

MEMORANDUM # 3-96

Guidelines for Husbandry & Reclamation Practices (issued 7/9/96, updated 10/1/01)

The recommended husbandry and reclamation practices will promote timber production on reclaimed lands:

Forestry Reclamation Practices

1. **Spoil selection** – in addition to available topsoil, at least 4 feet of good quality mine spoil should be placed at the surface (to accommodate needs of deeply rooted trees). Mine spoils with low to moderate levels of soluble salts and pH of 4.5 to 6.5. Sandy loam texture is preferred.
2. **Grading** – Compaction should be minimized in final lift. Dumping and leveling should be done in separate operations. Trucks delivering final layer can place in tightly spaced piles across whole area. Bulldozer can knock off top of piles and gently level the area with 1 or 2 passes (for use in areas with slopes 2:1 or less).
3. **Tree compatible ground cover** – Ground covers should include slow growing grasses and legumes species (having a sprawling growth form) which are tolerant of acid mine soils (pH 4.5 to 6.5). **Kentucky-31 tall fescue and all clovers (except ladino) should be avoided.** Typical seed mixture for this practice:

Species	Rate – lbs/acre	Species	Rate – lbs/acre
Foxtail millet (spring only)	5	Orchard grass	15
Rye (fall only)	30	Kobe lespedeza	5
Red top	2	Birdsfoot trefoil	5
Weeping lovegrass	2	Appalow lespedeza	5
Perennial ryegrass	5	Ladino clover	3
		Fertilizer of 10-20-20	300

4. **Tree species selection** – crop trees and nitrogen fixing nurse trees or shrubs are recommended.

Crop trees	1) Pines , <i>pitch x loblolly pine hybrid, white pine, Virginia pine.</i> 2) Hardwoods : <i>yellow poplar, oak species, white ash, sycamore, red maple, sugar maple, black cherry</i>
Nurse trees or shrubs	<i>Black locust</i> (should not be used with <i>white pine</i>), <i>European black alder</i> (use with <i>white pine</i>), <i>bicolor lespedeza, autumn olive, indigo bush, bristly locust.</i>

5. Husbandry practices which will be allowed when forestry application is part of the post mining land use.
 - (a) **Split fertilizer application**
 - (b) **Ground cover** – approximately 70% 1st year; however 90% cover must be present when bond reduction/release requested.
 - (c) **Species specific stem count for crop trees** – Either pines or hardwoods will be selected. Hardwoods should be planted in mixtures of 3 or more species on approximate spacing of 10 feet by 10 feet to achieve 400 to 450 trees/acre.

- (d) Nurse trees/shrubs – planted or hydroseeded with groundcover. Seedlings should be interplanted on a 15 X 15 feet spacing to achieve approximately 200/acre. More than 200 stems/acre by age 2 will have negative impact on crop trees.
- (e) Spot herbicide application recommended when ground cover growth is especially vigorous to reduce competition and allow trees to become established.

Remining Permit Streamline Procedures

- Application content – provide standard application information and any information to detail the various mining incentives (e.g., AML features to be reclaimed, reasonable available spoil to be used to reclaim AML features).
- Application preparation – use of standardized forms (*DMLR-PT-034e*) and digital mapping.
- Field reviews – DMLR remining permit review team will provide consultation prior to, during and after permit preparation, as requested; assist industry's and consultant's location of remining/AML features upon request (DMLR GPS capability); coordinate up-front site visits and review with other state and federal agencies to facilitate the permitting process; consider alternate sediment control designs if compliance can be demonstrated (alternate designs to be included in the sediment control designs of the permit).