E) grid via the same point of interconnection as the solar array. The project would be constructed in two phases, the first of 20 MW solar energy generation and 17 MW of battery storage and the second of 80 MW solar energy generation and 200 MW of battery storage.

In addition, the project would include the creation of over 448 acres of a biological open space conservation easement granted to the County or other approved

conservation entity to protect sensitive biological resources within portions of the project site. Granting of this open space would authorize the County and its agents to periodically access the land to perform management and monitoring activities for the purposes of species and habitat conservation. This easement is for the protection of biological resources and prohibits the following on any portion of the land subject to said easement: grading; excavation; placement of soil, sand, rock, gravel, or other material; clearing of vegetation; constriction, erection, pr placement of any building or structure; trash dumping; or use for any purpose other than as open space. The biological open space easement would be unfenced.

3.0 EXISTING CONDITIONS

3.1 Topographic Setting

The Proposed Project is located within the USGS 7.5' Live Oak Springs quadrangle, generally between I-8 and the United States/Mexico border and near Jewell Valley and Manzanita, California. The Project Area is more specifically located as depicted on Figure 1 and 2 (Site Location Map and Project Overview Map).

Topography on site ranges from gently sloping valley floor to moderately steep existing natural slopes approaching 1:1 (horizontal to vertical) slope inclination at various areas of the site. In general, the site encompasses two topographically high areas, one north and one south, that are transected by a southeast-flowing broad drainage that includes Boundary Creek (Figure 2). Within the site, the existing elevations range from a high of approximately 3,700 feet above mean sea level (AMSL) in the north and 3,650 feet to the south, to a low of approximately 3,450 feet within the drainage of Boundary Creek. The surrounding hills around the Proposed Project peak between elevations of 3,600 and 4,000 feet AMSL.

3.2 Land Use

The existing Regional Category in the County's General Plan for the majority of the 581-acre Proposed Project site is currently Rural Lands 80 (RL-80) and the County's Zoning Ordinance identifies the site as General Rural (S92).

Private land to the north of the site, between the Project and I-8 is designated Semi-Rural Lands (RL-80). The remaining areas west, south, and east of the site are also currently Rural Lands 80 (RL-80) and the County's Zoning Ordinance identifies the site as General Rural (S92). The surrounding areas can be characterized as a predominantly rural landscape featuring large- lot ranches and single-family homes with a mixture of small-scale agriculture, recreational opportunities, and vast areas of undeveloped lands.

The project site is within the East County Multiple Species Conservation Program area, which is still in the planning process. Parts of the project area are also defined as "Agricultural or Natural Upland" within a Focused Conservation Area of the draft Multiple Species Conservation Program. The project contains over 24.4 acres of cultural open space easement areas design to protect sensitive cultural resources within the MUP project site, as shown on Figures 6a and 6b. We understand that no development would occur within the open space easement areas, which would be fenced off with gated entrances. No development or disturbance would occur within the cultural open space easement areas.

The project also contains over 448 acres of biological open space easement areas, as shown on Figure 6c. This biological open space easement will be granted to the County or other approved conservation entity. Granting of this open space would authorize the County and its agents to periodically access the land to perform management and monitoring activities for the purposes of species and habitat conservation.

3.3 Mineral Resource Potential

As mandated by the Surface Mining and Reclamation Act of 1975, 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 area, e.g., products used in the production of cement. The classification system emphasizes Portland Cement Concrete (PCC) aggregate, which is subject to a series of specifications to ensure the manufacture of strong durable concrete.

The following guidelines are presented in the mineral land classification for the region (CGS, 1982 and 1996b).

- MRZ-1 - Areas where adequate geologic 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 MRZ zone.

The Proposed Project is located within southeastern San Diego County which includes no mapped Mineral Resource Zones (Figure 3). Specifically, it should be noted that the Proposed Project does not contain MRZ-2 zones within or adjacent to the boundaries; the closest MRZ-2 zone to the Proposed Project is located to the northwest roughly 50 miles away (see Figure 3). The 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 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.

In contrast, the Proposed Project is in an area of different geologic province typical of the MRZ-2 zone, as described above, in that the Proposed Project site is a predominantly colluvium and granitic rock site, with fine-grained silty sand deposits overlying the granitic rock (Figure 3). In addition, the Proposed Project is located east and outside of the County mapped P-C Boundary which is an uncategorized zone. We also note that the site is not located in an area near existing aggregate production areas. The nearest production areas within San Diego County are at least 35 miles away. Closer production areas located in Imperial County are at least 20 miles away (Figure 4).

The total Proposed Project encompasses approximately 1,076 acres. Most of the proposed development footprint site is covered with rugged mountainous terrain, and a light to dense growth of native shrubs and trees. A network of improved and unimproved roads provides access throughout the site. The Carrizo Gorge Railway easement is located within the southern portion of the site. Electrical transmission lines associated with SDG&E transects the western to central portions of the site.

Documented historical mineral resource deposits have been identified just outside the site (Figure 6a) and referenced by Weber (1963). The Walker quarry deposits consists of vertical pegmatite dike which was exposed as a small round hill 50 feet high and is comprised of quartz and potash feldspar. The quartz was previously mined in the 1920's and was shipped to Los Angeles. It remained idle since that time. It was estimated in 1957 that about 5,000 to 10,000 tons of quartz remain in the deposit. However, quartz is not considered an economical resource or suitable for aggregate production. The preferred rock for aggregate production in San Diego County generally consists of fresh crystalline rock or metavolcanic rock.

It should be noted that most of the western San Diego region is mapped as an MRZ-3 zone (San Diego County, 2008). 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 San Diego County. These areas are also commonly found in rugged mountainous terrain relatively isolated from existing development and infrastructure. As noted in the updated 1996 DMG classification report, these materials can be crushed to yield PCC-grade aggregate provided they possess the appropriate chemical characteristics. Despite considerable costs associated with crushing, additional processing, and transportation, crushed rock has been a feasible source

when more economical alluvial materials are not readily available.

