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

March 6, 2020

Re: Recommendation to Approve a 112c Permit Amendment Application with an Objection Amendment No. 4 (AM-04) Application for the Pikeview Quarry, File No. M-1977-211

Dear Party and/or Interested Person:

The Division of Reclamation, Mining and Safety (Division) hereby issues its recommendation for approval of the 112c permit amendment application (Application) for the Pikeview Quarry, File No. M-1977-211, submitted by Continental Materials Corporation. (Permittee).

This recommendation is based on the Division's determination that the amendment Application satisfied the requirements of Section 34-32.5-115(4) of the Colorado Land Reclamation Act for the Extraction of Construction Materials, 34-32.5-101 *et seq*., C.R.S (Act). The Permittee addressed all adequacy issues which were identified by the Division during the adequacy review process to the Division's satisfaction. Therefore, on March 6, 2020, the Division determined the amendment Application satisfied the requirements of C.R.S. 34-32.5-115(4) and issued its recommendation to approve the Application over an objection. The Division's rationale for approval (Rationale) identifies the jurisdictional issues raised by objecting party and commenting agencies, and groups them into the following five categories:

1) Geotechnical (including concerns regarding engineered backfill, slope monitoring, and adequacy of stability analyses).
2) Reclamation (including concerns regarding commitments and performance guarantees; revegetation and weed control; topsoil quality and handling; and borrow area reclamation.
3) Stormwater (including concerns regarding eroding topsoil concerns on steep slopes; and hydrologic analyses and hydraulic design).
4) Reclamation Cost Estimate (including questions and comments related to the bond estimate).
5) General Clarification Comments (including comments regarding drawing scale and tree exclusion below elevation 7250).

The Division's recommendation to approve the amendment Application is to the Colorado Mined Land Reclamation Board (Board). The Application with objections will be considered by the Board during a formal hearing, scheduled for the March 25-26, 2020 Board meeting. This meeting will occur at 1313 Sherman Street, Room 318, Denver, Colorado, beginning at 9:00 a.m. or as soon thereafter as the matter can be considered. During the hearing the Board will consider the application with an objection and may decide to approve, approve with conditions, or deny the application for the Pikeview Quarry Amendment.

All parties and interested persons who intend to participate in the Board hearing are strongly encouraged to attend the Pre-hearing Conference.

Pursuant to Rule 2.7.3(4), any party who does not attend the Pre-hearing Conference forfeits its party status and all associated rights and privileges, unless such party provides a fully executed proxy authorization form to the Pre-hearing Conference Officer and the party's authorized representative is present. An official proxy authorization form was provided with the citizen's guide memo. Additional copies of the official proxy authorization form may be procured through the Division's website. The Board has appointed Jason Musick to preside as the Pre-hearing Conference Officer.

The Pre-hearing Conference is scheduled to occur at 1313 Sherman Street, Room 215, Denver, Colorado on Thursday March 12, 2020 beginning at 10:00am and will end no later than noon.

If you have any questions, you may contact me at the Division of Reclamation, Mining and Safety at 1313 Sherman Street, Room 215, Denver, CO 80203, by telephone at 303-866-3567, ext. 8169, or by email at tim.cazier@state.co.us.

Sincerely,

Timothy A. Cazier, P.E.
Environmental Protection Specialist

Attachments:

1) CERTIFICATE OF SERVICE
2) Rationale for Recommendation to Approve a 112c Permit Amendment Application with an Objection Amendment No. 4 (AM-04) Application for the Pikeview Quarry, File No. M-1977-211

ec: Michael Cunningham, DRMS
Jason Musick, DRMS
DRMS file
Jeff Fugate, AGO
Charles Kooyman, AGO
Ivan Franco, DWR
Carl B. Mount, Carl B. Mount and Associates, Inc.
Paul Kos, Stantec

Certificate of Service

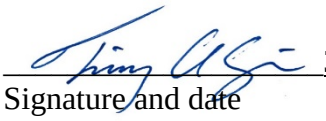
I, Tim Cazier, hereby certify that on March 6, 2020, I deposited a true copy of the foregoing Notice to Parties and Interested Persons to the Pikeview Quarry Permit Amendment 4 Application, dated March 6, 2020, Re: Recommendation to Approve a 112c Permit Amendment Application with an Objection Amendment No. 4 (AM-04) Application for the Pikeview Quarry, File No. M-1977-211, in the US Mail, postage paid, addressed to the following:

