

Applicant: Oak Grove Resources, LLC
Mine Name: Oak Grove Mine
Permit Number: P- 3232, Revision R-38

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	775	Issuance of R-38	Life of permit
2	8	Issuance of R-38	Life of permit
3	2	Issuance of R-38	Life of permit
4	5	Issuance of R-38	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 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

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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.

- c) Mine facilities at the Oak Grove Mine as a result of this application will consist of the addition of two (2) degasification wells, one (1) utility borehole, and one (1) dewatering well, and cross-country pipeline from the dewatering well located in the NW/NE of Section 7, Township 18 South, Range 5 West, Jefferson County, Alabama to Basin 019B.

The degasification wells will be used to remove methane gas from the underground workings of the Oak Grove Mine. The collected methane gas will be allowed to escape through the wells to the atmosphere. The wells will not be used for the commercial production of methane. No other fluids, such as water collected within the underground workings of the Oak Grove Mine or drilling fluids, will be discharged through the degasification wells. Degasification devices such as pumps, oil water separators, etc., will not be used as part of the degasification process. As stated above collected methane gas will simply be allowed to vent from the underground workings of the Oak Grove Mine to the atmosphere. Construction of these facilities will begin with the clearing and grubbing of the sites which are shown on the Revision R-38 Permit Maps. The foundation areas will be graded to the appropriate grades as necessary to facilitate construction operations. Upon the completion of the grading operations, degasification wells will be drilled at the required locations and concrete foundations, if necessary, will be poured. The wells will be cased as shown in Attachment III-A-6. After the drilling and casing of the wells, all disturbed areas will be fertilized, seeded with a seed mixture approved in the reclamation plan, and mulched to ensure a permanent diverse

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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 wells 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 the well and replacement of casing. All concrete foundations, if present, will be removed and disposed of within an approved disposal area which meets all Federal, State and local laws and ordinances for permanent disposal of such materials. When no longer needed, the well will be sealed by filling the well 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 wells.

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 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.

The dewatering well will be used to remove water collected within the underground workings of the Oak Grove Mine. Construction of the withdrawal well will begin with the clearing and grubbing of the construction sites. The foundation areas will be graded to the appropriate grades as necessary to facilitate construction operations. Upon the completion of the grading operations, the dewatering well will be drilled at the required location for the facility. The well will be cased as shown in Attachment III.-A.-6. Sediment control will be provided at all times during construction of the facility. Sediment control will consist of silt fencing. Upon the installation of the well, 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. Modifications to the well will be performed

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as necessary to upgrade and update the facility during the life of the mine. Maintenance will consist of the clean out of the well and replacement of casing. When no longer needed, the well will be sealed by filling the well 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 wells.

All pumps utilized to de-water the mine are manufactured by Centrilift with varying pump capacities however all are equipped with automatic shut offs for high/low pressure and amps draw by each pump motor. **Each pump has its own programmable logic controller (PLC) and are remotely monitored 24/7 by a person at a central location with radio contact with the mine personnel responsible for operating the pumps. Any variation from normal operations readings of pressure and/or amperage will trigger a shut off of the pumps in operation. The pumps will not be re-started until the cause, such as a bursted pipeline, clog or pump malfunction is identified and repairs completed. The pipelines in use will be visually inspected regularly by field personnel during their daily routes and the automatic shut-off tested once a quarter. If the automatic shut-off device is determined to not function properly it will be repaired or replaced immediately.** See Attachment III-B-2(a) for underground water pump summary.

"Drisco" type polythene pipe will be used to transport mine pumpage from the wells to Basin 019B for treatment prior to discharge into Basin 019A and Basin 019 (NPDES Outfall) and ultimately into a nearby creek or stream. The necessity for treatment will be determined by checking the water quality below the discharge of Basins 019B and 019A so any treatment required can be introduced at the inflows to Basins 019B & 019A. A treatment station consisting of chemical holding tanks, gate valves, and drip tubes may be used to add liquid Aluminum Sulfate, Magnesium Sulfate, Caustic Soda, Hydrated Lime, or any other chemical that is necessary to bring discharges into compliance. Chemicals maybe introduced via a drip system directly within the underground pump discharges. Drip quantities will be regulated as necessary by a gate valve on the tanks them self. The mine water will also be treatable using passive and/or active aeration. An aeration channel is located at the discharge end of each pipeline prior to the pump water entering Basin 019B as a part of the Detailed Design Plans of this Basin. The water will only be treated with chemicals if necessary. The two wells that are currently pumping to the Basin 019 series are pumping approximately 2,400 gallons per minute to Basin 019B. The additional dewatering well will add an additional 1200 gallons per minute to the inflow of the Basin. However, the Basin 019 series was designed to control 14,000 gallons per minute. Therefore, no modification to the Basin 019 series will be required. The pipeline corridors will be within the permitted right of way of access roads previously permitted, existing utility right of ways or access right of ways of proposed pipelines added by this revision. Preparation for the pipeline corridors

