

Applicant: <u>Oak Grove Resources, LLC</u>
Mine Name: <u>Oak Grove Mine</u>
Permit Number: P- <u>3232, Revision R-40</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 the response in the original permit and subsequent revision applications.

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>DATES</u>	
		<u>FROM</u>	<u>TO</u>
1	803	Issuance of R-40	Life of permit
2	8	Issuance of R-40	Life of permit
3	2	Issuance of R-40	Life of permit
4	5	Issuance of R-40	Life of permit

The sequence of mining operations will be generally as follows:

- 1) Construction of Sediment Control Structures
- 2) Site Preparation
- 3) Construction
- 4) Site Reclamation
- 5) Revegetation

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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 the response in the original permit, subsequent revision applications and 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.
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 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) 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.

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 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 four inches for primary roads and two inches for ancillary roads. The surface will be compacted until a desirable grade and surface is attained. Breaker rock from Breaker Rock No. 3 Disposal Area will also be used for ancillary roads surfaces approximately two inches in depth, as approved in Revision R-27. The breaker rock will have acid base account testing on a quarterly basis to assure no material with a negative acid base account will be placed on the ancillary roads. 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

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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. Water or dust suppressants will be used when necessary to reduce erosion and dust emissions. No modifications are expected and only routine maintenance will be required to maintain the 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. 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.

- b) All material produced during the construction of the site will be disposed of within the existing Breaker Rock Disposal Area No. 3.
- c) Mine facilities at the Oak Grove Mine as a result of this application will consist of the addition of one (1) utility boreholes.

The Utility Bore Hole will be utilized for a variety of different services to the mine opening such as pumping cement or grout, a temporary compressed air hole, temporary power drop, air hole, or sampling site within the underground mining area. After the drilling and casing of the borehole, all disturbed areas will be fertilized, seeded with a seed mixture approved in the reclamation plan, and mulched to ensure a permanent diverse vegetative cover. Sediment control will be provided as necessary during construction of these facilities. Sediment control will consist of silt fencing and, where needed, hay dams. Modifications to the borehole will be performed as necessary to upgrade and update the facilities during the life of the mine. Maintenance will consist of the clean out of wells and replacement of casing. All concrete

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foundations, if present, will be removed and disposed of within an ADEM approved disposal area which meets all Federal, State and local laws and ordinances for permanent disposal of such materials. When no longer needed, the borehole will be sealed by filling the borehole with concrete. The affected surface area will be graded, fertilized, seeded with a seed mixture approved in the reclamation plan, and mulched to ensure a permanent diverse vegetative cover. See Attachment III-A-6 for typical illustration of methods to be used to seal and/or manage boreholes.

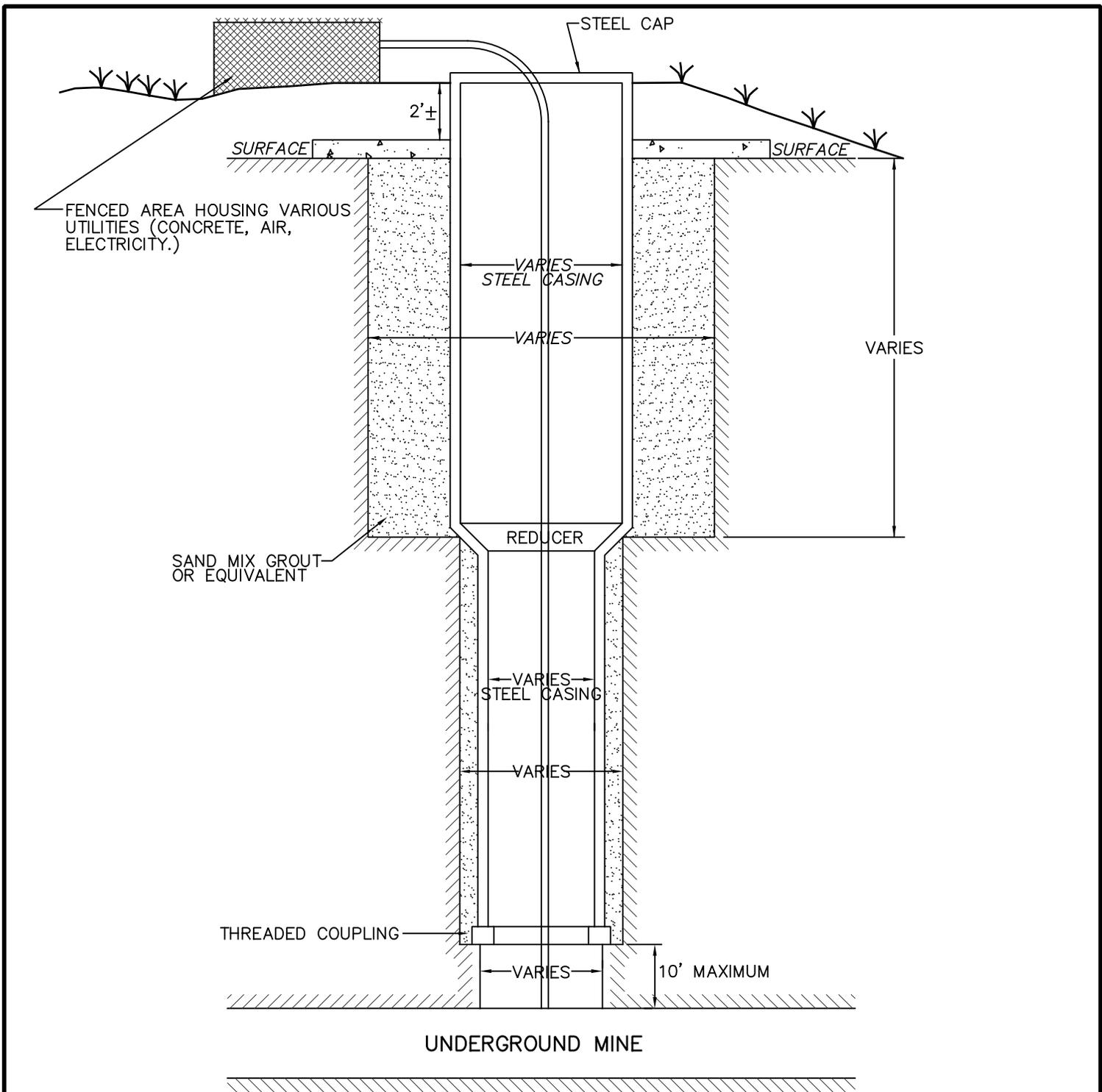
- d) Water pollution control facilities, silt fencing, berms, and hay bales shall be constructed prior to mine operation in a particular increment according to approved plans. These facilities will be used to control runoff from the mine and will be inspected and maintained until reclamation of the area is complete.
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)

Mine openings created as a result of this application consist of the addition of one (1) utility bore hole.