Warren H. Dean
3131 Little Turkey Creek Road
Colorado Springs, Colorado 80926

Jeff Hovermale
Lands and Minerals Staff Officer
US Forest Service, Pike National Forest, Pikes Peak Ranger District
601 S. Weber Street
Colorado Springs, CO 80903

Steve Turner, AIA
State Historic Preservation Officer
History Colorado
1200 Broadway
Denver, CO 80203

Jerald Schnabel
Castle Aggregate
549 E Cucharras Street
Colorado Springs, CO 80903

 3/6/2020
Signature and date

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

March 6, 2020

Re: Rationale for Recommendation to Approve a 112c Permit Amendment Application with an Objection Amendment No. 4 (AM-04) Application for the Pikeview Quarry, File No. M-1977-211

Introduction

Herein, all references to the Act and Rules refer to the Colorado Land Reclamation Act for the Extraction of Construction Materials, 34-32.5-101 et seq., C.R.S. (Act), and to the Mineral Rules and Regulations of the Colorado Mined Land Reclamation Board for the Extraction of Construction Materials, 2 C.C.R. 407-4 (the Rules or Rule). Copy of the Act and Rules are available through the Division's web site at https://www.colorado.gov/drms.

On March 6, 2020, the Division of Reclamation, Mining and Safety (Division or Office) issued its recommendation to approve, over an objection, the permit amendment application for the Pikeview Quarry, File No. M-1977-211 (Application). This document is intended to explain the process by which the Division arrived at its recommendation to approve the Application over an objection, and respond to the issues raised by the objecting party and commenting agencies. The Division reserves the right to further supplement, amend, modify, or clarify this document and recommendation with additional details as necessary.

Summary of the Review Process

Continental Materials Corporation (Permittee or CMC) filed the Amendment Application with the Division on September 20, 2020. The Application summarizes the revision by stating they have reassessed the reclamation plan as part of its review of the staged approach to reclamation and developed an approach that is better suited for the site. The Applicant proposes to reclaim the Pikeview Quarry by backfilling the quarry area to buttress the existing landslide. Fill material for backfilling will be generated by grading back the existing granite highwalls above the landslide, excavating steep slopes below the quarry floor, and by importing material from offsite. The fill will primarily be placed as compacted fill in a bottom-up manner, and fill from the upper portions of the quarry will be dozed into place before being covered with compacted fill. Following grading of the backfill slope, the site will be revegetated by placing topsoil, then seeding, and planting trees. The post mining land use remains wildlife habitat, and all areas of the quarry will be reclaimed.

The permit area includes 240.5 acres, with 139.1 acres to be affected as the reclamation is completed. The Division has estimated a financial warranty in the amount of $13,389,784 is required to complete the reclamation.

Pursuant to Rule 1.4.1(9), the Applicant requested three extensions to the decision date from the original December 19, 2019 to March 6, 2020.

Notice of the filing occurred in accordance with the requirements of the Act and Rules. The Applicant published the required notice in the Colorado Springs Gazette once a week for four consecutive weeks beginning on September 28, 2019 and ending on October 19, 2019. The public comment period closed on November 8, 2020. During the comment period, the Division received written comments from the following individuals and agencies:

Timely Objections:

First Name	**Last Name**	**Date Received**
Warren	Dean	October 30, 2019

Timely Commenting Agency:

Agency	**Date Received**
History Colorado	October 3, 2019
Colorado Division of Water Resources	October 1, 2019

Late Comments (comments received after the close of the public comment period):

First Name	**Last Name**	**Date Received**
Warren	Dean	January 14, 2020
Warren	Dean	February 19, 2020
Warren	Dean	February 26, 2020

The Division forwarded copies of all objections and comments to the Applicant and scheduled the application for a hearing before the Colorado Mined Land Reclamation Board (Board) and for a Pre-hearing Conference on Thursday March 12, 2020. The Division provided notice of the scheduled Board hearing and Pre-hearing Conference to all parties. As a result of timely objections, the Division does not make a decision on the Amendment Application on the decision date, but rather a recommendation to the Board.

During the review period the Division generated four adequacy review letters. The Applicant addressed all adequacy issues to the Division's satisfaction. The Division hereby issues its recommendation for approval of the 112c permit amendment application for the Pikeview Quarry, File No. M-1977-211, submitted by Continental Materials Corporation. .

