Tree And Shrub Planting And Protection Standards

City of Excelsior, Minnesota

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TREE AND SHRUB PLANTING AND PROTECTION STANDARDS EXCELSIOR, MINNESOTA

I. Plant Material

A. Specifications - All trees and shrubs shall conform to the American Association of Nurserymen publication, "American Standard for Nursery Stock", shall be pest and disease-free and acceptable for this climate. All trees and shrubs shall be guaranteed for one full year from the time planting has been completed. All trees and shrubs used for new plantings or as replacement trees shall conform to the following minimum sizes:

Deciduous Trees - Three (3) inch caliper (trunk diameter at twelve (12) inches above soil level) balled and burlapped

Ornamental Trees (small statured flowering trees) = One and one-half (1.5) inch caliper balled and burlapped

Coniferous Trees = Six (6) feet height

Shrubs = Twenty-Four (24) inch height or spread

B. Desirable Species - A mixture of plant material types is encouraged and shall include species from the following general categories:

1. Deciduous Trees
2. Ornamental Trees
3. Fruit Trees
4. Deciduous Shrubs
5. Coniferous Trees
6. Coniferous Shrubs

Examples of desirable species include, but are not limited to, the following: The City shall encourage the use of native tree vegetation as signified by an asterisk(*).

Deciduous and Ornamental Trees:

Common Name	Scientific Name
Ash, Blue	Faxinus quadrangulata*
Ash, Marshall Seedless	Faxinus pennyslvanica* "Marshall Seedless"
Ash, Summit	Faxinus pennsylvanica "Summit"*
Ash, White	Faxinus americana*
Beech, Blue	Carpinus caroliniana
Birch, River	Betula nigra*
Chokecherry, Amur	Prunus maacki
Chokecherry, Shubert's	Prunus virginiana "Shubert"
Coffee-tree, Kentucky	Gymnocladus dioicus*
Corktree, Amur	Phellodendron amurense
Crabapples (ornamental)	Malus spp.
Dogwood, alternate-leafed	Cornus alternifolia*
Ginko (male trees)	Ginko biloba
Hackberry	Celtis occidentalis*
Hawthorns	Crataegus spp.
Hickory, Bitternut	Carya cordiformis
Honeylocust, Imperial	Gleditsia triacanthos "Imperial"*
Honeylocust, Skyline	Gleditsia triacanthos "skyline"*
Ironwood	Ostrya virginiana
Lilac, Japanese tree	Syringa amurensis japonica
Linden, Greenspire	Tilia cordata "Greenspire"*
Linden, Littleleaf	Tilia cordata*
Linden, Redmond	Tilia x euchlora "Redmond"*
Maple, Amur	Acer ginnala*
Maple, Black	Acer nigra*
Maple, Mountain	Acer spicatum*
Maple, Norway & Cultivars	Acer platanoides*

Deciduous and Ornamental Trees: (Continued)

Common Name	Scientific Name
Maple, Red & Cultivars	Acer rubrum*
Maple, Sugar	Acer saccarum*
Maple, Tatarian	Acer tatarica*
Mountain Ash, European	Sorbus aucuparia
Mountain Ash, Showy	Sorbus decora
Nannyberry	Viburnum lentago
Oak, Bur	Quercus macrocarpa*
Oak, Chestnut	Quercus muhlenbergii*
Oak, Northern Pin	Quercus ellipsoidalis*
Oak, Northern Red	Quercus rubra var. borealis*
Oak, Pin	Quercus palustris*
Oak, Red	Quercus rubra*
Oak, Scarlet	Quercus coccinea*
Oak, Swamp White	Quercus bicolor*
Oak, White	Quercus alba*
Plum, American	Prunus americanna
Plum, Canada	Prunus nigra
Redbud, Eastern	Cercis canadensis
Serviceberry	Amelanchier spp.
Tulip-tree	Liriodendron tulipifera

Fruit Trees:

Apples, Apricot, Cherry, Pear and Plum

Deciduous Shrubs:

Chokeberry, Coralberry, Cotoneaster, Alpine Currant, Dogwood, Euonymus, Forsythia, Honeysuckle, Lilac, Magnolia, Ninebark, Potentilla, Rose, Snowberry, Spirea, Sumac, Viburnum, Willow, Drawf Bush Honeysuckle

Coniferous Trees:

Common Name	Scientific Name
Arborvitae (White Cedar)	Thuja spp.
Fir, Douglas	Pseudotsuga menziesii glauca
Fir, White	Abies concolor
Hemlock, Canada (Eastern)	Tsuga canadensis
Junipers	Juniperus spp.
Larch, Eastern (Tamarack)	Larix laricina
Larch, European	Larix decidua
Pine, Austrian	Pinus nigra
Pine, Eastern White	Pinus strobus
Pine, Mugo	Pinus montana
Pine, Ponderosa	Pinus ponerosa
Pine, Red (Norway)	Pinus resinosa
Pine, scotch	Pinus sylvestris
Redcedar, Eastern	Juniperus virginiana
Redwood, Dawn	Metasequoia glyptostroboides
Spruce, Black Hills	Picea glauca densata
Spruce, Colorado Blue	Picea pungens
Spruce, Norway	Picea abies
Spruce, White	Picea glauca
Spruce, Japanese	Taxus cuspidata

Coniferous Shrubs:

Juniper, Arborvitae, Yew, Mugo Pine

C. Prohibited Trees and Shrubs - The following trees and shrubs shall not be used in and adjacent to parking lots, sidewalks, and trails or as credit for replacement trees for residential developments of three units or more, commercial, industrial, or institutional uses:

Cottonwood (except for cottonless cultivars)

Female ginkgo

Boxelder

American elm (except for disease resistant varieties)

Silver Maple

Mulberry

Black Locust

Black Walnut (unless given adequate space)

Seeded varieties of Green Ash

Buckthorn

Seeded Ornamental Trees with fruit that is not persistent

D. Tree Quality

1. All trees and shrubs should be of landscape quality, in good form and be in a healthy condition (free of serious insect or disease problems, no serious wounds to the trunk or branches, and buds should be most and viable) at the time of planting.

2. Deciduous trees should have a dominant central leader, straight trunk and well-spaced side branches.

3. Evergreens should be “unsheared” and have a natural, open form with a central leader.

4. Shrubs should be sufficiently branched for the species. Potted shrubs should have been grown in the container long enough for the soil and root ball to retain its shape when removed from the container, i.e., not recently potted bare root material.

5. Plants should be centered in pots or in soil balls, and soil balls should be unbroken.

6. Roots in pots or soil balls should be moist, not dry, at time of delivery.

E. Inspection - Plant material will be inspected. Any plant material which is in poor condition due to form (which cannot be corrected by minor pruning), undersized or broken root ball, serious trunk wounds, or insect or disease problems, will not be accepted. Any trees or shrubs not alive and in satisfactory growth at the end of the guarantee period shall be replaced.

II. Handling of Plant Material

A. Delivery - All plant material shall be delivered on day of planting, if possible. If deciduous trees are in leaf, they should be covered with a tarp during transport. Plants should be handed, wheeled or hydraulically lowered off truck, not dropped. Trees should not be lifted or hauled by the trunk, which can separate the trunk from the root system.

B. Storage - All plant material shall be stored as briefly as possible before planting. Plants shall be stored out of direct sunlight and root systems are to be kept cool and moist until time of planting. Roots shall only be exposed just prior to planting for potted material and not until tree or shrub is in the planting hole for balled and burlapped stock. If plants must be stored overnight, roots should be watered in late afternoon or early evening. If plants will be stored more than one day, the pots or root balls should be covered with moistened wood chips to keep roots cool and moist.

C. Planting Times - Preferred planting times are May 1 - June 15 and August 15 - September 15 to minimize additional stress to plant material.

III. Planting Techniques

A. Planting by Hand

1. Planting Hole - The diameter of the planting hole should be at least six (6) inches wider than the pot or root mass diameter for shrubs and at least one (1) foot wider than the diameter of the root ball for trees (e.g., a tree with a twenty-four (24) inch root ball should have a planting hole which is at least thirty-six (36) inches across). The depth of the planting hole should be equal to the height of the root mass from bottom to top of the soil in the pot or root ball. The soil at the sides of the hole should be roughened with a shovel and the soil at the bottom of the hole should be firmed before planting.

   Amendments - In most soils no organic soil amendments (e.g. black dirt, peat moss, compost, etc.) are needed. In some instances, particularly sites with highly disturbed soil and no topsoil, the arborist may recommend the addition of organic amendments equal to no more than one-third (1/3) of the backfill soil.

