dhec	**Mining Form MR-500**	**S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL BUREAU OF LAND AND WASTE MANAGEMENT DIVISION OF MINING AND SOLID WASTE PERMITTING 2600 BULL STREET, COLUMBIA, SC 29201 PHONE:803-898-1362 FAX: 803-4-898-1426 EMAIL: AskMines@dhec.sc.gov**

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
DIVISION OF MINING AND SOLID WASTE PERMITTING
2600 Bull Street; Columbia, SC 29201

R E C L A M A T I O N P L A N

FORM MR-500 DATE VERSION ADOPTED: 7/1/94

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As required in Section 48-20-90 of the South Carolina Mining Act, "An operator shall submit with his application for an operating permit a proposed reclamation plan. The reclamation plan for an operating permit only must be furnished to the local soil and water conservation district in which the mining operation is to be conducted. The plan must include as a minimum each of the elements specified in the definition of 'reclamation plan' in Section 48-20-40 and information required by the department. The reclamation plan must provide that reclamation activities, particularly those relating to control of erosion, to the extent feasible, must be conducted simultaneously with mining operations and be initiated at the earliest practicable time after completion or termination of mining on a segment of the permitted land. The plan must provide that reclamation activities must be completed within two years after completion or termination of mining on each segment of the area for which an operation permit is requested unless a longer period specifically is permitted by the department."

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I. APPLICANT INFORMATION

1. Name of Company: Luck Stone Corporation

2. Name of Proposed Mine: Fairfield I-77 County: Fairfield

3. Home Office Address: 515 Stone Mill Dr.; P.O. Box 29682 804-784-6300

Richmond VA 23242 804-784-6390
(Street **and** P.O. Box) (Telephone No.)

4. Local Office Address: Not established
(Street **and** P.O. Box) (Telephone No.)

(City) (State) (Zip Code) (Fax. No.)

5. Designate to which office Official Mail is to be sent:

Home Office: x Local Office:

6. Name of company personnel and their title to be the contact for official business and correspondence: Chuck Stilson, PE Mining Engineering Manager

II. ENVIRONMENTAL PROTECTION

1. Describe practices to protect adjacent resources such as roads, wildlife areas, woodland, cropland and others during mining and reclamation.

The mine permit area is located in a rural area with land cover consisting of hardwood and pine forests for managed timber. Of the permitted land, 79.4 acres will be undisturbed buffer to provide additional protections to adjacent properties, creeks and other sensitive areas. Currently, the only agricultural related resource are pine plantations adjacent the permit area. The nearest public road, SC Hwy 34, is approximately 250 feet south of the mine permit area. Based on a survey, there are no endangered species or sensitive habitats on-site that would be potentially affected by mining and reclamation.

2. Describe proposed methods to limit significant adverse effects on adjacent surface water and groundwater resources.

Proper reclamation of the mine site will include stabilizing all overburden storage piles with vegetation, removal of mine equipment both mobile and stationary, clean-up of any spillage of petroleum products, and removal of scrap material. Once mining is terminated, groundwater levels will rebound to approximate original levels. The mining process will not use chemicals in the mining or processing of crushed stone; consequently, there is no potential for chemical contamination to groundwater resources. Additionally, vegetative filters of existing vegetation will provide redundancy to active sediment control measures to further protect adjacent surface water resources.

3. Describe proposed methods to limit significant adverse effects on known significant cultural or historic sites within the proposed permitted area.

S&ME conducted a reconnaissance level archaeological survey on the mine permit area consisting of 416.8 acres, with TMS#s 166-00-00-018-000, 116-00-00-028-00 and 116-00-00-030-000. The results of the survey are provided in the *Cultural Resources Reconnaissance Survey, Fairfield I-77 Development Site, Fairfield County, South Carolina* being submitted with the application in Appendix E. Four archaeological sites (38FA666 through 38FA669), one isolated find (1F-1), five above ground resources (SHPO Survey Numbers 0108 through 0112), and one cemetery (38FA670/SHPO Survey No. 0113) were identified and recorded. The four archaeological sites and one isolated find are located within the mine permit area. The five above ground resources and cemetery are located outside the mine permit area. All sites are not eligible for listing in the National Register of Historic Places (NRHP) and no further investigations are recommended. The concurrence letter from SC Department of Archives and History's State Historic Preservation Office (SHPO) for these recommendations will be provided to DHEC upon receipt from SHPO.

