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SCIENTIFIC NAME COMMON NAME	PHYSICAL CHARACTERISTICS		SUITABLE APPLICATION				GROWING CONDITIONS			NOTES
	MATURE HEIGHT	MATURE SPREAD	UNDER POWER LINES	TREE PIT	PLANTING STRIP 5-8 FEET WIDE	PLANTING STRIP 8+ FEET WIDE	USDA HARDINESS ZONE	LIGHT CONDITIONS	SOIL CONDITIONS	
<i>Acer saccharum</i> Sugar Maple	40-80 feet	30-60 feet				✓	3-8	full sun / part shade	average, fertile, slightly acidic, moist soils	Dense, rounded crown. Beautiful yellow, orange, red fall color. Tolerates heavy shade. Samaras. Choose heat and pollution tolerant cultivars. No serious insect or disease problems.
<i>Catalpa speciosa</i> Northern Catalpa	40-60 feet	20-40 feet				✓	4-8	full sun / part shade	moist, adaptable	Irregular, open-rounded to narrow-oval crown. Showy white flowers in late spring followed by seed pods. Tolerates deer, drought, and clay soils. Suitable in stormwater areas. No serious insect or disease problems.
<i>Fagus sylvatica</i> European Beech	50-100 feet	40-50 feet				✓	4-8	full sun / part shade	moist	Oval to round crown. Tends to branch close to ground. Attractive red-bronze fall color. Insignificant flowers. No serious insect or disease problems.
<i>Ginkgo biloba</i> Maidenhair Tree	50-80 feet	30-40 feet				✓	3-8	full sun	moist, sandy, well-drained, adaptable	Columnar, pyramidal, or irregular crown. Bright yellow fall color. Insignificant flowers, showy fan-shaped leaves. Plant male trees only (messy female fruit). Tolerates deer, wide-range of soil conditions, air pollution, heat and urban conditions. No serious insect or disease problems.

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<i>Gymnocladus dioica</i> Kentucky Coffee Tree	60-80 feet	40-55 feet				✓	3-8	full sun	moist, organically rich, well-drained, adaptable except clay	Irregular open oval to obovate crown. Blue-green leaves. Greenish-white flowers in late spring, fragrant. Dark red-brown pods. Tolerates drought, air pollution and urban conditions. No serious insect or disease problems.
<i>Liriodendron tulipifera</i> Tuliptree	60-150 feet	30-50 feet				✓	4-8	full sun	moist, organically rich, well-drained loam	Pyramidal to broad conical crown. High-branching. Showy yellow-orange flowers in spring, followed by cone-shaped brown fruit. Striking golden yellow fall color. Tolerates deer, clay and wet soil, and part shade growing conditions. No serious insect or disease problems.
<i>Quercus bicolor</i> Swamp White Oak	50-60 feet	50-60 feet				✓	3-8	full sun	average, medium to wet, acidic soil	Broad, rounded crown. Dark green leaves above and silvery white beneath. Acorns. Yellow to reddish purple fall color. Insignificant flowers. Tolerates wet soils and moderate drought resistance. Suitable in stormwater areas. Generally, a durable and long-lived tree. No serious insect or disease problems.
<i>Quercus coccinea</i> Scarlet Oak	50-70 feet	40-50 feet				✓	4-9	full sun	average, dry to medium, well-drained soil. Prefers dry, acidic, sandy soils	Rounded, open crown. Glossy green pointed lobe leaves. Acorns. Brilliant scarlet red fall color. Insignificant flowers. Tolerates drought. Suitable in stormwater areas. Generally, a durable, low-maintenance and long-lived tree. No serious insect or disease problems.

