# Part 1 GENERAL

* 1. **SECTION INCLUDES**
		1. Planting of trees, shrubs, and vines.
		2. Seeding / stolonizing of lawns, soil preparation and soil additives.
		3. Maintenance of plantings and landscape areas.

# DEFINITIONS

* + 1. The term "Planting Area" shall mean all areas to be planted with trees, shrubs, sod, and seed.

# SUBMITTALS

* + 1. Submit certificates of compliance, trip slips and invoices for soil amendments, fertilizers, and plant materials, with quantities of each.
		2. Specimen Tree Samples: Deliver to the site, one sample of each tree variety and size indicated, 15 gallons in size and larger, before installation. At the Contractor's option and expense, he may retain the services of the Architect to review trees 15 gallon and larger tagged at the nursery or at its place of growth, or as otherwise indicated.
		3. Shrub and Tree Samples: Submit three samples of each variety and size of plant materials under 15 gallons in size, at the site a minimum of 15 days before planting operations. Accepted samples shall remain on the site and shall be maintained as standards of comparison for plant materials to be furnished. Samples may be incorporated into the work.
		4. Horticultural Soils Test: After completion of rough grading and prior to fine grading and soil preparation, obtain horticultural soils tests for planting areas. Testing shall include a minimum of three sampling locations, each unique to the site. The tests shall include a fertility and suitability analysis with written recommendations by the agronomist for soil amendments and conditioners, backfill mixes, auger hole requirements, maintenance and post-maintenance fertilization application requirements. The results of this test shall supersede the amendment and fertilizer schedule specified herein and no planting or seeding/stolonizing shall be done until the Architect approves the soils test recommendations. Soil testing shall be performed by an approved soils testing laboratory.
		5. Submittal procedures and quantities are specified in Section 01330.

# QUALITY ASSURANCE

* + 1. After installation of plant materials but before the pre-maintenance inspection, the Architect, using the specified copies of the certificates, trip slips, and invoices for the plant materials and related items, will check such material, comparing the total quantities of each material furnished against the total area and the quantities specified. If the minimum amounts have not been furnished, the architect will require the installation of additional materials to fulfill the minimum requirements specified.
		2. Upon the delivery of materials and completion of the soil conditioning and grading, but before initiating planting operations, the Architect using the specified copies of certificates, trip slips, and invoices for soil preparation materials, will check such material. The Architect shall compare the total quantities of each material furnished against the total area of each operation. If the minimum rates of application have not been met, the Architect will require the distribution of additional quantities of these materials to fulfill the minimum application requirements specified.
		3. Deliver a sample of the recommended soil amendments to a testing laboratory.

Forward the results to the Architect after "Notice to Proceed" for review. After soil amendments have been thoroughly mixed into the site, take random samples of the mixed soil and deliver them to the testing laboratory for comparison to a control mix.

# SITE CONDITIONS

* + 1. Environmental Requirements:
			1. Perform actual planting during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practice.
			2. Perform grading and soil preparation only during the period when beneficial and when optimum results may be obtained. If the moisture content of the soil should reach such a level that working it would destroy soil structure, suspend spreading and grading operations until the moisture content is increased or reduced to acceptable levels and the desired results are likely to be obtained.
		2. Existing Conditions:
			1. Before excavation for planting or placing of plant materials, locate underground utility lines still in use and take proper precautions to avoid damage to such improvements. In the event of a conflict between such lines and plant locations, notify the Architect who will arrange for the relocation of one or the other. Assume responsibility for making repairs to damage to existing facilities resulting from landscaping activities.
			2. Utilities (water and electricity) used during the installation of the landscaping and irrigation systems shall be paid by Contractor. During the 90-day maintenance period the District will be responsible for the payment of the utilities.
		3. Field Measurements:
			1. Scaled dimensions are approximate. Before proceeding with landscaping, carefully check and verify dimensions and immediately inform the Architect of discrepancies between the drawings and specifications and actual conditions.

