



City of Riverside, California Public Landscape Planting Specification

SECTION 02483 - PUBLIC LANDSCAPE PLANTING

PART 1 - GENERAL

1.01 DEFINITIONS:

- A. Contractor: Where used throughout this specification, the term "Contractor" shall mean the licensed Contractor hired by the Builder/Developer to install the landscape improvements and any and all subcontractors to Contractor.
- B. Builder/Developer: The Legal entity/individual responsible for development of the project that has entered into the agreement and posted a surety to guarantee the installation of the public landscape improvements.

1.02 RELATED DOCUMENTS:

- A. Standard Specifications: All Public Landscape Planting Work shall conform to the "Standard Specifications for Public Works Construction" Current Edition, prepared by the Southern California Chapter of the American Public Works Association and Southern California District of the Associated General Contractors of California, published by Building News, Inc., Los Angeles, California, and all amendments thereto, as adopted by the City of Riverside, and as provided herein.
- B. Reference Standards: American Association of Nurserymen Standards.

1.03 SCOPE: The Work of this Section shall consist of furnishing all labor, materials, equipment, appliances and services necessary for the execution and completion of all **Public Landscape Planting Work** as shown on the Plans and as described in the Specifications including, but not necessarily limited to, the following:

- Soil preparation;
- Finish grading;
- Planting trees;
- Guying and staking trees;
- Planting shrubs, vines and groundcover;
- Hydroseeding turf;
- Soil erosion control;
- Maintenance;
- Plant establishment;
- Coordination with Work of other Sections;
- Testing;
- Clean-up;

- Replacements, Repairs, Guarantees and Warranty Work.

1.04 RELATED WORK: (Comment: Line out inapplicable sections)

Submittals	01300
Clear and Grub and Selective Demolition	02110
Site Grading	02210
Irrigation	02441
Electrical	16530

1.05 SOILS TEST: Contractor shall notify the Public Works Landscape Inspector upon completion of rough grading and prior to commencement of soil preparation work. The Contractor shall take soils samples in the presence of the Public Works Landscape Inspector and shall obtain agronomic soils tests for all planting areas after completion of rough grading and prior to start of soil preparation work. Tests shall be performed by an approved agronomic soils testing laboratory and shall include a fertility and suitability analysis with written recommendations for soil preparation, planting backfill mix, auger hole requirements, and post plant fertilization program. The soils report recommendations will take precedence over the minimum amendment and fertilizer application rates specified herein only if the soils report recommendations exceed the specified minimums. Contractor shall allow a minimum two week period for the soils testing work commencing upon the Public Works Landscape Inspector's acceptance of grade.

1.06 GUARANTEE: All trees installed by the Contractor shall be guaranteed against any and all poor, inadequate or inferior materials and/or workmanship for a period of one (1) year following the date of completion. During the guarantee period, any trees found to be dead, missing, or in poor condition shall be replaced by Contractor within ten (10) days of written notification. Public Works Landscape Inspector shall be the sole judge as to the condition of the trees. Replacement shall be made in accordance with City standards. Material and labor involved in replacing trees shall be provided by Contractor at no additional cost to City and/or the Developer.

1.07 INSPECTIONS: Inspections are required. Contractor shall contact the Public Works Landscape Inspector and the Developer's Landscape Architect at least 48 hours (2 working days) in advance of an anticipated inspection. An inspection will be required at each of the steps listed below:

- A. Rough Grade Prior to Commencement of Soil Preparation: Upon completion of rough grading and prior to commencement of soil preparation, for acceptance of rough grading work and taking of soils samples.
- B. Finish Grade: Inspection of completed finish grading work following soil preparation work.
- C. Plant Material: Inspection of plant materials upon delivery to the job site, but prior to planting.
- D. Plant Locations: When container plants and/or bare rootstock are spotted for planting, but before planting holes are excavated.
- E. Completed Planting: When planting and all other indicated or specified work has been completed.
- F. Chemical Applications: During application of pre-emergent chemical.
- G. Start of Plant Establishment: At the start of the Plant Establishment Period.
- H. End of the Plant Establishment: Prior to Final Acceptance of the Project for ongoing maintenance, the project will be inspected for end of the Plant Establishment Period. Acceptance for maintenance shall be confirmed in writing. Contractor shall remain responsible for maintenance until receipt of written confirmation of acceptance of the Project for maintenance by the applicable party (Home Owner's Association, City, or Master Property Owner's Association as applicable).