4. Describe method to prevent or eliminate conditions that could be hazardous to animal or fish life in or adjacent to the permitted area.

Proper reclamation of the mine site will include stabilizing all overburden storage piles with vegetation, removal of mine equipment both mobile and stationary, clean up of any spillage of petroleum products, and removal of scrap material. Setbacks, established buffers and soil stabilization along stream banks will provide protection to fisheries in nearby streams. Establishing 3:1 slopes around the pit and overburden storage areas will remove hazardous conditions for the public and indigenous animal populations. On final reclamation, a fence or other suitable and approved barrier around the pit will be constructed. The 79.4 acres of undisturbed buffer will provide for wildlife corridors and natural habitat.

Vegetative filters will be established consisting of existing woodlands to provide redundant sediment control to protect wetlands and adjacent properties from mining activities.

5. Describe how applicant will comply with State air quality and water quality standards as established by the S.C. Department of Health and Environmental Control.

To operate the mine and processing plant, the mine operator will obtain the Air Quality Construction Permit and the Air Quality Operating Permit. These permits set the quantity of air particulates that can be emitted to be protective of air quality standards.

With the termination of mining all mobile mine equipment and processing plant equipment will be removed from site. Once the process plant equipment is removed from site, the Air Quality Operating Permit can be terminated. Stone stockpiles, fines and barren soils, (potential sources of dust after mining), will be either removed (stone stockpiles) or stabilized with vegetation to eliminate windblown dust.

Discharges from the quarry will qualify for the *NPDES General Permit for Discharges Associated with Nonmetal Mineral Mining Facilities*. These standards are set to be protective of aquatic life and human health and safety. Prior to discharge in to waters of the State, stormwater and groundwater will be treated by appropriated sized and designed sediment basins. Upon final reclamation, vegetation will be established to control erosion and protect water quality.

III. RECLAMATION OF AFFECTED AREA

6. State useful purpose(s) the affected land is being proposed to be reclaimed to. More than one purpose may be checked, but information should be submitted to support the feasibility for each proposed purpose.

a. Lake or pond____x_____	f. **Grassland**____x_____
b. Agriculture_____	**g. Recreation**_____
c. Woodlands_____	**h. Wetlands**_____
d. Residential_____	**i. Park**_____
e. Commercial____x_____	**j. Other**_____

7. State the final maximum surface gradient(s) (slope) in soil, sand, or other unconsolidated materials on reclaimed land. Surface gradients steeper than 3H:1V (18 degrees or 33 percent) may be required to submit geotechnical data and studies to demonstrate that the steeper slopes will remain stable following final reclamation.

The final maximum surface gradient for slopes in overburden storage areas and slopes in overburden in the pit will be 3:1.

8. How will the final slopes in unconsolidated material be accomplished? If the slope will be by backfilling, demonstrate that there is adequate material to accomplish the stated final gradient. If gradient is to be achieved by bring in material from outside the permitted area, state the nature of the material and approximate quantities. If the gradient is to be achieved by grading, show that there is adequate area for grading to achieve gradient (ie. adequate distance between the property line and edge of highwall). Operator should show calculations or other appropriate information to demonstrate that there is adequate materials in backfilling and grading to meet the requirements for final slope.

The overburden stripped to expose granite will be placed in overburden storage areas or earthen berms. The final overburden slope around the pit perimeter will be cut slopes at a 3:1 grade for stability and safety. Backfilling is not necessary within the pit to achieve final 3:1 slopes.

