

SECTION 329000 - LANDSCAPE WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 DESCRIPTION

- A. This section includes provisions for the following items:
 - 1. Temporary seeding and mulching including use of sand
 - 2. Permanent seeding and mulching including the use of Polyacrylamide (PAM) materials
 - 3. Soil Amendments
 - 4. Landscaping with trees, shrubs and etc.
 - 5. Sodding Landscape Areas
 - 6. Herbicide and Insecticide Treatment.
- B. The following sections contain requirements that relate to this section:
 - 1. Division 1 Section "Summary of Work"
 - 2. Section 312300 "Earthwork"
 - 3. Section 329210 "Finishing Lawn and Landscape Areas"

1.3 SOURCE QUALITY CONTROL

- A. Contractor shall schedule pre-installation meeting prior to beginning any final grassing, seeding or sodding.
- B. General: Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
- C. Do not make substitutions: If specified Sod material is not obtainable, submit proof of non-availability to Architect, together with proposal for use of equivalent material.
- D. Analysis and Standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions contract and Division 1 Specification Sections.
- B. Plant and Material Certifications and Analysis:
 - 1. Certificates of inspection as required by governmental authorities.
 - 2. Manufacturers or vendor's certified analysis for soil amendments and fertilizer materials.
 - 3. Label data substantiating that planting materials comply with specified requirements.
 - 4. Analysis of soil materials including sand.

- C. Maintenance Instructions: Typewritten instructions recommending procedures to be established by Owner for maintenance of landscape work for one full year. Submit prior to expiration of required maintenance period(s).

1.5 PREINSTALLATION CONFERENCE

- A. Contractor shall conduct preinstallation conference at project site to comply with requirements in Division I Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE AND HANDLING

- A. Packaged Materials: Deliver packaged materials in containers showing weight, analysis, and name of manufacturer. Protect materials from deterioration during delivery, and while stored at site.
- B. Sod: Time delivery so that sod will be placed or planted within 24 hours after harvesting. Protect sod against drying and breaking of rolled strips.
- C. Trees and Shrubs: Store trees and shrubs in secure area until planting. Protect from extreme weather.

1.7 JOB CONDITIONS

- A. Utilities: Determine location of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- B. Excavation: When conditions detrimental to sod growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Architect before planting.

1.8 SEQUENCING AND SCHEDULING

- A. Proceed with, and complete, landscape work as rapidly as portions of site become available.
- B. Temporary seeding will be required on the disturbed areas of the site. Temporary seeding shall consist of planting seed and mulching all disturbed areas left exposed for more than 14 days.
- C. The Contractor shall till all areas that were temporarily grassed to not less than 6 inches and recondition soil as provided herein prior to establishing permanent vegetation.
- D. The Contractor shall perform all necessary work including, but not limited to, fine grading, hand raking, fertilizing, pulverizing, seeding, sodding, landscaping, etc.
- E. Refer to the Landscape Plans and Erosion Control Plans for areas to be planted with trees and shrubs, areas to be sodded, and areas to be seeded.

PART 2 - PRODUCTS

Topsoil: Topsoil will be respread over areas to be landscaped under Division 31 Section "Earthwork."

2.1 SOIL AMENDMENTS:

- A. Lime: Natural dolomitic limestone containing not less than 85 percent of total carbonates with a minimum of 30 percent magnesium carbonates, grounds so that not less than 90 percent passes a 10 mesh sieve and not less than 50 percent passes a 100-mesh sieve.
- B. Aluminum Sulfate: Commercial grade.
- C. Mulch: Organic mulch free from deleterious materials and suitable for top dressing of trees, shrubs, or plants and consisting of the following:
 - 1. Shredded and treated cypress mulch with landscape fabric weed barrier underlayment including staples.
- D. Commercial Fertilizer: Complete fertilizer of neutral character with some elements derived from organic sources and containing the following percentages of available plant nutrients:
 - 1. For lawns, provide fertilizer with percentage of nitrogen required to provide not less than 1 pound of actual nitrogen per 1,000 sq. ft. of lawn area and not less than 4 percent phosphoric acid and 2 percent potassium. Provide nitrogen in a form that will be available to lawn during initial period of growth; at least 50 percent of nitrogen to be organic form. Fertilizer for lawn areas shall be a complete formula 10-10-10 or approved equal.
- E. Sand: Coarse sand meeting the Georgia Department of Transportation Specification Section 801.2.02.

