

HIGHLAND ENERGY, INC.

NO. 5 MINE, P-3957, REVISION R-9

ALABAMA SURFACE MINING COMMISSION
SURFACE MINING PERMIT APPLICATION

P A R T I I I

Prepared by:

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PART III - OPERATION PLAN

A. General Operation Information

1. Describe the type and method of coal mining procedures and major equipment to be used. (780.11)

Major equipment to be used includes but may not be limited to:

- | | | |
|---------------|---------------------------|------------------|
| - Track-hoes | - Blast hole drill | - Highwall Miner |
| - Rock trucks | - Fuel and Service Trucks | - Auger |
| - Dozers | - Loaders | |

2. Describe the sequence and timing of increments to be mined (as shown on permit map) over the total life of the permit. (780.11)

The timing increments are as follows:

<u>Increment No.</u>	<u>Acres</u>	<u>From</u>	<u>Estimated Life</u>
1	107	Current	Life of Mine
6	6	Current	Life of Mine

The sequence of mining operations will be generally as follows:

- 1) Construction of Sediment Control Structures
- 2) Clearing and grubbing
- 3) Topsoil removal, if required
- 4) Overburden drilling and blasting
- 5) Overburden removal
- 6) Coal Recovery
- 7) Clay Recovery
- 8) Re-grading
- 9) Revegetation

Engineering Plans.

All cross sections, maps and plans related to operations, reclamation and structures must comply with Section 780.10. Plans, appropriate calculation and conclusions shall be presented in a clear and logical sequence and shall take into account all applicable factors necessary to evaluate the proposed plan or design.

1. Existing Structures. (780.12, 786.21)

- (a) Describe each existing structure to be used, its location, current condition, approximate dates of construction and evidence (including relevant monitoring data) showing whether or not the structure meets the performance standards of Subchapter K or Subchapter B, whichever is more stringent and demonstrate whether or not the use of existing structures will pose a significant harm to the environment or public health or safety.

Not Applicable

- (b) If an existing structure requires modification or reconstruction to meet the performance standards, attach a compliance plan that includes design specifications, construction schedule, monitoring procedures, and evidence that the risk of harm to the environment or public health or safety is not significant during modification or reconstruction.

Not Applicable

2. Ponds, impoundments, banks, dams and embankments. (780.25)

- (a) Submit a general plan which complies with Section 780.25 (a)(1) for each proposed sedimentation pond, water impoundment, and coal processing waste bank, dam or embankment to be located within the proposed permit area.

[See Attachment III-B-2-A](#)

- (b) Submit detailed design plans, which comply with Sections 780.25(a)(2)(3) and 816.46, for each sedimentation pond to be constructed on the increment you currently propose to mine. If the sediment pond is to remain as a permanent water impoundment, design plans shall also comply with Section 816.49.

[See Attachment III-B-2-A](#)

- (c) Submit detailed design plans which comply with Sections 780.25(a) (2&3) and 816.49, for each temporary or permanent water impoundment to be constructed on the increment you currently propose to mine.

[See Attachment III-B-2-A](#)

- (d) Submit detailed design plans, which comply with Section 780.25(a) (2&3) and 816.81-816.85, for coal mine waste bank to be constructed on the increment you currently propose to mine.

NA

- (e) Submit detailed plans which comply with Sections 780.25 (a)(2&3) and 816.91-816.93 for each coal mine waste dam and embankment to be constructed on the increment which you currently propose to mine.

NA

GENERAL ENGINEERING PLAN CERTIFICATION STATEMENT

I, Bradley K. Simmons, a registered professional engineer, hereby certify that the information, cross- sections, data, maps, etc., contained in this general plan in Attachment III-B-2-A is true and correct to the best of my knowledge and belief.

Simmons-Johnsey Engineering, LLC

Bradley K. Simmons, P.E.

Alabama Reg. No. 33277

Date

ADDENDUM TO THE GENERAL PLAN

The addendum to the general plan consists of changing Sediment Basin 013 to Final Pit Impoundment No. 13.

