required by the plant list shall be delivered with a proper plant patent attached. Any plants which are not labeled or are not as indicated on the Plans and Specifications shall be rejected and shall be removed from the site immediately.

800-1.4.2 **Trees.** ADD the following:

1. Trees shall have a uniform trunk taper from the base of the tree, continuing up the main leader. Palms shall be un-skinned unless specified otherwise.
2. Trees with naturally occurring central leaders shall remain un-pruned or unaltered from the nursery.
3. Trees Planted In Turf Areas.
   a) Trees shall be spaced to permit the most effective use of mechanized maintenance equipment and operation of the irrigation system.
   b) Trees shall have a minimum of 12 horizontal feet between other trees and vertical objects.
   c) Provide a 4 foot diameter mulched area around the base of the tree; there shall be no mulch on crown of tree.
   d) Plant spacing shall be set to the mature width and height of plants and trees.
   e) On trees with a canopy larger than 12 feet in diameter, tree wells shall extend 6 feet in radius from the tree truck. On trees with a canopy smaller than 12 feet in diameter, tree wells shall extend to the edge of the dripline.
   f) Dense tree groves shall not be planted in turf areas.

800-1.4.5 **Sod and Stolons (turf grass).** ADD the following:

1. Sod and stolons species shall be as **specified on the Plans or in the Special Provisions**. Material shall be delivered and installed within 24 hours of harvesting with shipping documentation to verify the origin, harvest date, stolon preparation date, and shipment date. All material shall be from the same growing ground.

ADD:

800-1.4.7 **Vines.**

1. Vines shall be of the specified type and size.

800-1.5.3 **Tree Stakes.** DELETE in its entirety and SUBSTITUTE with the following:

1. The type of tree stake and length shall be as designated on the Plans or in the Special Provisions.
2. The tree support stakes shall be 10 feet (3 m) long.

ADD:

800-1.5.4 Tree Ties.

1. Tree ties shall be manufactured of virgin flexible vinyl meeting ASTM-D412 standards for tensile and elongation strength. Material shall be black or ultraviolet resistance.
2. Tree ties shall be manufactured with a double back locking configuration and secured with one galvanized nail to prevent slippage.
3. Tree ties shall elongate with the tree growth and shall prevent damage to the tree.

ADD:

800-1.6 Erosion Control Matting.

1. **Jute.**
   a) Jute matting shall be of open weave with approximately 1 in^2 (1 inch x 1 inch) (25.4 mm x 25.4 mm) mesh. It shall be manufactured from loosely twisted jute yarn varying in thickness no more than half its normal diameter.
   b) Matting shall be made smolder resistant by treatment with chemicals which are non-leaching and non-toxic to vegetation. An identification mark to differentiate it from untreated jute cloth shall be present.
2. **Excelsior.**
   a) Excelsior blanket shall consist of a cured wood excelsior mat.
   b) Fibers shall be evenly distributed over the entire area of matting. 80% of fibers shall be at least 6 inches (152.4 mm) long with consistent thickness.
   c) The topside of the matting shall be covered with 2 inch by 1 inch (50.8 mm x 25.4 mm) biodegradable extruded plastic mesh.
   d) The blanket shall be made smolder resistant without chemical additives.
3. **Staples.**
   a) Staples for erosion control matting shall be 11 gage steel wire bent in a "U" shape with 6 inches (152.4 mm) minimum length.
4. **Root Barriers.**
   a) Root barriers shall be equivalent to the following:
      i. Type LB 12-2 or UB 18-2 for installations at existing trees or approved equal.
      ii. UB 24-2 for installations at new construction, as manufactured by DeepRoot or approved equal.

