

Section 02931**LANDSCAPE AND TREE PLANTING****1.0 GENERAL****1.01 SECTION INCLUDES**

- A Furnishing all plants and trees, labor, equipment, appliances and materials for landscape and tree planting. Rough and finish grading is part of the landscape work.
- B References to Technical Specifications:
 - 1. Section 01200 – Measurement and Payment Procedures
 - 2. Section 01350 – Submittals
 - 3. Section 02910 – Topsoil
 - 4. Section 02921 – Hydromulch Seeding
 - 5. Section 01562 – Waste Material Disposal

1.02 MEASUREMENT AND PAYMENT

- A Measurement for Landscape Planting is on a Lump Sum.
- B Payment for Tree Planting is on lump sum basis for each tree planted.
- C Refer to Section 01200 – Measurement and Payment Procedures.

1.03 SUBMITTALS

- A Make Submittals required by this Section under the provisions of Section 01350 – Submittals.
- B Submit samples of the plants and grasses to be used for approval prior to installation. Inspection will be done on the project site.
- C Provide materials from the same source and of the same quality and variety as those inspected and approved.
- D Soils and/or compost materials must be approved at their source prior to delivery.

1.04 REFERENCES

- A ANSI Z 60.1 - Nursery Stock.
- B Federal Specification Q-P-166E - Peat, Moss; Peat, Humus; and Peat, Reed-Sedge.

1.05 SCHEDULE

- A The plant schedule gives quantities, scientific names, common names, sizes, and special remarks.

- B The plant list conforms with *Standardized Plant Names*, 1942, and *American Standard for Nursery Stock*, 1949, revised April 14, 2014, as prepared by the American Joint Committee on Horticultural Nomenclature and the American Association of Nurserymen, Inc.
- C In case of discrepancies between the plant list and drawings, the working drawings shall govern.

1.06 DELIVERY AND STORAGE OF MATERIALS

- A Pack all plant material to provide protection against damage from wind, weather or other possible sources. Tie plants to prevent whipping when shipment is made by truck.
- B When shipment is made by rail, pack plants and ventilate cars as required to prevent sweating.
- C Provide a platform from all B&B root balls over 24 inches in diameter.
- D Store plants on the site as directed.
- E Spray with anti-transpirant at time of delivery in warm season months. Apply at rates in accordance with manufacturer's recommendations.
- F Ship trees with Certificates of Inspection as required by governing authorities. Label each tree and shrub with securely attached waterproof tag bearing legible designation of botanical and common name. Do not remove container grown stock from containers before time of planting.
- G Deliver packaged materials in fully labeled original containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at Site.
- H Materials shall not be pruned prior to installation unless approved by the Engineer in writing. Do not bend or bind-tie trees or shrubs in such a manner as to damage bark, break branches, or destroy natural shape. Use protective covering during delivery.

1.07 SUBSTITUTIONS

- A Substitution of larger size or better grade than specified will be allowed, but with no increase in unit cost.
- B Substitution of an alternate species may be accepted upon written approval from the Engineer.

1.08 ACCEPTANCE AND APPROVAL

- A There will be no partial acceptance of grasses.

- B Upon Contractor's request, final approval will be made within 15 working days of date of notice to the Engineer if contracted work has been satisfactorily completed.
- C Final approval of grasses will be given when the following conditions are met:
 - 1. There are no bare spots larger than 9 inches square.
 - 2. The total area of bare spots does not exceed 5 percent of the entire grass area.

1.09 WARRANTY

- A Provide 1-year warranty on all plants and grasses. The warranty period commences after final completion.
- B Replace plants that fail during the warranty period according to the specifications governing the original plants.
- C Periodically inspect plants for proper watering and spraying, during warranty period.
- D Damage caused by natural hazards such as hail, high winds or storm is not covered by the warranty.
- E Plant materials and grasses which die due to normal insects or diseases are included in the warranty.
- F Existing in situ plant material required to be moved on the site will be protected under the warranty.
- G Contractor shall warrant trees against defects including death, unsatisfactory growth, or loss of shape due to improper pruning, maintenance, or weather conditions, for 1 year after completion of planting. Contractor shall plumb leaning trees during warranty period.
- H Remove and replace trees found to be dead during warranty period. Remove and replace trees which are in doubtful condition at end of warranty period, or if approved by the Engineer, extend warranty period for such trees for a full growing season.

