

SECTION 02900

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SECTION 02900

LANDSCAPING, SEEDING, AND SODDING

PART 1 - GENERAL

1.01 QUALITY OF WORK AND MATERIALS

The Contractor shall furnish all materials and perform all work in accordance with these specifications, drawings, and instructions provided by the Landscape Architect or Owner's representative hereafter also referred to as Landscape Architect. The work shall include elements shown on the drawings and required by the specifications and everything which in the judgment of the Landscape Architect is incidental to what is shown on the drawings or required by the specifications. All work completed and materials furnished and installed shall be of the best quality and shall be in strict accordance with the intention of the drawings, specifications and samples. The Contractor shall cooperate with the Landscape Architect so that no error or discrepancy in the drawings or specifications shall cause defective or inappropriate materials to be used or poor workmanship to be allowed and so that the work may proceed in the most efficient and effective manner.

1.02 WEATHER CONDITIONS

Work must be carried out only during weather conditions favorable to landscape construction and to the health and welfare of plants. The suitability of such weather conditions shall be determined by the Landscape Architect.

1.03 PROTECTION

- A. A tree and vegetation preservation shall follow the current recommendations of Arboricultural from Richard Harris and current ANSI standards.
- B. Before commencing work, all trees and shrubs which are to be saved must be protected from damage by the placement of fencing flagged for visibility or some other suitable protective procedure approved by the Owner. No work may begin until this requirement is fulfilled.
- C. In order to avoid damage to roots, bark or lower branches, no truck or other equipment shall be driven or parked within the drip line of any trees, unless the tree over spreads a paved way.
- D. The Contractor shall use any and all precautionary measures when performing work around trees, walks, pavements, utilities, and any other features either existing or previously installed under this contract.
- E. The Contractor shall adjust depth of earthwork and loaming when working immediately adjacent to any of the aforementioned features in order to prevent disturbing tree roots, undermining walks and pavements, and damage in general to any existing or newly incorporated item.
- F. Plants transported to the project in open vehicles shall be covered with tarpaulins or other suitable covers securely fastened to the body of the vehicle to prevent injury to the plants. Closed vehicles shall be adequately ventilated to prevent overheating of the plants. Evidence of inadequate protection following digging, carelessness while in transit, or improper handling or storage shall be cause for rejection. All plants shall be kept moist, fresh, and protected. Such protection shall encompass the entire period during which the plants are in transit, being handled, or are in temporary storage.
- G. Where excavating, fill, or grading is required within the branch spread of trees that are to remain, the work shall be performed as follows:
 - 1. TRENCHING: When trenching occurs around trees to remain, the tree roots shall not be cut but the trench shall be tunneled under or around the roots by careful hand digging and without

injury to the roots. No roots, limbs, or woods are to have any paint or material applied to any surface.

2. **RAISING GRADES:** When the existing grade at tree is below the new finished grade, and fill not exceeding 16 inches (16") is required, clean, washed gravel graded from one to two inches (1" - 2") in size shall be placed directly around the tree trunk. The gravel shall extend out from trunk on all sides a minimum of 18 inches (18") and finish approximately two inches (2") above the finish grade at tree. Install gravel before any earth fill is placed. New earth fill shall not be left in contact with the trunks of any trees requiring fill. Where fill exceeding 16 inches (16") is required, a dry laid tree well shall be constructed around the trunk of the tree. The tree well shall extend out from the trunk on all sides a minimum of three feet (3') and to three inches (3") above finish grade. Coarse grade rock shall be placed directly around the tree well extending out to the drip line of the tree. Clean, washed gravel graded from one to two inches (1" - 2") in size shall be placed directly over the coarse rock to a depth of three inches (3"). Approved backfill material shall be placed directly over the washed gravel to desired finished grade.
3. **LOWERING GRADES:** Existing trees in areas where the new finished grade is to be lowered shall have regrading work done by hand to elevation as indicated. Roots as required shall be cut cleanly three inches (3") below finished grade under the direction of a licensed arborist. The Tree Warden may request specific inspections at the preconstruction conference.
4. Trees marked for preservation that are located more than six inches (6") above proposed grades shall stand on broad rounded mounds and be graded smoothly into the lower level. Trees located more than 16 inches (16") above proposed grades shall have a dry laid stone wall, or other retaining structure as detailed on the plans, constructed a minimum of five feet (5') from the trunk. Exposed or broken roots shall be cut clean and covered with topsoil.

1.04 SAMPLES

- A. It is the responsibility of the Contractor, before ordering or purchasing materials, to provide samples of those materials to the Engineer for approval, if so requested.
- B. The Contractor is to submit certification tags from trees, shrubs and seed verifying type and purity.