1.08 SUBMITTALS: The following written certifications are required to be submitted to the Public Works Landscape Inspector upon delivery of the respective materials to the job site:

- Total Quantity of commercial fertilizers, by type
- Total Quantity of soil amendments and conditioners, by type

Total Quantity of seed, by type
Total Quantity of fiber-mulch
Total Quantity of iron sulphate

1.09 PLANT ESTABLISHMENT PERIOD: The Plant Establishment Period shall be for a minimum period of **one (1) year**; see also Subsections **3.12 Maintenance and Plant Establishment** and **3.13 Start of Plant Establishment Period** regarding length of plant establishment and criteria to start.

PART 2 - MATERIALS

2.01 GENERAL: All materials shall conform with Section **212 - Landscape and Irrigation Materials** of the Standard Specifications except as modified herein.

2.02 FERTILIZER, SOIL AMENDMENTS AND CONDITIONERS: Add the following to Standard Specifications Section **212-1.2.3 Commercial Fertilizer**:

- A. Planting Tablets: Tightly compressed long-lasting, slow-release fertilizer tablets weighing 21 grams, with a potential acidity of not more than 5 percent by weight and having an analysis of 20-10-5 derived from the sources listed in the following guaranteed analysis:

GUARANTEED ANALYSIS

Total Nitrogen (N) 20%
Derived from urea formaldehyde
7.0% water soluble nitrogen
13.0% water insoluble nitrogen

Available Phosphoric Acid (P₂O₅). 10%
Derived from calcium phosphate

Soluble Potash (K₂O). 5%

Combined Calcium (Ca). 2.6%
Derived from calcium phosphates

Combined Sulfur (S). 1.6%
Derived from ferrous and potassium sulfates

Iron (expressed as elemental Fe) 35%
Derived from ferrous sulfate

- B. Commercial fertilizer: Shall bear the manufacturer's guaranteed statement of analysis and shall meet the following minimum requirements: 16% nitrogen, 6% phosphoric acid, and 8% potash.
- C. Organic Soil Amendment: Shall be type 1 organic soil amendment, wood based product, nitrogen stabilized, and free of foreign matter.
- D. Soil Conditioners: Add to Standard Specifications, new Section as follows:

212-1.2.6 Inorganic Conditioners. Inorganic conditioners shall be agricultural grade gypsum, soil sulfur and iron sulfate. Iron sulphate shall be ferric sulphate or ferrous sulphate in pelleted or granular form containing not less than 18.5% iron, expressed as metallic iron, and shall be registered as an agricultural mineral with the State Department of Food and Agriculture in compliance with Chapter 5 "Fertilizing Materials", of Division 7 of the Food and Agriculture Code of California, commencing at Section 14501.

2.03 HEADERS, STAKES AND TIES: Add the following to Standard Specifications Section **212-1.5 Headers, Stakes and Ties:**

- A. Headers: Standard Specifications Section **212-1.5.2 Headers and Stakes** replace with the following to read:

"Headers shall be Concrete Headers/Mow Curbing - Concrete shall be 5 sack mix with a maximum slump test of four inches (4"). Provide sufficient concrete forming and stakes (maximum 3' o.c.) to provide continuous line without waving."

- B. Tree Stakes: Shall be straight-grained lodgepole pine, or City approved equal. Stakes shall be free from knots, checks, split, or disfigurements.

