

SUMMARY RESPONSE TO COMMENTS AND QUESTIONS

**South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management
Division of Mining and Solid Waste Management**

**Approval of Mine Operating Permit I-002335
Luck Stone Corporation
Enoree Development Site Quarry
October 29, 2021**

This Summary Report outlines specific issues, within the jurisdiction of the South Carolina Department of Health and Environmental Control (DHEC), considered in review of the application submitted for the proposed Enoree Development Site Quarry on Highway 92 in Spartanburg County. This Summary Report is being provided to address many of the issues raised by DHEC's Public Notice initiated on May 13, 2021 and the Public Hearing held on September 02, 2021. This Summary Report is specific to DHEC's technical review for the Mine Operating Permit under the authority of the South Carolina Mining Act (Act).

In order to construct and operate the Enoree Development Site Quarry and its associated process equipment, a National Pollutant Discharge Elimination System (NPDES) Permit, a Synthetic Minor Air Construction Permit, and a Mine Operating Permit are required by state law. The Synthetic Minor Air Construction Permit was issued by DHEC on October 29, 2021. An NPDES Permit is currently under review and must be issued before any water can be discharged offsite. DHEC accepted comments on the application package following the public hearing through September 17, 2021. The approved mine permit, maps, reclamation plan, and this Summary Report are available on DHEC's website at www.scdhec.gov/publicnotices.

General overview: DHEC's Mining and Solid Waste Division has approved the mine operating permit after careful review of all information submitted by the applicant, as well as all comments received from governmental agencies and interested persons. The permit will require the mine operator to comply with the South Carolina Mining Act and the South Carolina Code of Regulations.

The South Carolina Mining Act: The legislative purpose of the Act is to provide that: (1) the usefulness, productivity, and scenic value of all lands and waters involved in mining within the state receive the greatest practical degree of protection and restoration; and that (2) no mining may be carried on in the state unless plans for the mining include reasonable provisions for protection of the surrounding environment and for reclamation of the area of land affected by mining.

The Act provides specific criteria for review of mine permit applications by DHEC. The Act does not supersede local zoning ordinances. Issues related to zoning (i.e., property value and industrial development) are under the jurisdiction of county and municipal planning departments and governed by zoning and land use regulations. DHEC has not been given the authority to consider the effect of a mining operation on property values. DHEC is required to evaluate the application in a timely manner and to consider relevant environmental issues.

Application for the Mine Operating Permit: DHEC received the Application for a Mine Operating Permit from Luck Stone Corporation for the proposed Enoree Development Site Quarry on April 08, 2021. An *Intent to Mine* notice was published in *The Spartanburg Herald Journal* newspaper on May 13, 2021 and May 20, 2021. The notice was mailed to adjacent landowners,

government and regulatory agencies, and other interested parties.

In response to the Intent to Mine notice, DHEC received multiple requests to hold a public hearing. DHEC acknowledged that a public hearing would be held at a later date and that notice of the hearing would be provided at least thirty (30) days prior to the hearing date. DHEC requested supplemental information from the applicant.

A public hearing was held by DHEC on September 02, 2021. The *Notice of Public Hearing* was mailed to interested parties on August 03, 2021. The *Notice of Public Hearing* was published in *The Spartanburg Herald Journal* newspaper on August 03, 2021 and August 10, 2021. The comment period was extended through **September 17, 2021**.

Permit Application Specifications: Luck Stone Corporation is permitted to mine gneiss. The permitted area of this mine operation is composed of three tracts of land totaling 542.9 acres (Spartanburg County TMS # 4-50-00-007.00, 4-55-00-076.00, and 4-55-00-077.00). The current topography of the permitted area is approximately 530-650ft above mean sea level (msl). The operation is permitted to excavate to a maximum depth of +80ft msl or approximately 560ft below ground surface (measured from the original ground surface elevation to final elevation at that location).

