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Document Title:	Attachment DR68-1 Willow Rock Energy Storage Center (21-AFC-02) Monthly Geotechnical Update – September 2022
Description:	Attachment DR68-1 Willow Rock Energy Storage Center (21-AFC-02) Monthly Geotechnical Update – September 2022
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Willow Rock Energy Storage Center (21-AFC-02)

DATA REQUEST RESPONSE DR68

Response to California Energy Commission Staff

DR68

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TABLE OF CONTENTS

1.0 INTRODUCTION

CEC Staff's Data Requests Set 1, Data Request 68 provided: "As part of the ongoing collection of information to support the Application for Certification (21-AFC-02) it is requested that the applicant provide copies of all substantive geotechnical and geological information collected during the subsurface exploration program as well as the results of analyses and laboratory testing performed on the collected data and/or soil and rock samples. This is a continuing request, requiring ongoing submission of relevant information. Please provide no more than 30 days from the date it is created or received. A weekly records delivery to staff is requested. This request is in effect until the staff publishes the final staff assessment."

At the October 11, 2022 workshop held for the Willow Rock Energy Storage Center, the Applicant proposed, and CEC Staff agreed, to the submission of monthly reports regarding the status of the geotechnical drilling program. The monthly report for September 2022 is provided below. Given the size and file types of the supporting data, the Applicant will coordinate separate submission of this information with CEC Staff.

2.0 GEOLOGICAL HAZARDS AND RESOURCES

2.1 Geotechnical Data (DR68) Attachment DR68-1 Willow Rock Energy Storage Center (21-AFC-02) Monthly Geotechnical Update – September 2022

3.0 STATUS

The table below overviews the status of the various activities that have been initiated during the geotechnical program at the Willow Rock project site as of September 31, 2022.

Activity	Status	Notes
Shallow Borehole Program	Complete	The shallow borehole program was completed during June and August 2022 with 8 shallow boreholes and CPT testing.
Seismic Testing Round 1	Complete	Seismic testing was completed in Q1 to provide early insight into bedrock depth and stratigraphy before selecting borehole locations.
Deep Borehole #1	Ongoing - Lab Testing	Drilling and downhole testing have been completed on borehole #1. Preliminary laboratory data has been provided and the second/final round of lab testing is expected to be completed by mid-October.
Deep Borehole #2	Ongoing - Downhole Testing	Deep borehole #2 has completed drilling and geophysical logging. Pump and packer and laboratory testing are ongoing. Laboratory testing from samples on borehole #2 will commence after the completion of testing on hole #1
Deep Borehole #3	Planning	A location for deep borehole #3 has been selected. Drilling is expected to commence on borehole #3 in mid-October.