- C. Tree Ties: Tree ties shall be manufactured of virgin flexible vinyl meeting ASTM-D-412 standards (Cinch-Tie) for tensile and elongation strength. Material shall be black for ultraviolet resistance. Tree ties shall be manufactured with a double back locking configuration and secured with one galvanized nail to prevent slippage. Tree ties shall elongate with the tree growth preventing damage to the tree. Installed in a double stake, four tie, figure eight configuration. **Metal "Twist Braces" are NOT ALLOWED.**

2.04 HYDROSEEDING MATERIALS:

- A. Binding Agent: Shall be a dry powder organic concentrate, Ecology Controls "M-Binder" as available from Robinson Fertilizer Company, Anaheim, CA 714/632-9715 or City approved equal.

- B. Fertilizers:

1. Controlled Release Fertilizer (CRF):

- a) Total Quantity Exceeding 1 Ton: CRF shall be "Sierra 17-6-12 Plus Minors" Controlled Release Fertilizer (Stock# 90209), 4-5 month time release formulation, using resin coated prills, as manufactured by The Scotts Co., Marysville, OH 1-800-492-8255 (Local Manufacturer's Representative: Jack Wackerman, 760/757-2150), or City approved equal, and as available through Western Farm Service, Riverside, CA (909) 686-3736.

- b) Total Quantity Less than 1 Ton: CRF shall be "Osmocote" Controlled Release Fertilizer with a formulation of 17-7-12 (Stock #90010) as manufactured by the Scotts Company, Marysville, OH 1-800-492-8255 (Local Manufacturer's Representative: Jack Wackerman, 760/757-2150), or City approved equal, and as available through Western Farm Service, Riverside, CA (909) 686-3736.

2. Triple Super Phosphate: Shall be a premium quality granulated high phosphorus "Best" fertilizer product having an analysis of 0-45-0, as manufactured by J. R. Simplot Company, Lathrop, CA (209) 858-2511, or City approved equal.

- C. Fiber-Mulch: Shall be produced from cellulose such as wood pulp or similar organic material and shall be of such character that it will disperse into a uniform slurry when mixed with water. The fiber shall be of such character that when used in the applied mixture, an absorptive or porous mat, but not a membrane, will result on the surface of the ground. Materials which inhibit germination or growth shall not be present in the mixture.

- D. Seed: Turf seed mix as specified.
- E. Water: All water used for hydroseeding shall be potable domestic water. Contact the City Public Utilities Department, Water Division at 951/826-5648 regarding availability of water and temporary construction meter and charges for water drawn from City fire hydrants.

2.05 JUTE NETTING: Jute netting shall be new and shall be of uniform, plain-weave, flame-retardant mesh. The mesh shall be dyed green and shall be made from unbleached single jute yarn. The yarn shall be of loosely twisted construction and shall not vary in thickness by more than one-half its normal diameter. Jute netting shall be furnished in rolled strips and shall meet the following requirements:

- Width - 48 inches, with a tolerance of one inch wider or narrower.
- Minimum 78 warp ends per width of roll.
- Minimum 41 weft ends per yard of length.
- Weight shall average 1.22 pounds per linear yard, with a tolerance of 5 percent heavier or lighter.

2.06 PLANTS: Add the following to Standard Specifications Section **212-1.4 Plants**:

- A. General: Add the following to sub-section **212-1.4.1 General**: All plants shall be true to name, with at least one of each bundle or lot tagged with the name and size in accordance with the American Association of Nurserymen Standards. In all cases, botanical names shall take precedence over common names. All plants and planting materials shall meet or exceed the specifications of Federal, State, and County Laws requiring inspection for plant disease and insect control.
- B. Quality and Size:
 1. Quality: All plant material shall comply with the definition for number one nursery stock per the current edition of "Horticultural Standards" as adopted by the American Association of Nurserymen.
 2. Size: Add the following to Standard Specifications Sections **212-1.4.2 Trees** and **212.1.4.3 Shrubs**:
 - a) All container plants supplied by Contractor shall be of the standard height and diameter set by the American Standard for Nursery Stock as specified for the container size within which the plants are delivered to the site. The height of the trees shall be measured from the root crown to the last division of the terminal leader and the diameter shall be measured six (6) inches above the crown roots.
 - b) All palm trees shall be the size(s) as noted on the approved plans, but in no case less than a minimum overall height of 8 to 12 feet as measured from the crown of the root ball to the tips of the fronds, or four feet of brown trunk whichever is greater.
 - c) All container grown trees shall be the size(s) as noted on the approved plans, but in no case less than a minimum 15 gallon container size, with minimum caliper and height in accordance with the American Association of Nurseryman standards for container plants.
- C. Bare Root Stock: Substitution of bare root stock for plant material specified by container size shall be subject to the review and approval of the Public Works Landscape Inspector. All bare root stock shall conform to the American Nurseryman's Association standards. Minimum caliper shall be two (2) inch diameter and minimum height shall be twelve (12) feet.
- D. Cuttings: Modify Standard Specifications Section **212-1.4.6 Cuttings** to read: All cuttings used on the project shall be fully rooted cuttings unless otherwise approved in writing by the Public Works Landscape Inspector.