Reclassification of an MRZ-3 zone to an MRZ-2 designation is under the purview of the California State Geologist; however, the Proposed Project is in an unmapped region of San Diego County. The criteria includes determination that 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 (in 1996 equivalent dollars) $12,150,000 for construction materials” (DMG, 1996b). Note this equated to $5,000,000 in 1978 dollars when the guidelines were first written. In 2024 equivalent dollars, the value is currently equated to $24,005,000.00 (CPI Inflation Calculator, U.S. Bureau of Labor Statistics, 2024).

3.4 Geology

The Proposed Project is located in the lower Peninsular Range Region of San Diego County, a subset of the greater Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges Geomorphic province is approximately bounded to the east by Elsinore Fault Zone, to the north by the Transverse Ranges, the south by Baja California, and to the west by the Pacific Ocean.

The Proposed Project is underlain by Cretaceous plutonic rocks. The plutonic rocks are non-conformably overlain by a relatively thin sequence of generally unconsolidated Holocene colluvium consisting of silty and clayey sand with scattered gravels.

Approximate geologic contacts are shown in Figure 5. A brief description of the units mapped across the site is presented in the following sections.

3.4.1 Surficial Units

Surficial units onsite include undocumented artificial fill (unmapped), topsoil/colluvium (Qc), and bedrock units (Klp). More detailed descriptions of these units are presented below.

Artificial Fill (not mapped)

Artificial fill soils were observed locally at the Proposed Project site. The undocumented fills are primarily located along the current alignment of the Carizo Gorge Railroad as embankment fills for the road and associated culverts. Based on limited observed exposures, these materials can generally be described as clayey to gravelly sands with abundant rock fragments in a dry to slightly moist and loose to moderately dense condition. In addition, minor undocumented fills exist locally across the site as unimproved trails and roads. In consideration of the limited extent of the material and the plan scale, these fills are not mapped.

Colluvium (Qc)

Colluvium was observed throughout the Proposed Project site as a relatively thin soil veneer up to several feet thick. Thicker accumulations commonly occur near the base of slopes and natural topographic swales. As encountered, these materials are generally composed of silty to clayey sand with gravel in a dry to slightly moist and loose to moderately dense condition. Roots and minor to moderate porosity are common.

3.4.2 Bedrock Units

Tonalite of La Posta (Klp)

The entire project site is mapped within the Tonalite of La Posta (See Figure 5). In general, the tonalite consists of biotite trondhjemite and granodiorite; the unit is leucocratic, homogenous, largely undeformed, and inclusion free; and locally moderately to strongly foliated. Where exposed across the site it is highly weathered to mostly decomposed.

3.4.3 Groundwater

Based on our review of regional well data published by the California Department of Water Resources and review of well data from Kleinfelder (2015) for a site north of the Proposed Project at 40945 Old Highway 80, groundwater at the site is generally at a depth of approximately 40 feet. Groundwater depths have historically ranged between 20 to 60 feet. However, those depths will be dependent on the geologic location. Groundwater depths may range from 10 to 30 feet within alluvial valleys, and greater than 100 feet within hard Tonalite bedrock. It is expected that groundwater depths have been lowered from past agricultural pumping.

4.0 MINERAL RESOURCE IMPACT ANALYSES

4.1 Methodology for Determination of Significance – County Guidelines

Considering the site characteristics described above, their significance is measured against the County of San Diego Department of Land Use Guidelines for Determining Significance and Report Format and Content Requirements for Mineral Resources ("County Guidelines") (DPLU, 2008). These characteristics are based on the State CEQA Guidelines and establish a measurable standard for determining when an impact will be considered significant pursuant to CEQA.

Under the County Guidelines (County Guidelines, 2008, pp. 16-17.), a project would generally be considered to have a significant effect, if it proposes any of the following:

1. The project is:

   - On or within the vicinity (generally up to 1,300 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 one or more of the following minimum values (in 1998 equivalent dollars):

- Construction materials (sand and gravel, crushed rock) $12,500,000.00. Based on past communication with personal at the County of San Diego a value of $24,005,000.00 has been assessed in 2024 dollars using the U.S. Bureau of Labor Statistics CPI Inflation Calculator Tool.
- 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.

2. 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.

   The County Guidelines acknowledge that if a project site falls under Guidelines 1 and 2 and is already surrounded by residential, commercial, or other land uses (improvements of high cost, such as high-density residential developments, intensive industrial developments, commercial developments, and major public facilities) that are incompatible to mining, the mineral resources for a project site and up to 1,300 feet from the project site boundary may have already been lost by those existing incompatible land uses (County Guidelines, 2008, p. 18).

4.2 Impact Analysis

Although site materials are not considered a qualifying mineral resource for reasons described above, the following analysis utilizes County Guidelines dated July 30, 2008. Based on our use of those guidelines and our study, we conclude there is not a significant impact to mineral resources that will occur from the Proposed Project.

With respect to Guideline 1, the Proposed Project is partially underlain by Quaternary colluvium and primarily by rugged terrain underlain of Cretaceous-age crystalline Tonalite rock. In addition, some areas are lost due to 100-foot setbacks established for existing land-use (railroad tracks, electrical transmission lines, and County and State roadways). Accordingly, the Proposed Project could result in an impact under Guideline 1. However, the site geology and our experience working within the area indicate the colluvium within the Proposed Project development site is silty and clayey sand with minor gravel having significant waste amounts. In addition, the Cretaceous-age Tonalite rock is highly weathered and decomposed, fractured, and known to weather to fine-grained clays, silts, and sands. For planning purposes most commercial mining operations use a 20% waste factor as an economic feasibility threshold. However, we believe the waste factor is higher based on the geologic mapping. In addition, the Proposed Project is located well outside of adequate transportation corridors to support a marketable resource. Therefore, in accordance with County of San Deigo (2008) guidelines (regarding marketability), implementation of the Proposed Project will therefore not result in significant permanent impacts to mineral resources and mitigation is not required. The sections below provide a more detailed analysis of the Proposed Project's impacts under this guideline.