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<i>Quercus macrocarpa</i> Bur Oak	60-80 feet	60-80 feet				✓	3-8	full sun	moist, well-drained loams, adaptable	Broad, spreading rounded crown. Insignificant flowers. Acorn cups covered with a mossy scale / bur near rim. Tolerates drought and wide range of soil conditions. Suitable in stormwater areas. Generally a durable and long-lived tree. No serious insect or disease problems.
<i>Quercus rubra</i> Red Oak	50-75 feet	50-75 feet				✓	4-8	full sun	fertile, sandy soils, well-drained	Rounded to broad-spreading, irregular crown. Moderate-fast growing tree with acorns. Brownish-red fall color. Insignificant flowers. Tolerates drought and air pollution. Suitable in stormwater areas. Generally a durable and long-lived tree. No serious insect or disease problems.
<i>Ulmus</i> 'Homestead' Homestead Elm	40-60 feet	30-40 feet				✓	5-8	full sun	adaptable, alkaline to neutral, well-drained	Vase-shaped crown. Fast growing tree. Gold / yellow fall color. Insignificant flowers. Tolerates drought, deer, poor soils and pollution. Durable tree, aggressive root system. Dutch elm disease resistant. No serious insect or disease problems.
<i>Ulmus</i> x 'Frontier' Frontier Elm	40-60 feet	30-40 feet				✓	4-9	full sun / part shade	adaptable, well-drained	Upright-pyramidal, oval crown. Reddish leaves when young. Red-purple fall color. Tolerates drought. Dutch elm disease resistant. No serious insect or disease problems.

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<i>Acer miyabei</i> 'Morton' State Tree Miyabe Maple	30-40 feet	30-40 feet			✓	✓	4-8	full sun / part shade	average, slightly acidic, moist, well-drained soils	Oval to oval-rounded crown. Pale to rich yellow fall color. Insignificant flowers give way to samaras. Attractive bark with age. Moderate drought tolerance. Suitable in stormwater areas. No serious insect or disease problems.
<i>Carpinus betulus</i> European Hornbeam	40-60 feet	30-40 feet		✓	✓	✓	4-8	full sun / part shade	medium moisture, well-drained, adaptable	Pyramidal to oval-rounded crown. Dark green leaves. Insignificant fall color. Insignificant flowers. Interesting bark. Suitable in stormwater areas. No serious insect or disease problems.
<i>Cercidiphyllum japonicum</i> Katsura Tree	40-60 feet	25-60 feet			✓	✓	4-8	full sun / part shade	rich, moist, well-drained	Dense, rounded crown. Leaves emerge reddish purple in spring, and mature to greenish blue in summer. Brilliant shades of gold, orange and red fall color. Aromatic fallen leaves. Flowers are not very showy. Tolerates clay soil. Suitable in stormwater areas. No serious insect or disease problems.
<i>Corylus colurna</i> Turkish Filbert	40-80 feet	30-50 feet			✓	✓	4-7	full sun / part shade	acidic, organically rich, medium moisture, well-drained soils, adaptable	Pyramidal crown. Low branching tree with heavy leaf texture. Interesting bark, fruit: nuts. Yellow fall color. Tolerates drought and urban conditions. No serious insect or disease problems.

