

Mitigation/Restoration Planting Area Guidelines

Approved: 6/3/2021

Introduction

These Guidelines have been developed to assist applicants in developing appropriate plans for mitigation and/or restoration planting areas. These Guidelines reflect the interests of the Wetlands Protection Act and Regulations, the Newton Conservation Commission's interest in promoting healthy native ecosystems, and best practices for plant installation and maintenance. Every site is unique; applicants should take site characteristics into consideration in the development of a mitigation and/or restoration planting plan; the Newton Conservation Commission will assess each plan in this context.

Planting Area Site Design

- Walls and fences can diminish the habitat value of mitigation/restoration areas. Walls and fences so should be avoided when possible.
- Buildings and roadways can diminish the habitat value of planting areas. Mitigation/restoration areas should be sited away from buildings and/or roads when possible.
- Planting areas adjacent to other natural areas can help augment those natural areas and/or created connections to them. Mitigation/restoration areas should be sited to optimize connectivity with adjacent natural areas when possible.

Planting Area Shapes

- Small, isolated planting areas have limited habitat value and should be avoided when possible.
- Narrow strips of planting areas have limited habitat value. Bed should be shaped to be as "consolidated" (i.e., non-linear) as possible.

Plant Layout

- A clear planting plan/map is important. A plan helps create appropriate "clumping" of plant material, identify (and avoid) potential conflicts, and clearly illustrate final/proposed conditions. Plans showing intended layouts should be provided to the Commission.
- Modifications to approved plans may be approved by Conservation staff.

Plant Varieties

- Plants native to central or northeastern North America are preferable.
- Plants with high habitat value are preferable.

Plant Density and Sizes at time of installation

- In addition to the species of plants to be included in a mitigation/restoration area, it is important to consider the density and sizes of plants to be installed. Very small plants may struggle to take hold. Very large plants may suffer excessive stress and struggle to establish. Plans should show sizes at the time of installation
- In the chart below are best practices (these happen to be from a King Co. WA publication).

Type of Plant	Planting distance	Planting density	Size at time of installation
Groundcover	2' on center	25.0 per 100 sf	4"-1 gallon, 10" plugs, or seed mix
Groundcover w/ shrubs	4' on center	6.3 per 100 sf	4" container, plugs,
Shrubs	5' on center	4.0 per 100 sf	1'-3' tall = 1 gal.; 2'-4' tall = 2 gal.
Shrubs w/ trees	6' on center	3.0 per 100 sf	1'-3' tall = 1 gal.; 2'-4' tall = 2 gal.
Saplings/small trees	10' on center	1.0 per 100 sf	1 caliper inch / 6-8 feet tall
Canopy trees	15' on center	0.4 per 100 sf	2 caliper inches / 8-10 feet tall

Planting Area Examples

- The chart below is designed to be used as an aid to visualizing and planning mitigation/restoration areas. Some sites will be best served with more “low” plants such as is shown in the “Combo 1” column; other sites will require a mixture that includes more trees such as is shown in the “Combo 4” column.
- KEY: **GC** = ground cover, **Shr** = shrub, **UTr** = understory tree, **CTr** = canopy tree

			Combo 1 <i>Low</i>	Combo 2 <i>Low & mid-sized only</i>	Combo 3 <i>Some trees & low & mid-sized</i>	Combo 4 <i>More trees & low & mid-sized</i>
Planting Area	Square Layout	Narrow Layout	GC/Shr/-/-	GC/Shr/UTr/-	GC/Shr/UTr/CTr	GC/Shr/UTr/CTr
100 sf	10 x 10	n.a.	25 / 0 / 0 / 0	6 / 4 / 0 / 0	6 / 2 / 1 / 0	0 / 2 / 0 / 1
200 sf	14 x 14	10 x 20	50 / 0 / 0 / 0	12 / 8 / 0 / 0	12 / 6 / 2 / 0	10 / 5 / 1 / 1
300 sf	17 x 17	10 x 30	19 / 12 / 0 / 0	100 / 3 / 3 / 0	100 / 4 / 1 / 1	50 / 3 / 1 / 1
400 sf	20 x 20	10 x 40	25 / 16 / 0 / 0	25 / 12 / 4 / 0	25 / 10 / 2 / 1	25 / 8 / 2 / 2
500 sf	22 x 22	15 x 33	n.a.	31 / 15 / 5 / 0	31 / 12 / 3 / 1	31 / 12 / 2 / 2
600 sf	25 x 25	15 x 40	n.a.	38 / 18 / 6 / 0	38 / 15 / 4 / 1	37 / 15 / 2 / 2
700 sf	26 x 26	15 x 47	n.a.	44 / 21 / 7 / 0	44 / 18 / 4 / 1	44 / 18 / 3 / 2
800 sf	28 x 28	15 x 53	n.a.	n.a.	50 / 24 / 5 / 1	50 / 24 / 3 / 3
900 sf	30 x 30	20 x 45	n.a.	n.a.	57 / 27 / 5 / 2	57 / 27 / 4 / 3
1000 sf	32 x 32	20 x 50	n.a.	n.a.	63 / 30 / 6 / 3	63 / 30 / 5 / 4

Site Preparation and Correct Planting Practices

- Mix compost or other organic amendments into the back-fill soil to increase water-holding capacity where appropriate.
- Dig planting hole for trees only as deep as measured from the trunk flare to the bottom of the root ball or to the same depth as the container.
- Dig planting hole a minimum of three times the diameter of the root ball.
- Removed all (or at least top third) of burlap and wire baskets from the root ball.
- Stake large trees for stability for one growing season.
- Water all plants thoroughly at the time of planting (15-20 gal. per plant).
- Mulch root zones with 2 inches of mulch.
- No fertilization is necessary at planting time.

Maintenance from Planting through Establishment

- Water:** All newly planted areas should receive approximately 1" of water per week during the growing season from April through October. Temporary irrigation may include drip tubing on a timer to be removed after establishment or TreeGators™.
- Mulch:** Root zones of newly planted trees and shrubs should be mulched to a depth of 2" to 2 ½" to the drip-line, except for the area directly adjacent to the trunk. Mulching materials may include shredded leaves, aged wood chips, bark mulch, or other conservation commission approved material; or may be a hydro-seeded mixture of grasses and forbs. If hydro-seeding, a minimum of 4" of topsoil should be put down prior to seeding. On steep slopes, biodegradable erosion fabric may be used. Efforts will be made to prevent erosion and sedimentation in the planted areas.
- Weeding:** Hand removal of weeds is to be conducted where appropriate.
- Fertilizer:** No fertilizer should be applied at planting. In subsequent years, slow release fertilizers may be appropriate based on plant growth.
- Removal of invasive species:** Consideration shall be given to the removal of those species of plants listed by the Mass. Dept. of Agricultural Resources Division of Regulatory Services.