COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

1313 Sherman Street, Room 215
Denver, CO 80203

January 8, 2018

Stevan O'Brian
Environment, Inc.
7985 Vance Drive, Suite 205A
Arvada, Colorado 80003

RE: Colorado Rose Red Granite Quarry, DRMS Permit Number M-1978-332
Amendment No. 2 (AM02) Application, Adequacy Review No. 1

Dear Mr. O'Brian,

The Colorado Division of Reclamation, Mining, and Safety (Division) received the above referenced application on December 15, 2017. The application was deemed complete for review on December 27, 2017. The Division has deemed the application complex in accordance with Rule 1.4.1(7) and have extended the decision date for the application to March 27, 2018. The following items will need to be addressed prior to the Division's approval of the application.

Rule 6.3.1 – Exhibit A – Legal Description and Location Map

1. In accordance with Rule 6.3.1(3), please update the map to show the names of all immediately adjacent surface owners of record.

Rule 6.3.2 - Exhibit B – Site Description

2. The NRCS Custom Soil Resources Report submitted with Exhibit B is missing the vast majority of the details of the report. The tables included with the report are blank and the descriptions are missing. Please submit the complete report.

Rule 6.3.3 – Exhibit C – Mining Plan

3. Page 44 of the mining plan discusses the proposed soil salvaging operation. The applicant proposes to salvage 0 to 4 inches of soil in about 3.11 acres of forest/open area within the permit area. According to the websoil survey, for the three soil units found at the site (2703B, 2705D and 2706D) with the exception of the rock outcrop portions of the soils, there is generally an A horizon ranging in depth from 0 to 8 inches and a Bw horizon ranging from 4 to 18 inches in depth. The A horizon and Bw horizon should be salvaged for reclamation where available. Given the depths of these horizons the proposed plan of salvaging 0 to 4 inches of growth media does not appear adequate. The Division would accept a plan to salvage 3 to 13 inches of A and

Bw horizon material for growth medium where this materials is available. Please either commit to this salvaging plan or proposed a revised plan with adequate justification.

4. Please revise the Exhibit E-1 Map to show the location where topsoil/growth media will be stored.

5. Surface water will be intercepted at the site, please describe the methods to be used to minimize disturbances to the surface water system including sediment-containment and storm water run-off controls.

6. Please address the following issues regarding the Blasting Plan:

    a. Please specify which structures will have a pre-blast survey conducted. For example, will the operator offer to conduct a pre-blast survey to any structure within a certain distance of the affected area?
    b. Please commit to conducting airblast monitoring to insure the airblast level is below the approved threshold.
    c. The applicant offers an airblast limit of 133 dB and a ground vibration limit of 1.0 inches per second. These limits are adequate for certain situation but not necessarily for others. The Division offers the following limits as a better defined and more flexible option:
        i. Airblast based on the Lower Frequency Limit of the Measuring System:

Lower Frequency Limit of Measuring System, Hz (3dB)	Maximum Level in dB
0.1 Hz or lower – flat response[1]	134 peak
2 Hz or lower -- flat response	133 peak
6 Hz or lower -- flat response	129 peak
C-weighted, slow response	105 C

1.

        ii. Ground Vibration based on distance from nearest blast hole to the closest structure:

Distance (D) from the Blasting Site (in feet)	Maximum Allowable Peak Particle Velocity (V max) for Ground Vibration (in inches/secondH)	Scaled-Distance Factor to be Applied without Seismic Monitoring (DsI)
0 to 300	1.25	50
301 to 5000	1.00	55
5001 and beyond	0.75	65

H Ground velocity shall be measured as the particle velocity. Peak particle velocities shall be recorded in three mutually perpendicular directions from the blasting site. The maximum peak particle velocity shall be the largest of any of the three measurements.

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Rule 6.3.4 Exhibit D – Reclamation Plan

7. Based on your answer to Item #3 above, please revise your soil replacement plan.

8. The applicants plan to close the mine openings using welded rebar cemented into place is not consistent with the standard adit closure practices. The Division recommends installing a grated adit closure with doors to allow the landowner access or a wire rope netting closure. Details regarding the specifications, materials required and the execution of these types of closures are available on the Division's website: http://mining.state.co.us/Programs/Abandoned/Documents/General%20Bid%20Specifications.pdf

   This document is the General Bid Specifications guide that our Inactive Mine Program uses as a standard for mine closures similar to this. The Division would accept a plan for closure of the mine openings consistent with these standard practices.

