

## SECTION 32 90 00 – PLANTING

### PART 1 – GENERAL

#### 1.01 DESCRIPTION OF WORK

- A. Extent of landscape development work is shown on drawings and in schedules.
- B. Subgrade Elevations: Excavation, filling and grading required to establish elevations shown on drawings are not specified in this section. Refer to earthwork sections.

#### 1.02 QUALITY ASSURANCE

- A. Subcontract landscape work to a single firm specializing in landscape work.
- B. General: Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulation applicable to landscape materials.
- C. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability from minimum of 6 suppliers to Owner, together with proposal for use of equivalent material.
- D. Analysis and Standards: Package standard products with manufacturers certified analysis. For other material provide analysis by recognized laboratory made in accordance with methods established by the Associates of Official Agriculture Chemists, wherever applicable.
- E. Topsoil: At least 2 weeks before delivery of topsoil, furnish Owner with written statement giving location of properties from which topsoil is to be obtained, names and addresses of owners, depth to be stripped, crops grown and insecticides or herbicides used during past 2 years. Also, submit to Owner laboratory tests indicating amount of organic material in topsoil, sand, silt and clay percentages, pH and nutrient quantities.
- F. Trees, Shrubs and Plants: Provide trees, shrubs and plants of quantity, size, and genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock". Provide healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sun-scald, injuries, abrasions, or disfigurement.
- G. Where "matched" or formal arrangements or consecutive order of trees or shrubs are shown, select stock for uniform height and spread, and label with number to assure symmetry in planting.
- H. Inspection: The Owner may inspect trees and shrubs either at place of growth or at site before planting, for compliance with requirements for genus, species, variety, size and quality. Owner retains right to further inspect trees and shrubs for size and condition of balls and root systems, insects, injuries and latent defects, and to reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from project site.

#### 1.03 SUBMITTALS

- A. Certification: Submit certificates of inspection as required by governmental authorities. Submit manufacturers or vendor's certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.
- B. Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity, germination, and weed seed for each grass seed species.
- C. Planting Schedule: Submit proposed planting schedule, indicating dates for each type of landscape

work during normal seasons for such work in area of site. Correlate with specified maintenance periods to provide maintenance from date of substantial completion. Once accepted, revise dates only as approved in writing, after documentation of reasons for delays.

- D. Maintenance Instructions: Submit 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).

#### **1.04 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. Trees and Shrubs: Provide freshly dug trees and shrubs. Do not prune prior to delivery unless otherwise approved by Landscape Architect. Do not bend or bind-tie trees or shrubs in such manner as to damage bark, break branches or destroy natural shape. Provide protective covering during delivery. Do not drop balled and burlapped stock during delivery.
- C. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, 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.
- D. Do not remove container-grown stock from containers until planting time.
- E. Do not deliver wet topsoil or handle topsoil when wet.

#### **1.05 JOB CONDITIONS**

- A. Proceed with the complete landscape work as rapidly as portions of the site become available, work within seasonal limitations for each kind of landscape work required. Coordinate with General Contractor for when work may begin.
- B. Utilities: Determine location of underground utilities and perform work in a manner, which will avoid possible damage. (See the General Conditions for further utility locating instructions.) Hand excavate, as required. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- C. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Owner before planting.
- D. Planting time: Plant or install materials during normal planting seasons for each type of landscape work required. Correlate planting with specified maintenance periods to provide maintenance from date of substantial completion.
- E. Planting Schedule: Prepare a proposed planting schedule. Schedule dates for each type of landscape work during normal seasons for such work in area of site. Correlate with specified maintenance periods to provide maintenance from date of substantial completion. Provide documentation of reasons for delays.
- F. Coordination with Lawns: Plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise acceptable to Owner. If planting of trees and shrubs occurs after lawn work, protect lawn areas and promptly repair damage to lawns resulting from planting operations.

#### **1.06 SPECIAL WARRANTY**

- A. Warranty lawns through specified lawn maintenance period, and until final acceptance.

- B. Warranty trees and shrubs, for a period of one year after date of substantial completion, against defects including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others, or unusual phenomena or incidents which are beyond Landscape Contractor's control.
- C. Remove and replace trees, shrubs, or other plants found to be dead or in unhealthy condition during warranty period. Make replacements during growth season following end of warranty period. Replace trees and shrubs which are in doubtful condition at end of warranty period; unless, in opinion of Owner, it is advisable to extend warranty period for a full growing season.
- D. Another inspection will be conducted at end of extended warranty period, if any, to determine acceptance or rejection. Only one replacement (per tree, shrub or plant) will be required at end of warranty period, except for losses of replacements due to failure to comply with specified requirements, prior to or during warranty period.

## **PART 2- PRODUCTS**

### **2.01 TOPSOIL**

- A. Topsoil for landscape work is not available at site and must be furnished as specified.
- B. Provide topsoil equivalent to Maury silt loam: 12-27% clay, 20-50% sand, 40-68% silt, permeability 2-6 inches per hour, low shrink-swell potential, pH 6.0-7.0. Topsoil shall have minimum 2% organic material.
- C. Topsoil shall be tested for sand, silt and clay percentages, organic content, pH and nutrient content by:

AGRI Systems of Texas, Inc.  
15511 Baldswalle  
Tomball, TX 77375  
(713) 376-4412

or

A & L Agricultural Laboratory of Memphis  
411 North Third Street  
Memphis, TN 38105

Contact lab before taking soil sample for directions on sampling methods to be used.