The borehole will be sealed by filling the well with concrete or other suitable sealant. The affected surface area will be graded, fertilized, seeded with a seed mixture approved in the reclamation plan, and mulched to ensure a permanent diverse vegetative cover. See Attachment III-A-6 for typical illustration of methods to be used to case/seal and/or manage wells/boreholes.

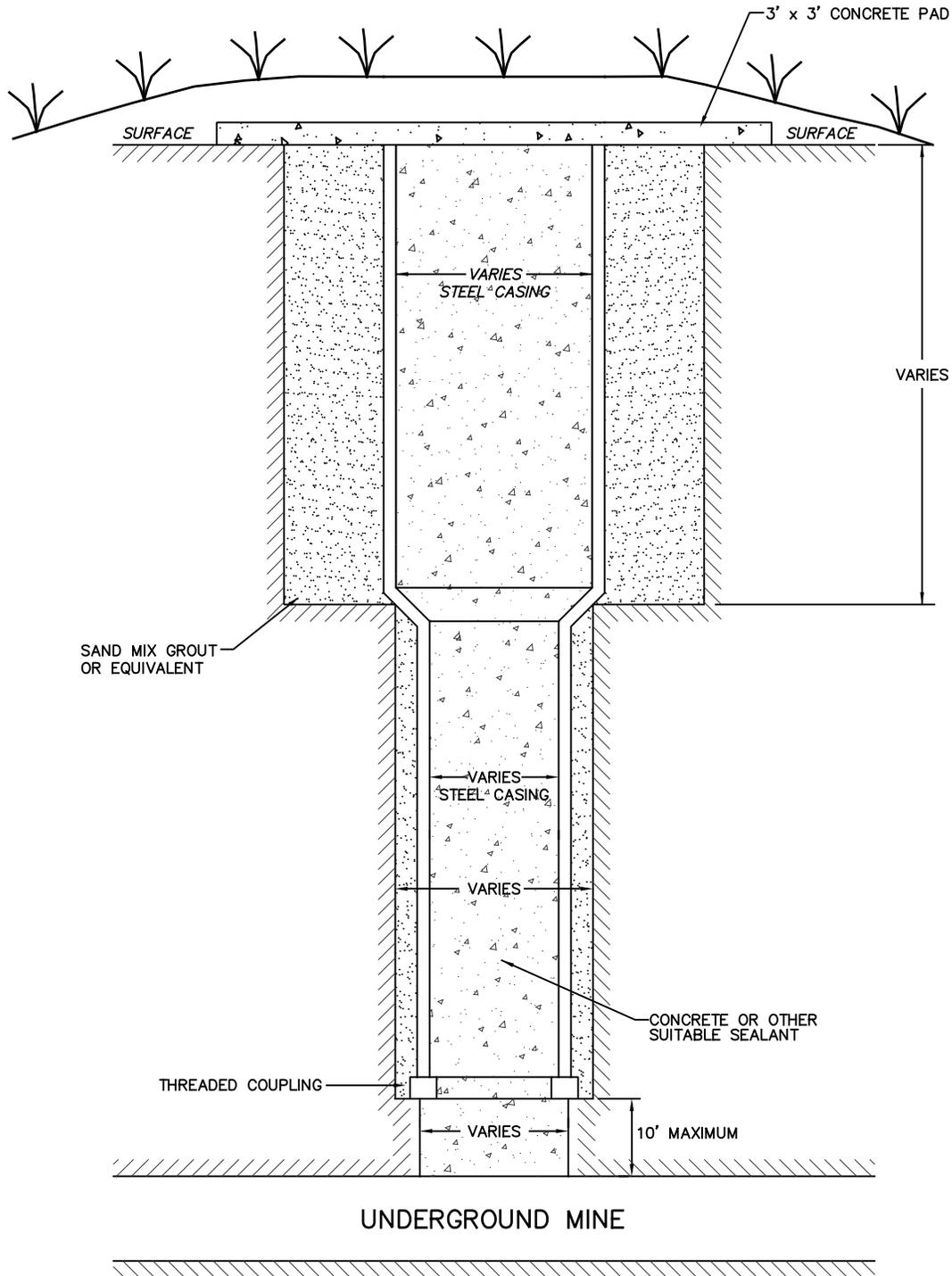
7. Give a description of steps to be taken to comply with applicable water quality laws, regulations and health and safety standards. (780.18)

Appropriate BMP's such as silt fences, hay check dams and rock check dams will be installed depending on the size of the watershed area. See Typical, Attachments III-B-2(a).



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 <p>PERC ENGINEERING CO., INC. 1608 Highway 78 West Jasper, Alabama 35501 P.O. Box 1712 Jasper, Alabama 35502 (205) 384-2553 Office (205) 384-8481 Fax</p>	
<p>Oak Grove Resources, LLC Oak Grove Mine/Revision R-40 Attachment III.-A.-6. Utility Borehole Typical</p>	
<p>DRAWN BY: J.H.F DWG. NAME: CAHTYPR-40</p>	<p>DATE: 4/26/12</p>
<p>APPROVED BY: J.H.F.</p>	<p>SCALE: NONE</p>



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Oak Grove Resources, LLC
Oak Grove Mine/Revision R-40
Attachment III.-A.-6.
Utility Borehole Removal Typical

DRAWN BY: J.H.F.
 DWG. NAME: OGROGMUBHT

DATE: 4/26/12

APPROVED BY: J.H.F.