# GUARANTEES AND REPLACEMENTS

* + 1. Guarantee shrubs, (5 gallon and smaller) to remain healthy and vigorously growing for one growing season or 90 days, whichever comes first.
		2. Guarantee trees and shrubs (15 gallon and larger) to live in a healthy condition for a period of one year from the date of acceptance.
		3. Replace within 14 days, plants found to be dead and plants not in a vigorous condition noted within the guarantee period.
		4. Use plants for replacement of the same kind and size as specified in the plant list.

Furnish, plant and fertilize as originally specified.

# LANDSCAPE MAINTENANCE

* + 1. The landscape maintenance period begins on the first day after all landscape work on this project is complete, checked, accepted, and written approval from the Architect or Owner’s representative is given to begin the maintenance period. The maintenance period shall continue thereafter for no less than 90 continuous calendar days.
		2. Continuously maintain all landscape areas during the progress of the landscaping operations and during the maintenance period until the final acceptance of the work. Contractor shall be responsible for maintenance fertilizer applications as recommended by the approved soils report.
		3. Regular planting maintenance operations shall begin immediately after each plant or lawn is planted. Plants and lawns shall be kept in a healthy, growing condition and in a visually pleasing appearance by watering, pruning, mowing, rolling, trimming, edging, fertilizing, re-staking, pest and disease controlling, spraying, weeding, cleaning-up and other necessary operation of maintenance. Landscape areas shall be kept free of weeds, noxious grass, and other undesired vegetative growth and debris. Plants found to be dead or in an impaired condition shall be replaced immediately.
		4. The completion date of the contract maintenance period will be extended, when in the opinion of the Architect or Owner’s representative, improper maintenance or possible poor or unhealthy condition of planted material or un-established non-covering lawns are evident at the termination of the scheduled maintenance period. Assume responsibility for additional maintenance of the landscaping until landscaping is completed and acceptable. Complete germination of all seeded/stolonized areas must occur before final acceptance.
		5. During the construction and maintenance period, the contractor shall be responsible for maintaining adequate protection for all planting areas. Any damaged areas including acts of theft or vandalism, shall be repaired and replaced at the contractor’s expense.
		6. Turf Areas: Within the first 20 days of maintenance period:
			1. Remove all rocks or other debris that would constitute a hindrance to subsequent mowing or present an untidy appearance.
			2. Repair all damage caused in performance of work.
			3. Fill all depressions and eroded channels with sufficient backfill mix to raise to proper grade.
			4. Roll all turf areas with a roller weighing approximately 16 pounds per lineal inch to compact the soil around the roots and provide a smooth, even mowing surface.
			5. Mow turf to the proper height as directed by the District. Repeat mowing, as required during the maintenance period. Remove all cuttings.
			6. Core five one-inch diameter holes to a depth of 18 inches with a soil probe evenly spaced at the drip-line of each tree. Remove turf to create basins around trees in lawn areas.

# Part 2 PRODUCTS

* 1. **SOIL AMENDMENTS AND FERTILIZER**
		1. Soil Conditioner: Shall contain a special blend of organic fractions to supply several degrees of breakdown rate, a portion of inorganic amendment that resists further breakdown, a long-lasting form of iron, PH of 5.5 to 6.0, salinity of 1.75, organic matter (dry weight basis) more than 90 percent, non-ionic wetting agent and total nitrogen content of 0.5 percent. Acceptable products include, but are not limited to, the following:

 Loamex

 Organo Forest Humus Wil-Gro Life - Wilbur Ellis

* + 1. Gypsum: Commercially processed and packaged gypsum (CaSo4-2H20) with minimum 80 percent grade containing 14 percent minimum combined sulfur.
		2. Iron Sulfate: Ferric or ferrous sulfate in pellet or granular form containing not less than 18 percent metallic iron. Material shall conform to the Agricultural Code of the State of California.
		3. Soil Sulfur: Elemental sulfur (99.5 percent) minimum.
		4. Fertilizer:
			1. Pre-planting Fertilizer: Long-lasting, controlled release, uniform in composition, free flowing, suitable for application with approved equipment, and shall contain the following minimum available percentages by weight of plant food:

 Nitrogen 18 percent minimum Phosphoric Acid 18 percent minimum Potash 6 percent minimum

* + - 1. Post-planting Fertilizer: Organic base, long lasting, non-burning, slow release, free flowing, uniform in composition, suitable for application with approved equipment, and shall contain the following minimum available percentages of weight of plant food with trace minerals of three percent iron (expressed metallic) and five percent sulfur (elemental).