2. Potted Stock - Trees and shrubs should be slid out of pot or the pot should be cut off. Roots should be loosened slightly from the sides and bottom of the root mass and any encircling roots should be cut with a sharp knife. Root masses should be placed in the hole so that the top of the root masses should be placed in the hole so that the top of the root mass is even with the top of the surrounding soil. In heavy clay soils, the root mass may be placed so that it is no more than an inch higher than the surrounding soil; however, in no situation should the root mass be planted lower than the surrounding soil. The hole should be back-filled with original soil halfway, the soil should be watered, and then the hole can be filled and watered again. The soil at the top should be lightly tamped and leveled and a slight ridge of soil should be constructed at the edge of the planting hole to keep water in the root zone of the tree.

3. Balled and Burlapped Stock - Trees should be set into the hole with the top of the root ball even with the top of the surrounding soil. In heavy clay soils, the root mass may be placed so that it is no more than an inch higher than the surrounding soil; however, in no situation should the root mass be planted lower than the surrounding soil. If the root ball is in a wire basket, at least the top two rounds of wire should be cut off and removed after the tree is in the prepared hole. Any rope or twine at the base of the trunk should be cut and removed, and burlap on the top of the ball should be pulled back. After centering and straightening the plants, the hole should be back-filled with original soil halfway, the soil watered, and then the hole can be filled and watered again. The soil at the top should be lightly tamped and leveled and a slight ridge of soil should be constructed at the edge of the planting hole to keep water in the root zone of the tree.

B. Machine-Moved Trees

(Information taken from MnDOT Landscape Project Guidelines)

Minimum Tree Spade Size Requirements			
Spade Size (Diameter)	**Oak Trees (Caliper Inches)***	**Deciduous Trees (Caliper Inches)**	**Evergreen Trees (Height)**
42"	1.0" - 1.5"	2" - 3"	5' - 7'
60"	1.5" - 2.5"	3" - 4"	7' - 9'
78"	2.5" - 3.5"	4" - 6"	9' - 14'
85"	3.5" - 5.0"	6" - 8"	14' x 18'

(Caliper inches refers to trunk diameter measured at twelve (12) inches above the soil level)

1. Planning Specifications (use of a hydraulic spade)

   a. Remove a soil plug from the planting site with a spade the same size as the one used to move the trees.

   b. Scrape the sides of the planting hole to roughen it.

   c. All holes dug by the tree spade should be filled the same day or covered to prevent personal injury or property damage.

   d. Designate the north side of the tree with paint or ribbon before digging.

   e. Dig the transplant tree and apply ten (10) gallons of water to the tree's root ball during digging.

   f. The tree should be supported in the spade during transport to prevent shifting and damage to the tree or root ball.

   g. If the tree is moved more than five (5) miles, during the growing season, cover the tree to prevent drying and wind damage to foliage.

   h. Place the transport tree in the planting hole, maintaining the original orientation of the tree (e.g. north side of tree facing north.

   i. As soon as the tree is in the planting hole, loosen a band, eighteen (18) inches wide by twelve (12) inches deep, of the undisturbed soil next to the root ball of the tree, with a shovel or rototiller; **do not** dig within the soil of the root ball of the tree.

   j. Fill any voids in the planting hole by watering and construct a three (3) inch dike around the edge of the planting hole to hold water.

   k. Water the tree within two hours of installation, saturating the root ball and planting hole.

   l. The contractor must inspect the trees within seven (7) days of checking for settling, air voids at sides of the planting hole, and soil moisture levels.

   m. If trees have settled with root balls below the surrounding soil, or if they have tipped, they must be reset with a tree spade the same size or larger and watered within two (2) hours of resetting.

n. All transplanted trees must be watered immediately after planting.

o. Mulch all transplanted trees with four to five (4-5) inches of wood chips, from the trunk out to the branch spread, within two weeks after the first watering (do not mulch immediately after first watering, since resetting of tree may be necessary). Do not place woodchips in direct contact with trunk.

IV. Maintenance of Trees and Shrubs After Planting

A. Watering - All trees and shrubs must be watered within two (2) hours of planting with sufficient water to saturate root ball and planting hole. New plants should be watered again within one week of planting. Watering thoroughly every week or two for the first season is desirable, particularly if trees and shrubs are planted between June 15th and August 15th.

