

**329300 LANDSCAPING****PART 1 – GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions apply to this section.

**1.2 SCOPE**

- A. Furnish all work as evident on drawings and specified herein or required to complete all landscaping and shall include, but not necessarily limited to, the following work:
  - 1. Fine grade, shape final landform, and assure of positive drainage without erosion in all landscape areas.
  - 2. Excavate tree pits and shrub holes.
  - 3. Provide and plant all materials shown on the plan and plant list.
  - 4. Stake and protect all trees and planted areas as needed.
  - 5. Prepare area and place decomposed granite.
  - 6. Maintain all plant material until maintenance responsibility is transferred to Owner upon substantial completion.
  - 7. Clean up all areas prior to substantial completion, including debris, stains, and dirt from walks and beds.
- B. These specifications are complementary to the notes on the drawings.

**1.3 APPROVALS**

- A. All materials are subject to the approval of the Owner's Representative who shall have the power to reject any material or workmanship found to be defective or not in conformance with the plans and specifications.

**1.4 STORAGE**

- A. Store chemical fertilizers in a weatherproof storage place.

**1.5 GUARANTEE**

- A. Guarantee plants for two years against disease and unsatisfactory growth, except for such problems resulting from neglect or from abuse or damage caused by others or caused by unusual phenomena beyond the Contractor's control. Remove and replace dead or unhealthy plants promptly during the growing season, or as otherwise directed by the Owner's Representative. The Guarantee period shall begin on the first day after the project has been accepted by the Owner in writing.

**1.6 SUBMITTALS**

- A. Send pre-emergent manufacturer's data for approval.

- B. Sample of decomposed granite for review and approval.
- C. Compost: Submit analysis of proposed compost. Analysis to provide information confirming that compost meets or exceeds requirements listed below under Section 2.01 E: Compost.

## 1.7 INSPECTION AND ACCEPTANCE OF PLANT MATERIALS

- A. Plants are subject to inspection and approval upon delivery for conformity to specification requirements as to quality, size and variety. Such approval shall not impair the right of inspection during the progress of work, or right of rejection due to damage suffered in handling or transportation. Rejected plants shall be removed immediately from the site by the Contractor.

## PART 2 – PRODUCTS

### 2.1 PLANT MATERIALS

- A. The Contractor shall furnish all trees, shrubs and ground covers shown on the drawings, as specified.
  - 1. Plants Required: The plant symbols, size and manner in which to be furnished, and the species, scientific and common names are shown on the planting plans. In case of any discrepancy between the plant list and the actual planting plan, the planting plan shall govern. Contractor is responsible for quantity take offs.
- B. Requirements: Plants shall be in accordance with American Standard for Nursery Stock, latest edition and the Arizona Nursery Association Growers Committee Recommended Tree Specifications. Species and variety shall conform to botanical names where given. All plants shall be nursery grown.
  - 1. All plants shall be hardy under climate conditions similar to those in the locality of the project.
  - 2. All plants shall be typical of their species or variety and shall have a normal habit of growth. They shall be sound, healthy and vigorous, well-branched and densely foliated when in leaf. They shall be free of disease and inspect pests, eggs or larvae. They shall have healthy, well-developed root systems.
- C. Substitutions: When plants of a specified kind or size are not available within a reasonable distance, substitutions may be made upon request by the Contractor, if approved by the Owner's Representative.
- D. Container Grown Stock.
  - 1. Shall have been grown in a container long enough for the root system to have developed sufficiently to hold its soil together firm and whole. Root bound plants will not be accepted.
  - 2. Identification: Tag minimum one plant for each variety with botanical name conforming with the name of the American Joint Committee on horticultural nomenclature.

