

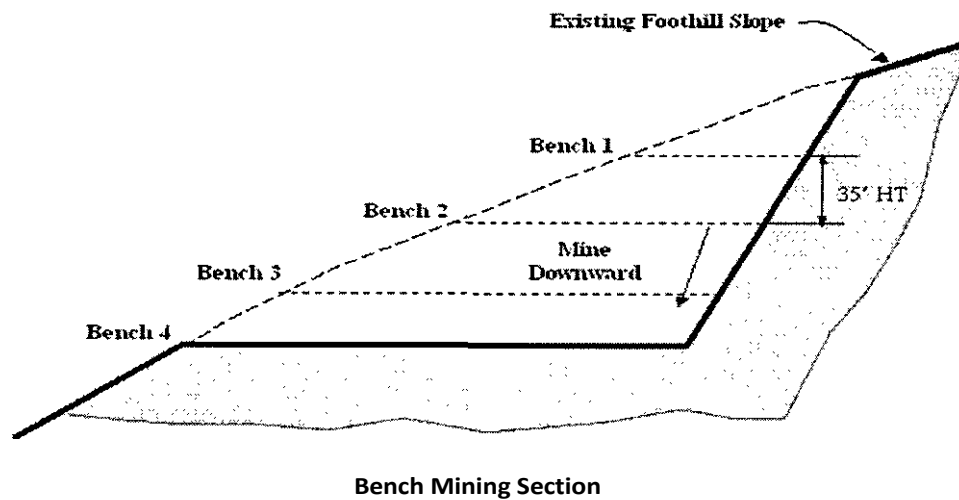
**Specification Aggregates Quarry Amendment**  
**EXHIBIT D (Rule 6.4.4) Mining Plan**

The original mining permit application, the 2003 amendment and this amendment all propose surface mining of quarried crystalline rock at the Specification Aggregates Quarry. The additional 64.13 acres that will be added to the southern end of this permit include 48.01 acres of mining area and 16.12 acres of buffer along the outer perimeter. No mining will occur in the buffer area per agreement with Jefferson County. Final reclamation will include a water storage reservoir and open space-based recreation amenity for the surrounding Jefferson County community.

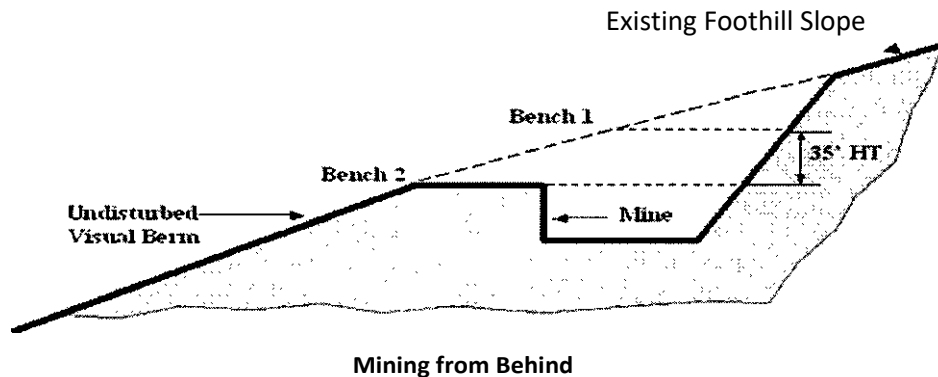
The basic mining operation method to be employed will involve reduction of the natural surface elevation by open-pit mining extraction of crystalline rock within the mining boundary, less the required setbacks per the Colorado Division of Reclamation, Mining and Safety ("DRMS") rules. Reduction of the natural surface elevation will be accomplished by removing the crystalline rock in benches (layers) that vary between 20 and 50 feet in height, generally averaging 35-50 feet in height, until the ultimate lowest proposed level of the quarry is reached at the 5,400-foot elevation. As each layer of rock is removed, highwalls and benches are created. All of the highwall bench vertical faces will be limited to maximum slopes of 80 degrees for production benches and 88 degrees for final benches. Production benches with a minimum width of 35 feet will intersect the face of the highwall. Final benches will have a minimum width of 30 feet. The production benches will be spaced at an average of every 35-50 feet in elevation and reclamation benches will be spaced at 35 to 50 feet, except that the two uppermost reclamation benches shall not exceed 20 feet in height.