1.10 SOIL ANALYSIS

- A Submit for approval an analysis of all soils obtained from off-site sources prior to delivery.
- B Analysis of existing soil is not required.

1.11 PLANT CERTIFICATES

- A Submit inspection certificates approved by the Engineer as required by law with the invoice for each shipment or order of stock:
 - 1. Submit certificates to the Engineer for review in ample time to be reviewed and meet installation schedule.

1.12 PROTECTION OF PERSONS AND PROPERTY

- A Take all reasonable precautions to prevent injury to people and to avoid damage to existing structures, plants and grasses. Keep the area free of hazardous obstructions.
- B Construct barricades where necessary for the protection of persons and property. Mark all barricades with red and white paint and with red reflectors. Erect barricades in the following locations:
 - 1. Areas dangerous to workmen and passersby.
 - 2. Along adjoining property that requires protection.
 - 3. Across streets and walks that are temporarily closed or rerouted.
 - 4. Around plants and trees to be protected.
- C Excavations larger than 1 foot deep and 1 foot wide must be covered when not attended.
- D Existing trees which may be subject to damage must be protected by fencing or boxing.
- E During the course of planting operations, protect all installed plants and lawns from damage. If heavy equipment or materials must be moved across lawns, use planks or pontoons to protect the turf. Similarly protect walks across which heavy equipment must pass.

1.13 DEFINITIONS

- A In situ refers to any soil which is existing and in place on the project site at the time landscape work commences.
- B Establishment period refers to a period of 45 days after installation during which time 5 percent of the construction costs will be withheld.

1.14 QUALITY ASSURANCE

- A Landscaper shall be a firm specializing in landscape and planting work.
- B Do not make substitutions of approved trees unless approved in writing by the Engineer. If specified planting material is not obtainable, submit proof of non-availability together with proposal for use of equivalent material. Substitutions of larger size or better grade than specified will be allowed, but with no increase in unit price.

2.0 PRODUCTS**2.01 TOPSOIL**

- A Topsoil: Conform to requirements of Section 02910 - Topsoil.
- B Peat moss, bark, and fertilizer: Use material recommended by nursery for establishment of healthy stock after replanting. Moss shall conform to requirements of Federal Specification Q-P-166E.

2.02 FERTILIZER

- A Provide an inorganic commercial fertilizer which is uniform in composition, dry and free flowing, in original unopened containers, each bearing the manufacturer's guaranteed analysis. Caked, damaged or otherwise unsuitable fertilizer will not be accepted.
 - 1. For lawns: 12-24-12.
 - 2. For ground cover areas, shrub beds and tree holes: 20-10-5 (Except for Genus *Pyrus* (Pear)).

2.03 ADDITIVES

- A Adjustment of pH. For topsoil to attain the specified pH level, furnish raw, ground agricultural limestone containing not less than 85 percent calcium carbonate of which 50 percent will pass through a 100-mesh sieve and 90 percent through a 70-mesh sieve. Wait 2 months after planting before application of fertilizer.
 - 1. following table is a guideline to establish the pounds of limestone needed per 1000 square feet of turf:

LIMESTONE NEEDED PER 1000 SQUARE FEET			
SOIL PH	SANDS, LOAMY SANDS	SANDY LOAM	CLAY LOAM, CLAY
>6.0	0	0	0
5.1 - 6.0	50	75	100
<5.0	100	125	175

- B Humus. Provide a rich humus material free of sticks, stones, weedy roots, or other foreign matter. Humus must have ample water holding capacity and plant food retention. Use a humus with a dark brown to black color.
- C Dressing Mulch. Provide pine or redwood bark that is evenly shredded, consisting of 90 percent organic matter, brown in color, and free of harmful minerals. Maximum particle size not to exceed 3 inches in diameter.
- D Sharp Sand. Obtain clean sharp sand of hard durable grains, free from dirt, organic matter or other impurities. Use sand with a grade between 0.05 mm and 2 mm.
- E Concrete Gravel. Provide clean, crushed stone consisting of hard, durable, uncoated particles free from injurious amounts of soft friable, thin or laminated pieces. Use gravel which conforms to ASTM C 33. The sieve size will be 3/4 inch, 90 to 100 percent passing.