2.07 MULCH:

- A. Nitrolized Shavings: Shall conform with Standard Specifications Section **212-1.2.5 (a) Type I Mulch**.
- B. Tree Mulch: Shall be a ground wood product as produced through a wood chipper, and shall consist of twigs and branches with pieces of a maximum size of " diameter by 4" long, free of seeds, trash and debris and other inert non-organic materials.

2.08 **TURF PLANTINGS:**

- A. **SEED:** Add the following to Standard Specifications Section **212-1.3 Seed:**
Seeded Turf: For turf areas being planted solely from seed, use the following seed mix:

<u>Turf Seed Mix</u>	<u>by weight</u>	<u>Proportion</u>	<u>Purity</u>	<u>Germination</u>
Perennial Rye (50% 'Caliente Fine', 50% 'Prelude')	60%		95%	90%
PJ Bluegrass (50% 'Rugby' 50% 'Parade')	10%		98%	80%
Un-Hulled Bermuda (Certified Arizona Common)*	30%		98%	85%

Seeding rate: Shall be as noted on the approved plans, but in no case less than a minimum of 218 pounds per acre (5 LBS/1,000 SF)

*Note: For applications in May through September, use Hulled Bermuda.

- B. **SOD:** Turf sod shall be of the type noted on the Plans. All sod shall be new, fresh, viable sod delivered in full pallets ready for installation.

PART 3 - EXECUTION

- 3.01 **GENERAL:** All Work shall conform with Section **308 LANDSCAPE AND IRRIGATION INSTALLATION** of the Standard Specification, except as modified herein.

At Contractor's option, subject to the Public Works Landscape Inspector and Landscape Architect's acceptance of the material available and the appropriateness of the planting season, bare root stock may be substituted for the required 15 gallon and 24" box tree species if commercially available as bare root plantings and provided the corresponding minimum caliper and height requirements specified above in Part 2 Materials are met.

- 3.02 **WEED CONTROL MEASURES:** Upon completion of all rough grading work, and prior to soil preparation, perform weed control measures as follows:

1. Irrigate all areas designated to be planted for a minimum of 10 minutes per setting, two settings per day for seven days to germinate all weed seed possible.
2. Apply a systemic weed killer and allow sufficient time to obtain complete kill of all weeds germinated.
3. Repeat step one above.
4. Repeat step two above.

- 3.03 **SOIL PREPARATION:** Add the following to Standard Specifications Section **308-2.3 Topsoil Preparation and Conditioning:**

- A. **Work Sequence:** All rough grading, mounding and weed control measures shall be completed prior to soil preparation. Soil Preparation Work shall not commence until the agronomic soils test has been completed. Should 30 calendar days elapse between completion of soil preparation and commencement of planting, all areas shall be prepared again.
- B. **Excluded Areas:** Planting areas with slopes 3:1 and steeper shall not be soil prepared. In lieu of soil preparation, such slopes will require fertilizer tablets for all plantings as specified below.
- C. **Soil Preparation:** In all planting areas with gradients less than 3:1, areas to be soil prepared shall first be cross ripped to a minimum depth of 6" with tractor tines spaced at maximum 18" on center. Following cross-rip operations, a layer of soil amendments shall be spread and rototilled into the soil to a minimum

depth as noted on the Plans, but not less than 4 inches, or as recommended by the soils report if greater, so that the soil shall be loose, friable, and free from rocks, sticks, and other objects undesirable to planting.

