



Savira

Parcel 1 approximate center: 33.697565°N, 115.2652°W
Parcel 2 approximate center: 33.7114°N, 115.2588°W
Riverside County, California

Savira Renewables, LLC

San Francisco, California

Terracon Project No. GR245151.R2

April 8, 2025

Your Stage1 Representative:

Emily A. Wagner

Client Service Specialist III

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Geotechnical Considerations and corresponding Next Steps prepared by V. John Romano, P.G. and reviewed by:



Joshua R. Morgan, P.E.

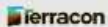
Manager Regional Services

josh.morgan@terracon.com

For Review Only

Reviewed by Terracon Subject Matter Expert: Charles V. Molthen, P.E. (UT)

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Compass

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Summary of Potential Constraints and Next Steps

The following is a summary of constraints identified for the site. Please refer to the considerations section of the report for more details.

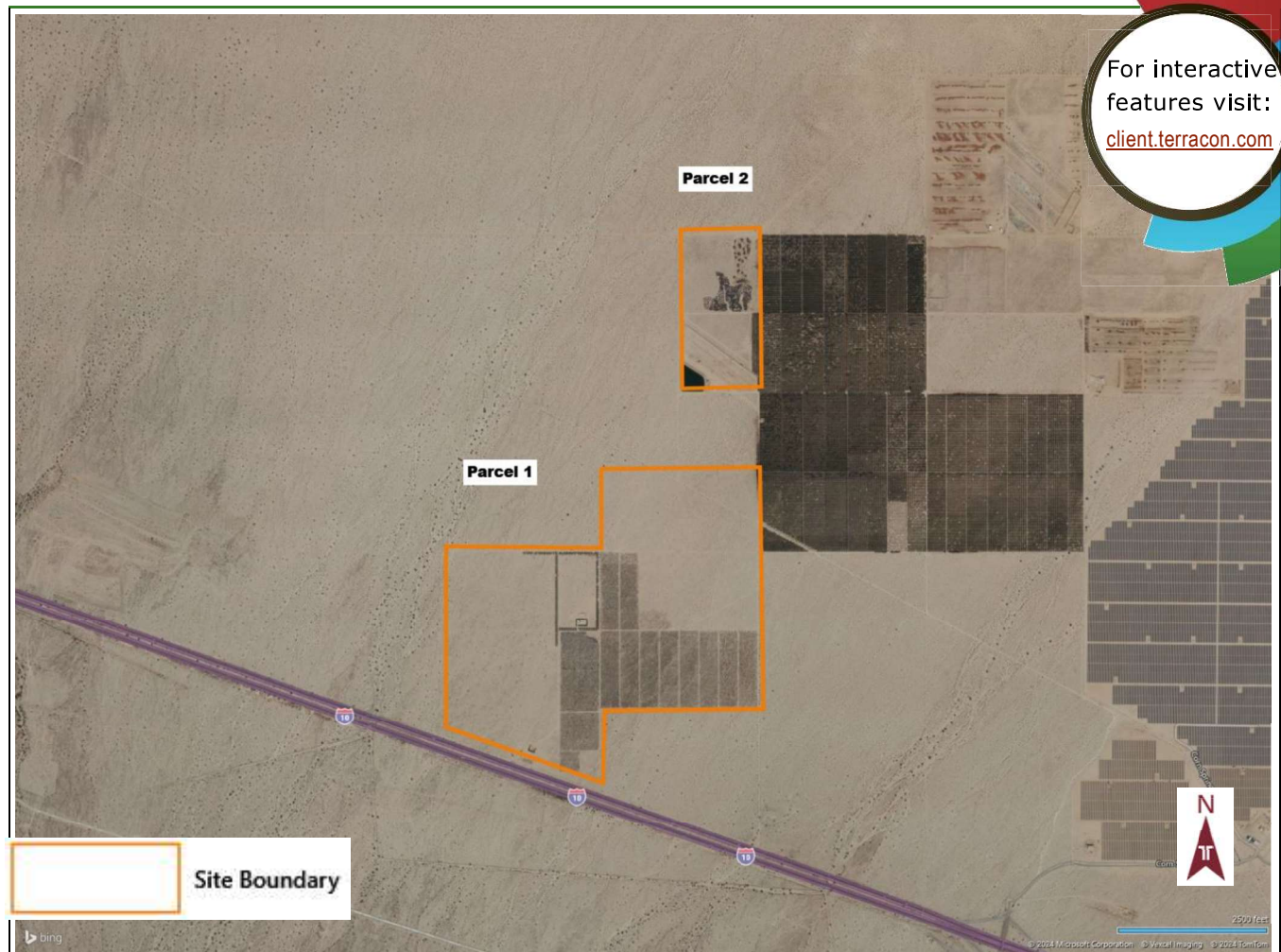
Geotechnical

- Deep foundations will likely be required for loads greater than 200 kips. Next Steps should include explorations advanced to depths of 50 feet to evaluate deep foundations.
- Existing fill is anticipated on the project site, in isolated areas, that will likely need to be removed prior to development. Next steps should include test pit excavations.
- On-site soils are anticipated to be moderately corrosive to concrete. Next Steps should include laboratory corrosion testing.
- Pile driving / drilled hole refusal is anticipated. Next Steps should include explorations to identify areas of gravel, cobbles, and boulders that could impact the feasibility of pile driving.
- Deposits of soft, loose granular soils that would result in excessive hydro-collapse settlement may be encountered at this site. Next Steps should include field sampling and laboratory testing to determine presence and depth of potentially collapsible soils.

Your Site

Project Description

The site consists of two parcels, with Parcel 1 covering approximately 453 acres and Parcel 2 covering approximately 80 acres, totaling approximately 533 acres. The Project would generate up to approximately 150 megawatts (MW) of renewable energy via arrays of solar photovoltaic (PV) panels. Project facilities include an operations and maintenance (O&M) building, a Project substation, and up to approximately 250 MW BESS, and access driveways. The Bajada Solar Project would include a 230 kilovolt (kV) substation.



See [Information Sources](#) for a detailed list of sources used to generate this figure.

Geotechnical Considerations

See Information Sources for a more detailed list of sources reviewed in determining the Geotechnical Considerations for the site. Potential constraints are addressed in this section.

Topic	Comments
Anticipated foundation systems	If foundations are bearing on medium dense to very dense soils, shallow foundations may be able to support loads up to 200 kips. Deep foundations will likely be required for loads greater than 200 kips and for substation pole foundations. Solar arrays and BESS structures are anticipated to be supported on driven steel piles.
