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| **Docket Number:** | 21-AFC-02 |
| **Project Title:** | Gem Energy Storage Center |
| **TN #:** | 240751-17 |
| **Document Title:** | Section 5_11_Soils_Gem Energy Storage Center |
| **Description:** | This section describes the potential affects the construction and operation of the proposed Advanced Compressed Air Energy Storage (A-CAES) project at the Gem Energy Storage Center (GESC) may have on soil resources at and in the vicinity of the project site. |
| **Filer:** | Kari Miller |
| **Organization:** | Golder Associates USA Inc. |
| **Submitter Role:** | Applicant Representative |
| **Submission Date:** | 12/1/2021 3:07:04 PM |
| **Docketed Date:** | 12/1/2021 |

# 5.11 Soils

This section describes the potential affects the construction and operation of the proposed Advanced Compressed Air Energy Storage (A-CAES) project at the Gem Energy Storage Center (GESC) may have on soil resources at and in the vicinity of the project site. The information presented is based on readily available resources provided online and is limited to surficial soils only. Construction of the proposed GESC involves the excavation of deep vertical shafts on the order of 2,000 feet deep below the existing ground surface, the excavation of underground caverns, and the construction and filling of a hydrostatic compensation surface reservoir. The project includes building berms approximately 40 feet in height for the compensation surface reservoir and regrading of the topsoil for site use.

A site-specific geotechnical exploration has not been performed at the proposed project location to characterize the site-specific surface and subsurface conditions. A mitigation measure has been incorporated to ensure a subsurface geotechnical exploration will be performed as part of the design of the project. The following sections address potential construction and operation impacts to surficial soils only.

## 5.11.1 Affected Environment

The proposed GESC project is located on the western limits of Rosamond in Kern County, California. The land surrounding the project site consists of a mix of undeveloped, developed with single-family residences, and land that is designated for agricultural purposes. The site is bordered to the west by Tehachapi Willow Springs Rd, and Hamilton Rd runs adjacent to the northern edge. Willow Springs Butte is located just south of the site. Residences are located to the southwest and northeast of the project site adjacent to the project boundary.

A description of the surficial soils within the proposed GESC project area was developed using the Natural Resources Conservation Service (NRCS) Web Soil Survey for Antelope Valley Area and Kern County, California, Southeastern Part (NRCS 2021a). Descriptions of the soil map units were developed from the soil survey information and the NRCS Official Soil Series Descriptions database (NRCS 2021b).