MEDIUM TREES

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	MATURE HEIGHT	MATURE SPREAD	UNDER POWER LINES	TREE PIT	PLANTING STRIP 5-8 FEET WIDE	PLANTING STRIP 8+ FEET WIDE	USDA HARDINESS ZONE	LIGHT CONDITIONS	SOIL CONDITIONS	
<i>Eucommia ulmoides</i> Hardy Rubber Tree	40-60 feet	40-60 feet			✓	✓	4-7	full sun / part shade	average, medium, well-drained soils, adaptable	Rounded, spreading crown. Attractive glossy green foliage. No fall color. Stringy latex-like sap appears if injury occurs. Tolerates drought. Excellent resistance to insect and disease problems.
<i>Fagus sylvatica</i> 'Fastigiata' Fastigate Beech	45 feet	15 feet			✓	✓	5-7	full sun / part shade	moist soils	Columnar crown. Upright tree suitable for narrow locations. Golden brown fall color. Insignificant flowers, produces small beech nuts. No serious insect or disease problems.
<i>Ginkgo biloba</i> 'Princeton Sentry' Princeton Sentry Ginkgo	40-50 feet	20-30 feet		✓	✓	✓	3-8	full sun	moist, sandy, well-drained soils, adaptable	Upright, narrowly conical crown. Interesting green, fan-shaped leaves. Golden yellow fall color that persists for several weeks. Rapid drop of leaves, creating a carpet of gold at base of tree. Tolerates deer, wide range of soil conditions, air pollution, heat and urban conditions. No serious insect or disease problems.
<i>Liriodendron tulipifera</i> 'Emerald City' Emerald City Tuliptree	55 feet	25 feet			✓	✓	4-8	full sun	moist, slightly acidic soils, adaptable	Pyramidal in youth, maturing to an oval-rounded crown. Showy yellow-golden yellow fall color. Showy, fragrant green/orange blooms in spring. No serious insect or disease problems.

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	MATURE HEIGHT	MATURE SPREAD	UNDER POWER LINES	TREE PIT	PLANTING STRIP 5-8 FEET WIDE	PLANTING STRIP 8+ FEET WIDE	USDA HARDINESS ZONE	LIGHT CONDITIONS	SOIL CONDITIONS	
<i>Magnolia</i> 'Galaxy' Galaxy Magnolia	20-30 feet	10-15 feet			✓	✓	5-9	full sun / part shade	organically rich, neutral to slightly acidic, medium moisture, well-drained soils	Narrow, pyramidal crown. Ascending branches. Fragrant rose-pink to reddish-purple large flowers bloom in spring to early summer. Green leaves appear in whorl-like clusters. Protect from wind damage. No serious insect or disease problems.
<i>Nyssa sylvatica</i> Black Gum	30-50 feet	20-30 feet			✓	✓	3-9	full sun / part shade	moist, acidic soils,	Pyramidal in youth, maturing to a round crown. Many cultivars available. Insignificant flowers followed by oval fruit. Spectacular orange, red and purple fall color. No serious insect or disease problems.
<i>Tilia americana</i> American Linden	30-80 feet	30-50 feet			✓	✓	2-8	full sun / part shade	moist, fertile, well-drained loams, adaptable	Ovate-round crown. Yellow fall color. Tolerates drought. Pale yellow flowers in spring. Attracts bees. No serious insect or disease problems.
<i>Tilia cordata</i> Little Leaf Linden	50-70 feet	30-50 feet			✓	✓	3-7	full sun / part shade	moist, fertile, well-drained loams, adaptable	Pyramidal to ovate crown. Yellow fall color. Tolerates drought. Attractive foliage, dense, low-branched form and good tolerance to urban conditions makes it a popular urban shade tree option. Creamy, yellow flowers in late spring/ early summer. Attracts bees. No serious insect or disease problems.