2.04 CONSTRUCTION MATERIALS

- A Root Ball Anchors:
 - 1. Duck bills will be used to secure the root ball anchors.
- B Edging:

1. Provide 1/2-inch x 4 inches, Cypress or Treated Lumber headerboard.
 2. Provide 1 inch x 2 inches x 12 inches, Cypress or Treated Lumber stakes.
- C Cloth for Balling Trees. Use burlap of jute weighing at least 7.2 ounces per square yard. Secure balled plants with 2-ply twine made of jute.
- D Paper for Wrapping Trees. Use first quality, 4-inch-wide bituminous impregnated tape, corrugated or crepe paper, specifically manufactured for tree wrapping and having qualities to resist insect infestation.
- E Materials for Flagging Trees:
1. Mark guyed trees with surveyors white plastic tape.
 2. Use surveyors plastic tape for marking as follows.
 - a. Red to be removed.
 - b. Yellow to be transplanted.
 - c. Green to remain.
 - d. Blue to identify special handling.
- F Labels. Legibly label plants with durable labels that identify the plant by scientific and common name. Use waterproof ink.
- G Tree Seal. All pruning cuts, bruises, or scars over 3/4 inch in diameter on trees will be treated with a commercial tree wound dressing.
- H Polyethylene. Use virgin base, resin blended polyethylene sheeting with carbon black concentrate of 2.5 percent.

2.05 SPRAYS

- A Sterilization:
1. Use approved solution of Dyclomec 4G, or equal, for areas to be planted.
 2. Use Pramitol, or equal, for areas to be paved.
- B Herbicides:
1. Use an approved systemic non-selective, post emergent herbicide on specified areas to kill all vegetation.
 2. Use Confront, or equal, for general control of broadleaf weeds in lawns.
 3. Use Preemerg, Eptam, Dryclomec, or equal for ground cover.
 4. Use an approved pre-emergent to control seed germination in specified areas.
- C Antitranspirant:
1. Use approved antitranspirant for all plant material that is stored and/or heeled-in on the site.
 2. Use approved antitranspirant on all planted trees and shrubs.
- D Root Stimulant. Use approved root stimulant on all newly planted trees, shrubs, vines and/or ground cover areas.

2.06 PLANT CHARACTERISTICS

- A Provide plants which are true to type and name, and typical of their species or variety. Plants must have a normal, well-developed branch structure, with a vigorous root system, and must be generally sound and healthy. Use plants which are free from defects, including:
1. Disfiguring knots.
 2. Sun scald.
 3. Injuries.
 4. Bark abrasions.
 5. Plant diseases.
 6. Insect eggs.
 7. Borers.
 8. Infestations.
- B Select well-formed plants balanced between height and spread typical of the species or variety with branches in normal position. Heading back plants to meet size limits will not be permitted.
- C Unless otherwise specified, all plants will be nursery grown and at least twice transplanted. Use plants which have been growing under similar climatic conditions to those of the project for at least 2 years prior to the date of the contract. Recently stepped-up plants will not be acceptable. All B&B or bare root plants must be freshly dug; heeled-in or cold storage plants will not be accepted.
- D Balled, bare root, and container-grown plants will conform to the definitions given in *American Standards for Nursery Stock*.
- E No tree will be accepted which has had leaders cut or damaged, or which has a thin, weak trunk and/or poorly formed tops.
- F Regardless of sample selection, a plant may be rejected at the site by the Engineer.