B. Mulching - Trees should be mulched with four (4) inches of wood chips from the trunk out three (3) feet on all sides. Do not place mulch in direct contact with trunk. A ring of high quality landscape edging may be used to keep mulch around tree in turf areas. If landscaping calls for other mulch material around trees and shrubs in landscape beds, this must be approved by the City.

C. Pruning - Trees and shrubs should be pruned of dead, crossing, injured or broken branches at the time of planting. No other pruning is needed when planting occurs. It is not necessary to apply a tree wound dressing to the pruning sites. Oaks should not be pruned at all between April 15th and July 1st.

D. Staking - Trees should not be staked if they can stand alone. Trees much taller or wider than their root ball, or trees in open areas exposed to high winds, may need support for the first growing season. If trees are staked, the material which goes around the trees should be a wide band of webbing or other acceptable material which does not put too much pressure on the bark and sapwood. Bare wire and rope are not allowed as tree ties. The tree should be staked on two or three sides and staking removed after one year.

E. Wrapping - Usually no longer recommended. Shading trunks from west/southwest exposure is more effective. If wrapped, smooth-barked trees should only be wrapped November 1st to April 1st. Wrapping must remain off tree trunks April through October.

V. Tree Protection Standards

A. Purpose - The City of Excelsior seeks to protect their tree resources by formulating these standards for guiding development projects in tree protection and conservation of woodland areas. All contractors and sub-contractors are to be advised of tree protection standards by the developer or project manager.

B. Design Considerations - During the planning process, it is expected that all measures will be taken to protect significant trees and woodland areas on, or adjacent to, the parcel and that roads, utilities and structures will be sited to minimize the impact on trees and natural areas. Fragmentation of natural areas, and intrusion into environmentally sensitive areas, is to be avoided, if possible. Clustering of structures and development activities along the margin, but not within natural areas, is to be encouraged. When developing wooded parcels, it is desirable to save trees of varying ages, sizes and species, groups of trees rather than individuals, woodland areas that are connected to other natural areas, and vegetation adjacent to riparian and wetland areas.

C. Tree Protection Methods

1. Fencing - Prior to grading, all significant trees and woodland areas to be preserved, which are inside or within thirty (30) feet of the grading limits, are to be fenced with metal fence posts (six (6) feet on center) and orange snow fencing. The fencing is to be placed at edge of the protected root zone of the largest tree within the group to be protected. In some situations, the drip line (limits of the branch spread) can be used, however, fencing should be placed no closer than ten (10) feet to a tree or woodland area to be saved. If the fence is temporarily removed or knocked down, it is to be replaced immediately. This fencing is to remain until all phases of construction have been completed.

2. Silt Fencing - To protect significant trees and woodland areas which are located at an elevation below the area being graded, silt fencing should be erected at the grading limits to prevent soil from washing into the root area of trees to be saved. This fence should be a minimum of ten (10) feet from the trunk of any significant tree. This fence should be regularly inspected for efficacy and, if it is found to be allowing soil to wash through, it should be repaired or replaced.

3. Grade Change - If the grade around a significant tree is to be raised or lowered more than six (6) inches, a retaining wall and/or a drain tile system should be considered to avoid damaging roots. Any retaining wall should be placed outside the protected root zone of a significant tree, if possible, but no closer than ten (10) feet to the trunk of a significant tree.

4. Utility Installation - Excavations for utilities should be placed outside the protected root zone of trees which are to be saved. If a utility excavation is to be placed closer than ten (10) feet to the trunk of a mature tree, alternative installation techniques, such as tunneling under the root system, should be considered.

5. Vehicle Parking - To minimize soil compaction and fluid leakage over root systems of trees to be preserved, vehicle parking areas should be located at least thirty (30) feet away from significant trees and woodland areas.

6. Location of Storage and Clean Out Areas - To avoid soil compaction, leaching of toxic materials, or change in soil pH associated with leachate from building materials and equipment, storage of building supplies and equipment clean out areas should be located at least thirty (30) feet away from significant trees and woodland areas.

   Clean out areas should not be located in an area which will drain to the root systems of trees which are to be saved.

7. Clearing of Undergrowth - Extensive clearing of undergrowth and/or disturbance of the ground litter layer should not occur in areas where trees are to be preserved.