Land within a mine operating permit is designated according to the permitted use (*Affected acres, Future Reserves, and Buffer Areas*). The **542.9 acre Permitted area** is composed of *Affected acres, Future Reserves, and Buffer Areas*. The following list provides an area description, type of activities, and designated acreage for each component of the Permitted area, if approved:

1) **Affected Area – 255.8 acres.** The affected area comprises all lands to be disturbed by mining activities (pit, sediment basins, haul roads, berms, processing area, overburden storage piles, etc.). Of the 255.8 affected acres, 159.3 **acres are currently bonded and may be affected**. The affected area is subject to reclamation requirements.

2) **Future Reserves – 182.5 acres.** Prior to the initiation of activity in future reserves, the operator shall submit detailed mine and reclamation plans to DHEC for approval.

3) **Buffer area – 104.6 acres.** Buffer is land not to be disturbed by mine activity. Buffers are used to lessen potential effects to surrounding land (setbacks to property boundaries, public roads, wetlands, wildlife, etc.). Any land disturbance not consistent with accepted silviculture practices in the buffer areas would require the Mine Operating Permit to be modified *prior* to any such disturbance. Appropriate silviculture practices may be utilized to manage upland buffer areas allowing the thinning of timber under the direction of a SC Licensed Professional Forester.

Mine Reclamation: The Act defines reclamation as the reasonable rehabilitation of affected land (mined or otherwise disturbed) to a useful purpose and the protection of natural resources in surrounding areas. The Act does not require the land disturbed by mining to be returned to its original state. Reclamation of the mine to a specific land use is based on many factors; including, but not limited to: the method of mining, the material mined, the geology and topography of the area, size, surrounding land uses, and the desired use for the former mine site. Lakes or ponds, grassland, woodland, cropland, parks or recreational developments, or residential or commercial developments may be acceptable reclamation objectives.

Luck Stone Corporation is currently permitted to affect 255.8 acres. A reclamation bond totaling \$869,396.00 has been submitted based on the requirements of the Act (Section 48-20-110) and

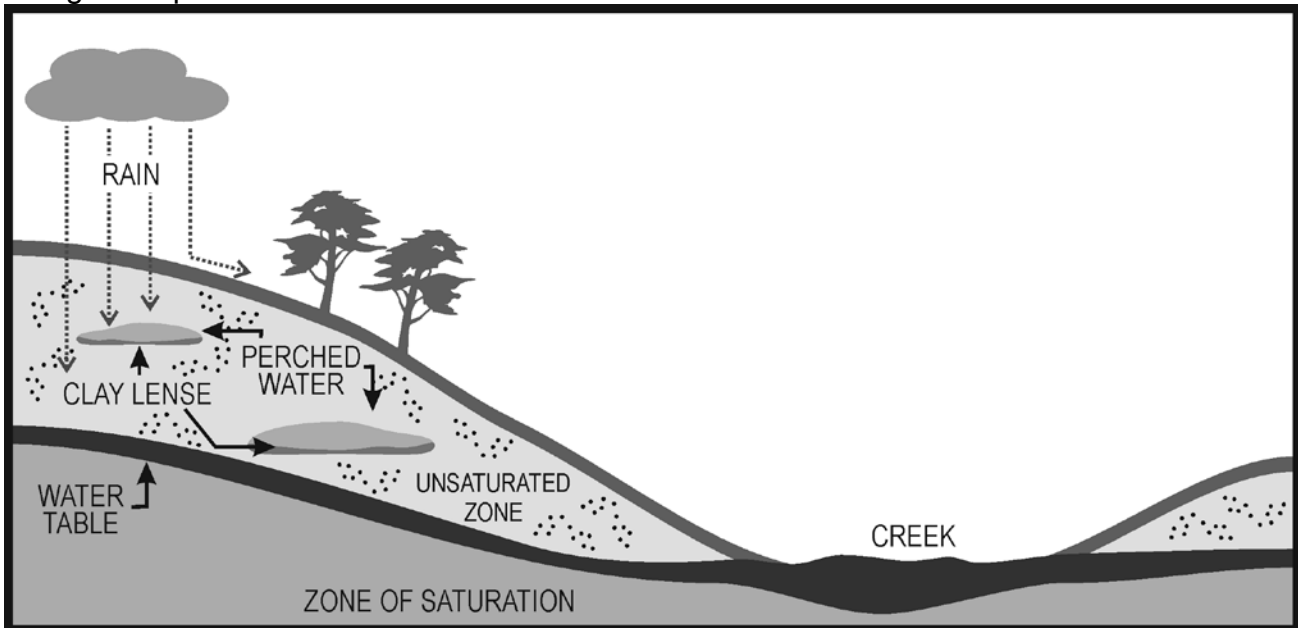
Regulations (R.89-200). The reclamation bond will remain in effect with DHEC until the mine site has been reclaimed to regulatory standards and released. Reclamation bonds are in place to ensure proper reclamation of disturbed areas (it does not serve as financial assurance for potential off-site impacts).

