

CEDAR LAKE MINING, INC.

BULL GAP MINE, P-3960

ALABAMA SURFACE MINING COMMISSION

SURFACE MINING PERMIT APPLICATION

PART IV

RECLAMATION PLAN

Prepared by:

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IV. RECLAMATION PLAN

A. **Postmining Land Use.**

- 1) Describe the proposed post-mining land use(s) for the permit area. If more than one land use is proposed, show on a map and give acreage for each use. Include comments from the legal owner of record concerning the proposed land use. (780.23, 816.133)

<u>Increment</u>	<u>Area</u>	<u>Land Use</u>
1	116.0 Acres	Undeveloped/No Current Use
2	90.0 Acres	Undeveloped/No Current Use
3	151.0 Acres	Undeveloped/No Current Use
4	101.0 Acres	Undeveloped/No Current Use
5	49.0 Acres	Undeveloped/No Current Use
6	26.0 Acres	Undeveloped/No Current Use
7	17.0 Acres	Undeveloped/No Current Use
Total	550.0 Acres	

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2) Is the proposed land use different from the current land use? (780.23, 816.133)

() Yes (X) No

If yes, complete the following:

(a) Is the area zoned for the proposed land use?

() Yes () No (X) N/A

(b) Is the proposed use compatible with adjacent land uses and applicable local and state land use policies?

(X) Yes () No

(c) Explain the feasibility of the proposed land use as related to land use trends, and explain how the land will be developed, achieved and sustained.

See Attached [Land Use Letters](#).

(d) Include letters of commitment from outside parties ensuring the provision of any necessary public facilities and any state and local government agencies which have to initiate, implement, approve or authorize the proposed land use.

See Attached [Land Use Letters](#).

(e) Enclose design plans for the proposed post-mining land use, if applicable.

NOT APPLICABLE

IV. RECLAMATION PLAN

B. **Grading and Contouring**

- 1) Enclose detailed plans with appropriate cross sections or maps. (780.18(b)(3&4))

See Attached [Permit Map](#), [Reclamation Cross-Section A-A'](#), [Reclamation Cross-Section B-B'](#), [Reclamation Cross-Section C-C'](#) and [Reclamation Cross-Section D-D'](#).

- 2) Complete the following timetable: [780.18(b)(1)]

Increment	# of months after operation begins	% of increment or permit which will be graded and contoured
1	6.0 months	0%
	9.0 months	25%
	12.0 months	50%
	15.0 months	75%
	18.0 months	100%

Increment	# of months after operation begins	% of increment or permit which will be graded and contoured
2	18.0 months	0%
	21.0 months	25%
	24.0 months	50%
	27.0 months	75%
	30.0 months	100%

Increment	# of months after operation begins	% of increment or permit which will be graded and contoured
3	24.0 months	0%
	27.0 months	25%
	30.0 months	50%
	33.0 months	75%
	36.0 months	100%

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B. Grading and Contouring (Cont'd)

2) Complete the following timetable: [780.18(b)(1)]

Increment	# of months after operation begins	% of increment or permit which will be graded and contoured
4	36.0 months	0%
	39.0 months	25%
	42.0 months	50%
	45.0 months	75%
	48.0 months	100%

Increment	# of months after operation begins	% of increment or permit which will be graded and contoured
5	9.0 months	0%
	12.0 months	25%
	15.0 months	50%
	18.0 months	75%
	21.0 months	100%

Increment	# of months after operation begins	% of increment or permit which will be graded and contoured
6	24.0 months	0%
	27.0 months	25%
	30.0 months	50%
	33.0 months	75%
	36.0 months	100%

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B. Grading and Contouring (Cont'd)

2) Complete the following timetable: [780.18(b)(1)]

Increment	# of months after operation begins	% of increment or permit which will be graded and contoured
7	3.0 months	0%
	6.0 months	25%
	9.0 months	50%
	12.0 months	75%
	15.0 months	100%
	18.0 months	100%

NOTE: Grading and contouring overburden of each mining increment shall follow coal removal by no more than 180 days.

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B. **Grading and Contouring** (Cont'd)

3) On appropriate map(s), show representative values for the following:
[780.18(b)(3), 816.102]

(a) Percent of slope before mining; and

Increment No. 1

Average Slope - 16.3%
Maximum Slope - 30.92%

Increment No. 2

Average Slope - 13.4%
Maximum Slope - 20.49%

Increment No. 3

Average Slope - 10.4%
Maximum Slope - 20.74%

Increment No. 4

Average Slope - 11.7%
Maximum Slope - 19.02%

Increment No. 5

N/A - To be used as off-site spoil placement area and reclaimed per 880-X-8J-.03.