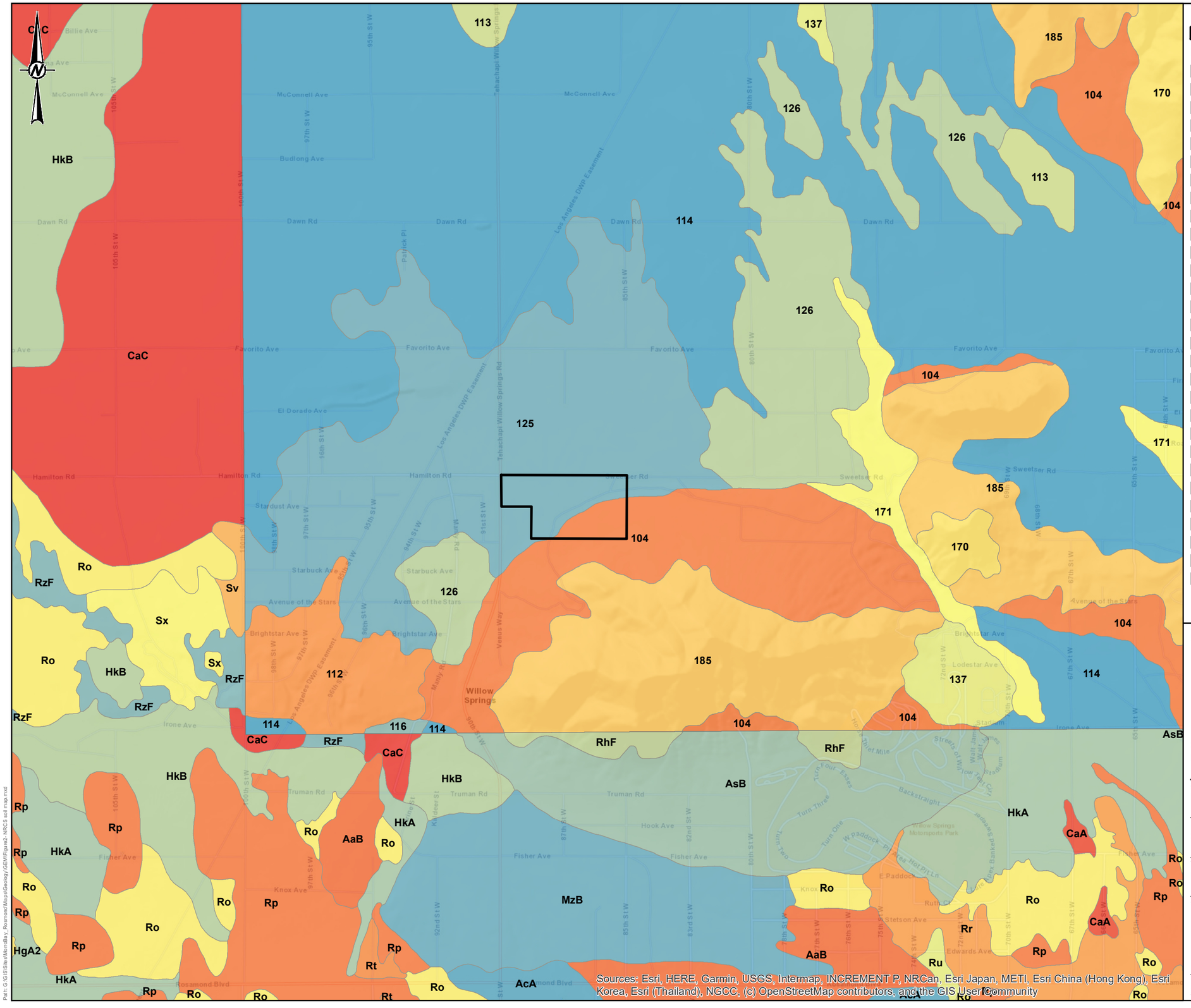
The NRCS Web Soil Survey identifies soil map units for the proposed GESC area, and also includes soil map unit characteristics for the area that may potentially be affected by the construction and operation of the A-CAES. The proposed project boundaries in relation to the soil map units are shown in Figure 5.11-1. Table 5.11-1summarizes the depth, texture, drainage, permeability, run-off, and other characteristics of the NRCS soil map units in the site vicinity.

**Table 5.11-1: NRCS Soil Map Unit Descriptions**

| Map Unit | Description | |
|---|---|---|
| 104 | **Arizo Gravelly Loamy Sand** | |
| | Landform: | Alluvial fans |
| | Parent material: | Alluvium derived from granite |
| | Typical profile: | Gravelly loamy sands over stratified extremely cobbly loamy sand to extremely gravelly loamy sand |
| | Depths: | More than 80 inches to restrictive feature |
| | Drainage: | Excessively drained |
| | Permeability: | High |
| | Run-off class: | Negligible |
| | Capability class: | 7w (non-irrigated)[1] |
| | Taxonomic class: | Sandy-skeletal, mixed, thermic Typic Torriorthents |
| **125** | **DeStazo Sandy Loam, 0 to 2 percent slopes** | |
| | Landform: | Basin floors, floodplains |
| | Parent material: | Alluvium derived from granite |
| | Typical profile: | Sandy loam over very gravelly clay loam over clay loam |
| | Depths: | More than 80 inches to restrictive feature |
| | Drainage: | Well-drained |
| | Permeability: | Moderately high |
| | Run-off class: | Very low[2] |
| | Capability class: | 4s (irrigated), 7e (non-irrigated) |
| | Taxonomic class: | Loamy-skeletal, carbonatic, thermic Petronodic Haplocalcids |

[1] The capability class was not specified for irrigated soils, only for non-irrigated.