9. Describe the plan for revegetation or other surface treatment of affected area(s). The revegetation plan shall include but not be limited to the following: (a) planned soil test; (b) site preparation and fertilization; (c) seed or plant selection; (d) rate of seeding or amount of planting per acre; (e) maintenance.

Soil test, seed bed preparation, seed mix selection, soil amendments (fertilizer, lime, growth stimulants, etc.), cover and seeding rates will be based upon SC DOT's *Supplemental Technical Specification (SC-M-810-2(04/11)) for Seeding*.

Revegetated sites will be maintained with periodic inspections to detect areas with significant erosion, seed germination failure or significant plant die off. Site will be inspected after significant storm events to detect wash outs or gullies in planted areas. Damaged areas will be repaired where necessary by fixing erosion damage and reseeding as necessary.

10. Provide, as a separate document, a closure plan of the mine and permitted facilities to prevent a release of contaminants from being harmful to the environment. A closure plan is not necessary for all mines, but is required where the possibility exist for (a) acid rock drainage; (b) where the National Pollutant Discharge Elimination Systems (NPDES) Permit have discharge limitation parameters other than pH and Total Suspended Solids (TSS); (c) chemically treated tailings or stockpiles (excludes fertilizer or lime for revegetation purposes).

Reclamation for the pit will not require a closure plan. A) The granite does not oxidize to form acid and thus, create acid mine conditions. B) This mine qualifies for coverage under the *NPDES General Permit for Discharges*

Associated with Nonmetal Mineral Mining Facilities (SG-730000) with no additional parameters other than pH and TSS. C) No chemicals will be used in the mining process.

11. Method of control of contaminants and disposal of mine waste soil, rock, mineral, scrap, tailings, slimes, and other material directly connected with the mining, cleaning, and preparation of mineral substances mined and includes all waste materials deposited on or in the permit area from any source.

Fines created from processing granite are not "clay slime"; thus, they will not create an unstable sediment mass in settling ponds. These fines, that are chemically inert, will accumulate in the clarification ponds of the wash circuit and periodically removed and either sold as a co-product or placed in overburden storage that will be reclaimed.

12. Method of reclaiming settling and/or sediment ponds.

Any process ponds associated with the process plant will be backfilled to original grade, topsoiled and revegetated.

13. Describe method of restoration or establishment of stream channels, stream banks and site drainage to a condition minimizing erosion, siltation and other pollution.

Impact to streams will be permitted and mitigate under the Corps of Engineers permit. Stream crossings will utilize bottomless culverts that do not place fill in jurisdictional tributaries and do not require permitting by the Corps.

14. What are the maintenance plans to insure that the reclamation practices established on the affected land will not deteriorate before released by the Department?

Areas that have undergone final reclamation practices will be maintained through periodic inspections and conducting any necessary repairs in a timely manner.

15. For final reclamation, submit information about practices to provide for safety to persons and to adjoining property in all excavations. Identify areas of potential danger (vertical walls, unstable slopes, unstable surface on clay slimes, etc.) and provide appropriate safety provisions. These provisions can include but are not limited to setbacks, fencing, signs, benching, guardrails and boulders.

Prior to commencing final reclamation activities, the operator intends to conduct both market, community, and zoning investigations to determine the best and proper utilization for post mine development. By example, this may include uses such as parks & community space, agricultural/timber, commercial ventures, or residential uses. Upon determination, any plans shall incorporate all necessary activities associated with necessary and responsible bonded reclamation requirements. This shall include continued focus to provide safety to persons and adjoining areas. The outer perimeter of the reclaimed pit will be secured by fencing or other approved and appropriate security practice. The following mine segments will be reclaimed to provide safety to persons and adjoining areas.

Highwalls -- The relative shallow overburden will be sloped to a 3:1 gradient around the pit perimeter. Due to the sloped overburden and water filled pit, exposure of rock highwalls will be limited.

Unstable Slopes -- All overburden storage areas will be sloped to 3h:1v gradient and vegetated. Soils placed to a 3:1 gradient are stable and are not prone to landslides.