- E. Stakes: Stakes supporting trees shall be minimum 2-inch diameter Lodgepole Pine and capable of standing in the ground at least 2 years.
- F. Wire: Wire for tree bracing and guying shall be pliable 12 gauge galvanized soft steel wire.
- G. Tree Ties: 2-ply fiber bearing garden hose not less than ½-inch inside diameter.
- H. Fertilizer:
  - 1. Slow release tablets, Agriform 20-10-5 slow release, 21-gram tablets or approved equal, for trees and shrubs. It shall be delivered to the site in containers, each fully labeled and bearing the name or trademark and warranty of the producer. Tablets per plant: 1 per 1 gallon, 1 per 5 gallon, 2 per 15 gallon, 3 per 24" box, and 4 per 36" box.
  - 2. Sulfur: Agricultural sulfur, grained or powdered, containing 99.5% sulfur and 0.5% inert ingredients. Disper-sul soluble sulfur or approved equal.
- I. Compost
  - 1. Compost shall consist of composted organic vegetative materials. Prior to being furnished on the project, compost mulch samples shall be tested for the specified microbiological and nutrient conditions, including maturity and stability, by a testing laboratory approved for testing of organic materials. Written test results shall be submitted to the Owner's Representative for approval.
  - 2. Compost material shall be dark brown in color with the parent material composted and no longer visible. The structure shall be a mixture of fine and medium size particles and humus crumbs. The maximum particle size shall be ¾". The odor shall be that of rich humus with no ammonia or anaerobic odors.
  - 3. Compost shall meet the requirements listed in the table below:

<b>COMPOST</b>	
Cation Exchange Capacity (CEC)	Greater than 50 meq/100 g
Carbon:Nitrogen Ratio	Less than 20:1
pH (of extract)	6.0 – 8.5
Organic Matter Content	Greater than 25%
Total Nitrogen (not added)	Greater than 1%
Humic Acid	Greater than 5%
Maturity Index	Greater than 50% on Maturity Index at a 10:1 ratio
Stability	Less than 100 mb O <sub>2</sub> /Kg compost dry solids – hour

- J. Chemical Treatment Material: EPA registered and approved seed pre-emergent herbicide.
- K. Backfill Mix. Except as noted, backfill mix shall consist of 95% site soil, 5% compost (20 parts site soil to 1 part compost) and 5 pounds of agricultural grade sulfur per cubic yard of backfill mix.
- L. Chemical Treatment Material: EPA registered and approved seed pre-emergent herbicide.

## 2.2 INERT MATERIALS

- A. Decomposed Granite: 1/2 inch minus, except where noted otherwise on plans. Depth 2 inches. Color to be Desert Gold or approved alternate.

## PART 3 – EXECUTION

### 3.1 SITE PREPARATION

- A. Finish grade of all planters and decomposed granite areas shall be left 1 inch maximum below all walks and curbs. Finish grade tolerance shall be maximum 0.10 foot above or below grades indicated on drawings. Landscape Contractor shall fine grade all landscape areas and ensure positive drainage away from buildings. Finish grade in all areas shall be a smooth, even, compacted consistent grade prior to placement of decomposed granite. Remove all rocks over 1/2 inch from surface prior to seeding or placement of decomposed granite.
- B. The Contractor shall verify areas to receive landscape work are ready for such work before proceeding. If problems exist which will adversely affect landscape work or completion in a timely manner, notify General Contractor immediately for resolution.

### 3.2 PLANTING OPERATIONS – TREES AND SHRUBS

- A. Planting Season: Exercise extreme care to ensure plants are protected from extremes of weather that could cause damage to the plants.