The approved reclamation plan states the site will be reclaimed to a pond and grasslands. Final pond slopes above the waterline will be graded to no steeper than a 3H:1V gradient and the pond will have a depth greater than 4ft on, at least, 50% of the water surface. Other disturbed areas (e.g., plant, processing area, overburden areas) will be graded and vegetated as grassland. Once all mining has ended and the site meets reclamation standards, the mining permit would be canceled; at that time the Mining & Reclamation Program has no further jurisdiction over land use.

Groundwater:

Groundwater is water that collects or flows below the soil surface. The main source for groundwater is rainfall. Runoff from rainwater can go directly into water bodies or seeps into the ground. When water soaks (infiltrates) into the ground, gravity pulls the water down through the spaces between the soil particles and rocks until it reaches a depth where all of the spaces are filled with water, or saturated. The water level where the soils are saturated is called the water table. The area above the water table is called the unsaturated zone, the area below the water table is the saturated zone.

As shown in the following diagram, the water table is not always at the same depth below the land surface - the level moves up or down depending on rainfall and the rate water is removed (e.g., irrigation, industry, well). The unsaturated zone may contain pockets (lenses) of tightly bound clayey soils that do not allow the water to infiltrate. In this situation, the water will collect (perch) on the top of these impermeable lenses. This is "perched water" and is not the true water table along the top of the saturated zone.



Groundwater Availability: DHEC considers the potential effects of mining activities on the quantity of groundwater available to nearby water supply wells and lakes/ponds. The pumping of water from the water table is expected at the Enoree Development Site Quarry. A groundwater model was produced for this site from S&ME, Inc, an environmental consulting firm. The model predicts that five (5) water supply wells in the area may experience between 10ft and 50ft of groundwater

drawdown. The competency of the bedrock will limit the lateral extent of the cone of depression, narrowing the area of influence. Given the depth of these wells (180ft – 325ft), it is not anticipated that the pumping of water from the Enoree Development Site Quarry will have a significant impact on the quantity of water in nearby wells.

In order for DHEC to monitor potential impacts to groundwater, the operator is required to install a minimum of twelve (12) groundwater monitoring wells around the site, as depicted in the Groundwater Monitoring Plan. These wells will be measured monthly for groundwater levels, and reported to DHEC quarterly. These data will allow DHEC to determine if the quarry is a probable cause for well dewatering.

If a water supply well complaint is received, DHEC is responsible for determining if dewatering activities at the mine have caused the problem. If DHEC determines the mine caused the problem, the operator is responsible for repairing, deepening, or re-drilling the affected well(s) to restore groundwater availability. Until such time as a determination is made, the operator is responsible for providing the affected household with a reasonable supply of potable and non-potable water.

Other concerns regarding groundwater contamination were received. This site is primarily a mechanized operation; chemicals are not used to process the material through the crushers, sorters, or screens. The Mine Operating Permit requires the operator to establish a protected area and/or procedures to minimize fuel spillage or incidental spillage of other petroleum products. This may include building a secondary or tertiary storage container, pouring a concrete refueling/maintenance pad, and performing routine maintenance on equipment to prevent spillage. Any contaminated materials resulting from contact with petroleum products will be removed from the site and properly disposed of to prevent contamination to ground- or surface water resources.