SECTION 801 - INSTALLATION

801-1 **GENERAL.** DELETE in its entirety and SUBSTITUTE with the following:

1. This section includes specifications for the preparation, planting, and irrigation system construction for landscape areas shown on the Plans.
2. Unless otherwise specified, walls, curbs, planter boxes, walks, irrigation systems, and similar improvements shall be constructed following rough grading and before landscaping.
3. Work on the irrigation system including hydrostatic tests, backfill and densification of trenches, and other excavations shall be performed before topsoil placement. Preliminary operational tests of the automatic control system and coverage tests shall be performed after top soil placement.
4. Trees or shrubs which have been identified to remain as shown on the Plans shall be protected. Construction fencing minimum 5 feet (1.5 m) high shall be placed around the drip line of the tree or cluster of trees to protect the entire area. No material shall be stored nor shall equipment be permitted within the fenced area. Pruning of the tree canopy shall not be permitted without written recommendation of a certified arborist submitted and approved by the Engineer. Digging or excavation shall not occur under the drip line of the tree unless authorized by the Engineer. Failure to properly protect the identified trees may result in charges based on the assessed value of the tree and other damages once valued by a certified arborist.

801-2.1 **General.** ADD the following:

1. The subgrade soil below the proposed topsoil shall be scarified in a cross pattern to a depth of 3 inches (76.2 mm) for subgrade for Class A or B topsoil. Stones over 1 inch (25.4 mm) in greatest dimension shall be removed from the scarified area. The subgrade depth shall be verified by the Engineer prior to topsoil import.

801-2.2.1 **General.** DELETE in its entirety and SUBSTITUTE with the following:

1. Planting areas shall be free of weeds and other extraneous materials to a depth of 10 inches (254 mm) below finish grade before topsoil Work.
2. Soil shall not be worked when it is so wet or so dry as to cause excessive compaction or the forming of hard clods or dust.
3. Class "C" topsoil shall be scarified and cultivated to a finely divided condition to a depth of 8 inches (203.2 mm) minimum below finish grade. During this operation, all stones over ½ inches (12.7 mm) in greatest dimension shall be removed.
4. **Unless otherwise specified on the Plans or Special Provisions**, the topsoil shall be Class A and shall be 15 inches (381 mm) thick.
5. The soil shall be prepared in accordance with the recommendations of the soil analysis results stated in 800-1.1.2, "Class 'A' Topsoil".

6. If leeching is required per the recommendations of the soil analysis results, amendments shall be blended into the soil prior to leeching. Leeching shall be performed until analysis results are in compliance with agriculture suitability standards.

7. After compaction, topsoil shall be within ± 0.1 foot (0.3 m) of finish grade.

801-2.2.2 **Fertilizing and Conditioning Procedures.** DELETE in its entirety and SUBSTITUTE with the following:

1. The planting area shall be brought to finish grade before spreading the soil amendment materials specified.

2. Soil amendment materials shall be uniformly spread at the prescribed rate as recommended in the soil test results.

3. The quantities of materials necessary for the planting area shall be at the Work site and verified by delivery tickets furnished to the Engineer before spreading.

4. After spreading, the soil amendments shall be cultivated into the upper 15 inches (381 mm) of soil by suitable equipment operated in at least 2 directions at right angles.

5. The resulting soil shall be in a friable condition.

6. All planting areas shall be fertilized in a uniform manner at the application rate identified in the soil analysis recommendations.

7. Fertilization of turf areas shall be accomplished by uniformly spreading 50% of the specified quantity in one direction. The remaining 50% of the fertilizer quantity shall be spread perpendicular to the previous direction, immediately after the initial application. Each of the applications shall be spread uniformly in parallel, overlapping passes, to provide uniform results.

801-2.3 **Finish Grading.** DELETE in its entirety and SUBSTITUTE with the following:

1. The finish grade shall be smooth, uniform, and free of abrupt grade changes and depressions to ensure surface drainage.

2. The finish grade adjacent to paving, curbs, or headers shall be ½ inch (12.7 mm) in lawn areas and 2 inches (50.8 mm) in shrub or groundcover areas.

3. The soil shall be watered and allowed to settle to provide a stable surface. After the soil has dried out to a workable condition, the planting areas shall be regraded, raked, and smoothed to the required grades and contours.

4. Topsoil shall be mechanically compacted to a minimum relative compaction of 85%. Finish surfaces shall be clean and suitable for planting.