Nitrogen 16 percent minimum Phosphoric Acid 6 percent minimum

Potash 8 percent minimum

* + - 1. Planting Tablets for Trees and Shrubs: Tightly compressed chip type commercial grade planting tablets, of varying sizes with the following available percentages by weight of plant food:

|  |  |  |
| --- | --- | --- |
|  | 21 gram tablet | 5-7 gram tablet |
| Nitrogen | 20% minimum | 12% minimum |
| Phosphoric Acid | 10% minimum | 8% minimum |
| Potash | 5% minimum | 8% minimum |

**2.02 PLANTING BACKFILL**

 **A.** Planting backfill shall be a thoroughly blended mixture of topsoil and soil amendments at the following rates for each planting pit:

 Soil conditioner 25% volume of backfill

 Stockpiled on site soil 75% volume of backfill Iron sulfate 2 pounds per cubic yard of mix

# STAKING MATERIALS

* + 1. Double/Single Staking: Stakes shall be of lodge-pole pine, straight shafts, shaved and cut clean and bare of branches and stubs, of uniform thickness with a minimum diameter of 2 inches, free of loose knots, splits or bends. Stakes shall be no less than 10 feet long.
		2. Tree Ties: Acceptable product includes, but is not limited to, the following:

 V.I.T. Twist Tree Brace

# PLANT MATERIALS

* + 1. Nomenclature: The scientific and common names of plants herein specified conform with the approved names given in "A Checklist of Woody Ornamental Plants of California", published by the University of California, College of Agriculture, Manual 32 (1963). Refer to list of plant material on drawings.
		2. All plants should conform to the American Standards for Nursery Stock. Use the Arizona Nursery Associations Growers Guide for arid plants.
		3. Quality and size of plants shall be No. 1, of Pinto Tag stock. They shall be vigorous, of normal growth, free from disease, insects, insect eggs, and exceed the measurements specified. Pinto Tags shall be submitted to the Architect.
		4. Plants must be free of major cuts, wounds or sunburn fissure.
		5. Container stock (1 gallon, 5 gallon, 15 gallon boxes) shall have been grown in containers for at least 6 months, but not over 2 years. No container plants that have cracked or broken balls of earth, when taken from the container, shall be planted, except upon special approval. No trees with damaged roots or broken balls shall be planted.
		6. Trees should be no less than twenty-four (24) inch containerized trees. Multi trunk trees should stand no less than six (6) feet high. Single leader trees should have a minimum one and one half inch or greater caliper trunk size, measured at six (6) inches above soil grade.
		7. Pruning shall not be done, before delivery, except by written approval of the Architect.
		8. Inspection of plant materials, required by City, County or State authorities, shall be the responsibility of the Contractor, and where necessary he shall secure permits or certificates before delivery of plants to site.
		9. Plants shall be subject to inspection and approval or rejection, at the site at any time before or during progress of landscaping, for size, variety, condition, latent defects and injuries. Immediately remove rejected plants from the site.
		10. Substitutions will not be permitted except that if proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of the nearest equivalent size or variety and cost. All substitutions are subject to Architects approval.
		11. Quantities shall be furnished as needed to complete landscaping indicated.
		12. The Architect reserves the right to inspect root condition of any species, particularly those grown from seed, and if found defective, to reject the plants represented by the defective sample.
		13. Identify plant species or varieties correctly on legible, weatherproof labels attached securely to plant. There shall be a minimum of one labeled plant for each five plants in a lot.
		14. Lawn shall be as specified on the drawings and shall be applied as specified. All lawn seed and stolons shall be labeled and shall be furnished in sealed standard containers with duplicate signed copies of a statement from the vendor certifying that each container of seed delivered is fully labeled in accordance with the California state Agricultural Code. Seed/stolons that have become wet, moldy or otherwise damaged in transit or storage will not be acceptable.
		15. Groundcover plants shall be healthy vigorous rooted cuttings grown in flats until transplanting.
		16. Hydroseed components and application rates shall be as specified on the drawings.
		17. Pre-emergence Herbicide: Acceptable manufacturers include, but are not limited to, the following:

Surflan Treflan Dymid Eptam

* + 1. Weed Contact Spray: Acceptable products include, but are not limited to, the following:

Phytar 560 Broadside

# MULCH

* + 1. Mulch shall be medium bark mulch (brown) as approved by the District.
		2. Submit sample to District’s Representative for approval.

# ARBOR GUARDS

* + 1. Provide District approved arbor guards for trees planted in turf areas. Provide multiple guards, one per trunk, for multi-trunk trees.

# Turf

* + 1. Athletic turf shall be A-G Sod Ball Park Blend.
		2. Ornamental turf shall be A-G Elite Plus or equal.

# Part 3 EXECUTION

* 1. **MULCH**
		1. Install mulch in all areas shown on the drawings to a minimum 2-inch depth.
		2. Mulch shall be installed per manufactured recommendation.

# WEED ERADICATION

* + 1. Perform the following procedures for all irrigated planting areas:
			1. Spot spray all perennial weeds with a non-selective systemic contact herbicide.
			2. Manually remove all remaining weeds, and dispose off-site.
			3. Install irrigation system.
			4. Apply irrigation at a rate sufficient to promote weed growth for a period of 2 to 3 weeks.
			5. When weed seeds have germinated and grown to a height of 2 inches discontinue irrigation for a period of three (3) days to prepare the areas for access.
			6. Spray all weeds with a non-selective contact herbicide and urea Formaldehyde 38-0-0 liquid fertilizer. Spray all Bermuda Grass and Morning Glory with a non-selective systemic herbicide. Apply no water for a minimum of four (4) days following application of contact weed killer.
			7. Allow a sufficient period of time to ensure that all weeds are dead. Follow herbicide manufacturer’s directions.
			8. Lightly irrigate planting areas for a period of 2 to 3 weeks, without causing erosion of soils.
			9. Spot spray all weed re-growth with non-selective contact herbicide.
			10. Plant container sticks (no liners or rooted cuttings) seven (7) days following high nitrogen fertilizer application and irrigation.
			11. Evenly distribute specified soil amendments to all areas.
			12. Water all planting areas for three (3) consecutive days to moisten upper layers of soil prior to seeding operations without causing erosion to the soils.
			13. Do not allow the soil surface to be super saturated with water or excessively dry prior to hydro-seeding/stolonizing. Verify that residual moisture lies within the first 1/2 inch of the soil surface.
			14. Selection of herbicides, application rates and methods are to be performed under the control and guidance of a California licensed pest control advisor and applicator.

# SOIL CONDITIONING, FERTILIZING AND ROTOTILLING

* + 1. After the areas have been graded, the following rates of soil conditioning and amendment materials shall be evenly spread over all planting areas and shall be thoroughly scarified to an average depth of 6 inches by roto-tilling a minimum of 2 alternating passes:

Soil conditioner: 6 cubic yard per 1,000 square feet

Soil sulfur: 15 pounds per 1,000 square feet

 Iron sulfate: 10 pounds per 1,000 square feet

* + 1. Fertilizer 18-18-6 shall be applied at the rate of 25 pounds per 1,000 square feet and scarified into the top two inches of finish grade. Fertilizer shall be applied after leaching operations.
		2. The thoroughness and completeness of the roto-tilling and incorporation of the soil conditioners/amendments shall be acceptable to the Architect. Slopes 2:1 and steeper, or as indicated, omit soil conditioner application and tilling.
		3. Deep Water Leaching:
			1. After complete installation and testing of the irrigation system, all areas shall be deep water leached and compacted and settled by continuous application of irrigation water until the soil has received a minimum of 12 inches of water.
			2. After leaching operation, soil samples shall be taken by the contractor and given to an approved testing laboratory. Soil test shall meet the following requirements:

ECe Maximum 3.0

pH Maximum 7.50 / minimum 6.00

* + - 1. Re-application of soil amendment and leaching operations shall be repeated by the Contractor if test shows a negative result. Expense of test, reapplication of soil amendment and leaching operations shall be at no cost to the District.
		1. Care shall be taken that the rate of application of water does not cause erosion or sloughing of soils.
		2. Depressions, voids, erosion scars and settled trenches generated by the deep watering shall be filled with conditioned topsoil and brought to finish grade.