Issues Raised by Objecting Parties and Commenting Agencies

The jurisdictional issues raised by the objecting party and commenting agencies have been grouped into five categories, including: Geotechnical Stability, Reclamation Plan, Hydrology, Financial Warranty,

and Requests for Clarification. The categories are listed below in bold font. Under each category, the Objector's concerns are summarized in underlined text, with specific issues related to that subcategory listed afterword in italic font. The Division's response follows the issue(s) in standard font.

1. Geotechnical Concerns

A. Engineered Backfill Concerns

How did and will Castle engineer the fill? All fill should be engineered and compacted to assure it will hold back the sliding material and provide a stable reclamation area. Castle should provide the applicable engineering and analysis. The application states that there will be no compaction testing. Castle needs to show the engineering to prove this is sufficient. Ensure that there are commitments by the operator to adequately demonstrate that the engineered fill is placed in a verifiable manner and there are adequate tests to demonstrate final stability. It is prudent to include engineering practices that would provide a stable buttress and testing as construction proceeds to demonstrate that the fill has been constructed properly: placing and testing backfill, monitoring. Where will Castle source the fill and how will Castle engineer and place it? Where will fill come from and how will the quality be verified and tested? Demonstrable compaction for such a critical buttress at a site that has exhibited instability over many decades is critical to ensure stability for long term reclamation.

Pursuant to C.R.S. § 34-32.5-116(4)(j) and Construction Materials Rule 3.1.5(3) – All grading shall be done in a manner to control erosion and siltation of the affected lands, to protect areas outside the affected land from slides and other damage. If not eliminated, all highwalls shall be stabilized; and Rule 3.1.5(9)(f) – if Operator intends to backfill inert structural fill generated outside of the approved permit area, Operator must provide the Office notice which must include a general engineering plan stating how the material will be placed and stabilized in a manner to avoid unacceptable settling and voids.

CMC will continue to accept imported fill from offsite sources for use as backfill (as allowed with the approval of TR-19 in November 2017). This material is excess cut from construction projects throughout the greater Colorado Springs area. Fill material from major borrow sources (greater than 100,000 cubic yards) will be sampled and analyzed by a geotechnical laboratory for important geotechnical properties including: shear strength, particle size distribution, and standard proctor density. The purpose of this test is to assess the general characteristics and suitability of the material for the backfill in order to guide the compaction effort. Minor variations in material properties are not expected to affect the effort to compact the material. Furthermore, CMC has exhibited a preference for material to come from large projects to aid in logistics and to provide some level of material consistency. Finally, each truck load of material is visually inspected prior to use as structural backfill.

The Permittee has and will continue to place fill material (generated onsite, or imported inert fill) in approximately one foot thick lifts. An exception is allowed for work within a limited distance (30 feet) of the rubblized slide area where for safety reasons backfill material will be pushed horizontally into the void areas using a dozer, then worked into the voids using an excavator or similar equipment. Imported material will be stockpiled on the quarry floor so that CMC can control the placement and compaction of the backfill materials. Only clean fill will be accepted, and loads containing trash and other deleterious materials have been and will continue to be rejected prior to dumping. CMC will visually inspect each truck-load for confirmation that the fill is free of deleterious materials. Similarly, coarse-grained

material (>50% retained on No. 200 sieve) is preferred over fine-grained material (<50% passes No. 200 sieve), and fine-grained material will either be rejected or mixed with other granular materials available onsite. Revisions to Exhibit D on February 7, 2020 provided specifications for placing fill and testing compaction using accepted industry standards. Moisture conditioning (based on standard proctor results) and truck and bulldozer traffic are expected to provide sufficient compaction of the fill material to achieve at least 90% standard proctor density. CMC will demonstrate that compaction is being achieved by testing the fill density at a rate of at least once per 5,000 cubic yards so that on average there will be two tests per day. Records of the fill testing shall be kept on site and made available to the Division for inspection. CMC shall submit monitoring summary reports on a monthly basis which will be available for public viewing from the Division's website:

https://dnrweblink.state.co.us/drms/search.aspx?cr=1.

The proposed Reclamation Plan ensures areas outside of the affected land will be protected from slides and other damages as required by C.R.S. § 34-32.5-116(4)(j) and Rule 3.1.5(3).