1.05 QUALITY OF PLANTS

- A. Plant shall in all cases conform with requirements of the American Standard for Nursery Stock latest versions of rules and grading adopted by the American Association of Nurserymen, Inc., but upgraded to meet the following additional requirements.
- B. Unless specifically noted otherwise, all plants shall be of selected specimen quality, exceptionally heavy, symmetrical, tightly knit, so trained or favored in their development and appearance as to be superior in form, number of branches, compactness and symmetry. All plants shall have a normal habit or sound, healthy, vigorous plants with well developed root system.
- C. Plants shall be free of disease, insect pests, eggs or larvae.
- D. Plants shall not be pruned before delivery.
- E. Trees with abrasion of the bark, sunscalds, disfiguring knots or fresh cuts of limbs over one and one-fourth inches (1-1/4") which have not completely calloused shall be rejected.
- F. All plants shall be typical of their species or variety and shall have a normal habit of growth and be legibly tagged with the proper name. All plants shall have been grown under climatic conditions similar to those in the locality of the site of the project under construction or have been acclimated to such condition for at least two (2) years.

- G. The root system of each shall be well provided with fibrous roots. All parts shall be sound, healthy, vigorous, well-branched and densely foliated when in leaf.
- H. All plants designated ball and burlap (B&B) must be moved with the root system as solid units with balls of earth firmly wrapped with burlap. The diameter and depth of the balls of earth must be sufficient to encompass the fibrous root feeding systems necessary for the healthy development of the plant. No plant shall be accepted when the ball of earth surrounding its roots has been badly cracked or broken preparatory to or during the process of planting. The balls shall remain intact during all operations. All plants that cannot be planted at once must be heeled-in by setting in the ground and covering the balls with soil or mulch and then watering. Hemp burlap and twine is preferable to treated. If treated burlap is used, all twine is to be cut from around the trunk and all burlap is to be removed.
- I. The trunk of each tree shall be a single trunk growing from a single unmutilated crown of roots. No part of the trunk shall be conspicuously crooked as compared with normal trees of the same variety.
- J. The thickness of each shrub shall correspond to the trade classification "No. 1". Single stemmed or thin plants shall not be accepted. The side branches must be generous, well-twigged, and the plant as a whole well-branched to the ground. The plants must be in moist condition, free from dead wood, bruises or other root or branch injuries.

1.06 MEASUREMENT

- A. Plants shall be measured when branches are in their normal position.
- B. Shrubs shall meet the requirements for spread, height or container size stated in the Plant List. The measurements are to be taken from the ground level to the average height of the shrub and not to the longest branch. Height and spread dimensions specified refer to the main body of the trees (measured from the crown of the roots to the tip of the top branch) shall be not less than the minimum size designated.
- C. Caliper measurements shall be taken at a point on the trunk six inches (6") above natural ground lines for trees up to four inches (4") in caliper, and at a point 12 inches (12") above the natural ground line for trees exceeding four inches (4") in caliper.
- D. If a range of size is given, no plant shall be less than the minimum size, and not less than 50% of the plants shall be as large as the upper half of the range specified.
- E. The measurements specified are the minimum size acceptable and, where pruning is required, are the measurements after pruning.

1.07 NOTIFICATION OF DELIVERY

Unless otherwise authorized by the Engineer, the Contractor shall notify the Engineer and the City of Saco Department of Parks and Recreation at least 48 hours in advance of the anticipated delivery date of any plant materials. A legible copy of the invoice, showing kinds and sizes of materials included for each shipment shall be furnished to the Engineer and the City of Saco Department of Parks and Recreation.

1.08 GUARANTEE

- A. The condition of all new plant materials is the responsibility of the Contractor and shall be approved by the City Arborist or his designee.
- B. Until final approval, any replacement of plant materials that may be necessary shall be at the expense of the Contractor.

- C. In addition to other standard provisions, the Contractor's bid amount shall also provide for the following:
1. Maintenance necessary during Establishment Period.
 2. Replacement in kind, or with a substitute acceptable to the Landscape Architect and the City Tree Warden or his designee, of all plant materials not in a healthy growing condition or that has died back to the crown or beyond normal pruning limits.
 3. The Contractor shall also be responsible for any damages caused by his operations and shall dispose of all rubbish and excess soil as directed.

1.09 RIGHT OF REJECTION

The City Arborist or designee reserves the right to inspect and reject plants at any time and at any place.