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existing utility right of ways or access right of ways of proposed pipelines added by this revision. Preparation for the pipeline corridors from the dewatering wells to Sediment Basin 019B will consist of the clearing and grubbing of the areas. Silt fencing and hay dams will be used to control runoff from the construction areas which are not within the drainage area of approved sediment basins. Upon completion of installment of new pipeline, 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. Use and maintenance of the pipelines will consist of replacement of damaged or malfunctioning sections of pipeline, repair of leaks as they develop, and the addition of pipeline when needed. Upon the termination of pumping operations, the pipeline will be flushed to ensure that no mine pumpage, stormwater discharges, and basin clean-out deposits are present in the pipeline and dismantled and removed from the site. Clean out deposits will be disposed of at the Breaker Rock Disposal Area No. 3. 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.

The additional pipeline location added by this revision is shown on Attachment III-B-2(a) Stream Crossing Layout Map. This pipeline will route additional mine pumpage directly to Basin 019B for treatment before entering Basin 019A and 019. "Drisco" type polythene pipe will be used to transport mine pumpage from the dewatering wells previously permitted in R-27, revised in R-31, and proposed in R-38 to Sediment Pond No. 19B for treatment prior to discharge into Sediment Pond No. 19A and 19 before ultimately into Rock Creek. The previously permitted well is located in the SE 1/4 of SW 1/4 of Section 7, Township 18 South, Range 5 West. The new well to be permitted is located within the NW 1/4 of NE 1/4 of Section 7, Township 18 South, Range 5 West. The pipeline will be spanned from the 100' setback on the North and South sides such that no disturbance will occur in the 100' setback except as described below. The bridge spanning the creek crossing will require four concrete footings (8'x 8'), two on the North side and two on the South side, approximately 60' from the creek bank. The bridge will be above the 100-year flood plain elevation and erosion control measures for the crossing are shown on Attachment III-A-3(c). Preparation for the pipeline corridor will consist of the clearing and grubbing of the areas. Silt fencing will be used to control runoff from the construction areas which are not within the drainage area of approved sediment basins. Upon completion of installment of new pipeline connected to existing pipeline, 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. Use and maintenance of the pipeline will consist of replacement of damaged or malfunctioning sections of pipeline, repair of leaks as they develop, and the addition of pipeline when needed. Upon the termination of pumping operations, the pipeline will be flushed to ensure that no mine pumpage, stormwater discharges, and basin clean-out deposits are present in the pipeline and dismantled and removed from the site. 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.

See Attachment III-A-3(c), 100' Stream Setback Waiver.

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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)

Mine openings created as a result of this application consist of of the addition of two (2) degasification wells, one (1) utility borehole, and one (1) dewatering well.

The wells will be sealed by filling the wells 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.

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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 and mine pumpage 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.

The water quality demonstrated by the enclosed analysis indicates the only need for water quality to meet effluent limits is treatment for lowering iron and manganese concentrations. The aeration process included in the basin design plans by use of aeration channels at the discharge of the pump pipeline will accomplish this requirement. The aeration process will be further enhanced by the surface area of each basin and the cascading of the discharge through the spillway of the upper basin into the lower basin. However, if additional treatment is required a chemical delivery system will be setup at the pipeline discharge location for treatment with coagulants such as ferric chloride, ferric sulfate, potassium permanganate, etc. in conjunction with liquid lime for pH adjustment and optimum chemical treatment.

The necessity for chemical treatment will be determined by checking the water quality below the discharge of Basin 019B so any treatment required can be introduced at the inflow to Basin 019B and/or Basin 019A. Drip quantities will be regulated as necessary by a gate valve on the tanks them self.

A permit to discharge under the National Pollutant Discharge Elimination System has been issued 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. Records of all testing required will be kept at the mine and will be available for inspection by the Regulatory Authority.

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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?

