SECTION 02950

LANDSCAPING

1. General

A. Description

This Section includes provision for tree and shrub planting at locations indicated and approved by the City in accordance with the Contract Documents.

B. Submittals

Submit certificates of compliance before delivery of materials for all materials specified under this Section.

Submit samples of all materials except plants specified under this Section.

Topsoil sample testing shall be performed by a commercial or government agency approved by the City.

C. Reference Documents

Plant measurement size and structure shall be in accordance with the "American Standard for Nursery Stock", latest edition, as published by the American Association of Nurserymen.

"Standardized Plant Names" (1942) by American Joint Committee on Horticulture Nomenclature, shall be the authority for all plant names.

D. Inspection and Acceptance of Plant Materials

Plants shall be subject to inspection and approval at the place of growth or upon delivery for conformity to specification requirements as to quality, size and variety. Such approval shall not impair the right of inspection upon delivery at the site or 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.

All plants shall be labeled as to genus, species and size and shall bear an inspection certificate from the Board or Department of Agriculture, or other State agency, of the State within which the nursery, where the plants were grown, is located.

E. Plant Replacements

Replace dead, weak, diseased, improperly sized and improperly marked plants not true to name.

All replacements shall be plants of the same type and size as specified in the bid schedule or on the plans and shall carry the same guarantee as the original stock.

If plant rejection occurs, the plants shall be replaced at once. When making plant replacements, replace planting mulch to its original specified depth and follow all procedures outlined in Planting Procedures.

Contractor shall be responsible for watering and care of landscape materials for a period of one year after installation.

2. Materials

A. Topsoil

Topsoil shall conform to requirements of Special Purpose Topsoil as specified in Section 02800. Do not deliver topsoil in frozen or muddy condition.

B. Fertilizers and Additives

Fertilizer for trees and shrubs shall be an organic form such as cotton seed meal or bone meal, or inorganic such as Super Phosphate. Do not use inorganic nitrite or nitrate fertilizers for starter solution in tree or shrub pits.

Super Phosphate shall be composed of finely ground phosphate rock as commonly used for agricultural purposes, containing not less than 18 percent available phosphoric acid.

Bone Meal shall be commercial raw bone meal finely ground and shall have a minimum analysis in one percent nitrogen and 18 percent phosphoric acid.

Peat Moss shall be a Phagnum peat moss and shall be free from woody substances.

Manure shall be dehydrated, well rooted cow manure.

Anti-Desiccant shall be "Wilt-Pruf" or equal, delivered in manufacturer's containers and used according to the manufacturer's instructions.

C. Soil Mixes

Soil mixes shall be composed of the following materials well-mixed in the specified proportions.

Soil mix for all plants except ericaceous material shall consist of 200 pounds of manure and 36 cubic feet of peat moss to 12 cubic yards of topsoil.

Soil mix for ericaceous plants shall consist of 50 cubic feet of peat moss to 12 cubic yards of topsoil – to which no lime has been added.

D. Planting Stakes and Accoutrements.

Vertical Stakes shall be rough sawn, straight grain oak, reasonably free from knot holes, bar, wane, warp, and splits. Stakes for trees over ten feet shall be 2 inch x 2 inch x 10 feet. Stakes for smaller trees shall be 2 inch x 2 inch x 8 feet.

Guying Stakes shall be of wood of uniform size, free of knot holes and measure 1-3/4 inch x 1-3/4 inch x 30 inches.

Guying Wire shall be pliable Number 12 or 14 gauge galvanized.

Tree Ties shall be 5/8 inch or 3/4 inch reinforced corded garden hose.

E. Mulch

All mulch shall be free of toxic substances or foreign materials that may harm plant life. Mulch for tree and shrub planting and mulch bed construction shall be ground bark, shredded bark or stone chips as indicated.

Ground bark shall be 100 percent true hardwood bark with organic content of not less than 90 percent, with a white wood content not to exceed eight percent and shall be of good uniform brown color. Not more than 50 percent shall be capable of passing through a 3/4 inch sieve.

Shredded bark shall be 100 percent true hardwood bark peelings with organic content of not less than 90 percent. It shall be fibrous material of a good uniform brown color and of which not more than 25 percent shall be able to pass through a 3/4 inch sieve.

F. Water

All water used for planting and maintenance shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life.

G. Herbicide

All herbicides used in mulch beds that will not contain plantings shall be of a non-selective, residual type classified as a pre-plant or a pre-plant/pre-emergence herbicide.

H. Plant Materials

All plants shall be nursery grown unless specifically authorized to be collected. All plants shall be hardy under climatic conditions similar to those in the locality of the project. 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 diseases and insect pests, eggs, or larvae. They shall have healthy, well-developed root systems, materials that are weak or which have been cut back from larger grades to meet specifications will be rejected.