SMALL TREES

SCIENTIFIC NAME COMMON NAME	PHYSICAL CHARACTERISTICS		SUITABLE APPLICATION				GROWING CONDITIONS			NOTES
	MATURE HEIGHT	MATURE SPREAD	UNDER POWER LINES	TREE PIT	PLANTING STRIP 5-8 FEET WIDE	PLANTING STRIP 8+ FEET WIDE	USDA HARDINESS ZONE	LIGHT CONDITIONS	SOIL CONDITIONS	
<i>Acer griseum</i> Paperbark Maple	20-30 feet	15-25 feet		✓	✓	✓	4-8	full sun / part shade	slightly acidic, moist, well-drained soils, adaptable	Oval to oval-round crown. Slender, upright branching. Noted for its exfoliating copper orange to cinnamon reddish/ brown bark. Showy orange to red fall color. Insignificant flowers followed by samaras. No serious insect or disease problems.
<i>Amelanchier x grandiflora</i> 'Cole's Select' Cole's Select Apple Serviceberry	15-25 feet	15-25 feet	✓	✓	✓	✓	4-8	full sun / part shade	moist, well-drained	Round crown. Many cultivars available. Use single stem for most locations. Yellow, orange, red fall color. White, fragrant flowers in spring followed by berries. No serious insect or disease problems.
<i>Carpinus caroliniana</i> American Hornbeam	20-35 feet	15-30 feet		✓	✓	✓	3-9	part shade / full shade	organically rich, moist soils, adaptable	Globular crown. Interesting smooth, gray trunk. Trunk and large branches exhibit a distinctive muscle-like fluting. Red, orange, yellow fall color. Pendulous white and green flowers in spring. No serious insect or disease problems.
<i>Chionanthus retusus</i> Fringe Tree	10-20 feet	10-20 feet	✓	✓	✓	✓	5-9	full sun / part shade	deep, moist, acidic, fertile, well-drained soils	Round crown. Noted for its profuse spring bloom of fragrant, white flowers. Yellow fall color. Exfoliating gray-brown bark. Tolerates air pollution and urban conditions. No serious insect or disease problems.