- D. Amendment Application Rates: The following soil amendments shall be added per 1,000 square feet to all planting areas with gradients less than 3:1 (agronomic soil test recommendations shall take precedence where these minimum amounts are exceeded):
1. 6 cubic yards Type I organic soil amendment.
 2. 15 pounds commercial fertilizer.
 3. 100 pounds gypsum.
 4. Soil sulfur per soils report.

- 3.04 FINISH GRADING: Contractor shall finish grade all planting areas, filling as needed or removing surplus dirt, raking to remove all rocks and debris over 1 inch in diameter, and floating to a smooth uniform grade. All areas shall slope to drain. Flow lines shall be established to roads, curbs, drainage swales and inlets, and/or sidewalks as shown on the Plans and as directed. All fill material placed within the top 12" from finish grade elevations in all planting areas shall be topsoil.

All landscape areas shall be finish graded to "dress out", maintain, and/or re-establish finish grades and flow lines as approved prior to amending the soil. Contractor shall call for inspection upon completion of finish grading work. Contractor shall not proceed with planting work until finish grades have been inspected and accepted by the Public Works Landscape Inspector.

- 3.05 EROSION CONTROL: Add new Section to the Standard Specifications:

"308-4.9.6 Jute Netting. All slopes areas exceeding 3:1 shall receive jute netting. Netting shall also be provided during the Plant Establishment Period, when and as directed by the Public Works Landscape Inspector, along flow lines and other locations where erosion is evident. Jute netting shall be installed loosely, up and down the slope. The installed netting shall fit the soil surface contour and shall be held in place by 9-inch long, 11-gage (minimum) steel wire staples driven vertically into the soil at approximately 24-inch spacing. Jute netting strips shall overlap along the sides at least 6 inches. Ends of strips shall be buried into the soil at least 6 inches. Lap all ends of rolls a minimum of 24"."

- 3.06 INSPECTION OF CONTAINER PLANTS: The root condition of plants furnished in containers and proposed for use in the Work will be checked by the Public Works Landscape Inspector by removal of earth from the roots of not less than two plants nor more than 2% of the total number of plants of each species or variety from a single source. When container-grown plants are from several different sources, the roots of not less than two plants of each species or variety from each source may be checked by the Park Public Works Landscape Inspector at the Inspector's option. The selection of plants to be checked will be made by the Public Works Landscape Inspector.

Care shall be exercised to avoid rendering plants unsuitable for planting by virtue of this inspection. However, all plants rendered unsuitable for planting shall be considered as samples, and replacements shall be provided at no additional cost to City. In case the sample plants are found to be defective, the entire lot or lots of plants represented by the defective samples will be rejected.

- 3.07 PLANTING BACKFILL:

- A. Mixing: All backfill materials shall be bulk mixed, not individually mixed at each plant pit.
- B. Proportions: Backfill for planting pits shall be enriched using the following blend per cubic yard (agronomic soil test recommendations shall be reviewed prior to soil mixing):
1. Container Plants:

60% top soil	3 lbs. gypsum
40% Type I Organic Amendment	2 lbs. iron sulphate
2 lbs. commercial fertilizer	
 2. Bare Root Stock:
10% wood shavings 90% topsoil

fertilizer and soil conditioners as specified for container plants.

3.08 PLANTING:

A. Tree and Shrub Planting: Add the following to the Standard Specification Section **308-4.5 Tree and Shrub Planting:**

1. Soil surrounding planting pit shall be in a friable condition and moist to a depth of 8".
2. Backfill using specified soil mix to within 8" of finish grade. At this depth, place the plant fertilizer tablets Agriform 20-10-5, 21 grams each, or City approved equal. A minimum of 1 tablet for 1 gallon, 3 tablets for 5 gallons, 5 tablets for 15 gallons, and 8 tablets for a 24" box. Complete backfilling to finish grade.
3. Trees (other than relocated palms) shall be planted at such a depth that the crown roots bear the same relative position to finish grade as the crown roots did in the soils where the trees were grown. Backfill after planting shall be compacted carefully into place without injuring the roots of the tree or breaking up the ball of earth surrounding the roots.