With respect to Guideline 2, the Proposed Project would not 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. The Proposed Project site is not zoned as S82 by the Extractive Land Use Overlay, or General Plan Extractive Land Use Designation and Impact-Sensitive Land Use Designation. Further, no known mapped industrial and chemical materials nor metallic and rare minerals are known in the Proposed Project Area and within the setback determination area as shown on Figures 6a,6b, or 6c. Accordingly, the Proposed Project would not result in a significant impact under Guideline 2.

4.2.1 Land Use Compatibility

Guideline 1 involves whether or not the deposit is minable or compatible under the present conditions, or conditions estimated to exist within a 50- year timeframe. In order to be minable, it must be considered compatible with existing land uses, and land uses projected along the 50-year future timeline.

Much of the proposed development footprint consists of rugged mountainous terrain that is undeveloped. As shown on Figure 2, surrounding incompatible land uses include the residential development north of the project site, which typically requires a separation of 1,300 feet. The railroad tracks, electrical transmission lines, and County and State roadways, are shown with a setback of 100 feet or more for purposes of this report. Figures 6a, 6b, and 6c illustrate those portions of the Project Area that are within areas where a 1,300- or 100-foot buffer would apply. Based on our analysis, portions of the Project Area are effectively already a lost mineral resource because it is within buffer zones of existing adjacent residential, commercial and public facility developments.

As we are conservatively considering the unmapped colluvium as a potential aggregate resource similar to alluvium, a portion of that potential resource within the Project Site (115 acres) is outside of any buffer, resulting in that portion being available to possible future mining efforts. San Diego County Guidelines (2008) state that colluvium (alluvium) may be considered a potential resource. However, due to the presence of abundant fine- grained silt and clayey sand deposits, it is our professional opinion that the mapped colluvium is not considered a minable, processable, or marketable resource based on the discussion below.

Finally, as mentioned above, the nearest MRZ-2 zone is 50 miles away and the nearest aggregate production area is 25 miles away (Figures 3 and 4).

4.2.2 Marketability and Minimum Dollar Value

As stated previously, only some areas would lead to a permanent loss of the mineral resources underneath those areas. Accordingly, only those areas are assessed further under the County Guidelines to determine whether 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 one or more of the minimum value thresholds.

As noted above, portions of the Proposed Project are situated in areas that are uncategorized (outside P-C Region Boundary), but are within Quaternary colluvium, which could be removed to an average depth of roughly 5 feet below the ground surface. It should be noted that this removal would not be uniform across the mapped colluvium as bedrock outcrops throughout the site and is therefore very conservative and overestimates the total actual depth of potential removal (Figure 5 – Regional Geologic Map).

If we assume that the entire area mapped as Quaternary colluvium (Qcl) on the site specific maps included in Figures 6a, 6b, and 6c is to be considered a mineral resource based on Section 4.0 of the County Guidelines (2008), which it is not, as discussed above, a minimum value analysis demonstrates that the resource underlying the open space easements would just exceed the minimum value set forth in the County Guidelines.

For this discussion we have calculated resource values assuming the entirety of the mapped potential aggregate underneath the open space easement area are available for extraction and would be permanently lost.

It should be noted that based on our review, we find that the mapped Quaternary colluvium is generally not consistent with significant Quaternary alluvial deposits associated with MRZ-2 and other previously mapped aggregate resource areas since it predominantly consists of silty and clayey sands, with a lack of significant gravels. Nevertheless, the Quaternary colluvium may be considered consistent with an MRZ-2 resource for this discussion.

For discussion purposes, the available potential resources located within the open space easement area, following application of setbacks, includes up to 115 acres of potential resource, which amounts to roughly 1,377,585tons of potential sand and aggregate. Assuming a price of $22.00 per ton, a density of 0.055 tons per cubic foot and a waste factor of approximately 20 percent, the value of material would be roughly $24,245,500, which would just exceed the

threshold ($24,005,000) for the County's definition of a significant impact (adjusted to 2024 inflation).

It should be noted that the value estimate above is based on reported resource (aggregate) prices (Superior Mission Gorge; Superior San Marcos; and Mountain Materials, past verbal communication 2021) at $22.00 per ton. It also assumes that the resource is actually 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.

However, as previously mentioned in the text above, the colluvium at the Proposed Project is not considered marketable under the technologic and economic conditions existing today or that can be estimated 50 years from today given the resources' high waste values (20%) and fine-grained content. These waste values mean that large portions of the resource underlying the site is unusable and the generally high quantity of silt and clay within the alluvial deposit would need to be removed using physical methods to market the product. Regarding the hard rock at the site, it is highly fractured, weathered, and generally weak and is therefore not suitable for aggregate due to poor strength quality. Given these conditions and the 20% waste factor for these resources (most commercial mining operations use a 20% waste factor as an economic feasibility threshold), the Proposed Project site's mineral resources are not considered processable, mineable and marketable, and would be uneconomic to develop. However, the combined loss to mineral resources in the Proposed Project site does exceed the County's $24,005,000 minimum value threshold (adjusted to 2024 inflation) and any potential impact to those resources would be significant.

Therefore, it is assumed that a portion of the Proposed Project would not create a significant impact with respect to the permanent loss of minable, processable, and marketable mineral resources underlying those portions of the Project site, which do not exceed the County's minimum value thresholds.

4.3 Conclusions

4.3.1 Significance of Impacts

Due to the presence of abundant fine-grained colluvial silty and clayey sand deposits within the mapped colluvium, it is our professional opinion that the colluvium underlying the site is not considered a marketable minable resource. In addition, the Project Area is not located on or within 1,300 feet of land classified as MRZ-2, and is not on a known gemstone deposit.

