



## Tree Planting Specifications for Tree Re-Vegetation Plans

**Objective of Tree Planting Specifications:** To ensure the proper installation and establishment of trees required for planting in accordance with an approved Tree Re-Vegetation Plan per Section 11.060 of the Grants Pass Development Code. Proper tree installation and establishment significantly increase the survivability of trees while optimizing their output of benefits.

### Associated Diagrams and Table:

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| 1. <i>Diagram 1 – Tree Planting Specification</i>                | Page 4 |
| 2. <i>Diagram 2 – Potted Trees</i>                               | Page 5 |
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### Nursery Stock Procurement Method:

1. Procure the species/cultivar approved in the Tree Re-vegetation Plan. If species/cultivar is not available, a species/cultivar on the Approved Species List that is of the same canopy size class must be procured.
2. Inspect trees for proper crown, stem, and root conditions.
  - a. Crown (See Diagram 1):
    - i. Form and density must be typical for a young specimen of the species/cultivar.
    - ii. Dead or broken branches should be limited and must be pruned at the appropriate branch union.
  - b. Stem/Trunk (See Diagram 1):
    - i. Single, relatively straight trunk, with a central leader, unless approved otherwise in the Tree Re-vegetation Plan.
    - ii. Free of wounds greater than 3/4-inch by 3/4-inch in size, except for properly pruning cuts.
    - iii. Taper and caliper characteristic of form where tree can stand upright, without any bending, on its own and will remain vertical without support from one or more tree stakes and/or arbor tie.
    - iv. Caliper to be 1.0 inches or larger, measured at 6 inches above the root flare.
  - c. Roots (See Diagrams 1 and 2):
    - i. Free of insects, fungi, herbicides, and injury.
    - ii. Free of girdling or circling roots that cannot be pruned at time of planting.
    - iii. Root flare must not be buried by soil in the container/ball, unless buried root flare can be exposed at time of planting.

### Planting Method:

1. Determine Planting Depth:
  - a. Potted Trees: At location of the tree's planting, the tree must be removed from its pot/container with care not to damage the stem/trunk and root ball. The distance

between the root flare and bottom of the root ball can be measured to determine the depth required for the tree bed. Note: the root flare must not be confused with any root graft location (See Diagram 2 for an example of a root graft).

- b. Ball-and-Burlap Trees: The tree must not be removed from the wire/rope and burlap prior to planting. The distance between the tree's root flare and bottom of the root ball must be measured by opening a small portion of the burlap to find the root flare (this must be done without compromising the integrity of the burlap or wire/rope).
2. Dig the Hole:
    - a. The hole width must be at least two times the diameter of the tree's root ball.
    - b. Grass, ground cover, mulch, weeds, and any other materials must be removed from the location of the tree bed.
    - c. The hole must be dug to the depth of the distance between the tree's root flare and bottom of root ball.
    - d. The soil dug out of the hole can be used as backfill if it is not of poor quality (construction backfill, heavy clay, heavy sand, large rocks or boulders, etc.). If the soil is of poor quality, topsoil must be used to backfill the tree bed. The topsoil must meet the following characteristics:
      - i. Sand (0.05-2mm): <65%
      - ii. Silt (0.002-0.05mm): <55%
      - iii. Clay (<0.002mm): <25%
      - iv. Rocks, Stone, Gravel (>2.0mm): <20%
    - e. Soil may be amended with compost, biochar, or another organic fertilizer per product guidelines.
    - f. The bottom of the hole must be flat and compacted in order to support the tree. Compaction may be done by standing and stepping on soil until compacted.
  3. Place Tree in Hole:
    - a. The tree must be placed in the center of the hole.
    - b. If the tree is ball-and-burlap, at least 2/3 of the top portion of the wire/rope must be removed. The burlap must be peeled off the root ball and either cut and removed, or placed flat on the bottom of the hole. (See Diagram 1)
    - c. Check to ensure that the root flare is at ground level. The root flare may be slightly above, but must not be more than 1 inch above ground level. The root flare must not be lower than ground level. If adjustments to the hole's depth must be made to satisfy this requirement, the tree must be carefully tilted for soil removal or addition.
    - d. Loosen the outside of the root ball and prune any girdling, circling, or dead roots.
    - e. The tree must be straight (perpendicular to a 0% grade).
  4. Backfill:
    - a. Place the soil back into the hole, around the tree. When the hole is filled halfway, the soil may be compacted slightly by tamping the soil with one's feet. Fill the hole to surrounding surface ground level and grade. Do not compact the top half of tree bed soil.

