

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

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)

See Attachment III-A-1

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

- Backhoes
- Off Road Haulers
- Loaders
- Service Trucks
- Dozers
- Track Excavators
- Augers
- Dry Screen
- Crusher

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>Estimate Life</u>
1	70	Issuance of Permit	12 Months
2	30	End of Increment #1	12 Months
3	10	Issuance of Permit	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 Removal by Excavation
- 5) Coal Recovery
- 6) Re-Grading
- 7) Revegetation

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ATTACHMENT III-A-1
TYPE AND METHOD OF COAL MINING PROCEDURES

The area method of surface mining will be used. Preparation will consist of (a) timber removal (b) topsoil removal (if required) (c) overburden removal by excavation (d) coal removal (e) regrading and revegetation. Once the site has been regraded and topsoiled (if required) soil samples will be analyzed (where required) and proper nutrients will be added before revegetation. Any problem that may arise will be handled by proper consulting personnel utilizing various support equipment and support personnel.

Mining at the Bunt Mine will commence within Increment No.1 with cut no. 1 which will be a box cut located within the NE/SE and SE/NE of Section 13. Pits will generally align west to east with advancement to the north and south. Spoil material from cuts no. 1, no. 2 and a portion of no. 3 (approximately 202,000 CY) will be transported via mobile equipment and placed within Excess Spoil Area No. 1. Spoil material from the next cuts in the alternating sequence will be placed within previous cuts and subsequent open pits. Cuts will alternate every other cut from cut no. 1 through cut no. 19 to allow for drilling, blasting, overburden removal and coal removal simultaneously. Timing may require consecutive cuts at one or both of the alternating locations, however alternating cuts will resume as soon as possible. Beginning with cut no. 20 cuts will be taken in consecutive order, pits will continue to align west to east with advancement to the north. Spoil material will be placed within previous cuts and subsequent open pits. Mining will continue in this manner until the limits of the increment are reached.

Mining within Increment No. 2 will commence with cut no. 1 which will be a box cut located within the SW/NE and NW/SE of Section 13. Pits will generally align southwest to northeast with advancement to the northwest and southeast. Spoil material from cuts no. 1, no. 2, a portion of no. 3 and a portion of no. 4 (approximately 200,000 CY) will be transported via mobile equipment and placed within Excess Spoil Area No. 2. Spoil material from the next cuts in the alternating sequence will be placed within previous cuts and subsequent open pits. Cuts will alternate every other cut from cut no. 1 through cut no. 21 to allow for drilling, blasting, overburden removal and coal removal simultaneously. Timing may require consecutive cuts at one or both of the alternating locations, however alternating cuts will resume as soon as possible. Beginning with cut no. 22 cuts will be taken in consecutive order, pits will continue to align southwest to northeast with advancement to the southeast. Spoil material will be placed within previous cuts and subsequent open pits. Mining will continue in this manner until the limits of the increment are reached.

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Auger mining of the Blue Creek and Jagger Coal Seams is proposed along the east ends of cuts along the east permit boundary of Increment No. 1 and along the southwest ends of cuts along the southwest permit boundary of Increment No. 2. Auger mining openings will be sealed within 72 hours of completion of auger mining of that respective opening. See Attachment III-A-1 for a typical drawing of auger opening seals.

A mobile auger system will be used to extract the coal. Once auger mining is completed, the Blue Creek Coal Seam auger hole will be sealed within 72 hours and a bench will remain to protect the seal of the Blue Creek Coal Seam auger hole. Then, auger mining of the Jagger Coal Seam will commence once the coal is exposed by surface mining. Once auger mining is completed, the Jagger Coal Seam auger hole will be sealed within 72 hours. This auger mining process will be repeated for each proposed end cut to be auger mined.

Auger head diameter cutting faces will be 54 inches or smaller. Auger holes depth will range from 0 to 200 feet dependent upon the coal hardness and site conditions. Augering will be done in a manner that assures adequate support pillars between auger holes. The width of pillars between auger holes will be a minimum of 6 feet to assure that less than 67.2% for the Blue Creek Coal Seam and less than 51.5% for the Jagger Coal Seam is removed by augering operations. No buildings lie within the 30° angle of draw from the proposed auger zone. See Attachment III-A-1 Typical Auger Mining Cross Section and Attachment III-H Auger Zone Location Map.

Each auger hole will be sealed with a clayey material possessing a maximum permeability coefficient of 1×10^{-6} centimeters per second. The material will be placed in 6 inch lifts compacted to 95 percent of the standard proctor density compacted using mobile equipment or handtamps, or a combination of the two. The material will be placed a minimum of 5 feet above the top of the opening. The sealing operations will be done to prevent the access to the opening by humans, livestock, or wildlife, and to prevent acid or toxic drainage from entering the groundwater or surface water. After sealing of the auger holes the remaining highwall will be backfilled, graded, and revegetated in accordance with procedures approved as a part of the approved permit application. See Attachment III-A-1 for a typical drawing of auger opening seals.

A portion of Glennwood Road is proposed to be auger mined. However, the web thickness will be increased for the Blue Creek Coal Seam auger holes from 2 feet to 4.5 and increased for the Jagger Coal Seam from 1.5 feet to 1.7 feet. The increase in the web thickness will assure a less than 50% removal of coal beneath Glennwood Road, therefore will be no planned subsidence.

See Attachment III-A-1, Operations Map, for the cut sequence layout and auger mining location.

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Permit Application for Auger Mining

In addition to completing all applicable portions of the Permit Application for Surface and Underground Mining', anyone who intends to conduct auger mining operations shall complete the following: (785.20, 819)

- (a) Give the diameter, depth, and spacing of auger holes including width of barrier pillars to be left between holes or series of holes.

Auger Head Diameter.....54 inch or smaller
Maximum Depth of Auger Hole.....250 feet
Minimum Hole Spacing.....4.5 feet or smaller
Pillar Width Range.....4.5 feet or smaller
.....or equal to Auger Hole or Greater
Barrier Pillar Width.....6 feet minimum on 74.5' centers

- (b) Is underground mining to be conducted in the immediate area following completion of auger mining operations?
() Yes (X) No

If yes, describe the steps to be taken to provide access for such operations to the remaining coal reserve.

- (c) Is auger mining to be conducted contemporaneously with underground mining operations and in the same seam?
() Yes (X) No

If yes, describe the measures to be taken to prevent 'breaking through' into underground workings.

At no time will auger mining be done within 500 feet of an active or abandoned underground mine.

- (d) Is auger mining to be conducted:
 - (1) In conjunction with an active surface mining operation?
(X) Yes () No
 - (2) In an in-active surface mine? () Yes (X) No
 - (3) Along a natural outcrop which has not been previously disturbed?
(X) Yes () No

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- (e) Describe in detail the measures to be taken to reclaim the highwall if auguring is not being conducted in conjunction with a surface mining operation.

See Attachment III-A-1 Typical Auger Mining Cross Section

- (f) Describe and locate on the permit map all the power lines, pipelines, buildings and other facilities located above the proposed auger mining operation. If subsidence resulting from auger mining is anticipated, describe in detail the measures to be taken to prevent or mitigate adverse effects on surface structures and facilities.

All of the land surface owners over the proposed auger mine area are shown on Attachment III-A-1 and III-H. The Jefferson County Road (Glennwood Road) is the only structure, either commercial or residential, within the potential subsidence zone boundary that would be affected by subsidence. But due to less than 50% removal of coal beneath Glennwood Road, there will be no planned subsidence.

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Narrative Description of Auger Operation

The Highwall Mining System highwall miner to be operated at the RJR Mining Co., Inc.'s Bunt Mine will only recover 53.69 % of the coal from a maximum depth of 250 feet.

Highwall Mining will be performed in such a manner as to provide adequate support pilliars between each hole. Spacing of the recovery holes will vary depending on the nature of the overburden, depth of center to center, allowing a minimum of 1.5 feet of web (Support) pillar between each recovery hole for the conditions shown above.

Dr. Chris Mark of the US Bureau of Mines (now NIOSH) initially developed the ARMPS-HWM program to predict the possibility of subsidence due to longwall mining/highwall mining. Dr. Zach Agioutantis later developed it into a windows application.

Attached are definitions of the parameters used in the ARMPS-HWM program along with Table 1 of the Program indicating the suggested minimum safety factors.

The table below shows the recommended safety factor for this application as determined by the ARMPS-HWM. As shown below the highwall miner panel design described earlier in this section is adequate to prevent subsidence.

Blue Creek Seam	Recommended	Actual
Overall	2.0	2.9
Web Pillars Only	1.3	2.6
Barrier Pillars Only	2.0	2.0

Blue Creek Seam Beneath Glennwood Road	Recommended	Actual
Overall	2.0	5.7
Web Pillars Only	1.3	5.6
Barrier Pillars Only	2.0	2.0

Jagger Seam	Recommended	Actual
Overall	2.0	6.0
Web Pillars Only	1.3	4.6
Barrier Pillars Only	2.0	3.5

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Jagger Seam Beneath Glennwood Road	Recommended	Actual
Overall	2.0	6.5
Web Pillars Only	1.3	5.2
Barrier Pillars Only	2.0	3.5

Drainage will be controlled from each recovery hole by allowing each hole to drain into the open pit and be pumped if necessary, to an approved sediment basin. If necessary, drainage will be treated chemically in accordance with the surface water treatment plan of this permit.

ARMPSHWM module build: 1.1.06

Project File: \\Perc600\perc_eng\Steve Miles\Steve Docs\MyNIOSH\RJRBM_BC.ARH

Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Extraction Thickness.....4.5 (ft)
 Depth of Cover.....85 (ft)
 Hole Width.....4.5 (ft)
 Web Thickness.....2 (ft)
 Barrier Pillar Width.....6 (ft)
 Number of Holes.....20

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
 Unit Weight of Overburden.....162 (pcf)
 Abutment Angle of Gob.....21 (deg)

[ARMPS-HWM STABILITY FACTORS]

Overall.....2.92
 Webs ONLY.....2.55
 Barrier Pillar.....1.99

Panel width (excluding barriers).....128.00 (ft)
 Barrier pillar width-to-height ratio.....1.33
 Web thickness-to-height ratio.....0.44
 Extraction ratio.....67.16 %

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)
Barrier	10.50	6.00
Web	6.50	2.00

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)
Barrier	6.00E+06	1.22E+03
Web	2.00E+06	7.92E+02

To view the distribution of Pillar Load Bearing Capacity
 select 'View Plots->Settings->Pillar Load Bearing Capacity'

ARMPSHWM module build: 1.1.06
Project File: \\Perc600\perc_eng\Steve Miles\Steve Docs\MyNIOSH\RJRBM_BC_ROAD.ARH
Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Extraction Thickness.....4.5 (ft)
Depth of Cover.....85 (ft)
Hole Width.....4.5 (ft)
Web Thickness.....4.5 (ft)
Barrier Pillar Width.....6 (ft)
Number of Holes.....20

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
Unit Weight of Overburden.....162 (pcf)
Abutment Angle of Gob.....21 (deg)

[ARMPS-HWM STABILITY FACTORS]

Overall.....5.65
Webs ONLY.....5.55
Barrier Pillar.....1.99

Panel width (excluding barriers).....175.50 (ft)
Barrier pillar width-to-height ratio.....1.33
Web thickness-to-height ratio.....1.00
Extraction ratio.....49.59 %

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)
Barrier	10.50	6.00
Web	9.00	4.50

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)
Barrier	6.00E+06	1.22E+03
Web	4.50E+06	1.06E+03

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

ARMPSHWM module build: 1.1.06
 Project File: \\Perc600\perc_eng\Steve Miles\Steve Docs\MyNIOSH\RJRBM_J.ARH
 Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Extraction Thickness.....1.83 (ft)
 Depth of Cover......85 (ft)
 Hole Width.....1.83 (ft)
 Web Thickness.....1.5 (ft)
 Barrier Pillar Width.....6 (ft)
 Number of Holes.....20

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
 Unit Weight of Overburden.....162 (pcf)
 Abutment Angle of Gob.....21 (deg)

[ARMPS-HWM STABILITY FACTORS]

Overall.....6.00
 Webs ONLY.....4.59
 Barrier Pillar.....3.52

Panel width (excluding barriers).....65.10 (ft)
 Barrier pillar width-to-height ratio.....3.28
 Web thickness-to-height ratio.....0.82
 Extraction ratio.....51.48 %

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)
Barrier	7.83	6.00
Web	3.33	1.50

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)
Barrier	6.00E+06	2.17E+03
Web	1.50E+06	9.74E+02

To view the distribution of Pillar Load Bearing Capacity
 select 'View Plots->Settings->Pillar Load Bearing Capacity'

ARMPSHWM module build: 1.1.06
Project File: \\Perc600\perc_eng\Steve Miles\Steve Docs\MyNIOSH\RJRBM_J_ROAD.ARH
Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]

Extraction Thickness.....1.83 (ft)
Depth of Cover.....85 (ft)
Hole Width.....1.83 (ft)
Web Thickness.....1.7 (ft)
Barrier Pillar Width.....6 (ft)
Number of Holes.....20

[DEFAULT PARAMETERS]

In Situ Coal Strength.....900 (psi)
Unit Weight of Overburden.....162 (pcf)
Abutment Angle of Gob.....21 (deg)

[ARMPS-HWM STABILITY FACTORS]

Overall.....6.45
Webs ONLY.....5.17
Barrier Pillar.....3.52

Panel width (excluding barriers).....68.90 (ft)
Barrier pillar width-to-height ratio.....3.28
Web thickness-to-height ratio.....0.93
Extraction ratio.....48.87 %

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)
Barrier	7.83	6.00
Web	3.53	1.70

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)
Barrier	6.00E+06	2.17E+03
Web	1.70E+06	1.03E+03

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

Table 1: Stability Factors

ARMPS-HWM Suggested Minimum Stability Factors	
Overall SF	Conditions
2.0	Applicable to all conditions
Web pillar SF	Conditions
1.6	When the panel width (excluding the barrier) exceeds approximately 200 ft (60 m)
1.3	When the panel width (excluding the barrier) is less than approximately 200 ft (60 m)
Barrier pillar SF	Conditions
2.0	When the barrier's width-to-height ratio < 4.0
1.5	When the barrier's width-to-height ratio >= 4.0

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H. Subsidence Control Plan (784.20)

1. Include a survey which shows what structures or renewable resource lands exist within the proposed permit and adjacent area and whether subsidence, if it occurred, could cause material damage or diminution of reasonably foreseeable use of such structures or renewable resource lands. If it is determined that no material damage will occur to surface structures or renewable resource lands from subsidence, the application shall include supporting evidence of such a finding.

A Survey of structures, features, or renewable resource lands has been conducted. The limits of the survey were determined by a 30 degree angle of draw from the outer limits of mining. Findings are indicated on the Auger Zone Location Map.

The Permit Map, Operations Map, and Auger Zone Location Map shows the land proposed to be highwall mined. The primary use for the land of the proposed highwall to be mined is pasture. Subsidence, if it occurred would not cause material damage or diminish the value or reasonably foreseeable use of the land. The Jefferson County Road (Glennwood Road) is the only structure, either commercial or residential located above the area within the angle of draw. No domestic or residential water supplies will be impacted by the proposed mining.

Designs for web and barrier pilliars have been submitted as part of the Auger Mining section of this permit. These designs show safety factors meet or exceed the recommended values accepted by the industry to support the surface.

The Jefferson County Road (Glennwood Road) is the only structure, either commercial or residential, within the potential subsidence zone boundary that would be affected by subsidence. But due to less than 50% removal of coal beneath Glennwood Road, there will be no planned subsidence, therefore no subsidence control plan is required.

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(b) Unplanned Subsidence. See Attachment III.-H. Auger Zone Location Map

- (1) Using maps, plans, and cross sections, as needed, locate the areas where coal extraction is to take place and where subsidence, if incurred, cannot be considered planned subsidence. Clearly show on a map the relationship of parts (i-v) below to critical surface features, renewable resource lands, and structures. See Permit Map.
 - (i) Provide a detailed mine plan map. Describe the methods of mining used, such as room and pillar, checker board, blind room or other methods.
 - (ii) Locate extraction panels, give geometric sizes, dimensions and orientation, and include details of length, width and height of panels. Give percent of coal left as support in ratio to percent of coal removed within the extraction panel. Provide information on crosscut and room dimensions, and both driven on what centers. Include similar information concerning any secondary recovery that is planned.
 - (iii) Provide details locating all permanent coal blocks and barrier pillars outside the actual extraction panels. Give geometric shapes, dimensions, and orientation of these blocks and barrier pillars.
 - (iv) Give anticipated date (month/year) in which mining will be conducted in each area and/or panel.
 - (v) Characterize variations in claystone layers immediately below the extracted coal seam(s). Include data on varying claystone thickness throughout the area covered by the subsidence control plan. Provide assurances that measures have been adopted concerning the maximization of mine stability as it relates to claystone flood conditions.
- (2) Provide a detailed description of measures to be taken to prevent unplanned subsidence from causing material damage or lessening the value or reasonable foreseeable use of the surface. Describe how these measures are to be applied. Include the following information.
 - (i) Locate area(s) in which coal removal is not planned, including its relationship to overlying area(s) to be protected by leaving coal in place.

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- (ii) Locate area(s) to be backfilled or backstowed.
- (iii) Describe measures to be taken on the surface to prevent material damage or diminution of the value or reasonable foreseeable use of the surface including, but not limited to:
 - (A) Reinforcement of sensitive structures or features;
 - (B) Installation of footers or other techniques designed to reduce damage caused by movement;
 - (C) Change of location of pipelines, utility lines or other features;
 - (D) Relocation of moveable improvements to sites outside the potential angle-of-draw;
 - (E) Monitoring to determine the commencement and degree of subsidence so that appropriate measures can be taken to prevent or reduce damage; and
 - (F) Describe any other prevention measures to be taken.
- (3) Provide a detailed description of measures that are to be taken to mitigate the effect of any material damage or diminution of value or foreseeable use of lands which may occur as a result of unplanned subsidence. Describe how these measures are to be promptly applied in accordance with 817.124. Measures include, but are not limited to, one or more of the following:
 - (i) Restoration or rehabilitation of damaged structures (including surface and underground agricultural drainage systems), features and lands after subsidence to a condition capable of supporting and suitable for foreseeable use including restoration of approximate land surface contours to premining conditions in order to assure proper surface drainage.
 - (ii) Replacement of structures, including surface and underground agricultural drainage systems destroyed or damaged by subsidence.
 - (iii) Purchase of structures prior to mining or purchase of damaged structures at pre-subsidence value.