It should be noted the Proposed Project is adjacent to incompatible land uses (e.g., residential and commercial development) that require a 1,300-foot setback; or surrounded and transected by land uses (e.g. railroad tracks, electrical transmission lines, commercial airport, and County and State roadways) that would include a 100-foot setback for any mineral extraction to occur on the Proposed Project site (See Figures 6a, 6b, and 6c). Accordingly, some potential mineral resources on the Proposed Project site have already been lost due to land use incompatibility posed by setbacks.

The project also contains biological open space easement areas within the project site where no development would occur (See Figure 6c). The easement is for the protection of biological resources and prohibits all the following on any portion of the land: grading; excavation; placement of soil, sand, rock, gravel, or other material; clearing of vegetation; construction of any building or structure; vehicular activities; or use for any purpose other than as open space. Therefore, potential resources on the Proposed Project site have already been lost due to the open space easement.

Regarding Quaternary colluvium within the Proposed Project site, based on our field mapping of the colluvium, we estimate that waste factors for the majority of the site will likely exceed 20 percent. It should be noted that a factor of 20 percent is what most commercial mining operations consider when looking at economic feasibility for recovery of the resource. These elevated waste factors are related to the generally clayey and fine-grained sandy nature of the colluvium observed throughout much of the valley portion of the Proposed Project and mean that a large portion of the resource underlying the site is unusable and would need to be removed using physical methods to market the product. This potentially elevated waste factor supports the opinion that the colluvial deposit would not be reclassified as MRZ-2 and is not marketable for mining (Personal Communication, Vulcan Materials Company, 2020).

Regarding the presence of an existing abandoned quartz quarry just outside the Proposed Project, quartz is not considered an economical resource or suitable for aggregate production. The preferred rock for aggregate production in San Diego County generally consists of fresh crystalline rock or metavolcanic rock.

When quantified relative to the entire extent of similar geologic exposures found across eastern San Diego County, site development could be considered negligible relative loss.

Moreover, as mentioned above, the composition of the mineral resources on the vast majority of the site along with transportation factors renders the resources unmarketable under the technologic and economic conditions that exist at present, or which can be estimated to exist in the next 50 years. Specifically, the Proposed Project is located a great distance from major City centers, approximately 50 miles west of El Centro and 60 miles east of San Diego. The most viable transportation corridor, which is Highway 8, is a four-lane roadway with numerous curves and hills, and reduced speed limits, thus creating hazardous trucking conditions.

With regard to Significance Guideline 2, based on our review, the Proposed Project is not within a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. The Proposed Project site is not zoned as S82 by the Extractive Land Use Overlay, or General Plan Extractive Land Use Designation and Impact- Sensitive Land Use Designation.

When quantified relative to the entire extent of similar geologic exposures found across San Deigo County, the Proposed Project is also considered a negligible relative loss of mineral resources, which would not cause a significant impact under either County Significance Guideline 1 or 2.

4.3.2 Mitigation Measures and Design Considerations

As stated above, the Proposed Project will not have significant impact with respect to mineral resources. Accordingly, no mitigation measures or design considerations are required for the Proposed Project.

APPENDIX A

References

California Geological Survey (CGS) (previously Division of Mines and Geology), 1982, Mineral Land Classification: Aggregate Materials in the Western San Diego County Production-Consumption Region, California, Kohler, S.L. and Miller, R.V. authors, CDMG Special Report 153.

_____, 1996, Update of Mineral Land Classification: Aggregate Materials in the Western San Diego Production-Consumption Region, Miller, R.V. author, CDMG Open File Report 96-04.

_____, 1997-1998, Mines and Mineral Producers Active in California (1997-1998), CDMG Special Publication 103 (revised 1999).

_____, 2000, California Surface Mining Reclamation Policies and Procedures, CDMG Special Publication 051 (third revision).

_____, 2010, 150th Anniversary Fault Activity Map of California.

County of San Diego, 2023, Notice of Preparation and Public Scoping Meeting for a Draft Environmental Impact Report, Starlight Solar, PDS2022-MUP-22-010, dated March 23.

County of San Diego, 2011, San Diego County General Plan Update EIR, Page 2.10, Minerals, August 2011.

County of San Diego, 2008, Department of Planning and Land Use and Environment Group, Guidelines for Determining Significance of Mineral Resources, First Revision, July 30, 2008.

County of San Diego, 1998, *Final* Multiple Species Conservation Program, MSCP Plan, August 1998.

Kleinfelder, 2015, 60-Day Report, Caltrans Boulevard Maintenance Yard, 40945 Old Highway 80, Boulevard, California, November 23, 2015.

Michael Baker International, 2023, Major Use Permit Plan, Starlight Solar, County of San Diego, California, dated July 19.

_____, 2023, Preliminary Grading Plan, Starlight Solar, County of San Diego, California, dated July 19.

Surface Mining and Reclamation Act of California (SMARA) of 1975, California Public Resources Code (PRC), Division 2, Chapter 9, Sections 2710, et. seq.

Todd, V. R., 2004, Geologic Map of the El Cajon 30'x60' Quadrangle, Southern California, California Geologic Survey, 1:100,000 scale.

