

Re-Vegetation Seed-Mix Design for the Tudor Municipal Snow Disposal Site

Introduction

Snow disposal sites have unique site considerations. Unlike other vegetated sites, such as athletic fields or turf-managed public venues, several factors place a burden on the establishment and continued growth of the vegetative cover at a snow disposal site. These factors include soil with a higher salinity content, a highly varied water regime, ground surface that is exposed to a delayed growing season due to snow cover, a slowly accreting build-up of heavy metals and an increased load of sand and silt deposited each year. Ideally, the selection of vegetation for a snow disposal site will tolerate and/or mitigate these factors.

Plant Considerations

It is recommended that four species of grasses be used for the seeding mix on the Tudor Road snow dump site. This combination of seed mix will provide the temporal and spatial variability in vegetative cover that the site requires and will provide erosion control of the pad surfaces. With proper application during initial planting and care during the first growing season, this seed-mix will perform well with little or no maintenance beyond that which is currently provided.

The recommended species mix has a combined tolerance for salinity, sedimentation and varying water regimes and has the ability to emerge after the melting of a deep snow cover. While none of the individual species alone displays all of these attributes, the combination of species produces a vegetative profile that will meet these demands and ensure a vigorous vegetative growth after the snow has melted.

Recommended Vegetation for the Tudor Road Site

The four species recommended for seeding the Tudor Road site are *Fescue rubra* (Arctared cultivar), *Deschampsia caespitosa* (Tufted Hairgrass, Nortran cultivar), *Beckmannia syzigachne* (American Sloughgrass) and *Leymus arenarius* (Blue Wildrye).

In various studies (Dernoeden et al., 1994, 1998, McKernan and Ross, 1997) *Fescue rubra* (Arctared cultivar) has been shown to be a fast colonizer that can tolerate varying soil moistures from quite wet to dry and does not need to be mowed to sustain its population density. This particular species has not been specifically evaluated for salinity tolerance or uptake of heavy metals, but it is a standard species used for roadside vegetation throughout North America. In the Conservation Plant Characteristics of the USDA, the salinity tolerance is listed as medium. This species is a perennial.

Deschampsia caespitosa, tufted Hairgrass (Nortran cultivar) has been shown to be able to thrive under long coverage by deep snow (Halfpenny, 1993). This perennial species has a long lifespan and the lowest salinity tolerance of the four species under consideration (Mohlenbrock, 1992). In comparative studies done by Steiner et al., 2001, *D. caespitosa* can compete with the very aggressive *F. rubra* and does equally well in combination with *Beckmannia syzigachne*.

American Sloughgrass, *Beckmannia syzigachne*, an annual, is propagated by the spread of its seed rather than stolon extension or other vegetative strategies. This species can tolerate a wide range of moisture conditions and has a high tolerance for anaerobic conditions. Plant tolerance to salinity is in the medium range (USDA, 1992). Seedling competition between this species and *D. caespitosa* and *F. rubra* is well tolerated.

Leymus arenarius, Blue Wildrye, has a high saline tolerance (USDA, 1992), the highest of the four species listed, and is used extensively for sand stabilization (Greipsson, 1997). Studies by Kiang, 1982, have shown that *L. arenarius* has the ability to adapt to varying saline concentrations without deleterious effects to its growth patterns. This species is a perennial, spreading through rhizomatous extension and seed dispersal.

Plant Considerations for Berm Structures

It would be preferable that the same seed mix used for the snow disposal site be used for the berms. This will allow the berms to act as a secondary seed bank for the site. If the cost is prohibitive for the project, then it is recommended that *Festuca rubra* (Native Red Fescue) be used exclusively for seeding the berms.

Soil Considerations

The Municipality of Anchorage has indicated that no soil amendments will be included in the reseeded effort. While this may be a cost saving measure, it does not provide the best environment for a seeding mixture to survive. It is recommended that some cultivation of the soil be carried out to better prepare the bed for planting and a commercially available fertilizer be used to amend the existing soil (see seeding specifications). Impediments to seeding, such as stones larger than one-inch in diameter, as well as trash, both natural and anthropogenic in source, should be removed from the site. Without this basic site preparation the germination and propagation of the plants may be less successful.

Long-Term Maintenance

Long-term maintenance of the vegetation should be minimal. It will be important to keep trash from accumulating in the site and to fertilize the vegetation once in mid-August each year. Maintenance of berm and pad surface integrity will be essential to ensure that water properly flows off the site. Mowing should not be required.

References

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