1.10 MAINTENANCE OPERATIONS BEFORE APPROVAL

- A. Plant care shall begin immediately after each plant is satisfactorily installed and shall continue throughout the life of the contract until final acceptance of the project.
- B. Care shall include, but not be limited to, replacing mulch that has been displaced by erosion or other means, repairing and reshaping water rings or saucers, maintaining stakes and guys as originally installed, watering when needed or directed, and performing any other work required to keep the plants in a healthy condition.
- C. Contractor shall remove and replace all dead, defective and/or rejected plants as required before final acceptance.
- D. Grassed areas damaged during the process of the work shall be the responsibility of the Contractor, who shall restore the disturbed areas to a condition satisfactory to the Engineer. This may include filling to grade, fertilizing, seeding, and mulching.

1.11 FINAL APPROVAL

The City Arborist or designee shall have the final approval for acceptance of the landscaping.

1.12 RELATED REQUIREMENTS

- A. Spec. Section 02222 - Excavation, Backfilling, and Compacting for Utilities **check x-refs**
- B. Spec. Section 02660 - Water Distribution Systems. **Check x-refs**
- C. Construction Drawings.
- D. An Erosion Control Program has been prepared for this project which is appended to specifications Section 02270. Strict adherence to the provisions of the Erosion Control Program as well as the requirements of this section will be required.

PART 2 - MATERIALS

2.01 SEED

- A. Seed mixture shall be fresh, clean, new crop seed. Seed may be mixed by an approved method on the site or may be mixed by the dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers bearing the dealer's guaranteed analysis. If seed is mixed by the dealer, the Seeding Contractor shall furnish to the Owner the dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.

- B. Seed shall be purchased from a recognized distributor and shall be composed of the following varieties mixed in the proportions indicated. Seed shall test to minimum percentages of 95% for purity and 85% for germination.
- C. Permanent Seed Mix: (Non-Wetland Areas) (Athletic Field Areas) (***SPECIFICATION WRITER TO VERIFY***)

The permanent feed mixture for non-wetland areas shall be spread at a rate of 2.3 pounds per 1,000 square feet in each direction 4.6 pounds per 1,000 s.f. total) consisting of the following seed mixture:

- 40% SR 3000 Fineleaf Fescue
- 30% A-34 Kentucky Bluegrass
- 20% Pennant Perennial Ryegrass
- 10% GARAN Kentucky Bluegrass

- D. Permanent Seed Mix (Non-Wetland Areas): All lawn areas except Athletic Fields

- 50% Baron Blue Grass
- 35% Penn Lawn Fescue
- 15% Perennial Rye

- E. Rate of seeding shall be the same as required for athletic field areas. Permanent Seed Mix (Conservation Mix Areas)

- 40% Creeping Red Fescue
- 40% Crownvetch or Flat Pea
- 10% Perennial Rye
- 10% Annual Rye

Rate of seed shall be 2.0 lb./1,000 square feet in each direction (4.0 pounds per 1,000 square feet total).

- F. Temporary Seed Mix (Non-Wetland Areas)

The temporary seed mixture for non-wetland areas shall be spread at a rate of 2.6 pounds per 1000 square feet in each direction (5.2 pounds per 1,000 square feet total) of Winter Rye if spread in the fall or 1.8 pounds per 1000 square feet in each direction (3.6 pounds per 1,000 square feet total) of Oats if spread in the spring.

- G. Seed Mix for Wetland Areas

The seeding mixture for restoration of disturbed or created wetlands shall be spread at a rate of 3.0 pounds per 1000 square feet in each direction (6.0 pounds per 1,000 square feet total) consisting of the following seed mixture.

- 15% Annual Rye
- 15% Red Top
- 15% Wool Grass
- 15% Blue Joint Grass
- 40% Red Canary Grass

- H. Seed mix for non mowed areas (specification written to provide based on soil type).

2.02 TOPSOIL

- A. General: Topsoil has been (or will be) stockpiled for re-use in landscape work. If quantity of stockpiles topsoil is insufficient, provide additional topsoil as required to complete landscape work.
- B. Topsoil Material: Fertile, friable, natural topsoil of loaming character, without admixture of subsoil material obtained from a well-chained arable site, free from all clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign material greater than 1" in every dimension, with acidity

range of between pH 5.0 and 7.0 and shall not contain less than 6% organic matter by weight as determined by loss on ignition of moisture-free samples as dried at 65 degrees Celsius.

1. Use only topsoil, whether stockpiled on site or imported, which is representative of topsoil test report.
2. Obtain topsoil only from local sources or from areas having similar soil characteristics to that found at the project site. Obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth of not less than 4 inches; do not obtain from bogs or marshes.
3. Use only material from sources identified to and approved by Architect and listed on the topsoil soils test report.

The on-site soils have been sampled and tested. If in-situ materials are used, add fertilizer and lime to meet the nutrient requirements specified in the appended test results.