B. Slope Monitoring Concerns

Castle should verify how they are monitoring the quarry and present the data and engineering upon which it based its plan so we can verify it. A continuing commitment to site monitoring and measurements of the faults, etc. must be included and reports of those measurements must be required to allow DRMS and the public valid information on which to base decisions.

The Pikeview Quarry has experienced multiple slides to date and it is therefore prudent to incorporate monitoring of potential future movement into the reclamation plan in order to assure the proposed plan is effective.

In regards to monitoring performed to date, methods include robotic prism surveying, visual inspections, and drone imaging. The Division had no requirement to submit this data for review as this monitoring was performed primarily for worker safety. The prism system and the daily slope inspections were the primary sources used to characterize slope movements and maintain worker safety. The prism system is designed to detect movement or displacement such as those from thermal effects, settlement, slides, or fault movement. However, the prism system is not independently capable of determining the reason(s) for detected movement. If movement is detected, it will first be analyzed by qualified professionals, then if determined to be significant, further investigations and inspections would be performed to determine the reason for the movement, and what if any mitigation effort is required. The prism system alarm has been established at 0.1 feet of movement per day, and while these notices require action by CMC, they may not reach the magnitude of failure or imminent failure requiring a notice to the Division. Following an alarm, the data has been and will continue to be reviewed by CMC personnel on an as-needed basis in support of worker safety and additional inspections are performed as necessary. Going forward, CMC will prepare monthly monitoring reports that summarize the monitoring data. CMC's monthly monitoring reports will be included in the public record. It should be noted that as backfill progresses above the current toe elevation of the failed slope, these monitoring reports will be invaluable in the future assessment as to whether the slope is stabilizing as the engineered backfill is placed. The anticipated reclamation schedule expects the structural backfill effort to be completed in approximately two years from approval of the amendment. This allows as many as five years of monitoring, under the

five-year reclamation plan for assessing the effectiveness of the backfill to stabilize the slope. This site will not be released from reclamation liability until a qualified engineer deems monitoring is no longer necessary.

C. Concerns related to Stability Analyses and Demonstration

There is no data to back up the stabilization claim and the highwalls shown on Amendment 4. What studies or information indicates that the granite as exists in the upper parts of the quarry, along with any faults, fractures, or jointing, will be stable at this configuration and at these angles? Have the operator clarify what is meant by " ... the remaining highwall slopes ... " after demonstrating the properties of the granite that ensure stability at the proposed slope and bench angles. Unit Weight, Cohesion and Friction Angles that are the most conservative must be used for stability calculations. The quarry has experienced major slides in 2008 and 2015 and the Amendment needs to include data based, scientific reports which support the redesign.

Pursuant to C.R.S. § 34-32.5-116(4)(i) and Rule 6.5(2) – On a site-specific basis, an Applicant shall be required to provide engineering stability analyses for proposed final reclaimed slopes to ensure areas outside of the affected land are protected from slides or damage occurring during the mining operation and reclamation. Information for slope stability analyses may include, but is not be limited to, slope angles and configurations, compaction and density, physical characteristics of earthen materials, pore pressure information, slope height, post-placement use of site; and Rule 6.5(3) – Where there is the potential for off-site impacts due to failure of any geologic structure or constructed earthen facility, which may be caused by mining or reclamation activities, the Applicant shall demonstrate through appropriate geotechnical and stability analyses that off-site areas will be protected with appropriate factors of safety incorporated into the analysis. The minimum acceptable safety factors will be subject to approval by the Office.

The geotechnical stability report submitted by the Applicant in Exhibit 6.5 includes stability analyses for three cross-sections of the Pikeview Quarry. Two analyses were conducted for each of the three sections: one under static conditions, and the other accounting for earthquake loading (pseudo-static) using acceptable industry software. All six analyses resulted in Factors of Safety (FoS) meeting the Mined Land Reclamation Board approved standards: Static FoS $\geq$ 1.5, Pseudo-static FoS $\geq$ 1.3. The Division engineering staff used different software to verify the models presented in Exhibit 6.5 and found similar results, also meeting the MLRB approved FoS criteria.

