

## Appendix A. Example Planting Specifications

State of Minnesota, Department of Natural Resources, Division of Forestry

The below specifications, or an equivalent, should be used to ensure tree seedling planting is carried out to the standard of the state.

- After removing tree seedlings from shipping bundle or container, planters must ensure the fine root hairs or root plug are not damaged or removed.
- Roots must be kept moist at all times until they are in the ground.
- Seedlings must not be crushed by over-filling the planting bag.
- If extracted seedling plugs (containerized seedlings) are transported in planting bags, the soil plugs must be protected.
- Every seedling must be planted so that:
  - The above ground portion (the stem) must be upright as possible with a maximum allowance of 20 degrees from vertical.
  - The roots of each seedling shall be placed in the ground and should not be tangled, turned up at the ends, or exposed to air or light.
- Correct planting will require the planting hole to be at least 6 inches deep for all container stock and a minimum of 8 inches deep for bareroot stock, depending on stock size.
  - Bareroot hardwood seedlings typically have an 8-inch taproot and stiff lateral roots that may be over 4 inches long. The planting hole must be at least 8 inches deep and 6 to 8 inches wide. Correct planting of this stock will require double-barring to achieve a wider hole or a different planting implement such as a tile spade.
- The root collar of each planted seedling must be at or below the mineral soil surface. Variance of as much a half inch lower than the mineral soil surface will be allowed. Needles of planted conifer seedlings must not be buried in mineral soil.
- Each seedling must be packed firmly in the ground. The packing hole must be closed. Soil around the roots shall be filled in and packed so no air pockets are adjacent to the roots. Any open hole within 5 inches of the stem will be considered an incorrectly planted tree seedling.
- The firmness of the planted seedling will be determined by pulling on the needles or the stem and by excavating a sample of randomly selected seedlings.
  - For conifers - if the needles come off the stem when pulled without loosening the tree, the soil around the seedling will be considered satisfactorily packed.
  - For hardwoods - if the tree stem is gently tugged and the tree doesn't move in the soil, the seedling will be considered satisfactorily packed.
- Seedlings shall not be planted:
  - On or within 10 feet of designated access roads.
  - Within 2 feet of any stumps or in any other unsatisfactory spots such as water-filled depressions, rock piles, heavy slash pockets, and rotten logs.
- Excessive drying weather may cause to stop planting from about noon to 5 p.m. This could occur if one or more of the following conditions exist: temperature is 80 °F or above, wind is 15 mph or above, relative humidity is 20% or lower. Morning and evening planting should not be affected by this restriction.