2.03 COMPOSTED SOIL ADMIXTURE

Organic composted soil admixture shall be permitted as an additive if it meets all Maine Department of Environmental Protection guidelines under Chapter 567, Section C and must be approved for commercial landscaping. Compost shall be weed seed free and consist of approximately equal portions of municipal bio-solids, short paper fiber, wood ash, and sawdust and be the product of 15 days of thermophillic aerobic decomposition followed by 90 days of curing. Compost will be adequately stabilized, pathogen free with acceptable odor. The material shall pass through a 3/8" mesh screen, be friable and free of stones, sticks, and all objectionable debris. Compost source is subject to the review of the Engineer.

Typical Product Parameters:

TKN Nitrogen	2.0%
Organic-N	1.44%
Carbon/Nitrogen Ratio	20 to 1
Total Phosphorous	2.20%
Total Potassium	.34%
Organic Matter	79%
Conductivity	6.2 mmhos/cm
pH	7.0
Screen Size	< 3/8" available
Density	+/- 800-1200 lbs/cy

Admixture shall be Earth Life Compost from BFI Organics, Falmouth, Maine.

2.04 LOAM ADDITIVES

- A. Commercial Fertilizer: Shall be a complete fertilizer and shall be a standard product complying with the State and United States fertilizer laws. Fertilizer shall be delivered to the site in the original unopened containers which shall bear the manufacturer's name and guaranteed statement of analysis. At least 40 percent by weight of the nitrogen content of the fertilizer shall be derived from organic materials.
- B. Superphosphate: Shall be finely ground phosphate rock as commonly used for agricultural purposes and shall contain not less than 18 percent available phosphoric acid.
- C. Ground Limestone: Shall be dolomitic limestone and contain not less than 85 percent of total carbonates and magnesium and shall be ground to such fineness that 50 percent will pass a 100 mesh sieve and 90 percent will pass through a 20 mesh sieve. Coarser material will be accepted provided the specified rates of application are increased proportionately on the basis of quantities passing the 100 mesh sieve.
- D. Water: shall be furnished by the Contractor and shall be suitable for irrigation and free from ingredients harmful to plant life. Hose and all other watering equipment required for the work shall be furnished by the Contractor.

2.05 MULCH

- A. Asphalt Spray Mulch: Shall be an emulsified asphalt, Type HFMS-1.
- B. Hay Mulch: Shall conform to the MDOT mulching standards Section 619.
- C. Cellulose Fiber Mulch: Shall conform to the MDOT mulching standards Section 619.

2.06 SOD

- A. Sod shall be a species recommended by an experienced local A.N.A. – Certified nursery. Sod to be strongly rooted, weed-disease and pest free and uniform in thickness.
- B. All slopes greater than 3:1 shall be pegged to hold sod in place.

2.07 EROSION CONTROL BLANKET/FABRIC NETTING

- A. Contractor shall provide and install where indicated on civil drawings "Curlex" blankets: by American Excelsior Company; or approved equal.
- B. The area to be covered shall be prepared, fertilized, and seeded before blanket is applied. When blanket is unrolled, the netting shall be on top and the fibers in contact with the soil over the entire area. In ditches the blanket shall be applied in the direction of the flow of water, butted snugly at ends and side and stapled. On slopes, the blankets shall be applied either horizontally or vertically to the slope. Ends and sides shall be butted snugly and stapled. Staple to manufacturer's recommendations.

2.08 FERTILIZER

- A. Fertilizer shall be delivered to the site, mixed as specified, in the original unopened standard size bags showing weight, analysis and name of manufacturer. Containers shall bear the manufacturer's guaranteed statement of analysis or a manufacturer's certificate of compliance covering analysis shall be furnished to the Landscape Architect. Store fertilizer in a weatherproof place and in such a manner that it shall be kept dry and its effectiveness shall not be impaired.
- B. Percentages of nitrogen, phosphorus and potash shall be based on laboratory test recommendations as approved by the Landscape Architect. For the purpose of bidding, use the mix specified in the erosion control plan. At least 50% of the total nitrogen shall contain no less than 3% water-insoluble nitrogen. At least 60% of the nitrogen content shall be derived from super-phosphate containing not less than 18% phosphoric acid or bone meal containing 25% - 30% phosphoric acid and 2% - 3% nitrogen. Potash shall be derived from muriate of potash containing 55% - 60% potash.

2.09 PEAT MOSS

Peat moss shall be Michigan peat moss or approved equal in color and consistency, to be used for planting soil mixture only.

Peat moss shall be a moss peat, finely shredded to pass a one-half inch ($\frac{1}{2}$) mesh and shall be no less than 90% organic material by weight, with an ash content by ignition of no more than 10%.

Material shall contain no less than 35% and no more than 66% moisture by weight, but shall have a water-holding capacity of 150% - 200%.

Material shall have a pH value between 4 and 5.

