

REVISION OF SECTION 214  
NURSERY STOCK CONTAINERS AND UNROOTED CUTTINGS

**NOTICE**

This is a standard special provision that revises or modifies CDOT's *Standard Specifications for Road and Bridge Construction*. It has gone through a formal review and approval process and has been issued by CDOT's Project Development Branch with formal instructions for its use on CDOT construction projects. It is to be used as written without change. Do not use modified versions of this special provision on CDOT construction projects, and do not use this special provision on CDOT projects in a manner other than that specified in the instructions unless such use is first approved by CDOT's Standards and Specifications Unit. The instructions for use on CDOT construction projects appear below.

Other agencies which use the *Standard Specifications for Road and Bridge Construction* to administer construction projects may use this special provision as appropriate and at their own risk.

**Instructions for use on CDOT construction projects:**

Use in projects having earthwork disturbances that will be stabilized with vegetation.

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Section 214 of the Standard Special Provisions is hereby deleted for this project and replace with the following:

**DESCRIPTION**

**214.01** This work consists of furnishing all plants, labor, materials and equipment to install herbaceous and woody plant material, hereinafter referred to as “nursery stock”. The work may also consist of obtaining live “unrooted cuttings” from approved donor plants and installing them on the site as shown on the plans.

All approvals and direction required from the Engineer in this specification will involve the Engineer working directly with Region or Headquarters Environmental Staff, as identified in the Contract.

**MATERIALS**

**214.02** Nursery Stock and unrooted cuttings shall be of the minimum sizes and species as designated on the plans, in healthy condition with normal well-developed branch and root systems, and shall conform to the requirements of the *American Standard for Nursery Stock* (ANSI Z60.1-2014). For specified deep rooted container stock the container class volume ranges shall be substituted with the requirements of this specification. See subsection 1.1.3.3 of the American Standard for Nursery Stock regarding unclassified containers.

All nursery stock and unrooted cuttings shall be free from plant diseases and insect pests. All shipments of plants shall comply with all nursery inspection and plant quarantine regulations of the State of origin and destination, and the Federal regulations governing Interstate movement of nursery stock. The Contractor shall submit proof of deposit that nursery stock, Contract species and Contract quantity have been secured 30 days post Environmental Pre-Construction Conference. For multi-year projects (two or more continuous years) the contractor shall submit a schedule for approval documenting when proof of deposits on nursery stock will be provided.

The minimum acceptable sizes of all nursery stock, with branches in normal position, shall conform to the measurements specified in the Landscape/Mitigation Plans.

Hardiness zones are defined in U.S. Department of Agriculture (USDA) 2012 Plant Hardiness Zone Map publications. Only Nursery Stock rated for USDA Hardiness Zones 2, 3, 4, and 5 will be accepted.

Other than approved unrooted cuttings or as otherwise approved by the Engineer, plants shall be nursery grown for at least one growing season, or plants that have established themselves in accordance with definitions set forth in the Colorado Nursery Act, Title 35, Article 26, CRS.

Field collected trees and shrubs shall have been root-pruned during their growing period in the nursery in accordance with standard nursery practice outlined in the American Standard for Nursery Stock.

No species substitutions are permitted without written approval. If nursery stock of acceptable quality and specified variety or size are not available, before any species substitutions will be approved the Contractor shall supply to the Engineer three written letters from nurseries verifying that a species or plant size is not available. Once three letters are provided, the Contractor Shall with Engineer’s written approval:

- (1) Substitute acceptable nursery stock that are larger than specified at no change in Contract price. For deep rooted nursery stock, the minimum depth requirement of the container must be maintained as stated in this specification.
- (2) Substitute smaller plants than those specified on the Landscape/Mitigation Plans at the adjusted price or ratio stated in the written approval.
- (3) Substitute of plants of different genus, species or variety shall be submitted to the Engineer for approval 30 days prior to installation at the adjusted price stated in the written request.

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At the Environmental Pre-construction Conference, the Contractor shall name the nursery stock supplier for all items. Nursery stock will be rejected for not meeting the Contract at any of the four following times and locations:

- (1) At the nursery stock supplier's location during inspection. The Engineer will notify the contractor when the nursery stock will be inspected.
- (2) On the project site at the time of delivery, prior to planting.
- (3) At the time of installation.
- (4) At the partial or final acceptance walkthroughs on the project site.