Anticipated excavation equipment	Conventional excavation equipment is anticipated for most of the site; however, heavy duty equipment may be required in areas where cobbles and boulders are encountered, particularly in historical washes and seasonal drainages.
Conventional pile installation methods anticipated	Yes, for most of the site; however, areas of cobbles and boulders should be anticipated and such conditions will likely require pre-drilling under-sized holes to facilitate pile driving.
Anticipated pile embedment depth	6-11 feet for solar array areas 8 to 15 feet for BESS areas
Adfreeze stress based on frost heave	N/A
Potential stress based on expansive soil heave (acting over box perimeter of the pile)	N/A
Aggregate Roadways	Typical aggregate roadways will likely be acceptable.
Anticipated seismic site class	D. The determination of seismic design parameters in ASCE 7-16 includes site-specific procedures/analysis for projects in the area of the site. We may be required to provide site-specific seismic response spectra and design values according to ASCE 7-16, Section 21.2 and the 2019 California Building Code; however, ASCE 7-16 includes an exception from such analysis for specific structures on Site Class D/E sites. Based on our understanding of the proposed structures, it is our assumption that this exception applies to the proposed structure; however, the structural engineer should verify the applicability of this exception.

Topic	Comments
Anticipated frost depth	N/A
Bedrock	NRCS mapping indicates shallow bedrock is not mapped on-site. Our experience indicates shallow bedrock will not be encountered on-site.
Blasting anticipated	Not anticipated
Groundwater	NRCS mapping and our experience indicate shallow groundwater will not be encountered on-site; however, a man-made water feature is located in the southwest portion of Parcel 2.
Dewatering anticipated	Not anticipated
Karst constraints	USGS mapping indicates that karst is not mapped on-site. Karst is not anticipated in this area and is not a concern.
Sinkholes	Not anticipated
Seismic liquefaction	Based on the lack of shallow groundwater, the potential for seismic liquefaction is anticipated to be low.
Settlement monitoring	Not anticipated
Fill anticipated on-site	See Expected Lithology. Although fill is not anticipated across the majority of the site, isolated areas of fill may be encountered near areas of previous development. Additionally, the northern portion of Parcel 2 appears to be used as an area for stockpiling. Fill in this area may be significantly thicker than across the rest of the site and may extend beyond the areas of current stockpiles. In areas of the site where fill is encountered, it will likely need to be removed and replaced with properly compacted engineered fill. Existing fill will likely not support loads associated with the anticipated development.
Site usage	<p>Historical images indicated that portions of the site have primarily been used for agricultural purposes. Agricultural activities disturb upper material resulting in soft/loose material, likely requiring stabilization.</p> <p>Historical images indicated that portions of the site were previously developed. In our experience, there is an increased risk of encountering deleterious or unsuitable materials on a previously developed site.</p>