801-3 **HEADER INSTALLATION.** To paragraph (2), DELETE in its entirety.

801-4.1 **General.** DELETE in its entirety and SUBSTITUTE with the following:

1. The types, sizes, and quantities of plant materials shall be as specified in the Special Provisions or shown on the Plans.

2. All plants shall be reviewed and approved prior to planting, including plants previously approved at the nursery. You shall be responsible for the condition of all plants, planted or otherwise, until the completion of the Work.

3. Planting shall be performed with materials, equipment, and procedures favorable to the optimum growth of the plants and in compliance with these procedures.

4. Except as noted for specimen planting, all planting shall follow the completion of the irrigation system.

5. Soil shall be fertilized prior to planting per the recommendations of the soil analysis results.

6. Application of the herbicides shall be **as specified in the Special Provisions**.

801-4.2 Protection and Storage. ADD the following:

1. Sun sensitive plants, stolons, and sod shall be stored in the shade or screened from the sun.

801-4.3 Layout and Plant Location. DELETE in its entirety and SUBSTITUTE with the following:

1. Prior to planting, perform a detailed layout within the planting areas to be approved by the Engineer.

2. The first row of plants in areas designated for center-to-center spacing of plants shall be located at one-half of designated spacing form the edge of the area **unless specified otherwise on the Plans or Special Provisions**.

3. Plants shall be located to prevent irrigation blockage.

801-4.5 Tree and Shrub Planting. DELETE in its entirety and SUBSTITUTE with the following:

1. Planting holes shall be the depth of and twice the width of the plant container or ball and shall be larger, if necessary, to permit handling and planting without injury or breakage of the root ball or root system. Any plant with a broken or cracked root ball before or during planting shall not be planted.

2. Containers shall be removed in such a manner that the roots are not injured. Balled plant wrappings shall be loosened or cut back after the plant is positioned in the planting hole.

3. The native soil at the bottom and sides of planting holes shall be scarified.

4. Prepared backfill mix for shrub planting shall consist of 20% to 40% by volume of Type 1, 2, or 3 organic soil amendments mixed with native soil, depending on soil conditions at each site, as approved by the Engineer. On projects requiring soil analysis of native soil, backfill mix shall be determined by the recommendation of the soil analysis results and as approved by the Engineer.

5. Planting installation shall conform to the following requirements:

   a) The bottom of the planting pit shall be compacted.

   b) The plant shall be set at the approximate center of the hole and plumb so that the crown of the plant is 1 inch (25.4 mm) above finish grade.

c) Backfill shall be added in 6 inch (152.4 mm) lifts and shall be hand tamped to finish grade.

d) The backfill shall be thoroughly water-settled and additional backfill added to fill any remaining void below finish grade.

e) After the water has drained, the specified number of fertilizer tablets shall be placed in the planting hole in the presence of the Engineer.

f) A circular watering basin the circumference of the dripline of the tree or a minimum of 36 inch in circumference (914.40 mm), 4 inches (101.6 mm) high shall be left around the plant. The bottom of the basin shall be at approximate finish grade or slightly lower. Type 1, 5, 10, or 13 mulch shall be spread at least 4 inches (101.6 mm)) thick in the basin leaving 3 inches (76.2 mm) of clearance around the base of the tree or shrub.

6. Basins of planted container material shall not be planted or seeded.

7. After planting, the plant shall be plumb, with the root crown 1 inch (25.4 mm) above finish grade.

801-4.6.1 **Method "A" Tree Staking.** DELETE in its entirety and SUBSTITUTE with the following:

801-4.6.1 **Tree Staking.**

1. The tree shall be staked with the type and length of stake **specified on the Plans or in the Special Provisions**.

801-4.6.2 **Method "B" Tree Staking.** DELETE in its entirety and SUBSTITUTE with the following:

801-4.6.2 **Guying.**

1. Guying shall be done as **specified on the Plans or in the Special Provisions**.

801-4.6.3 **Guying.** DELETE in its entirety.

