

SCM PLANTING PRACTICES

1. Site Preparation

- a. **Poor/compacted subsoils: Use caution when amending soils**
 - i. Native plants are generally tolerant of poor soil conditions, including low fertility or non-neutral pH
 - ii. Application of fertilizer can promote weed growth and impact SCM functioning, as the SCM will already be the recipient of excess fertility from the surrounding watershed
 - iii. In rare cases (e.g. an absolute lack of fertility, extreme pH, serious compaction), a site may require the addition of topsoil, tillage, or fertilizer/organic matter
- b. **Weed/turf competition: Weed competition may inhibit establishment of natives**
 - i. If a site has lain fallow or is being replanted, you may have weed competition that will inhibit the establishment of your plants. Strategies for reducing competition include:
 1. Raising the pond level for a period
 2. Weed eating
 3. Light Tillage
 4. Herbicide
- c. **Plant delivery and handling: Seasonal Considerations**
 - i. In cooler weather dormant plants can remain moist for several days and require minimal care with exceptions (e.g. protect bareroot aquatics from frost)
 - ii. In hot weather plants must be delivered as near to the time of planting as possible. If circumstances interfere with installation, care must be taken to ensure the plants remain healthy (e.g. store plants in shade, provide water and soil contact, open any boxed plants)
- d. **Identifying zones: Match planting zone to plant selection**
 - i. Different native plants were chosen for different areas of the stormwater device based, primarily, on hydrology, water levels, and plant physiology. Other factors including height, aggressiveness, and aesthetics may play a role in plant location.
 - ii. In general, it is important that your planter has identified the plant zones relative to water level correctly. Consider using marking paint, or something similar, to delineate planting zones and add codes for species, preparing the site before plants arrive.
- e. **Depth and soil contact: Contact with soil is needed for establishment**
 - i. Plants both woody and herbaceous have a “crown” that is the point on the plant that is level with the soil. All plants should be planted at this level.
 - ii. All propagules need good soil contact to establish well. This involves both firmly tamping the soil around the propagule and a good initial watering which helps fill in air gaps in the soil with small particles.
- f. **Geese and other wildlife issues**
 - i. If your site is near to a large field or established body of water, there is a good chance you may have trouble with geese. There is a great deal written on how to deter geese, from plastic coyotes to monofilament and fencing. Different solutions will fit different sites and from the planting perspective you have a few options:
 1. Dormant material
 2. Pruned material

3. Aggressive natives
 4. Larger sizing
 5. Timing
- ii. There are a host of other aquatic animals that can be problematic, including turtles, carp, muskrats, and beaver but these issues tend to arise when planting into an established body of water rather than on new construction.
- g. Weed eaters: Communicate with any maintenance crews**
- i. The number one predator of your newly established site is going to be the groundskeeper who believes wholeheartedly that turf grass **MUST** go to the waters edge.

2. Plant Establishment

a. What to Expect

- i. All plants will experience a short period of shock directly after transplanting, with little to no growth expected for ten days to two weeks. Plants may appear limp during this period. Past this point, you should start to see new growth and signs of establishment and health.
- ii. In special cases, such as a dormant planting, it may be some time before you see any top growth on the propagules.
- iii. In general, plants growing and spreading the most from Mid-March through Mid-September. Although plants may appear green and healthy from Late September until the frost, they will not be putting out much new growth.

b. Plant Propagation

- i. The state-approved plants were chosen because they perform well in the sites and conditions of SCMs. In the season following establishment, you should see plants spreading and forming dense established clumps. You may also be able to see plants that have established by seed in different parts of the SCM. This plant “migration” is, in almost all cases, a great benefit to your project. Even the most well-designed SCM is going to see some variations from the plan given weather, drought, etc. Biodiversity and the ability of plants to colonize in more favorable areas of the SCM may mean success for the project.

c. Weeds

- i. In general, weeds are the uninvited species that will tend to form a monoculture on your site. The worst of these are non-native, aggressive species, but even some natives should be eliminated. For example, Cattails, although native, quickly form a dense monoculture, leaving the site vulnerable to failure. They tend to quickly fill a site with detritus, inhibiting its function and providing an excellent breeding ground for mosquitos.

d. Weather

- i. Although working with the weather is always preferable when planting, it may not always be possible. A good rule of thumb is the less dormant the plant and the hotter the weather, the more subsequent watering and care is needed to establish material. In the mild temperatures of early- to mid-spring, smaller, more-dormant material may establish quickly with an initial watering and a savvy planter keeping an eye on the weather for subsequent water needs. Later in the year, a combination of hotter temperature and larger top growth on the propagules will require more hands-on management.

- ii. In terms of timing, different sites may benefit from different treatment. Strategies range from planting fully dormant material in late winter (for predation) to planting larger material during the height of the growing season (to outcompete weeds).

3. A note on: Water level and Outlet Structures

- a. **Problems:** If you have no water in the deep pool areas and your soil is uniformly bone-dry; if the installer is unable to drain the pond; if there are inches of water- or feet- above your shallow land shelf, then you have a design problem with the device. Many outlet structures are now equipped with a PVC riser that can be shortened or lengthened to change water level in your pond. Thus, it's possible that a relatively cheap solution can solve a hydrological problem that is prohibiting plant establishment. However, it is also possible that unknown factors- such as soil composition, a mistake in design, or inaccurate drainage estimation- has caused a permanent water level that is inappropriate for the specified plants to establish...back to the drawing board.
- b. **Using the outlet structure to your benefit:** In most cases the pond must be fully drained for planting success (i.e. no standing water other than in "deep pool" areas). An ideal situation would have the pond near-to-full in the days/week prior, with the site drained just before planting. This ensures moist soil for the plants in all zones, with the added benefit of having drowned out weeds beforehand. Equally successful in a drained pond is to plant immediately before or after rain. Once planted, the outlet structure should be reset to fill the pond to designed levels.