Plant materials supplied by the Contractor shall be inspected by the Engineer at the growing site and tagged or otherwise approved for delivery. Inspection at nursery does not preclude right of rejection at construction site. Contractor shall remove rejected materials immediately from the site at Contractors expense. The Contractor shall ensure that all nursery materials meet the requirements of this Section prior to delivery.

Proposed materials shall be flagged at the nurseries by the Contractor prior to viewing by the Engineer. The Contractor shall schedule with the Engineer a time for viewing plant material at the nursery. Trips to nurseries shall be efficiently arranged to allow Engineer to maximize his viewing time. A minimum of two weeks shall be allowed for this viewing prior to time that plants are to be dug. When requested by the Engineer photographs of plant material or representative samples of plants shall be submitted. Viewing of plant materials by the Engineer at the nursery does not preclude their right to reject material at the site of planting.

The Contractor shall notify the Engineer at least three working days in advance of the anticipated delivery date of any plant material. The Contractor shall submit an invoice for each shipment of plants showing the quantities, kinds, and sizes of materials along with the certificate of inspection. Evidence of inadequate protection of plant material following digging, transit, storage or other handling will be cause for rejection. Upon arrival at the temporary storage location or work site, plants shall be inspected for proper handling (including but not limited to shipping procedures) in the presence of the Engineer for damage, including but not limited to dried out roots, broken branches, broken or loosened root balls, or torn bark. The Contractor shall replace the damaged material at his own expense.

Container grown nursery stock shall have a well-established root system reaching the sides and bottom of the container to provide a firm mass of growing medium, but shall not be root bound (i.e. have excessive root growth encircling the inside of the container). Bare root material will not be accepted as a substitution for nursery stock specified as container or balled and burlapped specified nursery stock.

Each species shall be identified by means of grower's label affixed to the plant. The grower's label shall include the data necessary to indicate conformance to specifications. For minimum plant requirements of height, width, minimum multi stems and root ball diameter as appropriate for the specified species type see the Plant Schedule on the Plans.

- (a) *Nursery stock.* Contractor shall file copies of certificates after acceptance of material. Evidence of inadequate protection following digging, carelessness while in transit, or improper handling or storage, will be cause for rejection. When a plant has been rejected, the Contractor shall remove it from the area of the work and replace it with one of the required size and quality conforming to one of the following:
  - (1) Deep Rooted Containers (DRC) shall be containers for growing native plants that are narrower in diameter and longer than standard nursery pots of equal volume. Containers must have physical "anti-spiraling" features such as vertical ribs on the inside walls or side slits in the sidewalls that will air-prune roots. Containers that have been treated with compounds such as copper to chemically prune the roots will not be accepted. Deep rooted container classifications shall have the following properties:

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<b>Deep Rooted Container Class Specification</b>	<b>Minimum Height (Inches)</b>	<b>Minimum Volume (CU. IN.)</b>
DRC #10	8"	10
DRC #40	9"	40
DRC #60	13"	60
DRC #180	14"	180
DRC #300	29"	300

- (2) Standard Nursery Practice Containers (SNC) shall conform to the recommended specification in the *American Standard for Nursery Stock* (ANSI Z60.1-2014). For minimum plant requirements of height or width as appropriate for the specified species type see the Plant List on the drawings. SNC classifications shall have the following properties:

<b>Standard Container Class Specification</b>	<b>Acceptable Volume Range (CU. IN.)</b>
#1	152-251
#5	785-1242
#10	2080-2646
#20	4520-5152

- (3) Balled and burlapped or large container shall conform to the recommended specifications in the *American Standard for Nursery Stock* (ANSI Z60.1-2014). Single stem deciduous tree caliper measurements shall be taken six inches above the ground for field grown stock and from soil line for container grown stock. Multi-stem deciduous tree and evergreen tree height measurement shall be from ground level for field grown and from soil line for container grown stock.

- (b) *Unrooted Cuttings*. Unless otherwise authorized, the Contractor shall notify the Engineer at least five working days in advance of the anticipated start of harvesting cuttings. All cuttings shall be harvested from approved parent material. Approval of parent material shall be in writing from the Engineer. This approval will include a detailed description of the approved locations. The Contractor shall select a site, and if outside of the construction boundary, provide written approval from the Owner, when applicable, for access and harvesting the required number of cuttings. The harvesting site shall be left clean and tidy, to the satisfaction of the Engineer and the Owner, when applicable. Unused material including trimmings shall be cut up to 2 feet in length and evenly distributed around the wetland mitigation site.

