

Module 23: Revegetation [§77.456(5)]

23.1 Soil Test Plan

Provide a soil test plan for determining plant nutrients and soil amendments required to establish vegetation and achieve the approved postmining land use.

Soils tests will be performed on the site in order to determine the proper nutrients necessary for the post-mining land use of forestland, unmanaged natural habitat and pastureland and/or land occasionally cut for hay. When the first cut of topsoil is removed, it will be sampled and analyzed; this will indicate the preliminary soil amendments that will be needed.

When the soils are being spread at reclamation, additional soil samples may be taken in order to determine final soil amendments. These tests will also be used for the bond release requirements.

23.2 Temporary Cover. Provide the following information for each seed mixture to be used for temporary cover:

a)

<u>Seed Mixture No.</u>	<u>Seed Mixture (Species)</u>	<u>Rate of Appl. 100% PLS* (lbs./acre)</u>	<u>Seeding Dates (Months)</u>
1	Annual Ryegrass	20	Mar-Sept
	Or Perennial Ryegrass	10	Mar-Sept
	Or Winter Wheat	56	Fall
	Or Spring Oats	64	Spring

* PLS means pure live seed. PLS is the product of the percentage of pure seed times percentage germination divided by 100.

b) Use.

Seed mixture #1 will be used for areas that need temporary erosion control (soil piles, ditches, etc.).

c) Method(s) of seeding.

Conventional and/or hydroseeding methods will be used in the application of the seed mixtures.

d) How seedbed will be prepared for planting.

The seedbed will be graded and/or scarified prior to planting. The soils will be loosened by spiking and/or by the use of farm equipment; this will allow for proper seed germination.

e) Type(s) of mulch to be used and rate(s) of application.

Example: Hay or straw at a rate of 2 ½ tons per acre.

Weed free hay/straw mulch, at a rate of 2.5 to 3 tons per acre, will be used in areas not seeded immediately following final grading and/or after seeding takes place.

23.3 Permanent Cover. [Insert standard seed mixture option(s)] Provide the following information for each seed mixture to be used for permanent cover: (Note: Key to Exhibit 18)

Seed Mixture No.	Seed Mixture (Species)	Rate of Appl. 100% PLS* (lbs./acre)	Seeding Dates (Months)
2 Pastureland / Land Occasionally Cut for Hay	Red Clover	10	Mar-Sept
	Timothy	5	Mar-Sept
	Alfalfa	15	Mar-Sept
	Spring Oats	64	Spring or Fall
	Winter Rye	56	
3 Unmanaged Natural Habitat	Switchgrass	5	Mar-Oct
	Partridge Pea	4	
	"Climax" Timothy	8	
	Alsike Clover	5	
	"Autumn" Bentgrass	2	
	Nurse Crop (oats or winter wheat)	1 bushel	
4 Forestland	Orchardgrass	5	Mar-Oct
	Partridge Pea	3	
	"Climax" Timothy	8	
	Ladino Clover	5	
	Indiangrass	4	
	Nurse Crop (oats or winter wheat)	1 bushel	

* PLS means pure live seed. PLS is the product of the percentage of pure seed times percentage germination divided by 100.

b) Use.

The permanent mixture will be used on the areas that are distributed and reclaimed within the permit boundary (See Exhibit Map 18). Annual Ryegrass and Perennial Ryegrass shall not be used as a nurse crop or before permanent seeding.

c) Method(s) of seeding.

Conventional and/or hydroseeding methods will be used in the application of the seed mixtures.

d) How seedbed will be prepared for planting.

The seedbed will be graded and/or scarified following topsoil replacement by means of farm equipment. The soils will be loosened sufficiently so that germination and revegetation is enhanced. Compaction of the soils prior to seeding will be avoided; this inhibits germination. Proper loosening by spiking and/or use of farm equipment will be done prior to reseeding.

Lime - 3 tons/acre minimum or as determined by soil tests (Sampled upon stockpiling and after spreading); Mixture #4 Above - if Appalachian hardwood trees are to be planted lime should be applied (if necessary) to adjust pH to the 5.5-6.5 range.

Fertilizer - Mixture #2 & 3 Above - 200 lbs. of 10-20-20/acre or as determined by soil tests, Mixture #4 Above - Nitrogen (N) 50-75 lbs/ac., Phosphorus (as P) 80-100 lbs/ac.; (as P205) 180-230 lbs/ac.

e) Type(s) of mulch to be used and rate(s) of application.

Weed free hay/straw mulch, at a rate of 2.5 to 3 tons per acre, will be used in areas not seeded immediately following final grading and/or after seeding takes place.

23.4 Woody Plants. *[Insert standard stocking species option(s)]* For areas that will also be planted with woody plants, provide the following: (**Note:** Key to Exhibit 18)

a)	<u>Woody Plant Mixture No.</u>	<u>Woody Plant Species</u>	<u>No./ac.</u>
	5	Black Cherry	*
		American Sycamore	*
		Black Locust	*
		Redbud	*
		White Oak	*
		Eastern White Pine**	227
		Pitch Pine**	227
		Virginia Pine**	227

* No single tree species shall comprise more than 20% of the total number of seedlings planted. Seedlings will be planted on an 8' x 8' spacing (680 per acre). No more than 50 seedlings per acre of Black locust shall be planted. If blight resistant American Chestnut is available, the tree planting shall include 5 to 10 of them per acre.

** A mixture made up of 1/3 of each of these species should be planted in solid one-acre blocks. These one-acre blocks should be randomly interspersed throughout the final reclaimed area to provide wildlife habitat in the winter months.

b) **Method of planting.**

Tree seedlings will be planted with a seedling planter pulled behind a farm tractor or by hand in the spring following the final planting of permanent grasses.

c) **If the area is to be planted for wildlife habitat, identify the grouping and distribution of the plants.**

Not applicable – no areas to be planted for wildlife habitat.

23.5 Cropland. For areas that will be planted to crops (agronomic or horticultural), identify the crops to be grown and the management plans to achieve the crop yield standards. (**Note:** Key to Exhibit 18: Land Use and Reclamation Map)

Not Applicable