Material Strength Properties were obtained from a review of the available information for material properties and previous geotechnical studies for the Pikeview Quarry materials include the following:

- Core logs (including strata descriptions and RQD) for drill holes EXC-1 to EXC-4.
- Laboratory test data from drill hole core samples.
- Laboratory test data from bulk soil samples taken from trenches.
- Previous engineering reports, including:
  - CTL Thompson Inc., 2009. Slope Stability Evaluation Pikeview Quarry. Report to Transit Mix Aggregates. May 19.
  - Exponent Failure Analysis Associates, 2011. Investigation of the Pikeview Quarry. Report to Counsel for Continental Materials Corp. September 22.

- Seegmiller International, 2012. Stability Analysis Reclaimed Slope Design, Pikeview Quarry, El Paso County, Colorado. Prepared for Norwest Corporation. July 2012.

It should be noted the 2011 Exponent report had been submitted to the Division as part of the Pikeview amendment 3 application, but was not placed in the public record. Another copy of this 2144 page report was submitted during the adequacy review for AM-04 and is now accessible in the Division's online public record.

Addressing specific comments: A Colorado Geological Survey Report (included in the Exponent report) shows detailed mapping of bedrock and major faults. Exponent Maps in Appendix. 37 were used to construct site specific map and cross-section profiles. With respect to using conservative values, Seegmiller adds 5 pounds per cubic foot to all soil material results from Exponent Report thereby increasing the mass of the modeled material analyzed. This increased mass makes the material more likely to move as it effectively increases the force that the resistant forces (from friction and cohesion) must withstand to prevent failure. In other words the increased mass effectively reduces the Factor of Safety and provides a conservative approach to analyzing slope stability. Rock properties were taken from site specific data as well as "Seegmiller's 40 years of experience" in Seegmiller Report.

The pseudo-static seismic factor was set at 0.030g for the slope stability analysis in Exhibit 6.5. This one-half peak ground acceleration approach is commonly used by the mining industry and was employed for the Pikeview reclamation project. This procedure is based on work by Hynes-Griffin and Franklin (1984). Their guidelines specify that the seismic factor of safety should be greater than 1.0, and the Pikeview seismic factors of safety all exceed 1.3.

2. Reclamation Concerns

A. Performance Concerns

Reclamation Timing - Will reclamation stall for a long period or is there a commitment by Castle to complete the work within a specific timeframe? Multiple requests for commitments and guarantees.

Pursuant to C.R.S. § 34-32.5-117(1) A permit shall not be issued under this article until the board receives the performance and financial warranties, and (2) A "performance warranty" is a written promise made by the Operator to the Board to comply with all requirements of the Act and Rules and with all terms of the Reclamation Permit, including any Amendments to the Permit. The performance warranty obligation of the Operator shall continue until the Operator's liability is released by the Board. Furthermore, pursuant to C.R.S. § 34-32.5-116(4)(q)(I), all reclamation requirements shall be carried to completion with reasonable diligence and conducted concurrently with mining operations to the extent practicable, taking into consideration the mining plan, safety, economics, the availability of equipment and material, and other site-specific conditions relevant and unique to the affected land and the post-mining land use. Upon completion of each phase of mining and, in accordance with the reclamation plan, final reclamation of each phase shall be completed prior to the expiration of five years after the date the Operator advises the Board in an annual report that such phase of mining has been completed, unless such period is extended by the Board pursuant to C.R.S. § 34-32.5-112.

The Division has reviewed the proposed reclamation plan and reclamation time tables provide in Exhibit D. CMC has indicated potential contractors for the work believe it will take two years to complete the backfill, leaving three years to establish vegetation. CMC has committed to placing topsoil on the lower portions of the completed backfill, then seeding and planting these lower areas as backfill operations continue up the slope, thereby providing as much as four and a half years for vegetation establishment on the lowest portion of the slope. The Division holds the requisite performance warranty for the Pikeview Quarry and will require a newly signed performance warranty upon approval of amendment 4.

B. Vegetation Concerns

How long will Castle use the weed control program? The middle section reclamation between 7,540 and 7250 has only pinon junipers? Why limited variety, almost like a monoculture. The operator should commit to a standard of 30 trees per acre on acreage planted to trees and designate the number of acres that will be planted with trees. Have the operator commit to a Pinyon Pine and Juniper tree planting survival number per acre and designate the acres planted to trees on a map. Will tree planting be followed by an initial watering to saturate the roots?