2.2 GRASS MATERIALS

- A. Sod: Provide strongly rooted sod, not less than 1 year old, free of weeds and undesirable native grasses, and machine cut to pad thickness of 3/4 inch (plus or minus 1/4 inch), excluding top growth and thatch. Provide only sod capable of vigorous growth and development when planted (viable, not dormant).
 - 1. Provide sod for lawn areas of uniform pad sizes with maximum 5 percent deviation in either length or width. Broken pads or pads with uneven ends will not be acceptable. Sod pads incapable of supporting their own weight when suspended vertically with a firm grasp on upper 10 percent of pad will be rejected. Sod shall be TifTuf Bermuda.
- B. Seed: Seed shall be delivered to the site in the original sacks as received from the producer, and each sack shall be tagged in accordance with the agricultural seed laws of the United States and State of in which the project is located. Each sack shall be tagged showing the dealers guarantee as to the year grown, percentage of purity, percentage of germination and the date of the test by which the percentages of purity and germination were determined. All seed sown shall have a date of test within six months of the date of sowing.
 - 1. Any seed delivered prior to use, shall be stored in such a manner that it will be protected from damage by heat, moisture, rodents, or other cause.
 - 2. Seed Mixture:
 - a. Lawn Areas Not Sodded: 87 lbs. minimum of Common Bermuda Seed per acre plus the appropriate temporary seed mixture shown in the grassing schedule on the Drawings.
 - b. Refer to grassing schedule on Drawings for planting mixture and permanent vegetative cover required for slope areas.
 - c. Detention Pond: Seed mix comprised of plants specified on Drawings.

- C. Wood Pulp Fiber Mulch: Wood pulp fiber mulch for hydroseeding shall meet the requirements of Section 718.02 of the Georgia Department of Transportation Standard Specifications, latest edition. Wood fiber mulch shall be applied at the rate of 1000 pounds per acre.

2.3 TREES AND SHRUBS

- A. Trees and shrubs shall be free from disease and pests, and shall comply with the latest edition of the Publication ANSI Z60.1 "American Standards For Nursery Stock," by the American Association of Nurserymen.

2.4 WEED BARRIER

- A. Weed barrier fabric shall be installed beneath mulch in all shrub bed and mulch bed areas. Weed barrier shall be 5 oz./sq. yd. fabric as manufactured by Dewitt, Fabriscape or Rolanka International.

PART 3 - EXECUTION

3.1 PREPARATION, GENERAL

- A. Mix specified soil amendments and fertilizers with topsoil at rates specified on the drawings. Delay mixing of fertilizer if planting will not follow placing of planting soil within a few days.
- B. For lawns, mix planting soil either prior to planting or apply on surface of topsoil and mix thoroughly before planting.
 - 1. Mix lime with dry soil prior to mixing of fertilizer.
 - 2. Prevent lime from contacting roots of acid-loving plants.

3.2 PREPARATION FOR TEMPORARY GRASSING

- A. Where temporary grass is to be planted, prepare soil for planting as follows: Till to a depth of not less than 6 inches. Apply soil amendments and initial fertilizers as specified. Remove high areas and fill in depressions. Till soil to a homogenous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter.
- B. Apply specified commercial fertilizer (10-10-10) at 1500 pounds/acre and thoroughly mix into upper 2 inches of topsoil along with Lime applied at the rate of 2 tons per acre. Delay application of fertilizer if lawn planting will not follow within a few days. All seeded areas shall be mulched with wheat straw at the rate of 2-1/2 tons per acre.

3.3 PREPARATION FOR PLANTING LAWNS

- A. Where lawns are to be planted, prepare soil for lawn planting as follows: Till in all temporary vegetation to a depth of not less than 6 inches. Apply soil amendments and initial fertilizers as specified. Remove high areas and fill in depressions. Till soil to a homogenous mixture of fine texture, free of lumps, clods, stones, roots and other extraneous matter.
 - 1. Prior to preparation of planting areas, remove existing grass, vegetation and turf. Do not turn existing vegetation over into soil being prepared for lawns.
 - 2. Allow for sod thickness in areas to be sodded.
 - 3. Apply specified commercial fertilizer at rates specified and thoroughly mix into upper 2 inches of topsoil. Delay application of fertilizer if lawn planting will not follow within a few days.

- B. Fine grade lawn areas to smooth, even surface with loose, uniformly fine texture. Roll, rake, and drag lawn areas, remove ridges and fill depressions, as required to meet finish grades. Fine grading shall include, but not be limited to, pulverizing with a Gill Pulverizer or equal equipment and shaping with a tractor and box blade and hand rakes. Remove stones, pebbles, earth clods, etc. larger than 3/4 inch diameter. Coordinate work with Owner and requirements of Section 32 "Finishing of Lawn and Landscape Areas."
- C. Moisten prepared lawn areas before sodding or seeding if soil is dry. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
- D. Restore lawn areas to specified condition, if eroded or otherwise disturbed after fine grading and prior to planting.