Unrooted cuttings shall be harvested and planted in early spring (March 1<sup>st</sup> to April 15<sup>th</sup>) while the plants are still dormant. However, the Engineer may authorize an alternative harvesting and planting timeframe based on project timing. Immediately upon harvesting, all cuttings shall be placed in water so that the cut ends are covered in water, and the cuttings shall be stored in a cool location. Plants shall be completely submerged in containers with water if not planted within 24 hours of harvesting. The containers shall be continuously shaded and protected from the wind. Cuttings shall be protected from drying at all times. During transportation, the cuttings shall be kept completely submerged in containers with water in orderly fashion to prevent damage and to facilitate handling. Cuttings should be bundled using natural twine or flexible staking tape (and not with wire) in uniform groups of 25-100 to allow for easy tracking of quantities.

- (1) *Live Willow Stakes* – Shall be unrooted cuttings approximately 3 feet long and between ½ and 1-inch in diameter. All side branches must be trimmed. Willow cuttings shall be cut from branches with smooth undamaged bark. Branches with thick, cracked bark shall not be used because they will not

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re-sprout effectively. Cuttings shall be cut about one foot from the ground using sharp loppers or pruning tools. Cuts shall be clean, without stripping the bark or splitting the wood. The base cuts shall be at a 45-degree angle to identify the root end of the cutting. The top shall be cut off with a square cut so that the top of the stake is easily distinguishable from the bottom. If willow stakes are to be planted in the second half of the growing season (June 15th to October 15th), then the cut top end shall be dipped into latex paint (covering approximately 1 inch at the top of the stake) to seal and reduce desiccation in hot/dry establishment conditions.

- (2) *Live Brush Mattress*— Live willow unrooted cuttings to be used in brush mattress as a bioengineering application. The primary branch shall be approximately 6 – 15 feet long and between ½ and 2 inches in diameter at the base. Side branches are not trimmed unless a side branch is large enough to be used as a primary branch itself. Brush cuttings shall be cut at a height of between six to twelve inches above the ground. Cuts shall be clean, without stripping the bark or splitting the wood. Live brush cuttings should be composed primarily of willow cuttings, but may include up to 20% cottonwood branch cuttings
- (3) *Live Brush Fascines* - Live willow unrooted cuttings to be used in fascines as a bioengineering application. Unrooted cuttings diameter shall vary and shall be a minimum 5 feet long and between ¼ and 2 inches in diameter. Up to 30 percent of the bundle may be plant material that does not root easily or dead plant material. The remaining 70 percent of the bundle shall consist of younger wood between 1 to 4 years old (at a minimum 25 willow cuttings per fascines). Fascines bundles may be stored submersed in water for no longer than two weeks, if necessary.
- (c) *Wood Stakes*. Wood stakes for deciduous tree support shall be 2 inches' x 2 inches square, or 2 ½ inch diameter and 6 feet long free from bends. One end of all wood posts shall be pointed. Metal stakes for deciduous tree support shall be studded 6 feet long T-Post with a minimum weight of 1.25 lbs. per linear foot. Metal stakes for evergreen tree support shall be 24 inches long and consist of either minimum weight 1.25 lbs. per linear feet T-Post or #4 or larger rebar. Wood stakes shall be made of untreated wood guaranteed to last in the ground at least two growing seasons.
- (d) *Backfill*. Backfill material consists of topsoil in accordance with the Contract requirements of 207 and additional compost material thoroughly mixed together and reasonably free of rocks and plant material. All other foreign material shall be removed. Do not use subsoil removed from planting pits as backfill unless accepted by CDOT Project Engineer. Compost shall be mixed into the backfill material at a rate of 25 percent by volume.

Live Willow Stake applications do not require additional compost in the backfill material, but holes must be backfilled with topsoil or native fine alluvium (sand or gravel).

Compost for planting pits shall be in accordance with section 212.