Pursuant to Rule 3.1.10(6) – Methods of weed control shall be employed for all prohibited noxious weed species, and whenever invasion of a reclaimed area by other weed species seriously threatens the continued development of the desired vegetation. Weed control methods shall also be used whenever the inhabitation of the reclaimed area by weeds threaten further spread of serious weed pests to nearby areas; and Rule 4.17.2(5) – Where the Office finds that a Permittee has successfully complied with the requirements of the Act, Rules and Regulations, and the approved reclamation plan, the Office shall release all applicable performance and financial warranties. Therefore, the Division requires the weed control program be implemented until release of the reclamation liability by the Division.
Pursuant to C.R.S. § 34-32.5-116(4)(f) – In those areas where revegetation is part of the reclamation plan, land shall be revegetated so that a diverse, effective, and long-lasting vegetative cover is established that is capable of self-regeneration and is at least equal, with respect to the extent of cover, to the natural vegetation of the surrounding area. The revegetation plan in Exhibit E proposes a diverse selection of grasses, forbs, shrubs, and trees that vary by elevation, including the following:

- 32.18 acres of an equal mix of Douglas Fir and Ponderosa Pine above 7450 ft with a 70% survival rate of 30 trees per acre, and a mixture of 20 grasses and forbs;
- 37.52 acres of an equal mix of Pinyon pine and Juniper between 7450 and 7250 ft with a 70% survival rate of 30 trees per acre, and a mixture of 12 grasses, forbs and shrubs;
- 69.40 acres of a Gambel's Oak-Mt. Mahogany mix is proposed on the lower slopes of the reclaimed area, below 7250 ft.

Tree survival criteria are also presented in Exhibit E in the adequacy review revision submitted to the Division February 7, 2020. Finally, CMC's proposed reclamation plan and the Division's reclamation cost estimate includes watering the planted trees. The Division found the Applicant provided all information required for a Reclamation Plan in accordance with Rule 3.1.10 and Rule 6.4.5 to describe how affected lands will be revegetated to establish a diverse, effective, and long-lasting vegetative cover.

C. Concerns related to Topsoil Quality and Care

Provide details of maximum thickness of stockpiles, steepest slopes and seed mixtures, rates, timing of seeding, etc. How will Castle guarantee topsoil which will be clean, weed free and have sufficient nutrients to sustain reclamation growth?

Pursuant to C.R.S. § 34-32.5-116(4)(g) and Rule 3.1.9(1) – Where it is necessary to remove overburden in order to mine the construction material, topsoil shall be removed and segregated from other spoil. If such topsoil is not replaced on a backfill area within a time short enough to avoid deterioration of the topsoil, vegetative cover or other means shall be employed so that the topsoil is protected from erosion, remains free of any contamination by toxic or acid-forming material, and is in a usable condition for reclamation. CMC's Exhibit E states approximately half the required 112,000 CY of topsoil are in stockpiles onsite. The remaining 56,000 CY will be imported or mixed onsite with available soil and organic matter. The imported topsoil will continue to be imported from offsite projects, and soil identified as suitable for use as topsoil will be stockpiled separately from other imported soils. The Division's reclamation cost estimate includes costs to have topsoil delivered to the site from a local supplier at $20/CY. Table E-3 provides a seed mix for topsoil stockpiles that will not be used for an extended period of time. The location of current topsoil stockpile locations and the proposed new topsoil stockpile(s) can be found on Exhibit C-1. Should weeds become an issue, CMC's weed control plan will be implemented. Each load of imported topsoil will be screened visually before it enters the site. Rejected loads will not be allowed to enter or dump material on the property. Exhibit E has been revised to state "The growth media will primarily be tested for nutrients. The growth medium will also be tested using planters to demonstrate that it will sustain grasses and/or trees. Based on the results of the trials, CMC may amend the growth media mixture with DRMS approval". The Division found the Applicant provided all information required for a Reclamation Plan in accordance with Rule 3.1.9 and Rule 6.4.5 to ensure topsoil is removed, segregated, preserved, and replaced in a manner which is best able to support vegetation.

D. Borrow Area Reclamation Concerns

Castle needs to describe the planned final configuration and reclamation details for the areas from which material is taken to fill the quarry. Will undisturbed areas of the site be graded to "borrow" material for the fill? If so, the Amendment doesn't identify those areas. How will those areas be reclaimed? No cross sections or calculations are offered to demonstrate there is enough material in this area to complete reclamation.