SCALE: NONE

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- (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

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(d)
- (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.
None
- (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. None
- (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
- (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

3. Diversions. (780.29,816.43, 816.44)

Are diversions of overland flow or stream channel diversions proposed?

() Yes (XXX) No

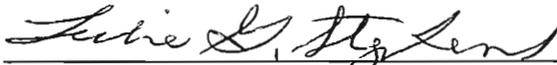
If yes, complete the following:

- (a) Is the diversion to be permanent? () Yes () No
See Attachment III-B.-2(d)

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CERTIFICATION STATEMENT:

I hereby certify that Attachment III-B.-2.A prepared for Oak Grove Resources, P-3232, Revision R-40 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.L.S. & P.E.
AL Registration No. 14117-E

12/05/2013
Date



Applicant: <u>Oak Grove Resources, LLC</u>
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Attachment III-B-2(a)

ADDENDUM TO THE GENERAL PLAN

The addendum to the general plan consists of a request for an exemption of Rule 880-X-10D-.13(3) for one (1) site with an utility bore hole and an ancillary road. The diesel tank containment will be in accordance with the SPCC Plan contained in the ADEM permit. As shown on the permit map and Attachment III.-B.-2.-a, Alternate Sediment Control Plan maps, the areas requested for exemption are small areas of disturbance (no larger than 3.0 acres in size). Oak Grove Resources, LLC. proposes to control runoff from the area by placing Marifi 100X or equivalent silt fencing around the perimeter of the area proposed to be disturbed. Sediment control for the site will be provided as necessary during construction of the facility. It has been proven through experience that with the use of silt fences, runoff from the site can be controlled. The perimeter of the site, with the exception of the road, will have a berm surrounding it. All material produced during the construction of the shaft site will be disposed of within the existing Breaker Rock Disposal Area No. 3. It is anticipated that a minor amount of material taken from the construction of shaft site will be onsite daily. The amount of material stored onsite will be small consisting of material left over from a days production or material produced between trips of the trucks transporting the material to Breaker Rock Disposal Area No. 3. General design data and construction and maintenance specifications are attached.

Geologic investigations indicate that the Revision R-40 area is underlain by consolidated natural material consisting of alternating sequences of shale and sandstone with minor amounts of bituminous coal and underclay. 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 unnamed tributary of Valley Creek.

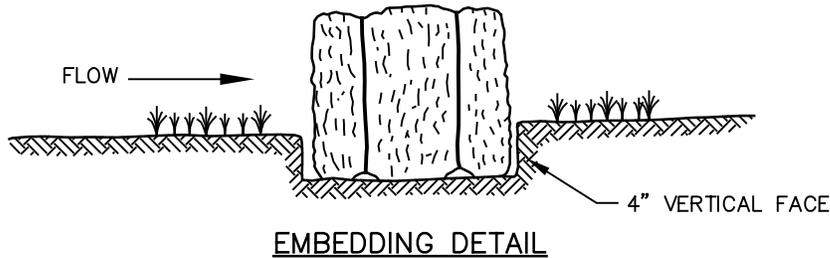
See Attachment III-B-2(a), Alternate Sediment Control Map.

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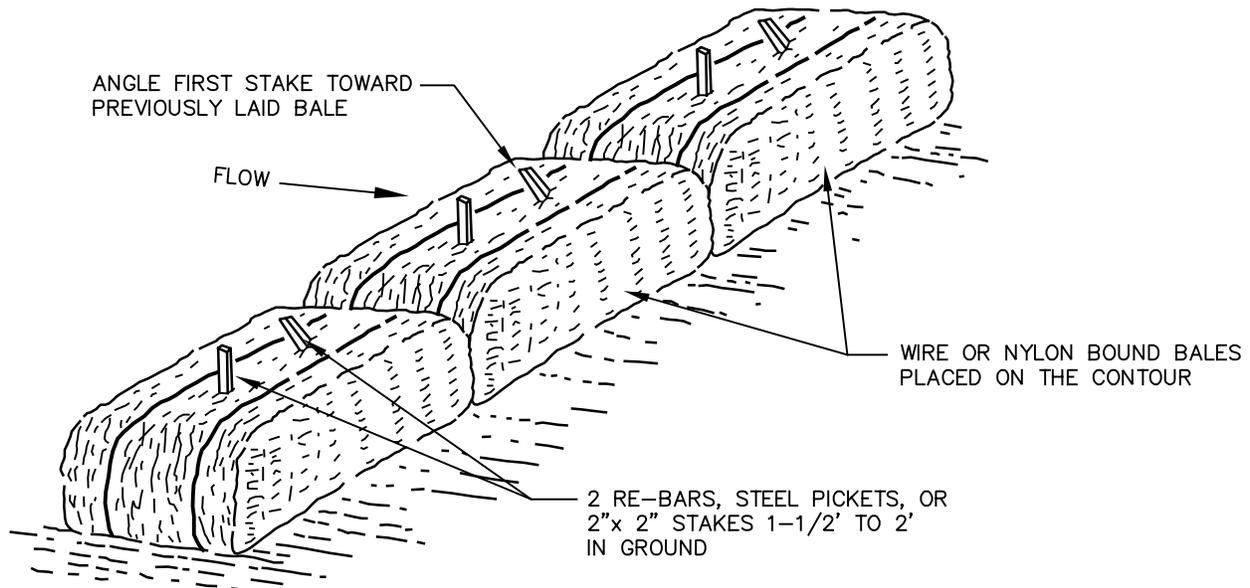
Attachment III-B-2(a)

