RGH CONSULTANTS
Experience is the difference

Santa Rosa Office
3501 Industrial Drive, Suite A
Santa Rosa, CA 95403
707-544-1072

Napa Office
1041 Jefferson St, Suite 4
Napa, CA 94559
707-252-8105

November 22, 2023

Simplicity Ranch, Inc.
Attention: Brian Wellington
bwellington@wellingtonengineering.com

Foundation Recommendations
Simplicity Ranch Hay Barn
3640 Roblar Road
Petaluma, California

Project Number: 7797.001.04.1

This letter presents foundation recommendations for the planned hay barn at 3640 Roblar Road in Petaluma, California. We understand the planned structure will comprise an approximately 30 foot long by 24 foot wide and 9 feet tall, covered pole barn with eight supporting steel columns.

On November 17, 2023, we performed a geotechnical reconnaissance of the site and observed subsurface conditions within excavations adjacent to the planned building footprint. During our exploration we encountered between 1 and 1½ feet of weak, porous surface soil atop competent sandstone bedrock. We judge that the structure can be supported on pad footings that bear on competent sandstone bedrock designed in accordance with the criteria presented below.

Spread footings should bottom on undisturbed bedrock at least 12 inches below pad subgrade. Additional embedment or width may be needed to satisfy code and/or structural requirements.

The bottoms of all footing excavations should be thoroughly cleaned out or wetted and compacted using hand-operated tamping equipment prior to placing steel and concrete. This will remove the soil disturbed during footing excavations, or restore their adequate bearing capacity, and reduce post-construction settlements. Footing excavations should not be allowed to dry before placing concrete.

Bearing Pressures - Footings installed in accordance with these recommendations may be designed using allowable bearing pressures of 2,000, 3,000, and 4,000 pounds per square foot (psf), for dead loads, dead plus code live loads, and total loads (including wind and seismic), respectively.

Lateral Pressures - The portion of spread footing foundations extending into undisturbed bedrock may impose a passive equivalent fluid pressure and a friction factor of 350 pcf and 0.35, respectively, to resist sliding. Passive pressure should be neglected within the weak soil layer.

Seismic design parameters presented below are based on Section 1613 titled “Earthquake Loads” of the 2022 California Building Code (CBC). Based on Table 20.3-1 of American Society of Civil Engineers (ASCE) Standard 7-16, titled “Minimum Design Loads and Associated Criteria for Buildings and Other Structures”

(2017), we have determined a Site Class of C should be used for the site. Using a site latitude and longitude of 38.3177°N and 122.7495°W, respectively, and the OSHPD Seismic Design Maps website (https://seismicmaps.org), we recommend that the following seismic design criteria be used for applicable structures at the site.

2022 CBC Seismic Criteria	
Spectral Response Parameter	**Acceleration (g)**
S_S (0.2 second period)	1.5
S_1 (1 second period)	0.6
S_{MS} (0.2 second period)	1.8
S_{M1} (1 second period)	0.84
S_{DS} (0.2 second period)	1.2
S_{D1} (1 second period)	0.56

Our services consist of professional opinions and conclusions developed in accordance with generally accepted geotechnical engineering principles and practices. We provide no warranty, either expressed or implied. Our conclusions and recommendations are based on the information provided to us regarding the proposed construction, the results of our field observations and professional judgment. Verification of our conclusions and recommendations is subject to our review of the project plans and specifications, and our observation of construction.

We trust this provides the information you require. Please feel free to contact us with any questions.

Very truly yours,
RGH Consultants

Ryan E. Padgett
Senior Engineer

Electronically Submitted
REP:JJP:rep:brw

https://rghgeo.sharepoint.com/sites/shared/shared documents/project files/7501-7999/7797/7797.001.04.1 simplicity ranch hay barn/.01 - foundation recs/7797.001.04.1 foudation recommendations.docx