# FINISH GRADING

* + 1. Finish grades shall be measured as the final water compacted and settled surface grades and shall be within + 0.1 foot of the spot elevations and grade lines indicated.
		2. Finish grades shall be measured at the top surface of surface materials.
		3. Molding and rounding of the grades shall be provided at all changes in slope.
		4. Undulations and irregularities in the planting surfaces resulting from tillage, roto- tilling and other operations shall be leveled and floated out before planting operations are initiated.
		5. Take precautions to protect and avoid damage to sprinkler heads, irrigation lines, and other underground utilities during grading and conditioning operations.
		6. Final finish grades shall insure positive drainage of the site with surface drainage away from buildings, walls, and toward roadways, drains and catch basins.
		7. Final grades shall be acceptable to the Architect before planting operations will be allowed to begin.
		8. Planting surfaces shall be graded with no less than 1- percent surface slope for positive drainage.

# PLANTING

* + 1. The layout of locations for plants and outlines of groundcover to be planted shall be approved on the site by the Architect, before their planting. All such locations shall be checked for possible interference with existing underground piping, before excavation of holes. If underground construction or utility lines are encountered in the excavation of planting areas, alternate locations for the plants may be selected by the Architect. Damage to existing utilities shall be the responsibility of the Contractor.
		2. Planting Trees, Shrubs and Vines:
			1. Excavated holes shall have vertical sides with roughened surfaces and shall be of minimum sizes indicated. Holes shall be, in all cases, large enough to permit handling and planting without injury or breakage of root balls or roots.
			2. Excavation shall include the stripping and stacking of all acceptable soil encountered within the areas to be excavated for plant pits and planting beds. Protect areas that are to be trucked over and upon which soil is to be temporarily stacked pending its re-use for the fillings of holes, pits and beds.
			3. Excess soil generated from the planting holes shall be spread on the site as directed.
			4. Fill hole with water prior to installing plant.
			5. Plants in containers shall have the containers removed. Use care when removing plants to insure that plant root-balls are not damaged. All used containers shall be removed to the storage area or from the site daily.
			6. The plants shall be planted at approved locations with the specified conditioner and soil planting backfill.
			7. The plants shall be placed in the planting pits as indicated on the drawings.

After setting the plants, the remaining backfill material shall be carefully tamped and settled around each root-ball to fill all voids.

* + - 1. Each tree and shrub shall be placed in the center of the hole and shall be set plumb and held rigidly in position until the planting backfill has been tamped from around each root ball.
			2. All plants shall be set at such a level that after settling they bear the same relationship to the surrounding finish grade as they bore to the soil line grade in the container, unless otherwise indicated.
			3. Planting tablets shall be placed in each planting hole at the following rates: 1-5 gram tablet per liner and flat size plant.

1-21 gram tablet per gallon container.

3-21 gram tablets per 5-gallon container.

4-21 gram tablets per 15-gallon container.

1-21 gram tablet per each 4 inch of box size.