Increment No. 6

N/A - To be used as off-site spoil placement area and reclaimed per 880-X-8J-.03.

IV. RECLAMATION PLAN

B. Grading and Contouring (Cont'd)

3) On appropriate map(s), show representative values for the following:
[780.18(b)(3), 816.102]

(b) Proposed post-mining slope including slope of the highwall(s) in percent.

Increment No. 1 - 16.0%

Increment No. 2 - 16.0%

Increment No. 3 - 15.0%

Increment No. 4 - 15.0%

Increment No. 5 - N/A

Final Highwall Slope - 10.0%

4) Complete the following:

(a) Is the mining operation to be conducted on a pre-existing (prior to August 3, 1977) highwall?

() Yes () No

(b) Is the operation of such limited slope as to not generate enough material to completely backfill the re-affected or enlarged highwall?

() Yes () No

If yes, provide analysis to show maximum extent of backfilling possible.

See Overburden Restablization Plan and [Typical Open Cut Fill](#) detail.

OVERBURDEN RESTABLIZATION PLAN

Overburden shall be backfilled, completed and graded so that the post-mining slope shall approximate the original pre-mine slope of 16.3% for Increment No. 1, 13.4% for Increment No. 3, 10.4% for Increment No. 3 and 11.7% for Increment No. 4. Increments No. 5 and No. 6 are designated as off-site spoil placement areas per Section 880-X-8J-.03, Rules of Alabama Surface Mining Commission. Increments No. 5 and No. 6 will be designed as non-bonded spoil placement areas which will be utilized to reclaim mine pits and highwalls where no minable coal deposits are available for mining due to past surface and underground mining operations.

Per the requirements of Section 880-X-8J-.03(4) the following items have been addressed:

- (a) The exact location and area of the abandoned lands relative to proposed permit P-3960 are depicted as Increments No. 5 (49.0 acres) and Increment No. 6 (26.0 acres). See [Permit Map](#).
- (b) Description of Existing Conditions of the Abandoned Lands:

The proposed Bull Gap Mine is located on the Raccoon Mountain section of Blount Mountain and is underlain by the Pottsville Formation of Pennsylvanian age of the Plateau coal field. The main geologic structural feature that has impacted past and future surface coal mining operations at this site is the Blount Mountain Syncline. This structure is basically a canoe shaped trough three (3) to six (6) miles in width between the southwest to northeast trending escarpments of Blount Mountain. This structure has been tipped along the same trends of the Blount Mountain Syncline with its southeastern side elevated approximately two hundred (200) feet above its north-western side and dips to the northwest along its limb and southwest along its axis up to a local down-trending hinge fault approximately perpendicular to its axis and commencing at 33°59'40.20"N, 86°21'40.31"W approximately 365 feet due west of Basin 001P.

The elevation low point on the northwest side of the site along with the erosional actions of Hale Creek have exposed outcrops of the Underwood Coal Seam. Due to the seam thickness and excellent chemical properties of the seam, this site was conducive to underground mining and operations at this site were referenced as early as 1870 and continued up until the mid 1960's. Surface mining operations were commenced in the late 1950's and several operations have been conducted on all three (3) existing coal seams. These coal seams from top to bottom respectively are the Upper Bynum, Lower Bynum and the Underwood seams. All three seams have been extensively mined and the operations proposed for this permit will re-mine previously surface mined sites.

Large scale contour mining operations were conducted on the Underwood seam from the late 1950's up to approximately 1974. These operations mined coal left as barrier pillars from the old underground mining operations. These barriers left coal deposits from the outcrop back to where roof conditions allowed for efficient underground mining operations. Surface mining operations were conducted from these crop areas back to the point underground works were encountered or the depth of overburden prohibited cost efficient mining. As per standard procedure during pre-law mining, minimal site reclamation was conducted and has resulted in the entire proposed permit area to be encircled with open, abandoned mine pits. Several different area surface mining operations have been conducted on the Upper and Lower Bynum seams with varying stages of reclamation and these areas will be remined where conditions permit.

In addition to the major geologic site features, several local faults have resulted in areas where no underground mining operations were conducted. It is these areas that area mining operations on the Underwood seam are proposed by permit P-3960. In other areas, surface mining operations have been conducted up to the existing underground works. The unreclaimed open pits left in these areas, allow surface water to infiltrate the underground works on the high elevation (southeastern) side of the Blount Mountain Syncline and correspondingly allow water from the flooded underground works to escape into the open pits on the low elevation (northwestern) side. Increment No. 5, as shown on the permit map, represents the area on the northwestern side of the syncline that will be reclaimed by the proposed mining operations and where due to the extent of underground mine works and the extent of surface coal mining operations, there is no economically minable coal. Increment No. 6, as shown on the permit map, represents the area on the southeastern side of the syncline that will likewise be reclaimed.

