ATTACHMENT III-A-3

Introduction

This revision proposes to:

1. Add 2.0 acres for Ventilation Shaft 4-12.
2. Add 3.0 acres for ancillary road to access Shaft 4-12.
3. Request a waiver from 880-X-10D-.13 for the shaft site and the ancillary road.

III-A-3(c) Mine Facilities

An ancillary road is proposed to access the Shaft 4-12 site from Lock 17 Road. The ancillary road to access Shaft 4-12 will be constructed along the route permitted under R-35 and will be approximately 4,500 feet long. The proposed ancilliary road will generally follow existing private roads in good condition but two sections, each approximately 700 feet, will be new road. The runoff from the road will be controlled through the use of BMP's. Please see the typical drawings for BMP's included in this attachment (from the Alabama Soil and Water Conservation Committee).

All ancillary roads will be constructed and maintained as set forth in Attachment III-B-5 "Design, Construction, Maintenance, and Reclamation Specifications for Ancillary Roads".

A ventilation shaft is proposed to be added through Revision R-35. Shaft 4-12 will be located in the SW1/4 of the SE1/4 of Section 19, Township 19 South, Range 7 West. This shaft will be constructed by the raise bore method. The raise bore method of shaft construction consists of:

1) Surface site preparation. At Shaft 4-12 the site preparation will consist of clearing the area permitted for the shaft and installing the BMP's as shown on the watershed map and as depicted on the typical drawings for silt fences, hay bale dams and rip rap check dams.
2) A pilot hole will drilled from the surface into the underground workings of No. 4 Mine.
3) The equipment required to perform the raise boring will be installed underground and the raise bore process will continue until the shaft is complete. All cuttings from the raise bore process will be removed from the shaft and transported to the surface via the underground belt system and hoist. The rock will be separated and disposed of on approved coarse refuse disposal areas. The small amount of coal encountered will be processed and placed on the clean coal storage pile.

Shaft 4-12 will be an intake air shaft to service the northwest area of No. 4 Mine. The shaft area shall be properly fenced to prevent any unauthorized entry.

When the intake shaft is no longer needed to ventilate the respective portions of the mine it will be either filled in or capped with a concrete seal. The shaft site will be graded to AOC, seeded with an appropriate mixture of annual and perennial grasses and mulched.

III-A-3(d) Water Pollution Control Facilities

No sediment basins are proposed to be added in R-35 due to the small areas being added. An exemption of 880-X-10D-.13 is requested for the shaft site and the ancillary road added in this revision.

Sediment Barrier (SB)

Practice Description

A sediment barrier is a temporary structure used across a landscape to reduce the quantity of sediment that is moving farther downslope. Commonly used barriers include silt fence (a geotextile fabric which is trenched into the ground and attached to supporting posts) or hay bales trenched into the ground. Other barrier materials include sand bags, brush piles and various man-made materials that can be used in a similar manner as silt fence and hay bales.

This practice applies where sheet and rill erosion occurs on small disturbed areas. Barriers intercept runoff from upslope to form ponds that temporarily store runoff and allow sediment to settle out of the water and stay on the construction site. Barriers can also prevent sheet erosion by decreasing the velocity of the runoff.

Typical Components of the Practice

- Site Preparation
- Barrier Installation
- Reinforce Outlet Bypass. (Not always applicable)
- Erosion Control
- Construction Verification

Construction

Prior to start of construction, sediment barriers should be designed by a qualified professional. Plans and specifications should be referred to by field personnel throughout the construction process.

Note: Silt fence is the only barrier installation being covered in this edition of the handbook.

Site Preparation

Determine exact location of underground utilities so that locations for digging or placement of stakes can be selected where utilities will not be damaged.
Smooth the construction zone to provide a broad, nearly level area for the fence. The area should be wide enough throughout the length of the fence to provide storage of runoff and sediment behind the fence.

Silt Fence Installation

Fence should be installed on the contour, so that runoff can be intercepted as sheet flow, with ends flared uphill to provide temporary storage of water. Fence should be placed so that runoff from disturbed areas must pass through the fence. Fence should not be placed across concentrated flow areas such as channels or waterways. When placed near the toe of a slope, the fence should be installed far enough from the slope toe to provide a broad flat area for adequate storage capacity for sediment. Dig a trench at least 6” deep along the fence alignment as shown in Figure SB-1 for Type A & B fences. Type C fences require only a 4” deep trench.

Drive posts at least 18” into the ground on the downslope side of the trench. Space posts a maximum of 10 feet if fence is supported by woven wire, or 6 feet if high strength fabric and no support fence is used.

Fasten support wire fence to upslope side of posts, extending 6” into the trench as shown in Figure SB-1.