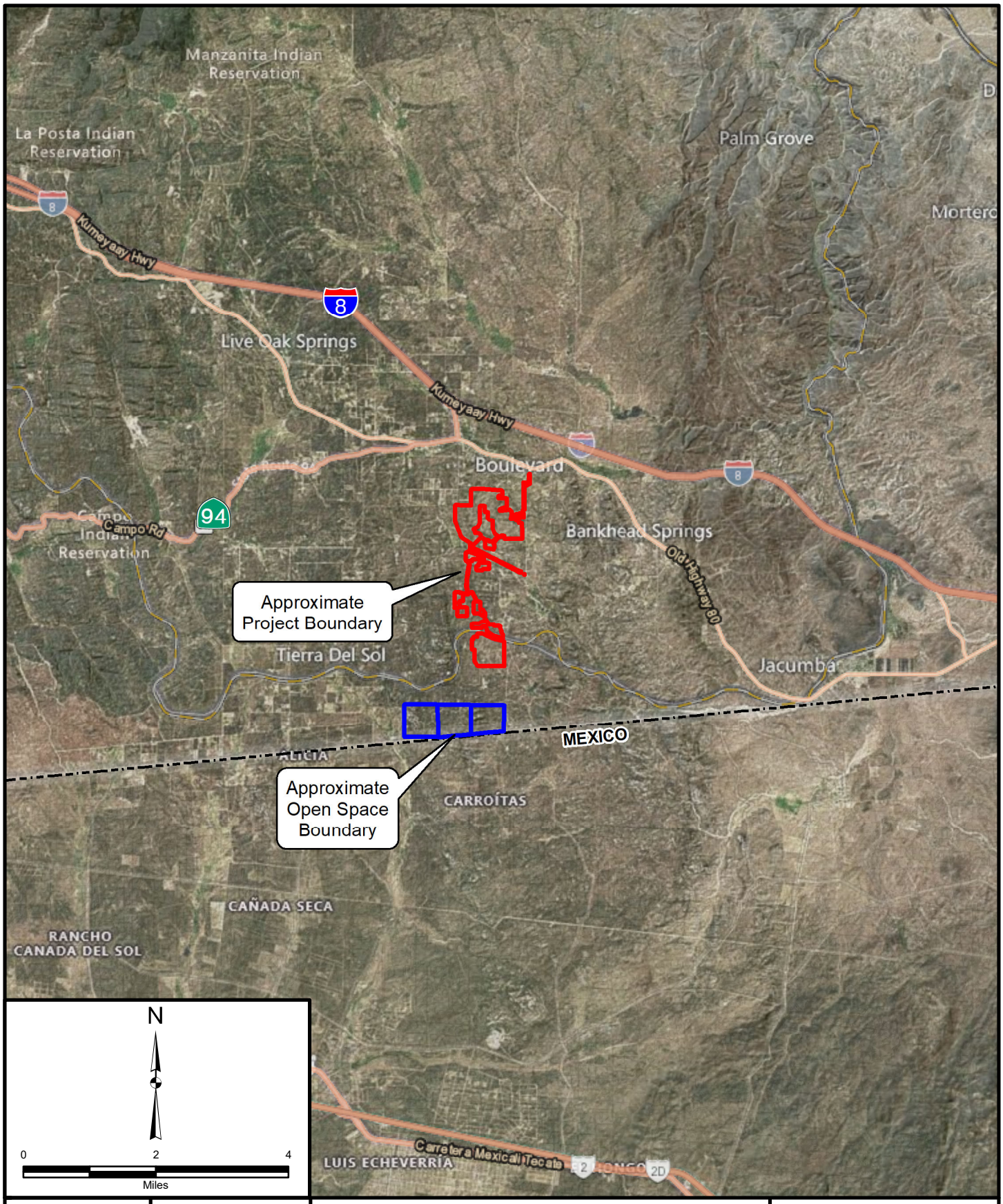
United States Department of Agriculture, 1953, Aerial Photographs, Flight AXN-1M, Numbers 212 and 213, and Flight AXN-2M, Numbers 12 and 13, scale approximately 1:24,000, dated March 31.

United States Geological Survey (USGS), 2002, The Mineral Industry of California: 2002 Minerals Yearbook.

USGS Topographic Map of the Live Oak Springs 7.5' Quadrangle, San Diego County, California, 2021.

Weber, Harold Jr., 1958-59, Geology and Mineral Resources of San Diego County, California, Plate 1, Scale 1 inch =2 miles, dated 1958-59.

FIGURES



Project: 13999.001	Eng/Geol: SAN/RCS
Scale: 1 " = 2 miles	Date: March 2024

Base Map: © 2024 Microsoft Corporation
Earthstar Geographics SIO © 2024 TomTom

Author: Leighton Geomatics (mmurphy)

SITE LOCATION MAP

Starlight Solar
County of San Diego, California

FIGURE 1

Leighton

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Legend

- Proposed Solar Panels
- Approximate Open Space Boundary
- Project Boundary

CALIFORNIA

Mexico

N

0 1,500 3,000

Feet

Project: 13999.001	Eng/Geol: SAN/RCS
Scale: 1 " = 1,500 '	Date: March 2024

Base Map: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Author: Leighton Geomatics (mmurphy)