Surface Water:

Discharge Monitoring and Sediment Control: The Enoree Development Site Quarry is permitted to discharge wastewater and stormwater through outfall 001 in accordance with the *NPDES General Permit for Discharges Associated with Nonmetal Mineral Mining Facilities (SCG731###)*. All discharges will be routed south to the Enoree River via Hannah Creek. Discharges from the outfall will be subject to numeric effluent limits (total suspended solids and pH) and other permit requirements that are protective of human health and the environment.

The operator has indicated that during future operations water from the processing plant will be routed in a closed circuit system through the collection pond where the clean water is then recycled for use in the processing plant. Under normal rainfall conditions, this closed circuit system will operate without discharging into waters of the state. However, in extreme or prolonged rainfall events, there is a potential for the water volume to exceed the capacity of the wash circuit system. Under these circumstances any excess water may be discharged into waters of the state through the regulated outfall 001.

The primary control for sediment will be to contain the stormwater (runoff from rainfall) from the excavated area in the pit. This water will be conveyed to a sediment basin designed to allow the sediment to settle out of the stormwater prior to being discharged. The NPDES permit requires the operator to have proper Best Management Practices (BMPs) and a Stormwater Pollution Prevention Plan (SWPPP) in place. Furthermore, the operator shall operate the quarry in accordance with the *Erosion and Sediment Control Plan – Initial Phase* (Rev. 1 dated April 06, 2021) and the approved mine maps.

The NPDES general permit requires that stormwater outfalls have appropriate BMP's to minimize the discharge of pollutants. The permit also requires benchmark monitoring of stormwater discharges. Benchmark monitoring involves collecting a quarterly sample during the first 30 minutes of the stormwater discharge and analyzing it for Total Suspended Solids. If the average of the four quarterly benchmark samples is greater than 100 mg/l Total Suspended Solids, then the operator must either improve their BMP's or document that it is not feasible to improve their BMP's. If the average of the four quarterly benchmark samples is less than 100 mg/l Total Suspended Solids, benchmark sampling is no longer required during this permit term for that outfall.

Noise: The majority of noise generated with mining activity is associated with motorized vehicles and equipment. The level of noise perceived at residences is usually related to the distance from the source of the sound, weather conditions, topography, and the type and condition of the equipment. Equipment such as trucks, dozers, and loaders usually has an average noise level determined by the manufacturer. The majority of the equipment averages 75 to 90 decibels (db) at a distance of fifty feet. Sound decreases (attenuates) with distance at the rate of about 3 to 5 db each time the distance between the source and the person hearing it is doubled.

Another factor used to buffer noise is topography. Overburden will be used to construct berms to block the direct path of sound; these berms will be built to the west, south, and east of the pit and process plant areas. The mine operating permit would require the operator to maintain equipment (e.g., mufflers on trucks, trackhoes, pumps) to minimize noise from the site.

The combination of undisturbed vegetated buffers, earthen berms, maintenance of equipment, and distance from the operation will consequently reduce the potential for sound heard offsite. There may be instances when the sound of equipment (back up alarms, trucks, etc.) can be heard, but the decibel levels should not be excessive.

Although no government standards exist for noise emitted from this type of industry, the Mine Safety & Health Administration (MSHA) does have noise standards applicable for worker safety to protect hearing. Therefore noise, limited at the source to protect workers, has the added benefit of limiting noise beyond the permit area. Additionally, the operator must comply with any local (county or municipal) noise ordinance(s); however, it is up to that local authority to enforce their own ordinances.

Traffic: A common concern expressed is the increase of truck traffic hauling mined material. The SC Mining Act only authorizes DHEC to regulate truck traffic on roads inside the permit boundary. DHEC can only evaluate impacts to public roads as it pertains to the physical effects from the mining operation (e.g. blasting, undermining, etc.). Other concerns with road systems, including use of the roads, are under the jurisdiction of S.C. Department of Transportation (SCDOT), S.C. Public Service Commission or Spartanburg County Department of Public Works. Although DHEC does not have the authority to address truck traffic beyond the site boundary, Luck Stone is aware of this concern and has indicated in its permit application that the entry/exit to the quarry will be located on Highway 92.