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- (iv) Purchase of non-cancellable insurance policies, as described in 817.124(c), payable to the surface owner in the full amount of the possible material damage or other comparable measures.
 - (v) Describe other mitigation measures to be taken.
- (4) Provide a detailed description of measures to be taken to determine the degree of material damage or diminution of value or foreseeable use of the surface, including, but not limited to such measures as:
- (i) Conducting of pre-subsidence surveys of all structures and surface features which might be materially damaged by subsidence.
 - (ii) Monitoring to measure deformation near specified structures or features or other appropriate locations.

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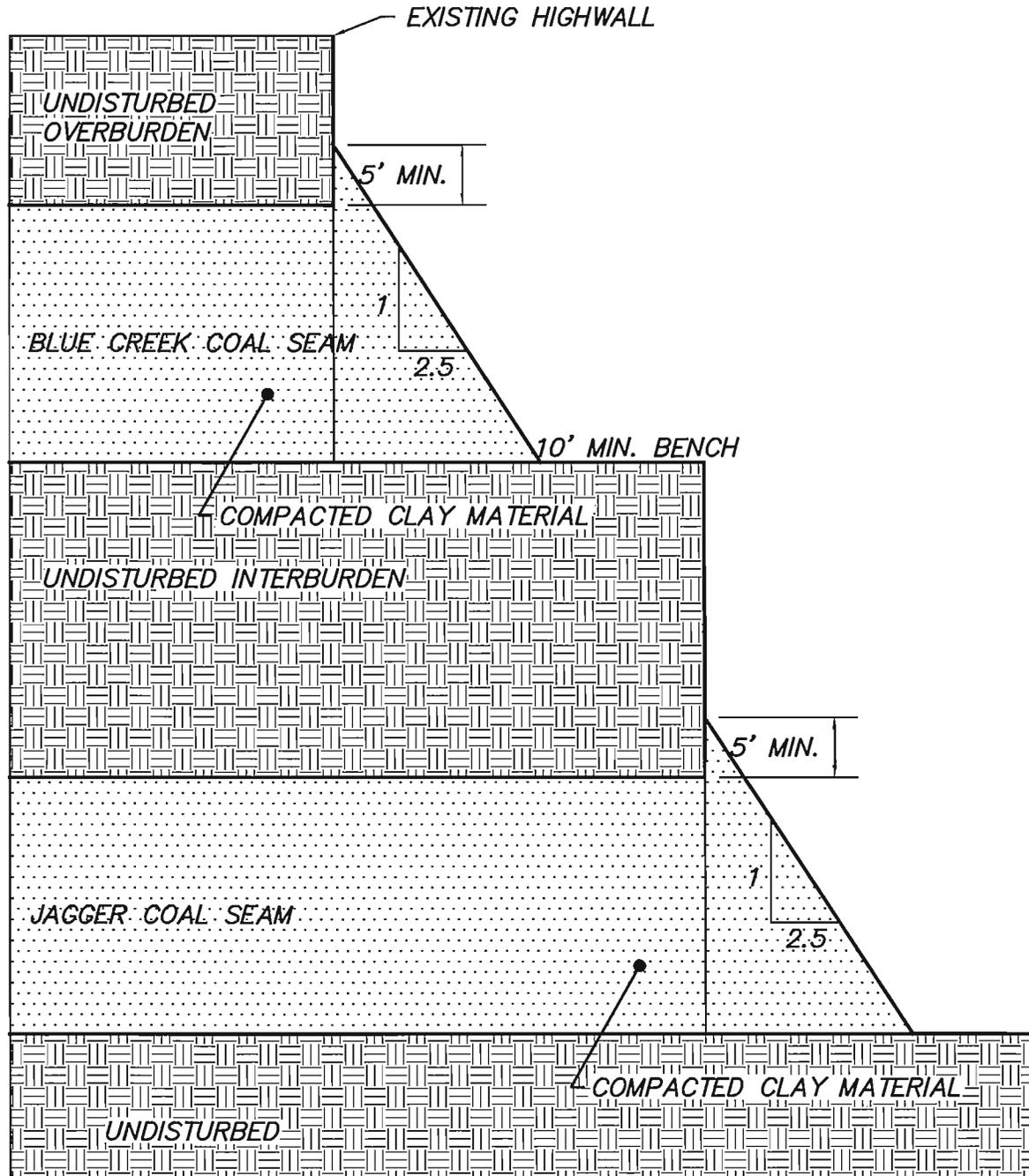
ATTACHMENT III-H-2(b)
Subsidence Control Plan

RJR Mining Co., Inc.'s Bunt Mine surface mining area is located in parts of Section 13, Township 15 South, Range 3 West, Jefferson County, Alabama which is shown on the Gardendale, Alabama United States Geological Survey Quadrangle Map. The proposed mine site consists of 90 permitted acres. All of the land surface over the proposed auger mine area is owned by James H. Bunt as shown the Attachment III-A-1 and III-H. There are no structures, either commercial or residential, within the potential subsidence zone boundary that would be affected by subsidence. All of the Blue Creek and Jagger Coal Seam mining rights within the mine area are shown on the Permit and Operations Maps. A detailed mine plan is shown on Attachment III-H Auger Zone Location Map.

The premine landuse of the area comprising the coal recovery area is predominately pasture. According to the Soil Survey of Jefferson County, Alabama, there are prime farmland soils identified within the coal recovery area. See Attachment II-I-3.

If unplanned subsidence should occur and cause damage to any of the surface features mentioned earlier or any that may be added, RJR Mining Co., Inc. will, to the extent required by law, restore, rehabilitate or remove and replace each damaged structure or feature to the condition that would exist if no subsidence had occurred, promptly after the damage is suffered and subsidence is complete, or purchase the damaged structure or feature for its fair market, presubsidence value. If unplanned subsidence should occur and cause adverse impacts to future water supplies above or adjacent to the mine, those supplies will be replaced or restored in accordance with regulatory requirements.

Typical Cross Section Auger Mining of the End Cuts of Increments No. 1 and No. 2



Auger bore holes will be sealed prior to eliminating the final highwall by covering openings with a clayey material possessing a maximum permeability coefficient of 1×10^{-6} centimeters per second. The clayey material will be placed in 6 inch compacted lifts to 95 percent of the standard proctor density, a minimum of five feet above the top of the mine opening.



**PERC
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Attachment III-A-1 Auger Miner Opening Sealing Plan

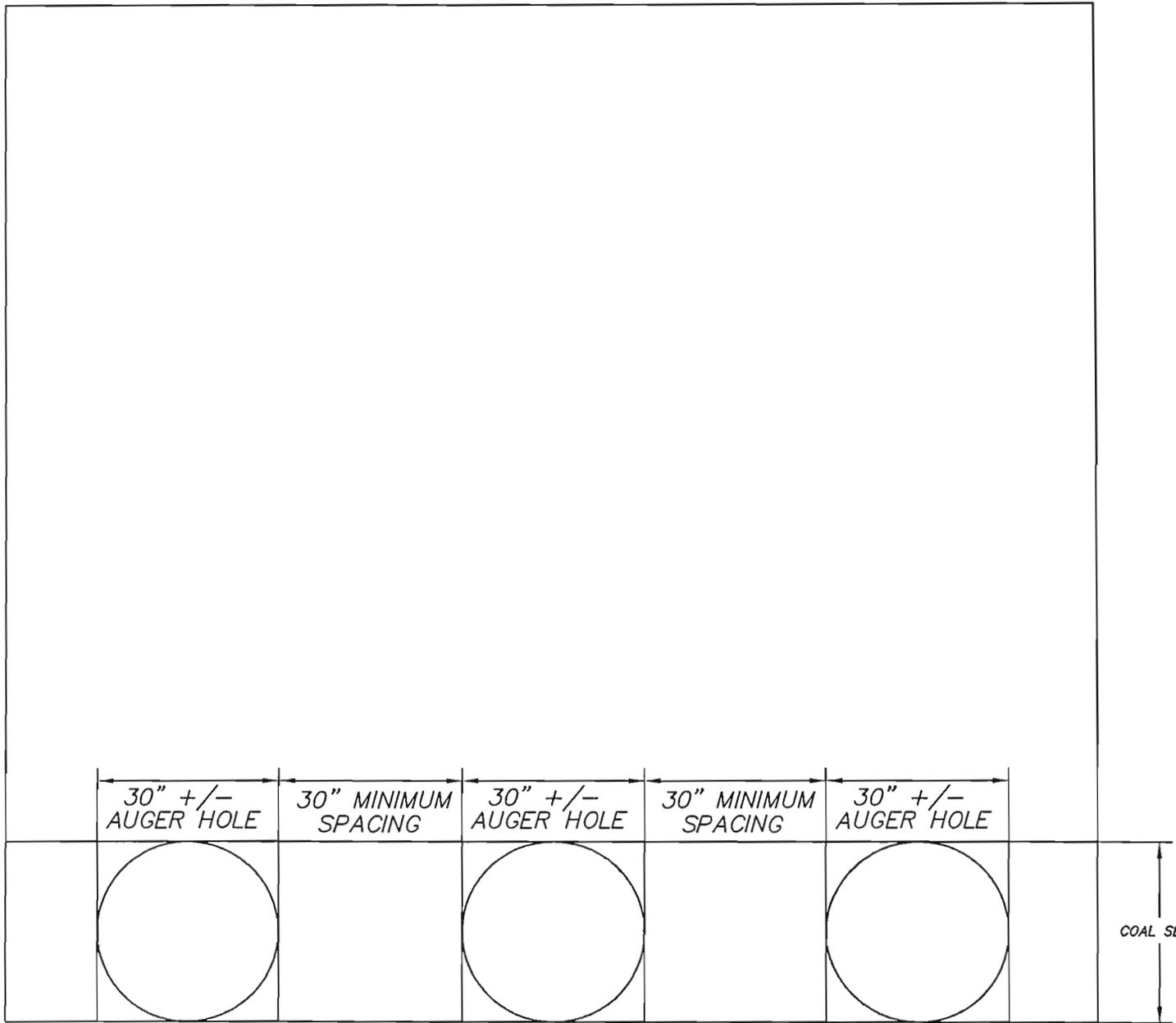
DRAWN BY: S.D.M.
DWG NAME: RJRBAM

DATE: 5/14/2012

APPROVED BY: L.G.S.

SCALE: NOT TO SCALE

TOP OF EXISTING HIGHWALL



NOTE: SPACING BETWEEN HOLES TO BE A MINIMUM WIDTH EQUAL TO OR GREATER THAN THE HOLE DIAMETER IN ORDER TO ASSURE NO GREATER THAN 50% RECOVERY RESULTING IN NO PLANNED SUBSIDENCE.



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**ATTACHMENT III-A-1
TYPICAL AUGER MINING
SPACING CROSS-SECTION**

DRAWN BY: J.W.T.
DWG NAME: AMS

DATE: 3/26/2009

APPROVED BY: L.G.S.

SCALE: NONE

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3. Attach a narrative explaining the construction modification, use, maintenance, and removal of the following facilities: (780.11)
- (a) Coal removal, handling, storage, cleaning and transportation structures and facilities;
 - (b) Spoil, coal processing waste and non-coal waste removal, handling, storage, transportation and disposal structures and facilities;
 - (c) Mine facilities; and
 - (d) Water pollution control facilities.

See Attachment III-A.-3.

4. Describe the means to be used to maximize the use and conservation coal reserves in the permit area. (780.18, 816.59)

Some of the measures are:

- A) Mining the deepest seam that is economically feasible to mine.
 - B) Rehandling overburden in order to maximize coal recovery that would normally be lost in the toe of the spoil.
 - C) Processing and blending coal that in its "raw" condition would not have a market.
 - D) Removing by augering, coal underlying the right-of-way of Glenwood Road that would otherwise not be recovered.
5. Describe measures to be taken to ensure that all debris, acid-forming and toxic-forming materials and materials constituting a fire hazard are disposed of in accordance with 816.89 and 816.103; include contingency plans to prevent sustained combustion of such material. (780.18)

All acid-forming, toxic-forming, and combustible materials will be disposed of by selectively placing these materials within the mine excavations. These disposal locations will be a minimum of 4 feet below the final reclaimed surface and a maximum of 10 below the final reclaimed surface. The disposal area will be no closer than 30 feet from any reclaimed highwalls and 100 feet from any drainage courses.

After placement, these materials will be covered with a minimum of 4 feet of the best available non-acid and non-toxic forming, and non-combustible material. The surface of this cover will be crowned or sloped to prevent infiltration of surface water into the disposed material.

All non-coal waste and debris which may be accumulated at the site (including paper and wood shipping containers, empty oil containers, worn out machine parts, etc.) will be confined in appropriate temporary containers or storage areas and periodically transported to an offsite disposal area which meets all Federal, State and local laws and ordinances for permanent disposal of such materials.

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Attachment III-A-3

- 3.a) Crushing and screening of the coal to be mined will be performed utilizing a portable plant transported to the site by truck and erected on site. Regular maintenance will consist of routine lubrication, oil checking and changing as necessary, etc. and will be conducted during the period the crusher and/or screen is in use. When no longer needed the plant will be disassembled and transported offsite by trucks.

All haulage roads shall be designed to the following minimum criteria and/or prudent engineering practice for the design of haulroads, except where said haulroad is a public highway. See Part III-B-5 for primary and ancillary roads detailed design plans.

To the extent possible roads will be located on ridges or on the most stable available slopes to minimize erosion, downstream sedimentation and flooding in an effort to prevent adverse effects to fish, wildlife and related environmental values.

Prior to construction, the roadway areas shall be cleared, grubbed, and all topsoil shall be removed and stockpiled. Vegetation will not be cleared for more than the width necessary for the road and associated ditch construction.

Roads will be constructed by placing and compacting lifts of suitable subgrade material to a grade suitable for the intended use of the road. Drainage pipes will be placed in embankments or cuts as necessary to assure proper drainage. Once the desired grade of subgrade material has been attained and all drainage structures installed roads will be surfaced with available gravel, rock, chert or other suitable material as approved by the state regulatory agency sufficiently durable for the anticipated volume of traffic weight and speed of vehicles to be used. The surface will be compacted until a desirable grade and surface is attained. No toxic or acid forming substances will be used in this surface material. No sustained grade will exceed 10 percent unless deemed necessary, in which case appropriate sediment control facilities will be constructed. If grades of greater than 15 percent are required cross-over drains, ditch relief drains and road drainways will be located at a minimum of 300 foot intervals.

All roads will be constructed and maintained so as to have adequate drainage, using ditches, cross drains, and ditch relief drains. Drainage pipes will be placed in embankments or cuts as necessary to assure proper drainage and hay bale check dams and silt fences will be used at strategic locations when necessary to control sediment runoff. Natural drainage ways will not be altered unless otherwise approved by the ASMC. For stability the side slopes of the road embankments and/or cuts will be seeded with temporary and perennial type grasses and mulched to aid in preventing erosion and to enhance germination of the seed. No modifications are expected and only routine maintenance will be required to maintain the

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surface of roads such as periodic grading and resurfacing. Spot seeded and mulching will take place as necessary to improve coverage of vegetation on side slopes and embankments. Haulroads and all Routes of Travel will be maintained with water and/or other materials to minimize fugitive dust emissions. Routine maintenance will be required to assure that all roads and Routes of Travel continually meets performance standards and will consist of periodic grading, resurfacing and dust suppression. Dust suppression will consist of the application of water, chemical binders and/or other dust suppressants. No oil will be utilized in this process. Maintenance of erosion control facilities will include periodic removal of sediment from structures and repairs of areas damaged due to weather, etc. Unless retention of the roads is approved for post-mining land use the following procedures will apply. When no longer needed the roadbeds will be ripped, plowed and scarified. All road surfacing materials will be removed and placed within an open pit within the permit area. The natural drainage patterns will be restored by cutting slopes and shaping to blend with the natural drainage of surrounding areas. If necessary cross drains, dikes and water bars will be constructed to minimize erosion. Terraces will be used as necessary to provide long term stability on cut and fill slopes and to minimize erosion. Road surfaces will then be revegetated according to the reclamation plan approved for this permit application, which includes planting a mixture of up to 100 lbs. or more of various legumes and grasses.

Coal stockpiles, if determined necessary, will be located within the permitted and bonded area such that drainage from the area will be routed through one or more of the sediment basins that are to be constructed. In general an area will be graded to a relatively level state. Upon completion of the subgrade, a relatively impervious pad or liner will be constructed to a minimum thickness of 12 inches. The pad or liner will be made of a clayey material possessing a maximum permeability coefficient of 1×10^{-6} centimeters per second. The material will be placed in 6 inch compacted lifts to 95 percent of the standard proctor density. A pad will be constructed of coal material over the relatively impervious pad or liner with material created by cleaning the coal in the pit. The only modification to the stockpile areas may be to enlarge them and this operation, if necessary, will be handled in the same manner as new construction. Small terraces and/or temporary diversions will be used as necessary to minimize surface runoff across the stockpile areas. These facilities will be maintained periodically along with the coal pad which will be maintained by grading and reshaping as necessary. After the stockpile area has served its useful purpose the pad material that can not meet market specifications will be buried within the permit area no closer than 30 feet from any remaining highwalls and 100 feet from any drainage courses and a minimum of 4 feet below the final reclaimed surface and a maximum of 10 feet below the final reclaimed surface. The 4 feet of cover material will consist of the

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best available non-acid and non-toxic forming and non-combustible material.