Material may be imported (supplied in bales) or domestic (furnished in bulk). If furnished in bulk, the material and its source must be acceptable to the Landscape Architect.

Peat moss shall not be used as mulch, except on ground cover.

2.10 SHREDDED HARDWOOD BARK MULCH

Shredded hardwood bark mulch or approved equal shall be used as a four inch (4") top dressing in all plant beds and around all trees planted by landscape contractor. Single trees or shrubs shall be mulched to the outside edge of the saucer. Mulch shall be of sufficient character as not to be easily displaced by wind or water runoff.

2.11 STAKING MATERIAL

- A. Stakes shall be 2" x 3" x 8' oak or hemlock wood. Three (3) stakes per tree.
- B. Wire tree staking shall be pliable No. 12 galvanized soft steel wire.
- C. Hose shall be two-ply fibre-bearing rubber garden hose, not less than one-half inch ($\frac{1}{2}$) inside diameter, black or green, and of suitable length.
- D. Staking shall be removed upon cap (***SPECIFICATION WRITER TO VERIFY***).

2.12 WATER

On-site water shall be furnished by the Contractor. Hose and other watering equipment shall be furnished by the Contractor.

2.13 SOD

- A. Sod shall be a species recommended by an experienced local A.N.A.-certified nursery. Sod to be strongly rooted, weed-disease and pest free and uniform in thickness.
- B. All slopes greater than 3:1 shall be pegged to hold sod in place.

2.14 EROSION CONTROL BLANKET/FABRIC NETTING

- A. Contractor shall provide and install where indicated on civil drawings "Curlex" blankets: by American Excelsior Company; "Polyjute" Style 465 GT: by Synthetic Industries or approved equal.
- B. The area to be covered shall be prepared, fertilized, and seeded before blanket is applied. When blanket is unrolled, the netting shall be on top and the fibers in contact with the soil over the entire area. In ditches the blanket shall be applied in the direction of the flow of water, butted snugly at ends and side and stapled. On slopes, the blankets shall be applied either horizontally or vertically to the slope. Ends and sides shall be butted snugly and stapled. Staple to manufacturer's recommendations.

PART 3 - PLANTING PROCEDURES

3.01 PLANTING COORDINATION

- A. The Contractor shall inform the Landscape Architect and the City Arborist of the date when the planting shall commence and of the anticipated delivery date of the material.
- B. Failure to notify the Landscape Architect in advance of order to arrange proper scheduling may result in loss of time or rejection of a plant or plants not installed as specified or directed.

3.02 DIGGING AND HANDLING

- A. Bare rooted shrubs shall be dug with adequate fibrous roots. Roots of these plants shall be covered with a uniformly thick coating of mud by being puddled immediately after they are dug, or packed in moist straw, or moss.
- B. Balled and burlapped plants shall be dug with firm natural balls of earth of sufficient diameter to include most of the fibrous roots.
- C. Roots or balls of all plants shall be adequately protected at all times from the sun and from drying out.
- D. 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 moss or other acceptable material. Bare rooted plants which cannot be planted immediately shall be heeled-in upon delivery. All shall be kept moist.
- E. Bundles of plant shall be opened and the plants separated before the roots are covered. Care shall be taken to prevent air pockets among the roots. During planting operations, bare roots shall be covered with canvas, hay 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.

3.03 TREES AND SHRUB PLANTING OPERATIONS

- A. Planting operations shall be performed at a steady rate of work unless weather conditions make it impossible to work. No plant material shall be planted in frozen ground.
- B. The Contractor shall provide sufficient tools and equipment required to carry out the planting operations.
- C. All plants too large for two men to lift in and out of holes shall be placed with a sling. Do not rock trees in holes to raise.
- D. For soil mix for plant holes, see Materials - 2.01 Loam and Topsoil.
- E. If rock or other underground obstruction is encountered, the Landscape Architect may require plant pits to be relocated, the pits enlarged or the plants deleted from the contract.

