



August 30, 2023

Remington Ellis
Morton Buildings
2549 W. 1st Street
Craig, Colorado 81625

Re: Preliminary Geotechnical Recommendations
Proposed Coletta Barn
29775 Dr Creek Trail
Routt County, Colorado
Western Slope Geotech Project No. 23-1068

Dear Remington,

Western Slope Geotech, Inc. (WSG) has prepared this preliminary geotechnical recommendations report you requested for the proposed Coletta Barn located at the above referenced location. The results of site observations and pertinent geotechnical engineering recommendations are included with this report.

PURPOSE AND SCOPE OF WORK

The purpose of this report is to describe current site conditions and proposed construction and provide preliminary geotechnical design and construction recommendations for the proposed barn structure and associated site improvements. WSG's scope of work included field observations of the proposed building site and the preparation of this report summarizing those observations and data and outlining our preliminary recommendations for foundation design and construction. The conclusions and recommendations outlined in this report are based on the results of field observations and WSG's experience with subsurface conditions and similar construction in the nearby area.

PROPOSED CONSTRUCTION

Based on review of the plans provided, WSG understands proposed construction will generally consist of a single story wood framed structure. Interior floor systems, if any are unknown at this time. Floor elevation is anticipated to be constructed slightly below existing site grades. Drilled footings (42-inch diameter, 4-foot minimum depth) are

planned as foundation support for the structure. A site plan showing the approximate building site is presented on Figure 1.

Foundation loads are expected to be relatively light, with individual column loads less than 25 kips. If the assumed construction and loading conditions vary substantially from those assumed, WSG should be contacted to reevaluate the recommendations in this report.

SITE DESCRIPTION

The project site is located east of County Road 14 and along the north side of Dry Creek Trail in Routt County, Colorado. At the time of WSG's site observations, two potential building sites were under consideration. Both sites were vacant and appeared undisturbed.

Site topography appeared variable and generally appeared to slope gently to moderately down to the south and east at approximately 3 to 5 percent.

SUBSURFACE CONDITIONS

Based on WSG's experience with other nearby sites and our site observations, we anticipate subsurface conditions will be fairly consistent at the site and will generally consist of a layer of topsoil and organics overlying natural clay and sandstone bedrock of the Browns Park Formation. Based on WSG's experience with similar and nearby sites, groundwater is not anticipated within foundation excavations.

However, groundwater levels will vary seasonally and over time based on weather conditions, site development, irrigation practices and other hydrologic conditions. Perched and/or trapped groundwater conditions may also be encountered at times throughout the year. Perched water is commonly encountered in soils overlying less permeable soil layers and/or bedrock.

A test pit excavated during initial site work or an openhole inspection of the foundation excavation, material sampling and testing is recommended as a follow-up to confirm subsurface conditions and material engineering properties.

ANALYSIS AND RECOMMENDATIONS

General

WSG believes the anticipated natural clay and sandstone bedrock could provide suitable bearing for the proposed building foundations. WSG anticipates low swell potential for natural bearing soils.

Foundations

Based on the anticipated subsurface conditions and WSG's experience, we recommend the proposed building addition be supported by isolated drilled footing foundations bearing on undisturbed natural clay and sandstone bedrock and designed and constructed as outlined below:

1. WSG recommends drilled footing foundations be placed on undisturbed, natural clay or sandstone bedrock and designed using a maximum net allowable soil bearing pressure of 2,000 psf.
2. Footings exposed to freezing or frost conditions should be designed with adequate soil cover to prevent freezing. A cover depth of 48 inches is recognized by the local building authority as the minimum value for frost protection.
3. Drilled footing excavations should be cleaned on loose, disturbed material prior to placement of concrete.
4. WSG recommends continuous footings (if considered) have a minimum width of 12 inches and isolated pad foundations (if considered) have a minimum width of 24 inches in order to facilitate construction and reduce the potential for development of eccentrically loaded conditions.
5. Foundation walls and grade beams (used) should be designed to span an unsupported distance of 10 feet or the distance between pads.
6. Foundation resistance to lateral loads can be developed by passive pressure against footings and walls and sliding resistance between footings and floor slabs and the underlying soils. WSG recommends passive pressures be computed using an equivalent fluid pressure value of 250 pcf and friction resistance be calculated using a coefficient of friction of 0.30 times structural dead loads. The

recommended passive equivalent fluid pressure value and coefficient of friction do not include a factor of safety.