Silt Fencing Design and Construction Specifications

1. Fence height - 3' including 6" trench flap.
2. Silt fencing will be secured into place by prefabricated wood or metal posts spaced as necessary.
3. The silt fence will have an equivalent opening size of 30-50 mesh by U.S. Standard Sieve.
4. The maximum particle size passing the silt fence will be .59 millimeter.
5. The flow rate of the silt fence will be 20 gallon per minute per square foot.
6. The silt fence will have a burst strength of 210 pound per square inch.
7. The grab tensile elongation of the silt fence will be 15%.
8. The grab tensile strength of the silt fence will be 100 pounds.
9. The silt fence will be installed by initially excavating a trench approximately 6" wide by 6" deep along the contour for the entire length of the silt fence. Upon completion of the trench, the silt fence will be stretched along the trench with the prefabricated wood or metal posts being driven into the ground approximately 1.5' deep against the upper wall of the trench. The 6" trench flap will then be placed into the trench and covered with compacted fill material.
10. Inspections of the silt fence will be made bimonthly and repair or replacement will be made promptly as required.
11. Accumulated sediment will be removed from the silt fencing when necessary to ensure the proper function of the silt fencing. Accumulated sediment will be disposed of within Coarse Refuse Area No. 1.
12. Prior to the removal of the silt fence, any silt or sediment retained by the silt fence will be seeded with a mixture of both annual and perennial grasses, fertilized, and mulched to establish a permanent and diverse vegetative cover.



EMBEDDING DETAIL



CONSTRUCTION SPECIFICATIONS

- 1.) BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- 2.) EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
- 3.) BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
- 4.) INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.



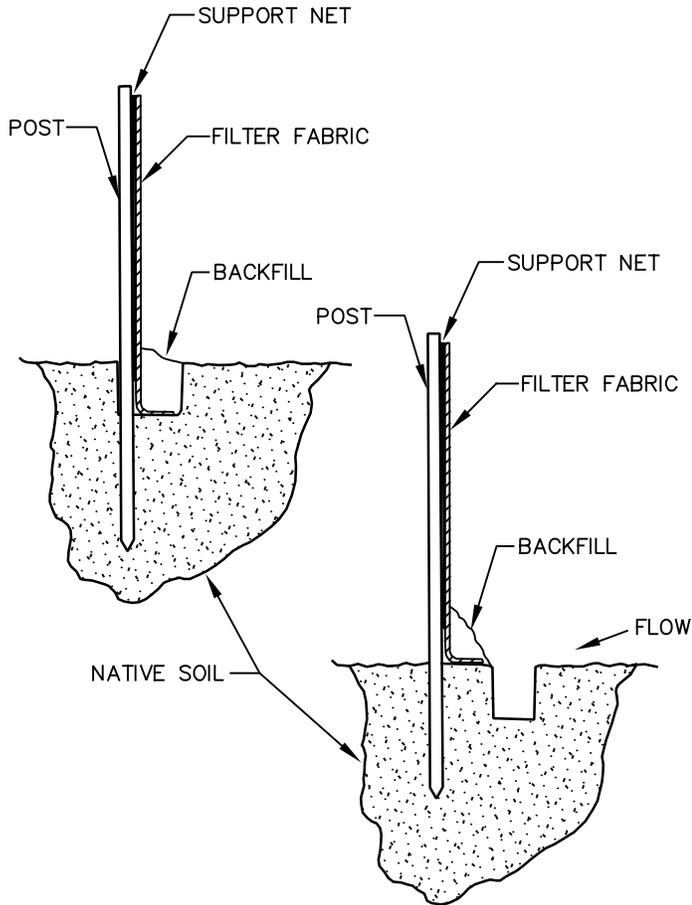
HAY BALE BARRIER TYPICAL

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

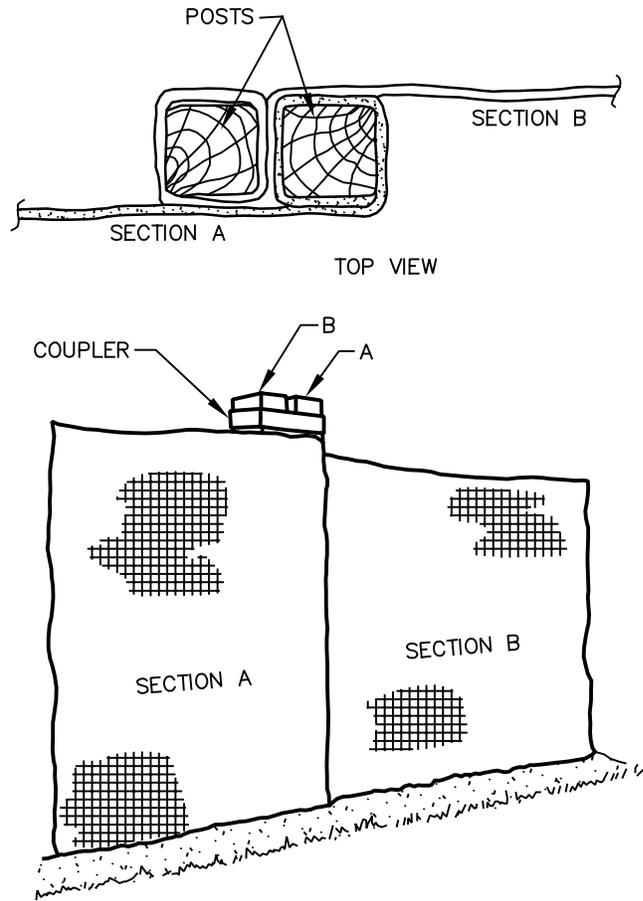
DATE: 6-24-91

APPROVED BY: R.E.P.

SCALE: NONE



TOE-IN METHOD



JOINING SECTIONS OF SILT FENCE

CONSTRUCTION SPECIFICATIONS

- 1.) SILT FENCING SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY FITTING THE ADJACENT FENCE SECTION.
- 2.) EACH SECTION OF FENCING SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 6".
- 3.) FENCING SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR RE-BARS AT A SPACING NOT TO EXCEED 6'.
- 4.) INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.



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 (205) 384-5553 Office (205) 295-3114 Fax

SILTFENCE TYPICAL

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

DATE: 6-24-91

APPROVED BY: R.E.P.