- F. Locations containing unsuitable subsoil shall be treated in one of the following manners:
1. Where unsuitability within the construction site is deemed by the Landscape Architect to be due to excessive compaction caused by heavy equipment or by the presence of boards, mortar, concrete or other construction materials in sub-grade, and where the natural subsoil is other than A.A.S.H.T.O. classification of A6 or 7, the Contractor shall loosen such areas with spikes, dicing, or other means to loosen the soil to a condition acceptable by the Landscape Architect. The Contractor shall also remove all debris and objectionable material. Soil should be loosened to a minimal depth of 12 inches (12") with additional loosening as required to obtain adequate drainage. Contractor may introduce peat moss, sand, or organic matter into the subsoil to obtain adequate drainage should he so desire. All such remedial measures shall be considered as incidental to the work and no extra payment shall be made for this part of the work.
 2. Where sub-grade is deemed by the Landscape Architect to be unsuitable because the natural subsoil falls into an A.A.S.H.T.O. classification of A6 or 7 and contains moisture in excess of 30%, then such a condition shall be rendered suitable by installation of a sub-drainage system or by other means described elsewhere in these specifications. Where such conditions have not been known or revealed prior to planting time and where they have not been recognized in the preparation of plans and specifications, then the Landscape Architect shall issue a change order to install the proper remedial measures, all of which shall be in addition to the contract sum.
- G. Adjustments in locations and outlines shall be made as directed. In the event that pits or areas for planting are prepared and backfilled with topsoil to grade prior to commencement of lawn operations, they shall be so marked that when the work of planting proceeds, they can be readily located. In case underground obstructions such as ledges or utilities are encountered, location shall be changed under the direction of the Landscape Architect without charge.
- H. Holes for trees shall be at least two feet (2') greater in diameter than the spread of the root system and be no deeper than the root ball. Holes for shrubs and vines shall be at least 12 inches (12") greater in diameter than the spread of the root system and at least two feet (2') deep.
- I. To the topsoil in the backfilling of tree holes and shrub beds, there shall be added as the progress of the work permits, manure as herein specified, ground limestone if soil tests indicate it is needed, and commercial fertilizer at the rate of three (3) pounds for trees up to three inches (3") in caliper, one (1) pound per one inch (1") in caliper for larger trees, six (6) ounces for small shrubs and eight (8) ounces for each shrub four feet (4') or over. Ground limestone and manure shall be omitted in the case of acid soil plants. The manure, limestone and fertilizer shall be thoroughly mixed with the topsoil in the planting operation, care being taken that the manure does not come in immediate contact with the roots.
- J. The plants shall be planted in the center of the holes and at the same depth as they previously grew. Loam shall be backfilled in layers of not more than eight inches (8") and each layer watered sufficiently to settle before the next layer is put in place. Loam shall be tamped under edges of balled plants. Enough topsoil shall be used to bring the surfaces to finish grade when settled.
1. A saucer shall be provided around each plant as shown on the drawings.
 2. Plants shall be soaked with water twice within the first twenty-four (24) hours of time of planting. Water shall be applied with low pressure so as to soak in thoroughly without dislodging the topsoil.
 3. Approved weed mat shall be placed under all areas to be covered with mulch. Secure weed mat in place with a soil anchor, then cover with mulch as directed.
 4. A three inch (3") layer (after settlement) of mulch or approved equal shall be applied directly on top of weed mat to the entire area of each saucer or planting bed.

3.04 PLANT BED EXCAVATIONS

Excavate tree pits and plant beds to the depth indicated on the detail sheet.

3.05 MAINTENANCE DURING CONSTRUCTION

- A. Maintenance shall begin immediately after planting. Plants shall be watered, mulched, weeded, pruned, sprayed, fertilized, cultivated, and otherwise maintained and protected until provisional acceptance. Settled plants shall be reset to proper grade and position, planting saucer restored and dead material removed. Stakes and wires shall be tightened and repaired. Defective work shall be corrected as soon as possible after it becomes apparent and weather and season permit.
- B. If a substantial number of plants are sickly or dead at the time of inspection, acceptance shall not be granted and the Contractor's responsibility for maintenance of all plants shall be extended until replacements are made.
- C. All replacements shall be plants of the same kind and size specified on the Plant List. They shall be furnished and planted as specified above. The cost shall be borne by the Contractor. Replacements resulting from removal, loss, or damage due to occupancy of the project in any part, vandalism, physical damage by animals, vehicles, etc., and losses due to curtailment of water by local authorities shall be approved and paid for by the Owner.
- D. Plants shall be guaranteed for a period of one (1) year after inspection and provisional acceptance.
- E. At the end of the Establishment Period, inspection shall be made again. Any plant required under this contract that is dead or unsatisfactory to the Owner shall be removed from the site. These shall be replaced during the normal planting season.

3.06 SEEDING

- A. Area - All exterior ground within the limit of contract, except surfaces occupied by buildings and structures and paving, except areas indicated to be undisturbed, shall be seeded or planted as shown on drawings. As noted on plan, all disturbed surfaces in vicinity of retention basin not proposed as riprap or other stabilization measures.

Furnish topsoil, finish grading, prepared seed bed, seed and maintain areas as indicated on the drawings.