16. What provisions will be taken to prevent noxious, odious, or foul pools of water from collecting and remaining on the mined area? For mines to be reclaimed as lakes or ponds, provide supporting information that a minimum water depth of four (4) feet on at least fifty percent (50%) of the pond surface area can be maintained.

The final pit will be reclaimed as a lake and will meet the above referenced regulatory requirement for sufficient depth. Areas of the affected land not reclaimed to ponds will be properly graded to prevent unwanted pools of water from collecting and prevent foul water from forming.

17. Identify any structures (e.g. buildings, roads) that are proposed to remain as part of final reclamation. Provide justification for leaving any structures.

The office building and other support buildings may be left upon final reclamation future tenants on the property can use the facilities. Also, some of the haul roads may be left to provide access to the property. All areas will be sloped and stabilized to prevent erosion and control sediment.

18. Attach <u>two (2)</u> copies of a map of the area (referred to as the RECLAMATION MAP) that shows the reclamation practices and conservation practices to be implemented. The following should be shown:

A. The outline of the proposed final limits of the excavation, during the number of years for which the permit is requested.

B. The approximate final surface gradient(s) and contour(s) of the area to be reclaimed. This would include the sides and bottoms of mines reclaimed of ponds and lakes.

C. The outline of the tailings disposal area.

D. The outline of disposal areas for spoil and refuse (exclusive of tailings ponds).

E. The approximate location of the mean shore line of any impoundment or water body and inlet and/or outlet structures which will remain upon final reclamation.

F. The approximate locations of access roads, haul roads, ramps or buildings which will remain upon final reclamation.

G. The approximate locations of various vegetative treatments.

H. The proposed locations of re-established streams, ditches or drainage channels to provide for site drainage.

I. The proposed locations of diversions, terraces, silt fences, brush barriers or other Best Management Practices to be used for preventing or controlling erosion and off-site siltation.

J. Proposed locations of the measures to provide safety to persons and adjoining property.

K. Segments of the mine that can be mined and reclaimed as an ongoing basis.

L. The boundaries of the permitted area.

M. The boundaries of the affected area for the anticipated life of the mine.

N. The boundaries of the 100-year floodplain, where appropriate.

O. Identify sections of mine where the final surface gradient will be achieved by grading and/or backfilling.

P. A legend showing the name of the applicant, the name of the proposed mine, the north arrow, the county, the scale, the date of preparation and the name and title of the person who prepared the map.

THE REQUIRED RECLAMATION MAP SHALL HAVE A NEAT, LEGIBLE APPEARANCE AND BE OF SUFFICIENT SCALE TO CLEARLY SHOW THE REQUIRED INFORMATION LISTED ABOVE. THE BASE FOR THE MAP SHALL BE EITHER A SPECIALLY PREPARED LINE DRAWING, AERIAL PHOTOGRAPH, ENLARGED USGS TOPOGRAPHIC MAP OR A RECENTLY PREPARED PLAT. RECLAMATION MAP SHOULD BE THE SAME SCALE USED FOR THE SITE MAP.

IV. SCHEDULE FOR IMPLEMENTATION OF CONSERVATION AND RECLAMATION PRACTICES

19. As stated in Section 48-20-90 of the S.C. Mining Act, reclamation activities, to the extent feasible, must be conducted simultaneously with mining operations. Identify which areas or segments of the mine are <u>not</u> feasible to reclaim simultaneously with mining. Provide reasons why reclamation can not proceed simultaneously with mining in these areas.

Not applicable

20. Section 48-20-40(16)(l) of the S.C. Mining Act requires a, "time schedule, including the anticipated years for completion of reclamation by segments". This time schedule should meet the requirements of Section 48-20-90 of the Mining Act.