- b. Create a berm (also known as a ring or donut) around the outside edge of the root ball. Use soil to create the berm. Sod from excavation may be used but must be flipped upside down to prevent the grass from re-rooting the soil. The berm must be no less than 4 inches high and 3 inches wide. (See Diagram 1)
5. Mulching:
  - a. Mulch must be of coarse organic wood chips and/or bark.
  - b. Apply up to 3 inches of mulch over the entire excavated tree bed, including the berm and inside the berm.
  - c. Mulch must not touch the trunk or root flare of the tree. Leave at least 1 inch between the mulch and the root flare.

**Establishment Method:**

1. Watering
  - a. After planting is complete, apply 10 gallons of water for each inch of caliper (e.g. a 1.5" tree must receive 15 gallons of water). Pour water inside the berm and allow it to drain into the tree bed.
  - b. After the water has infiltrated the soil, adjust any displaced mulch or soil so that it does not touch or cover the root flare.
  - c. To ensure establishment and survival of the tree, watering must be done one to two times per week during the first two growing seasons (late spring through early autumn). A third year of watering may be needed. If weather precipitation provides an amount of water equal to or greater than the watering requirement, watering may be skipped for that week.
2. Tree Stakes and Arbor Tie (Optional):
  - a. If tree stakes are used, they must not be installed in a way that pierces into the root ball. To prevent this, the root ball can be measured prior to planting in order to determine the minimum distance from the trunk that the stakes may be placed.
  - b. If stakes are used, they must be 8 feet long with at least 2 feet in the ground for stability.
  - c. If arbor tie is used, the tie must not be so tight around the tree that it constricts the outward growth of the trunk or causes damage.
  - d. Tree stakes and arbor tie must be removed after one year.

## Tree Planting Specification Diagram 1 – Side View

Not to scale

Tree crown and trunk must be free of defects and true to form. Minimize pruning to only address safety and clearance issues.

OPTIONAL: Two (2) pieces of “arbor ties” can be looped around tree trunk through one another and secured to both stakes. Ties must be removed after one (1) year to prevent girdling and killing the tree.

OPTIONAL: Two (2) 6-8’ long, 3” diameter stakes set outside of root ball, placed 2-3’ in ground.

Root flare must be exposed and flush with ground level. Do not bury the root flare with soil or mulch

Topsoil must be formed into a 3” wide berm/ring around perimeter of root ball with 4” high soil and 3” of mulch on top.