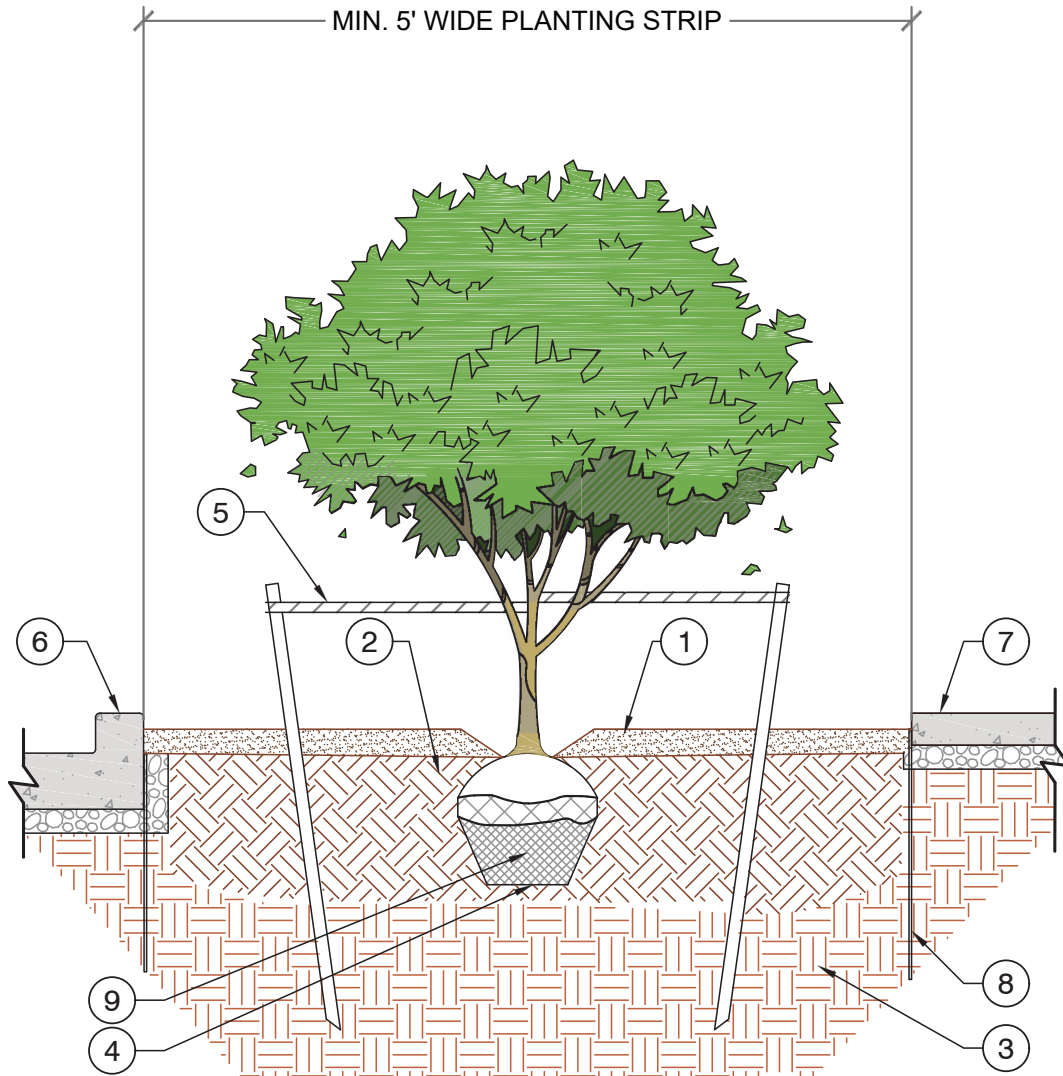
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<i>Cornus kousa</i> Kousa Dogwood	15-30 feet	15-30 feet	✓	✓	✓	✓	5-8	full sun / part shade	humusy, organically rich, acidic to neutral, well-drained soils	Vase-shaped crown in youth maturing to a more rounded form. White to pink (bracts) in late spring. Berry-like pink/red fruits follow bloom. Attractive shades of reddish-purple to scarlet in fall. Interesting mottled, exfoliating, gray bark. Tolerates deer. No serious insect or disease problems.
<i>Cotinus obovatus</i> American Smoke Tree	20-30 feet	20-30 feet		✓	✓	✓	4-8	full sun	average, medium moisture, well-drained soils, adaptable	Round crown. Showy, billowy hairs attached to flowers, turn a smoky pink to purplish pink in summer. Bluish green leaves Beautiful yellow, orange, red and purple fall color. Tolerate deer, drought and wide range of soil conditions. No serious insect or disease problems.
<i>Maackia amurensis</i> Amur Maackia	20-30 feet	20-30 feet	✓	✓	✓	✓	3-7	full sun / part shade	average, medium moisture, well-drained soils, adaptable	Broad, rounded crown. Spike-like clusters of fragrant, dull white, pea-like flowers in late spring. Flat seed pods follow bloom. Attractive dark olive green leaves, insignificant fall color. Interesting, coppery-bronze exfoliating bark on mature trees. No serious insect or disease problems.
<i>Magnolia stellata</i> 'Royal Star' Royal Star Magnolia	10-20 feet	8-15 feet	✓	✓	✓	✓	4-8	full sun / part shade	organically rich, moist, well-drained loams	Spreading, rounded crown. Slow growing, specimen tree. Plant in protected areas to avoid wind damage. Noted for its compact size and showy, fragrant white flowers blooming early in the year. No serious insect or disease problems.