SCALE: NONE

Rock check dams (Figures CD-1 and CD-2) are usually installed with backhoes or other suitable equipment but hand labor is likely needed to complete most installations to the quality needed. The rock is usually purchased and some locations in the state may not have rock readily available. The use of rock should be considered carefully in areas to be mowed. Some rock may be washed downstream and should be removed before each mowing operation.

Log check dams (Figure CD-3) are more economical from a material cost standpoint since logs can usually be salvaged from clearing operations. The time and labor required would be greater for log check dams. Increased labor costs would offset the reduced material costs. Log check dams would not be permanent but may last long enough to get grass linings established.

Check dams constructed of hay bales (Figure CD-4) have the shortest life of the materials discussed and are only used as a temporary means to help establish a channel to vegetation. Hay bale check dams should not be used where permanent watercourse protection is needed and should only be used in concentrated flow areas where only minimal runoff occurs. **Without proper installation, which is rarely done, hay bale check dams always fail.**

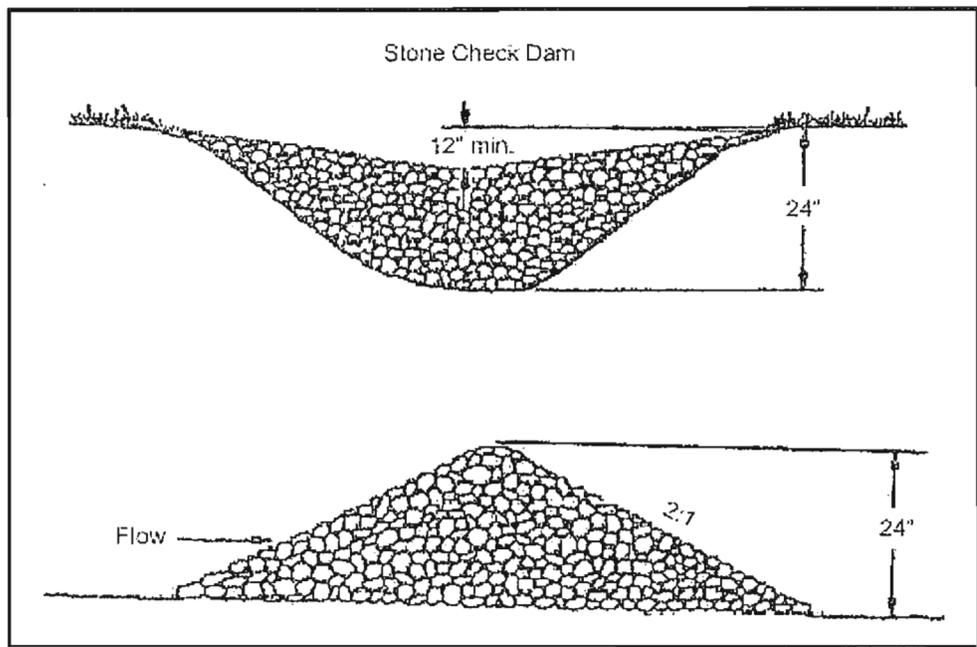


Figure CD-1 Profile of Typical Rock Check Dams

Check dams should be planned to be compatible with the other features such as streets, walks, trails, sediment basins and rights-of-way or property lines. Check dams are normally constructed in series and the dams should be located at a normal interval from other grade controls such as culverts or sediment basins.