(XXX) Yes () No

If yes, complete the following:

- (a) Is the diversion to be permanent? () Yes (XXX) No

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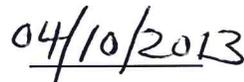
CERTIFICATION STATEMENT:

I hereby certify that Attachment III-B.-2.A prepared for Oak Grove Resources, P-3232, Revision R-38 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



Date



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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 the (2) two degasification wells, (1) utility borehole, and (1) dewatering well. As shown on the permit map and Attachment III.-B.-2.-a, Alternate Sediment Control Plan maps, the areas requested for exemption is a small area of disturbance (no larger than two (2) 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 proposed sites will be surfaced with durable non-erodible non-toxic non-acid forming material or completely vegetated. During reclamation 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.

The dewatering well will be used to remove water collected within the underground workings of the Oak Grove Mine. "Drisco" type polythene pipe will be used to transport mine pumpage from the well to the inflow of the Sediment Pond 019B and 019A and eventually into NPDES outfall 019. The proposed stream crossing will consist of a bridge structure placed above the ordinary high water mark of the stream. (See Attached Stream Crossing Details) The water will be treated prior to discharge from Outfall 019 if required. It will be determined by checking the water quality below the discharge of Basin 019A so any treatment required can be introduced at the inflow to Basin 019. A treatment station consisting of chemical holding tanks, gate valves, and drip tubes may be used to add liquid Aluminum Sulfate, Magnesium Sulfate, Caustic Soda, Hydrated Lime, or any other chemical that is necessary to bring discharges into compliance. Chemicals maybe introduced via a drip system directly within the underground pump discharges. Drip quantities will be regulated as necessary by a gate valve on the tanks them self. The mine water may also be treatable using passive and/or active aeration. The water will only be treated with chemicals if necessary. The proper method and chemicals will be selected based on the water quality encountered. Analysis of the pre-treated pumpage from the "Wisham Wells", an underground pump location, to be pumped from the dewatering well is attached. Also are copies of DMR's of NPDES Outfall 19.

Geologic investigations indicate that the Revision R-38 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 Rock Creek, Bear Branch or Lost Branch.

See Attachment III-B-2(a) for Alternate Sediment Control Maps.

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Attachment III-B-2-A

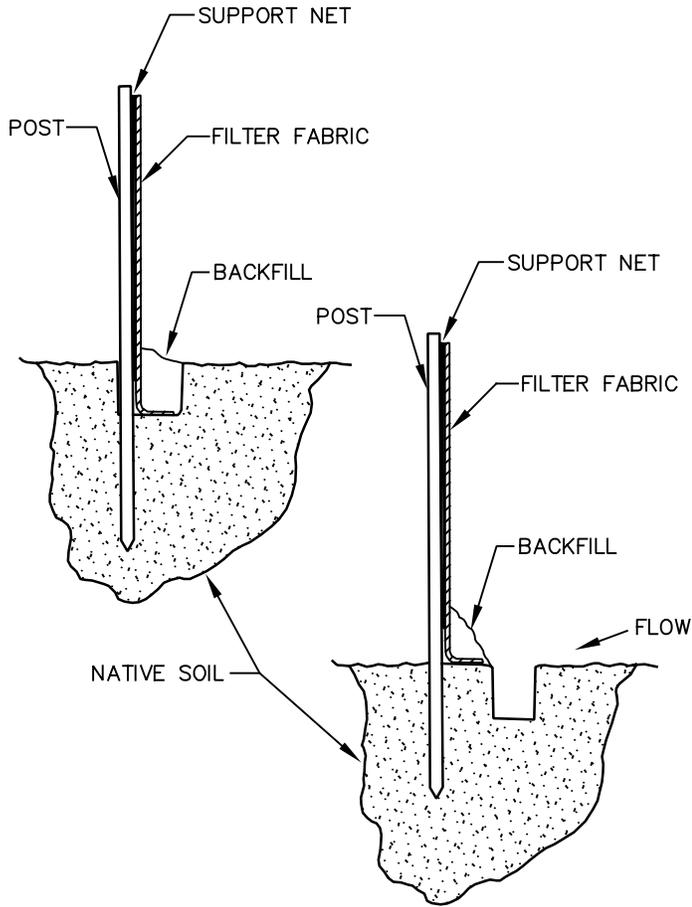
Basin No.	Location	Drainage Area (Acres)
019BE	NW/NE of Section 18, Township 18 South, Range 5 West	10.5
019AE	NW/NE of Section 18, Township 18 South, Range 5 West	18.4
019E	NE/NW & NW/NE of Section 18, Township 18 South, Range 5 West	20.0

All basins are located within Jefferson County, Alabama, as found on the Concord Alabama USGS Quadrangle Map.