- (e) *Wood Mulch*. Mulch shall consist of virgin moist wood product with shavings having approximate dimensions of: Width: ¼ to ½ inch, Length 3 to 4 inches. Mulch shall be free of material injurious to plant growth. Sources of mulch should be free of weeds and invasive plant parts or seeds. Sawdust, dirt, garbage, or other debris mixed in the mulch is not acceptable. Contractor shall submit one pound of proposed mulch for approval.
- (f) *Flex Pipe Bark Protector*. Bark Protector shall be made of flexible UV stabilized plastic that shall be able to push off and separate with tree growth, without harming the bark, stem, wood or any part of the tree.
- (g) *Wildlife Protection Fencing*. When specified on plans fencing shall be made of 20-gage steel with black-

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vinyl coating, with a maximum opening of 1 inch.

- (h) *Deciduous Tree Wrapping Materials.* Wrapping material shall be horticulturally standard waterproof corrugated cardboard material that allows stretching over time to prevent girdling of the tree.
- (i) *Tree Straps.* Breathable nylon webbing 18 inches long and 1 ½ inches wide with metal grommets at each end.

**CONSTRUCTION REQUIREMENTS**

**214.03** All nursery stock shall be protected from drying out or other injury with acceptable practices within the industry. Broken and damaged roots shall be pruned before planting.

- (a) *Planting Seasons.* Nursery stock shall be planted in accordance with the Contract.

Areas to be planted shall be brought to the lines and grades designated or approved. The Contractor shall place all plant material according to the approved Landscape/Mitigation Plans to the degree that unsuitable planting locations shall be avoided. Trees shall be planted outside of the clear zone, except when guardrail or vertical curb exists, this distance may be reduced to 20 feet. Shrubs shall not be planted closer than 6 feet from the edge of pavement. Locations of all nursery stock and unrooted cuttings shall be staked in the field prior to planting. Plants and planting locations shall be checked in the field by CDOT Region Biologist or CDOT Landscape Architect and shall be adjusted to the position as approved before planting begins. Planting holes shall not be constructed until written approval has been received from the Engineer.

- (b) *Excavation.* Planting pits shall be circular in outline with vertical or sloped sides. The Contractor shall roughen sides of the pit to remove any compacting or glazing. When conditions detrimental to plant growth are encountered, such as over compacted topsoil, rubble fill, debris, or obstructions, notify the Engineer before planting. Use of a tree spade to dig plant pits is prohibited.
- (c) *Planting.* Planting shall be done in accordance with good horticultural practices and only after topsoil has been placed. Plants of upright growth shall be set plumb and plants of prostrate type shall be set normal to the ground surface. Plants with dry, broken, or crumbling roots will not be accepted for planting. When conditions detrimental to plant growth are encountered, such as over compacted topsoil, rubble fill, debris, or obstructions, notify the Engineer before planting. Use of a tree spade to dig plant pits is prohibited. Pits excavated with a backhoe shall be scarified as needed.

For automated irrigated areas planting pits shall be dug 2 to 4 inches shallower than the height of the rootball for trees, and 2 inches shallower for shrubs. In non-irrigated areas, planting pits shall be dug so that the top of the rootball is 2-4 inches depressed from surrounding final grades. The nursery stock shall be set in the center of the planting pit on undisturbed soil.

Trees shall be stabilized and then the top third of the wire basket, any twine and burlap shall be removed before the pit is backfilled. Shrubs shall be planted in the center of the pit. All of the plastic, metal and fabric, containers shall be removed. Peat containers shall be removed if directed by the Engineer. If the nursery stock is root-bound (roots circle the root ball) shallow scores with a sharp knife ¼ to ½ inch deep shall be made along the edges and the bottom of the rootball.

Areas to be planted with ground cover shall be prepared by placing topsoil and a ½ inch layer of soil conditioner on the ground surface, and rototilling to a depth of 6 inches. Ground cover shall be planted by excavating to a depth sufficient to accommodate the root structure of plant materials without crimping or bending roots. After planting, backfill shall be placed around the ground cover and compacted firmly

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around the roots. The planted areas shall be brought to a smooth and uniform grade, and then top dressed with a 2-inch-deep wood mulch.

- (d) *Backfilling.* Backfill shall be thoroughly worked and watered-in to eliminate air pockets. For trees backfill  $\frac{1}{2}$  of the planting pit and saturate to remove air pockets. After settling finish backfilling and saturate again. After the soil has settled, nursery stock must be in the proper position and at the proper depth. Saucers shall be prepared around each plant to the dimensions shown on the planting details. For all nursery stock the excavated area shall be covered with a 4-inch-thick layer of wood mulch. After completion of all planting and before acceptance of the work, the Contractor shall water nursery stock installed under this Contract, as needed to maintain a moist root zone optimum for plant growth. Nursery stock or prepared surfaces damaged during planting operations by the Contractor's operations shall be replaced at the Contractor's expense.