- B. Seed Bed Preparation - Grade areas to finish grades, filling as needed or removing surplus dirt and floating areas to a smooth, uniform grade as indicated on grading plans. All lawn areas shall slope to drain. Where no grades are shown, areas shall have a smooth and continual grade between existing or fixed controls (such as walks, curbs, catch basin, elevations steps or building) and elevations shown on plans. Roll, scarify, rake and level as necessary to obtain true, even lawn surfaces. All finish grades shall meet approval of the landscape architect, before grass seed is sown. Loosen soil to a depth of six inches (6") in lawn areas by approved method of scarification and grade to remove ridges and depressions. Remove stones or foreign matter over two inches (2") in diameter from the top of two inches (2") of soil. Float lawn areas to approximately finish grades.
- C. Seed beds shall be permitted to settle or should be firmed by rolling before seedings are made.
- D. Seeding shall not be performed in windy weather.
- E. Seeding shall be done in two (2) directions at right angles to each other.
- F. Lawn areas shall be seeded by sowing evenly with an approved mechanical seeder at the rate of a minimum of 0.95 pounds per 1,000 square foot. Culti-packer or approved similar equipment

may be used to cover the seed and to form the seed bed in on operation. In areas inaccessible to culti-packer, the seeded ground shall be lightly raked with flexible rakes and rolled with a water ballast roller. After rolling, seeded areas are to be lightly mulched with wheat straw.

- G. If the project completion date prohibits in-season planting, the Contractor shall prepare himself for out-of-season seeding or sodding so that all lawns shall be completed and ready for acceptance at time of project completion, without additional cost to the Owner. Lawn maintenance shall be the same as for other planting.
- H. Lawns shall be maintained by the Contractor for at least 30 days after sodding and 60 days after seeding, or as long as is necessary to establish a uniform stand of the specified grasses, or until substantial completion of the project or until acceptance of lawns, whichever is later.
- I. In the event that lawn operations are completed too late in the Fall for adequate germination and/or growth, maintenance shall continue into the following growing season or until a uniform stand of the specified grasses has been established.
- J. Water seeded areas twice the first week to a minimum depth of six inches (6") with a fine spray and once per week thereafter as necessary to supplement natural rain to the equivalent of one inch (1") or to a six inch (6") depth.
- K. The surface layer of soil for seeded areas must be kept moist during the germination period. After first cutting, water as specified above.
- L. Make weekly inspections to determine the moisture content of the soil and adjust the watering schedule to fit conditions.
- M. After grass growth has started, all areas or parts of areas which fail to show a uniform stand of grass for any reason whatsoever shall be reseeded in accordance with the plans and as specified herein. Such areas and parts of areas shall be reseeded repeatedly until all areas are covered with a satisfactory growth of grass at no additional cost to the Owner.
- N. Watering shall be done in such a manner and as frequently as is deemed necessary by the Landscape Architect to assure continued growth of healthy grass. All areas of the site shall be watered in such a way as to prevent erosion due to excessive quantities applied over small areas and to avoid damage to the finished surface due to the watering equipment.
- O. Water for the execution and maintenance of this work shall be provided by the Owner at no expense to the Contractor. The Contractor shall, however, furnish his own portable tanks, pumps, hose, pipe, connections, nozzles, and any other equipment required to transport the water from the available outlets and apply it to the seeded areas in an approved manner.
- P. Mowing of the seeded areas shall be initiated when the grass has attained a height of one and one-half to two inches (1-1/2" to 2"). Grass height shall be maintained between one and one-half inches (1" to 1 1/2") at subsequent cuttings depending on the time of year. Not more than one third (1/3) of the grass leaf shall be removed at any cutting and cutting shall not occur closer than ten (10) days apart.
- Q. When the amount of grass is heavy, it shall be removed to prevent destruction of the underlying turf. If weeds or other undesirable vegetation threaten to smother the planted species, such vegetation shall be mowed or, in the case of rank growths, shall be uprooted, raked and removed from the area by methods approved by the Landscape Architect.
- R. Protect seeded area against trespassing while the grass is germinating. Furnish and install fences, signs, barriers or any other necessary temporary protective devices. Damage resulting from trespass, erosion, washout, settlement or other causes shall be repaired by the Contractor at his expense.
- S. Remove all fences, signs, barriers or other temporary protective devices after final acceptance.

3.07 SOD

- A. Area - As noted on plan, a 3-foot wide strip shall be sodded along walks, roadways, and parking areas to prevent washing and erosion. As noted on plan, all disturbed surfaces in vicinity of retention basin not proposed as riprap or other stabilization measures shall be sodded.
- B. Sod Bed Preparation - Grade areas to finish grade, filling as needed or removing surplus dirt, stones, debris, etc. and floating areas to a smooth, uniform grade as indicated on grading plans. All lawn areas are to slope to drain.
- C. Sod shall be cut and laid on site the same day. Only healthy vigorous growing sod is to be laid.
- D. Always lay sod across slope and tightly together so as to make a solid area.
- E. Roll or firmly but lightly tamp with suitable wooden or metal tamper all new sod sufficiently to set or press sod into underlying soil.
- F. After sodding has been completed, clean up and thoroughly moisten by sprinkler newly sodded areas.