Final Pit Impoundment No. 13

Final Pit Impoundment No. 13 is being proposed as an incised impoundment remaining after grading and reclamation was performed along a section of highwall. Due to mining into the northern end of the Basin 013 pool area, the impoundment area created during reclamation extends into the Basin 013 pool area. Therefore, Basin 013 is proposed to be changed to Final Pit Impoundment No. 13. The final reclamation has resulted in a much larger drainage area for Final Pit Impoundment No. 13 (66 Acres) compared to the original drainage area for Basin 013 (18.4 Acres). Final Pit Impoundment No. 13 will utilize the current spillway and embankment of Basin 013. A new design was performed for Final Pit Impoundment No. 13 to address the updated drainage area, hydrology conditions, and stage storage. These design plans show that the existing spillway and embankment are adequate, with no modification required. See attached [Final Pit Impoundment No. 13 Detailed Design Plans](#). It is anticipated that Final Pit Impoundment No. 13 will retain adequate water to qualify as a Permanent Water Impoundment prior to a phase 2 bond release. If it is determined that the impoundment does not contain adequate water prior to a phase 2 bond release, areas of the pool area located in the spoil material will be lined with a clay liner up to the emergency spillway elevation to ensure that the impoundment retains water. See attached [Typical Clay Liner](#).

Once revision R-9 has been approved, Final Pit Impoundment No. 13 will be certified to the Regulatory Authority within 30 days unless an extension is granted by the Director.

General design data for Final Pit Impoundment No. 13 is included. See attached data and watershed map for the impoundment location and preliminary hydrologic information. Final Pit Impoundment No. 13 is proposed as a permanent water impoundment. Additional data qualifying it as a permanent water impoundment will be submitted and approved by the Regulatory Authority prior to a Phase II bond release.

See attached [Current Conditions Watershed Map](#). All surface drainage from the proposed mining area drains into Mulberry Fork.

GENERAL DESIGN DATA

SEDIMENT BASIN	LOCATION	DRAINAGE AREA ACRES
FPI No. 13	NW/SW of Section 14, NE/SE, SE/NE, NE/SE & NE/NE of Section 15, T15S, R6W	66.0

All sediment basins are located in Walker County, Alabama and are found on the Goodsprings Quadrangle.

SEDIMENT BASIN CONSTRUCTION SPECIFICATIONS

Sediment basins (temporary or permanent) will be designed and constructed using the following as minimum specifications:

EMBANKMENT REQUIREMENTS

1. The minimum width of the top of the embankment shall be no less than twelve (12) feet.
2. The embankment will have a minimum front and back slope no steeper than the slopes shown on the detailed design sheet.
3. The foundation area of the embankment will be cleared and grubbed of all organic matter with no surface slope steeper than 1 horizontal to 1 vertical. The entire wet area, as measured from the upstream toe of the embankment to the normal pool level, will be cleared of trees and large brush.
4. A core will be constructed in a cutoff trench along the centerline of the embankment. The cutoff trench will be of suitable depth and width to attain relatively impervious material.
5. The embankment construction material will be free of sod, roots, stumps, rocks, etc., which exceed six (6") inches in diameter. The embankment material will be placed in layers of twelve (12") inches or less and compacted to ninety-five (95%) percent of the standard proctor density, as set forth in ASTM.
6. The embankment, foundation and abutments will be designed and constructed to be stable under normal construction and operating conditions, with a minimum static safety factor of 1.3 at normal pool level with steady seepage saturation conditions.
7. The actual constructed height of the embankment will be a minimum of five (5%) percent higher than the design height to allow for settling over the life of the embankment.
8. The design embankment height for temporary impoundments will be a minimum of one (1') foot above the maximum water level anticipated from the 10 Year-24 Hour or the 25 Year-6 Hour precipitation event (whichever is greater). The design embankment height for permanent impoundments will be a minimum of one (1') foot above the maximum water level anticipated from the 10 Year-24 Hour or the 25 Year-6 Hour precipitation event (whichever is greater).
9. For embankments constructed as point source discharges, the embankment will be constructed and keyed into undisturbed, virgin, ground if at all possible. In the event that this cannot be achieved, additional design and construction specifications will be submitted in the detailed design plans.
10. The embankment and all areas disturbed in the construction of the embankment will be seeded with a mixture of perennial and annual grasses, fertilized and mulched to prevent erosion and ensure re-stabilization. Hay dams, silt fences, rock check dams, etc. will be installed, where deemed necessary, as additional erosion prevention methods.