Attach continuous length of fabric to upslope side of fence posts. Try to minimize the no. of joints. Avoid joints at low points in the fence line. Where joints are necessary, fasten fabric securely to support posts and overlap to the next post.

For Type A & B silt fence, place the bottom 8” of fabric in the 6” deep (minimum) trench, lapping toward the upslope side. For Type C fabric place the bottom 6” in the 4” deep (minimum) trench lapping toward the upslope side. Backfill the trench with compacted earth or gravel as shown in Figure SB-2.

To reduce maintenance, excavate a shallow sediment storage area in the upslope side of the fence. Provide good access in areas of heavy sedimentation for clean out and maintenance.

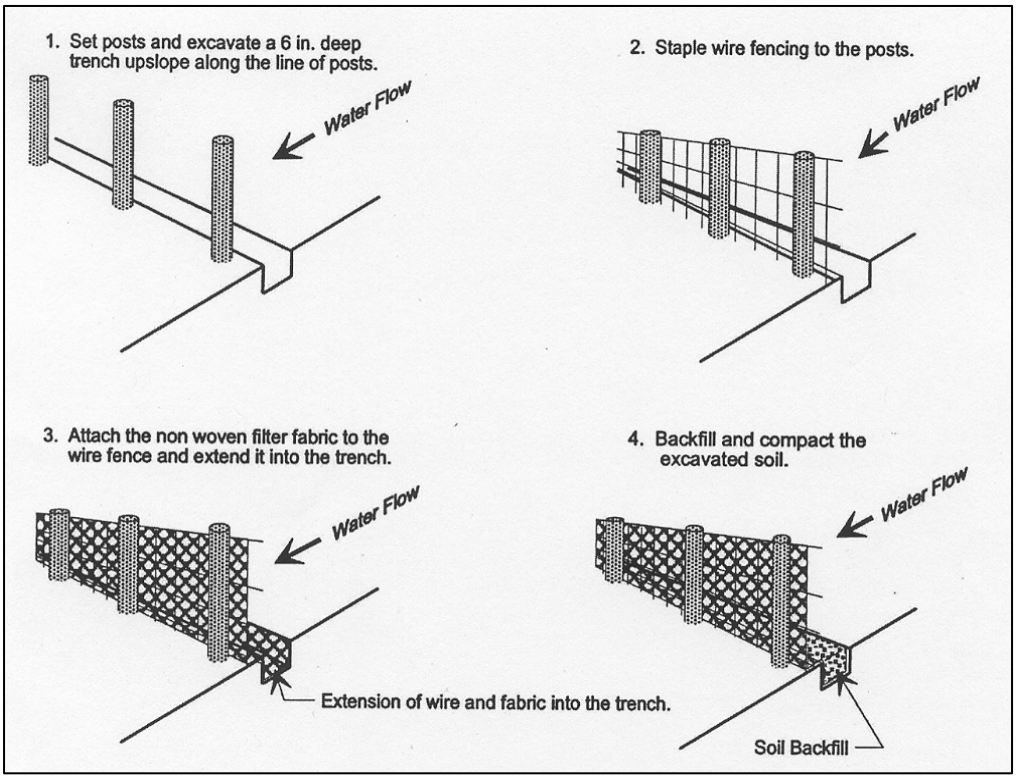

Figure SB-1 Installation of Silt Fence

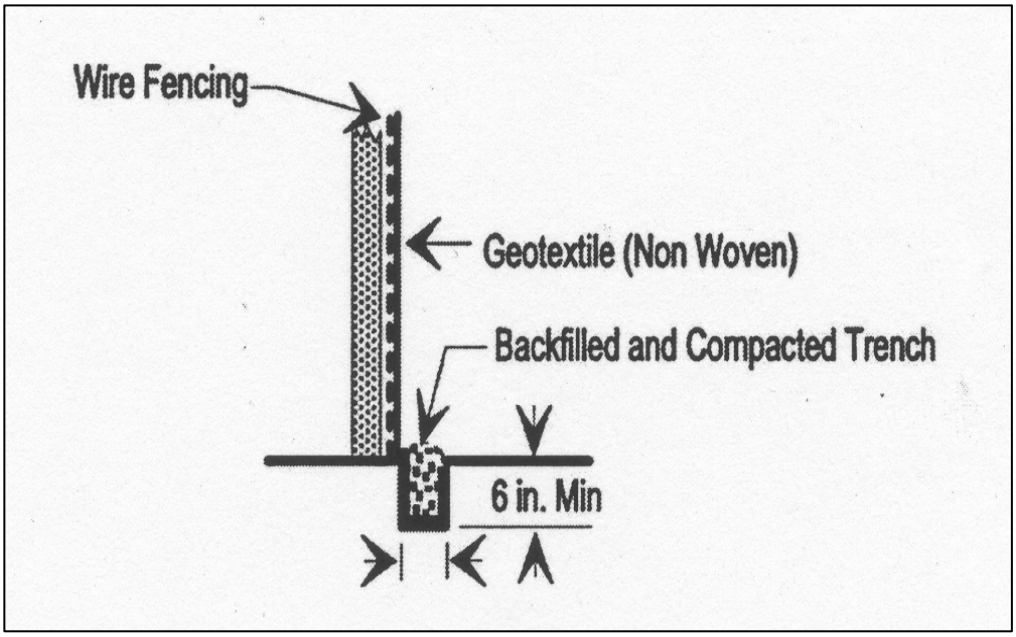

Figure SB-2 Detail of Type A & B Silt Fence Installation

Erosion Control

Stabilize disturbed areas in accordance with vegetation plan. If no vegetation plan exists, consider planting and mulching as a part of barrier installation and select planting information from either the Permanent Seeding or Temporary Seeding practice. Select mulching information from the Mulching practice.

Construction Verification

Check finished grades and dimensions of the sediment fence. Check materials for compliance with specifications.

Common Problems

Consult with a qualified design professional if any of the following occur:

- Variations in topography onsite indicate sediment fence will not function as intended or alignment is not on contour or fence crosses concentrated flow areas; changes in plan may be needed.
- Design specifications for filter fabric, support posts, support fence, gravel or riprap cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.
- Drainage area appears to exceed ¼ acre for 100 feet of non-reinforced silt fence and ½ acre for reinforced fence.

Maintenance

Inspect sediment fences at least once a week and after each significant rain event.

Make required repairs immediately.

Should the fabric of silt fence collapse, tear, decompose or become ineffective, replace it promptly.

Remove sediment deposits when they reach a depth of 15” or ½ the height of the fence as installed to provide adequate storage volume for the next rain and to reduce pressure on the fence.

After the contributing drainage area has been properly stabilized, remove all barrier materials and unstable sediment deposits, bring the area to grade and stabilize it with vegetation.

Straw Bale Sediment Trap (SST)

Practice Description

A straw bale sediment trap is a temporary catch basin consisting of a row or more of entrenched and anchored straw bales. The purpose is to intercept and detain small amounts of sediment to prevent sediment from leaving the construction site. This practice applies within disturbed areas with small drainage basins that are subject to sheet erosion or in minor swales.

Typical Components of the Practice

- Site Preparation
- Installation of Straw Bales
- Erosion Control
- Construction Verification