- B. Obstruction Below Ground: Do not plant any plant with a large obstruction directly below the root ball. In the event that rock or obstructions are encountered in any plant pit excavation, alternate locations shall be selected by the Owner's Representative.
- C. Drainage: In the event that impervious caliche, rock or hardpan is encountered during digging operations in tree pits or shrub pits, it shall be the responsibility of the Landscape Contractor to ensure proper drainage in all pits. Minimum drainage requirements shall be the loss of water at the rate of a 6-inch drop in water level per hour. All caliche, rock or hardpan shall be disposed of off the site. If necessary, drill drainage hole through caliche.
- D. Planting Pits: Plant pits may be square or circular and have vertical sides and flat bottoms. Minimum hole sizes shall be as indicated on the plans.
  - 1. Backfill mix around the rootballs shall be thoroughly compacted and watered.
  - 2. Do not dig holes while they are muddy and do not backfill around plants with mud.
- E. Backfill Mix
  - 1. Except where noted, backfill mix shall consist of 20 parts site soil to 1-part compost and 5 pounds of agricultural grade sulfur per cubic yard of backfill mix.
  - 2. In addition, each plant shall receive at least 1 slow-release fertilizer tablet as shown on project plans.
  - 3. Prior to use of native soil as backfill, remove all concrete or other construction debris.
- F. Setting: Plants shall be set in the center of the pits, plumb and straight, and at such a level that after settlement the crown of the plant will be lower than the surrounding finish grade, with a 1-inch covering of soil over the plant crown to provide basins as shown on the plans.
- G. Watering: Water each plant thoroughly immediately after planting. Fill each basin twice for the initial watering. Water as frequently as required to keep the plant adequately moist until well-established and final acceptance by the Owner.
- H. Herbivore Protection: All shrubs will require protection from herbivores after planting. Shrubs and ground covers require a minimum 16" tall chicken wire cage around each plant secured and staked to the ground with rebar stakes or approved equivalent. Trees require trunk protection (see detail).

### 3.3 PRUNING

- A. Each tree and shrub shall be pruned following the American Association of Nurserymen standards to preserve the natural character of the plant.
- B. All dead wood or suckers and all broken or badly bruised branches shall be removed.

- C. Pruning shall be done with clean, sharp tools.

### 3.4 GUYING AND STAKING

- A. All guying and staking shall be done as indicated on the plans and shall be capable of bracing the plant without repair for minimum of 2 years.
- B. Align stakes parallel to the direction of the prevailing winds.

### 3.5 DECOMPOSED GRANITE MULCH

- A. All areas to receive decomposed granite shall be graded smooth and have any loose or unconsolidated soil compacted before placing decomposed granite.
- B. Areas to be covered with decomposed granite shall be treated with a seed pre-emergent before and after placement of decomposed granite.
- C. Place decomposed granite at a minimum depth of 2 inches.
- D. Decomposed granite shall be raked smooth and level, wetted, and compacted with a roller. Roller requirements are 100 pounds/foot.

### 3.6 MAINTENANCE

- A. Contractor shall provide job maintenance immediately following any planting operation and shall continue until job acceptance by Owner.
- B. Maintain trees, shrubs and other plants by pruning, fertilizing, cultivating and weeding as required for healthy growth. Restore planting saucers. Tighten and repair stakes and guy support; reset trees and shrubs to proper grades or vertical position as required. Spray as required to keep all planting free of insects and disease. Keep entire site in a weed free condition.
- C. After all landscape operations are complete and in conformance with the contract documents, the Owner may grant provisional acceptance. Following provisional acceptance, the Contractor shall provide job maintenance for 90 days consisting of all items covered under maintenance above. Following the 90-day maintenance period, the Owner shall grant final job acceptance after verifying all work and plants are in satisfactory conformance with the contract documents.

### 3.7 INSPECTION AND ACCEPTANCE

- A. The Owner's Representative shall inspect the planting upon written request by the Contractor when all landscaping work is complete. If the project is found to be substantially complete, a list of deficiencies that need correcting will be issued.
- B. The Contractor shall request, in writing, another inspection when all deficiencies have been corrected. Upon determination that all landscaping is completed according to the plans and specifications, provisional acceptance will be granted.

- C. All requests for inspections shall be received at least 5 days before anticipated date of inspection.
- D. Responsibility of Planted Area: Until the project is finally accepted, the Contractor will be required to repair or replace any landscaping that is defective or becomes damaged. When, in the judgment of the Owner's Representative, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specification, then the cost of the necessary repairs or replacements shall be borne by the Contractor.

### 3.8 REPLACEMENT

- A. At the end of the guarantee period, the Owner's Representative will make another inspection to determine the condition of plants. All plants not in a healthy growing condition, as determined by the Owner's Representative, will be noted and as soon as seasonal conditions permit shall be removed from the site and replaced with plants, the same species and sizes as originally specified. Such replacements shall be made in the same manner as specified for the original plantings, and at no extra cost.

### 3.9 CLEANUP

- A. The Contractor shall be responsible for general site clean-up associated with his work including removal of debris and all trimmings.

END OF SECTION