- b) There is adequate spoil room available on site and excess spoil disposal facilities are not necessary. There will be no coal processing which generates waste so no coal waste disposal facilities are necessary. Any non-coal wastes will be disposed of within an offsite disposal area which meets all Federal, State and local laws and ordinances for permanent disposal of such materials.
- c) There will be no mine facilities at this site other than a portable office which will most probably be an office trailer or a converted mobile home and will be removed from the site soon after the end of the mining process. There is a possibility that during the life of the permit an equipment maintenance shop may be constructed at this site. If this decision is made the building will be located within the permitted and bonded area. Generally these buildings are constructed of sheet metal covering a wooden frame built around poles and are erected in a manner that will facilitate disassembly and relocation to another site after equipment is removed from the area. Any modification or addition to the structure would be of similar construction. Periodic maintenance including painting and winterizing will be done either by contractors or mine personnel. After mining is completed and the equipment is removed from the site, the building will be disassembled and the various structural components will be transported via truck to another location.
- d) Water pollution control facilities, sediment basins, berms, and drainage ditches shall be constructed prior to mine operation in a particular increment according to approved plans. These facilities will be used to control runoff from the mine and will be inspected and maintained until reclamation of the area is complete. Sediment basin construction and any subsequent modifications that may be required will be conducted under the general supervision of a qualified registered professional engineer and will be done in accordance with the approved design plans. The dam will be constructed of the best available soil material based on soil strength parameters and permeability. The dam core wall will bear on unyielding, relatively impermeable consolidated rock and the balance of the dam structure on the prepared compacted natural soil material present at the site. The dam will be built in horizontal lifts beginning at the lowest point of the foundation with each lift being thoroughly compacted. The drainage structure will be installed as outlined on the detailed design plans and shall be stabilized with respect to erosion using riprap, concrete paving, energy dissipaters, vegetation or otherwise. After construction of the basin, the dam and all areas disturbed by construction will be limed, fertilized, and seeded with an appropriate mixture of grasses and legumes, then mulched. Routine maintenance of the sediment basins will consist of spot seeding, fertilization and mulching to insure that a good vege-

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tative cover is maintained on the dam and areas around the pond, repair and stabilization of any rills and gullies which may develop, repairs to discharge structures and erosion protection structures as required, and removal of entrapped sediment from the basins prior to its reaching the maximum level indicated on the approved plans. All sediment basins will be inspected quarterly by the operator's personnel and annually by a registered professional engineer and any required maintenance will be completed at the earliest possible time by the operator.

All basins are proposed, no modification plans are required. If during the term of the permit basins require modifications, modification plans will be submitted to the Regulatory Authority for approval prior to any modifications. Upon modifying the basin, the basin will be certified to the Regulatory Authority.

Upon completion of mining, successful reclamation and effluent standards being met, each sediment basin not remaining as a permanent water impoundment will be dewatered in an environmentally safe manner (such as siphoning, pumping, etc.) and reclaimed to approximate original contours by the following procedure:

A permanent diversion channel (designed for a 10 yr. -24 hr. precipitation event) shall be cut along the outer edge of the basin to re-route drainage around the basin and back through the stabilized spillway to allow for the reclamation of the sediment basin. The diversion channel shall be designed and grassed as per enclosed information. (See permanent diversion channel for basin disposal) Upon completion of the diversion channel the embankment will be breached to the existing sediment level to prevent the impoundment of water. The breach will be graded to a minimum side slope of 2.5 to 1 and revegetated and/or riprapped as to prevent erosion and ensure the stability of the exposed breach. The remaining back slope of the embankment will be graded to a minimum 3 to 1 slope. The dewatered sediment basin will be seeded with some combination of the following: Fescue, bermuda, rye grass, canary grass, and willows. After seeding the area will be mulched. Any additional sediment or embankment material not used to meet approximate original contour, if nontoxic, will be spread in thin layers within the permit area and vegetated as stated in the reclamation plan. All toxic material encountered in the basin disposal will be buried and covered with 4 feet of nontoxic and noncombustible material and vegetated a stated in the reclamation plan.

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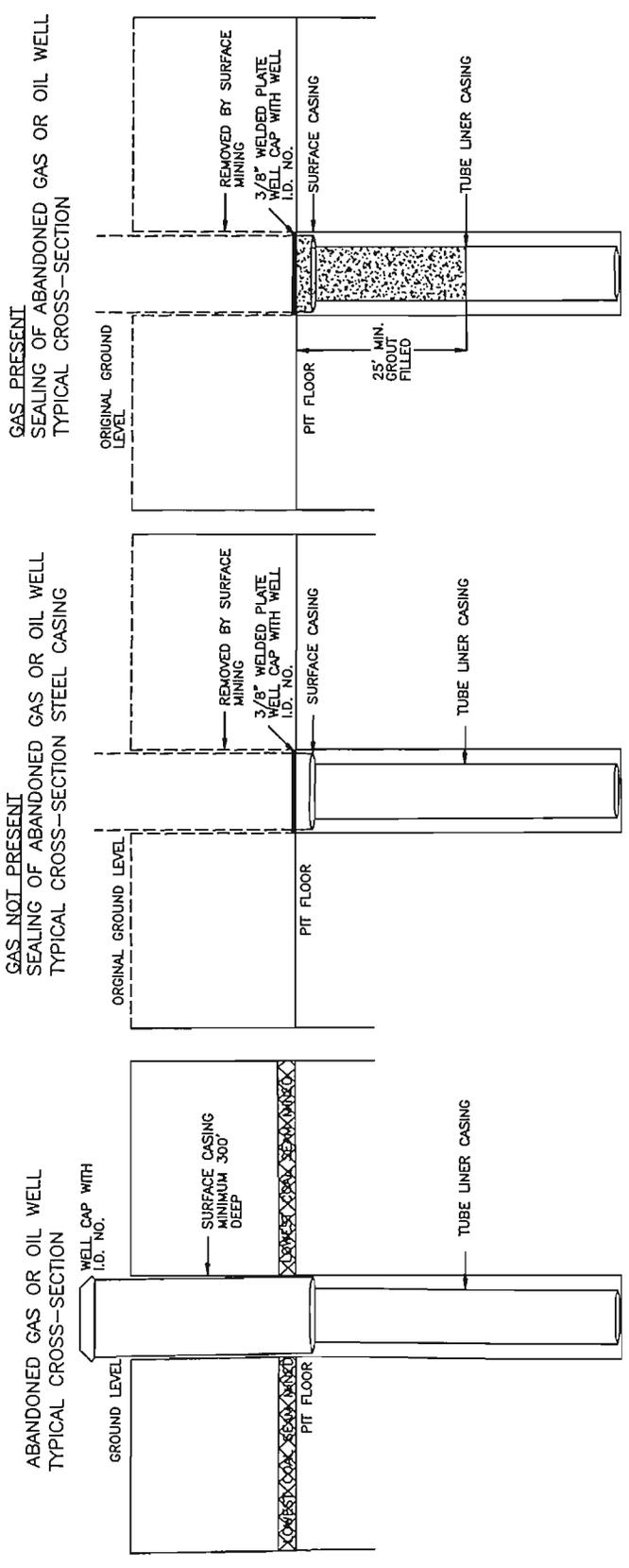
6. Give a description, including appropriate cross-sections and maps, of measures to be used to seal or manage mine openings, bore holes, wells and other openings within the proposed permit area. (780.18, 816.13-816.15)

No mine openings are known to exist within or adjacent to the proposed permit area. Bore holes, wells, and other openings will be backfilled with cuttings from the holes and capped with clay or other impervious material. Abandoned monitoring wells will be sealed with a concrete cap which is approximately 2'x 2'x 0.5'. See Attachment III-A-6 for typical illustration of methods to be used to seal and/or manage bore holes and wells.

Any abandoned plugged and unplugged gas and oil wells found during mining will be sealed as outlined by the Alabama Oil and Gas Board after all coal is removed from the vicinity of the well.

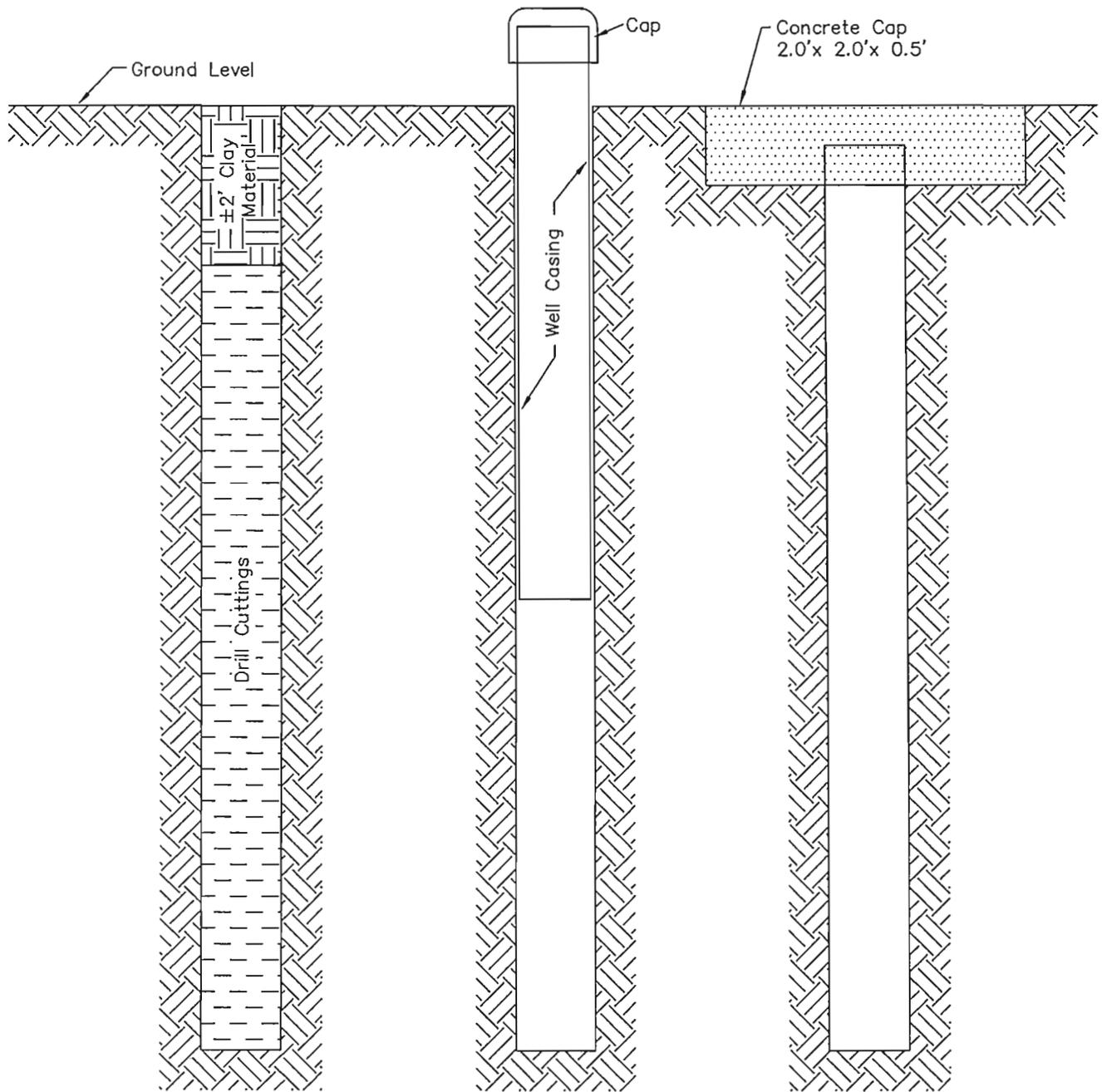
Plugged and abandoned wells will be squared up and a device will be used to detect the presence of gas. If gas is present, the area of flow will be sealed by placing concrete/grout or sacrete to a depth of 25 feet and a 3/8 inch steel plate welded across all casing stubs. If gas is not present, a 3/8" inch steel plate will be welded across all casing stubs. A written report of the resealing process used on each plugged and abandoned well will be submitted to the ASMC and Alabama Oil and Gas Board within 30 days.

Unplugged wells will be temporarily sealed and restored by the following process: the owner of the well will submit a temporary abandonment and restoration plan to the Alabama Oil and Gas Board for approval. The well will be sealed for temporary abandonment prior to mining through and restored in accordance with the approved plan to the Alabama Oil and Gas Board.



**ATTACHMENT III-A-6
TYPICAL PLUGGING
PROCEDURE FOR GAS
OR OIL WELL ENCOUNTERED
IN MINING PROCESS**

DRAWN BY: K.E.P.	DATE: 11/13/2008
DWG. NAME: TYPPLUGG	
APPROVED BY: S.D.M.	SCALE: NO SCALE



EXPLORATION HOLE

ACTIVE MONITORING WELL

ABANDONED MONITORING WELL

ATTACHMENT III-A-6



PERC
ENGINEERING CO., INC.

MONITORING WELL AND EXPLORATION HOLE MAINTENANCE AND SEALING DETAILS

DRAWN BY: R.E.P.

DATE: 6-28-89

APPROVED BY:

SCALE: NONE

Applicant: RJR Mining Company, Inc.
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7. Give a description of steps to be taken to comply with applicable water quality laws, regulations and health and safety standards. (780.18)

Surface runoff will be routed through sediment control basins prior to being discharged from the permit area. Discharges from sediment basins will be monitored by in-house personnel or consultants, at the discretion of the permittee, as necessary to assure compliance with applicable State and Federal Laws and Regulations. Chemical treatment with aqueous sodium hydroxide solution will be used on water entering the drainage course of the existing basins if this is determined necessary to achieve compliance with State and Federal Laws. On occasion, a solution of chemically hydrated lime and water will be used in sediment basins for immediate correction of pH imbalances. With proper pH, the heavy metals will precipitate to the bottom of the basins and will not exit the discharge pipe or spillway. Alum may be used on occasion if necessary to facilitate flocculation and precipitation of suspended solids. A permit to discharge under the National Pollutant Discharge Elimination System has been applied for and discharges from the proposed basins will be monitored and results of that monitoring, both compliant and non-compliant, will be reported in accordance with the NPDES Permit and the hydrologic monitoring plan shown elsewhere in this permit application. A trained and qualified health and safety staff will be contracted to assure that all health and safety standards and MSHA regulations are complied with. Certification and training of all mine personnel will be current and will be updated as necessary by attending MSHA classes taught by certified personnel. All dust, noise and other required control tests will be current and will be performed as necessary by certified MSHA personnel. Records of all testing required will be kept at the mine and will be available for inspection by the Regulatory Authority. All necessary permits for field absorption systems for the office and similar facilities will be obtained prior to construction of these facilities. Haul roads will be maintained with water and/or other materials to minimize fugitive dust emissions.

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8. Is surface mining to be conducted within 500 feet of an underground mine? (780.27, 816.79) () Yes (X) No

If yes, describe measures to be used to comply with Section 816.79. Attach a map showing the location and extent of known workings in accordance with 780.14(a)(13). Attach a copy of MSHA approval.

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B. Engineering Plans

All cross-sections, maps and plans related to operations, reclamation and structures must comply with Section 780.10. Plans, appropriate calculations 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.

None.

- (b) If an existing structure requires modification or reconstruction to meet the performance standards, attach a compliance plan which 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.

None.

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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 and 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 and 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 Sections 780.25(a)(2 and 3) and 816.81-816.85 for each coal processing waste bank to be constructed on the increment you currently propose to mine. None proposed.
- (e) Submit detailed design plans which comply with Sections 780.25(a)(2 and 3) and 816.91-816.93 for each coal processing waste dam and embankment to be constructed on the increment which you currently propose to mine. None proposed.

3. Diversions. (780.29,816.43, 816.44)

Are diversions of overland flow or stream channel diversions proposed?

(X) Yes () No

If yes, complete the following:

(a) Is the diversion to be permanent?

() Yes (X) No

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Attachment III-B-2(a)

CERTIFICATION STATEMENT:

I hereby certify that Attachment III-B.-2.A prepared for RJR Mining Company, Inc.'s Bunt Mine, are in accordance with the Regulations of the Alabama Surface Mining Commission as adopted by Act 81-435 of December 18, 1981 and amended to date, and are true and correct to the best of my knowledge and belief.


Leslie G. Stephens, P.E./P.L.S.
AL Registration #14117-E

08/08/2011
Date



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Attachment III-B-2(a)

GENERAL PLAN

The general plan consists of constructing four(4) proposed basins, Basins 001P, 002P, 003P, and 004P for the life of the mine. Detailed design plans for the basins will be submitted to the regulatory authority and upon written approval from them will be constructed and certified to the Regulatory Authority prior to disturbance in their drainage areas. All basins are to be temporary. Detailed basin removal plans will be submitted to the regulatory authority prior to a request for Phase II bond release and upon written approval from them will be graded and revegetated. (See attached data and watershed map for basin location and preliminary hydrologic information.)

A diversion/berm will be constructed adjacent to the 100' stream buffer zone to route all runoff from the permitted area through a sediment basin prior to leaving the permitted area.

Geologic investigations of the area indicate layers of sandstone, siltstone, shale and minor amounts of bituminous coal and underclay. The coal to be mined by RJR Mining Company, Inc., will be confined to the Blue Creek and Jagger Coal Seams. The strata in the area is characterized by small scale normal faulting and gentle open folding.

All surface drainage from the proposed mining area flows into Cunningham Creek.

All diversions are to be temporary and will be re-graded and revegetated. (See diversion ditch criteria).

See Attachment III-B-2(a), Watershed Map.

See Attachment III-B-2(a), Basin 001P Detailed Design Plans.

See Attachment III-B-2(a), Basin 002P Detailed Design Plans.