PART 4 - MAINTENANCE CONTRACT (SPECIFICATION WRITER TO VERIFY – ALTERNATIVELY USE A MAINTENANCE ACCEPTABLE SPECIFICATION)

4.01 GENERAL LANDSCAPING

- A. Contractor shall provide the Owner with three (3) written proposals due no later than the established possession date for landscape maintenance from experienced local A.N.A. certified nursery businesses capable of performing the work outlined herein. The proposal will be for a period of 1 year and renewable in one-year increments.

Maintenance will begin immediately after final approval and acceptance of the landscaping and irrigation by the Owner.

- B. Landscape maintenance shall include all necessary watering, cultivation, weeding, pruning, wound dressing, disease and insect pest control, protective spraying, replacement of dead plant material (labor only), straightening plants which lean or sag, adjustments of plants which settle or are planted too low, mowing of turf areas, replacement of mulch that has been displaced by erosion or other means, repairing and reshaping of water rings or saucers, and the reseeded or replanting of those areas affected.

Removal of all rubbish, waste, tools, and equipment used in the execution of the contract at the end of each work day, and any other procedure consistent with good horticultural practice necessary to insure normal, vigorous and healthy growth of all plant material are also part of this maintenance contract.

- C. During the first year of the maintenance contract, any replacement of plant material shall be the responsibility of the general contractor with exceptions as listed in Section 02900, 3.05, C.
- D. Landscape maintenance contractor shall purchase and maintain Contractor's general liability insurance in the amounts of \$2,000,000 to protect him from the Contractor's operations under the maintenance contract. Certification of such insurance shall be filed with the Owner prior to the commencement of the work.

4.02 WATERING

- A. The quantity of water applied at one time shall be sufficient to penetrate the soil to a minimum of eight inches (8") in shrub beds and six inches (6") in turf areas at a rate which will prevent saturation of the soil.

- B. On-site water shall be furnished by the Owner. Hose and other watering equipment shall be furnished by the Contractor.

4.03 WEEDING

Maintenance contractor shall keep all planting areas free from weeds and undesirable grasses by a method and by materials approved by the A.N.A.

4.04 DISEASE AND INSECT PEST CONTROL

Inspect all plant material at least once a month to locate any disease or insect pest infestations. Upon the discovery of any disease or insect pest infestation, identify, or have identified, the nature or species of the infestation. A method of control in accordance with common A.N.A. standards shall be immediately implemented.

4.05 FERTILIZING

Maintenance contractor is to fertilize plant material on a regularly scheduled program to fit the requirements of the plant material to maintain vigorous and healthy plant growth.

4.06 PRUNING AND REPAIR

The amount of pruning shall be limited to the minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots as a result of transporting operation and/or to maintain safety in vehicular use areas. Pruning shall be done in such a manner as to not change the natural habit or shape of the plant. All cuts shall be made flush, leaving no stubs.

4.07 MOWING

Mow all grass areas at regular intervals to keep the grass height from exceeding three inches (3"). Mow grass areas in such a manner as to prevent clippings from blowing on paved areas, and sidewalks. Cleanup after mowing shall include sweeping or blowing of paved areas and sidewalks to clear them from mowing debris.

4.08 CLEAN UP

During the course of maintenance planting, excess and waste materials shall be continuously and promptly removed at the end of each work day.

4.09 MAINTENANCE REPORT AND SCHEDULE OF ACTIVITIES

Maintenance contractor shall provide a schedule and report to store management and to the address referred to in Section 02900, 4.01, A. that details his planned maintenance activities including any subcontractors.

4.10 MAINTENANCE CONTRACT

These terms and conditions herein outlined shall be attached and made a part of a contract with the Owner.

4.11 TERMINATION OF THE MAINTENANCE CONTRACT

- A. If the Owner fails to make payment for period of ninety (90) days without written clarification, the maintenance contractor may, upon twelve (12) additional days' written notice to the Owner, terminate the contract and recover from the Owner payment for all work executed and for any proven loss sustained upon any materials, equipment, or tools, including reasonable profit and damages applicable to the maintenance contract.
- B. If the maintenance contractor defaults or persistently fails or neglects to carry out the work in accordance with the maintenance contract, the Owner after twelve (12) days written notice to the maintenance contractor, and without prejudice to any other remedy they may have, may make

good such deficiencies and deduct the cost thereof including compensation for additional services made necessary thereby, from the payment then or thereafter due the contractor, or at their option, may terminate the contract.

---END OF SECTION 02900---