PROJECT OVERVIEW MAP

Starlight Solar

County of San Diego, California

FIGURE 2

Leighton

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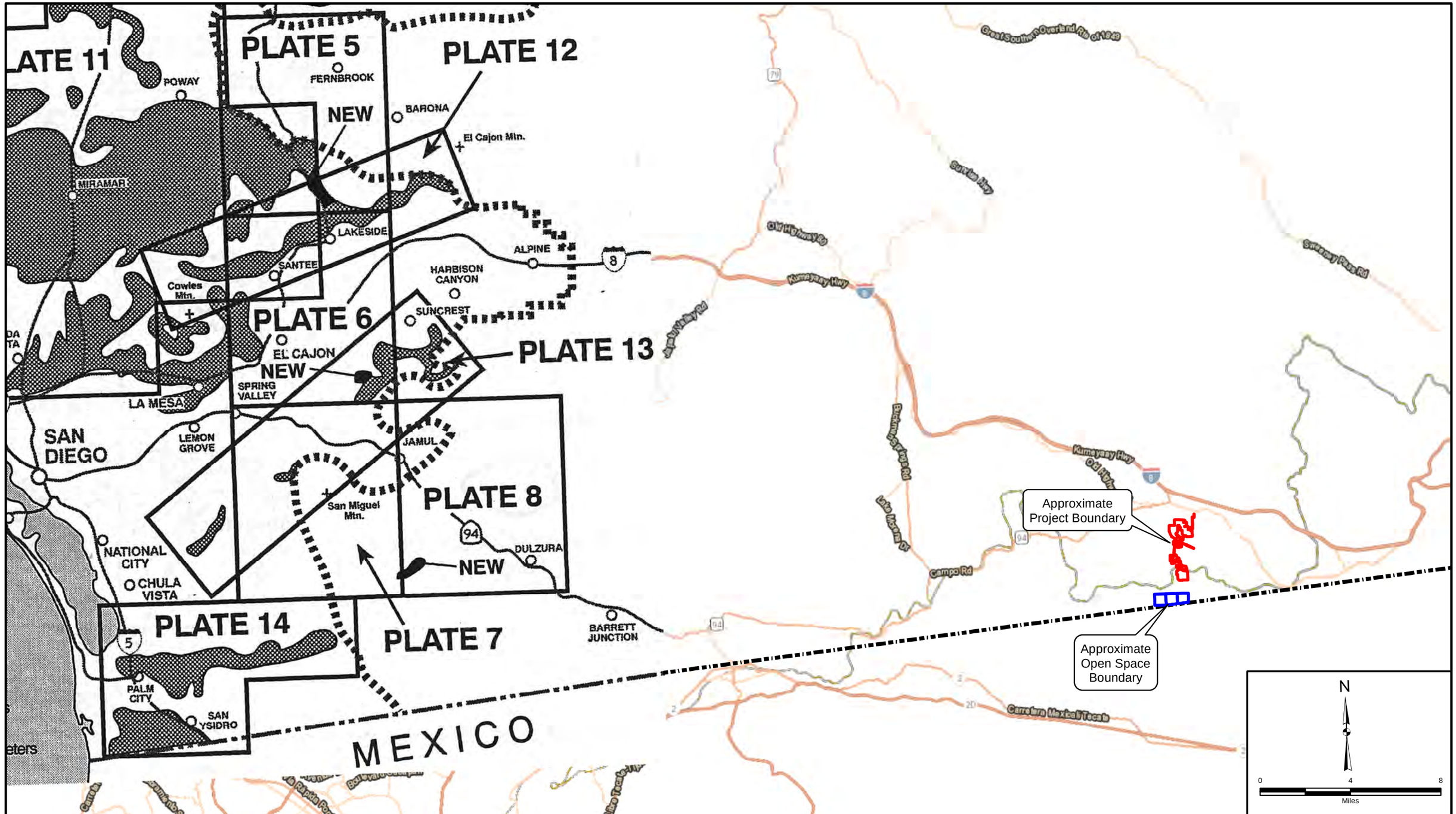

Project: 13999.001	Eng/Geol: SAN/RCS
Scale: 1 " = 4 miles	Date: March 2024

Base Map: Figure 2, Index Map by CMG
Open-File Report 96-04

Author: Leighton Geomatics (mmurphy)

HIGHLIGHTED MINERAL RESOURCE ZONES

Starlight Solar

County of San Diego, California

FIGURE 3

Leighton

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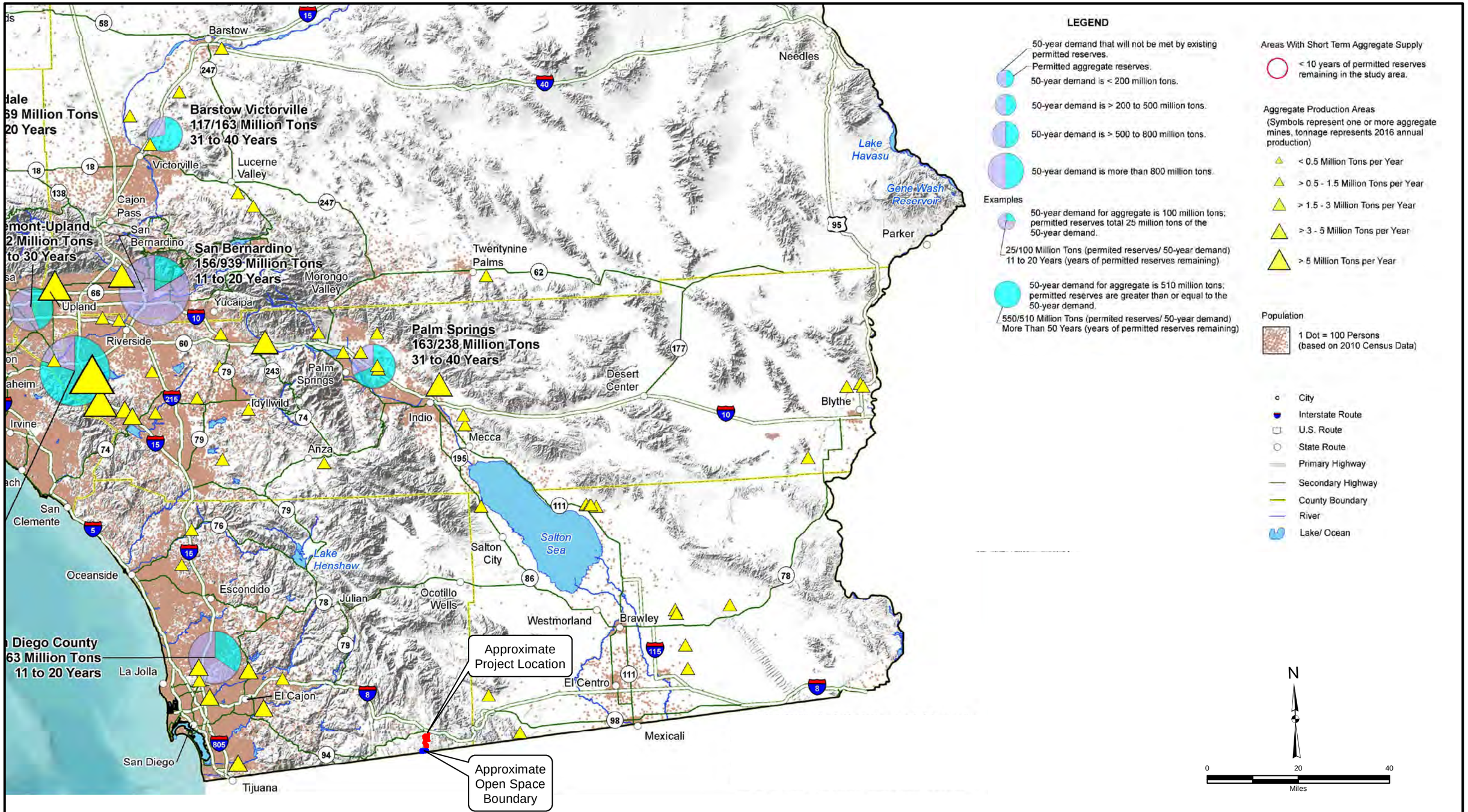


Project: 13999.001	Eng/Geol: SAN/RCS
Scale: 1 " = 20 miles	Date: March 2024

Base Map: Aggregate Sustainability in California
by John P. Clinkenbeard and Fred W. Gius, 2018.