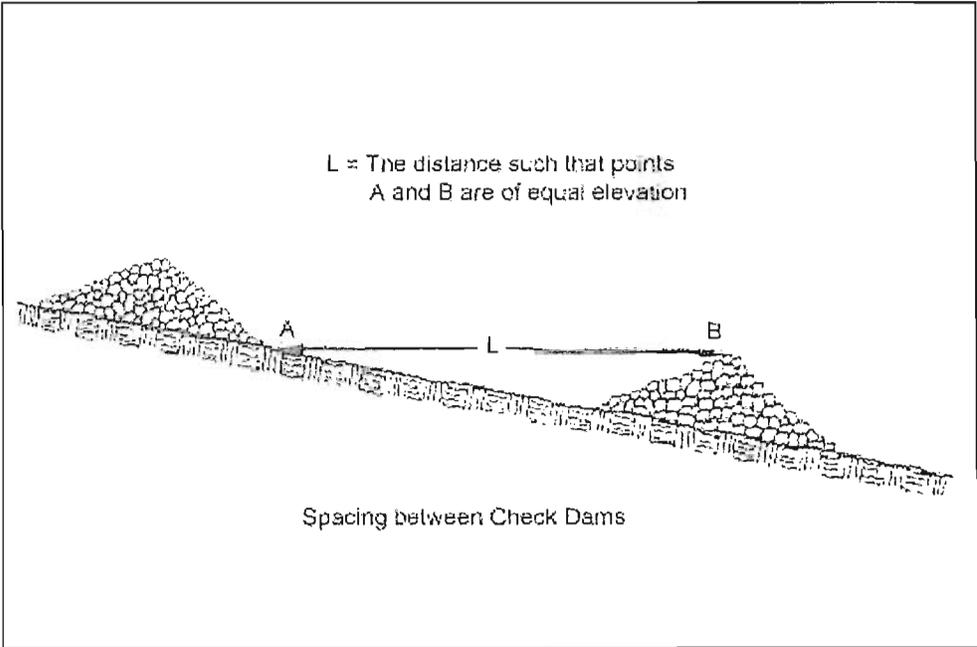


Figure CD-2 Cross Section of Typical Rock Check Dam

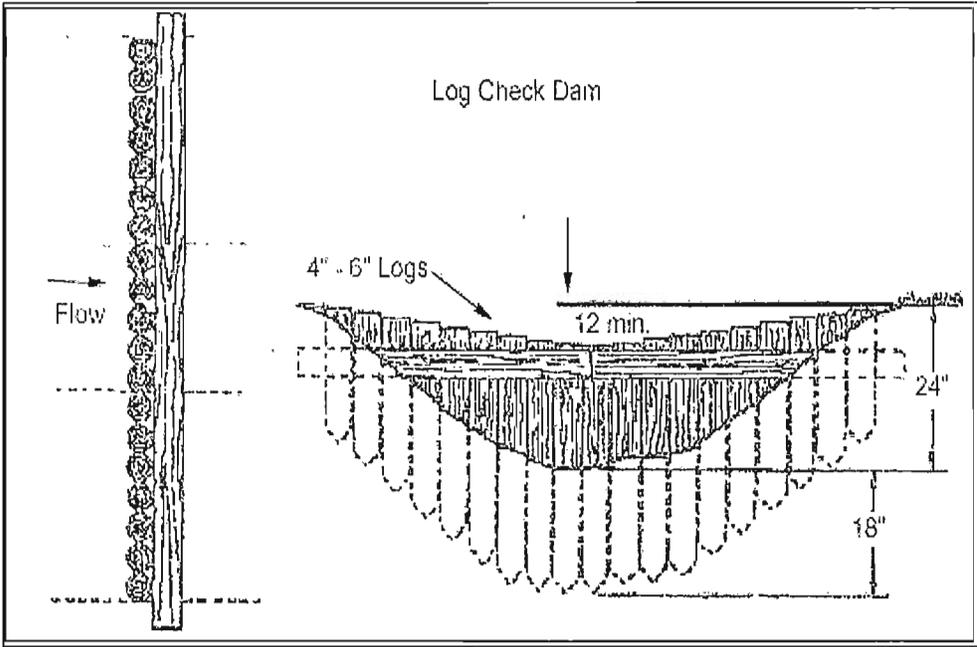
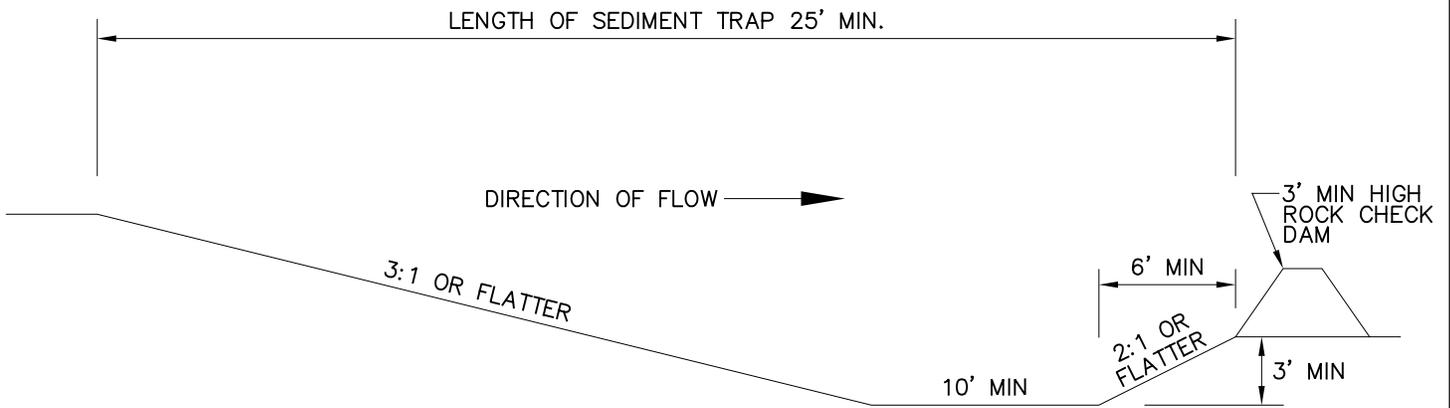
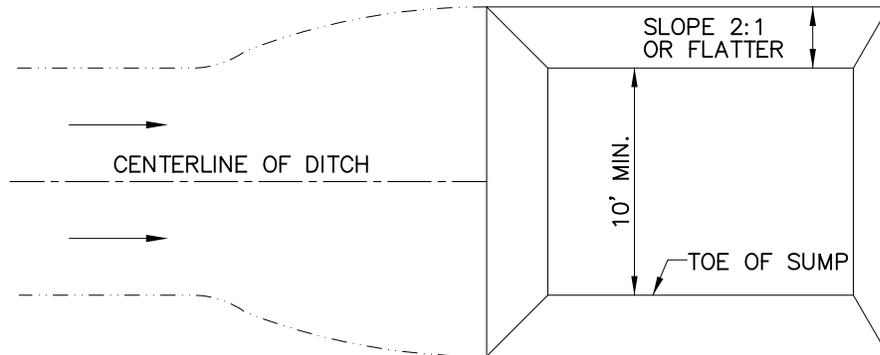


Figure CD-3 Typical Log Check Dam



PROFILE VIEW

NOTES:

1. SUMP CONFIGURATION IS DEPENDENT UPON TOPOGRAPHY OF THE SITE.
2. CLEANOUT SUMP WHEN 50% FULL.



**ATTACHMENT III-A-3
EROSION CONTROL SUMP
TYPICAL**

DRAWN BY: GR	DATE: 7/2/2013
DWG. NAME: ECSTYP	
APPROVED BY: SDM	SCALE: NOT TO SCALE

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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, Ancillary Road 025P Location Map.

- (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 are 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. See

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Attachment III-B-5(b)

