SIERRA GEOTECHNICAL SERVICES, INC.

GEOTECHNICAL • GEOLOGY • HYDROGEOLOGY • MATERIALS TESTING • INSPECTION

July 19, 2024 Project Number 3.31594.1

Mammoth Lakes Foundation
PO Box 1815
Mammoth Lakes, California 93546

Subject: **PLAN REVIEW FOR GEOTECHNICAL CONFORMANCE**
Mammoth Lakes Arts and Cultural Center Phase II
Mammoth Lakes, California

Reference: **GEOTECHNICAL INVESTIGATION**
Proposed Mammoth Arts and Cultural Center (MACC)
Mammoth Lakes, California
SGSI Project Number 3.31594; Dated June 20, 2019

Sierra Geotechnical Services Inc. has reviewed the following for conformance with our above referenced report.

Site Plan and Cross Sections – Mammoth Lakes Arts and Cultural Center Phase 2. Prepared by HMC Architects. PDF dated 7/11/2024.

Grading and Drainage Plans – Mammoth Lakes Arts and Cultural Center Phase 2. Prepared by Triad-Holmes Associates Inc. PDF dated 7/11/2024.

Foundation Plans – Mammoth Lakes Arts and Cultural Center Phase 2. Prepared by MHP Inc., PDF dated 7/11/2024.

Structural Calculations – Mammoth Lakes Arts and Cultural Center Phase 2. Prepared by MHP Inc., PDF dated 7/10/2024.

The project consists of a new single story auditorium addition to the existing Mammoth Lakes Arts & Cultural Center. The foundation includes continuous perimeter footings below masonry walls, and square pad footings below concrete pilasters and steel columns. The exterior perimeter walls will be constructed of 8" and 10" nominal concrete masonry units with enlarged cast-in-place concrete pilasters. Foundations will extend below the frost line at 24” minimum below grade. A conventional 5” thick reinforced slab on grade is specified. Grading will include cuts/fills with a net fill of approximately 130 cubic yards.

Plans have been prepared in general accordance with the recommendations in our report and our email correspondence dated 5/28/2024 (attached herein for reference).

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Below are a few items that should be acknowledged/observed/noted:

The earthwork quantities specified in the grading plans do not factor in the potential loss of material due to rock and shrinkage. It's estimated that rock quantities and soil shrinkage could make up around 15 to 30 percent of the total deposits.

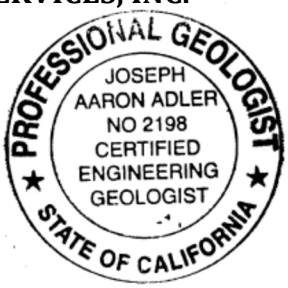
- The project grading plan did not contain any notes regarding remedial grading. The earthwork contractor should review Section 18.2.2 of our referenced geotechnical investigation as part of the bidding process.

- A cut/fill transition will occur below the building area. Mitigation strategies are outlined in Section 18.2.2 of our referenced geotechnical investigation. The earthwork contractor is advised to examine these options and incorporate associated costs into the bidding process.

We appreciate the opportunity to be of service. If you, should you have any questions regarding this report or our findings, please do not hesitate to contact us.

Respectfully,

SIERRA GEOTECHNICAL SERVICES, INC.



Joseph A. Adler
Principal Geologist
CEG 2198 (exp 3/31/2025)

Thomas A. Platz
Principal Engineer
PE 41039 (exp 3/31/2025)

From: jadler@sgsi.us
To: "Andrew Oliver"; "
Cc:
Subject: RE: MACC Ph2 - Amended Geotech Report
Date: Tuesday, May 28, 2024 5:08:00 PM
Attachments: SGSI Geotechnical Investigation_MACC_062019_MHP Questions.pdf
U.S. Seismic Design Maps MACC Ph 2_052024.pdf

Hi Andrew,

I reviewed the comments from the SE (attached) and the new grading plan. It appears that the building will sit close to existing grade with shallow footings. Here are the SE comments (in red) and our responses:

Footings will be approximately 10ft below grade due to underground ducting. Confirm recommendations are still valid.
Does not look like this still applies? Regardless, recommendations are still valid.

Update per CBC 2022 and ASCE 7-16
See attached. We will also include in our plan review letter.

Is a 1/3 increase in bearing pressure capacity allowed when including wind/seismic load?
Yes, the allowable pressure may be increased by one-third when considering transient loads such as wind or seismic forces.

Is there any increases in allowable bearing pressure for footing depth/width beyond minimums noted? (Footings will be ± 10ft below grade)
The building footprint appears to span a cut/fill transition. Mitigation for potential differential settlement as a result can be approached in one of two ways:

1. Create a uniform fill mat - Overexcavation to at least 2-foot below the bottom of the deepest footing and extending to 5-foot beyond the building corners. No increase in bearing will be given for a compacted fill.
2. Deepen all footings to bear on native soils, and all soils below interior concrete slabs be undercut so that slabs will be supported on an at least a 2-foot-thick compacted fill mat. In lieu of the 2-foot fill mat, the slab may be designed to accommodate for differential settlements which conservatively speaking may be 1” static over 30’. Bearing for footings in native can be increased by 500 psf for every 12” of embedment to a max 4000 psf.

Does Geotech need to do additional exploratory borings/test pits?
We inspected and tested the foundation retrofit for PH I and found that the material was similar in nature to what we observed in our previous investigation. From a design standpoint,

the values from our 2019 investigation can be used for the new structure. It's not imperative; however, for earthwork estimating purposes, additional test pits to evaluate boulder size and quantity, as well as the presence of unsuitable soils (old fill organics, etc.) in the new area, would have some value.

Thanks,

Joe

Joseph A. Adler, RG, CEG
Principal
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USGS web services were down for some period of time and as a result this tool wasn't operational, resulting in *timeout* error.
USGS web services are now operational so this tool should work as expected.

Latitude, Longitude: 37.63956177, -118.95815131

Date	5/28/2024, 4:22:32 PM
Design Code Reference Document	ASCE7-16
Risk Category	III
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	1.667	MCE_R ground motion. (for 0.2 second period)
S_1	0.527	MCE_R ground motion. (for 1.0s period)
S_{MS}	2	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.334	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.713	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	0.855	Site modified peak ground acceleration
T_L	6	Long-period transition period in seconds
SsRT	1.667	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	1.822	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	1.874	Factored deterministic acceleration value. (0.2 second)
S1RT	0.527	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	0.588	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.627	Factored deterministic acceleration value. (1.0 second)
PGAd	0.757	Factored deterministic acceleration value. (Peak Ground Acceleration)
PGA_{UH}	0.713	Uniform-hazard (2% probability of exceedance in 50 years) Peak Ground Acceleration
C_{RS}	0.915	Mapped value of the risk coefficient at short periods