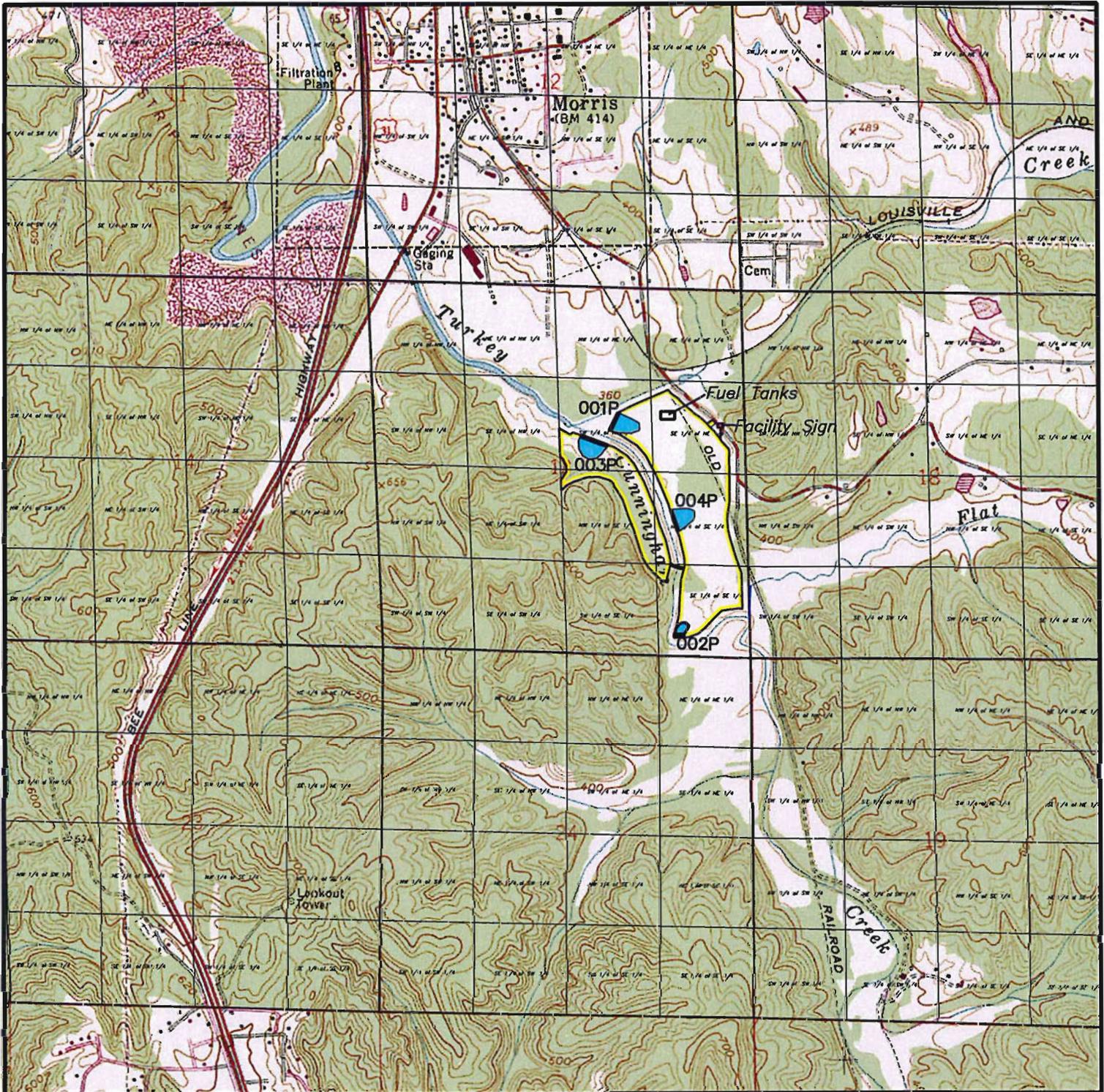
See Attachment III-B-2(a), Basin 004P Detailed Design Plans.

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Attachment III-B-2-A

<u>Basin No.</u>	<u>Location</u>	<u>Drainage Area (Acres)</u>
001	SW 1/4 of NE 1/4 and SE 1/4 of NE 1/4	44
002	SE 1/4 of SE 1/4	37
003	SW 1/4 of NE 1/4	103
004	NE 1/4 of SE 1/4	69

All within Section 13, Township 15 South, Range 3 West, Jefferson County, Alabama, as found on the Gardendale USGS Quadrangle Map.



LEGEND

-  Permit Boundary
-  Sediment Basin

NPDES PERMIT NO.: AL00
 ISSUANCE DATE: PENDING
 EFFECTIVE DATE: PENDING
 EXPIRATION DATE: PENDING
 *SUBMITTED TO ADEM FOR REVIEW ON 8/3/2011



N.P.D.E.S.
Permit and Vicinity Map
RJR Mining Co. Inc.
Bunt Mine
 Part of Section 13
 Township 15 South, Range 3 West
 Jefferson County, Alabama

DRAWN BY: JNG	DATE: 3-29-11
DWG. NAME: rjrbmnpdes2	
APPROVED BY: JHF	SCALE: 1"=2000'

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Attachment III-B-2-A

Pond Construction Criteria

The embankment for sediment basins (temporary and permanent) shall be designed and built using the following as minimum criteria:

1. The top of the dam shall be no less than 12 feet wide.
2. See design sheet for maximum and minimum embankment slopes.
3. The foundation and abutments for the impounding structure shall be designed to be stable under all conditions of construction and operation of the impoundments, with a minimum static safety factor of 1.5 for the normal pool with steady seepage saturation conditions, and a seismic safety factor of at least 1.20.
4. The dam shall be constructed with a cutoff trench based upon prudent engineering practices for the site. The cutoff shall be located on the dam centerline and be of sufficient depth to extend into a relatively impervious material from which the core of the dam shall also be constructed.
5. The embankment foundation area shall be cleared of all organic matter, all surfaces sloped to no steeper than 1v:1h, and the entire foundation surface scarified.
6. The entire embankment and cutoff trench shall be compacted to 95 percent density, based on standard proctor as outlined in ASTM.
7. The material placed in the embankment shall be free of sod, roots, stones over 6 inches in diameter, and other objectionable materials. The fill material shall be placed and spread over the entire fill area, starting at the lowest point of the foundation, in layers not to exceed 12 inches in thickness. Construction of the fill shall be undertaken only at such times that the moisture content of the fill material will permit satisfactory compaction in accordance with paragraph 5.
8. The pool area of the basin will be cleared of timber and large undergrowth.
9. The primary decant system when consisting of a pipe shall be installed according to Class C pipe installation for embankment bedding.
10. The primary decant system shall be equipped with a device, or constructed, such as to insure that subsurface withdrawal is accomplished to prevent discharge of floating solids. If a channel

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is used as the primary decant a skimmer shall be installed to prevent floating solids from discharging.

11. A splash pad or riprap may be required under the discharge of the primary decant system where necessary to insure that the discharge does not erode the embankment.
12. The combination primary and secondary decant system shall be designed to safely carry the expected peak flow from a 25 year - 6 hour storm. The entire emergency overflow spillway channel will be a stabilized channel and will be stabilized upon completion of construction as specified within the detailed design plans using prudent engineering measures. These measures may consist of lining the spillway with concrete or a durable rock riprap, or the spillway being constructed in consolidated non-erodible material and planted with a mixture or both annual and perennial grasses, or a combination of any or all of the above.
13. Sediment basins using a single spillway system shall be an open channel of non-erodible construction consisting of concrete, durable rock riprap or its being constructed in consolidated non-erodible material as specified in the detailed design plans.
14. The settled embankment for temporary impoundments shall be a minimum of 1.0 foot above the maximum water elevation for the runoff from a 25 year - 6 hour, or a 10 year - 24 hour precipitation event (whichever has the greatest runoff). The settled embankment for permanent impoundments shall be a minimum of 1.0 foot above the maximum water elevation for the runoff from a 25 year - 6 hour, or a 10 year - 24 hour precipitation event (whichever has the greatest runoff).
15. If basins are built in series, then the combined decant system for each shall be designed to accommodate the entire contributing drainage area.
16. The dam and all disturbed areas shall be seeded with both perennial and annual grasses, fertilized and mulched in order to insure erosion is minimized. Hay bales or riprap may be placed at the toe of the dam immediately upon completion of construction.
17. The constructed height of the dam shall be increased a minimum of 5 percent over the design height to allow for settlement over the life of the embankment.
18. Final graded slopes of the entire permanent water impoundment area shall not exceed 2.5H-1.0V to provide for adequate safety and access for proposed water users.

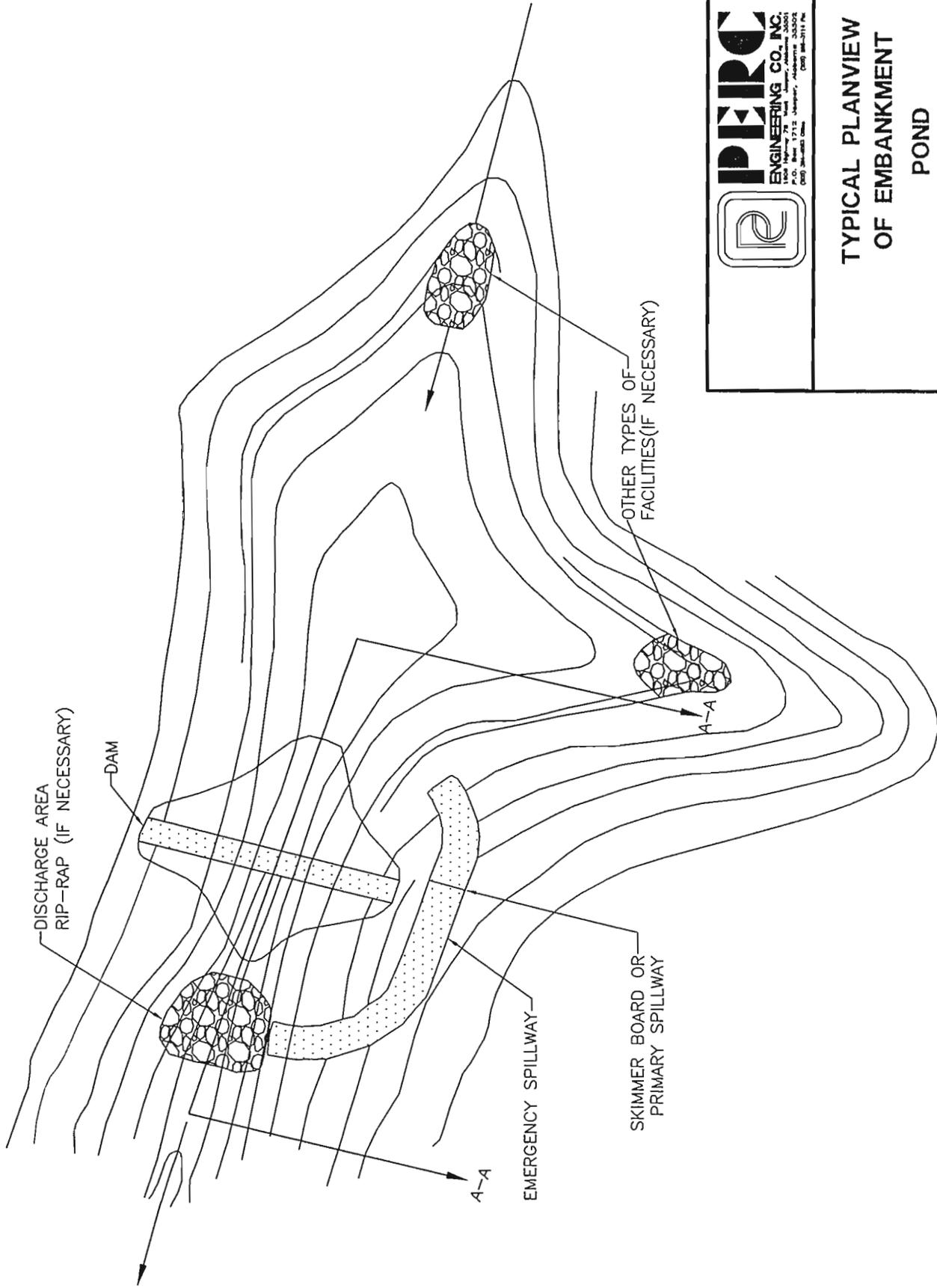
Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

19. Prior to Phase II bond release, additional data concerning water quality, water quantity, depth, size, configuration, postmining land use, etc., for each proposed permanent water impoundment, shall be submitted to the Regulatory Authority for permanent water impoundment approval.
20. All sediment basins will be inspected for stability, erosion, etc. two (2) times a month until removal of the structure or release of the reclamation bond.
21. The embankment and spillway will be maintained by repairing any damage such as erosion, slope failure or spillway damage until removal of the structure or release of the performance bond.
22. All ponds shall be examined quarterly for structural weakness, instability, erosion, or other hazardous conditions and maintenance performed as necessary. Formal inspections shall be made on an annual basis, including any reports or modifications, in accordance with 880-X-10C-.20[1(j)] of the Alabama Surface Mining Commission Regulations.
23. Sediment will be removed from each pond when the accumulated sediment reaches the sediment storage volume as shown on the detailed design sheet.
24. Upon completion of mining, successful reclamation and effluent standards being met, each sediment basin not remaining as a permanent water impoundment will be dewatered in an environmentally safe manner (such as siphoning, pumping, etc.) and reclaimed to approximate original contours by the following procedure: A permanent diversion channel (designed for a 10 year - 24 hour precipitation event) shall be cut along the outer edge of the basin to re-route drainage around the basin and back through the stabilized spillway to allow reclamation of the sediment basin. The diversion channel shall be designed and grassed as per enclosed information. (See permanent diversion for basin disposal). Upon completion of the diversion channel the back slope of the dam shall be graded to a minimum 3H to 1V slope. The dewatered sediment basin area shall be seeded with some combination of the following: Fescue, bermuda, rye grass, canary grass and willows. After seeding the area shall be mulched. Any additional sediment or embankment material not used to meet original contour, if non-toxic, shall be spread in thin layers within the permit area and vegetated as stated in the approved reclamation plan. All toxic material encountered in the basin disposal shall be buried and covered with 4 feet of non-toxic material and vegetated as stated in the approved reclamation plan.
25. A qualified registered professional engineer or other qualified professional specialist, under the direction of the professional

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engineer shall conduct regular inspections during construction and upon completion shall inspect each basin for certification purposes.

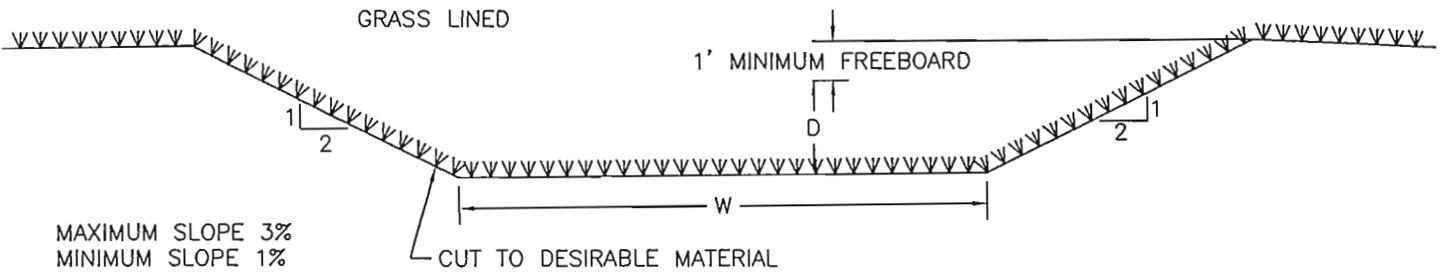
26. Point source discharge embankments shall be constructed and abutments keyed into desirable material if at all possible. In the event that undesirable material is encountered, additional design and construction criteria shall be submitted prior to certification.



TYPICAL PLANVIEW OF EMBANKMENT POND

DRAWN BY:	P.T.O.	DATE:	8-10-05
DWG. NAME:	TYPICALS		
APPROVED BY:	W.K.M.	SCALE:	NONE

PLANVIEW OF EMBANKMENT POND



$$Q = \frac{1.49}{N} A R^{2/3} S^{1/2}$$

$N(\text{LOOSE STONE OR GRASS LINED}) = 0.035$
 $A = \text{AREA}$
 $R = \text{AREA/WETTED PERIMETER}$
 $S = \text{SLOPE}$

* GRASS LINING: FESCUE, BERMUDA, RYE GRASS

DIVERSION CHANNEL DEPTH (D) FOR WIDTH (W) 8.0 FT.	
PEAK FLOW Q (CFS)	DEPTH D (FT)
0-15	0.5
15-50	1.0
50-100	1.5
100-180	2.0
180-270	2.5

DIVERSION CHANNEL DEPTH (D) FOR WIDTH (W) 10.0 FT.	
PEAK FLOW Q (CFS)	DEPTH D (FT)
0-15	0.5
15-60	1.0
60-120	1.5
120-210	2.0
210-320	2.5

DIVERSION CHANNEL DEPTH (D) FOR WIDTH (W) 12.0 FT.	
PEAK FLOW Q (CFS)	DEPTH D (FT)
0-20	0.5
20-70	1.0
70-150	1.5
150-250	2.0
250-383	2.5

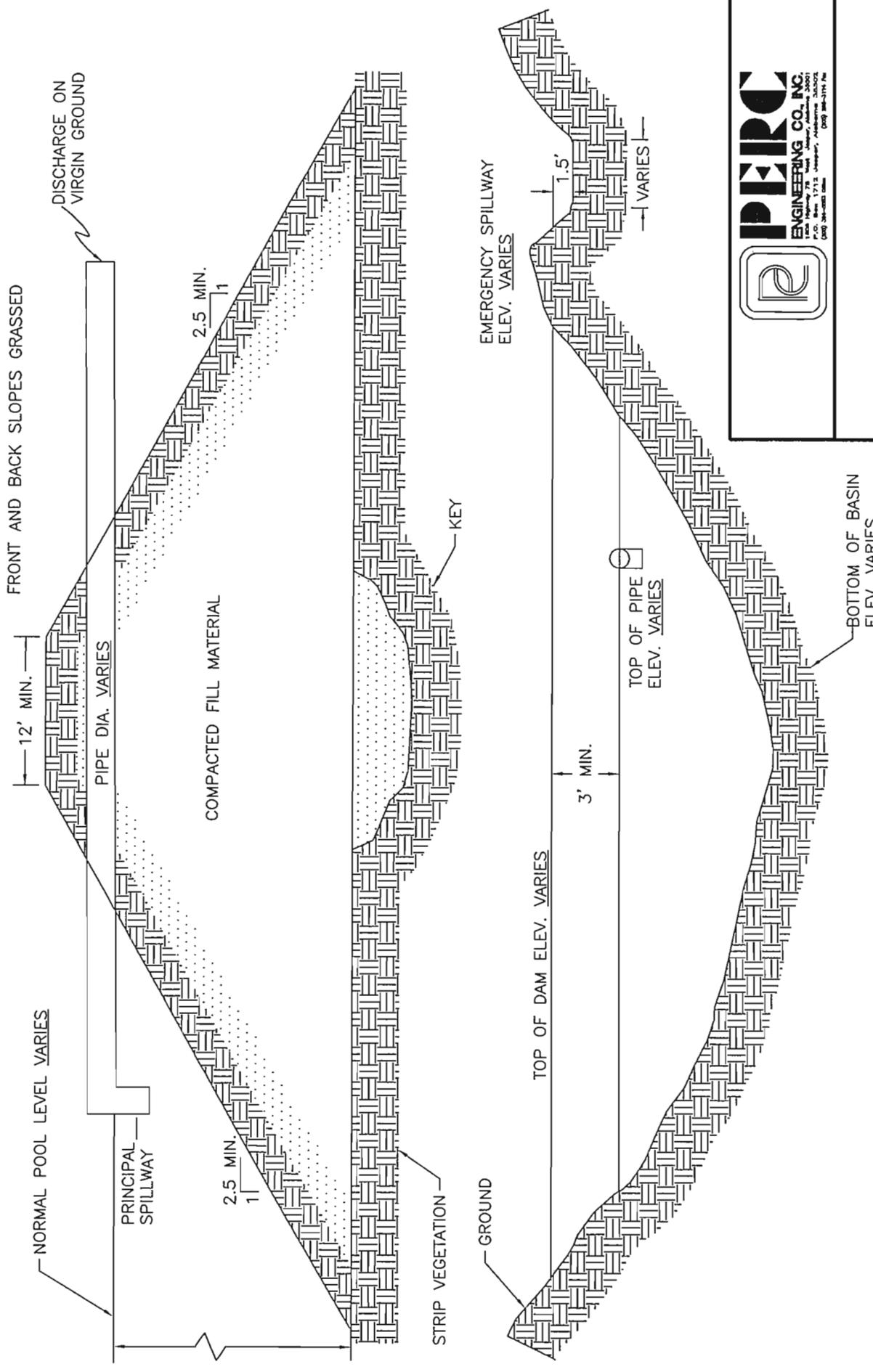
DIVERSION CHANNEL DEPTH (D) FOR WIDTH (W) 15.0 FT.	
PEAK FLOW Q (CFS)	DEPTH D (FT)
0-25	0.5
25-90	1.0
90-180	1.5
180-300	2.0
300-450	2.5