[2] The run-off class was not specified by the NRCS Web Soil Survey, but instead was estimated using the NRCS Soil Survey Manual, Agriculture Handbook No. 18 (NRCS 1993).




LEGEND

GEM SITE

## NRCS MAP UNIT

- 104--Arizo gravelly loamy sand, 2 to 9 percent slopes
- 112--Badland-Orthents complex
- 113--Cajon sand, 5 to 15 percent slopes
- 114--Cajon loamy sand, 0 to 5 percent slopes
- 116--Cajon gravelly loamy sand, 0 to 9 percent slopes
- 125--DeStazo sandy loam, 0 to 2 percent slopes
- 126--DeStazo sandy loam, 5 to 9 percent slopes, eroded
- 137--Garlock loamy sand
- 170--Rock outcrop
- 171--Rosamond clay loam
- 185--Torriorthents-Rock outcrop complex
- AaB--Adelanto loamy sand
- AcA--Adelanto coarse sandy loam, 2 to 5 percent slopes
- AsB--Arizo gravelly loamy sand, 0 to 5 percent slopes
- CaA--Cajon loamy sand, 0 to 2 percent slopes
- CaC--Cajon loamy sand, 2 to 9 percent slopes
- HgA2--Hesperia loamy fine sand, 0 to 2 percent slopes, hummocky
- HkA--Hesperia fine sandy loam, 0 to 2 percent slopes
- HkB--Hesperia fine sandy loam, 2 to 5 percent slopes
- MzB--Mohave coarse sandy loam
- RhF--Rock land
- Ro--Rosamond fine sandy loam
- Rp--Rosamond loam
- Rr--Rosamond loam, saline-alkali
- Rt--Rosamond silty clay loam
- Ru--Rosamond silty clay loam, saline-alkali
- RzF--Rough broken land
- Sv--Sunrise sandy loam
- Sx--Sunrise loam

## NOTES

SOURCE DATA: HTTPS://WEBSOILSURVEY.SC.EGOV.USDA.GOV/

1:24,000

0 1 Miles

## REFERENCE

COORDINATE SYSTEM: NAD 1983 STATEPLANE CALIFORNIA V FIPS 0405 FEET

CLIENT
HYDROSTOR INC.

PROJECT
GEM ENERGY STORAGE CENTER

TITLE
**NRCS SOIL MAP**

CONSULTANT
GOLDER
MEMBER OF WSP

| | |
|---|---|
| YYYY-MM-DD | 2021-08-13 |
| PREPARED | MR |
| DESIGN | MR |
| REVIEW | JB |
| APPROVED | RPCE |

PROJECT No. 20449449 | CONTROL --- | Rev. --- | FIGURE 5-11-1

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Path: G:\GIS\Sites\MormBay_Rosmond\Maps\Geology\GEM\Figure2_NRCS soil map.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM: ANSI B

#### 5.11.1.1 Agricultural Use

The proposed GESC facility area is rural and located within Rosamond, California. As identified by the NRCS Web Soil Survey, soils within the Arizo gravelly loamy sand are classified with a land capability class of 7 when non-irrigated. This would indicate that the soil has limitations that preclude its use for commercial plant production. The DeStazo sandy loam is designated as class 4 when irrigated, signifying there are very severe limitations that restrict the choice of plants, require very careful management, or both. However, like the Arizo unit, when the DeStazo sandy loam is non-irrigated, the land capability class is classified as 7.

Additionally, as described in Section 5.6, Land Use, the California Department of Conservation (CDCO) has designated the proposed project site largely as Nonagricultural and Natural Vegetation. Refer to Section 5.6, Land Use, for additional information.

#### 5.11.1.2 Wetlands

Based on the information available at the time this was prepared, there are no known wetlands on the GESC site or in the immediate vicinity. However, a site-specific survey will be performed to confirm whether wetlands are present on the project site.