2.07 NURSERY STOCK

- A Deciduous Trees. Provide trees which are straight and symmetrical and have a persistently preferred main leader. The crown must be in good overall proportion to the entire height of the tree. Where a clump is specified, a plant having a minimum of three stems originating from a common base at the ground line will be furnish. Measure trees by average caliper of trunk.
1. For trees up to 4 inches in diameter, measure caliper 6 inches above ground.
 2. For trunks larger than 4 inches, measure caliper 12 inches above ground.
- B Evergreen Trees. Form of the top will be typical of the species and not unnaturally sheared or color-treated. Measure by average caliper. Caliper will be taken 6 inches above the ground on trees up to 4 inches in diameter and 12 inches above the ground on trees larger than 4 inches.

- C Vines and Ground Cover. Provide plants which are container-grown for sufficient time to ensure adequate root growth to hold the soil in place and retain the original shape when removed from the container.

2.08 FIELD-COLLECTED PLANTS

- A Field-collected plants must be grown in favorable locations that ensure fibrous roots and vigorous growth. Such plants will be selected on site by the Landscape architect.
- B Provide balls at least 1/3 greater in diameter than those specified for nursery stock.
- C If dug in dormant season and bare root is acceptable, the spread of roots must be at least 1/3 greater than the spread of roots for bare root nursery stock.

2.09 SEED

- A Seasonal Limitations:
 - 1. Bermuda:
 - a. Hulled seeds may be planted between October and March.
 - b. Unhulled seeds may be planted between April and September.
 - 2. Rye:
 - a. Plant between October and February.
- B Bermuda. Provide common Bermuda seed that is extra-fancy, treated, lawn type. Deliver in original, unopened container showing weight, analysis, name of vendor and germination test results. Wet, moldy, or otherwise damaged seed will not be accepted.
- C Rye. Deliver annual Winter Rye seed in original unopened containers. Seed must be fresh, clean, and mixed in labeled proportions. As tested, minimum percentages of impurities and germination must be labeled.

2.10 HYDROMULCH

- A Provide hydromulch seeding as noted in Section 02921 – Hydromulch Seeding.

2.11 GRASS

- A Obtain certified sod from an approved source.
- B Provide material which is true to type and name, and is typical of the species or variety.
- C Delivery:
 - 1. Identify and tag sods with correct scientific and common name for each species.
 - 2. Do not deliver more sods than can be planted within 8 hours.
 - 3. Transport and deliver sods in/on pallets.
 - 4. Protect sods against dehydration, overheating or contamination during transportation and delivery.

5. Cover unplanted sods with moistened burlap to prevent dehydration or overheating while awaiting installation.
6. Sods must be harvested within 12 hours of planting and arrive at the project site in a moist condition.

D Products:

1. Material to be uniform in color, leaf texture and density.
2. Material to be graded No. 1, or better.
3. Uniform mowed height at time of harvesting material: 1-1/2 inches.
4. Inspected and certified free of diseases, nematodes, and undesirable insects by authorized representative of State Department of Agriculture.
5. Material will not be acceptable if it contains any quack grass, Johnson grass, poison ivy, nut grass, thistle, common bent grass, wild garlic, morning glory, perennial sorrell, or brome grass.
6. Turf will be considered weed free when found to contain less than 1 percent of dandelion, jimson weed, mustard, chickweed, per 100 square feet.

2.12 TREES

- A Provide container grown trees which are straight and symmetrical and have a persistently preferred main leader. The crown shall be in good overall proportion to the entire height of tree with branching configuration as recommended by ANSI Z60.1 for type and species specified. Where a clump is specified, a plant having a minimum of three stems originating from a common base at the ground line shall be furnished. Measure trees by average caliper of trunk as follows:
1. For trunks up to 4 inches or less in diameter, measure caliper 6 inches above top of root ball.
 2. For trunks more than 4 inches, measure caliper 12 inches above top of root ball.
 3. Caliper measurements shall be by diameter tape measure. Indicated calipers on plans are minimum. Averaging of plant calibers will not be allowed.
- B Trees shall conform to following requirements:
1. Healthy, vigorous stock, grown in a recognized nursery.
 2. Free of disease, insects, eggs, larvae; and free of defects such as knots, sunscald, injuries, abrasions, disfigurement, or borers and infestations.