SCHEDULE FOR IMPLEMENTING CONSERVATION AND RECLAMATION PRACTICES

Conservation & Reclamation Practices	Segment or Area	Planned		*Applied		Notes
		Amount	Year	Amount	Month/Year	
Permit w/Corps permit and mitigate for impacts to wetlands	Pit Phs 1	Less than 0.05 ac	2022			Portions of wetlands JT3 & JT4
Mark wetland & property line buffers along access road	WB-2, WB-3, WB-4, PLB 2, 3 & 5	~22 acs	2022			
Mark wetland buffers and property line buffer along Pit Phase 1	WB-5; PLB-4	~25 acs	2022			
Mark undisturbed property line buffer along south property line	PLB-1 & PLB-6	~10 acs	2022			Prior to construction of access road and office
Construct Sediment Basins and associated diversion channels	Initial Process Plant, Ph 1 Pit	~7 acs	2023			P-SB-1; P-SB-2; NE-SB-4; P-SB-3;
Mark wetland buffers for NE Ovbn	WB-6, WB-7 & WB-8	~10 acs	2022			Prior to Sed basins construct in NE Overburden Storage
Construct Sediment Basins and associated diversion channels	NE Ovbn	12.0 asc	2023			NE-SB-1; NE-SB-2; NE-SB-3
Deploy silt fencing and/or other sediment control BMPs	Where necessary	Varies	2023			
Prior to mining, jurisdictional wetlands & tribs will be permitted by the Corps of Engineers	Pit Phs 2 & 3	TBD	TBD			Portion of JT-5, JT-5A, JT-6, JT-7. JW-C, JW-D, JT-10
Route stormwater into pit	Pit Phases 1, 2 & 3	Varies	All times			Where feasible
Development of overburden storage – grading to 3:1 slopes and revegetating	NE Ovbn Storage	37.9 acs				During Phase 1 Pit development Reclamation continuous
Slope overburden to 3:1 slope along terminal pit wall and revegetate	Phase 1 Pit	~10 acs	TBD			When and where feasible
Construct Sediment Basins and diversions	West Ovbn Storage	3.1 acs	TBD			W-SB-1
Development of overburden storage – grading to 3:1 slopes and revegetating	West Ovbn Storage	11.3 asc	TBD			Reclamation continuous where feasible
Stream crossing will use bottomless culverts to avoid fill in tributaries	JT-16, JT-12 & JT-8					Requires no Corps permitting
Seed & fertilize as necessary in areas above the planned ultimate pool level lake surface water	Final Pit	As needed	End of mining			Final Reclamation
Construction perimeter fence around final pit	Final Pit	TBD	End of mining			Final Reclamation
Remove mine equipment, process plant equipment, and stone stockpiles	All areas	TBD	TBD			At end of mining and final reclamation

AA – Affected Area; BMPs – Best Management Practices; Fert. – Fertilize; PL – Property Line; SB – Sediment Basin; ST – Sediment Traps SW – Stormwater; TS – Topsoil; WL – Wetlands;

NOTE: The year and amount for deployment of conservation & reclamation practices are estimates and subject to change depending on market conditions and rate of mining.

* Completed by the Department

YOU ARE NOTIFIED THAT:

1) you, the operator, must file an application to modify the reclamation plan in the event actual reclamation varies from the set forth hereinabove, and

2) if at any time it appears to the Department that the activities under the reclamation plan are failing to achieve the purposes and requirements of the S.C. Mining Act, the Department may modify the RECLAMATION PLAN in accordance to Section 48-20-150.

B E Thompson

Signature of Applicant/Operator or his Authorized Representative

BENJAMIN A. THOMPSON

Printed Name of Applicant/Operator or his Authorized Representative

DIR., LAND & DEV.

Title

3/16/21

Date

Department Use Only

Permit No._____ Date Application Approved _____ Date Bond Rec'd_____

Bond Amount_____ Blanket or Single Bond Permit Issuance Date_____

ACTION TAKEN ON THIS RECLAMATION PLAN

_____ Approved _____ Denied _____ Approved with Additional Terms and Conditions

By:_____
SECTION MANAGER

Date:_____