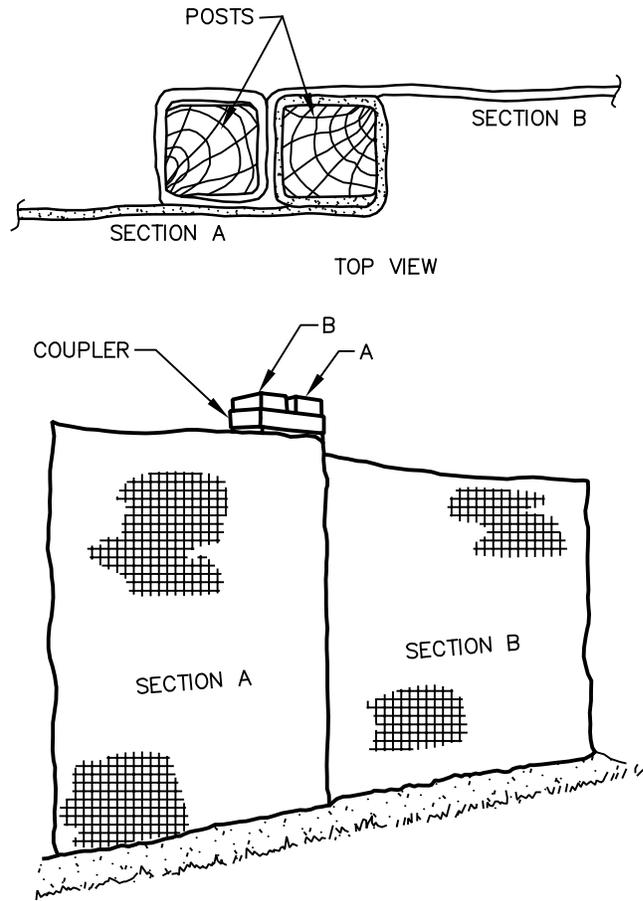
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Silt Fencing Design and Construction Specifications

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.



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.



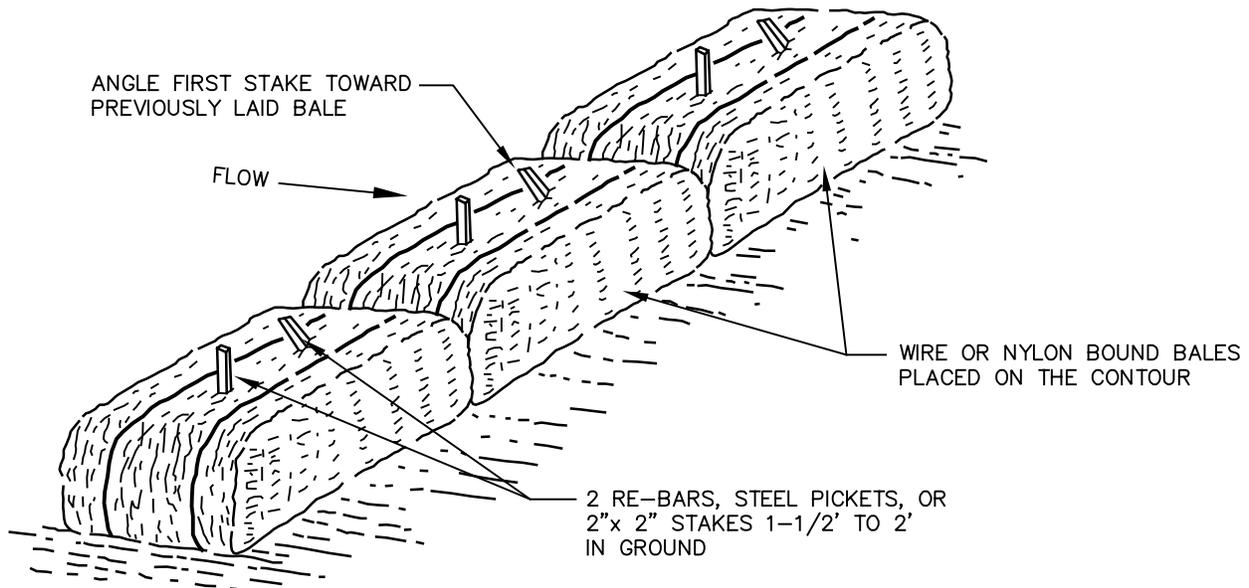
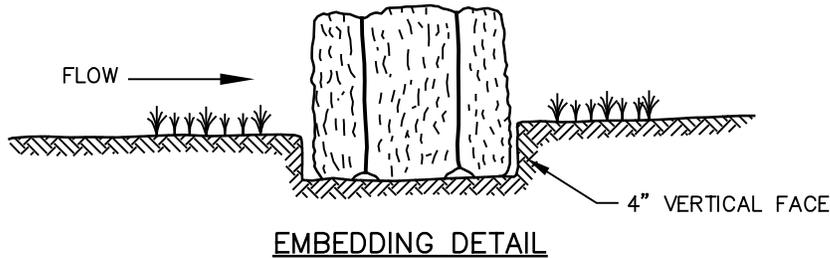
SILTFENCE TYPICAL