Author: Leighton Geomatics (mmurphy)

STATE MAPPED AGGREGATE SUSTAINABILITY MAP

Starlight Solar

County of San Diego, California

FIGURE 4

Leighton

Map Saved as V:\Drafting\13999\001\Maps\13999-001_F04_SMASM_2023-09-28.mxd on 3/20/2024 12:03:37 PM

Legend

- Klh — Indian Hill granodiorite of Parrish and others (1986) (Late Cretaceous)
- Klp — Tonalite of La Posta (Early and Late Cretaceous)
- Approximate Open Space Boundary
- Project Boundary

Klp
Kih
Klp
Kih
Klp
Klp
Mexico
N

0 1,500 3,000
Feet

Project: 13999.001	Eng/Geol: SAN/RCS
Scale: 1 " = 1,500 '	Date: March 2024

Base Map: Preliminary Geologic Map of the El Cajon 30'x60' Quadrangle, Southern California by Victoria R. Todd, 2004

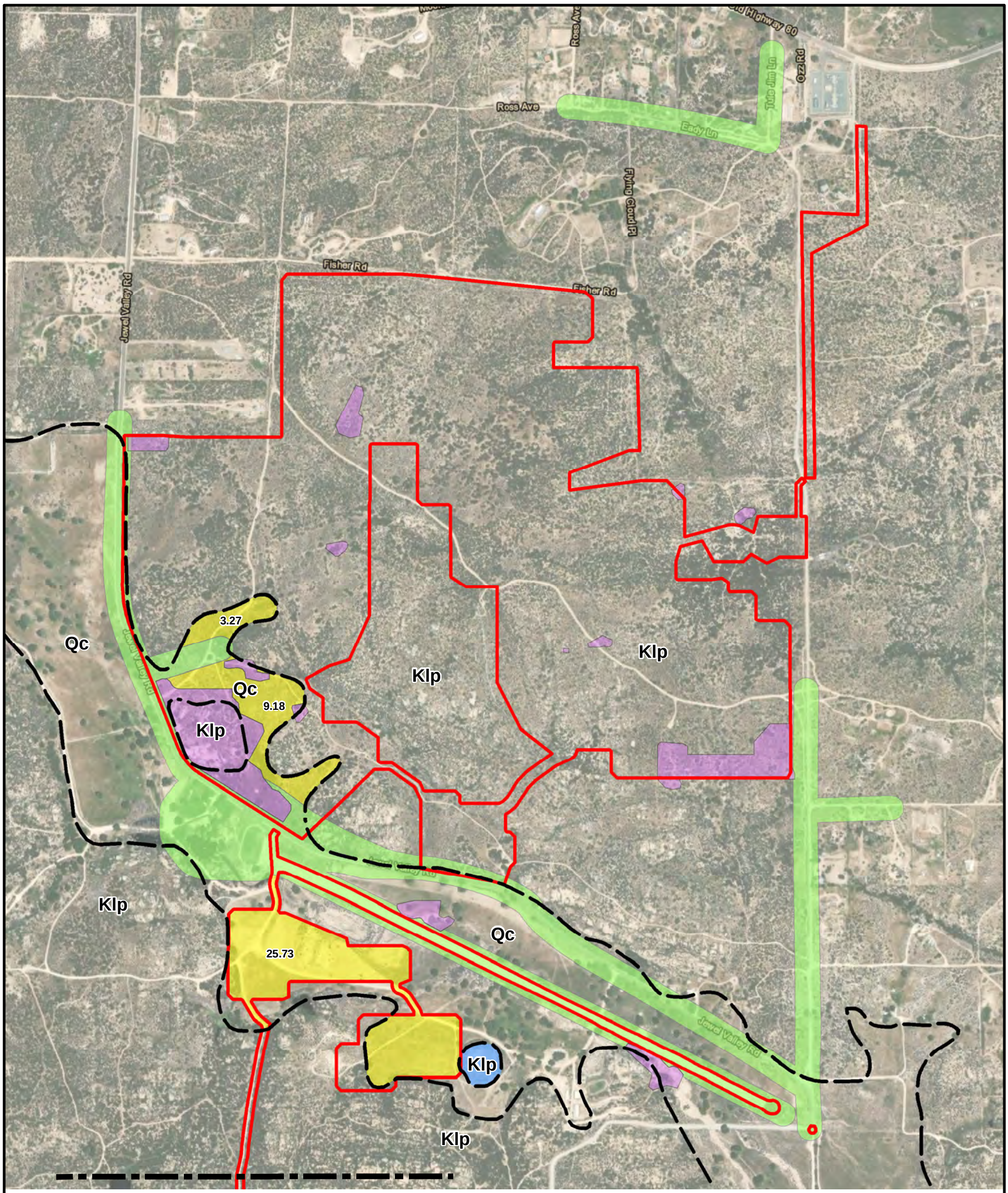
PROJECT OVERVIEW MAP

Starlight Solar
County of San Diego, California

FIGURE 5

Leighton

Map Saved as V:\Drafting\13999\001\Maps\13999-001_F05_RGM_2024-03-20.mxd on 3/20/2024 12:15:02 PM



Legend

12.5	Potential Resource Area (Acres)
	Potential Resource Area
	Resource Setback Area
	Walker Quarry
	Open Space Easement
	Approximate Geologic Contact
	Approximate Site Boundary