#### 5.11.1.3 NRCS Soil Map Units

As shown in Figure 5.11-1 and Table 5.11-1 above, the Gem site is associated with two soil map units: Arizo gravelly loamy sand (104) and DeStazo sandy loam (125). The Arizo soils are formed in alluvial fans, inset fans, fan aprons, and skirts throughout the Mojave Desert in California and other areas around southern Nevada, Arizona, and New Mexico. Soils in the upper profile often experience a gravelly and loamy sand texture. The DeStazo soils are formed on fan piedmonts, stream floodplains, and basins throughout the Mojave Desert area and in northern Las Vegas, Nevada.

Arizo soils in the area are located at the base of the Willow Springs Butte and up the mountain face. The DeStazo soils on site are located along with the more gently sloped areas on the northern side of the proposed project footprint. The proposed water reservoir placement will likely be within the Arizo loam, and the majority of other proposed site facilities (i.e., thermal storage, turbomachinery, vertical shafts, and underground caverns) will likely be located within the DeStazo loam.

#### 5.11.1.4 Potential for Soil Loss and Erosion

Soil loss and erosion potential are greatly affected by the presence of vegetation, slope grades, soil composition and gradation, and weather patterns. Regions with sparse to no vegetation exhibit erosion more readily than areas with grasses, shrubbery, and other plants as they help in slowing the overland flow and holding the soil together. Areas with steeper slopes typically experience higher rates of erosion and soil loss than level slopes due to the higher flow velocity at which the stormwater run-off will travel.

The northern half of the site has relatively gentle slopes, but the southern half of the site is steeper towards the Willow Springs Butte. Areas around the proposed project have vegetation but no tree coverage.

The Arizo soils likely have a low to negligible potential for soil loss and erosion due to their typical gravelly and cobbly profile, negligible run-off class, and high permeability classification. The DeStazo soils, however, may have potential for soil loss and erosion due to its typical sandy profile, run-off class, and permeability classification. Additionally, the NRCS Official Series Description for the DeStazo series indicates wind erosion can be moderate in areas with this soil.

Although the proposed GESC site is fairly flat, its construction will likely include concrete and asphalt paved finished grades that will not be susceptible to erosion. Unpaved areas can be graded and/or revegetated to mitigate erosion potential to less than significant. The surface reservoir embankments will be stabilized with rock or vegetated to reduce erosion potential.

#### *5.11.1.5 Other Significant Soil Characteristics*

Other significant soil characteristics that could affect the project site include shrink-swell potential, liquefaction risk, the potential for shallow groundwater, organic soils potential, and the risk of soil contamination. On-site geotechnical investigations have not been performed at this time to further classify the soils within the proposed project limits. A mitigation measure has been incorporated to ensure a subsurface geotechnical exploration will be performed as part of the design of the project.

##### 5.11.1.5.1 Expansive Soils

Expansive soils have the potential to shrink and swell with variations in saturation, which could cause ground instability in the form of differential settlement. Expansive soils are typically clay-rich or clay-dominant soils. Table 18-1-B of the 1994 Uniform Building Code (UBC) (International Code Council 1994) describes the standards for classifying expansive soils based on expansion index, determined using ASTM D4829.

Because a site-specific geotechnical exploration has not been performed, information regarding plasticity index, soil gradation and particle sizes, and expansion index are not available.

Information gathered from the NRCS Web Soil Survey, cross-referenced with the NRCS Soil Texture Triangle, suggests that the Arizo series soils are dominated by gravels and cobbles, but possibly contain up to 20% clay. Due to the expected presence of gravels, the Arizo series likely has a low shrink-swell potential. The DeStazo series, however, appears to be dominated by clayey loam and may have at least a low shrink-swell potential due to its clay fraction. Actual expansive soil susceptibility will depend on the actual characteristics of the materials on site. For the proposed GESC and its features, the presence of expansive soils would only be a possible concern to buildings and foundations. A site-specific geotechnical exploration has not been conducted to confirm the presence of expansive soils. However, if present, expansive soils can be mitigated to less than significant through the use of soil amendments or by removal and replacement with non-expansive soils, or by designing buildings and foundations to withstand the expansive soil.