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

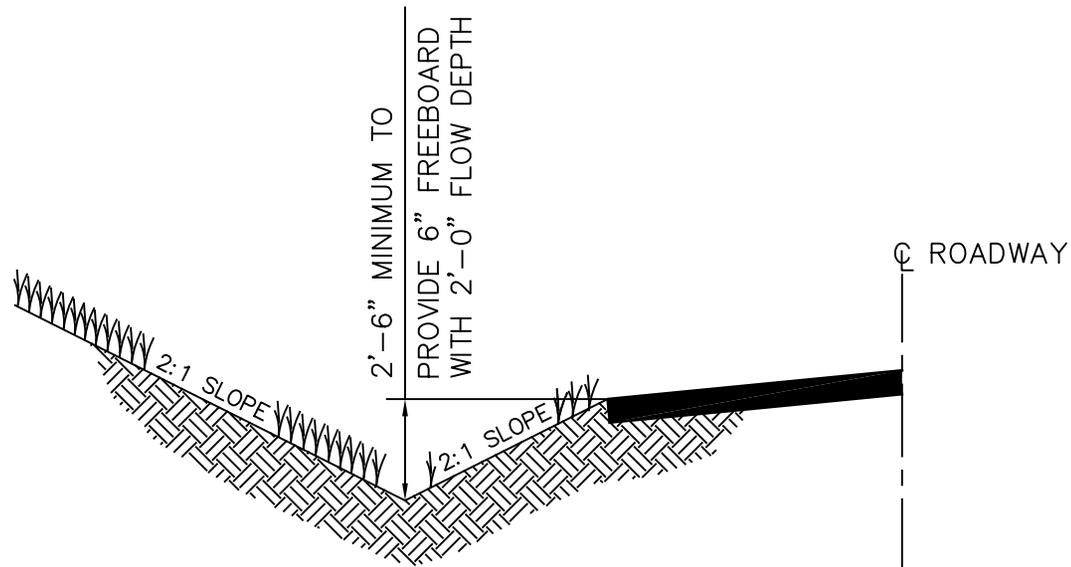
1. To the extent possible, roads will be located on ridges or on the most stable available slopes to prevent or minimize erosion, downstream sedimentation and flooding in an effort to prevent adverse effects to fish, wildlife and related environmental values.
2. To the extent possible, roads will be 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 from Breaker Rock. 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, breaker rock 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. Breaker rock from Breaker Rock No. 3 Disposal Area will also be used for ancillary roads surfaces approximately two inches in depth, as approved in Revision R-27.
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 drains and road drainways will be located at a minimum distance of three-hundred feet.

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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.
 - 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.

Applicant: <u>Oak Grove Resources, LLC</u>
Mine Name: <u>Oak Grove Mine</u>
Permit Number: P- <u>3232, Revision R-40</u>

- 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.



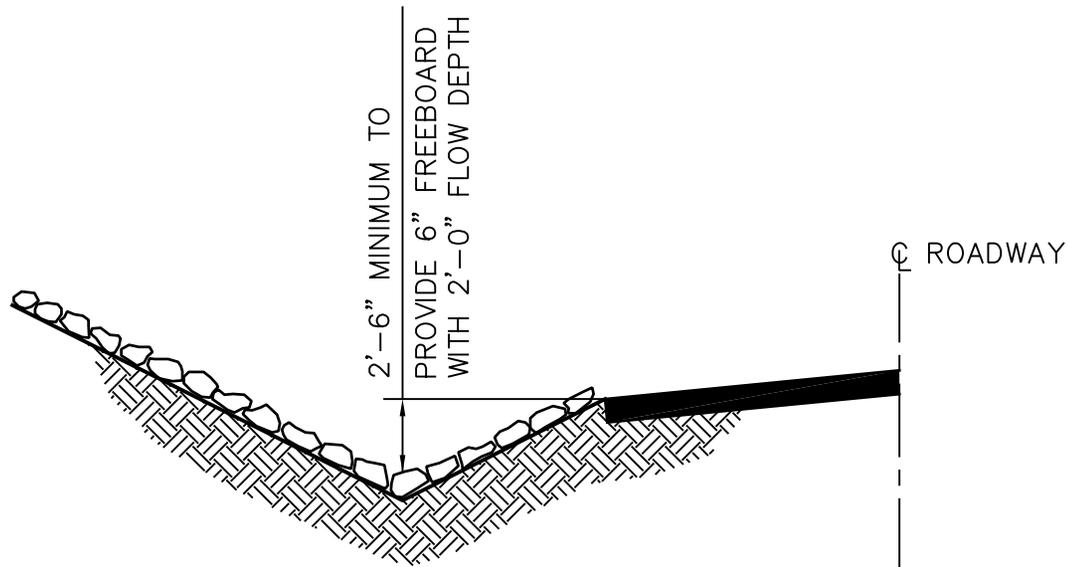
MINIMUM DITCH GRADIENT = 1%
 MAXIMUM DITCH GRADIENT = 5%

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



TYPICAL ANCILLARY ROADWAY DITCH
 CROSS SECTION

DRAWN BY: K.D.P.	DATE: 2-4-97
DWG. NAME: ANCIROAD	
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".



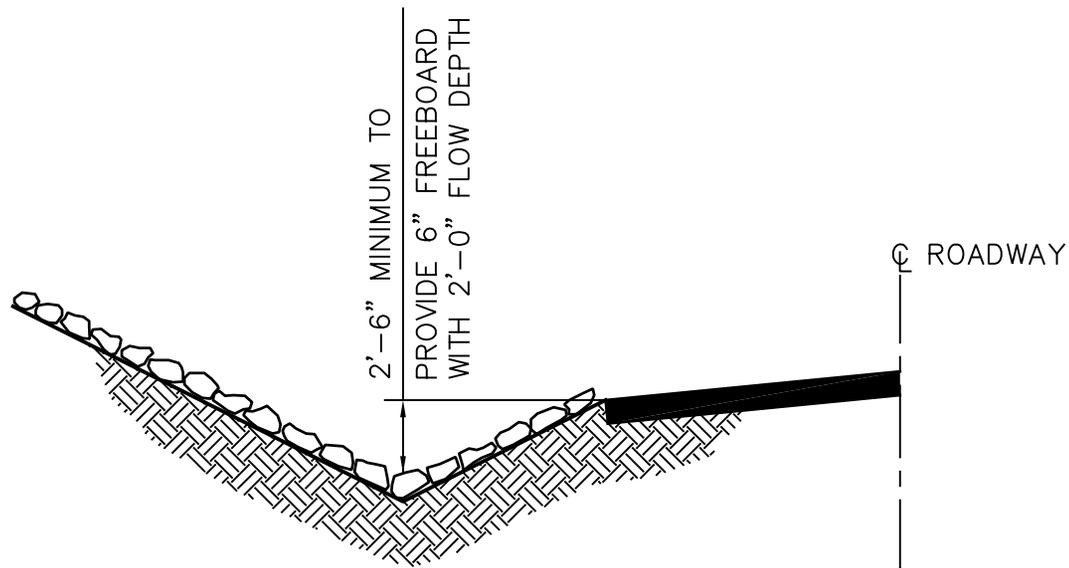
TYPICAL ANCILLARY ROADWAY DITCH
CROSS SECTION

DRAWN BY: K.D.P.
DWG. NAME: PRIMRD1

DATE: 2-4-97

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".