A general description of the open pit areas of both Increment No. 5 and No. 6 would be:

- 1.) High unreclaimed spoil piles on the outcrop side of the pit.
- 2.) An open pit excavated to the bottom of the Underwood Coal Seam where the coal has been removed and the final excavation periodically intersects underground mine works (shafts and/or tunnels) with accumulation of surface water where elevations allow.
- 3.) A pit highwall that varies from approximately ten (10) feet at proposed Basin 010P in the NW/SW, NE/SW, SW/SW and the SE/SW of Section 17, T12S, R3E, to approximately two hundred and thirty (230) feet northeast of proposed Basin 006P in the NW/SE of Section 8, T12S, R3E.

c) Proposed Reclamation Plan:

Mining operations will commence in Increment No. 1 and periodically spoil material will be hauled via rock trucks and will fill the existing open pit in Increment No. 5 starting at the proposed drainage break due north/northeast of Basin 004. Spoil materials will be via constructed primary roads or via ancillary roads constructed on approved increments. Spoils will be hauled to fill up to the top of the existing spoil piles and a diversion will be designed, approved by ASMC, constructed and certified to allow surface drainage to flow to approved sediment basins. When open underground works (shafts and/or tunnels) are encountered, they will be filled with the best on-site clay material and sealed according to [Attachment III-A-6-3](#). Materials will be hauled as mining conditions dictate, but with the depth to be mined to access the Underwood Seam in Increments No. 1 and No. 2, the swell factor of the blasted overburden materials will produce adequate material to fill the open pit areas of Increment No. 5.

After the fill elevations approach the top of the existing spoil piles and the diversion has been established, additional fill will be placed to slope upward and intersect the existing highwall on an approximate four (4) horizontal to one (1) vertical. See [Typical Open Cut Fill](#) for pit fill layout.

The mining method of area mining will be utilized at this proposed mine site. Backfilling, compacting and grading, of the final highwall slope only, will be done using dozers, farm-type tractors will then be used to disc the overburden to its final contour, decrease compaction, and increase the mechanical breakage of the surface layer. The disturbed area, excluding the final highwall slope, will be graded no steeper than the approximate original contour. Rocks 24" in diameter that remain upon the surface, if any, will be collected and buried. At this time the following criteria will be used to evaluate the textural quality of the graded overburden:

- (a) Rocks of a size larger than ten (10) inches shall not exceed ten (10) percent by volume of the substitute material, and no rocks larger than twenty-four (24) inches can be included in the substitute material.
- (b) Rocks between three (3) inches and ten (10) inches in size shall not exceed fifteen (15) percent by volume of the topsoil substitute material.
- (c) The substitute material shall not contain more than fifty (50) percent by volume of materials greater than 0.75 inches in size.
- (d) At least forty (40) percent by volume of the substitute material shall be less than two (2) millimeters in size.

If the above criteria cannot be met, the Applicant shall redisc the overburden and resample. If increasing the mechanical breakage will not enhance the graded overburden to a satisfactory level, additional soil will be hauled and spread on site until the above criteria is achieved.

Stabilization of the final highwall material shall be achieved by the planting of warm or cool season perennials as outlined in Part IV-C-5 of the permit application and as outlined in Section 816.06 if necessary.

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C. **Revegetation**

- 1) Outline procedures for soil testing required to determine type and amount of soil amendments to be applied and to evaluate results of topsoil handling and replacement.

Topsoil or topsoil substitute material will be sampled and sent to Auburn University Soil Testing Laboratory for analyses to determine what is required to maintain and promote vegetative growth.

The soil will be tested for the following chemical parameters: pH, total sulfur, phosphorus, potassium, magnesium, calcium, alkalinity and NO_3N . The physical parameters, percent sand, silt, clay, textural classification and available water capacity. Recommendations for limestone, nitrogen, P_2O_5 and K_2O that will be added to the topsoil or topsoil substitute.

- 2) Are selected overburden materials to be used as a supplement or substitute for topsoil?

() Yes () No

If yes, provide results of analysis, trials and tests required under Section 816.22(e). (779.21)

See [Attachment IV-C-2](#) for Topsoil Variance Proposal.

- 3) Are commercial or introduced species to be used?

