STANDARD

RECREATION AREA IMPROVEMENT (Acre)

Definition

Establishing grasses, legumes, vines, shrubs, trees, or other plants or selectively reducing stand density and trimming woody plants to improve an area for recreation.

Purpose

To increase the attractiveness and usefulness of recreation areas and to protect the soil and plant resources.

Conditions Where Practice Applies

On any area planned for recreation use.

Planning Considerations for Quantity and Quality

QUANTITY

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, and transpiration.

QUALITY

1. Effects of erosion and the movement of sediment, pathogens, and soluble and sediment-attached substances that could be carried by runoff. Important factors are short-term changes caused by construction (sediments, fuels, oils, and other chemicals) compared to long-term changes caused by the same substances resulting from recreation activities.

2. Effects of changes in groundwater from infiltrating soluble substances associated with vegetation management and recreation activities.

Specifications

A. Seedings for Recreation Areas:

1. Areas of High Intensity Recreational Use.

Areas where lawnlike conditions are required such as athletic fields, play areas and other areas where intensive use or heavy traffic is normal. A high level of management to establish and maintain a satisfactory sod is required.)

a. A smooth, firm seedbed will be prepared. Ledge and stones will be removed or covered with soil to a depth of 8 inches.

b. Lime and fertilizer will be applied on the basis of a current soil test whenever practicable. Agricultural limestone will be applied to raise the pH to a minimum of 6.0. In lieu of a soil test, the following amounts will be applied:

(1) Agricultural limestone at the rate of 2 tons per acre; or 100 pounds per 1,000 square feet.

(2) Nitrogen at the rate of 100 pounds of elemental nitrogen (N) per acre, or 2 pounds per 1,000 square feet. At least 25 percent of the nitrogen will be slow release form.

(3) Phosphate at the rate of 100 pounds of P_2O_5 per acre, or 4 pounds per 1,000 square feet.

(4) Potash at the rate of 100 pounds of K_2O per acre, or 4 pounds per 1,000 square feet.

c. Lime and fertilizers will be uniformly spread and then incorporated into the soil at least 3 inches deep.

d. A seeding mixture will be selected from the following on the basis of the planned uses of the recreation area and the characteristics of the site:

<u>For Athletic Fields</u>:
(well drained and moderately well drained sites)

4 lbs. per 1,000 sq. ft.

47 percent Kentucky bluegrass,
47 percent red fedcue,
(creeping red, Illahee, or Pennlawn)
6 percent redtop

OR

25 percent Merion bluegrass,
25 percent Kentucky bluegrass,
50 percent red fescue

OR

50 percent Merion bluegrass,
50 percent red fescue

For General Purpose Areas:

4 lbs. per 1,000 sq. ft.	Above mixtures or 60 percent red fescue 35 percent Kentucky or Merion bluegrass 5 percent ryegrass or other nurse grass

For Parks and Playgrounds*

4 lbs. per 1,000 sq. ft.	40 percent Kentucky-31 fescue 40 percent creeping red fescue 20 percent Kentucky bluegrass

*This is a relatively inexpensive mixture designed for areas which will receive rough wear and where there will be a minimum of maintenance.

Shady Areas

Dry

3-4 lbs. per 1,000 sq. ft.	60 percent creeping red fescue 30 percent Merion bluegrass 10 percent Astoria bent

Moist

2-3 lbs. per 1,000 sq. ft.	Rough Bluegrass (Poa trivialis)

Note: If these do not survive, it will be necessary to resort to groundcovers which will grow in shady areas.

For Bank or Erosion Control:

2 lbs. per 1,000 sq. ft.	20 percent Kentucky bluegrass 25 percent creeping red fescue 40 percent redtop 10 percent domestic ryegrass 5 percent white dutch clover

For Temporary Turf:

4-5 lbs. per 1,000 sq. ft.	Above mixtures or 100 percent domestic ryegrass or for winter 100 percent field bromegrass (field bromegrass should not be allowed to go to seed following year)

e. Seed will be uniformly broadcast over the surface and the soil rolled or packed where slope conditions permit. Where rolling or packing is not feasible, the seed will be raked into the top one-quarter inch of soil.

f. Seedings will be made any time in the spring until May 15, and in the fall between August 1 and September 15 (October 1 for southeastern Massachusetts), or at any time during the growing season when the seeding will be irrigated.

g. New seedings will be mulched with the Standard and Specifications for "Mulching."

h. Maintenance

(1) New seedings will be treated chemically[1/] or mowed to control weeds. Mowers will be set to cut not closer than 2 inches above ground level.

(2) Mowing shall be done regularly to a height not closer than 2 inches.

(3) Apply annual applications of at least 45 pounds of elemental nitrogen (N) per acre or 1 pound per 1,000 square feet, 25 pounds of phosphate (P_2O_5) per acre or 1/2 pound per 1,000 square feet, and 25 pounds of potash (K_2O) per acre or 1/2 pound per 1,000 square feet. At least 25 percent of the nitrogen will be in slow release form.