801-4.7 **Ground Cover and Vine Planting.** DELETE in its entirety and SUBSTITUTE with the following:

1. Soil preparation and fine grading shall be completed prior to ground cover planting.

2. Ground cover and vines shall be planted in moist soil and spaced as indicated on the Plans. Soil shall be moist within the total root zone of the material being planted.

3. Each plant shall be planted with its proportionate amount of container soil to minimize root disturbance. Soil moisture shall be such that the soil does not crumble when removing plants.

4. Following planting, ground cover and vine areas shall be regarded to restore smooth finish grade and to ensure proper surface drainage. A 2 inch (50.8 mm) layer of the specified mulch shall be spread over the planted areas **unless specified otherwise**.

pest and fungi control, plant replacement, and mulch replenishment. Maintenance shall continue until Final Acceptance.

801-7 MEASUREMENT. DELETE in its entirety and SUBSTITUTE with the following:

801-7 MAINTENANCE OF EXISTING TREES.

1. You shall immediately notify the Engineer if a tree appears to be or may be unstable as a result of trimming or root pruning activities.
2. All measures will be taken to minimize the removal of tree roots in order to maintain the health and stability of the tree. Those measures include but are not limited to ramping over roots, meandering around roots, and reinforcing sidewalk with rebar to strengthen sidewalk. Removal of tree roots shall be the last option when the hardscape is being replaced or newly constructed.

ADD:

801-7.1 Tree Trimming.

1. Trees shall be trimmed per ANSI A300 Standards for Tree Care Operations 1 week prior to root pruning or as directed by the Engineer. Tree trimming shall include:
   a) Removal of low branches overhanging residential streets to a height above the street grade of 14 feet (4.3 m) unless otherwise directed.
   b) Removal of low branches overhanging sidewalks shall be trimmed to a height of 8 feet (2.4 m) unless otherwise directed.
   c) Removal of the dead, broken, diseased, and insect-infested branches and stubs larger than ½ inch (12.7 mm) in diameter.
   d) Pruning end branches to lighten end weights where such overburden appears likely to cause breakage of limbs based upon a certified arborist report and under their supervision of this Work.
   e) Removal of cross limbs and water sprouts (suckers).
2. Final pruning cuts shall be made without leaving a stub. Final pruning cuts shall be made in a manner to favor the earliest covering of the wound with callous growth. The wound shall be as small as practicable. The cambium tissues at the edge of the cut shall be alive and healthy. Extremely flush cuts which produce large wounds and weaken the tree at the cut shall not be made.
3. Pruning and cutting tools shall be kept sharpened to a condition that shall not permit leaving a scraped cambium edge on final cuts. Such tools shall also be kept clean and free from infectious materials.
4. The use of climbing spurs or spike shoes shall not be permitted.
5. Trimming of the trees shall provide adequate clearance from obstructed street standard, globe, or sign. Trim tree limbs shall clear all adjacent structures by 5 feet (1.5 m).

6. In the event that high voltage aerial utility wires present a hazard to your personnel or others near the Work Site, the Work shall immediately cease and you shall notify San Diego Gas & Electric. The Work shall then commence in accordance with the instructions from the utility company.

ADD:

801-7.2 Root Pruning for Re-configured Sidewalk.

1. At locations where the width of the walk will be reduced or moved over to enlarge the tree well, the Resident Engineer and certified arborist may arrange for root pruning after the existing walk has been demolished and removed and prior to installation of new walk. Coordinate the scheduling of root pruning within 1 week of the concrete repair Work to start. Roots shall be cut at the locations established by the Engineer based upon a report from a certified arborist.

ADD:

801-7.3 Root Pruning for Sidewalk Replacement.