##### 5.11.1.5.2 Liquefaction Risk

Liquefaction is a phenomenon in which the strength and stiffness of a typically loose, cohesionless (i.e., sand), saturated soil is reduced by earthquake shaking or other rapid loading. According to NRCS, the Arizo soil is dominated by gravels and cobbles, whereas the DeStazo soil is dominated by sand. Based on the available information regarding the soils' grain size provided by NRCS, the Arizo soil is likely not susceptible to liquefaction given its gravel and cobble content, which typically do not liquefy, but the sandy DeStazo soil may be susceptible to liquefaction. However, the NRCS data is very limited and cannot be solely relied on to determine liquefaction susceptibility.

Liquefaction is also a function of the presence of groundwater. Groundwater at the proposed GESC site is likely at least 100 feet below the existing ground. Liquefaction generally occurs in the upper 100 feet of soil. If groundwater is deeper than 100 feet, the possible impacts imposed by liquefaction are less than significant.

Additionally, the California Geological Service (CGS) Seismic Hazards Program: Liquefaction Zones map (CGS 2017) was reviewed and shows that mapping has not been performed within the proposed GESC project limits. This does not preclude the possibility of liquefaction potential within the proposed project limits.

A site-specific geotechnical exploration has not been performed at the time this was prepared to characterize the site-specific surface and subsurface soils and depth to groundwater. Based on the NRCS data, some of the surficial soils may be susceptible to liquefaction but additional information is needed to evaluate the risk of liquefaction at greater depths. Section 5.4, Geological Hazards and Resources provides additional information on liquefaction potential and mitigation measures. Through the site-specific study, the liquefaction risk will be parameterized and if necessary, structures and foundations will be designed to reduce the liquefaction potential and risk to less than significant.

#### 5.11.1.5.3 Potential for Shallow Groundwater

The closest identified USGS monitoring well to the project site is Well No. 344400118184501, which is located approximately 1.5 miles to the northwest of the proposed GESC site at a ground surface elevation of 2,689 feet above mean sea level (MSL). The most recent reported groundwater depth measurement was 198.59 feet below the ground surface (bgs) on March 17, 2021 (USGS 2021). Based on this monitoring well, it is unlikely that there is shallow groundwater at the proposed GESC site. Groundwater at the proposed site is likely greater than 100 feet deep; however, the depth to groundwater 1.5 miles away from the proposed site does not preclude the possibility of shallow groundwater at the GESC site. A site-specific geotechnical exploration will determine the depth to groundwater at the project location.

#### 5.11.1.5.4 Potential for Organic Soils

Generally, alluvial fans are not associated with organic soils. However, according to the NRCS Official Soil Series Descriptions, the DeStazo soils contain very fine organic roots from the surface down to a depth of 65 inches, which was the full extent of the taken samples during the investigation. Arizo soils also contained fine and medium-sized roots at the full extent of the sample pedon, the maximum depth of which was 62 inches. Even if very fine to medium organic roots are present, they would present a less than significant impact on soils. A site-specific geotechnical exploration has not been performed at the time this was prepared to determine organic matter concentrations at the project location.

#### 5.11.1.5.5 Potential for Soil Contamination

Existing site conditions were captured in a Phase 1 Environmental Site Assessment (ESA) conducted in July 2021 by Golder Associates Inc. The assessment revealed no evidence of recognized environmental conditions in connection with the property. Section 5.14, Waste Management provides further information.

The State Water Resources Control Board (SWRCB) GeoTracker database was searched for evidence of known contamination within the vicinity of the GESC project. The closest identified cleanup site is located approximately 5.5 miles southeast of the project boundary near the intersection of Rosamond Boulevard and 35th Street. The cleanup site status is completed, and the case is closed (SWRCB 2021).

### 5.11.2 Environmental Analysis

The following sections describe the potential environmental effects on soils near the project site during the construction and operation of the proposed GESC.