(4) Sufficient ground limestone will be applied, periodically, to maintain a pH of at least 6.0.

(5) Aerate turf between April 15 and May 15 and between June 1 and June 30 on clay or heavily compacted soils.

2. Areas of Low Intensity Recreational Use

(These are recreation areas where the primary consideration is the establishment of sod cover for erosion control and for the enhancement of the area from an aesthetic viewpoint. Such areas consist of roadbanks, trails, walkways, odd areas and other rough turf areas. A moderate level of management to establish and maintain a satisfactory cover is required.)

a. A seedbed will be prepared giving due consideration to the intended use of the area, the species to be seeded, and the site. The seedbed will be as firm and as smooth as conditions permit.

b. Lime rates and lime and fertilizer methods of application will be as indicated in "1.f.(1) and 1.c." However, fertilizer will be applied at the following rates as a minimum:

(1) Nitrogen at the rate of 50 pounds per acre, or about 1 pound per 1,000 square feet of elemental nitrogen (N). At least 40 percent of the nitrogen will be in slow release form.

(2) Phosphate (P_2O_5) at the rate of 100 pounds per acre, or 2 1/3 pounds per 1,000 square feet.

(3) Potash (K_2O) at the rate of 100 pounds per acre, or 2 1/3 pounds per 1,000 square feet.

c. A seeding mixture may be selected from "1.d." above. Standard and Specifications, "Critical Area Planting," or from perennial mixtures in the most recent edition of the Massachusetts Agronomy Guide.

d. Seedings will be broadcast and rolled, packed or covered as in "1.e."

e. Seedings will be made during the times indicated in "1.7." except that legumes will not be seeded later than September 1. (Dormant seedings may be made after November 1.)

f. Seedings will be mulched as indicated in "1.g."

g. Maintenance

(1) New seedings will be treated chemically[1/] or mowed for weed control. Mowers will be set to cut not closer than 4 inches above the ground level.

(2) Areas will be mowed at least once per year to a height not closer than 4 inches.

(3) Annual applications shall be made of at least 30 pounds of elemental nitrogen (N) per acre or 2/3 pounds per 1,000 square feet, 15 pounds of phosphate (P_2O_5) per acre of 1/3 pound per 1,000 square feet, and 15 pounds of potash (K_2) per acre or 1/3 pound per 1,000 square feet. At least 40 percent of the nitrogen will be the slow release form.

(4) Sufficient ground limestone will be added, periodically, to maintain a pH of at least 6.0.

B. Plantings for Recreation Areas

1. Vines and Groundcover

a. Competing vegetation will be destroyed prior to planting.

b. At time of planting, 1/2 ounce of 5-10-10 fertilizer or equivalent will be applied and worked into the soil at the planting spot for each plant.

c. Planting will be done in the spring by May 15.

d. A 4-inch layer of mulch will be applied around or between plants.

e. Spacing will vary with the species selected and the vigor of growth:

(1) Plants with a mature height of less than 18 inches will be planted on 1-foot centers.

f. Species selection for vines and groundcover:

(1) Selecteion to be based upon design objectives and prescriptions in relation to site conditions.

Refer to Technical Note MA-101, "Plant Materials Suitable for Establishment on Recreation Lands."

g. Maintenance of plant vigor: (One or more of the following measures will be applied as needed.)

(1) Replant to fill gaps.

(2) Apply additional mulch until plants grow together.

(3) Apply a pellet form of 5 percent nitrogen fertilizer around each plant at the rate of 3 pounds per 100 square feet.

(4) Control competing vegetation.

2. Shrub Plantings

a. Good quality planting stock will be used.

b. Competing vegetation will be destroyed prior to planting.

c. At time of planting, 1 ounce of 8-6-4 fertilizer or the equivalent will be applied and worked into the soil at the planting spot for each plant.

d. Plantings will be made in the spring by May 15, using a method which will result in:

(1) The stock being planted at the same approximate depth to which it was planted when growing in the nursery.

(2) Uncrowded root space.

(3) The soil being firmly packed against the roots.

e. A 4-inch layer of mulch will be applied in at least a 2-foot diameter circle around each plant.

f. Spacing between shrubs and groupings of shrubs will depend upon the species selected and the purpose of the planting.

g. Species selection for barriers, screens, hedges, recreation area protection, attracting wildlife, landscaping, and other aesthetic qualities:

(1) Selection to be based upon design objectives and prescriptions in relation to site conditions.

(Refer to Technical Notes MA-101, "Plant Materials Suitable for Establishment on Recreation Lands" and MA-108, "Plant Materials Suitable for Beautification and Wildlife;" Standard and Specifications for "Hedgerow Planting," "Critical Area Planting," "Field Windbreak," and "Field Border.")

h. Maintenance of plant vigor: (One or more of the following measures will be applied as needed.)

(1) Replant to fill gaps.

(2) Apply additional mulch for 1 to 2 years.