TYPICAL PERMANENT DIVERSION FOR BASIN DISPOSAL

DRAWN BY: S.D.M.	DATE: 1/4/2011
DWG. NAME: TYPICALS	
APPROVED BY: L.G.S.	SCALE: NONE

\\Per600\pcc\eng\Stems\mtes\Stems Docs\pcc\pcc\II-B-2(g)\Attachment II-B-2(g).dwg 01/04/11 12:26



TYPICAL DAM DETAIL
NO SCALE

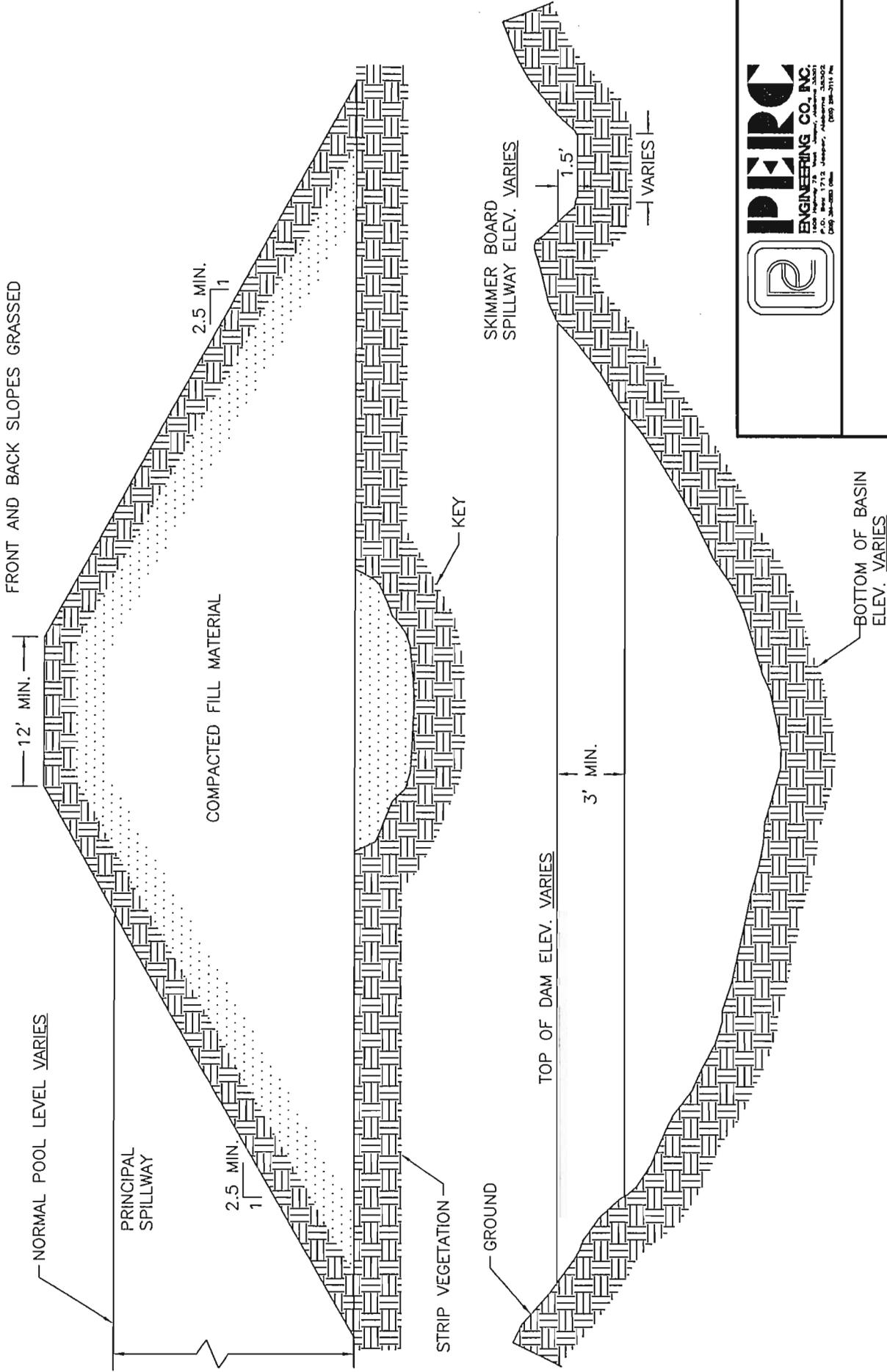


TYPICAL DAM DETAIL

DRAWN BY: P.T.O.	DATE: 8-10-05
DWG. NAME: TYPICALS	
APPROVED BY: W.K.M.	SCALE: NONE

ATTACHMENT II-B-2-A

\\perc60\users_eng\Steve\Drawings\Drawings\III-B-2(6) Attachment III-B-2(6).dwg 01/04/11 12:26



TYPICAL DAM DETAIL
NO SCALE



TYPICAL DAM DETAIL

DRAWN BY: P.T.O.	DATE: 8-10-05
DWG. NAME: TYPICALS	
APPROVED BY: W.K.M.	SCALE: NONE

ATTACHMENT III-B-2-A

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

- (b) Describe in detail the proposed diversion and include plans, maps and cross-sections which comply with 816.43 and 816.44.

Temporary diversions required for the Bunt Mine are shown on Attachment III-B-3, Diversion Location Map, and a typical section of proposed diversions is included in this application and described in the design and construction guidelines for diversions as prepared for RJR Mining Company, Inc.

Should the need for diversions other than those shown become evident, they will be constructed under the same Guidelines within the area permitted and bonded.

After all mining and reclamation activities are complete the diversions will be reclaimed and revegetated.

See Attachment III-B.-3. for referenced Guidelines.

See Attachment III-B.-3. for diversion ditch location.

- (c) If diversions are temporary, enclose plans for removal, including a timetable and plans for restoration of vegetation, channel characteristics, etc.
- (d) Enclose approvals of other government agencies, where required.

None required.

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

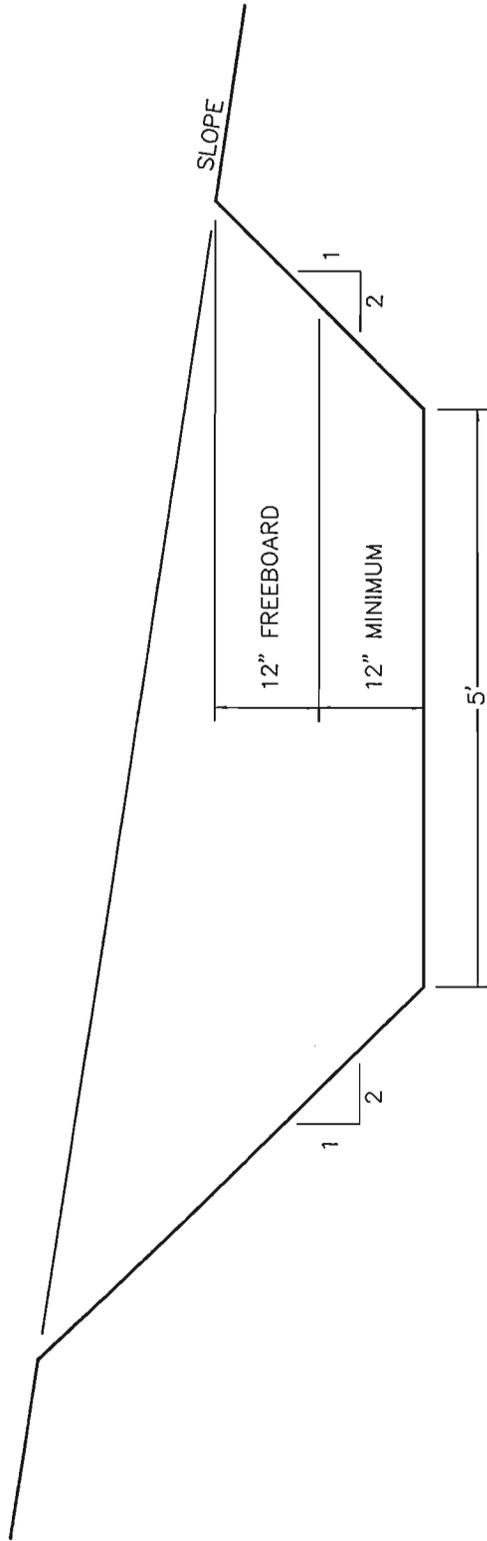
Attachment III-B-3

SPECIFICATIONS FOR DIVERSION CHANNELS
AND DIVERSION BERMS

1. Temporary diversions shall be constructed to pass safely the peak runoff from a 2-year, 6-hour precipitation event.
2. To protect fills and property and to avoid danger to public health and safety, permanent diversions shall be constructed to pass safely the peak runoff from a 10-year, 6-hour precipitation event. Permanent diversions shall be constructed with gently sloping banks that are stabilized by vegetation.
3. Diversions shall be designed, constructed, and maintained in a manner which prevents additional contributions of suspended solids to stream flow and to runoff outside the permit area, to the extent possible, using the best technology currently available. Appropriate sediment control measures for these diversions may include, but not be limited to, maintenance of appropriate gradients, channel lining, revegetation, roughness structures, and detention basins.
4. No diversion shall be located so as to increase the potential for land slides and no diversion shall be constructed on existing land slides.
5. When no longer needed, each temporary diversion shall be removed and the affected land regraded, topsoiled, and revegetated in accordance with Rules 880-X-10C-.10, 880-X-10C-.11, 880-X-10C-.52 - 880-X-10C-.58, 880-X-10C-.60, and 880-X-10C-.62.
6. Channel linings, when slopes are between 1-3 percent shall consist of both perennial and annual grasses and when slopes are greater than 3 percent, shall consist of riprap or be cut into non-erodible material.
7. Freeboard shall provide protection for transition of flows and for critical areas such as swales and curves along the entire channel length.
8. Energy dissipators shall be installed, when necessary, at discharge points where natural streams and exit velocity of the diversion ditch flow is greater than that of the receiving stream.

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

9. Excess excavated material not necessary for diversion channel geometry or regrading of the channel shall be disposed of in accordance with Rule 880-X-10C-.36.
10. Topsoil removed from the diversion excavations shall be handled in accordance with Rule 880-X-10C-.07 through 880-X-10C-.11.
11. Diversions shall not be constructed or operated to divert water into underground mines.
12. The embankment or berm foundation area shall be cleared of all organic matter, all surfaces sloped to no steeper than 1v:1h and the entire foundation surface scarified.
13. The entire embankment or berm shall be compacted to 95% density, based on standard proctor as outlined in ASTM.
14. The material placed in the berm shall be free of sod, roots, stones over 6 inches in diameter, and other objectionable materials. The fill material shall be placed and spread over the entire fill area, starting at the lowest point of the foundation, in layers not to exceed 12 inches in thickness. Construction of the fill shall be undertaken only at such times as the moisture content of the fill material will permit satisfactory compaction in accordance with paragraph 13.
15. The berm and all disturbed areas shall be seeded with both perennial and annual grasses in order to insure that erosion is minimized. Hay bales or riprap may be placed at the toe of the berm immediately upon completion of construction.
16. All berms shall be examined quarterly for structural weakness, instability, erosion, or other hazardous conditions and maintenance performed as necessary.



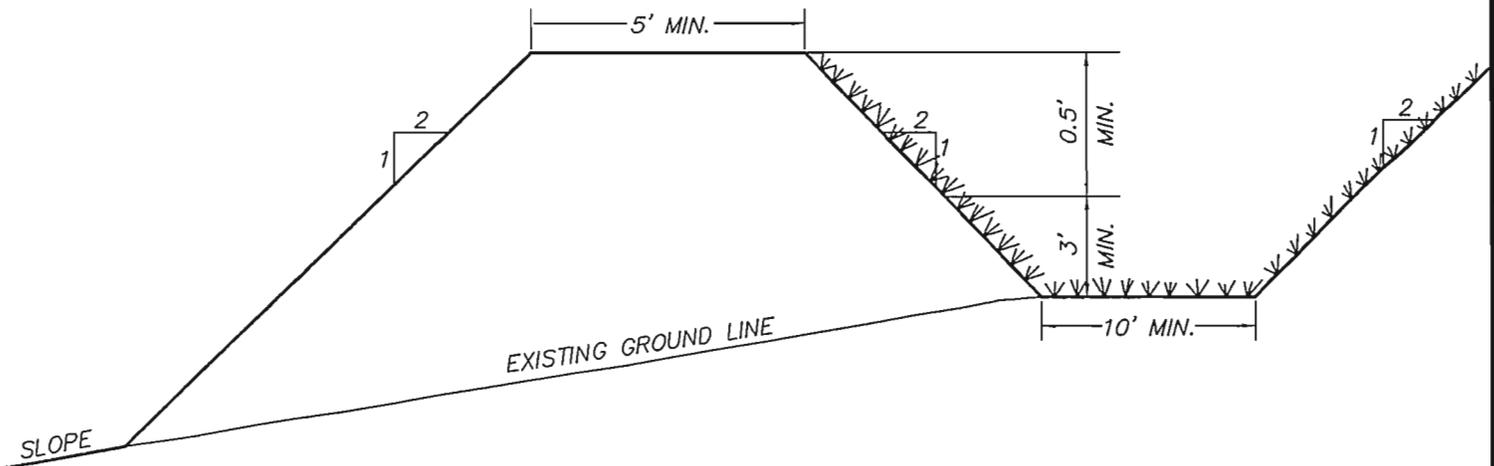
DIVERSION DITCH

TYPICAL DIVERSION CROSS-SECTION
NO SCALE

CHANNEL LINING TO CONSIST OF A MIXTURE OF FESCUE AND BERMUDA GRASS

DIVERSION/BERM DETAIL

DIVERSION A-A'



TYPICAL DIVERSION/BERM CROSS SECTION

CHANNEL LINING TO CONSIST OF A MIXTURE OF BERMUDA AND FESCUE GRASSES

Note: The berm material is to consist of a clay material. The Material will be placed in 6 inch lifts and compacted to 95% of the standard proctor density. The standard proctor density will be determined prior to the placement of the material.



PERC
ENGINEERING CO., INC.
1600 Highway 78 West Jasper, Alabama 35501
P.O. Box 1712 Jasper, Alabama 35502
(205) 361-5552 Office (205) 361-1191 Fax

Typical Diversion Berm Detail

DRAWN BY: S.D.M.	DATE: 12/5/2008
DWG. NAME: BRMTYP1	
APPROVED BY: L.G.S.	SCALE: NONE

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

4. Disposal of excess spoil. (780.35, 816.71)

Are excess spoil fills proposed?

(XXX) Yes () No

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 the design of the disposal structures.
- (b) Include the results of the geotechnical investigation showing:
 - (1) A description of physical characteristics of bedrock and geological 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 cores 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.
- (e) Are rock-toe buttresses or keyway cuts to be used?
() Yes () 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.

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

5. Transportation Facilities (780.33, 780.37)

(a) Describe the measures to be taken to ensure the interest of the public and landowners affected are protected if disturbance within 100 feet of the right-of-way or relocation of a public road is proposed.

- 1) Safety berms will be constructed adjacent to roadways to be disturbed to contain traffic.
- 2) Proper signs, informing the traveling public of the disturbance, will be posted along the road right-of-ways 500 feet from the beginning of the disturbance.
- 3) All safety requirements of the appropriate public health and safety, will be followed.

(b) Describe any unique design, feature, or structure which is necessary for the road to meet the performance standards of Subchapter K using any necessary maps, plans, or cross-sections.

See Attachment III-B-5, Primary Road Location Map.

See Attachment III-B-5, Primary Road Detailed Design Plans.

(c) Describe, in detail, the measures to be taken during construction, maintenance and use of the transportation facilities to prevent damage to fish and wildlife and their habitat; public and private property; and erosion, siltation, and pollution of water.

Roads will be constructed with the required ditching for proper drainage. Roads will be maintained with a dozer and motor grader patrol as required. Water will be used to reduce erosion and dust emissions. Roads will be located on ridge tops where possible or on the most stable slopes to minimize erosion. Vegetation will not be cleared except as necessary for roadway and ditch construction. After construction of the roads is complete, vegetation will be established on cut and fill slopes that exist along the all roads. To the extent possible, roads will be located above the sediment basins to be constructed for the mining operation in an effort to control or prevent additional contributions of suspended solids to stream flow or runoff outside the permit area and to comply with State and Federal water quality standards applicable to receiving waters and avoid the alteration of the normal flow of water in streambeds or drainage channels while preventing or controlling damage to public or private property. Where it is not possible or is impractical to locate roads in this manner, sediment control devices such as silt fencing, hay bale check dams and rock filter check dams will be used as necessary to maintain water quality. Roads not required for fire and sediment basin access will be reclaimed. See Attachment III-B-5, Attachment III-B-5(b), and Specifications for the construction, maintenance, and reclamation of primary roads.