#### *5.11.2.1 Significance Criteria*

The potential for impacts to soil resources and their uses (such as agriculture) were evaluated using the criteria described in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (sections 15000-15387, Title 14, California Code of Regulations, Chapter 3). A project would have a significant environmental impact in terms of soils if it would do the following:

- Involve other changes in the existing environment which, because of their location or nature, could result in the conversion of farmland to nonagricultural use.
- Have a substantial adverse effect on state or federally protected wetlands.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (International Code Council 1994), creating substantial direct or indirect risks to life or property.

The following subsections describe the anticipated environmental impacts on agricultural production and soils during project construction and operation.

### *5.11.2.2 Farmland Conversion*

Kern County has zoned Willow Springs as Estate. The Estate designation includes various land uses including those related to utility and communication facilities, as well as resource extraction and energy equipment. The GESC will not cause land-use changes resulting in the long-term conversion of farmland. The impacts of farmland conversion are considered less than significant. Refer to Section 5.6, Land Use, for further information.

### *5.11.2.3 Jurisdictional Wetlands*

Based on the information available at the time this was prepared, there are no known jurisdictional wetlands on the GESC site or in the immediate vicinity. Refer to Section 5.2, Biological Resources, for further information on jurisdictional wetlands.

### *5.11.2.4 Soil Erosion during Construction*

Possible impacts on soil resources during project construction can include an increase in soil erosion due to both water and wind. Soil erosion can cause the loss of topsoil and can impact the amount of sediment received by nearby bodies of water downstream of the project site. The magnitude of construction impacts on soil resources depends on the soil erodibility, construction methods and schedule, and construction proximity to nearby sensitive receptors.

#### 5.11.2.4.1 Water Erosion

For the duration of construction, best management practices (BMPs) will be implemented following a site-specific stormwater pollution prevention plan (SWPPP). The California Energy Commission (CEC) also requires that project owners implement a drainage, erosion, and sediment control plan (DESCP) to reduce the impact of run-off from construction sites. Site monitoring will involve inspections to ensure that the BMPs in the SWPPP and DESCP are properly maintained. Therefore, impacts related to water erosion can be mitigated to less than significant.

#### 5.11.2.4.2 Wind Erosion

Soils with sandy textures, such as the sandy loam and loamy sand textures of the GESC site soils, have the potential for at least low wind erosion. Wind erosion potential is greatest when dry, fine sandy material is left exposed.

The potential for wind erosion will be mitigated to less than significant by implementing the soil BMPs during construction following Eastern Kern County Air Pollution Control District's suggested air pollution mitigation measures (EKAPCD 2012). Section 5.11.4 describes possible mitigation measures.

Refer to Section 5.1, Air Quality, for quantification of soil loss due to wind erosion.

#### 5.11.2.5 Other Significant Soil Properties

As described in Section 5.11.1.5, the soil units within the proposed GESC site boundary are expected to:

- Possibly have a low to possibly high shrink-swell potential, so expansive soils may be a concern at the project site.
- Possibly be susceptible to liquefaction.
- Have deep shallow groundwater.
- Have very fine to medium-sized roots at and near the surface.
- Be free of contamination.

A site-specific geotechnical exploration will be performed at the project location to verify and characterize the site soils and subsurface conditions.

#### 5.11.2.6 Compaction during Construction and Operation

Construction of the GESC and the use of heavy equipment around the site will result in soil compaction. Compacting the soil will increase the soil density, as well as reducing the ability of the soil to absorb precipitation. Surface water run-off, erosion, and sedimentation could increase as a result. The use of BMPs during the construction phase, following the SWPPP and DESCP guidelines, will mitigate the effects of soil compaction.

Because the GESC will be constructed in a rural, previously undeveloped area that will be graded and/or paved during and after construction, the expected effects of compaction during construction are considered less than significant.

The operation of the GESC is not expected to cause compaction-related impacts on the soil. Routine vehicle traffic will be limited to designated roads, and standard operational activities will not involve disruption of the soil. Therefore, impacts on soil from project operations are expected to be less than significant.