Surplus soil remaining after backfilling is completed shall be used for constructing water retention berms, or, if not needed for berms, shall be thinly distributed (wasted) in the vicinity, subject to approval of the Engineer.

- (e) *Wood Mulch.* Mulch shall be placed to a minimum of 4-inch depth to cover nursery stock excavated areas, but not touching the trunk of trees.
- (f) *Pruning.* All deciduous trees and shrubs shall be pruned in accordance with standard horticultural practice, preserving the natural character of the plant. Guidelines for pruning are indicated in the planting details. Pruning cuts shall be made with sharp clean tools.

All clippings shall become the property of the Contractor and be removed from the site.

- (g) *Guying.* All deciduous trees 2-inch caliper and greater shall be staked as designated on the plans. Coniferous trees 4 feet or taller shall be staked as designated on the plans.
- (h) *Deciduous Wrapping Materials.* Wrapping shall be applied from the base of the tree upward to the second scaffold branch and secured with arbor tape. Populus species shall be exempt from tree wrap. The Contractor shall submit the manufacturer's certification for the wrapping material requirements. Wrapping shall be done in the fall months prior to freeze, and removed in the spring. Wrapping shall not remain on any trees throughout the summer months. Wrapping shall be removed by the Contractor.

All plant tags shall be removed from plants and all packing or other material used by the Contractor shall be removed from the site. Upon completion of work, the Contractor shall remove plant containers, bags and other debris and leave area in clean, acceptable condition.

- (i) *Unrooted Cuttings.* Upon arrival at the construction site, cuttings shall be inspected for acceptability. Only healthy, undamaged material will be accepted. During installation activities, the cuttings shall be kept wet and out of the direct sun light. No cuttings shall be out of water for more than 10 minutes before planting. Water shall be applied to areas around the cuttings until the soil mass is saturated. Cuttings shall be watered thoroughly every day for a period of one month, unless natural soil saturation occurs within 12 inches of soil surface, as verified by the Engineer. Unrooted cuttings shall be used in the following:

1. *Live Willow Stakes.* Using a rock bar or other mechanical method such as a stinger backhoe attachment or trenching equipment, create a vertical hole or trench deep enough to reach a depth at which the water table will be present throughout the growing season, or deep enough to extend below the low summer flow, or groundwater elevation of the adjacent stream channel. Planting zones shall be surveyed and staked in the field for approval by the Engineer prior to planting. Insert  $\frac{2}{3}$  of the live cutting into the hole/trench, with the 45 degree cut end down, so that the end of the cutting maintains contact with the

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natural water table throughout the entire growing season; planting depth must consider the natural fall of the water table that typically occurs in late summer. Planting depth shall be verified by Engineer. The placement of these cuttings shall be in areas shown on the plans and at the spacing specified. Minor adjustments in placement and spacing may be necessary based on field conditions.

The root end of cuttings shall be tamped into the pilot hole or placed in a trench to a minimum depth of 2 feet, or until the root-end of the cutting meets elevation at which groundwater will be present at the driest point of the growing season. Note that some water tables will vary greatly from April to October; the Contractor shall consult with the Engineer and Region environmental staff for proper depth.

The top of the cutting shall protrude a minimum of 4 inches, but no more than 1/3 of its length with at least two live buds showing above ground. Dead blow hammers or rubber mallets shall be used to tamp in the cuttings into holes, in such manner as to not cause the wood to split. Trench planting should not require any tamping.

Live cuttings require direct contact with soil. Soil shall be placed/backfilled in any spaces around the cuttings and tamped into place to remove any air pockets; if necessary, a soil-water slurry should be used to ensure good soil contact with cutting.

Water shall be applied to the planted cutting stakes areas until the soil mass is saturated. Cuttings shall be watered thoroughly every day for a period of one month, unless natural soil saturation occurs within 12 inches of soil surface, as determined by the Engineer, in consultation with the Region environmental representative.