DISCHARGE STRUCTURE REQUIREMENTS

11. The primary spillway will be designed to adequately carry the anticipated peak runoff from the 10 Year-24 Hour precipitation event. The combination primary and secondary (emergency) spillway system will be designed to safely carry the anticipated peak runoff from a 25 Year-6 Hour precipitation event. When sediment basins are proposed in the drainage course of a public water supply, the spillway system will be designed and constructed to adequately carry the runoff from the 50 Year-24 Hour precipitation event.
12. Channel linings, for secondary (emergency) spillways will be a trapezoidal open channel constructed in natural ground and planted with a mixture of both annual and perennial grasses being predominantly fescue and Bermuda. In the event that the spillway cannot be constructed in natural ground, the spillway will be lined with riprap, concrete, asphalt or durable rock (See Detailed Design Plans for Spillway Lining).
13. When consisting of pipe, the primary spillway will be installed according to Class "C" pipe installation for embankment bedding.
14. Sediment basins with a single spillway system, such as a skimmer board, will be a trapezoidal open channel constructed in consolidated, nonerodable material and lined with riprap, concrete, asphalt or durable rock (See Detailed Design Plans for Spillway Lining).
15. The primary spillway will be designed and constructed with device to eliminate floating solids from leaving the impoundment. This device will consist of a turned down elbow when using pipe or a skimmer system when using an open channel spillway.
16. When necessary, to prevent erosion of the embankment or discharge area, a splash pad of rip-rap, durable rock, sacrete, etc. will be installed at the discharge end of the primary spillway.
17. The combined spillway systems, for sediment basins constructed in series, will be designed to adequately accommodate the entire drainage area.

INSPECTION, MAINTENANCE AND CERTIFICATION REQUIREMENTS

18. Inspections will be conducted regularly during construction of the sediment basin by a qualified registered professional engineer or other qualified person under the direction of a professional engineer. Upon completion of construction, the sediment basin will be certified, by a qualified registered professional engineer, to the Regulatory Authority as having been constructed in accordance with the approved detailed design plans.
19. Sediment basins will be inspected semi-monthly for erosion, instability, etc., with maintenance performed as necessary, until the removal of the structure or until a Phase III Bond Release is granted.
20. Sediment basins will be examined quarterly for structural weakness, instability, erosion, slope failure, or other hazardous conditions with maintenance performed as necessary.
21. Formal inspections will be made annually, by a qualified registered professional engineer or other qualified person under the direction of a professional engineer, including any reports or modifications, in accordance with 880-X-10C-.20[1(j)] of the Alabama Surface Mining Regulations.

22. Retained sediment will be removed from each sediment basin when the accumulated sediment reaches the maximum allowable sediment volume as set forth in the detailed design plans.
23. The basin will be certified as constructed to the Regulatory Authority within 90 days after the start of construction of the respective basin unless an extension is granted by the Director.

BASIN REMOVAL REQUIREMENTS

24. Upon completion of mining, reclamation, re-stabilization and effluent standards being met, each sediment basin not proposed as a permanent water impoundment will be dewatered in a controlled manner by either pumping or siphoning. Upon successful dewatering, a determination will be made as to the retained sediment level in the basin. After determining the retained sediment level, a channel will be cut into the embankment down to the retained sediment level on the side of the embankment deemed most suitable to reach natural ground without encountering prohibited rock. The embankment material removed from this newly constructed channel will be spread and compacted over the previous impoundment (pool area) to prevent erosion and ensure re-stabilization. The newly constructed channel will be designed to safely carry the anticipated peak runoff from a 10 Year-6 Hour precipitation event. The channel will be lined with riprap, concrete, asphalt or durable rock. Upon removal of the embankment section, all disturbed areas will be graded in such a manner to ensure slope stability, successful re-stabilization and to minimize erosion. All disturbed areas will be seeded with a mixture of annual and perennial grasses, fertilized and mulched. No slope, existing or created in the removal of the sediment basin, will be left on a grade that will slip or slough.

PERMANENT WATER IMPOUNDMENT REQUIREMENTS

25. Prior to a request for a Phase II Bond Release, all sediment basins being left as permanent water impoundments will have supplemental data submitted to the Regulatory Authority concerning water quality, water quantity, size, depth, configuration, postmining land use, etc.
26. Final graded slopes of the entire permanent water impoundment area will not exceed a slope of 2 Horizontal to 1 Vertical to provide for safety and access for future water users.

TYPICAL EMBANKMENT DRAWING

[Typical Sediment Basin Planview](#)

[Typical Embankment Cross Section](#)

4. Disposal of excess spoil. (780.35, 816.71) Are excess spoil fills proposed?

(XX) Yes. () No.