#### 5.11.2.7 Effects of Emissions on Soil-Vegetation Systems

Emissions from a generating facility could adversely affect soil vegetation systems. This is principally a concern where environments that are highly sensitive to nutrients or salts are downwind of the project. There are no habitats in or surrounding the project area that is known to be especially sensitive to the effects of nitrogen deposition. The potential addition of small amounts of nitrogen to the area would result in a less-than-significant impact on soil vegetation systems. Additional discussion regarding nitrogen deposition and impacts to biological resources in the area can be found in Section 5.2, Biological Resources.

### 5.11.3 Cumulative Effects

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Public Resources Code §21083; Title 14, California Code of Regulations, §15064[h], 15065[c], 15130, and 15355).

The impacts of the proposed GESC project are expected to be less than or mitigated to less than, significant. However, we do not have any information on or knowledge of other projects within the vicinity of the proposed GESC project and, therefore, do not have a basis to evaluate the cumulative effects of the proposed project.

### 5.11.4 Mitigation Measures

The following mitigation measures will reduce potential impacts related to soils to less than significant during construction and operation of the proposed GESC:

- Perform a site-specific geotechnical exploration to collect geotechnical data to:
  - Confirm surface and subsurface soil types and characteristics.
  - Determine the depth to groundwater.
  - Evaluate liquefaction susceptibility and potential and provide recommendations to mitigate impacts if necessary.
  - Determine if expansive soils are present and provide recommendations to mitigate impacts if necessary
  - Support the design of the foundations.
- Verify the recommendations provided in the geotechnical report are followed during the construction and operation of the proposed GESC
- Develop and implement a SWPPP and DESCP that follow BMPs to mitigate water and wind erosion.
- Implement BMPs described in the SWPPP and DESCP.
- Time construction activities, as best as practicable to reduce water and wind erosion.
- Design finished grades to maintain positive drainage to control surface water run-off to the desired collection and/or discharge locations.
- Pave or hardscape frequently used roads and areas to prevent water and wind erosion.
- Grade and/or revegetate unpaved areas to reduce water and wind erosion.
- Temporarily cease clearing, grading, earthmoving, and excavation activities when winds generate excess fugitive dust.
- Implement dust suppression measures (i.e., spraying with water, applying a tackifier) to control dust generation and minimize wind-blown soil loss.
- Revegetate and/or armor permanent slope faces and channels to reduce water and wind erosion.
- Use sediment barriers (i.e., straw wattles, silt fences) to slow run-off.
- Design buildings and foundations to withstand expansive soil (i.e., deeper foundations, use pre-stressed concrete).
- Water or cover stockpiles of soil or other fine loose material to prevent wind-blown fugitive dust.
- Use soil amendments to stabilize expansive soil or over-excavate and replace it with engineered fill.
- Over-excavate and replace liquefiable soils, or implement a ground improvement technique (i.e., compaction grouting, deep soil mixing) if more practical.
- Rip any unpaved areas that become over-compacted during construction.

## 5.11.5 Laws, Ordinances, Regulations, and Standards

Federal, state, county, and local Laws, Ordinances, Regulations, and Standards (LORS) applicable to soils are discussed and summarized in Table 5.11-2.

**Table 5.11-2: Laws, Ordinances, Regulations, and Standards for Soils**

| LORS | Requirements/Applicability | Administering Agency | Application for Certification Section Explaining Conformance |
|---|---|---|---|
| **Federal** | | | |
| CWA/Water Pollution Control Act. 1972, amended by Water Quality Act of 1987 P.L. 100-4 | Regulates stormwater and non-stormwater discharges from construction and industrial activities | RWQCB – Lahontan Region (6), SWRCB | Section 5.11.5.1 |
| NRCS (1983), *National Engineering Handbook*, Sections 2, and 3 | Standards for soil conservation | NRCS | Section 5.11.5.1 |
| **State** | | | |
| Porter-Cologne Water Quality Control Act | Regulates discharges of waste to state waters and land | RWQCB – Lahontan Region (6), SWRCB | Section 5.11.5.2 |
| Table 18-1-B of the Uniform Building Code (International Code Council, 1994) | Sets standards for defining expansive soils | California Building Standards Commission | Section 5.11.5.2 |
| **Local** | | | |
| City of Rosamond Specific Plan | Requirements for seismic and floodplain design | Kern County, Department of Planning and Development Services | Section 5.11.5.3 |
| Kern County General Plan | Requirements for Site Plan Reviews and Environmental Assessments including requirements for building on native soils | Kern County, Building Inspection Division | Section 5.11.5.3 |
| Kern County Municipal Code | Standards for grading and water quality, including permit requirements | Kern County, Building Inspection Division | Section 5.11.5.3 |