Notes on Geotechnical Considerations

- NRCS mapping indicates shrink-swell was not available for the on-site soils. Our experience indicates shrink-swell soils will not likely be a concern at this site.
- NRCS mapping indicates corrosion potential for steel and concrete was not available for the on-site soils. Our experience indicates soils moderately corrosive to steel may be a concern at this site.
- Deposits of soft, loose granular soils that would result in excessive hydro-collapse settlement may be encountered at this site.
- At some locations, excavations for foundations and utilities may encounter very dense soil as well as cobbles or boulders. Contractors, especially those digging utilities and working in planned cut areas, should consider "hard dig" conditions may exist in some areas of the site and should satisfy themselves as to the hardness of the soil deposits and equipment required. We do not anticipate blasting to be required.
- The site is not located in an Alquist-Priolo (A-P) Earthquake Fault Zone. The potential for ground rupture due to faulting is anticipated to be low at this site.
- We anticipate pile installation via conventional methods, such as driving into a virgin subgrade may encounter at some locations difficulty and may result in early refusal and inadequate penetration, or else may cause excessive pile deflection, rotation, or torsional rotation.
- Obstructions to pile driving should be anticipated and such conditions may require pre-drilling under-sized holes.
- Piles set in a grout or concrete-backfilled boreholes would develop considerable axial and lateral capacity over a relatively short, embedded distance. This would result in somewhat reduced pile lengths for the project, which may offset some of the expense of drilling and the use of grout or concrete backfill.
- In areas where pile driving refusal is anticipated, an alternative to driving piles would be to install ground screw piles. The ground screws should be designed by a specialty contractor and/or a design-build engineer. Full-scale pull-out and lateral load testing should be performed on selected screws to assess compression, uplift and lateral capacities, and screw length.

Next Steps

Below are our recommended next steps that will likely be needed to proceed with site development. To complete any of the Next Steps described below, please contact Emily Moroni at emily.moroni@terracon.com.

Geotechnical

In order to characterize the subsurface conditions and provide design parameters, we recommend the following:

Topic	Comments
	Yes, a design-level geotechnical <ul style="list-style-type: none">1 exploration per 25 acres of solar panel2 SPTs advanced to 50 feet in the2 SPTs advanced to 50 feet in the area of explorations can be viewed on Compass.
	Yes, as follows:
	arrangement with maximum "a" spacings of 150 feet in array areas and 300 feet in substation/switchyard and BESS areas.

Topic	Comments
Pile load testing	<p>Yes, a design-level pile load testing scope would typically include:</p> <ul style="list-style-type: none">▫ 1 axial tension test and lateral test location every 50 acres in array areas.▫ 1 axial compression test every 100 acres in array areas.■ 2 to 4 locations within BESS areas.
Site clearing	Yes
ASTM E1527-21 Phase I Environmental Site Assessment (ESA)	It is our understanding that a Phase I ESA has been completed for this site.

Information Sources



Publicly Available GIS Data	California Geology with Faults California Geological Survey
Aerial Imagery	<p>Terracon reviewed the following readily available historical aerial images and street view images available on July 25, 2024, to develop a limited history of previous site usage:</p> <p>Aerial Images Google Earth Pro™</p> <p>Street View Images Google Maps, Google Earth Pro™</p> <p>The use of available aerial imagery resources is intended to help understand previous site usage. These images are widely spaced in time. They should not be considered appropriate for identifying all site activities which may have impacted subsurface conditions. A more comprehensive review of aerial imagery and/or site interviews would be required to further evaluate previous site usage.</p>
Other Sources	Historical Terracon Data

Methods and Limitations

Methods

Virtual Soil Profile Process

The VSP is a spatial dataset that combines the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Gridded Soil Survey Geographic (gSSURGO) Database, the NRCS Digital General Soil Map of the United States (STATSGO2) Database, and Terracon project borehole data collected since 2014. The VSP is provided as a polygon geometry spatial layer with the polygons derived from gSSURGO's Map Unit Polygon geometry. The VSP is reviewed and occasionally revised by the local professional, based upon their knowledge in the project area. Additionally, the VSP is utilized to develop the geotechnical considerations provided in the Stage1.