All trees shall conform to the Recommended Tree List of the City of Frederick at the end of this section.

All plants shall conform to the measurements specified in the Bid Schedule or on the Plans; with the following exceptions: Plants larger than specified may be used if approved by the City, at no additional cost to the City. If the use of larger plants is approved, the spread of roots or ball of earth shall be increased in proportion to the size of the plant.

Digging and Handling:

- 1. Bare root shrubs shall be dug with adequate fibrous roots retained and shall be delivered to the site of the project prior to the plant material coming into leaf. Pack roots of these plants in moist straw or peat moss immediately after digging.
- 2. Balled and burlapped plants shall be dug with firm natural balls of earth, of sufficient diameter and depth to include most of the fibrous roots.
- 3. Container grown stock shall have been grown in a container long enough for the root system to have developed sufficiently to hold its soil together firmly. No plants shall be loose in the container.

Handling and Protection of Delivered Plants

- 1. Roots or balls of all plants shall be adequately protected at all times from sun and from drying winds or frost.
- 2. All balled and burlapped plants which cannot be planted immediately upon delivery shall be set on the ground and shall be well protected with soil, wet straw, peat moss or other acceptable material. Bare root plants which cannot be planted immediately shall be temporarily planted or heeled-in in trenches upon delivery.
- 3. Bundles of plants shall be opened and the plants separated before the roots are covered. Care shall be taken to prevent voids among the roots. During planting operations, bare roots shall be covered with canvas, straw or other suitable material. No plant shall be bound with wire or rope at any time so as to damage the bark or break the branches.

I. Low Maintenance Groundcover - Crown Vetch

Seed mix shall be improved turf type tall fescue as listed in the current MDVA Turfgrass Council (University of Maryland). Recommended turfgrass cultivars for sod and seed mixes at 40 lbs. per acre.

Inoculate seed with fresh inoculant as directed on the package. Ensure that crown vetch inoculant contains a sticker supplement.

Maintain temperature of between 50 degrees and 75 degrees during inoculation.

When hydroseeding, use five times inoculant rate.

Other materials including lime, fertilizer, and mulch shall be as specified in Section 02800.

3. Execution

A. Seasons for Planting

Trees and shrubs shall be planted between October 1 and May 15 only. No plants shall be planted during periods of freezing temperatures. Preparations for planting may begin earlier than the specified season, provided locations have been approved by the City.

Ground covers – low maintenance (shall be designated).

B. Planting Procedures

Excavation for tree and shrub pits

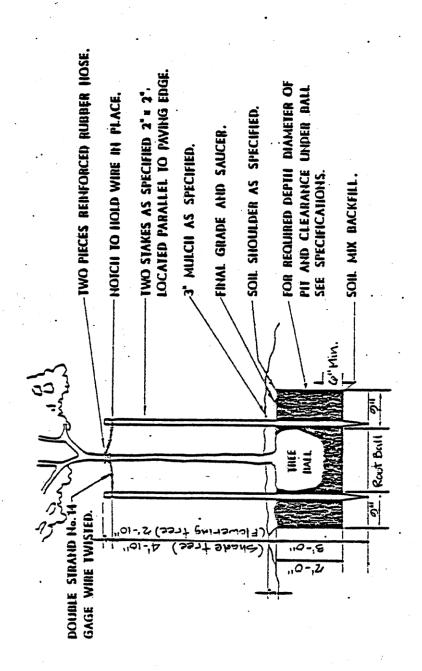
- 1. Notify the City prior to beginning plantings operations.
- 2. Provide stakes and stake out the location of all plant pits as shown on the plans and as approved by the City. Do not change locations without the approval of the City.
- 3. Plant all plants in individual pits excavated with vertical sides and horizontal bottom.
- 4. Excavate tree pits two feet greater in diameter than the ball of earth or spread of roots of the tree and sufficiently to allow for a six inch thick layer of the soil mix beneath the ball or roots.
- 5. Plant shrubs in pits 12 inches greater than the spread of the roots and eighteen inches deep below the finished grade, or as necessary to property set the plant at finished grade.
- 6. Allow a tolerance of one inch for the above dimensions.
- 7. If pits are excavated well in advance of planting, backfill to grade with the specified soil mix, mark locations and record on the plans.

Planting of Tress and Shrubs

- 1. Remove all seals and tags only after inspection and acceptance of plants by the City.
- 2. Set plants in center of pits, plumb and straight, and at such a level that after settlement the crown of the plant will be at the surrounding finished grade.