7. WSG should be retained to observe foundation excavations to verify the subsurface conditions are consistent with those assumed or make additional design and construction recommendations as needed based on subsurface conditions and laboratory testing.

WSG estimates settlement of footing foundations designed and constructed as outlined above and resulting from the assumed structural loads would be on the order of 1 inch or less. Differential movement from settlement or from expansive soils and bedrock could approach the amount of total settlement estimated above.

Drainage

Positive drainage is imperative for satisfactory long-term performance of the proposed structure foundations and associated site improvements. WSG recommends positive drainage be developed away from the structure during construction and maintained throughout the life of the site improvements. Twelve (12) inches of fall in the first 10 feet away from the building is recommended. Flatter slopes could be considered in hardscape areas. In the event that some settlement of the backfill soils occurs adjacent to the residence, the original grade and associated positive drainage outlined above should be immediately restored.

Care should be taken in the planning of landscaping to avoid features which could result in the fluctuation of the moisture content of the foundation bearing and/or flatwork subgrade soils. We recommend watering systems be placed a minimum of 5 feet away from the perimeter of the structure and be designed to discharge away from all site improvements. Gutter systems should be considered to help reduce the potential for water ponding adjacent to the residence, with the gutter downspouts, roof drains or scuppers extended to discharge a minimum of 5 feet away from structural, flatwork and pavement elements. Water which is allowed to pond adjacent to the site improvements can result in unsatisfactory performance of those improvements over time. The use of area drain inlets and subsurface piping is recommended to aid in rapid runoff of surface water from areas of concentrated drainage and/or limited surface runoff capability.

SITE GRADING

WSG assumes unretained fills up to 3-feet in height could be constructed for site development. Based on the assumed construction, WSG recommends the following:

1. Unretained cuts and fills should be constructed to a 2(H) to 1(V) or flatter slope configuration. Flatter slopes are often desirable to help facilitate revegetation efforts.
2. Fill materials supporting driveways or other settlement-sensitive landscaping features should consist of either on-site materials or approved imported materials. All fills should be uniformly placed and compacted in 9-inch loose lifts to at least 95% of the maximum standard Proctor density within 2% of optimum moisture content (ASTM D698). All fills should be benched or keyed into hillsides exceeding 25 percent grade using minimum 4-foot benches.
3. Proper drainage should be provided and maintained around all cuts, fills, buildings, and driveway surfaces. Special attention should be given to channeling or routing drainage around and away from site fills and retaining structures. Excessive or uncontrolled surface and subsurface drainage could lead to erosion and poor site fill performance and/or slope failure.
4. All disturbed areas should be protected from erosion by revegetation or other appropriate methods. Areas of concentrated drainage should be protected by use of rip rap or other appropriate methods.
5. Construction safety is the sole responsibility of the contractor. The contractor is responsible for determining the appropriate OSHA slope criteria for the soils conditions encountered and implementing it during construction. The contractor shall be responsible for all means, methods, techniques, sequencing, and operations during construction. All excavation activities should meet minimum OSHA, state or local trenching and excavation safety standards.

GENERAL COMMENTS

This report was prepared based upon WSG's experience with similar nearby sites and construction in this area. The subsurface conditions encountered may vary from those assumed. Therefore, WSG should be retained to conduct an openhole inspection on foundation excavations and any necessary testing required to quantify foundation design parameters. Modifications to the assumed design values, and therefore foundation design may be required and could result in construction delays.

Variations in subsurface conditions can occur relatively short distances away. This report does not reflect any variations which may occur across the site. If variations in the subsurface conditions anticipated become evident, the geotechnical engineer should be notified immediately so that further evaluation can be completed and when warranted, alternative recommendations provided.

The scope of services for this project does not include either specifically or by implication any biological or environmental assessment of the site or identification or prevention of pollutants or hazardous materials or conditions. Other studies should be completed if concerns over the potential of such contamination or pollution exist.

WSG should be retained to review the plans and specifications so that comments can be made regarding the interpretation and implementation of our geotechnical recommendations in the design and specifications. Soillogic should also be retained to provide testing and observation services during construction to help evaluate compliance with project plans and specifications.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with the generally accepted standard of care for the profession. No warranties express or implied, are made. The conclusions and recommendations contained in this report should not be considered valid in the event that any changes in the nature, design or location of the project as outlined in this report are planned, unless those changes are reviewed and the conclusions of this report modified and verified in writing by the geotechnical engineer.