2.13 WATER

- A Water shall be potable from municipal water supplies.

2.14 SOURCE QUALITY CONTROL

- A Notify Engineer, prior to installation, of location where trees that have been selected for planting may be inspected. Plant material will be inspected for compliance with following requirements.
1. Genus, species, variety, size and quality.
 2. Size and condition of balls and root systems, insects, injuries and latent defects.

2.15 WORK CONDITIONS

- A Site Availability. Begin no landscape work where conflicting site work is incomplete or as otherwise directed by the Engineer.
- B Weather Restrictions. Stop all work during inclement weather such as drought, high winds, excessive rain, extreme heat, cold, or freeze. Obtain authorization before resuming work.

2.16 PLANTING PROCEDURES

- A Temporary Nursery. A temporary nursery may be used to store plants, but no more than 5 days before planting. Keep plants well watered and protected.
 - 1. Immediately upon delivery, heel-in balled and burlapped (B&B) plants and spray all plants with an antitranspirant. Apply spray from top to bottom. Thoroughly cover plants, but not to the point of run-off. Spray block units and not individual plants. Use a low-pressure, fine-mist applicator. Spray at rates recommended in the manufacturer's directions.
 - 2. Handle all balled and burlapped plants by the ball only.
 - 3. Upon delivery, immediately heel-in bare root plants. Open bundles, separate plants, set roots in trenches, and cover with topsoil. Water plants with an approved root stimulant containing vitamin B.
 - 4. Handle container plants by the container.
 - 5. Handle ground cover plants in flats. Pack flats tightly together and sprinkle plants everyday.
 - 6. Special plants so designated must be kept in an approved enclosure or planted the day of delivery.
 - 7. Store soils and additives on approved platforms.
- B Digging and Handling:
 - 1. The actual planting operation must proceed without delay and in a manner to avoid undue drying of the in-situ soil or roots because of exposure to air and sun. Keep an ample supply of sawdust available to cover the roots of B&B stock arriving from the storage nursery. Keep the roots well covered and moist until the plants can be placed in the final location and permanently planted.
 - 2. Handle all plant stock with care to prevent injuries to the trunk, branches and roots.
 - 3. Dig bare root plants when fully dormant. Keep all of the root system intact; do not prune the root system. However, any roots that are broken, crushed, or bruised must be cleanly cut back to sound wood. Make the cut on an angle so that the exposed end faces downward. Seal any cut root exceeding 3/4 inch in diameter with an approved tree wound dressing.
 - 4. Balled and burlapped plants must have the root system encased in a firm, solid ball of natural earth, wrapped in burlap and tightly bound. Each ball must be of sufficient size to encompass all the fibrous feeding roots and not smaller than required by *American Standards for Nursery Stock*. The ball must remain firm and compact throughout the planting operations.