TYPICAL ANCILLARY ROADWAY DITCH
CROSS SECTION

DRAWN BY: K.D.P.
DWG. NAME: PRIMRD2

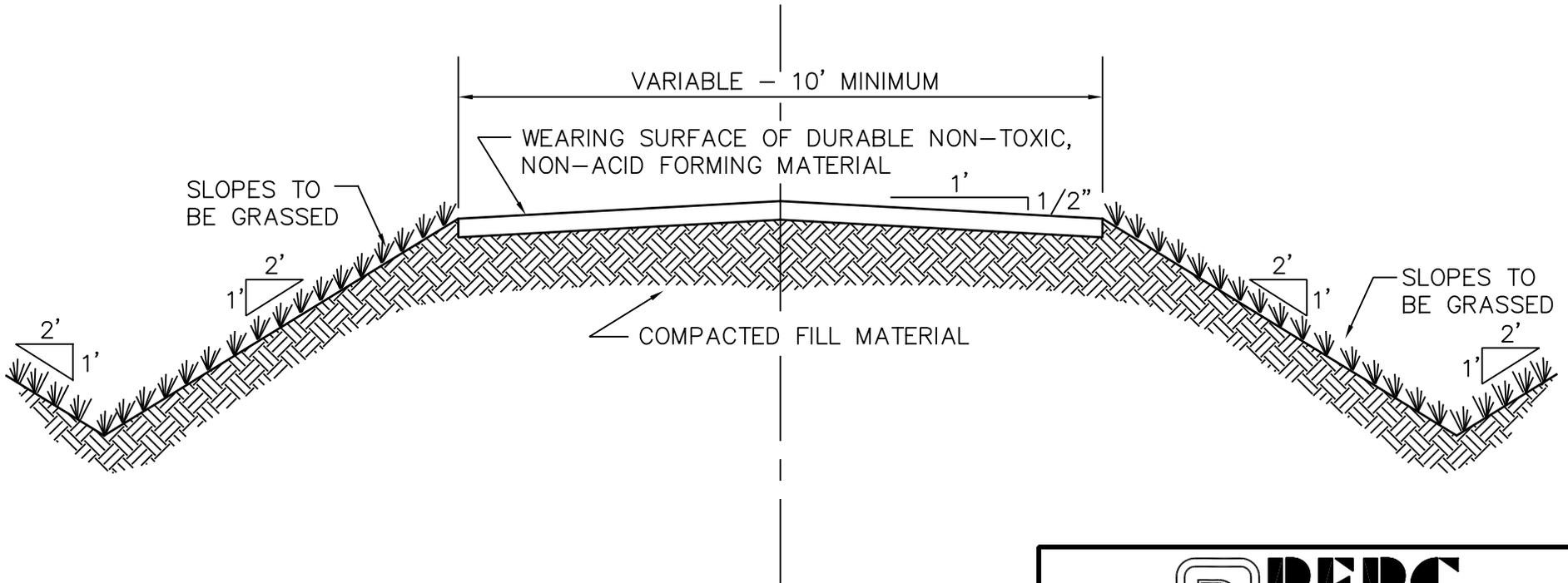
DATE: 2-4-97

APPROVED BY: R.E.P.

SCALE: NONE

TYPICAL HAUL ROAD FILL SECTION

NO SCALE



TYPICAL FILL SECTION
ANCILLARY HAUL ROAD

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

DATE: 2-3-97

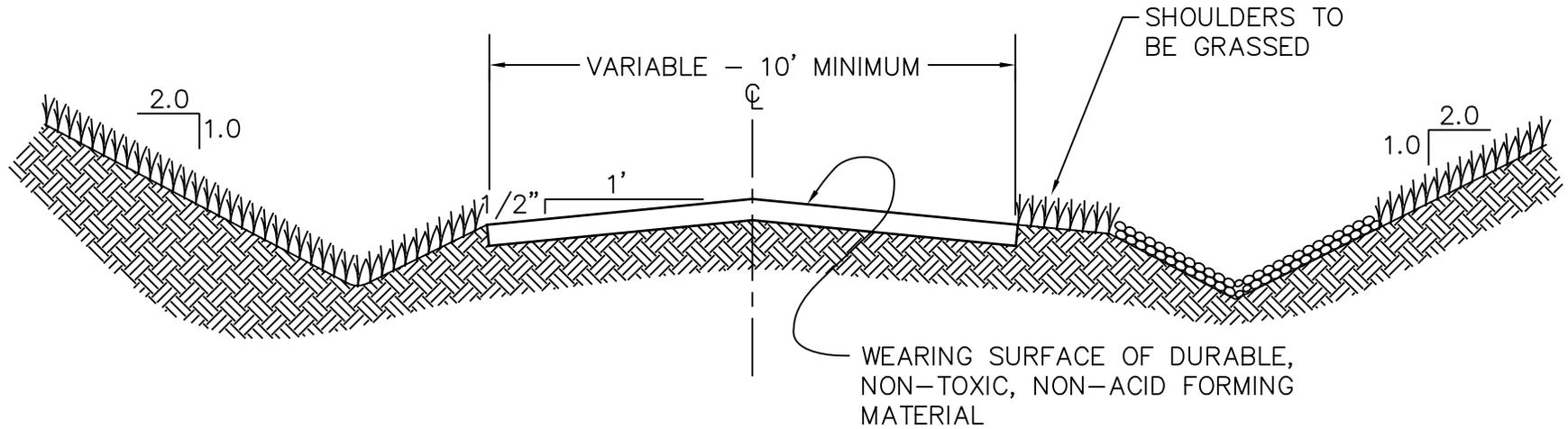
APPROVED BY: S.R.I.

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.