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

DATE: 6-24-91

APPROVED BY: R.E.P.

SCALE: NONE



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.



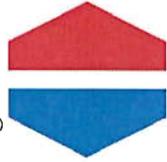
HAY BALE BARRIER TYPICAL

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

DATE: 6-24-91

APPROVED BY: R.E.P.

SCALE: NONE



AEC Premier Straw® Wattle
SPECIFICATION

PART I - GENERAL

1.01 Summary

- A. The straw wattle contains agricultural straw for the purpose of slowing water velocity and trapping sediment as described herein.
- B. This work shall consist of furnishing and installing the straw wattle; including fine grading, installing, staking, and miscellaneous related work, in accordance with these standard specifications and at the locations identified on drawings or designated by the owner's representative. This work shall include all necessary materials, labor, supervision, and equipment for installation of a complete system.
- C. All work of this section shall be performed in accordance with the conditions and requirements of the contract documents.
- D. The straw wattle shall be used to slow water velocity, trap sediment, and enhance revegetation. Based on a project-by-project engineering analysis, the straw wattle shall be suitable for the following applications:
 - 1. Slope interruption
 - 2. Channels, Swales, and Ditches
 - 3. Inlet and outlet protections

1.02 Performance Requirements

- A. Straw wattle shall provide temporary, degradable channel and slope interruption by slowing water velocity to reduce shear stress and soil erosion while enhancing revegetation. Straw wattle performance capabilities shall be determined by large-scale testing deemed acceptable by the design engineer.
- B. Straw wattle performance requirements:

Functional Longevity*: ≤ 18 months

*Functional Longevity varies from region to region because of differences in climatic conditions.



1.03 Submittals

- A. Submittals for approval shall include complete design data, Product Netting Information, SDS, Installation Guidelines, Manufacturing Material Specifications, Manufacturing Certifications, Staking Pattern Guide, CAD details, and a Manufacturing Quality Control Program.

1.04 Delivery, Storage, and Handling

- A. Straw wattle shall be furnished on pallets or master packs.
- B. Straw wattle shall be of consistent density with fibers distributed evenly over the entire area of the wattle.
- C. Straw wattle shall be free of defects and voids that would interfere with proper installation or impair performance.
- D. Straw wattle shall be stored by the Contractor in a manner that protects them from damage by construction activities.

PART II - PRODUCTS

2.01 Straw Wattle

- A. Straw wattle shall be AEC Premier Straw Wattles, as manufactured by American Excelsior Company, Arlington, TX (1-866-9FIBERS).
- B. AEC Premier Straw Wattle consists of certified seed free agricultural straw inside a flexible and durable tubular netting with metal clips or knotted ends. AEC Premier Straw Wattle is designed to provide intimate contact with the soil, which prevents blowouts and undermining. AEC Premier Straw Wattle may be placed across channel bottoms, on hillslopes, or around inlet structures. AEC Premier Straw Wattle shall be Manufactured in the U.S.A.
- C. Straw wattle shall have the following nominal material characteristics:

PROPERTY	ENGLISH	METRIC
Product Name	9 in	22.9 cm
	12 in	30.5 cm
	20 in	50.8 cm
Minimum Diameter	8.5 in	21.3 cm
	11.5 in	29.2 cm
	19.0 in	48.3 cm
Wattle Density (± 10%)	(9 in) 4.53 lb/ft ³	72.62 kg/m ³
	(12 in) 3.82 lb/ft ³	61.25 kg/m ³
	(12 in) 4.24 lb/ft ³	67.98 kg/m ³
	(20 in) 2.75 lb/ft ³	44.10 kg/m ³
Wattle Dimensions (W x L) (± 10%)	9 in x 25 ft	0.2290 m x 7.620 m
	12 in x 10.0 ft	0.3048 m x 3.048 m
	12 in x 15.0 ft	0.3048 m x 4.572 m
	20 in x 10.0 ft	0.508 m x 3.048 m



2.02 Stakes

- A. Stakes shall be wooden, 1 1/8" wide x 1 1/8" thick x 30" long. Stakes shall not extend above the straw wattle more than 2".