Pursuant to C.R.S. § 34-32.5-116(4)(j), and Rule 3.1.5(3) – All surface areas of the affected land shall be stabilized and protected so as to effectively control erosion. Exhibits F-1 and F-2 show revegetation areas, a grading plan and seed mix for all affected areas. The cost estimate for AM-04 includes $4,283,630 to excavate 2,602,892 cubic yards of materials from borrow locations within the permitted area. The borrow locations consist of unaffected areas or areas where fill has been placed or mine facilities have been constructed. The Division has added a three percent contingency to the reclamation cost estimate in part to account for modifications to the method for extracting borrow materials, which may result from variations in the properties of the borrow material. The Division found the Applicant provided all information required for a Reclamation Plan in accordance with Rule 6.4.9 to ensure borrow areas are reclaimed and returned to a beneficial post-mining land use.

3. Stormwater Concerns

A. Eroding Topsoil Concerns on Steep Slopes

Have the operator propose specific steep slope erosion control and stabilization measures. Protect the newly placed and reclaimed steeper than 2.5H:1V slopes. The steep slopes for the upper fill areas are 2.0 - 2.5H:1V, prone to sliding and erosion. How will they be engineered? Will it be stable and remain that way as grasses take root?

Pursuant to C.R.S. § 34-32.5-116(4)(j), and Rule 3.1.5(3) – All surface areas of the affected land shall be stabilized and protected so as to effectively control erosion. Currently, there are four sediment ponds capturing eroded soils from disturbed areas. These four ponds were inspected by the Division in December 2019 and found to be in compliance. CMC plans to hydroseed slopes with a tackifier to help stabilize the soil while vegetation is getting established. Steep slopes will be protected using erosion control blankets. Both methods are included in the Division's reclamation cost estimate. The Division found the Applicant provided all information required for a Reclamation Plan in accordance with Rule 3.1.9(5) to ensure the Operator takes measures necessary to assure the stability of replaced topsoil on graded slopes.

B. Concerns related to Hydrologic Analyses and Hydraulic Design

Have the operator supply plans and specific designs for the upland drainage control ditch. Have the operator provide designs for a formal surface water run-on interceptor ditch located above the quarry highwall. Have the operator submit a map that indicates clearly Time of Concentration Flow Paths. Have the operator specify where the "Long-term, small depressions along the eastern boundary of the mine ... " will be located on the Reclamation Plan or Exhibit G-1 Map. Will CDRMS review the water calculations and model runs and share the results with the public? Stormwater control facilities need to be engineered and maintained. Have the operator figure out where water from the drainage basin north of North Peak goes and specify plans for how to handle this water. Clarify and locate french drains. The water management plan and Sedcad runs may need to be rerun after placement of a top of quarry highwall run-on control ditch.

Pursuant to C.R.S. § 34-32.5-116(4)(h), and Rule 3.1.6(1) – Disturbances to the prevailing hydrologic balance of the affected land and of the surrounding area and to the quality and quantity of water in surface and groundwater systems, both during and after the mining operation and during reclamation, shall be minimized. During the adequacy review process, several revisions have been made to the stormwater control plan including more detailed channel designs for terrace, interceptor (run-on) and cross channels in response to detailed review comments posed by the Division engineering staff on both the hydrologic analysis (SEDCAD model) and the hydraulic design (SEDCAD tools) of the various channels. Riprap sizing calculations are included in Exhibit G. The scale for Exhibit G-1 was increased to better delineate various channel locations, the French drain locations, and times of concentration flow paths. References to maintenance free stormwater facilities were eliminated, as were the planned use of various small depressions. Stormwater will be managed in channels designed to convey the runoff expected from the 24-hour, 100-year recurrence interval storm, and not by access roads. The stormwater runoff from the "drainage basin north of North Peak" is picked up by the WS5 channel shown on Exhibit G-1 and continues southeast through channels labeled WS10 and WS11. The Division found the Applicant

provided all information required for a Reclamation Plan in accordance with Rule 3.1.6 and Rule 6.4.7 to ensure disturbances to the prevailing hydrologic balance of the affected land of the surrounding area are minimized and to ensure runoff from disturbed areas will be managed to protect against pollution of either surface or groundwater.