9. The Division has conducted a reclamation cost estimate for the site and included the cost for installing three grated adit closures with doors for access. These costs are based on costs incurred by the Division's Inactive Mine Program for closing similar adits. The cost estimate included with the application did not take account of a cost for spreading soil material or conducting revegetation. The attached cost estimate includes costs for these tasks.

Rule 6.3.5 – Exhibit E – Map

10. In accordance with Rule 6.3.5(2)(b), please indicate the owner of the substance to be mined on the Exhibit E-1 map. Also, identify the owner of the structures shown on the site.

11. Please depict the proposed location of the soil stockpiles.

12. Please indicate where the processing facilities will be located on the Exhibit E-1 map.

13. Exhibit B indicates the Operator intends to construct a recycled water pond just east of the existing bench to store more water from the water jet operation. Please depict the location of this proposed pond on the Exhibit E-1 map.

14. Please state the average thickness of the soil material to be replaced on the Exhibit E-2 Map.

Rule 6.5 – Geotechnical Stability Exhibit

The Division is currently conducting a technical review of the Geotechnical Stability analysis included in the application conducted by Ground Engineering. The Division will forward any adequacy concerns or results of our review once it is completed. Several adequacy items have been identified currently and they are discuss below.

15. Please provide a map and/or diagram showing the location of the features evaluated in the Ground Engineering document (Excavation Face, Joint Orientations and Slope-Parallel Joint).

16. Page 67 of the stability analysis indicates an area of potential failure was estimated for the combination of Joint Orientation 6 and 7. The report shows an area where stabilization may become necessary if the excavation were extended in that direction. Please depict the location of this area on the Exhibit E-1 map. If this area will eventually be mined please indicate how this area will be stabilized to prevent failure or otherwise mitigated.

17. Page 67 of the stability analysis indicates the potential exists throughout the quarry for small localized failures involving joint orientations not evaluated for the study, particularly after periods of heavy rainfall or snowmelt. Given this, please provide a monitoring plan to monitor for failures.

18. Given the potential for small localized failures it would seem there is a potential for rockfall to occur that may cause off-site impact. Please either demonstrate the existing mine benches outside and below the current highwall are adequate to catch the potential rockfall from failures in this area or provide a plan to construct adequate catchments for the rockfall.

19. According to page 65 of the application the interior roofs of the 'rooms' were not included in the stability evaluation performed for this study. Please provide a geotechnical evaluation of geologic hazards associated with the existing and proposed underground roofs and 'rooms'. Based on this evaluation, where there is the potential for failure of any geologic structure caused or exacerbated by the existing and proposed underground mining operation please demonstrate that off-site areas will be protected with appropriate factors of safety incorporated into the analysis.

20. Regarding the proposed quarry operations (separate from the underground dimensional stone operation), the stability analysis conducted by Ground Engineering and submitted should not be used to draw conclusions regarding the stability of the proposed future mine benches and highwalls. As indicated on page 67 of the report, the evaluation may not contain sufficient information for other purposes. Given this, please provide engineering stability analysis for the proposed final reclaimed slopes/highwalls. Based on this evaluation, where there is the potential for failure of any geologic structure, demonstrate that off-site areas will be protected with appropriate factors of safety incorporated into the analysis.

This concludes the Division's preliminary review of the amendment application. The decision date for this application is March 27, 2018. If you need additional time to address the Division's adequacy review, please request an extension of the decision date. If you have any questions feel free to contact me at (303) 866-3567, extension 8120 or Jared.Ebert@state.co.us.

Sincerely,

Jared Ebert
Environmental Protection Specialist III

Enclosures: *1.) CIRCES, Reclamation Cost Estimate, M-1978-332, AM02 dated January 5, 2018*

EC: Caleb Liesveld, Colorado Rose Red, Inc. Caleb@coloradorosered.com