See [Excess Spoil Fill No. 2 Modification Plans](#)

If yes, complete the following:

- (a) Show on a map the location of all proposed fills and provide cross-sections of the proposed site and design of the disposal site.
- (b) Include the results of the geotechnical investigation showing:
 - (1) A description of physical characteristics of bedrock and geologic conditions in the disposal area; and
 - (2) A determination of possible adverse affects from subsidence due to past, present or future underground mining.
 - (3) Location of springs, seeps or other ground water observed or anticipated in the disposal area;
 - (4) A technical description of the rock to be used in construction of rock chimney sores or rock drainage blankets, if applicable;
 - (5) Results of stability analyses including strength parameters, pore pressures and long term seepage conditions; and
 - (6) Engineering design assumptions, calculations, and any alternatives considered.
- (c) Describe the construction, operation, maintenance and removal (if applicable) of the structure.
- (d) Include a surface water drainage and control plan for the fill.
- (a) Are rock-toe buttresses or keyway cuts to be used?

() Yes (XX) No

If yes, describe or show:
 - (1) The number, location and depth of test borings or test pits used in describing subsurface conditions; and
 - (2) Engineering specifications used in the design.

EXCESS SPOIL FILL SPECIFICATIONS

CONSTRUCTION REQUIREMENTS

1. The proposed fill site will be cleared of all vegetative organic material and unsuitable foundation material. Soils and non-competent material will be excavated down to competent material prior to the placement of the fill material.
2. The placement of spoil material will commence at the lowest elevation of the immediate fill area. The fill material (rock) will be placed in maximum four (4) foot horizontal lifts and will be compacted to ensure mass stability and to prevent mass movement of the structure during and after construction. Compaction will be accomplished using rubber tired or track equipment that is available at the site.
3. Material will be placed and compacted as outlined above. The fill will be graded in accordance with the approved plans.
4. Upon final placement of the fill material, the site will have been graded to conform with the slope requirements of these plans. The final slopes of the fill will be graded so as no portion will exceed that which is required to attain a minimum static safety factor of 1.5 to assure stability.
5. Upon completion of rough grading, all diversions will be graded and constructed to their final configuration.
6. Upon completion of the spoil material, riprap will be placed in the diversions and downdrain in accordance with the approved plan.
7. Upon completion of riprap placement in the diversions, all disturbed area will be fertilized, seeded, limed, and mulched, in accordance with the approved reclamation plan in the original permit application, to stabilize the area and prevent erosion. Soil amendments will be added as necessary to improve growth and coverage of vegetation.
8. The final configuration of the fill will blend with the adjacent areas and will be suitable for the post mining land use of the undeveloped land.

INSPECTION, MAINTENANCE AND REPORTING REQUIREMENTS

9. The proposed fill will be inspected regularly during construction by a qualified registered professional engineer or other qualified specialist under the direct supervision of the qualified registered professional engineer.
10. Inspections of the fill will be made at least quarterly throughout construction and during the following critical construction periods: (a) removal of all organic material, topsoil, and non-competent material, (b) installation of surface drainage systems and under drains. Color photographs of conditions before, during and after construction of the under drains will be included as part of the inspection report, (c) placement and compaction of fill materials, and (d) revegetation.

11. A report, certified by a qualified registered professional engineer, will be submitted to the Alabama Surface Mining Commission within two weeks after each quarterly inspection stating that the fill has been constructed and maintained in accordance with the approved plan. A copy of the inspection forms and certified report will be retained at the mine office.
12. If any examination or inspection discloses that a potentially hazardous condition exists, the Regulatory Authority will be informed promptly of the finding and of the emergency procedures formulated for public protection and remedial action. Minor signs of erosion, instability, improper functioning, etc. will be repaired immediately. Standard anticipated maintenance will include repairing rills and gullies, repairing slope failures, re-seeding areas of failed or scarce vegetation, cleaning out or removing debris obstructing diversion ditches to allow proper functioning, etc.

RECLAMATION AND REMOVAL REQUIREMENTS

13. Upon final placement of the fill material, the site will be graded to conform with the approved plans prior to revegetation. The final downstream slope of the fill will be graded so as no slope will exceed 2.5 horizontal to 1.0 vertical to insure stability.
14. Upon completion of rough grading, all diversions will be graded and constructed to their final configuration.
15. Upon completion of riprap placement in the diversions, all disturbed area will be fertilized, seeded, limed, and mulched, in accordance with the approved reclamation plan in the original permit application, to stabilize the area and prevent erosion. Soil amendments will be added as necessary to improve growth and coverage of vegetation.
16. Upon completion of the fill, the entire fill area and disturbed areas will be fertilized, seeded, limed, and mulched, in accordance with the approved reclamation plan in the original permit application, to stabilize the area and prevent erosion. Soil amendments will be added as necessary to improve growth and coverage of vegetation.
17. The final configuration of the fill will blend with the adjacent areas and will be suitable for the post mining land use of the undeveloped land.
18. Plans for removal of this structure are unnecessary, due to the fact the fill is permanent.