* + - 1. No plant will be accepted if the root-ball is broken or cracked; before, during, or after the process of installation.
			2. All plants shall be thoroughly watered in to the full depth of each planting hole immediately after planting.
			3. All trees shall be staked as indicated on the drawings. The stakes shall be driven in plumb and secure. Special care shall be taken that the driving in of the stake does not damage the tree roots or root ball. Tree ties shall be fastened to each tree and stake by looping figure 8's with the inside diameter of the tie at 2 or 3 times the diameter of the tree and by tacking the back of the tie to the stake.
			4. Staking shall be accomplished in such a manner as to ensure the proper and healthy growth and the safety of the plants, property, and the public.
			5. The Contractor shall be responsible for all surface and subsurface drainage required which may affect his guarantee of the trees and shrubs.
			6. Pruning after planting shall be required on all trees and shrubs when necessary to provide the specified or approved standard shapes, form and sizes characteristic to each plant. Pruning may include thinning, topping, and cutting and shall be under the direction of the Architect.
		1. Hydro-seeding / Stolonizing:
			1. Hydro-seeding/stolonizing shall be applied in the areas indicated and in accordance with mix indicated.
			2. Hydro-seeding Equipment: Hydraulic equipment used for the application of fertilizer, seed, and slurry of prepared wood pulp or fiber shall be of the "Super Hydroseeder" type. This equipment shall have a built-in agitation system with an operating capacity sufficient to agitate, suspend, and homogeneously mix a slurry containing 1,200 pounds of mulch and seed. The slurry distribution lines shall be large enough to prevent stoppage and shall provide even distribution of the slurry. The slurry tank shall have a minimum capacity of 1,350 gallons and shall be mounted on a traveling unit that will place the slurry tank and spray nozzles within sufficient proximity to the areas to be sprayed so as to provide uniform distribution without waste.
			3. Application Method: Using the wood pulp as a guide, spray the soil with a uniform visible coat of slurry. The slurry shall be applied in a sweeping motion, in an arched stream, so as to fall like rain allowing the wood fibers to build upon each other, until a complete, even coverage coat is achieved.
			4. Hydro-seeded/stolonized areas shall be kept moist at all times 20-24 days after planting or until the new growth of the plants are sufficiently well established.
			5. Hydro-seeded/stolonized areas shall be protected against foot traffic and other use immediately after hydro-seeding/stolonizing is completed by placing warning signs and temporary twine and flagging around the areas.
			6. Re-hydro-seeding/stolonizing of bare areas shall be done 30 days after initial application.

# HERBICIDE APPLICATION

* + 1. Pre-emergence herbicide shall be applied to groundcover areas only and in accordance with manufacturer's specifications. Do not apply in lawn areas. Architect shall be notified and present at the time of application.

# CONCRETE MOW BANDS

* + 1. Concrete mow bands shall be installed as indicated and in accordance with Section 02750.

# FIELD QUALITY CONTROL

* + 1. Inspection: Inspections herein specified shall be made by the Architect or Owners representative. The Contractor shall request inspection in writing, in advance of the inspection.
		2. Contractor shall be on the site at the time of each inspection. Inspection will be required for the following parts of the landscaping:
			1. Approval of plant materials.
			2. When planting, and all other indicated or specified landscaping, except the Maintenance Period, has been completed. Acceptance by the Owner’s representative and written approval shall establish beginning of the Maintenance Period.
			3. Final inspection at the completion of the 90-day maintenance period. This inspection shall establish the beginning date for the one-year guarantee of all trees.
		3. Acceptance: Upon completion of the final inspection, the Contractor will be notified in writing (1) whether the landscaping is acceptable; (2) of any requirements necessary for completion and acceptance.

# CLEAN UP

* + 1. As landscaping progresses, maintain all areas in a neat manner and remove unsightly debris as necessary. After completion, remove debris and containers used in accomplishing landscaping. Sweep and clean all sidewalks, asphalt, and concrete areas adjacent to plantings.

# END OF SECTION

|  |  |
| --- | --- |
| ***Acceptable Trees*** | ***Unacceptable Trees*** |
| Acacia | Alder |
| American Elm | Blue Gum Euc. |
| Birch | Boxelder |
| Campher | Carrob |
| Carrotwood | Catawba |
| Cedar | China Berry |
| Citrus Euc. | Chinese Elm |
| Crape Myrtle | Cottonwood |
| Cypress | Date Palm |
| English Elm | Fruit Bearing Trees |
| Bradford Pear | Fruitless Mulberry |
| Live Oak | Liquid Amber |
| Locust | Oleander |
| Maple | Olive |
| Modesto Ash | Pepper |
| Pine | Poplar |
| Purple Leaf Plum | Shamal Ash |
|  | Sycamore |
|  | Willow |