3.4 SODDING

- A. Refer to Landscape Plans for areas to be sodded.
- B. Lay sod within 24 hours from time of stripping. Do not plant dormant sod or if ground is frozen. Do not plant damaged or dry sod.

3.5 REMOVE NETTING FROM SOD PRIOR TO PLACEMENT ON ALL AREAS OF THE SITE.

- A. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or sod. Tamp or roll lightly to ensure contact with subgrade. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent grass.
 - 1. Anchor sod on slopes with wood pegs to prevent slippage.
- B. Water sod thoroughly with a fine spray immediately after planting.

3.6 HYDROSEEDING

- A. Hydroseeding: All lawn and slope areas not to be landscaped with trees and shrubs or sod shall be hydroseeded. Seed shall be mixed with wood pulp fiber mulch and applied in a slurry. The slurry mixture shall be agitated during application to keep the ingredients thoroughly mixed. The mixture shall be spread uniformly over the area within one hour after being placed in the hydroseeder.
- B. The mixing and application of mixture shall conform to the requirements of Section 700 of the Georgia Department of Transportation Specifications, latest edition.

3.7 PLANTING TREES AND SHRUBS

- A. Prepare shrub and tree pits as indicated on the drawings. Place topsoil mixture in pit and place plants to proper height. Backfill around plants creating saucer. Stake and mulch plants as indicated.

3.8 PLANTING STORMWATER POND AREAS: Refer to Landscape Plans for planting requirements in stormwater ponds.

3.9 MAINTENANCE OF LAWN AREAS

- A. Begin maintenance immediately after planting.

- B. Begin maintenance of seeded grass, sod, trees and shrubs immediately after each area is planted. Continue until 90 days after Substantial Completion. If seeded grass and sodded grass is not fully established at this time, continue maintenance until an acceptable lawn is established.
- C. Maintain lawns and plants by watering, fertilizing, weeding, applying herbicides and insecticides, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth, acceptable lawn, free of eroded or bare areas.
- D. Contractor shall include in the base bid furnishing and rolling all sodded areas two separate times with a one ton roller and topdressing these areas one time with topdresser spreader to a depth of ¼" with sand specified herein. Topdressing shall be done between the first and second rolling. Thoroughly dampen (not wet) sodded areas prior to second rolling. Notify Architect 48 hours prior to beginning topdressing
- E. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep planted areas uniformly moist to a depth of 4 inches (100 mm).
 - 1. Water grass/shrubs/groundcover at the minimum rate of 1½ inch per week.
 - 2. Furnish and install slow-release watering bags on all newly planted trees. Monitor the bags and refill on a regular basis.
- F. Mow grass as soon as there is enough top growth to cut with mower set at specified height for principal species planted. Repeat mowing as required to maintain specified height without cutting more than 40 percent of the grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet.
- G. Postfertilization: Apply fertilizer to lawn after first mowing and when grass is dry.
- H. Use fertilizer that will provide actual nitrogen of at least 1 lb per 1000 sq. ft. of lawn area.

3.10 CLEANUP AND PROTECTION

- A. During landscape work, keep pavements clean and work area in an orderly condition.
- B. Protect landscape work and materials from damage due to landscape operations, operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged landscape work as directed.

3.11 INSPECTION AND ACCEPTANCE

- A. When landscape work is completed, including maintenance, Architect will, upon request, make an inspection to determine acceptability.
 - 1. Landscape work may be inspected for acceptance in portions as agreeable to Architect, provided each portion of work offered for inspection is complete, including maintenance.
 - a. When inspected work does not comply with requirements, replace rejected work and continue specified maintenance until reinspected by Architect and found to be acceptable.
 - 2. As soon as the grassed areas have become established, a final inspection of the work will be made, provided a written request for such inspection is given to the Owner. If the work is found to be satisfactory and in accordance with all requirements of the contract documents, the work will be accepted.

- a. It shall be the Contractor's responsibility to provide satisfactory Growth and Coverage. Growth and Coverage on areas grassed as specified shall be considered to be in reasonably close conformity with the intent of the Contract when the vegetation, exclusive of that from seed not expected to have germinated and shown growth at the time, has reached a point of maturity such that each area shows a satisfactory visible growth with not bare spots larger than one square foot. Bare spots shall be scattered and the total bare areas should not comprise more than 1/100 of any given area.
- b. Areas that fail to obtain a satisfactory growth and coverage shall be regrassed, at no additional cost to the Owner, until a satisfactory stand is established.
- c. All seeded and sodded areas are to be established a minimum of 60 days prior to request for substantial completion acceptance.

END OF SECTION 329000