2. *Live Brush Mattress.* Live unrooted cuttings shall be evenly distributed in the dimensions shown on the plans and laid flat against sloped stream bank to create a continuous mat of brush. The cut-end of the *branches* shall be buried in the toe of the slope. At a minimum, the ends shall be buried 6 inches at the toe of slope or otherwise secured with willow fascines, log and/or rock as specified in plans. The Contractor shall ensure that the lower willow tips are in contact with soil that is saturated during normal low flow stream conditions. The mattress will be secured to the stream embankment with a network of wood stakes and twine. Utilize minimum length 24-inch-long wood stakes and 0.25-inch diameter machine spun bristle coil twine (tensile strength: 140 pounds).

The Contractor shall cover the mattress with a thin layer of clean topsoil and seed with wetland seed mix. Soil covering should cover 90 percent of the unrooted cuttings. Approximately 10 percent but no more than 20 percent of the cuttings should daylight above the soil covering once soil has settled into the voids of the mattress.

3. *Live Brush Fascine.* A fascine is a bundle of unrooted cuttings, fastened together with 0.25-inch diameter machine spun bristle coil twine (tensile strength: 140 lbs.) to keep the bundles tightly tied until placed in the ground and buried. Clean topsoil shall be worked over and around the bundles, no compaction is required. The length of the wattle bundle shall be placed parallel with the contour of the ground. Wood stakes shall be placed as shown on the plans centered along bundle. Utilize minimum length 24-inch wood stakes and 0.25-inch diameter machine spun bristle coil twine (tensile strength: 140 pounds). The Contractor shall puddle with water and allow soil to settle, then repeat backfill procedure until wattle bundle is covered to three-quarters of bundle height. Unrooted cuttings installed above reliable ground water supply shall be watered thoroughly every day for a period of one month. Watering shall be continued after the first month at a minimum of once a week until the completion of the project.

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(j) *Watering.*

1. Watering for nursery stock in irrigated areas (projects with 623 pay items). Irrigation system shall be operating and supplying the correct amount of water to the immediate area prior to any nursery stock being planted. Plants shall be thoroughly watered within 15 minutes of planting.
2. Watering in newly planted nursery stock and unrooted cuttings in non-irrigated areas. The Contractor shall furnish and supply the correct amount of water to the area receiving unrooted cuttings and nursery stock to keep the plants in a healthy and vigorous condition. All plantings shall be watered within four hours of placement. All plant material shown on the plans (excluding seeded areas) shall be watered to ensure successful establishment of the plant. Rate of flow shall allow the water to soak into the soil adjacent to the planting. At no time shall watering operations be applied at a rate or intensity that causes surface run off.

(k) *Maintenance of landscape during construction.* Maintenance of landscaping shall start immediately upon placement of first permanent landscaping and continue until the Notice of Substantial Landscape Completion has been received. The Contractor shall maintain the seeded areas, nursery stock and unrooted cuttings in a healthy and vigorous growing condition to ensure successful establishment. Maintenance shall consist of the following:

<b>Work Item</b>	<b>Function</b>	<b>Notes</b>
Weed control of areas having native seed	Areas shall be kept free of harmful insects, disease and weeds	Weed management strategies shall be discussed during the Site Pre-Vegetation Conference.
Hand watering trees	All plant material shown on the plans (excluding seeded areas) shall be watered to ensure successful establishment of the tree. Rate of flow must allow the water to soak into the soil adjacent to the planting. At no time shall watering operations be applied at a rate or intensity that causes surface run off.	Trees shall be watered two times a month at a rate of 10 gallons for each diameter inch of the tree for the months of May through October, and one time per month for the months of November through April.
Hand watering trees, shrubs, herbaceous plants and unrooted cuttings	All plant material shown on the plans (excluding seeded areas) shall be watered to ensure successful establishment of the plant. Rate of flow must allow the water to soak into the soil adjacent to the planting. At no time shall watering operations be applied at a rate or intensity that causes surface run off.	All plant material shown on the plans (excluding seeded areas) shall be watered to ensure successful establishment of the plant. Rate of flow must allow the water to soak into the soil adjacent to the planting. At no time shall watering operations be applied at a rate or intensity that causes surface run off.