4. Reclamation Cost Estimate Concerns

A. Questions and Comments related to the Bond Estimate

What will the cost be for fill imported from offsite? Castle should recalculate all bond quantities, detail all assumptions, and share the worksheets. Possible math error in import fill. Exhibit L costs are general, simplistic, undetailed and appear incomplete. A minimum of 113,100 LCY of topsoil will be needed to ensure a 0.5 foot thick lift of topsoil. Have the operator include plans and costs for surface water control structures removal upon final reclamation. Reclamation plan details that the vast majority of topsoil will be "donated". What does this mean and how does Castle know it will find sufficient donors with acceptable topsoil?

Pursuant to Rule 6.4.12(1) – All information necessary to calculate the costs of reclamation must be submitted and broken down into the various major phases of reclamation. The information provided by the Operator/Applicant must be sufficient to calculate the cost of reclamation that would be incurred by the state. The information provided in adequacy responses related to Exhibits C, D, E, F and L have been sufficient to allow the Division to generate a reclamation cost estimate. The existing sediment ponds are included in the 139-acre affected area boundary as lower borrow area in Exhibits F-1 and -2. As such the embankments are part of the borrow material and will be removed upon reclamation.

The asserted minimum 113,100 LCY of topsoil needed to ensure a 0.5 foot thick lift of topsoil was obtained assuming a 20 percent “shrinkage” of the material when placed. In accordance with Rule 6.4.5, Operators are encouraged to allow flexibility in their plans by committing themselves to ranges of numbers (e.g. 6” to 12” of topsoil) rather than specific figures. The required volume of topsoil was calculated in a manner that was consistent with the methods used during the review of the original permit application and the subsequent amendment applications.

The Division cannot rely on topsoil donations to ensure adequate topsoil for reclamation. As such, the Division’s reclamation cost estimate includes the cost to purchase topsoil that is not on site. The Division found the Applicant provided all information required to calculate the costs of the reclamation in accordance with Rule 6.4.12.

5. General Clarification Comments

A. Drawing Scale

Amendment lacks legible plans and illustrations large enough to easily review

Pursuant to C.R.S. § 34-32.5-112(3)(d), and Rule 6.2.1(2)(e) – maps shall be prepared at a scale that is appropriate to clearly show all elements that are required to be delineated by the Act and Rules. The acceptable range of map scales shall not be larger than 1 inch = 50 feet nor smaller than 1 inch = 660 feet. Drawings in Exhibits C, F and G have been resubmitted using a larger scale, greatly improving the readability of the drawings. The Division found that all maps provided by the Applicant meet the scale requirements of C.R.S. § 34-32.5-112(3)(d), and Rule 6.2.1(2)(e).

B. Tree Exclusion

Why are there no trees below 7250'?

Revegetation, requirements are primarily found at C.R.S. § 34-32.5-116(4)(f), and Rule 3.1.10(1) – in those areas where revegetation is part of the Reclamation Plan, land shall be revegetated in such a way as to establish a diverse, effective, and long-lasting vegetative cover that is capable of self-regeneration without continued dependence on irrigation, soil amendments or fertilizer, and is at least equal in extent of cover to the natural vegetation of the surrounding area. Except for certain post mining land uses approved by the Board or Office, the use of species native to the region shall be emphasized. The goal of reclamation is to develop a beneficial post-mine land use with an erosionally and geotechnically stable land form, not restoration of the affected area to pre-mining conditions. Additionally, pursuant to Rule 3.1.10(4), the revegetation plan shall provide for the greatest probability of success in plant establishment and vegetation development by considering environmental factors such as seasonal patterns of precipitation, temperature and wind; soil texture and fertility; slope stability; and direction of slope faces. Similar attention shall be given to biological factors such as proper inoculation of legume seed, appropriate seeding and transplanting practices, care of forest planting stock, and restriction of grazing during initial establishment. Therefore, limiting the revegetation to species established in the surrounding undisturbed areas may not include the best choices for successful revegetation of the approved post-mining land use. Finally, CMC cites existing vegetation, mapped by USDA for their revegetation plan mimicking the existing vegetation with trees at the higher elevations, shrubs in the middle and lower elevations. The Division found the revegetation plan supports the post-mining land use and provides for the greatest probability of success in plant establishment in accordance with Rule 3.1.10.

Division's Recommendation

On March 6, 2020, the Division determined the 112c permit amendment application (AM-04) for the Pikeview Quarry, File No. M-1977-211, satisfied the requirements of C.R.S. § 34-32.5-115(4), and issued its recommendation to approve the amendment application over an objection.