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

**SPECIFICATIONS FOR THE CONSTRUCTION, MAINTENANCE
AND RECLAMATION OF ANCILLARY ROADS**

1. To the extent possible, roads will be located on ridges or on the most stable available slopes to prevent or minimize erosion, downstream sedimentation and flooding in an effort to prevent adverse effects to fish, wildlife and related environmental values.
2. To the extent possible, roads will be located above the sediment basins to be constructed for the mining operation in an effort to control or prevent additional contributions of suspended solids to stream flow or runoff outside the permit area and to comply with State and Federal water quality standards applicable to receiving waters and avoid the alteration of the normal flow of water in streambeds or drainage channels while preventing or controlling damage to public or private property. Where it is not possible or is impractical to locate roads in this manner, sediment control devices such as silt fencing, hay bale check dams and rock filter check dams will be used as necessary to maintain water quality.
3. Prior to construction, the roadway will be cleared, grubbed and will have the topsoil removed. The clearing limits will be kept to the minimum necessary to accommodate the roadbed and associated ditch construction.
4. Roads will be constructed of suitable subgrade material compacted to ninety-five percent of the standard proctor density and will have a minimum width of ten feet and a maximum width necessary to accommodate the largest equipment traveling the road.
5. Roadbeds will be cut to consolidated non-erodible material or will be surfaced with durable non-toxic, non-acid forming substances. It is anticipated that durable sandstone overburden on site will be utilized as surfacing material. If there should not be adequate sandstone on site, then a durable sandstone material, chert, crushed limestone, crushed concrete, crushed asphalt, red rock, ironore refuse, gravel, or other durable non-toxic, non-acid forming material approved by the Regulatory Authority will be hauled in from off site and placed on the roadbed to a depth of two inches.
6. No sustained grades will exceed ten percent unless deemed necessary, in which case appropriate sediment control facilities will be constructed. If grades in excess of fifteen percent are required, cross drains, ditch relief

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

drains and road drainways will be located at a minimum distance of three-hundred feet.

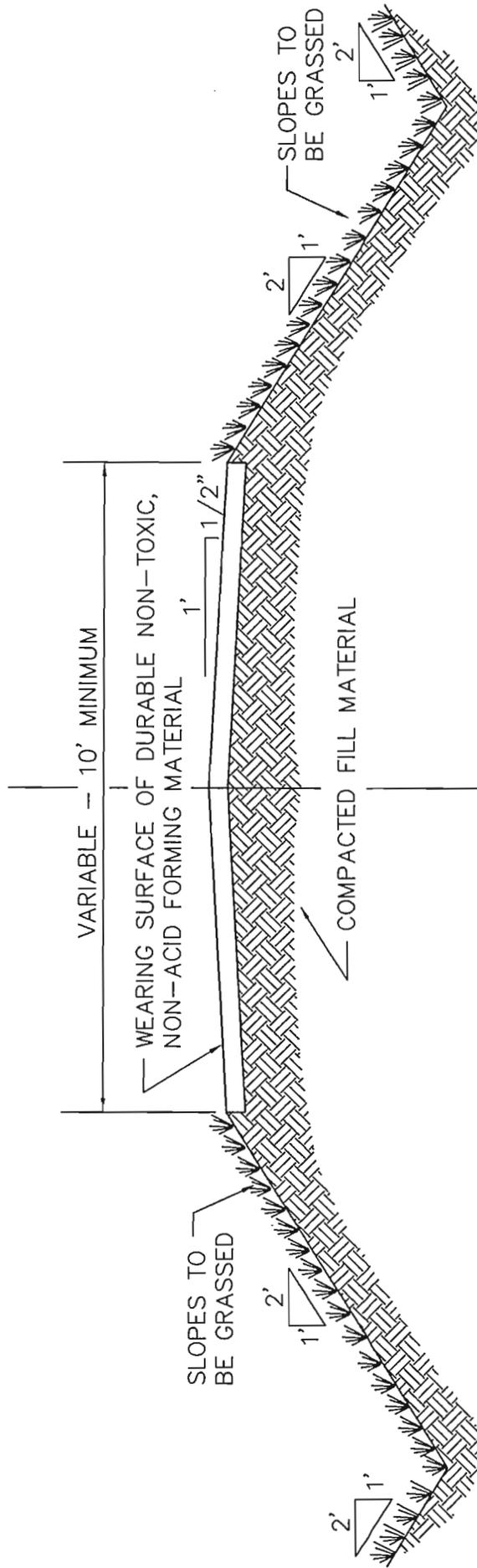
7. Roads will be constructed so as to have adequate drainage utilizing ditches, cross drains and ditch relief drains. Roads will not be located in the channel of an intermittent or perennial stream unless specifically approved by the Alabama Surface Mining Commission. Additionally, no relocation and/or alteration of an intermittent or perennial stream will be done unless specifically approved by the Alabama Surface Mining Commission. In the event that it becomes evident that any drainage structures including culverts, bridges and/or low water crossings will be required in order to cross an intermittent or perennial stream, the structure will be designed in accordance with Alabama Surface Mining Commission requirements and prudent engineering practice and the approval of the design(s) will be acquired prior to the commencement of construction. Hay bale check dams and silt fences will be used at strategic locations when necessary to control sediment runoff. Immediately upon completion of construction, the side slopes of the road embankments and/or cuts will be fertilized, seeded with annual and perennial grasses and mulch will be added to aid in the prevention of erosion and to enhance seed germination. The seed mix will consist of, but is not limited to, some combination of the following species: bermuda grass, fescue, lespedeza, rye grass, brown top millet, clover and vetch. The particular species to be planted will vary with the planting season at the time of seed application.
8. Routine maintenance will be required to assure that the road continually meets performance standards and will consist of periodic grading, resurfacing, dust suppression and maintenance of sediment control facilities. Dust suppression will consist of the application of water, chemical binders and/or other dust suppressants. No oil will be utilized in this process. Spot seeding, fertilizing and mulching will be performed as necessary to improve vegetative cover on roadway slopes. A road damaged by a catastrophic event shall be repaired as soon as practicable after the damage has occurred.
9. Roads not to be retained as part of the post mine land use shall be reclaimed in accordance with the approved reclamation plan for this permit as soon as practicable after they are no longer needed as part of the mining and reclamation operation, using the following procedures:
 - a. The road will be closed to traffic.

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

- b. All bridges, culverts and other drainage structures not approved as part of the post mine land use will be removed.
 - c. All road surfacing materials that are not compatible with the post mine land use or revegetation requirements will be properly disposed of on-site or removed from the site for re-use.
 - d. Roadway cut and fill slopes shall be regraded and reshaped to be compatible with the post mine land use and to compliment the natural drainage pattern of the surrounding terrain.
 - e. The natural drainage patterns shall be protected from surface runoff and erosion utilizing the installation of dikes and/or cross drains as necessary.
 - f. The roadbed shall be ripped or scarified as necessary, the topsoil or substitute or approved growing medium shall be replaced and revegetated in accordance with the approved reclamation plan for this permit.
10. The following drawings illustrate typical roadbed configurations for ancillary roads.

TYPICAL HAUL ROAD FILL SECTION

NO SCALE



PERC
ENGINEERING CO. INC.
1500 Highway 78 West, Albany, Alabama 36807
P.O. Box 1712, Jasper, Alabama 35062
501-336-6100 Fax
501-336-6101 Tel

TYPICAL FILL SECTION
ANCILLARY HAUL ROAD

DRAWN BY: K.D.P.
DWG. NAME: TYPHAULA

DATE: 2-3-97

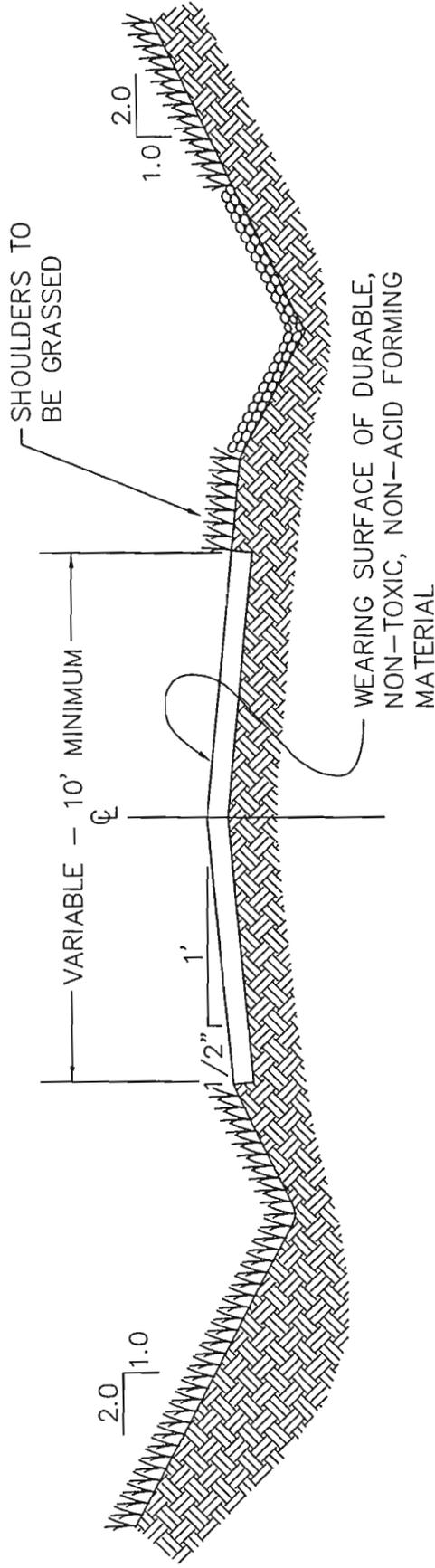
APPROVED BY: S.R.I.

SCALE: NONE

ATTACHMENT III - B. - 5.

TYPICAL HAUL ROAD CUT SECTION

NO SCALE



TYPICAL CUT SECTION
ANCILLARY HAUL ROAD

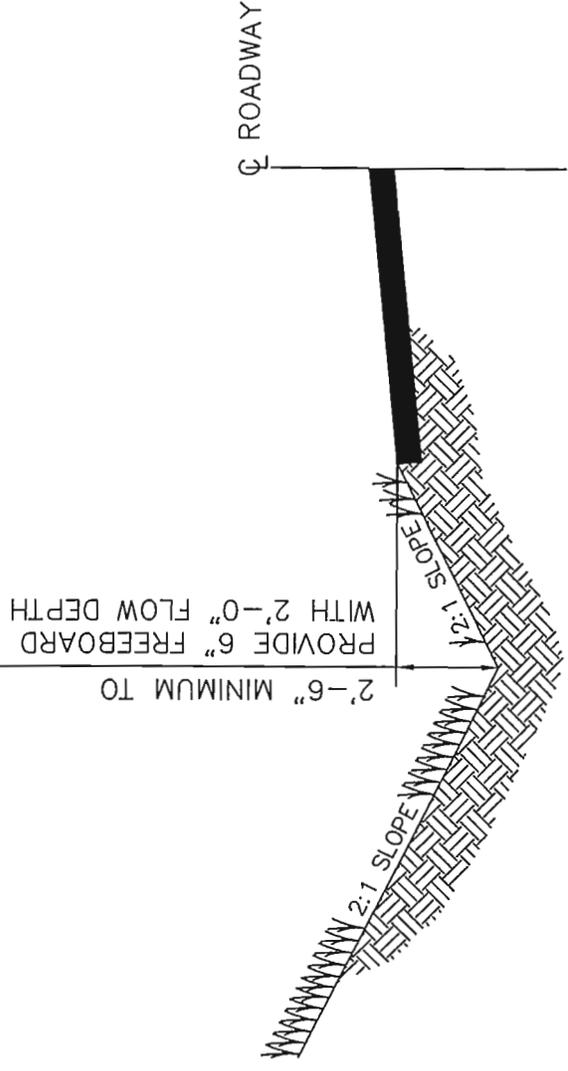
DRAWN BY: K.D.P.
DWG. NAME: TYPHAULB

DATE: 2-3-97

APPROVED BY: S.R.I.

SCALE: NONE

ATTACHMENT III - B. - 5.



MINIMUM DITCH GRADIENT = 1%
 MAXIMUM DITCH GRADIENT = 5%

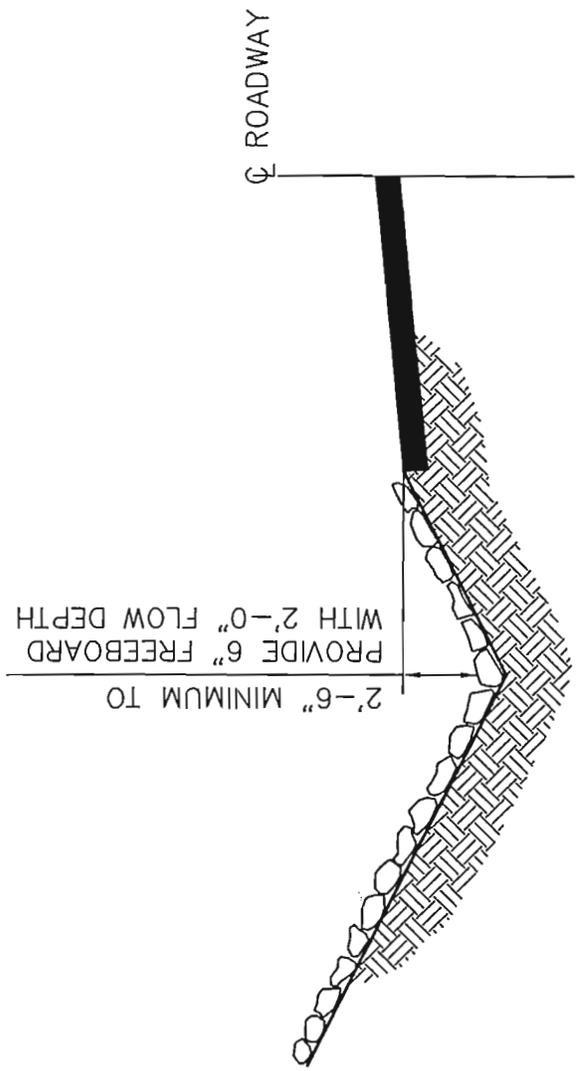
DITCH CHANNEL TO BE VEGETATED WITH
 A MIXTURE OF BERMUDA GRASS, FESCUE,
 AND LESPEDEZA TO CONFORM TO CLASS
 "D" RETARDANT CLASS.



PERC
 ENGINEERING CO., INC.
720
 P.O. Box 1718 Jasper, Alabama 35002
 (205) 344-8200

TYPICAL ANCILLARY ROADWAY DITCH
 CROSS SECTION

DRAWN BY: K.D.P. DWG. NAME: ANCIROAD	DATE: 2-4-97
APPROVED BY: R.E.P.	SCALE: NONE



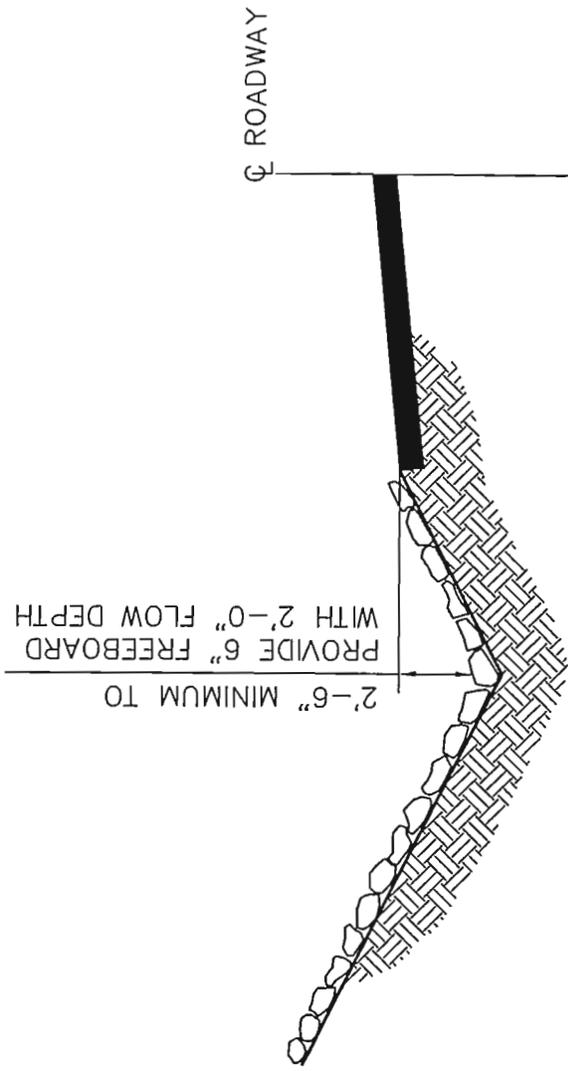
DITCH GRADIENT 5% TO 10%

DITCH CHANNEL TO BE LINED WITH NON-ERODIBLE NON-TOXIC, NON-ACID FORMING SANDSTONE OR LIMESTONE RIP-RAP. THE RIP-RAP WILL BE "CLASS 1" RIP-RAP AND HAVE A MINIMUM THICKNESS OF 12".



TYPICAL ANCILLARY ROADWAY DITCH
CROSS SECTION

DRAWN BY: K.D.P.	DATE: 2-4-97
DWG. NAME: PRIMRD1	
APPROVED BY: R.E.P.	SCALE: NONE



DITCH GRADIENT 11% TO 17%

DITCH CHANNEL TO BE LINED WITH NON-ERODIBLE NON-TOXIC, NON-ACID FORMING SANDSTONE OR LIMESTONE RIP-RAP. THE RIP-RAP WILL BE "CLASS 2" RIP-RAP AND HAVE A MINIMUM THICKNESS OF 16".