B. Groundcover and Vine Planting: Add the following to Standard Specifications Section **308-4.7 Groundcover and Vine Planting:**

1. On slopes exceeding 3:1 ratio, apply 5 gram Agriform tablets, one per plant in lieu of soil preparation work.
2. Prepare the soil in all planting areas (except where slopes exceed 3:1) by applying 1.5 cubic yards of Nitrolized Shavings and 5 lbs. of the specified commercial fertilizer per 1,000 square feet. Repeat fertilization at 30 day intervals throughout the duration of the Work up to 4 applications. After the fourth application decrease frequency to once every 90 days.
3. All planting areas, areas to receive Tree-Mulch and bare dirt areas shall be treated with a pre-emergent chemical (subject to approval by the Public Works Landscape Inspector prior to application). Chemicals shall be applied by a licensed Pest Control Agent. This treatment shall be applied at the following times during the Contract: a) before planting, b) at beginning of Plant Establishment Period, and c) at end of Plant Establishment Period. The Public Works Landscape Inspector, (951) 351-6127, shall be given a minimum of 48 hours (2 working days) notice prior to each application. No chemicals shall be applied other than in the presence of the Inspector.
4. All areas designated to receive Tree-Mulch shall have mulch applied and spread to provide a uniform thickness of not less than 3" of mulch, and shall be neat and clean, free of trash.

3.09 TREE STAKING: Amend the Standard Specifications Section **308-4.6.1 Method A Tree Staking** and **308.4.6.2 Method B Tree Staking** to read: Stake trees in accordance with the Public Works Department's Standard Detail #1002.

3.10 TURF PLANTING: Add the following to Standard Specifications Section **308-4.8.2, (b) Method B:** Turf Planting shall be performed by either hydroseeding or sodding as indicated on the Plans, or, if not noted, as suitable for the species of turf specified and as acceptable to the City:

A. Pre-moistening: All areas to be planted shall be moistened to a depth of six inches just prior to application.

B. Hydroseeding:

1. Mixing of hydroseed slurry:

- a. Mixing shall be performed in a tank, with a built-in continuous agitation and recirculation system of sufficient operating capacity to produce a homogeneous slurry of fiber, M-Binder, seed, fertilizer and water in the following designated unit proportions:

Fiber-Mulch:	1,500 lbs./acre
Fertilizers:	
CRF	870 lbs./acre (20#/1000 SF)
Triple superphosphate	200 lb./acre (4 #/1000 SF)
Seed:	as specified above.
Binding Agent:	100 lbs./acre (use on all slopes 5:1 and steeper)
Water:	3,000 gal./acre (maximum)

- Agricultural Grade Gypsum: 500 lb./acre
 - b. With agitation system operating at part speed, water shall be added to the tank, good recirculation shall be established. Materials shall be added in such a manner that they are uniformly blended into the mixture in the following sequence (assumes a nominal 1500 gallon tank):
 - c. When tank is 1/3 filled with water:
 - Add binding agent - acre requirement.
 - Add 5 - 50 pound bales of fiber-mulch.
 - Add seed - acre requirement.
 - Add fertilizer - acre requirement.
 - d. Agitate mixture at full speed when the tank is half-filled with water.
 - e. Add remainder fiber-mulch requirement, 10 bales, before tank is 3/4 full. Add remainder fertilizers, seed and gypsum. Slurry distribution should begin immediately.
- 2. Application: Hydroseed slurry shall be applied under high pressure evenly and result in a uniform coat on all areas to be treated. Care shall be exercised to assure that plants in place are not subjected to the direct force of the application. Slurry shall be immediately removed from walks, structures, plants, etc., that are inadvertently sprayed.
- 3. Clean-up: The slurry shall not be sprayed on non-designated areas. Any slurry spilled or sprayed into areas other than those designated to receive spray shall be cleaned up at Contractor's expense to the satisfaction of the Public Works Landscape Inspector.
- B. Sodding: All areas to receive sod shall be Finish Graded prior to commencement of sodding. Immediately prior to laying sod, all areas shall be irrigated to moisten the soil as specified above. Rooting Agent shall be applied per the written recommendations of the Sod Grower. Contractor shall provide a copy of such recommendations to the Public Works Landscape Inspector prior to installation of the sod. Lay sod in parallel rows with a running bond pattern using uniformly sized strips of sod. Use whole pieces wherever possible. Lay sod smooth, with tight joints, no gaps greater than 1/8" in size. All irrigation heads shall be marked with flags for ease of location. Cut sod neatly trimming it away from around each irrigation head a maximum of 1/8" all around to allow for proper spray pattern and smooth pop-up and retract operation. Immediately following completion of sodding operations, irrigate as necessary.
- C. Replanting: At the point that the turf is generally showing signs of establishment, all bare spots shall be replanted within 10 days by Contractor, either with seed or sod as designated by the Public Works Landscape Inspector. Contractor shall be responsible for all replanted turf areas for as long after replanting as is necessary until acceptable germination/rooting and establishment is realized and approved by the Public Works Landscape Inspector.