(3) Apply a side dressing of 8-6-4 fertilizer, or the equivalent, at the rate of 1 ounce per plant for each of the 2 years following planting.

(4) Control competing vegetation.

3. Tree Plantings

a. Selection

Selection and spacing of trees for planting will be based upon design objectives and prescriptions in relation to site conditions.

(1) For areas under heavy recreational use (e.g., picnic areas, campgrounds), species will be selected according to their

ability to withstand impact. The following guide shall be used in selection:

	Hardwoods	Conifers
Best	Hickories	Hemlock
	White Ash	White Pine
	Beech	Pitch Pine
	Dogwood	
	Yellow Birch	
	Red Maple	
	Black Birch	
	White Oaks	
	Red Oaks	
	Black Cherry	
Poorest	Blue Beech	

Hardwoods are generally more tolerant than conifers.

b. Spacing

(1) Tree density for heavy recreational use areas shall average 20-40 percent crown closure.

(For areas where trees are complementary to the recreation areas such as for landscaping, windbreaks, or attracting wildlife, refer to Technical Notes MA-101, "Plant Materials Suitable for Establishment on Recreation Lands" and MA-108, "Plant Materials Suitable for Beautification and Wildlife," and Standard and Specifications, "Field Windbreak" and "Tree Planting.")

(2) Spacing should be as follows:

For hedgerows: Trees will be spaced 6 to 10 feet apart.

For windbreak: Trees will be spaced 6 to 12 feet apart.

c. Planting Details

(1) Evergreen Tree Plantings

(a) Good quality planting stock will be used. It is best to use 3 or 4-year transplants or balled and burlapped trees.

(b) Competing vegetation will be destroyed in accordance with design, prior to planting.

(c) Plantings will be made in the spring by May 15, using a method resulting in:

1 Tree being planted at the approximate depth to which it was planted when growing in the nursery.

2 Uncrowded root space.

3 The soil being firmly packed against the roots.

(d) A 4-inch layer of mulch will be applied in at least a 2-foot diameter circle around each plant.

(e) Maintenance of plant vigor: (One or both of the following measures will be applied as needed.)

1 Apply additional mulch for 1 to 2 years.

2 Apply control measures for insect, disease or rodent damage.

(2) Deciduous Tree Plantings

(a) Good quality planting stock will be used. Normally, trees up to 2 inches DBH can be moved "bare-rooted" while they are dormant. Trees 6 to 12 feet in height, and 1 to 3 inches DBH are suitable for planting.

(b) Trees will be planted in prepared holes dug 2 feet larger than needed to accommodate the spread root system. Holes should be refilled with a mixture of 2/3 soil and 1/3 organic matter such as peat moss, humus or rotted manure.

(c) The refilled area will be watered thoroughly.

(d) A 4-inch layer of mulch will be applied in at least a 3-foot diameter circle around each plant.

(e) The newly planted trees over 6 feet will be supported with guywires or posts. The tree trunk will be wrapped with treated crepe paper tape.

(f) Maintenance of tree vigor: (The following measures will be applied as needed)

1 Prune to achieve strong structural form, to remove broken limbs.

2 Treat large cut surfaces with tree wound dressing.

3 Fertilize established trees with 5-10-10 fertilizer or the equivalent every second year. Fertilizer will be applied in a double row of holes around the edge of the tree root zone which is located under the outer branch tips. Holes will be spaced 2 feet apart and punched to a depth of 12 to 18 inches. Fertilizer will be applied at a rate of 2 to 4 pounds for each inch of trunk diameter. Fertilizing will be done in early spring, as soon as frost is out of the ground.

C. Pruning and Thinning Existing Tree Stands

In tenting, camping, picknicking, and similar areas of heavily concentrated use, the following measures are taken:

1. General

a. Remove branches with a pruning or similar saw, cutting as close to the main stem as possible.

b. Retain at least two-thirds of total height of tree as live crown.

c. Remove not more than one-third of crown at one time.

d. Give consideration to trees and shrubs which enhance the beauty of the area.

2. For Pruning

For natural appearance, remove rather than prune young evergreen trees. In other cases, treat as follows:

a. In vehicular traffic areas, prune to height of approximately 10 feet or more.

b. In foot traffic areas, prune to height of approximately 7 feet.

c. Prune all trees which might interfere with normal recreational use.

3. For Thinning

a. Give preference to the most desirable species such as sugar maple, white birch, ash, oak, white pine, red pine, white spruce, red spruce and flowering species of trees and shrubs depending upon the special desires of the landowner.

b. Maintaining a crown canopy with 20-40 percent closure for heavy recreation use area and greater or lesser for other areas as the need dictates.

c. Remove trees, as necessary, to provide free use for the recreation purpose planned.

1/ CAUTION: If herbicides are handled or applied improperly or if unused portions are not disposed of safely, they may be injurious to humans, domestic animals, desirable plants, and fish or other wildlife and they may contaminate water supplies. Drift from aerial spraying can contaminate nearby crops and other vegetation. Follow directions, and heed all precautions on the container label.