Construction

Prior to start of construction, straw bale sediment traps should be designed by a qualified professional. Plans and specifications should be referred to by field personnel throughout the construction process. The straw bale sediment trap should be built according to planned grades and dimensions.

Site Preparation

Determine exact location of underground utilities so that locations for digging or placement of stakes can be selected where utilities will not be damaged.
Smooth the construction zone to provide a broad, nearly level area for the row of bales. The area should be wide enough to provide storage of runoff and sediment behind the straw bales.

To facilitate maintenance, provide good access for cleanout of sediment during maintenance period.

Installation of Straw Bale

Excavate a trench to the dimensions shown on the drawings. The trench should be long enough that the end bales are somewhat upslope of the sediment pool to ensure that excess flows go over the bales and not around the bales.

Place each bale end to end in the trench so the bindings are oriented around the sides rather than top and bottom.

Anchor the bales by driving 2 36” long 2” x 2” hardwood stakes through each bale at least 18” into the ground. Drive the first stake toward the previously laid bale to force the bales together.

Wedge loose straw into any gaps between the bales to slow the movement of sediment-laden water.

Anchor the bales in place according to the details shown on the drawings. If specific details are not shown, backfill and compact the excavated soil against the bales to ground level on the downslope side and to 4” above ground level on the upslope side.

Erosion Control

Stabilize disturbed areas in accordance with vegetation plan. If no vegetation plan exists, consider planting and mulching as part of installation and select planting information from either the permanent Seeding or Temporary Seeding practice. Select mulching information from the Mulching practice.

Construction Verification

Check finished grades and dimensions of the straw bale sediment trap. Check materials for compliance with specifications.

Common Problems

Consult with registered design professional if the following occurs:

- Variations in topography on site indicate sediment trap will not function as intended; changes in plan may be needed.

- Design specifications for materials cannot be met; substitutions may be required. Unapproved substitutions could lead to failure.

Maintenance

Inspect straw bale barriers after each storm event and remove sediment deposits promptly after it has accumulated to ½ of the original capacity, taking care not to undermine the entrenched bales.

Inspect periodically for deterioration or damage from construction activities. Repair damaged barrier immediately.

After the contributing drainage area has been stabilized, remove all straw bales and sediment, bring the disturbed area to grade and stabilize it with vegetation or other materials shown in the design plan.

Straw bales may be recycled as mulch.