### *5.11.5.1 Federal LORS*

#### 5.11.5.1.1 Federal Clean Water Act

Discharges of wastewater and stormwater into surface and ground waters are regulated by SWRCB and RWQCBs under the Clean Water Act (CWA) of 1987 and the Water Pollution Control Act of 1972. Relevant NPDES permits for stormwater quality management are discussed in Water Resources Section 5.15.

#### 5.11.5.1.2 U.S. Department of Agriculture Engineering Standards

Sections 2 and 3 of the U.S. Department of Agriculture NRCS National Engineering Handbook provide standards for soil conservation during planning, design, and construction activities (NRCS 1983).

### *5.11.5.2 State LORS*

#### 5.11.5.2.1 California Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (California Water Code, Division 7) is the state law governing the water quality of all state waters, including both surface water and groundwater. The SWRCB has the ultimate authority over water quality policy on a state-wide level, and the Lahontan RWQCB regulates water quality in the project area. Water Resources Section 5.15 for further information.

#### 5.11.5.2.2 Uniform Building Code

Table 18-1-B of the Uniform Building Code (1994) defines the criteria for classifying expansive soils based on the expansion index.

### *5.11.5.3 Local LORS*

The City of Rosamond Specific Plan, Chapter 5, includes requirements for building within both the 100-year floodplain and UBC Seismic Zone IV (City of Rosamond 2010).

The Kern County General Plan includes requirements for building on native soils, as required by State law. The General Plan, Chapter 4 requires a review of soils and geologic conditions for hazard identification (Kern County 2009)

The Kern County Municipal Code requires that plans meet standards for grading and water quality. Municipal Code Sections 17.04.030 and 17.28.040 require the construction of new non-residential development projects to obtain a building or grading permit, respectively. Section 17.28.070 explains grading permit requirements. Municipal Code Section 17.28.140 provides additional details on erosion control and water quality (Kern County 2021)

## 5.11.6 Agencies and Agency Contacts

Applicable permits and agency contacts for soils are shown in Table 5.11-3.

**Table 5.11-3: Permits and Agency Contacts for Soils**

| Permit or Approval | Agency Contact | Applicability |
|---|---|---|
| Kern County Grading and Building Permit | Kern County Public Works Department<br>Building Inspection Division<br>2700 M Street, Suite 570<br>Bakersfield, CA 93301<br>(661) 862-5100 | Building and grading permits |
| NPDES Permit | Lahontan Regional Water Quality Control Board<br>15095 Amargosa Rd<br>Building 2, Suite 210<br>Victorville, CA 92394<br>(760) 241-6583 | Surface water and groundwater compliance |
| NPDES Permit | State Water Resources Control Board<br>1001 I Street<br>Sacramento, CA 95814<br>(916) 341-5250 | Surface water and groundwater compliance |

## 5.11.7 Permits and Permit Schedule

It is expected that all the required permits for grading and building can be secured, given that completed applications are provided to the appropriate agency before construction. The grading and building permits will be started after receiving approval from the planning department for the project. Other permits that relate to soils, such as the NPDES permit, are evaluated in other sections (see Section 5.15, Water Resources).

## 5.11.8 References

California Geological Survey (CGS). 2017. *Seismic Hazards Program: Liquefaction Zones*. Available online: https://maps.conservation.ca.gov/cgs/informationwarehouse/landslides/. Accessed July 26, 2021.

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