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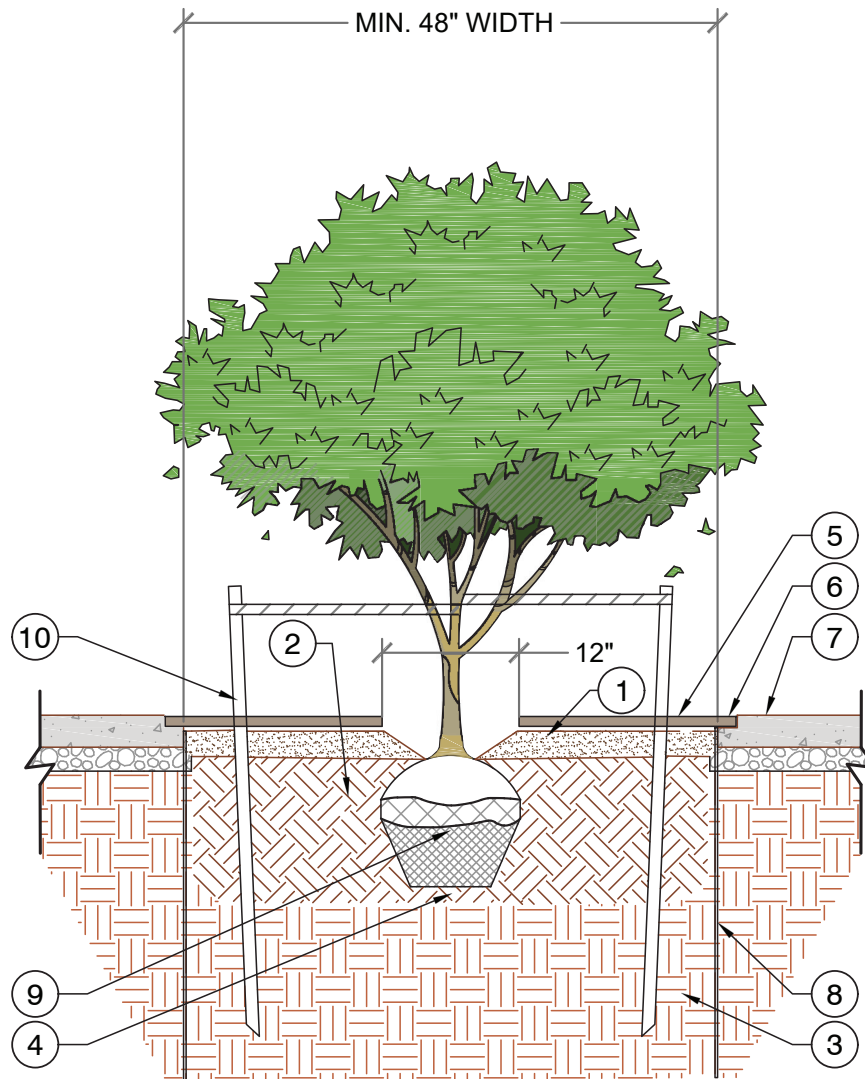
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<i>Ostrya virginiana</i> American Hophornbeam	25-30 feet	20-30 feet		✓	✓	✓	4-8	full sun / part shade	moist, slightly acidic	Round crown. Small tree with horizontal / dropping branches. Insignificant yellow / brown fall color. Attractive catkin flowers in winter. No serious insect or disease problems.
<i>Parrotia persica</i> Persian parrotia	20-40 feet	20-30 feet		✓	✓	✓	4-8	full sun	average, slightly acidic, medium moisture, well-drained soils, adaptable	Columnar crown. Low-branching tree. Unique red stamens in late winter to early spring. Insignificant flowers. Leaves emerge reddish-purple in spring then mature to medium-dark green in summer. Red, orange, yellow fall color. Interesting bark on mature trees. Tolerates air pollution and a wide range of soil conditions. No serious insect or disease problems.
<i>Prunus sargentii</i> 'Pink Flair' Pink Flair Sargent Cherry	25 feet	15 feet		✓	✓	✓	4-8	full sun	slightly acidic	Columnar / vase-shaped crown. Superior heat and drought tolerance. Orange-red fall color. Pink flowers in spring. No serious insect or disease problems.
<i>Syringa reticulata</i> Japanese Tree Lilac	15-30 feet	15-30 feet		✓	✓	✓	3-7	full sun	organically rich, moist, slightly acidic, well-drained soils, adaptable	Oval-rounded crown. Showy, fragrant, creamy white flowers bloom spring to early summer. Brown capsules follow bloom. Red/brown peeling bark on young trees. Tolerates deer and urban conditions. No serious insect or disease problems.