PERC
 ENGINEERING CO., INC.
 1712 University Avenue, Alabama School
 P.O. Box 1712 University, Alabama School
 Daphne, Alabama 36526
 (904) 344-4444 Fax

TYPICAL ANCILLARY ROADWAY DITCH
 CROSS SECTION

DRAWN BY:	K.D.P.	DATE:	2-4-97
DWG. NAME:	PRMRD2	APPROVED BY:	R.E.P.
		SCALE:	NONE

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

**SPECIFICATIONS FOR THE CONSTRUCTION, MAINTENANCE
AND RECLAMATION OF PRIMARY ROADS**

1. Primary roads shall be designed by or under the direction of a registered professional engineer in accordance with the Alabama Surface Mining Commission rules and regulations and prudent engineering practice.
2. Each roadway embankment will be designed and constructed so as to have a minimum static safety factor of 1.3.
3. To the extent possible, roads will be located on ridges or on the most stable available slopes to prevent or minimize erosion, downstream sedimentation and flooding in an effort to prevent adverse effects to fish, wildlife and related environmental values.
4. To the extent possible, roads will be located above the sediment basins to be constructed for the mining operation in an effort to control or prevent additional contributions of suspended solids to stream flow or runoff outside the permit area and to comply with State and Federal water quality standards applicable to receiving waters and avoid the alteration of the normal flow of water in streambeds or drainage channels while preventing or controlling damage to public or private property. Where it is not possible or is impractical to locate roads in this manner, sediment control devices such as silt fencing, hay bale check dams and rock filter check dams will be used as necessary to maintain water quality. No fording of intermittent or perennial streams will be conducted unless specifically approved by the Alabama Surface Mining Commission as temporary routes to be used during road construction.
5. Prior to construction, the roadway will be cleared, grubbed and will have the topsoil removed. The clearing limits will be kept to the minimum necessary to accommodate the roadbed and associated ditch construction.
6. Roads will be constructed of suitable compacted subgrade material and will have a minimum width of eighteen feet and a maximum width necessary to accommodate the largest equipment traveling the road.
7. Roadbeds will be cut to consolidated non-erodible material or will be surfaced with durable non-toxic, non-acid forming substances. The wearing surface will consist of durable sandstone, chert, crushed limestone, crushed concrete, crushed asphalt, red rock, ironore refuse, gravel, or other durable non-toxic, non-acid forming material approved by the

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

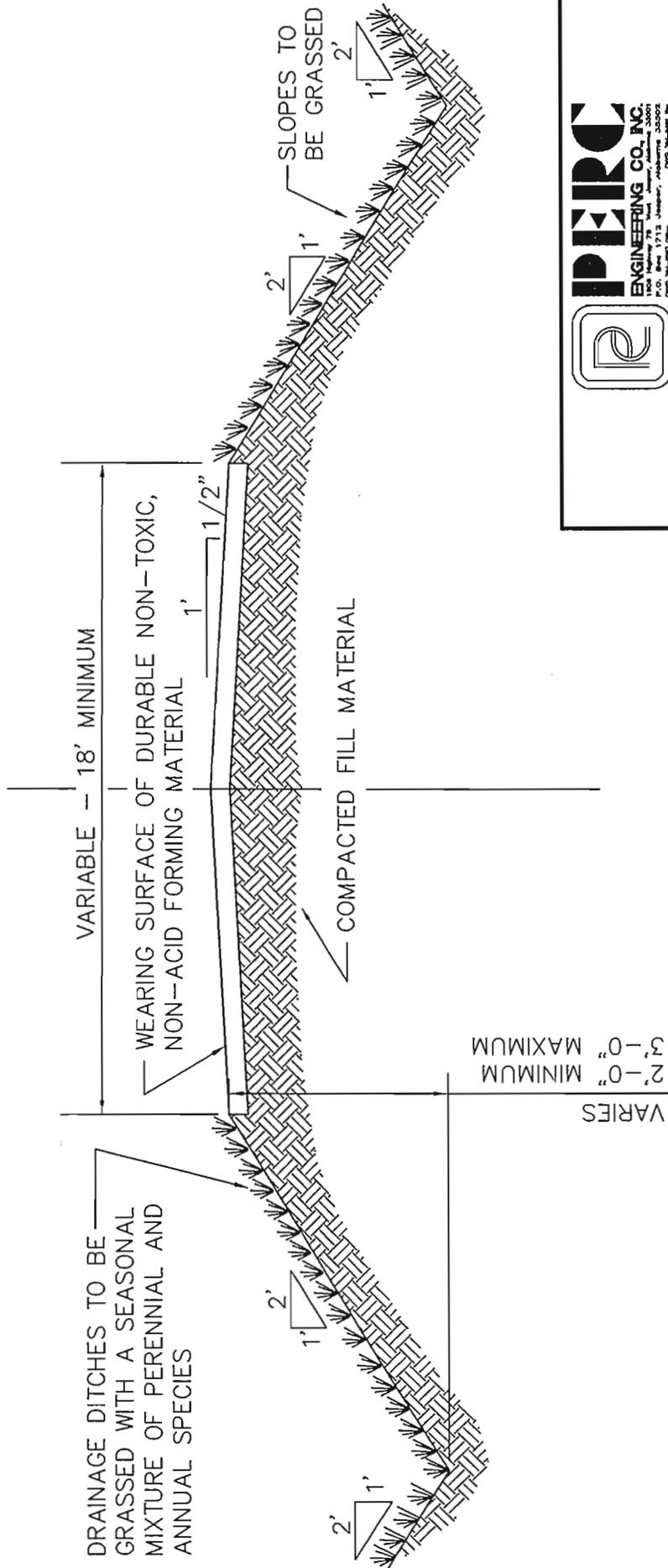
- Regulatory Authority. The wearing surface will be placed on the roadbed to a depth of four inches.
8. No sustained grades will exceed ten percent unless deemed necessary, in which case appropriate sediment control facilities will be constructed. If grades in excess of fifteen percent are required, cross drains, ditch relief drains and road drainways will be located at a minimum distance of three-hundred feet.
 9. Roads will be constructed so as to have adequate drainage utilizing ditches, culverts, cross drains and ditch relief drains designed to safely pass the peak runoff from a ten year, six hour precipitation event. Drainage pipes and culverts shall be installed as designed and will be maintained in a free and operating condition to prevent and control erosion at inlets and outlets. Culverts have been designed to support the load of the heaviest equipment to travel the road and are based on the Handbook of Steel Drainage and Highway Construction Products by the American Iron and Steel Institute and the equipment specifications. Drainage ditches will be constructed and maintained in accordance with the approved design to prevent uncontrolled drainage over the road surface and embankment. Roads will not be located in the channel of an intermittent or perennial stream unless specifically approved by the Alabama Surface Mining Commission. Additionally, no relocation and/or alteration of an intermittent or perennial stream will be done unless specifically approved by the Alabama Surface Mining Commission. In the event that it becomes evident that any drainage structures including culverts, bridges and/or low water crossings will be required in order to cross an intermittent or perennial stream, the structure will be designed and constructed in accordance with Alabama Surface Mining Commission requirements and prudent engineering practice and the approval of the design(s) will be acquired prior to the commencement of construction. Hay bale check dams and silt fences will be used at strategic locations when necessary to control sediment runoff. Immediately upon completion of construction, the side slopes of the road embankments and/or cuts will be fertilized, seeded with annual and perennial grasses and mulch will be added to aid in the prevention of erosion and to enhance seed germination. The seed mix will consist of, but is not limited to, some combination of the following species: bermuda grass, fescue, lespedeza, rye grass, brown top millet, clover and vetch. The particular species to be planted will vary with the planting season at the time of seed application. Upon completion of construction of each phase of the roadway the construction will be certified to the Alabama Surface Mining Commission as having been done in accordance with the approved plans for the roadway and associated facilities.

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

10. Routine maintenance will be required to assure that the road continually meets performance standards and will consist of periodic grading, resurfacing, dust suppression and maintenance of sediment control facilities. Dust suppression will consist of the application of water, chemical binders and/or other dust suppressants. No oil will be utilized in this process. Spot seeding, fertilizing and mulching will be performed as necessary to improve vegetative cover on roadway slopes. A road damaged by a catastrophic event shall be repaired as soon as practicable after the damage has occurred.
11. Roads not to be retained as part of the post mine land use shall be reclaimed in accordance with the approved reclamation plan for this permit as soon as practicable after they are no longer needed as part of the mining and reclamation operation, using the following procedures:
 - a. The road will be closed to traffic.
 - b. All bridges, culverts and other drainage structures not approved as part of the post mine land use will be removed.
 - c. All road surfacing materials that are not compatible with the post mine land use or revegetation requirements will be properly disposed of on-site or removed from the site for re-use.
 - d. Roadway cut and fill slopes shall be regraded and reshaped to be compatible with the post mine land use and to compliment the natural drainage pattern of the surrounding terrain.
 - e. The natural drainage patterns shall be protected from surface runoff and erosion utilizing the installation of dikes and/or cross drains as necessary.
 - f. The roadbed shall be ripped or scarified as necessary, the topsoil or substitute or approved growing medium shall be replaced and revegetated in accordance with the approved reclamation plan for this permit.
12. The drawings and data contained in the specific design plans illustrate typical roadbed configurations for primary roads as well as site specific design of drainage structures, stability analysis and ditch sections.

TYPICAL HAUL ROAD FILL SECTION

NO SCALE

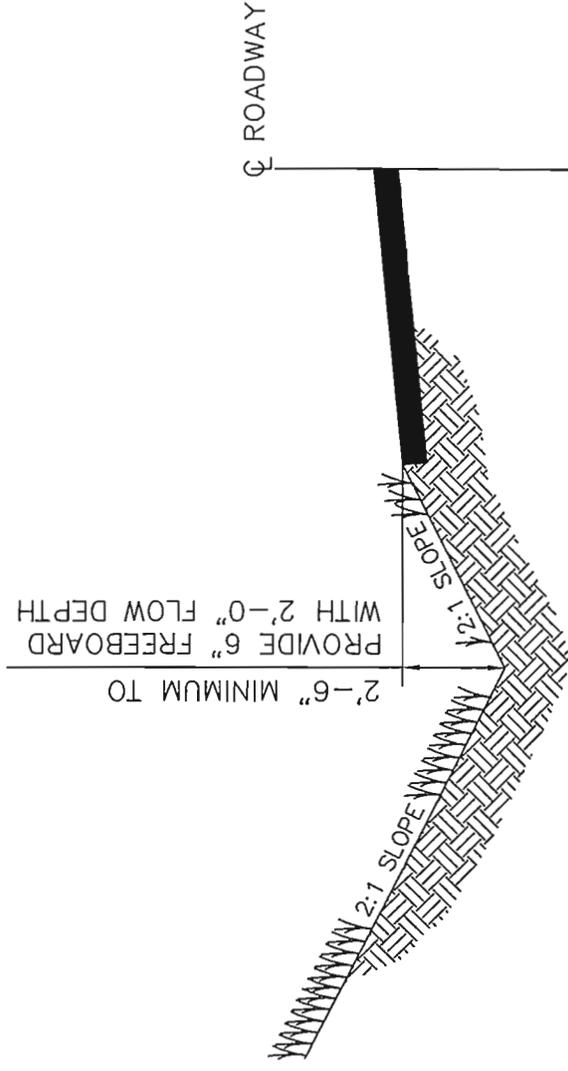


PERC
 ENGINEERING CO. INC.
 1508 Highway 75, New Albany, Indiana 46050
 P.O. Box 1713, Jasper, Indiana 46033
 317-352-2222 FAX
 317-352-2221 TEL

TYPICAL FILL SECTION
 PRIMARY HAUL ROAD

DRAWN BY: K.D.P.	DATE: 2-3-97
DWG. NAME: TYPHAULF	
APPROVED BY: S.R.I.	SCALE: NONE

ATTACHMENT III - B. - 5.



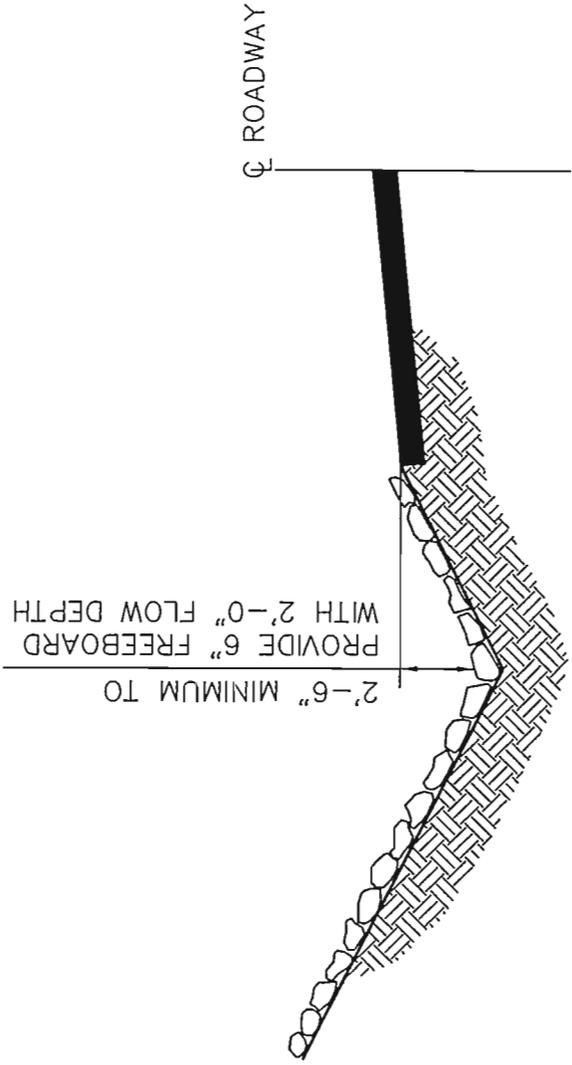
MINIMUM DITCH GRADIENT = 1%
 MAXIMUM DITCH GRADIENT = 5%

DITCH CHANNEL TO BE VEGETATED WITH
 A MIXTURE OF BERMUDA GRASS, FESCUE,
 AND LESPEDEZA TO CONFORM TO CLASS
 "D" RETARDANT CLASS.



TYPICAL PRIMARY ROADWAY DITCH
 CROSS SECTION

DRAWN BY: K.D.P.	DATE: 2-4-97
DWG. NAME: PRIMROAD	
APPROVED BY: R.E.P.	SCALE: NONE



DITCH GRADIENT 5% TO 10%

DITCH CHANNEL TO BE LINED WITH NON-ERODIBLE
 NON-TOXIC, NON-ACID FORMING SANDSTONE OR
 LIMESTONE RIP-RAP. THE RIP-RAP WILL BE "CLASS 1"
 RIP-RAP AND HAVE A MINIMUM THICKNESS OF 12".



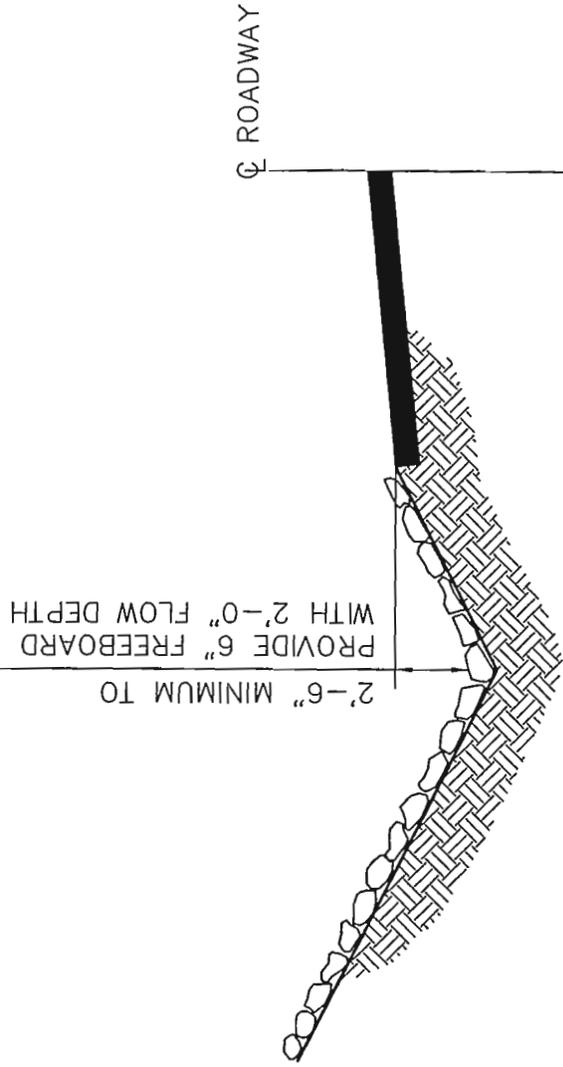
PERC
ENGINEERING CO. INC.
 1208 Highway 74 West, Jasper, Alabama 35001
 P.O. Box 1713 Jasper, Alabama 35002
 (205) 281-0022 Fax (205) 281-0021

TYPICAL PRIMARY ROADWAY DITCH
 CROSS SECTION

DRAWN BY: K.D.P.
 DWG. NAME: PRIMRD1
 APPROVED BY: R.E.P.

DATE: 2-4-97

SCALE: NONE



DITCH GRADIENT 11% TO 17%

DITCH CHANNEL TO BE LINED WITH NON-ERODIBLE NON-TOXIC, NON-ACID FORMING SANDSTONE OR LIMESTONE RIP-RAP. THE RIP-RAP WILL BE "CLASS 2" RIP-RAP AND HAVE A MINIMUM THICKNESS OF 16".



TYPICAL PRIMARY ROADWAY DITCH
CROSS SECTION

DRAWN BY: K.D.P.	DATE: 2-4-97
DWG. NAME: PRIMRD2	
APPROVED BY: R.E.P.	SCALE: NONE

Applicant: <u>RJR Mining Company, Inc.</u>
Mine Name: <u>Bunt Mine</u>
Permit Number: <u>P-</u>

PART III - OPERATION PLAN

Section C: Blasting Plan

RJR Mining Company, Inc.

Bunt Mine

Alabama Certified Blaster Number _____

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III. C. Blasting Plans

1. Ground vibrations and airblast control

(a) Check which of the following procedures will be used to limit ground vibration.

X Maximum Peak Particle Velocity

Distance from Shot to Site	Maximum Peak Velocity
0 - 300 feet	1.25 Inches/Sec.
301 - 5000 feet	1.00 Inches/Sec.
5001 - Beyond	0.75 Inches/Sec.

All shots must be seismographed.

X Scaled Distance Factor

Distance from Shot to Site	SD Factor
0 - 300 feet	50
301 - 5000 feet	55
5001 - Beyond	65

Seismograph Monitoring is not required.

___ Modified Scale Distance Factor, approval from the Commission is required before this method can be used.

___ Blasting-level chart, approval from the Commission is required before this method can be used.

* Identify the structure used for measuring the scale distance.

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(b) Check which of the following maximum levels and corresponding microphone lower frequency limitation will be used.

- 105 dB peak - c-weighted - slow response *
- 129 dB peak - 6 Hz or lower
- 133 dB peak - 2 Hz or lower
- 134 dB peak - 0.1 Hz or lower

Airblast monitoring will be on two consecutive blast starting with the first blast and will be performed on a two month spacing.