- 3. After setting balled and burlapped plants, compact soil mix around bases of balls, to fill all voids, up to one-half the depth of the balls, tamp and thoroughly water. Loosen burlap around the top half of the balls and spread out away from the ball. If too bulky, cut burlap away and remove. Remove all balling and tying materials or containers, other than burlap and jute twine, from the pit completely without damage to the soil ball. Cover all burlap and twine with at least two inches of soil mix then fill the remainder of the pit with soil mix, tamp and again water, all within the same day of planting.
- 4. When container grown plants are planted, remove the plant from the container, so as not to damage the root ball and plant as outlined for balled and burlapped plants.
- 5. When bare root plants are set, spread the roots of the plant carefully in their natural positions and work soil mix around the roots, thoroughly tamp into place and water, all within the same day of planting.
- 6. Watering shall mean full and through saturation of all backfill in the pits the day the plants are planted. Apply water by container or open end hose under low pressure only.
- 7. When planted, watered, and fully settled, the plants shall be vertical and the stand shall be flush with stand in the nursery.
- 8. Form a three inch high soil shoulder around the outside of the pit at finished grade, to contain water.
- **9.** Mulch all completed plant pits with the specified mulching materials. Spread mulch evenly to a maximum thickness of three inches over the entire area of the pit and for shrubs in beds, the entire area of the shrub bed. Apply mulch within four days after planting.
- 10. Prune each tree and shrub in accordance with the American Association of Nurserymen standards to preserve the natural appearance and character of the plant. Do not cut leaders of shade trees. Remove all dead wood, broken or badly bruised branches, or suckers using only clean, sharp pruning tools.

Stake all designated trees within 24 hours of the day the trees are planted in accordance with the attached detail. Stakes shall be neat and secure and shall evenly support the trees to true vertical line. In driving stakes, avoid damage to branches. Drive stakes just outside the ball or root-spread and into solid earth below the pit bottom. Cover guying wires with specified hose material, where in contact with the trunk and branches, and wrap two full turns around the stakes.



Clean Up After Planting:

- 1. Perform clean up as specified in Section GP-4.08 of these Specifications.
- 2. Remove waste materials continuously and promptly.
- 3. Regrade existing turf areas which the City determines have been damaged and seed or sod when so directed, at no cost to the City.

Low Maintenance Groundcover - Crown Vetch:

- 1. Lime soil to produce pH between 6.5 and 7.0, using ground limestone.
- 2. Fertilize soil with 500 pounds of 0-20-20 and 400 pounds of 38-0-0 ureaform per acre.
- 3. Mulch with straw.
- 4. When hydroseeding, proceed, in the following sequence:

Apply lime and fertilizer.

Apply seed mixture with inoculant.

Apply straw mulch and anchor.

C. Inspections

Initial Inspection and Provisional Acceptance

- 1. The City will inspect all or part of the completed planting work for Provisional Acceptance, upon written request from the Contractor. The request shall be presented to the City at least ten days prior to the anticipated date of inspection. All or part of the total landscaping project may be provisionally accepted.
- 2. Upon completion of all repairs or replacements considered by the City, a written notification will be sent to the Contractor notifying him of Provisional Acceptance.

Final Inspection and Acceptance:

- 1. Within ten days of the end of the guarantee period described hereinbefore the City will inspect planting material, upon written notice requesting such inspection, submitted by the Contractor at least ten days before the anticipated date of inspection.
- 2. Upon completion of inspection and concurrence by the City that all materials meet the requirements of the Contract Documents, the City will furnish the Contractor a written notification of Final Acceptance of Landscaping.

D. Maintenance

Maintenance of planting material shall commence immediately after each plant is planted and shall continue until Final Acceptance. During such time the Contractor shall perform all work necessary to establish and maintain the plants in a live, healthy condition. Maintenance shall include the following:

Watering at the end of each 14 day period, if less than one inch of precipitation shall have been recorded by the National Weather Service in the Metropolitan Area for that period. Each tree pit shall receive at least five gallons of water and each shrub pit shall receive at least two gallons.

Cleaning plant pits of all weeds and grasses. Remove weeds when they have attained a height of four inches. The use of herbicides to control weeds and grasses will be acceptable only if all Maryland Departments of Agriculture regulations are followed.

Pruning of dead material or removal of suckering growth.

Resetting settled plants to proper grade.

Reshaping and remulching of washed out planting pit saucers.

Tightening and repairing of guying and staking apparatuses.

Fertilizing of chlorotic or nutrient deficient plants.

Replacing of dead, weak, or diseased plants.

4. Measurement and Payment

A. Trees and Shrubs

Trees and shrubs shall be measured for payment by each of the various types and sizes actually planted and accepted by the City.

Payment will be made for the quantities measured at the unit prices per each listed in the Bids Schedule.

Payment will include preparatory and maintenance work and all necessary appurtenant materials and equipment.

RECOMMENDED TREE LIST

For	approved	tree	planting	list,	see	City	Standard	Details	L-1,	L-1a,	L-1b,	and	Lc