Preliminary Geotechnical Recommendations
Proposed Coletta Barn
29775 Dry Creek Trail
Routt County, Colorado
WSG # 23-1068

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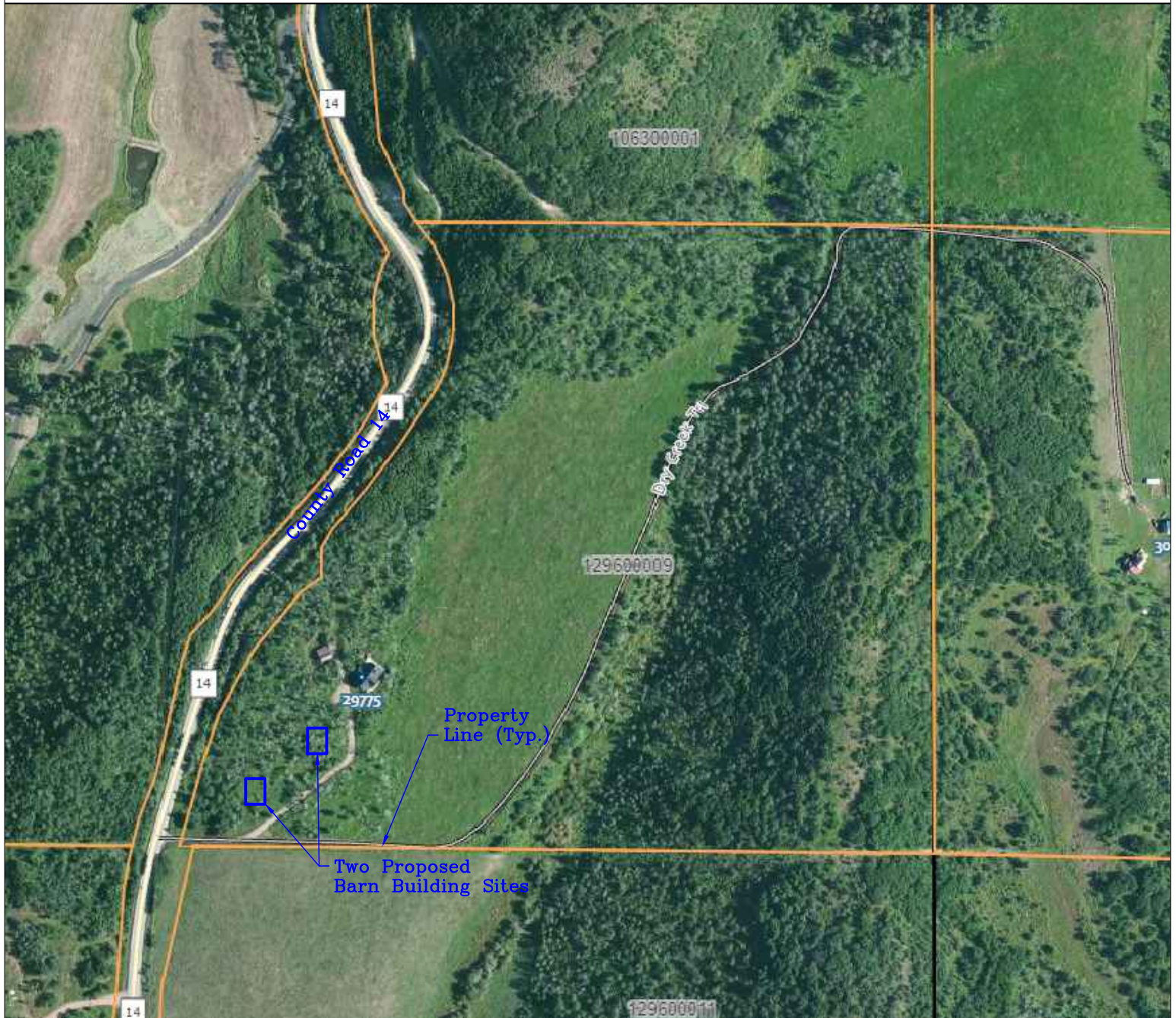
WSG appreciates the opportunity to be of service to you on this project. If you have any questions concerning the enclosed information or if we can be of further service to you in any way, please do not hesitate to contact us.

Very Truly Yours,
Western Slope Geotech, Inc.



Harold Schlicht, P.E.
Principal Engineer

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No Scale



SITE PLAN

Project Name: Proposed Coletta Barn

Location: 29775 Dry Creek Trail, Routt County, CO



Project No.: 23-1068

Date: 8/30/23

Drawn/Checked: HS

Figure No.: 1