1. Prune the trees roots in accordance with the Contract Documents. You shall coordinate the scheduling of root pruning within 1 week of the concrete repair Work to start. The Work includes cutting all roots necessary for satisfactory forming for replacement sidewalk to a depth of 12 inches (304.8 mm), 21 inches (533.4 mm) on the curb side, along the edge of the new walk or curb for a distance of 10 feet (3 m) in each direction from the center of the trunk, unless otherwise directed by the Engineer based upon a report from a certified arborist. If the walk will not be replaced, roots shall be cut in straight lines parallel to the walk or the curb. The root cut shall not be more than 3 inches (76.2 mm) from edge of existing walk or curb for a length of 10 feet (3 m) in each direction from the center of the trunk.
2. Roots more than 2 inches (50.8 mm) in diameter shall be preapproved for removal by the Engineer based upon a report from a certified arborist. Roots shall be cut at the nearest node to encourage roots to grow away from the walk. Root cutting shall not impact the trunk flare. Roots shall be cleanly cut from the new walk edge. Backfill excavated areas with Class A topsoil or decomposed granite as directed by the Engineer to existing grade and compact sufficiently to not settle when walked upon.
3. In order to protect existing trees, surface roots in the parkway area or planter strip shall not be damaged or removed outside of the pruning area and no construction equipment or supplies including spoils shall be placed in or upon this area.

ADD:

801-7.4 Root Pruning on Curb Side.

1. Prune the tree roots as noted in the Contract Documents based upon a report from a certified arborist. You shall coordinate the schedule of this Work within 1 week of the concrete repair Work scheduled. Roots shall be cut following the

removal of the existing curb and prior to the installation of the new curb when practical.

2. The Work includes cutting all roots necessary to a depth of 21 inches (533.4 mm) only along the edge of the new curb line adjacent to the tree, in order to provide forming area for new curb. This shall be done for a minimum distance of 10 feet (3 m) on the curb side of tree. In cases where the curb will not be replaced, roots shall be linear cut no further than 3 inches (76.2 mm) from edge of existing curb for a minimum length of 10 feet (3 m) from the tree trunk.

ADD:

801-7.5 Equipment.

1. Cuts shall be made with a root cutting machine such as Vemeer, Doscocil Inc., or approved equal as approved by the Engineer. Any shredded roots shall be cut clean to the nearest root node. Use of a tree stump grinder for root pruning shall not be acceptable.

ADD:

801-7.6 Root Barrier.

1. Install root barriers for trees within 10 feet (3 m) of hardscape for new construction, where the root pruning and walk construction has been completed, or as directed by the Engineer. Root barriers installed on either the curb side or walk side shall be continuous, 20 feet (6.1 m) in length, and centered on the tree or as directed by the Engineer. The Engineer may allow for alterations to the root barrier in order to accommodate necessary root locations based upon an arborist report.

2. Where trees requiring root barriers are 18 feet (5.5 m) or less apart, the barrier shall be installed continuously between trees. The barrier shall be placed 1 inch (25.4 mm) above finish grade against the back of the curb or the front edge of the walk. Vertical raised ribs on barrier shall be faced toward the tree(s). The barrier shall be installed vertically, or if conditions allow, with the top inclined towards the tree.

3. The barrier shall not be installed with the top inclined away from the tree. The root pruning trench shall be backfilled to the top of the barrier. The tree shall be inspected by the Engineer for stability prior to the backfilling of the root pruning trench.

801-8 PAYMENT. DELETE in its entirety and SUBSTITUTE with the following:

801-8 MEASUREMENT.

1. Landscaping and irrigation Work shall be measured as specified in the Contract Documents and as shown in the Bid.

2. Tree maintenance Work shall be measured by the tree trimming, root pruning, or root barrier required for each tree.

ADD:

801-9 PAYMENT.

1. The payment for landscaping and irrigation Work shall be included under the lump sum Bid items or for the Contract Unit Prices shown in the Bid and shall also include the payment for the Plant Establishment Period Work.

2. The payment for tree maintenance Work shall be included in the following Bid items:

   a) Tree Trimming

   b) Root Pruning

   c) Root Barrier

3. When used, Decomposed Granite (DG) shall be included in the Bid item for "Remove and Replace Miscellaneous Hardscape with Topsoil" unless a separate Bid item has been provided.