3.0 EXECUTION

3.01 SITE PREPARATION

- A Schedule work so that planting can proceed rapidly as portions of site become available. Plant trees after final grades are established and prior to planting of lawns, unless otherwise approved by Engineer in writing. If planting of trees occurs after seeding work, protect lawn areas and promptly repair damage to lawns resulting from tree planting operations.
- B Layout individual trees at locations shown on Drawings. In case of conflicts, notify Engineer before proceeding with Work. Trees shall be staked and approved by Engineer prior to planting.
- C Existing Trees:
1. Protection: Protect tops, trunks and roots of trees to remain on the site. Before starting work, box, fence or otherwise protect trees subject to construction damage. Remove boxing when directed. Permit no stockpiles of heavy equipment within the branch spread of trees.
 2. Removal: Remove trees marked for removal. Do not remove any tree without proper authorization. Stumps within 36 inches of final grade must also be removed.
 3. Pruning and Surgery: Cut and trim trees only as directed; do not cut any tree without proper authorization. Trim existing trees of dead or diseased limbs. Cut limbs close to the trunk. Cover cuts over 3/4 inch in diameter with an approved tree wound dressing.
- D Grading Around Trees. As required, fill or grade within the branch spread of trees to remain, observing the following requirements.
1. For trenching beneath trees, tunnel under the tree roots with careful hand digging. Where possible, avoid cutting or injuring roots.
 2. Do not raise or lower the grade around an existing tree in any way unless so directed.
- E Placing Topsoil:
1. Disk, drag, harrow, or handrake subgrade. Scarify the subgrade to a depth of 1-1/2 inches. Before placing topsoil, rake the subsoil surface clear of stones, wood, rubbish and other debris. Place no topsoil until the subgrade preparation has been approved.
 2. Spread, rake, and compact topsoil to form a layer with a minimum depth of 4 inches in lawn areas and 6 inches in shrub areas. Place topsoil to conform to finished gradients as shown on the grading plan.
 3. Remove spilled topsoil from curbs, gutters, and, paved areas and dispose of excess topsoil in accordance with requirements of Section 01562 – Waste Material Disposal.

- F In Situ Soil Preparation:
1. Cross-till in two directions all existing soil in designated areas to be planted, as follows:
 - a. In lawn areas to a minimum depth of 6 inches.
 - b. In shrub areas to a minimum depth of 10 inches.
 2. Evenly broadcast fertilizers and soil additives and thoroughly work into soil.
 - a. Smooth all tilled and amended areas to establish a rough gradient.
 - b. Deeply irrigate all tilled and amended areas to thoroughly wet soil particles and promote settlement.
 - c. After a settlement period of not less than 5 days, and before proceeding with any planting, smooth and rake as necessary to establish finish gradient as required.
 3. In all areas which have been utilized for parking, storage or construction lots and/or where heavy equipment has been used, cross-rip the entire compacted areas in two directions to a depth of 10 inches before tilling and amending the soil as specified. A heavy float or drag harrow should be used to smooth all surface areas.
 - a. Verify location of all underground utilities before ripping.
 - b. Ripping teeth should not be set at more than 10-inch spacing.
- G Fertilizer. Evenly broadcast and work fertilizer into soil at the following rates:
1. Lawns: 1-1/2 N pounds per 1000 square feet.
 2. Ground Cover, Shrub, and Tree Areas: 1-1/2 N pounds per 1000 square feet.
- H Additives:
1. Humus. Evenly broadcast and work into in situ soil at a rate of 1 cubic yard per 200 square feet.
 2. Sharp Sand. Evenly broadcast and work into in situ soil at a rate of 1 cubic yard per 200 square feet.
 3. Concrete Gravel. Utilize as a drainage course as shown on construction drawings.

3.02 PREPARATION OF PLANTING SOIL

- A Before mixing, clean topsoil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth.
- B Strip and utilize 4-inch layer of top soil, placed on esplanades under Section 02921 – Hydromulch Seeding, for planting soil mixture.
- C Mix recommended soil amendments with topsoil at following rates:
1. Top soil: 50 percent.
 2. Peat moss: 25 percent.
 3. Well rotted Bark: 25 percent.
 4. Fertilizer: Rate recommended by nursery.
- D Delay mixing of fertilizer if planting will not follow placing of planting soil within 48 hours, unless otherwise directed.

- E Incorporate amendments into the soil as a part of the soil preparation process prior to fine grading, fertilizing, and planting. Broadcast or spread amendments evenly at the specified rate over the planting area. Thoroughly incorporate amendments into the top 3 or 4 inches of soil until amendments are pulverized and have become a homogeneous layer of topsoil ready for planting.