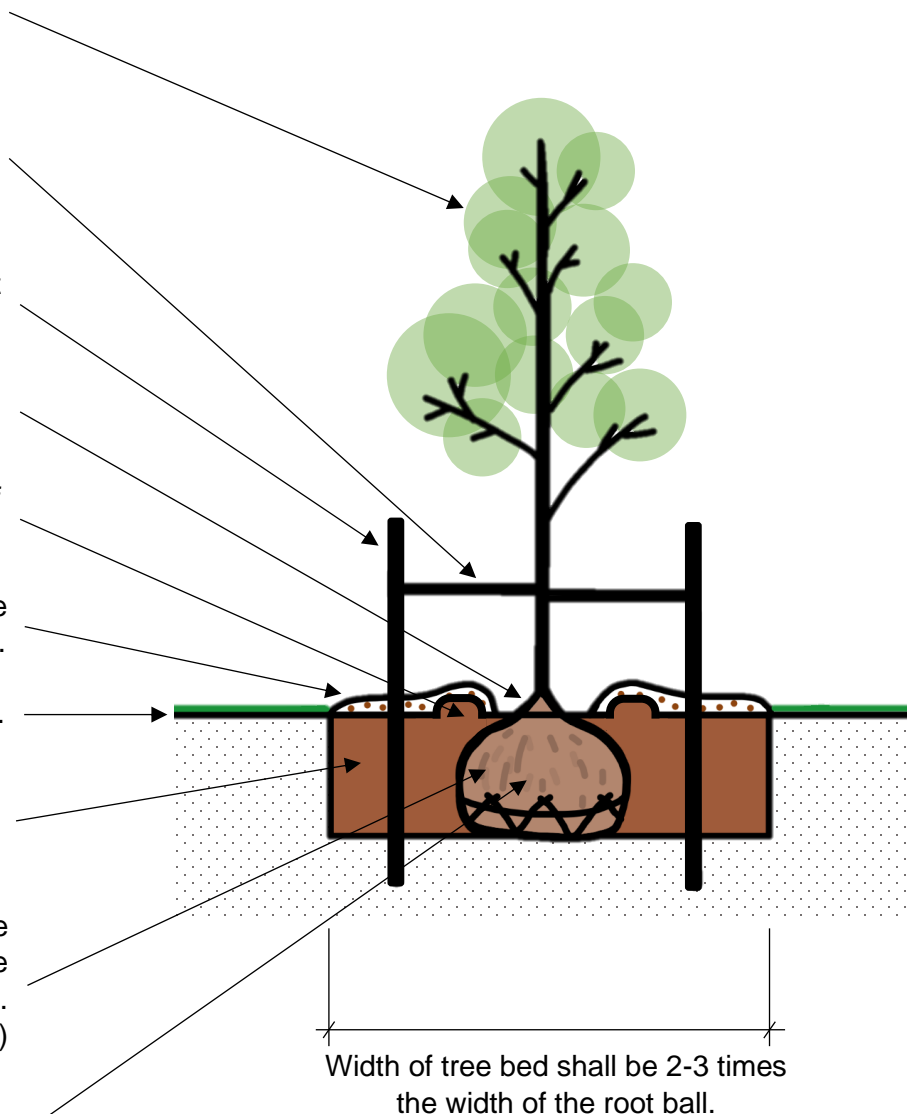
Organic bark / wood chip mulch must cover the entire tree bed. The mulch layer must not be thicker than 3” in depth.

Ground level.

Excavated tree bed must be the depth of the root ball where the root flare is at surface level and the root ball rests on undisturbed substrate.

For “balled and burlapped” trees, remove the top two-thirds (2/3) of wire basket and peel burlap down to the bottom of the tree bed. Soil shall be loosened from the root ball to reduce compaction and to inspect roots.  
(See Diagram 2 for potted trees)

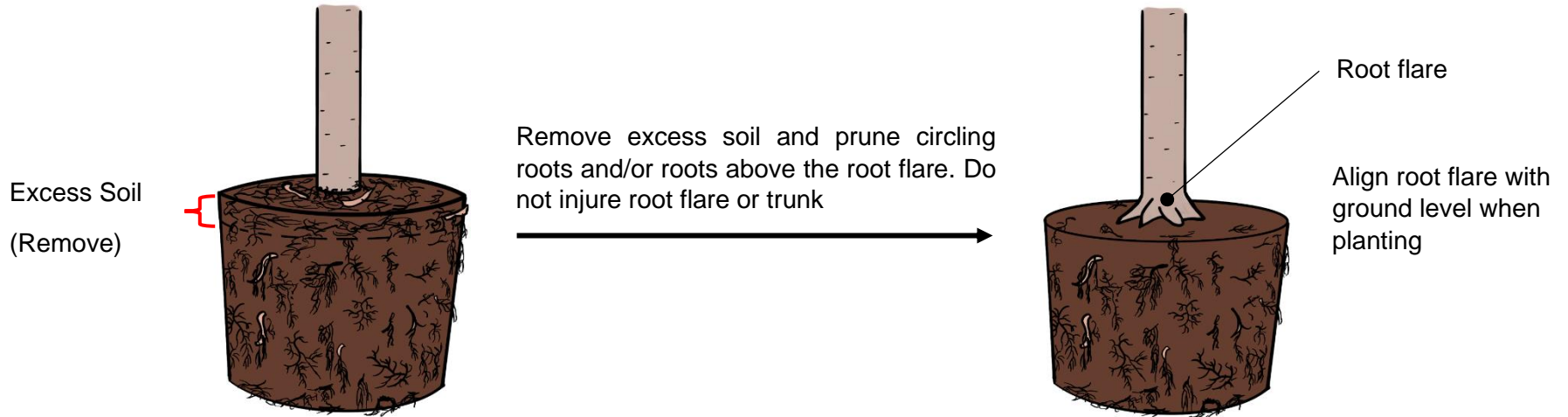
Prune circling or girdling roots if they cannot be straightened. Pruning must be done cleanly (do not tear roots).