General Note About Data Availability

The sources of publicly available information as provided in this Stage1 are identified on [Compass](#). Terracon makes no warranty as to accuracy of any public information, as displayed in the map viewer.

Limitations

This report provides very preliminary opinions of siting and construction challenges that may be associated with the stated project plans for the stated property. Confirmation of opinions stated in this document is essential. Absence of a mapped resource does not mean that it is not present. Confirmation should include performing a site-specific evaluation consistent with the guidelines set forth in Next Steps.

All parties are advised that any decisions or actions taken by any party based on the information contained herein, including decisions with financial implications are done solely at the risk of that party. By providing this information in this preliminary form, Terracon expressly disclaims any duties or obligations associated with the usage of this information for decision-making or design purposes.

In the event that changes to the nature, design, or location of the project, as outlined in this report, are planned, the preliminary conclusions and recommendations contained in this report shall not be used unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing. As the project moves into the design phase, Terracon should be retained to develop and complete a scope of work that includes site-specific explorations as noted in Next Steps.

Terracon and Savira Renewables, LLC recognize we have entered into an agreement that may contain certain confidential or non-disclosure obligations relating to our services. Savira Renewables, LLC recognizes, however, that although such confidentiality obligations may be in place, those obligations do not create an exclusive relationship between the parties nor do those obligations create an exclusive ownership right to Savira Renewables, LLC relating to the data in question. Terracon has the unfettered ability to provide similar services to any other party and use any public or previously available data for the service of others, even if included as part of this report, but Terracon will refrain from disclosing confidential information of Savira Renewables, LLC which is provided by Savira Renewables, LLC to the extent required by any applicable non-disclosure agreement.

Terracon does not represent the imagery reviewed to be a complete historical record of previous site usage, nor does Terracon validate the accuracy and sufficiency of the public domain sources that have been utilized.

Virtual Soil Profiles

The Virtual Soil Profile (VSP) provides an aggregation of public and private historical data and is meant to inform preliminary geotechnical engineering and geological understanding at a given location. It is anticipated the user will employ the VSP in considering preliminary concepts for site development. It is also intended to provide a basis for a subsequent exploration program to confirm the expected conditions as necessary to develop plans for site preparation and construction. Predictions presented in the VSP regarding expected geotechnical conditions are based upon algorithmic aggregation of public soil maps and Terracon's historical soil boring information from within the SSURGO soil map units. Therefore, any opinions regarding the subsurface conditions presented by this dataset may not represent actual conditions encountered during site-specific project exploration or construction. In no case should the information or predictions provided as part of the VSP be utilized for final design. Anyone using the contents of the VSP in-whole, or in-part, is cautioned to understand the preliminary nature of the predictions that are presented. Confirmation of the predictions stated in the VSP is essential and should include site-specific geotechnical exploration consisting of exploratory soil borings and/or related exploration methods. Terracon should be retained to develop a scope of work that would be necessary to confirm these preliminary predictions. The VSP addresses a preliminary prediction of geotechnical and geologic conditions only and does not include either specifically or by implication any environmental assessment of the site or identification or prevention of pollutants, hazardous materials, or conditions.

The VSP has been prepared for the exclusive use of our client to represent preliminary predictions of geotechnical conditions. No warranties, either express or implied, will be intended or made. Furthermore, given the limitations described above and based on the preliminary nature of this data, all parties are advised that any decisions or actions taken by any party based on the information contained in the VSP(s), including decisions with financial implications are done solely at the risk of that party. By providing these prediction(s), Terracon expressly disclaims any duties or obligations associated with the usage of the information for decision-making purposes.

Terracon and our client recognize that we have entered into an agreement that may contain certain confidential or non-disclosure obligations relating to our services. Client recognizes however that while Terracon will not violate any such terms or obligations, none of these obligations create an exclusivity obligation to Terracon relating to the service or data in question and that Terracon has the unfettered ability to provide similar services to any other party and use any public or previously available data or information for the service of others even if included as part of the VSP.