3.03 PLANTING

- A Excavate pits, beds, or trenches with vertical sides and with bottom of excavation raised a minimum of 6 inches at center for proper drainage. Provide following minimum widths:
 - 1. 15-gallon containers or larger, 2 feet wider than diameter of root ball.
 - 2. 1- and 5-gallon containers, 6 inches wider than diameter of root ball.
- B When conditions detrimental to plant growth are encountered, such as unsatisfactory soil, obstructions, or adverse drainage conditions, notify the Engineer of such conditions before planting.
- C Deliver trees after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after deliver, set trees and shrubs in shade, protect from weather and mechanical damage, and keep roots moist by covering with mulch, burlap, or other acceptable means of retaining moisture, and water as needed.
- D Set root ball on undisturbed soil in center of pit or trench and plumb plant. Place plants at such a level that, after settlement, a natural relationship of plant crown with ground surface will be established.
- E When set, place additional backfill around base and sides of ball, and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
- F Dish top of backfill to allow for mulching. Mulch pits, trenches and planted areas. Provide no more than 4-inch thickness of mulch, work into top of backfill, and finish level with adjacent finish grades. Cover entire root ball.
- G Prune, thin out and shape trees in accordance with standard horticultural practice. Prune trees to retain required height and spread. Unless otherwise directed in writing, do not cut tree leaders, and remove only injured and dead branches from flowering trees. Remove and replace excessively pruned or misformed stock resulting from improper pruning.
- H Inspect tree trunks for injury, improper pruning and insect infestation and take corrective measures.
- I Anchor root ball immediately after planting.

- J Control dust caused by planting operations. Dampen surfaces as required. Comply with pollution control regulations of governing authorities.

3.04 PLANTING GRASS

- A Preparation: Prepare imported topsoil and/or in situ soil. Hand rake to remove all sticks, stones and clods larger than 1 inch. Apply the final grade but do not mechanically compact the soil.
- B Seed:
1. Evenly broadcast seed specified in 2.09 at the following rates:
 - a. Bermuda: 1 pound per 1000 square feet
 - b. Rye: 6 pounds per 1,000 square feet
 2. Roll the entire seeded area in two directions with a dry/weighted roller.
 3. Evenly top dress the entire seeded area with an approved sterilized commercial steer manure. Apply at 2 cubic feet per 100 square feet.
 4. Lightly but thoroughly sprinkle the entire seeded area with water after top dress application.
- C Sod:
1. Use Bermuda, Buffalo, or St. Augustine sod in accordance with 2.11A.
 2. Prepare soil in accordance with 3.03.
 3. Apply eptam (or approved equal) to all areas to be sodded. Follow manufacturer's recommended rates and apply during soil preparation period.
 4. Lay sod in a running bond pattern. Pieces should be consistently cut with joints tightly butted together. Water the in-place sod liberally and roll it in two direction with a heavy roller. Areas not level due to fluctuations in the sod depth should be covered and leveled with a 50/50 mix of sharp sand and topsoil. Fertilize in 6 weeks as directed by landscape Architect.

3.05 FIELD QUALITY CONTROL

- A The Engineer may reject unsatisfactory or defective material at anytime during progress of Work. Contractor shall remove rejected trees immediately from site and replace with specified materials. Plant material not installed in accordance with these Specifications will be rejected.
- B An inspection to determine final acceptance will be conducted by the Engineer at the end of the 12 month maintenance period. Additional inspections will be conducted for extended warranty periods provided for in paragraph 1.07B.

3.06 CLEANING AND MAINTENANCE

- A Contractor shall maintain trees during planting operations and for a period of 12 months after completion of planting.
- B Water trees to full depth a minimum of once each week, or as required to maintain a healthy vigorous growth.

- C Prune, cultivate, and weed as required for healthy growth. Restore planting saucers. Tighten and repair rootball anchors, and reset trees and shrubs to proper grades or vertical position as required. Restore or replace damaged wrappings. Spray as required to keep trees and shrubs free of insects and disease.

3.07 PROTECTION OF THE WORK

- A During planting work, keep pavements clean and work area in an orderly condition.
- B Protect planting work and materials from damage due to planting operations. Maintain protection during installation and maintenance period. Treat, repair, or replace damaged planting work as directed by the Engineer.
- C Dispose of excess soil and waste in accordance with requirements of Section 01562 – Waste Material Disposal. On-site burning of combustible cleared materials will not be permitted.

END OF SECTION