Another concern received was accessing the mine site via Highway 92. Alternative access was considered, specifically using Hannah Creek Road to access I-26 via Exit 38. A Spartanburg County ordinance (Section 3.09A.3.) states "Mining Operations shall not be located on Minor Streets." This ordinance precludes the operator from using any of the adjacent roads other than Highway 92.

AIR QUALITY

Dust: Fugitive dust emissions from the proposed mining activities has been a concern with this proposed quarry. The operator is required to obtain an Air Synthetic Minor Construction Permit from DHEC's Bureau of Air Quality. This permit is designed to regulate dust emissions from the operation so they are safe for nearby residents and the environment. More information can be found in the Bureau of Air Quality's Summary Response to Comments.

Additionally, the Mine Operating Permit also requires the operator to minimize or eliminate fugitive dust emissions. Sources of dust include: moving equipment, handling of the mineral resource and overburden, truck traffic, and wind erosion.

At active sites, the major contributors of dust are equipment and truck traffic. Properly constructed access roads with dust suppression methods (e.g., water trucks, sprinklers) is the most effective way to manage dust from traffic. Luck Stone Corporation will use a watering truck. The frequency of watering will depend on weather conditions and volume of traffic.

Wind erosion of areas stripped of vegetation and material stockpiles are also sources for potential dust. The proposed operational plan for the site involves phased mining - overburden will be stripped from the areas to be mined first and soil stabilization measures installed as soon as practical. The combination of minimizing land disturbance and re-vegetation will lessen the potential for windblown dust.

Health Risks with Dust Exposure: Health risks are mitigated by controlling the dust at the source. Source control measures include best management practices, such as water trucks, dust suppressants, sprinklers, etc.

MSHA is responsible for protecting the health of workers at mine operations. As part of their duties, MSHA monitors exposure of workers to dust. Results from monitoring show the risk is greatest within work environments involving processing (crushing/grinding) and operating equipment. If a problem concerning overexposure exists, MSHA would require the company install some type of engineering control to eliminate the concern at the source.

Meeting MSHA requirements to control dust in the immediate work area will further minimize any exposure risk outside the permitted area. No elevated exposure risk is anticipated from the mine beyond the property line.

We are exposed on a daily basis to dust from non-industrial sources such as dirt roads, fields, and bare lots. Although the proposed sand mining operation does not add any new hazards, engineering and administrative controls have been designed to minimize the production of airborne dust. Based on the proposed controls at the mine (natural buffers, distance from property lines, controls on the haul road), an increase in the exposure to silica or other materials beyond the property line is not anticipated.

Information on air monitoring in South Carolina is available on DHEC's Bureau of Air Quality website at <http://www.scdhec.gov/HomeAndEnvironment/Air/AmbientAir/>.

Blasting: The Enoree Development Site Quarry is permitted to blast, regulated by R.89-150. This regulation limits blasting to 1,000ft from any residential structure (built at the time of application submittal) and to 250ft from the permit boundary, whichever is more restrictive. Additionally, this

regulation limits the intensity from blasts to less than 1.0 inch per second (ips) peak particle velocity. It is generally considered that any ground vibration less than 2.0ips is safe for structures and will not cause damage to homes, but the state of South Carolina limits ground vibration to less than 1.0ips for an additional measure of safety. It has been observed that people can feel vibrations as little as 0.03ips, so blasts may still be felt by residents in the area, but that doesn't mean the structure is being damaged.

Another concern that DHEC received was about the potential for the explosives to contaminate groundwater sources. The operator's blasting consultant uses a water insoluble emulsion, which does not allow for nitrates to leach into groundwater. Additionally, the blast is loaded and shot on the same day, greatly limiting the amount of exposure the emulsion has with the environment. The emulsion is consumed in the blast and no longer available to potentially contaminate the groundwater.