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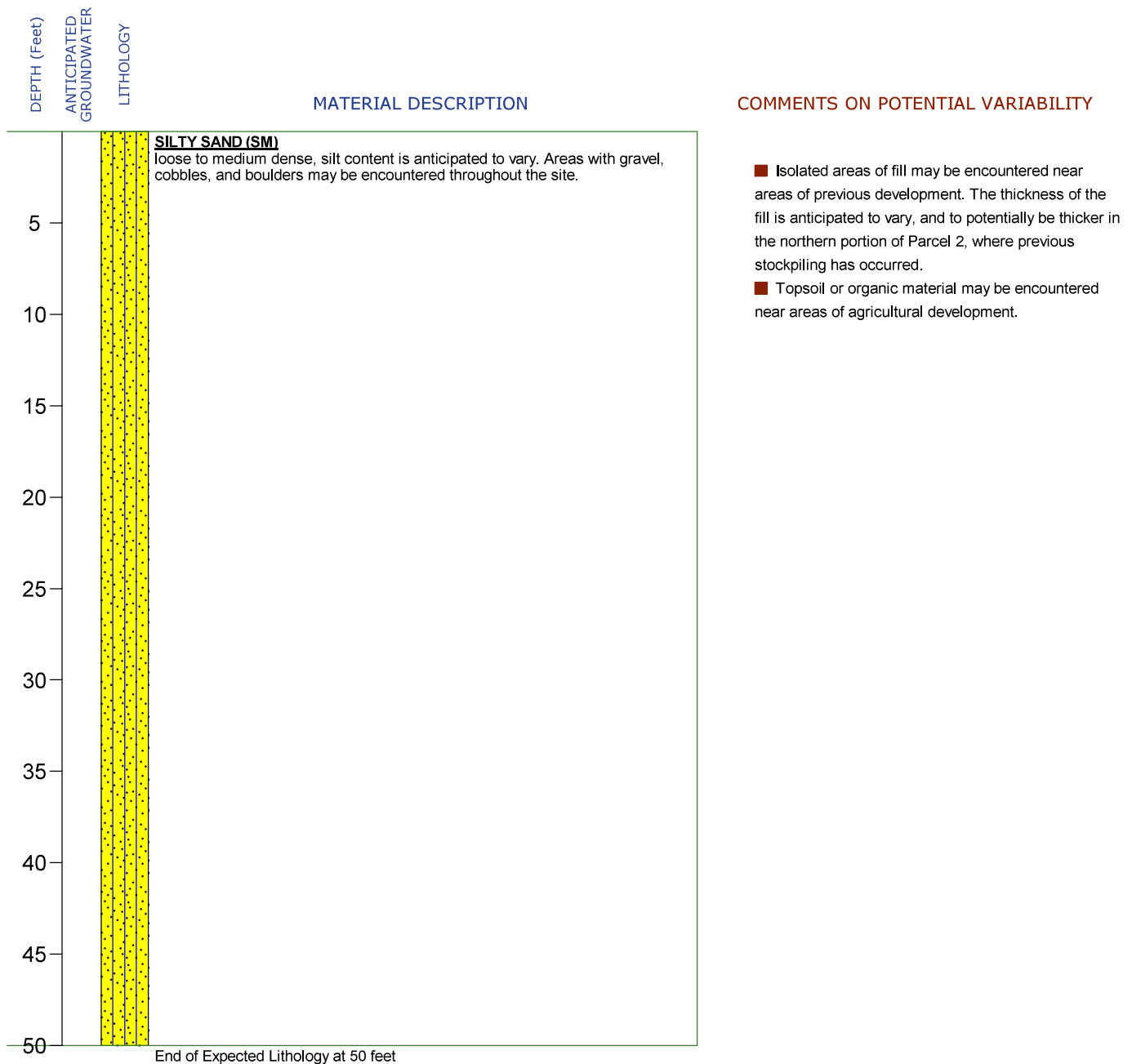
ATTACHMENTS: Expected Lithology

EXPECTED LITHOLOGY

The opinions of subsurface conditions are very preliminary in nature. These opinions must be validated with site-specific exploration and testing. Each Soil Series is a geographic area defined by the Natural Resources Conservation Service (NRCS) and is anticipated to have similar soil properties.

See Methods and Limitations for information on how the Soil Series was used to prepare this Expected Lithology as well as clarification regarding the limitations to the following opinions and methods used to derive these opinions. For a lateral extent of this soil series please refer to Compass.

Area Represented: SSURGO Soil Series Cherioni



The expected lithology was prepared using Terracon's Virtual Soil Profile (VSP) model as a part of this Stage1 report. It should not be utilized or distributed outside of this report. Refer to the Geotechnical Considerations section in the Stage1 for more information regarding potential variability on the site. See Methods and Limitations for more information regarding how the VSP is utilized.