() Yes () No

If, yes, give a narrative with supporting references which show that the species meet the requirements of Section 816.112. [780.18, 816.112]

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C. **Revegetation** Cont'd)

4) Is the area to be reclaimed for fish and wildlife habitat?

(X) Yes () No

If yes, list the species of plants to be used with a brief description of how they meet the criteria of Section 816.97(d)(6). [780.18(b)(5 & 6), 816.97(d)(6)].

1. During the reclamation process the disturbed area will be regraded in such a manner as to create numerous small water holding depressions approximately 1/4 acres in size with a maximum depth of 2 feet to enhance the area for fish and wildlife.
2. Various herbaceous species including, but not limited to, Browntop Millet, Kobe and Sericea Lespedeza, Hairy Vetch, Ryegrass and Wheat will be planted in scattered and random locations to provide food and cover for wildlife that will closely resemble pre-mining conditions. These plants will be added in addition to the vegetation proposed in Part IV of this permit application.
3. As determined by the post mining land use, all reclaimed areas greater than fifty (50) acres will be broken up by vegetation to provide maximum variation.
4. Sediment basins will be temporary water impoundments, with appropriate landowner and Regulatory Authority approvals.

The proposed post mining land use for this permit area will be undeveloped/no current land use. In this instance, areas along drainage courses, areas along the permit boundary and areas around the proposed water holding depressions to be left in the regrading process will be planted with trees and shrubs, such as willow, loblolly pine, honey suckle, sawtooth oak, etc., to increase diversity of food and cover for wildlife.

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C. **Revegetation** Cont'd)

- 5) Complete the following schedules for each increment or sub-area of the permit.
[780.18(b)(5)]

VEGETATION SCHEDULE

Increments No. 1 - 7

Temporary Vegetation

<u>Species</u>	<u>Planting Rate</u>	<u>Planting Methods</u>	<u>Planting Dates</u>	<u>Areas to be Planted</u>
Rye Grass	10 Lbs/Acre	Broadcast	Fall	All Disturbed Areas
Browntop Millet	10 Lbs/Acre	Broadcast	Spring	All Disturbed Areas

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C. **Revegetation** Cont'd)

VEGETATION SCHEDULE

Increments No. 1 - 7

Permanent Vegetation

<u>Species</u>	<u>Planting Rate</u>	<u>Planting Methods</u>	<u>Planting Dates</u>	<u>Areas to be Planted</u>
Common Bermuda Grass (Hulled)	10 Lbs/Acre	Broadcast	Spring	All Disturbed Areas
Kobe Lespedeza	30 Lbs/Acre	Broadcast	Spring	All Disturbed Areas
Fescue	50 Lbs/Acre	Broadcast	Spring/Fall	All Disturbed Areas
Serala Sericea	35 Lbs/Acre	Broadcast	Spring/Fall	All Disturbed Areas
Crimson Clover	15 Lbs/Acre	Broadcast	Fall	All Disturbed Areas
Yuche Arrow-Leaf Clover	10 Lbs/Acre	Broadcast	Fall	All Disturbed Areas

NOTE: After grading is completed, planting of the above schedule will begin in the next planting season.

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C. **Revegetation** Cont'd)

- 6) Describe in detail, proposed husbandry practices to be used.
[780.18(b)(5), 805.13(b)(3)]

Husbandry practices will include, but will not be limited to, seeding spot areas to increase cover and the addition of proper nutrients where required to achieve successful vegetation. Suitable mulch shall be used on all regraded and topsoiled areas to control erosion, promote germination of seeds and increase the moisture retention capability of the soil. A minimum of 1 1/2 tons per acre and a maximum of 3 tons per acre of hay will be used as mulch.

- 7) Describe, in detail, the measures and sampling methods to be used to determine and demonstrate the success of revegetation and the productive capacity of reconstructed prime farmland. [780.18, 816.116]

Systematic sampling will be utilized to determine the degree of revegetation success. Site surveys will be conducted and further qualified by aerial photography if required. Sampling of the appropriate area to determine vegetative success will be at a minimum of the one (1) percent level with higher levels utilized if necessary.

Systematic sampling shall consist of randomly selecting one (1) sampling site per five (5) reclaimed acres. Each site shall be located on a topographic map and field traversed (paced with hand-held compass). Samples shall then be taken at each randomly located area.

In addition to the previously listed methods of determining the success of ground cover. "Productivity of Revegetation" will be determined in accordance with the ASMC Technical Manual #1 (Approved Statistical Analysis and Sampling Techniques for Determining Revegetation Success on Surface Mined Lands in Alabama).