The open-pit mining operation will employ conventional mining equipment comprised of blast hole drills, rubber-tired front-end loaders, off-highway mining trucks, a motor grader, and a bulldozer. The normal mining cycle will involve drilling a series of blast holes, loading the blast holes with explosives, blasting, loading the broken (blasted) material in the off-highway mining trucks, delivering the material to the primary crusher for size reduction and then completing the process of making the various products through a series of screens and secondary crushing operations. All of these operations are carried out in compliance with the applicable mining laws and regulations.

The mining of the area added by this amendment will occur in a similar manner to present mining methods. For instance, the mining will start at the uppermost bench in the mining area and proceed downward in a stair-step manner. Each production step or bench is approximately 35-50 feet high. The bottom of each bench is a horizontal plane and the mining proceeds outward until all the rock is removed. Then a new 35-50-foot deep cut is made and the excavation again proceeds outward. Therefore, the mining stair steps down the slope until the quarry floor is reached.



As part of the Agreement with Jefferson County Open Space that governs the land exchange associated with the southern portion of the expanded area, Martin Marietta will continue the specialized type of open-pit mining that has been termed "mining from behind" and has been in use at the quarry for much of its operational life. The "mining from behind" technique has our operation making a 35-50 foot deep production bench cut at the base of the previous bench and maintaining the outer edge of the bench undisturbed. As mining progresses, the undisturbed edge of the bench remains intact until the bench is completely mined. This undisturbed bench berm is an important visual barrier and helps shield our operation from view. The following section depicts how the mining moves outward and is screened from view.



All phases of the mining operation, including drilling, blasting, explosive storage, loading, hauling, processing, stockpiling, and weighing shall be conducted in accordance with the regulations of various governmental agencies including, but not limited to, the Colorado Treasury Department, DRMS, Colorado Department of Public Health and Environment

("CDPHE"), Jefferson County and the City of Golden.

Mining in the amendment area will begin once all required permit approvals are obtained. Mining in the amendment area will occur concurrently with continued mining in the current permit area.

#### **MINING OPERATION REGULATIONS:**

Mining operation regulations are essential operating guidelines required to avoid unreasonable degradation or pollution of surface and subsurface water supplies, and to minimize slope hazards associated with the highwall, erosion, fugitive dust, airborne noise, and seismic disturbances from blasting.

##### **Bench Design:**

Each production bench will be 35-50 feet in height with a face angle anticipated to be approximately 80 degrees and a width not less than the height of the bench. Temporary safety berms will be constructed parallel to and at the top edge, and ten feet from the base of production benches that are not actively being mined.

##### **Materials Handling:**

Overburden and topsoil will be stripped from areas to be mined by the use of conventional heavy earthmoving equipment. Overburden and topsoil will be placed in stockpiles for use during the reclamation process, or as much as possible, will be used for concurrent reclamation as the mine progresses. Overburden and topsoil stockpiles that will not be used within six months of excavation will be seeded to establish a vegetative cover for stabilization and protection from erosion.

Aggregate materials will be excavated by using explosives to free the rock from the matrix. All explosive work on the site will be performed by a licensed third party. The explosives needed for each blast will be transported to the site immediately before blast holes are loaded and excess explosives will be removed from the site after the ballast holes are loaded. No explosives will be stored on site.

Once the aggregate material is blasted free of the rock matrix, a loader or excavator will be used to handle and load it into off-road dump trucks for transport to the material processing area. Blocks of rock that are too large to process (oversize material) or that will not be used as riprap may be temporarily set aside for mechanical size reduction or use in reclamation. An excavator equipped with a mechanical breaker or other mechanical means may be used as-needed to reduce oversized material to an appropriate size for transport and processing.