4.0 MONTHLY UPDATE

4.1 Deep Borehole #1

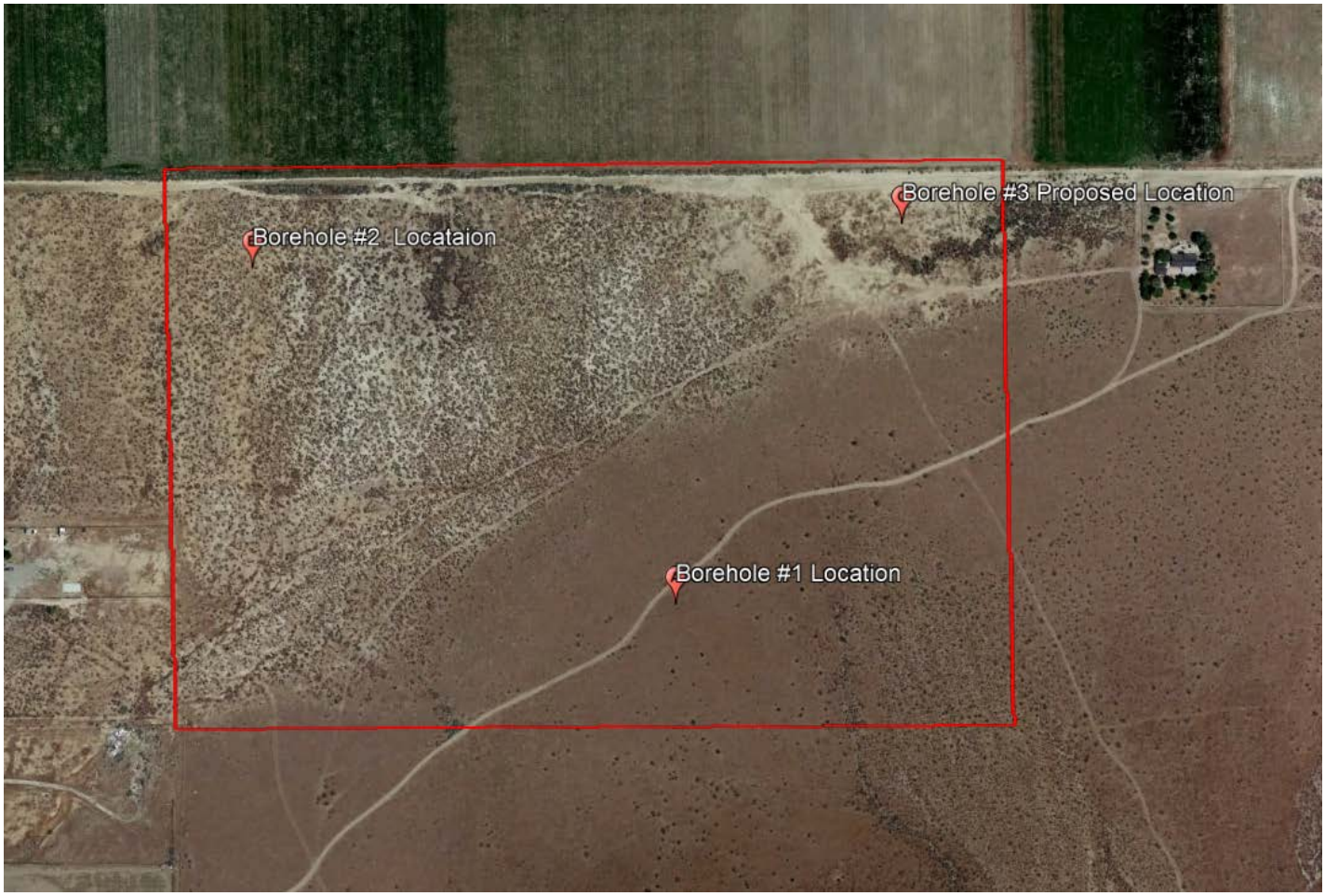
Laboratory testing on borehole #1 is ongoing with the final sets of tests being completed by AAI and their partner lab. The testing that is still ongoing includes Slake durability, Brazilian split strength, Diametral point load, moisture water content, and acidity/potential testing. It is expected that this testing will be complete with results provided by mid-October.

4.2 Deep Borehole #2

During September, deep borehole #2 advanced from 660 feet at the start of the month to its total depth of 2,380 feet. The drilling on borehole #2 was completed on September 24. Sigra testing was attempted at various horizons where the competent rock was encountered between 2,000 and 2,200 feet. Sigra testing is an in-situ stress test that measures the stress levels of rock through an over-coring technique. The contractors were unable to complete a successful Sigra test during their attempts due to the fracture frequency of the rock and will thus need to obtain in-situ stress measurements from a future borehole. It is common for Sigra tests to have a high rate of failure, so the inability to collect the data on this hole is not a critical issue. After completing the drilling, geophysical logging was completed on September 26 and 27. A full suite of testing was completed (caliper, gamma, temperature, acoustic, and resistivity/conductivity) on the entire borehole (surface – 2,380 feet). Upon completion of downhole testing, the hole was cleaned and prepared for the pump and packer testing by drilling and flushing with clean water. Pump and packer testing is expected to begin on October 1.

4.3 Deep Borehole #3

The drilling contractor (Cascade) has been retained to complete a third deep borehole upon completion of downhole testing and grouting on deep borehole #2. It is currently predicted that borehole #2 will be closed by mid-October. A proposed location for the third deep borehole has been selected and is shown in the figure below. Construction of the pad for borehole #3 is scheduled for early October and will be observed by biological, archaeological, and cultural monitors. The location has been selected in consideration of all CUP requirements and will be adjusted if required based on monitor feedback.


Borehole #3 Proposed Location
Borehole #2 Locataion
Borehole #1 Location