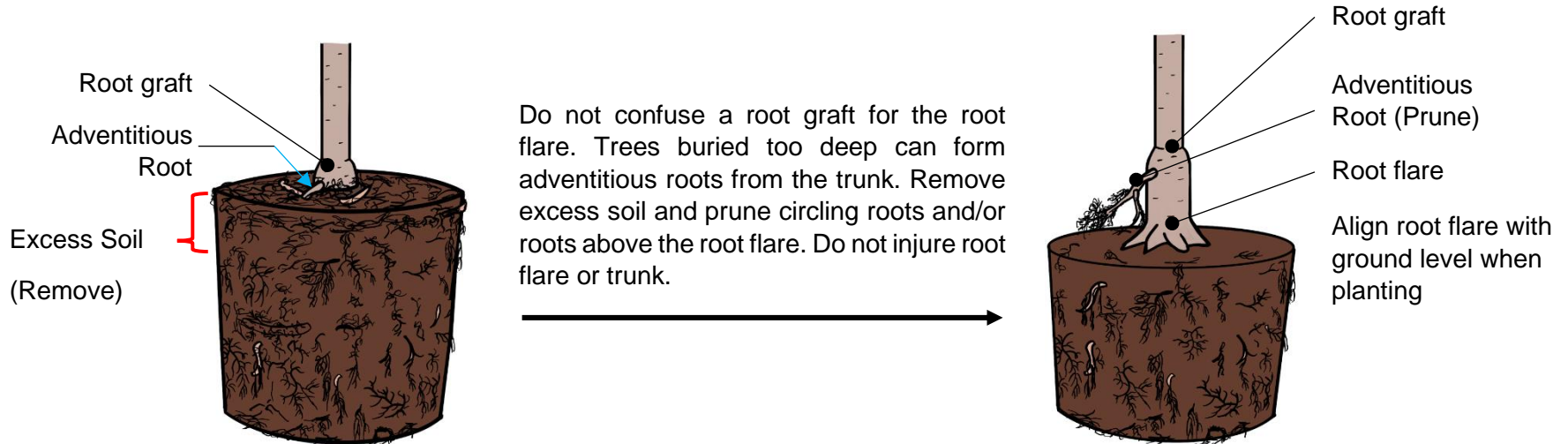
## Tree Planting Specification Diagram 2 – Potted Trees

Not to scale

### Example 1: Buried too deep in the pot



### Example 2: Buried too deep in the pot, root graft and adventitious root present



### Tree Planting Specification Table 1 – Tree Re-vegetation Plan Inspection Checklist

City staff will use the following as a checklist during the inspection

Specifications		Tree Number				
		1	2	3	4	
1	Correct Species					
2	Correct Location					
3	Tree Health (Dead or Poor = no; Fair to Excellent = yes)					
4	Root Flare Exposed					
5	Proper Depth					
6	Soil Quality					
7	Mulch Layer Depth (~3 inches thick)					
8	Mulch Quality (organic, bark or wood chips)					
9	Central Leader of Tree Established					
10	Pruned to Specifications (no dead/diseased branches)					
11	No Damage to Nearby Infrastructure (if damage, note below)					
12	Irrigation Installed (if applicable)					
13	Tree Stakes (optional)					
14	Arbor Tie (optional)					
Notes:						