Buffers: The operator is required to maintain a minimum 50ft. undisturbed buffer between any mining activities and the permit boundary and any wetlands or stream channels not mitigated for by the U.S. Army Corps of Engineers (USACE). These areas shall remain undisturbed, but DHEC acknowledges that some maintenance may be required (e.g., removal of dead trees). These activities shall require prior notification and approval by DHEC before any disturbance can take place.

Based on scientific literature cited by DNR (Castelle et al., 1994), a 50-foot wide buffer can be adequate to protect wetlands and streams under most circumstances. Coupled with best management practices to prevent erosion and control sediment transport (e.g., silt fencing, brush barriers), DHEC concludes that the minimum 50ft buffers proposed is sufficient to protect wetlands and streams at this site.

Zoning: Appropriate or compatible land use is determined by local government. DHEC has no authority regarding zoning in Colleton County. Specifically, the S.C. Mining Act states in Section 48-20-250 "*No provision of this chapter supersedes, affects, or prevents the enforcement of a zoning regulation or ordinance within the jurisdiction of an incorporated municipality or county or by an agency or department of this State, except when a provision of the regulation or ordinance is in direct conflict with this chapter.*"

Endangered or Threatened Species: The S. C. Department of Natural Resources (DNR) provided comments that did not indicate threatened or endangered species are within the project area. Similarly, U.S. Fish and Wildlife was also requested to comment on this application and did not state any concerns over threaten or endangered species.

Utility Lines/Rights of Way: A gas pipeline is located on the property, protected by a 50ft undisturbed vegetative buffer. The utility company, Berkshire Hathaway's Utility Group, has reviewed the application materials and offered no objection to the proposed mine plans unless blasting occurs within 2,000ft of the gas line. The permit is conditioned that any blasting closer than 2,000ft would require the approval of the utility company.

Community/Quality of Life: Comments were received regarding the potential impacts of the proposed mine on the local community's way of life. DHEC is required to make its permit decision based only on technical review of the permit application and the Act and Regulations in place at the time of DHEC's review.

Life of Mine: Another concern DHEC received regarded the proposed life of mine. South

Carolina Mining Act Section 48-20-60 states, “An operating permit must be granted and remain valid unless the operating permit terminates as set forth in this chapter or until revoked by the department under the provisions of Section 48-20-160.” Therefore, DHEC does not have the authority to limit the life of the mine by imposing an expiration date.

Reclamation Bond: All permitted mine sites are required to post financial assurance for reclamation. Luck Stone Corporation has submitted the appropriate financial assurance for this operation and it will remain in effect until DHEC determines their final reclamation has met minimum standards and the permit is cancelled.

Misc. Concerns: DHEC also received a general list of concerns with no explanation or reasoning behind those concerns, which DHEC will address in this section.

The operator will employ BMPs as described in the Sediment and Erosion Control Plan submitted with this application, and any other BMPs DHEC requires to meet minimum state standards to prevent or minimize any offsite erosion.

Sinkholes are features of a karst topography, which is dominated by a limestone bedrock. The material mined at this site—gneiss—does not typically result in the development of sinkholes.

The affected acreage of this site is only 255.8ac, most of which is cultivated fields or recently timbered woodlands. Therefore, deforestation of the remaining area is not considered to significantly impact the area around this site.

Acid mine drainage occurs in areas of high pyritic material, where iron sulfide oxidizes with water and oxygen to produce lower pH. The gneiss at this site does not contain appreciable amounts of iron sulfide, therefore it is not expected that acid mine drainage would occur.

General Opposition: DHEC received several comments requesting denial of a permit. While DHEC appreciates all comments received, it is important to recognize that we do not have the authority to make permitting decisions based on community, business, employee, or customer approval or disapproval of a proposed operation. DHEC is required by law to make a decision based only on the technical review of an application and the regulatory requirements in place at the time of that review. In 48-20-70 of the Act, DHEC is required to grant an operating permit to the applicant if there are no technical reasons to deny the permit.