##### **Water Quality and Drainage:**

Water quality and drainage during the life of the mine will be monitored and controlled. Off-site sedimentation and surface runoff in excess of the historic flow will be controlled. The

primary runoff control structure for the operation is the Magic Mountain Reservoir. All of the internal drainage eventually finds its way to this structure. Additional sediment ponds exist along the perimeter of the operation.

During the mining operation water may also be collected and stored in the main pit. Impounding water in the main pit was approved in Technical Revision Number 3 to this permit. Martin Marietta also submitted the approval letter of November 15, 2018 from the Colorado Division of Water Resources demonstrating that the main pit has, *“achieved the design standard for ground water seepage for lined reservoirs in accordance with the 1999 SEO Guidelines.”* Water Court Decree 2013CW3053, a copy of which was submitted to the Division on March 12, 2018, approves the storage of water in the main pit and the operation of an augmentation plan to replace depletions from quarry operations.

The Main Pit collects surface water that may in turn be pumped to the Magic Mountain reservoir. Any sediments in runoff collected in the main pit will have time to settle prior to the water being pumped to Magic Mountain Reservoir. Potential sedimentation that may occur around the perimeter of the mine is controlled by a series of sedimentation and settling ponds. The sedimentation and settling ponds are cleaned on an as needed basis in order to ensure that they are performing properly. This area of the operation falls under the regulations of the CDPHE Water Quality Control Division. CDPHE regulations require a Stormwater Management Plan. The control structures and the stormwater management plan are reviewed on a regular basis.

**Erosion:**

Erosion is minimized by the mining procedures of the operator in accordance with the rules and regulations of DRMS. Exposed rock faces and surface occurring in this mining operation are not subject to an extensive amount of wind or water erosion. No particular emphasis on erosion control has been required beyond normal mining practices.

**Fugitive Dust:**

Fugitive dust is controlled by a variety of procedures. The entrance and exit roads have been paved. Other surfaces that are subject to traffic are regularly treated with water to control traffic-created fugitive dust. Transfer points within the process plant are equipped with spray bars, and the material is sprayed with water that causes the dust to adhere to the larger particles. In addition, during periods of high velocity winds, portions of the operation are shutdown for dust control. The CDPHE Air Pollution Control Commission regularly monitors the mine for compliance with dust emission regulations. The specific requirements of our air quality permit can be reviewed at the Air Quality Control Division offices. Our air quality permit number is 99JE0689.

**Airborne Noise and Seismic Disturbances:**

Airborne noise and seismic disturbances from blasting are controlled by limiting the quantity of explosives detonated for each blasting cap or fuse delay period in each shot or blast so that the following blasting standards are met:

The 1973 Colorado School of Mines Ad Hoc Committee on Blasting's recommendation of:

1. A maximum peak particle velocity at any occupied residential dwelling of 0.5 inch/second.
2. A maximum peak particle velocity of 2.0 inch/second at any public, instructional, or commercial building.

Prior to any blast at the quarry, quarry management notifies the Golden Police Department and Golden Fire Department.

Martin Marietta commissioned a Blast Impact Analysis by Vibra-Tech Engineers in April 2021 that concluded: *"The analysis has shown that based upon the ground vibration and air overpressure levels that were recorded in 2020, if those blasts were migrated to the closest point on the mining extraction boundary, the ground vibration and air overpressure levels would meet the criteria discussed in this report. Predicted ground vibration levels were found to be at 0.18 in./sec or lower which is 36% of the allowable limit at 0.5 in/sec. Average air overpressure levels were found to be below 0.005157 psi (125 dB) which is 39.8% of the allowable limit of 0.01295 psi (133 dB). In our opinion, Martin Marietta can blast in the proposed extraction area to the south of the current Spec Agg quarry with no adverse effect on surrounding structures and residents from ground or air vibrations."*

The Blast Impact Analysis is appended to Exhibit 6.5 of this permit application.

**Haulage:**

Site ingress and egress is by two roads that intersect with U.S. Highway 40 (Colfax Avenue). The entrance serves as an entrance to all traffic and is a two-way access road for light vehicles. The exit road located just south of the entrance road is a one-way exit and is required to be used by all of the trucks hauling material from the mine. The exit enters onto U.S. Highway 40 by means of an acceleration lane.