2. Describe what variations will be made in the blasting operations to control and correct adverse effects due to blasting.

Variations in burden, spacing, amount of explosives, delays, backfill and stemming will be made as necessary to correct adverse blasting effects. The stemming height and blasting schedule will also be adjusted, if necessary, to help reduce ground vibration. (See Attachment III.-C.-2. For additional variations).

3. Blast Monitoring.

(a) Describe the blast monitoring equipment to be used (make and model). Will it monitor ground vibrations, air blasts, or both?

NOMIS - 5000	2 Hz	Both
NOMIS - 5000	2 Hz	Both
NOMIS - 5000	2 Hz	Both
VME Model Log I	2 Hz	Both
Berger 1000D	2 Hz	Both

(b) How will monitoring equipment be installed and activated?

Equipment will be installed on a temporary basis for one individual shot or on a semi-permanent basis for 24 hour monitoring. The equipment will be activated by an individual or will be triggered by the ground vibrations or airblasts. - Transducers will be buried.

(c) Show the location of blast monitoring stations on the permit map or on a separate map with a scale of 1:24,000 or smaller.

See Attachment III-3-3(c).

* Only with the approval of the Commission.

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4. Is blasting proposed to be conducted within 500 feet of an active underground mine? () Yes (XXX) No

If yes, concurrence from MSHA is required.

5. Will blasting be conducted within 500 feet of an abandoned underground mine or within 1000 feet of an occupied dwelling, church, school, community or institutional building?
(XX) Yes () No

If yes, provide the following information, either as a part of the permit application or at a later date, but before reaching the distance given above. See Attachment III.-C.-5.

- (a) A sketch showing the drill patterns to be used; See Attachment III.-C.-5.
- (b) Critical dimensions, i.e., burden, spacing, stemming, drill hole diameter, etc.; See Attachment III.-C.-5.
- (c) Delay periods; See Attachment III.-C.-5.
- (d) Amount of decking; See Attachment III.-C.-5.
- (e) Type and amount of explosives to be used, including the loading weight (lbs. per foot of drill hole); See Attachment III.-C.-5.
- (f) Location and general description of the structures to be protected; The structures to be protected are those to the southwest and northwest of the permit area (See Permit Map). The structures include mobile homes, wood frame structures and brick veneer structures and concrete block structures.
- (g) Discuss the measures to be used in the blasting operations to protect the public from the adverse effects of blasting; Airblasts will be controlled by maintaining sufficient stemming. Prior to detonation of blasts the blast area will be patrolled, regulated and blocked off by employees to prevent unauthorized entry. Blast warnings will be given prior to each blast and all clear signals will be given after the blast when the blaster in charge determines that to be the case. See Attachment III.-C.-5.- (g)
- (h) The plans are to be prepared and signed by a Certified Blaster. See the sheet preceding the blasting plan.

6. At what times will blasting operations be conducted?

Blasting will be conducted between 9:00 a.m. and 1:30 p.m., Daylight Savings Time, during daylight hours, Monday through Friday of each week. This schedule will be valid for the year following its advertisement in a newspaper of local circulation.

7. Will blasting operations be conducted within 300 feet of an occupied dwelling, church, school, community or institutional building?
() Yes (XXX) No

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Attachment III.-C.-5.-(g)

Measures to be employed in an effort to protect the public from adverse affects due to blasting will include the following:

Airblasts will be minimized by (1) Covering all surface detonating cords with earthen material to confine their blasts. (2) By maintaining a stemming of a minimum of twelve (12) feet. The stemming material will consist of the cuttings from the borehole and/or limestone aggregate as needed. Where the twelve (12) foot minimum can not be maintained, stemming material will be changed to crushed stone ranging in diameter from no less than 1/4 to 1/2 inch, and the Ash Formula (.7 X burden) used as the minimum stemming distance. (3) Burden distance will be maintained as designed to ensure no face blowouts occur causing airblasts. (4) Drill patterns will be drilled accurately ensuring that the proper burden and spacing is maintained. (5) Blasting during times of temperature inversions such as early morning and late afternoon will be limited. (6) Delays will be varied to allow for longer delays between the rows than holes.

Ground vibrations will be minimized by (1) Maintaining the designed blasthole patterns. (2) Limiting the charge weight by the scaled distance factor or through the data obtained from the seismograph. (3) Maintaining the proper delays between rows and blastholes in the rows. (4) The delay sequence will be adjusted as needed to control ground vibrations.

Fly rock from a blast will be minimized by (1) Maintaining the stemming of a blasthole at a minimum of twelve (12) feet. When possible the stemming material will consist of the cuttings from the borehole. Where the twelve (12) foot minimum can not be maintained, stemming material will be changed to crushed stone ranging in diameter from no less than 1/4 to 1/2 inch, and the Ash Formula (.7 X burden) used as the minimum stemming distance. (2) Burden distance will be maintained to the designed amount to prevent face blowout due to the burden distance being too small and to prevent blasthole blowout due to the burden distance being too great. (3) Prior to drilling a blast pattern, the bench will be inspected to determine if any geologic inconsistencies are present which could result in weaker zones which might cause a blowout and flyrock. The drill pattern will be altered as needed to avoid such zones if they are present. (4) Prior to the charging of a blast pattern, the drill operator will be consulted to determine if any inconsistencies were encountered during the drilling of the blast pattern. If inconsistencies are found, the charging sequence will be varied to stem through these inconsistencies to prevent blowouts. (5) The charge column of the blasthole will be closely monitored to ensure that the amount of blasting agents are not in excess of the allowable design maximum. (6) The delay sequence will be adjusted as needed to control flyrock. (7) Prior to

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detonation of blasts the blast area will be patrolled, regulated and blocked off by employees to prevent unauthorized entry. Blasts occurring within 1000 feet of a public road will require that traffic on the road be stopped prior to the blast, a minimum distance of 1000 feet from the blast site, and held during detonation of the blast and until the all clear signal is sounded. Likewise, people occupying houses within 500 feet of a blast pattern will be given verbal warning, in addition to the normal audible warning, well in advance of detonation of a blast and will be asked to vacate to a safe location until the all clear signal is given. Blast warnings will be given prior to each blast and all clear signals will be given after the blast when the blaster in charge determines that to be the case. Each blast will be visibly monitored to determine whether or not flyrock occurred.

Should it become necessary to switch from the scale distance method of compliance to the maximum peak particle velocity method, the scale distance factor 55 shall be used as the departure point for graduated changes in the charge weight to distance ratio as allowed by the ground response (particle velocity of ground vibrations).

Where this relationship is utilized to determine weight charge per delay within 500 hundred feet of a residence all blasts will be monitored utilizing a seismograph and charge weights will be adjusted based on blast efficiency and ground vibrations to achieve the desired results while remaining within the limitations established by the regulatory authorities.

The closest that any blasting will occur to an occupied dwelling is 600 ft.

The general orientation of pits and the directions of mining of each increment at the Sparks Branch Mine No. 2 are as follows:

Mining at the Bunt Mine will commence within Increment No.1 with cut no. 1 which will be a box cut located within the NE/SE and SE/NE of Section 13. Pits will generally align west to east with advancement to the north and south. Spoil material from cuts no. 1, no. 2 and a portion of no. 3 (approximately 202,000 CY) will be transported via mobile equipment and placed within Excess Spoil Area No. 1. Spoil material from the next cuts in the alternating sequence will be placed within previous cuts and subsequent open pits. Cuts will alternate every other cut from cut no. 1 through cut no. 19 to allow for drilling, blasting, overburden removal and coal removal simultaneously. Timing may require consecutive cuts at one or both of the alternating locations, however alternating cuts will resume as soon as possible. Beginning with cut no. 20 cuts will be taken in consecutive order, pits will continue to align west to east with advancement to the north. Spoil material will be placed within previous cuts and subsequent open pits. Mining will

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continue in this manner until the limits of the increment are reached.

Mining within Increment No. 2 will commence with cut no. 1 which will be a box cut located within the SW/NE and NW/SE of Section 13. Pits will generally align southwest to northeast with advancement to the northwest and southeast. Spoil material from cuts no. 1, no. 2, a portion of no. 3 and a portion of no. 4 (approximately 200,000 CY) will be transported via mobile equipment and placed within Excess Spoil Area No. 2. Spoil material from the next cuts in the alternating sequence will be placed within previous cuts and subsequent open pits. Cuts will alternate every other cut from cut no. 1 through cut no. 21 to allow for drilling, blasting, overburden removal and coal removal simultaneously. Timing may require consecutive cuts at one or both of the alternating locations, however alternating cuts will resume as soon as possible. Beginning with cut no. 22 cuts will be taken in consecutive order, pits will continue to align southwest to northeast with advancement to the southeast. Spoil material will be placed within previous cuts and subsequent open pits. Mining will continue in this manner until the limits of the increment are reached.

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Attachment III.-C.-5.-(g)

BLASTING SCHEDULE
RJR Mining Company, Inc.
Bunt Mine

In accordance with Section 880-X-10C-.32(2)(a), of the regulations of the Alabama Surface Mining Commission, notice is hereby given that RJR Mining Company, Inc., P.O. Box 1253, Cullman, Alabama 35055, will conduct blasting operations, at it's Bunt Mine located near Morris, Alabama, within the NW/NW, SW/NW, SE/NW, SW/NE, SE/NE, NW/SE, NE/SE and SE/SE of Section 13 and NE/NE of Section 14, Township 15 South, Range 3 West, Jefferson County. Blasting will be conducted between the hours of sunrise and sunset, Monday through Saturday of each week. Emergency situations which may cause variation from this schedule include, but are not limited to, the following: Equipment breakdowns, Unauthorized work stoppages, or Weather conditions such as rain, lightning, or thunderstorms. All entrance roads to the mining area will be marked with signs reading "Blasting Area" or "Warning Explosives in Use", which list audible warning signals. Prior to each blast, all access roads will be blocked until the "All Clear" signal is given. A horn will be used to give audible warning before a shot is fired and to indicate "All Clear".

Warning Signals:

Five (5) minutes prior to blast	----	3 long blasts of a horn.
Immediately prior to the blast	----	2 long blasts of a horn.
All Clear	----	1 long blast of a horn.

TYPICAL BOREHOLE for BLASTS OVER 501 FEET

ANFO
 ±13.50 POUNDS PER
 CUBIC FOOT IN 6 3/4" BOREHOLE
 OR ±18.00 POUNDS PER CUBIC FOOT
 IN A 7 7/8" BORE HOLE

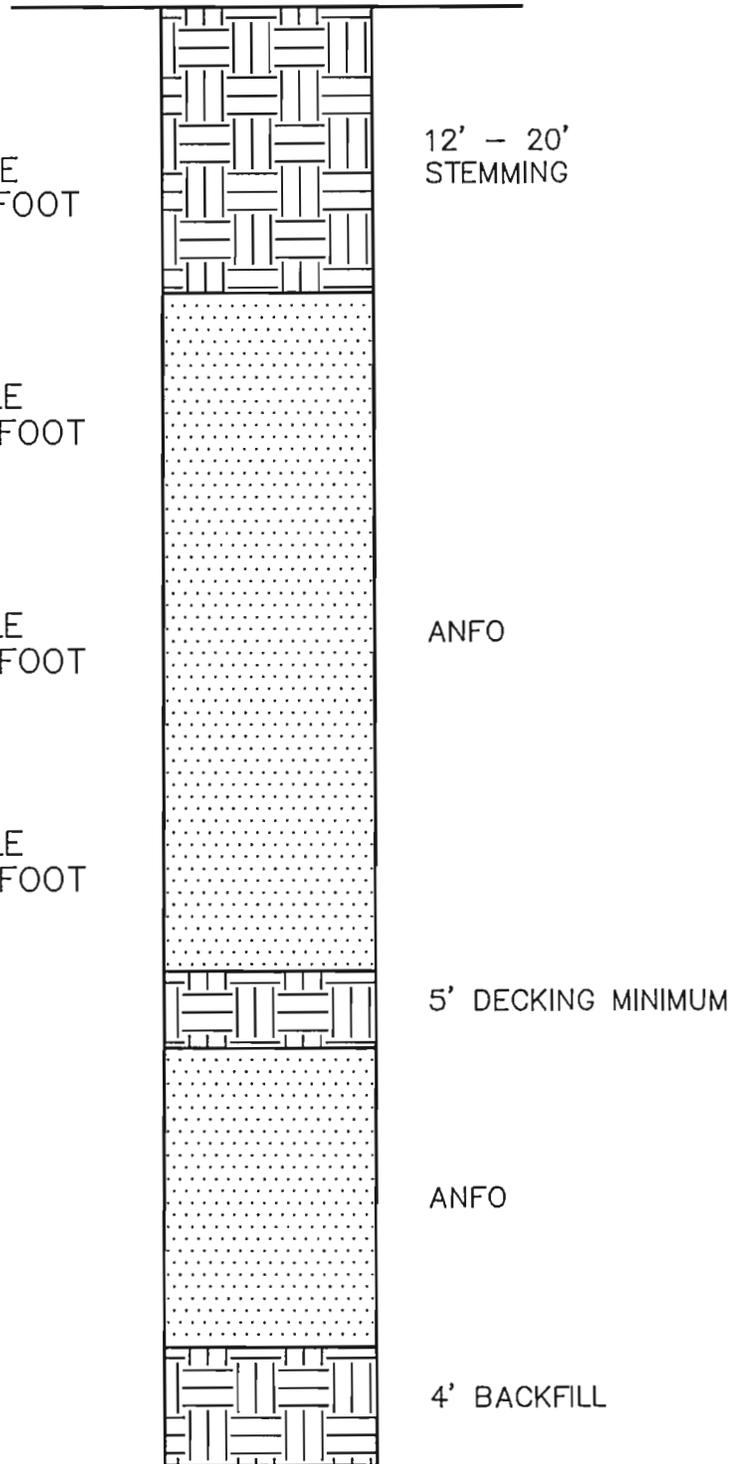
ANFO 25/75 BLEND
 ±18.00 POUNDS PER
 CUBIC FOOT IN 6 3/4" BOREHOLE
 OR ±24.25 POUNDS PER CUBIC FOOT
 IN A 7 7/8" BORE HOLE

ANFO 40/60 BLEND
 ±19.50 POUNDS PER
 CUBIC FOOT IN 6 3/4" BOREHOLE
 OR ±26.50 POUNDS PER CUBIC FOOT
 IN A 7 7/8" BORE HOLE

ANFO 50/50 BLEND
 ±20.50 POUNDS PER
 CUBIC FOOT IN 6 3/4" BOREHOLE
 OR ±27.80 POUNDS PER CUBIC FOOT
 IN A 7 7/8" BORE HOLE

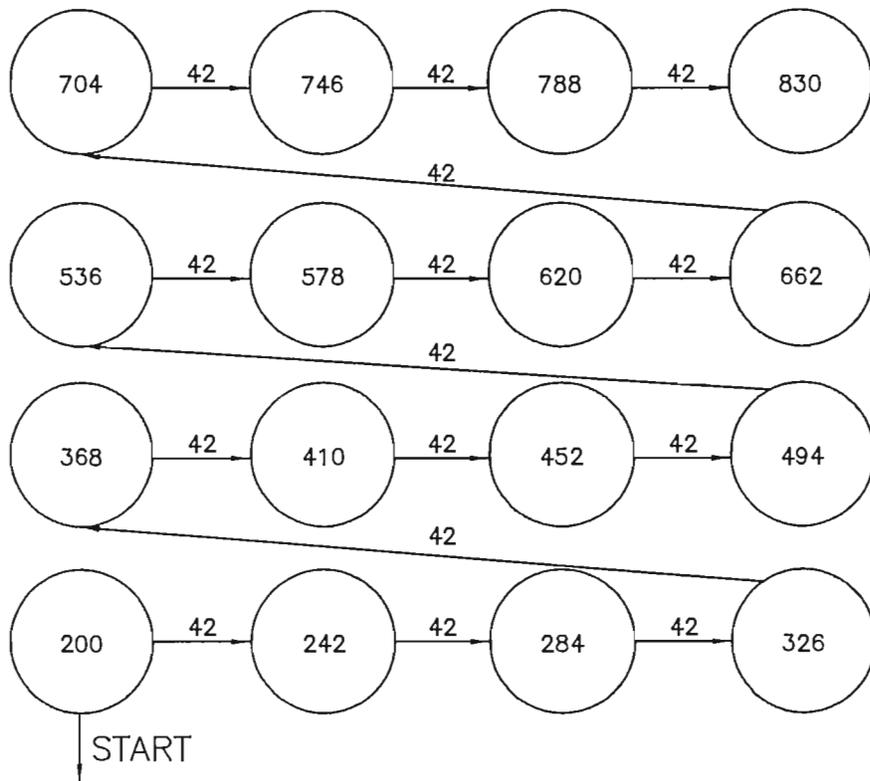
MAXIMUM EXPLOSIVES / DELAY
 29 – 83 POUNDS

HOLE DIAMETER: 6 3/4" TO
 7 7/8" DRILL



NOTE:

THE NUMBER OF DECKS ARE SUBJECT TO CHANGE AS CONDITIONS REQUIRE.



Typical Drill Pattern Over 501 Feet

No Scale

Firing will be NON-ELECTRIC. The primary surface delays for shots will be 9 ms, 17 ms, 67 ms, and 84 ms, with E-Z dets 25/350 ms in the hole or equal. E-Z Dets, Snap Dets, or equal will be used only when there are no decks. For shots with two (2) or more decks the delay patterns in the ensign Bickford book or equal, on delays will be used. Decks will use a combination of downline delays of 500ms, 475ms, 450ms, 400ms, 375ms, and 350ms, or some combination thereof where necessary. In the event that deviations are required the following surface delays may be used: 25 ms, 75 ms, 100 ms, and 200 ms with E-Z Dets 25/350 ms in the hole or equal.

Burden will be determined by multiplying the borehole diameter in feet times 2 to 3. Spacing will be determined by multiplying the burden times 1 to 1.5.

Hole Diameter is 6 3/4" X 7 7/8" inches depending on conditions & location.

Drill hole depths range between twenty five (25) and thirty five (35) feet for the interburden between the Blue Creek and Jagger coal seams.

Airblast will be controlled by maintaining sufficient stemming. Prior to detonation of the blasts area will be patrolled, regulated and blocked by employees to prevent unauthorized entry.

Blast warnings will be given prior to each blast and all clear signals will be given after the blast and after the blaster in charge determines that is the case. The above are typical and may vary as conditions dictate.