Geologic Units

Qc	Colluvium (Holocene)
Klp	Tonalite of La Posta

N

0 800 1,600

Feet

Project: 13999.001	Eng/Geol: SAN/RCS
Scale: 1 " = 800 '	Date: March 2024

Base Map: Esri, HERE, Garmin, (c) OpenStreetMap contributors

Author: Leighton Geomatics (mmurphy)

SETBACK DETERMINATIONS MAP (NORTHERN AREA)

Starlight Solar

County of San Diego, California

FIGURE 6a

Leighton

Map Saved as P:\Drafting\13999\001\Maps\13999-001_F06a_SBDM_2023-12-18.mxd on 12/18/2023 1:10:24 PM

Matchline

Klp

Klp

Qc

Jewel Valley Rd

Klp

Carrizo Gorge Railway

Carrizo Gorge Railway

16.71

Qc

Qc

44.87

Klp

Klp

Legend

45.7 Potential Resource Area (Acres)

Potential Resource Area

Resource Setback Area

Open Space Easement

Approximate Geologic Contact

Approximate Site Boundary

Geologic Units

Qc Colluvium (Holocene)

Klp Tonalite of La Posta

N

0 800 1,600

Feet

Project: 13999.001	Eng/Geol: SAN/RCS
Scale: 1 " = 800 '	Date: March 2024
Base Map: Esri, HERE, Garmin, (c) OpenStreetMap contributors Author: Leighton Geomatics (mmurphy)	

SETBACK DETERMINATIONS MAP (SOUTHERN AREA)

Starlight Solar

County of San Diego, California

FIGURE 6b

Leighton

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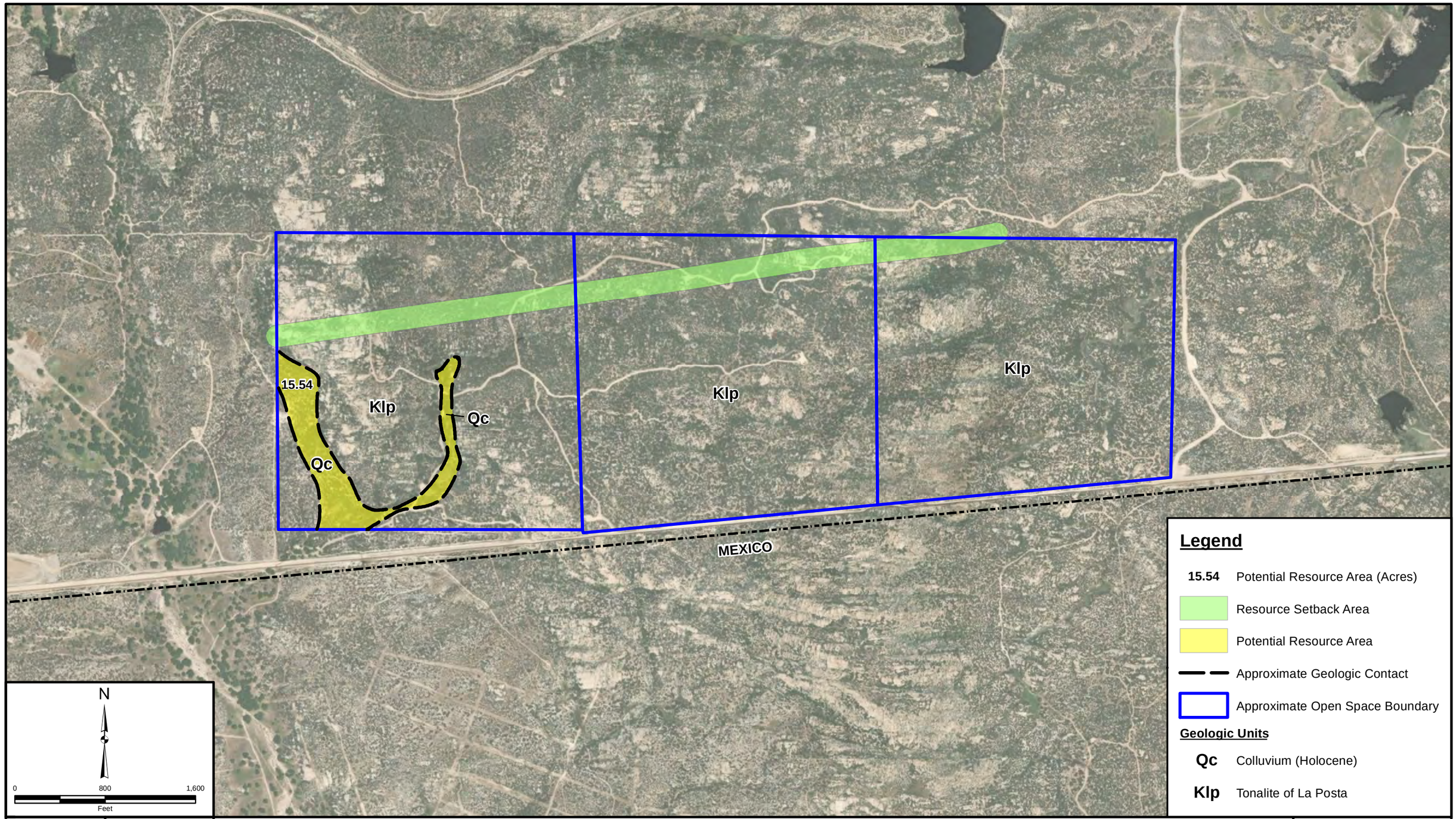

Project: 13999.001	Eng/Geol: SAN/RCS
Scale: 1 " = 800 '	Date: March 2024
Base Map: Bing Maps, 2016 2024	
Author: Leighton Geomatics (mmurphy)	

SETBACK DETERMINATIONS MAP (OPEN SPACE EASEMENTS)

Starlight Solar

County of San Diego, California

FIGURE 6c

Leighton

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