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**214.04 Nursery Stock Warranty Period.** After all landscaping work in the Contract has been installed and completed, a Substantial Landscape Completion Inspection shall be held including the Contractor, Engineer and the Region Environmental Staff to determine acceptability of the landscaping work. During the inspection, an inventory of rejected material will be made, and corrective and necessary cleanup measures will be determined. The approval of the Notice of Substantial Landscape Completion will take place upon successful removal of rejected material and required cleanup measures.

The beginning of the Nursery Stock Warranty Period depends upon the time the receipt from the Engineer of a written Notice of Substantial Landscape Completion is issued. If the Notice of Substantial Landscape Completion is issued between March 20 and June 21, the Nursery Stock Warranty Period begins immediately and lasts for a period of 12 months. If the Notice of Substantial Landscape Completion is issued prior to this time (January 1 through March 19), Nursery Stock Warranty begins on March 20 of that year and lasts for the remaining months until March 20 of the following year. If the Notice of Substantial Landscape Completion is issued after this time (June 22 through December 31), the Nursery Stock Warranty Period begins on March 20 of the following year and lasts for a period of 12 months. Variations to these dates are permitted, and shall be as directed.

Dead, dying, or rejected material shall be removed each month during the Nursery Stock Warranty Period as directed. DRC #10 and SNC #1 along with all larger nursery stock container sizes shall be replaced only one time during the spring calendar dates as shown above. Nursery stock containers smaller than DRC #10 and SNC #1 along with seeding and unrooted cuttings will not be included in Nursery Stock Warranty Period. Nursery Stock replacements shall be planted in accordance with the Contract and shall be subject to all requirements specified for the original material.

Contractor access to private property for nursery stock replacement work will not be extended beyond the terms of the temporary construction easement(s) for the project, unless another temporary easement agreement or extension of the original temporary easement is granted.

The contract performance and payment bond, as required in subsection 103.03, shall include all required work involved during the Nursery Stock Warranty Period.

#### METHOD OF MEASUREMENT

**214.05** The quantity of nursery stock to be measured will be the number of plants, of the types and sizes designated in the Contract that are actually planted and accepted.

Live Willow Stakes will be measured by the number actually installed and accepted.

Live Brush Mattress will be measured by the actual number of linear feet installed and accepted.

Live Brush Fascines will be measured by the actual number of linear feet installed per the detail on the plans and accepted.

#### BASIS OF PAYMENT

**214.06** The accepted quantities of nursery stock and unrooted cuttings will be paid for at the contract unit price for each of the items listed below:

Payment for the total cost of the item will be made at the completion of the installation of each item.

Cost of the performance bond shall be included in the cost of the plant items.  
Payment will be made under:

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<b>Pay Item</b>	<b>Pay Unit</b>
_____ Tree ( _____ Inch Caliper)	Each
_____ Tree ( _____ Foot)	Each
Nursery Stock Container (DRC # _____)	Each
Nursery Stock Container (SNC# _____)	Each
Live Willow Stakes	Each
Live Willow Fascine	Linear Feet
Live Brush Mattress	Linear Feet

Nursery Stock Warranty Period will not be measured and paid for separately, but shall be included in the work. All costs associated with replacing nursery stock larger than DRC#10 and SNC #1 shall be at the Contractor's expense.

Additional slow-release organic fertilizer for nursery stock shall be used as specified in the plans will not be measured and paid for separately, but shall be included in the work.

Compost required for backfill of nursery stock will not be paid for separately, but shall be included in the work.

All water required for nursery stock and unrooted cuttings in projects without 623 pay items will be measured and paid for in accordance with Section 209 under Pay Item Water (Landscaping), up to the Notice of Substantial Completion.

Water required after the acceptance of the Notice of Substantial Completion will not be measured and paid for separately but shall be included in the work.

Standard waterproof tree wrap and flex pipe bark protector for nursery stock will not be measured and paid for separately, but shall be included in the work.

Cleaning or repair of site conditions from equipment used by the Contractor for planting operations will not be measured and paid for separately but shall be included in the work.

Wood mulch, stakes, guy wire, PVC protector, safety caps, wrapping, and all other materials required to install a tree will not be measured and paid for separately but shall be included in the work.

Wood stakes and other materials required to secure Live Brush Mattresses and Live Brush Fascines will not be measured and paid for separately but shall be included in the work.

Seeding will be measured and paid for in accordance with Section 212 and Topsoil will be measured and paid for in accordance with Section 207.

Maintenance of Landscaping during construction will not be measured and paid for separately but shall be included in the work.