- ① MULCH LAYER, TYP.
- ② TOPSOIL, TYP.
- ③ SUBGRADE, TYP.
- ④ HAND-TAMP AREA DIRECTLY BENEATH ROOT BALL
- ⑤ TREE STAKE AND SUPPORT, TYP.
- ⑥ ADJACENT CURB, TYP.
- ⑦ ADJACENT SIDEWALK, TYP.
- ⑧ ROOT BARRIER TO MIN. 36" DEPTH, TYP.
- ⑨ REMOVE ALL BURLAP / PACKING / BASKET FROM ROOTBALL PRIOR TO PLANTING

STREET TREE PLANTING IN STRIPS 5 FEET WIDE OR MORE

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- ① MULCH LAYER, TYP.
- ② TOPSOIL, TYP.
- ③ SUBGRADE, TYP.
- ④ HAND-TAMP AREA DIRECTLY BENEATH ROOT BALL
- ⑤ TREE GRATE, TO BE FLUSH WITH TOP OF SIDEWALK, TYP.
- ⑥ TREE GRATE FRAME SET IN CONCRETE, TYP.
- ⑦ ADJACENT SIDEWALK, TYP.
- ⑧ ROOT BARRIER TO MIN. 36" DEPTH, TYP.
- ⑨ REMOVE ALL BURLAP / PACKING / CAGES FROM ROOTBALL PRIOR TO PLANTING
- ⑩ TREE STAKE AND SUPPORT, TYP.

STREET TREE PLANTING PIT WITH TREE GRATE

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**WATERING:**

Maintain a consistent watering schedule for (a minimum of) the first two growing seasons. Water long and deep, less frequently, to promote strong root development. If an irrigation system is not in place, install a 20 gallon irrigation bag on each tree to allow water to slowly seep into root zone.



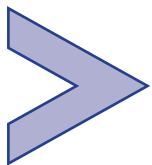
**MULCHING:**

Maintain an organic mulch ring around the base of the tree by refreshing mulch layer as needed. Maintain a 2" - 4" depth, do not let the mulch come into direct contact with the trunk of any tree.



**TRUNK PROTECTION:**

All trees planted in lawn must have approved trunk guards installed around base of tree. Guards are to protect the tree from damage that may occur during lawn maintenance (weed eating, mowing, etc).



**TREE STAKING:**

All trees must be staked for two growing seasons, stakes to be removed upon third growing season.

**NOTE:**

1. Trees to be planted so that the top of the root ball, or trunk flare, is a minimum of 1" and a maximum of 2" above the mulch.
2. Planting hole width shall be atleast 1.5 times the width of the root ball. Example: 28" diameter root ball requires a planting hole that is a minimum of 42" in diameter.
3. Tree pits shall be excavated to full depth for the entire area of the planting space.
4. All topsoil to be clean and free of large rocks / debris.
5. Prior to planting, hand-tamp the area directly beneath the rootball to prevent the tree from settling. However, DO NOT form a soil hump that tree is planted on OR over-tamp the area creating adverse growing conditions.
6. 1/8" thick manufactured root barrier shall be placed 6" behind adjacent curb, walkway, or paved surface along length of planting bed. Install to a minimum of 36" depth.
7. For trees in lawn areas, create a circular mulch ring. The mulch ring should extend to the outer edge of the tree's canopy or drip line. Remove any lawn in the mulch ring area and apply a 3" - 4" layer of organic mulch.
8. Mulch to be 3" - 4" deep. Do not allow mulch to come in direct contact with tree trunk. Mulch to be a minimum of 2" below the surface of the adjacent walkway, curb, or paved surface.
9. (Two) wood or metal stakes, eight feet in length, per tree for stability and support. Drive stakes firmly into the subgrade at an angle. May be driven vertically in narrow planting pit locations. Stakes must be driven a minimum of 18" depth into subgrade. Secure the tree using soft, flexible material approved by City of Newport. Take care to not over-tighten, allow some room for sway to promote strong root development.
10. Typical paving profiles shown, refer to own project for site specific details.
11. Refer to own project for site specific details regarding sub-surface drainage in tree pits.