3.11 WATERING: Add the following to Standard Specifications Section **308-4.9.5 Watering**:

- A. Responsibility: It shall be Contractor's responsibility to maintain a balanced watering program to ensure proper growth until Final Acceptance of the Work.
- B. Initial Watering: Immediately after planting, apply water to each plant. Apply water in a moderate stream in the planting hole until the material about the roots is completely saturated from the bottom of the hole to the top of the ground.
- C. Ongoing Watering: Apply water in sufficient quantities and as often as seasonal conditions require to keep the planted areas moist at all times, well below the root system of plants.
- D. Irrigation:
 - 1. Contractor shall properly and completely maintain the irrigation system. A balanced water program shall be maintained to ensure proper germination and growth until Final Acceptance of the Work. Plants which cannot be watered sufficiently with the irrigation system shall be watered by means of a hose.

2. All controllers are to have each station individually adjusted on a weekly basis. System shall be set considering the application rate each area is capable of receiving. The system shall operate on short intervals, with the cycle repeating at a later time to reduce runoff.

3.12 **MAINTENANCE AND PLANT ESTABLISHMENT:** Amend the first sentence of Standard Specifications Section **308-6 MAINTENANCE AND PLANT ESTABLISHMENT** to read: " Contractor shall maintain **all areas within the Work Limits of this Project** on a continuous basis...until Final Acceptance".

3.13 **START OF PLANT ESTABLISHMENT:** Add the following to Standard Specifications Section **308-6 MAINTENANCE AND PLANT ESTABLISHMENT:**

A. Criteria for Start of Plant Establishment Period:

1. The Plant Establishment Period shall not start until all elements of the Project that impact the landscape are completed in accordance with the Contract Documents. Projects will not be segmented into phases.
2. Permanent power to remote controllers shall be established.
3. The Plant Establishment Period for the Project shall not begin until after the first mowing of the newly planted turf areas. For Plant Establishment purposes "First Mowing" is defined as the first mowing after the point in time that a minimum of 85% of the turf area has attained a minimum height of 2". Until the above specified percentage of turf area is established and mown, Contractor shall mow as necessary to maintain those portions of turf exceeding 2" at the mowing height of 1 1/2 inches. At no time shall any turf exceed 3" in height.
4. Written acceptance of the Public Works Landscape Inspector must be obtained to start the Plant Establishment Period.
5. If the project maintenance fails to continuously meet standards required, the Plant Establishment Period "day count" will be suspended and will not recommence until Contractor has corrected all deficiencies.