PART III - EXECUTION

3.01 Straw Wattle Supplier Representation

- A. Contractor shall coordinate with the wattle supplier for a qualified representative to be present on the job site at the start of installation to provide technical assistance as needed. Contractor shall remain solely responsible for the quality of installation.

3.02 Site Preparation

- A. Before placing straw wattles, the Contractor shall certify that the subgrade has been properly compacted, graded smooth, has no depressions, voids, soft or uncompacted areas, is free from obstructions such as tree roots, protruding stones or other foreign matter, and is seeded and fertilized according to project specifications were applicable. The Contractor shall not proceed until all unsatisfactory conditions have been remedied. By beginning construction, Contractor signifies that the preceding work is in conformance with this specification.
- B. Contractor shall fine grade the subgrade by hand dressing where necessary to remove local deviations.
- C. No vehicular traffic shall be permitted directly on the straw wattle.

3.03 Installation

- A. Straw wattle shall be installed as directed by the owner's representative in accordance to manufacturer's Installation Guidelines, Staking Pattern Guide, and CAD details. The extent of straw wattle shall be as shown on the project drawings.
- B. Straw wattle should be installed to intercept water flow and collect sediment on site. They may be placed over bare soil or on top of erosion control blankets. Straw wattles are typically installed in a 2 inch trench with the ends of the wattle facing upstream.
- C. They shall be secured to the subgrade by wood stakes every four lineal feet across the length of the straw wattle. The stakes shall be driven through the center of the straw wattle only and driven into the ground a minimum of 24 inches.
- D. Straw wattle installed in a swale or channel bottom shall allow the installation to continue up the slopes three feet above the anticipated high water mark and perpendicular to the flow of water.
- E. Spacing of straw wattle shall be such that the elevation of the bottom of the straw wattle upstream will be equal to the elevation of the top of the straw wattle downstream.
- F. Straw wattle shall remain in place until fully established vegetation and root systems are present.



3.04 Quality Assurance

- A. Straw wattle shall not be defective or damaged. Damaged or defective materials shall be replaced at no additional cost to the owner.
- B. Product shall be manufactured in accordance to a documented Quality Control Program. At a minimum, the following procedures and documentation shall be provided upon request:
 - 1. Manufacturing Quality Control Program Manual
 - 2. Additional inspections for product conformance shall be conducted during the run after the first piece inspection.
 - 3. Moisture content readings recorded for each manufacturing day.
 - 4. Each individual straw wattle shall be inspected, weighed, and documented prior to packaging for conformance to manufacturing specifications.

3.05 Clean-up

- A. At the completion of this scope of work, Contractor shall remove from the job site and properly dispose of all remaining debris, waste materials, excess materials, and equipment required of or created by Contractor. Disposal of waste materials shall be solely the responsibility of Contractor and shall be done in accordance with applicable waste disposal regulations.

3.06 Method of Measurement

- A. Straw wattle shall be measured for payment as individual items and the unit of measure shall be each.

3.07 Basis of Payment

- A. The accepted quantities of straw wattle shall be paid for at the contract unit price per each unit, complete in place.

Payment shall be made under:

Pay Item
Straw wattle

Pay Unit
Individual Item

Disclaimer: AEC Premier Straw Wattle is a system for sediment control in channels and on slopes. American Excelsior Company (AEC) believes that the information contained herein to be reliable and accurate for use in sediment control applications. However, since physical conditions vary from job site to job site and even within a given job site, AEC makes no performance guarantees and assumes no obligation or liability for the reliability or accuracy of information contained herein, for the results, safety, or suitability of using AEC Premier Straw Wattle, or for damages occurring in connection with the installation of any erosion control product whether or not made by AEC or its affiliates, except as separately and specifically made in writing by AEC. These guidelines are subject to change without notice.



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Applicant: <u>Oak Grove Resources, LLC</u>
Mine Name: <u>Oak Grove Mine</u>
Permit Number: P- <u>3232, Revision R-38</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 and III-B-5(b) for specifications of the roads at this facility.

- (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 Attachment III-B-6 and Specifications for the construction, maintenance, and reclamation of ancillary roads.

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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.

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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.
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.

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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.
 - 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.