3.14 **MAINTENANCE TASKS:** Add the following to Standard Specifications Section **308-6 MAINTENANCE AND PLANT ESTABLISHMENT:**

- A. General: During the contract period provide all watering, weeding, mowing, fertilizing and cultivation and spraying necessary to keep the plants and turf in a healthy growing condition and to keep the planted areas neat, edged, and attractive. All shrubs planted by Contractor shall be pinched and pruned as necessary to encourage new growth and to eliminate rank sucker growth. Old wilted flowers and dead foliage shall be immediately pinched or cut off. Do not prune trees without written approval of the Public Works Landscape Inspector.
- B. Iron Chlorosis: After planting and during the Plant Establishment Period, in the event that any plantings exhibit iron chlorosis symptoms, apply FE 138 Geigy or equivalent at manufacturer's recommended rates.
- C. Replacement Plantings: During the Plant Establishment Period, should the appearance of any planting installed by Contractor indicate weakness, that plant shall be replaced immediately with a new, healthy plant. At the end of the Plant Establishment Period, all plant materials shall be in a healthy, growing condition and spaced as indicated on the Plans.
- D. Fertilization: Contractor shall apply commercial fertilizer to all turf areas at a rate of 10 pounds per 1,000 square feet, and all groundcover areas at a rate of 5 pounds per 1,000 square feet, at 30-day intervals, for 3 applications as a minimum, above and beyond the original soil preparation application.
- E. Planting Establishment: All planting areas that do not show a prompt establishment of plant material, and areas where plant material is missing, shall be replanted at 10-day intervals until the plant material is established. For turf sod plantings, sod shall exhibit sufficient root growth knitting into the subgrade such

that the sod can no longer be removed by hand. If a good rate of growth has not been demonstrated within 30 days of first planting/hydroseeding, Contractor shall be responsible to determine the appropriate horticultural practices necessary to obtain good growth. Contractor shall obtain agronomic soils testing of all areas not showing good growth and shall provide copies of the test results to the Public Works Landscape Inspector to verify the appropriateness of all maintenance work performed.

- F. Grading and Drainage: During the Plant Establishment Period all flow lines shall be maintained to allow for free flow of surface water. Displaced material which interferes with drainage shall be removed and placed as directed. Low spots and pockets shall be graded to drain properly. Jute netting shall be installed at flow lines and other locations where erosion is evident, when directed by the Public Works Landscape Inspector.
 - 1. Damage to planting areas shall be repaired immediately and throughout the Plant Establishment Period. Depressions caused by vehicles, bicycles, or foot traffic shall be filled and leveled. Replant damaged areas.
 - 2. All paved areas shall be washed and maintained in a neat and clean condition at all times.
 - 3. All subsurface drains and inlets shall be periodically cleared of debris, leaves and trash and flushed with clear water to avoid build up of silt and debris.
 - 4. Debris and trash shall be removed from the site daily.
- G. Disease and Pest Control: Throughout the Plant Establishment Period, all plants shall be maintained in a disease and pest free condition. A licensed pest control operator shall be retained by Contractor to recommend and apply all pesticides, herbicides, and fungicides. Exterminate gophers, moles, and all other rodents, and repair damage.

3.15 **END OF PLANT ESTABLISHMENT PERIOD**: Add the following to Standard Specification Section **308-6 MAINTENANCE AND PLANT ESTABLISHMENT**:

- A. Request for Inspection: When Contractor believes the Plant Establishment Period is complete and the Project is ready for Final Acceptance, Contractor shall request inspection of the Project. The Public Works Landscape Inspector will inspect the Project for Final Acceptance. Deficiencies noted during inspection shall extend the Plant Establishment Period until all are corrected.
- B. Established Plantings: All planting areas shall show a good rate of growth and shall be well established "filled in" plantings free of voids. Bare areas will be unacceptable. Contractor shall provide sod or plantings from flats as necessary to fill in all bare areas. Such sod or plantings shall be planted a minimum of 10 days prior to the end of the Plant Establishment Period and shall have roots "knit-in" to the native soil.
- C. Written Acceptance: Final Acceptance and assumption of maintenance responsibilities by City shall occur only upon the Public Works Department Representative's written acceptance of the Project for maintenance by City.

3.16 **CLEAN UP**: Upon completion of the Work, Contractor shall smooth all ground surfaces; remove excess materials, rubbish, debris, etc.; sweep adjacent streets, curbs, gutters; wash down all walkways, and trails; and remove construction equipment from the premises.

END OF SECTION

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