- D. Topsoil shall be free of live Bermuda grass roots.

### **2.02 STRUCTURAL SOIL**

- A. Structural soil shall be composed of the following (by weight):
  - 1. 1000 parts crushed limestone, 3/4" to 1 1/2" diameter (no fines).
  - 2. 200 parts moist clay loam consisting of 25-40% clay, 20-40% silt and 25-30% sand, 2-5% organic matter.
  - 3. 30 parts dry 'soilmoist' granular hydrogel or equal.
- B. Mix ingredients thoroughly and place in 6" lifts, compacting after each lift.

### 2.03 SOIL AMENDMENTS

- A. Lime: Natural limestone containing not less than 85% of total carbonates, ground so that not less than 90% passes 10-mesh sieve and not less than 50% passes a 100 mesh sieve.
- B. Aluminum Sulfate: Commercial grade.
- C. Supplemental Organic Matter: Composted rice hulls or peat moss. Leaf mold may be substituted only if sample is submitted to owner for approval prior to the start of work.
- D. Bonemeal: Commercial, raw, finely ground; 4% nitrogen and 20% phosphoric acid.
- E. Superphosphate: Soluble mixture of treated minerals; 20% available phosphoric acid.
- F. Sand: Clean, coarse, washed sand, free of toxic materials.
- G. Mulch: Organic mulch free from deleterious materials and suitable for top dressing of trees, shrubs or plants and consisting of Pine needles 3" thick while compressed.
- H. Commercial Fertilizer: Complete fertilizer of neutral character, with some elements derived from organic sources and containing following percentages of available plant nutrients: for lawns, provide fertilizer with percentage of nitrogen required to provide not less than 1 lb. of actual nitrogen per 1000 sq. ft. of lawn area and not less than 10% phosphoric acid and 10% potassium. Provide nitrogen in a form that will be available to lawn during initial period of growth; at least 50% of nitrogen to be organic form.
- I. Pre-Emergent Herbicide: "Barricade" or approved equal shall be spread in all plant beds immediately before mulching. Application rate as per label instructions.

### 2.04 PLANT MATERIALS

- A. Quality: Provide trees, shrubs, and other plants of size, genus, species and variety shown and scheduled for landscape work and complying with recommendations and requirements of ANSI Z60.1 "American Standard for Nursery Stock", current edition.
- B. Deciduous Trees: Provide trees of height and caliper listed scheduled for shown and with branching configuration recommended by ANSI Z60.1 for type and species required. Provide single stem trees except where special forms are shown or listed.
- C. Provide balled and burlapped (B & B) deciduous trees with wire baskets and mechanically dug.
- D. Container grown deciduous trees will be acceptable in lieu of balled and burlapped deciduous trees subject to specified limitations of ANSI Z60.1 for container stock.
- E. Container grown deciduous shrubs will be acceptable in lieu of balled and burlapped deciduous shrubs subject to specified limitations for container grown stock.
- F. Coniferous and Broadleaf Evergreens: Provide evergreens of sizes shown or listed. Dimensions indicate minimum spread for spreading and semi-spreading type evergreens and height for other types, such as globe, dwarf, cone, pyramidal, broad up-right, and columnar. Provide normal quality evergreens with well-balanced form complying with requirements for other size relationships to the primary dimension shown. Provide balled and burlapped (B&B) evergreens. Container grown evergreens will be acceptable subject to specified limitations for container grown stock.

### 2.05 GRASS MATERIALS

- A. Grass Seed: Provide fresh, clean, new-crop seed complying with tolerance for purity and germination established by Official Seed Analysts of North America. Provide the following grass seed mixture: 'Tri-Fesca' hybrid fescue.

- B. Sod: Improved turf type tall fescue or bermuda grass as shown on plans. Sod to be weed and insect free. Sod root zone thickness shall be 3/4" for fescue, 1/2" for bermuda grass. Density to be approved by Owner before installation.

## **2.06 GROUNDCOVERS**

- A. Provide plants established and well-rooted in removable containers or integral peat pots and with not less than minimum number and length of runners required by ANSI Z60.1 for the pot size shown or listed.

## **2.07 OTHER MATERIALS**

- A. Anti-Erosion Mulch: Penn Mulch or Seed Aide applied as per manufacturers specifications. Available from Dickens Supply, Nashville. The use of straw mulch is prohibited.
- B. Anti-Desiccant: Emulsion type, film-forming agent designed to permit transpiration but retard excessive loss of moisture from plant. Deliver in manufacturer's fully identified containers and mix in accordance with manufacturer's instructions.
- C. Wrapping: Do not wrap trees unless requested by Owner.
- D. Stakes and Guys: Consult with Owner to determine if staking will be required. Provide stakes and deadmen of sound new hard wood, treated softwood, or redwood, free of knotholes and other defects. Provide wire ties and guys of 2-strand, twisted, pliable galvanized iron wire not lighter than 12 gal. with zinc-coated turnbuckles. Provide not less than 1/2" diameter rubber or plastic hose, cut to required lengths and of uniform color, material and size to protect tree trunks from damage by wires. Stake trees under 3" caliper. Guy trees over 3" caliper.

## **PART 3 - EXECUTION**

### **3.01 PREPARATION**

- A. Layout individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas and secure Owner's acceptance before start of planting work. Make minor adjustments as may be requested.
- B. Preparation for lawn seeding and sodding:
  - 1. All areas to be seeded or sodded shall be tilled to a depth of 5" and spread with 2" well-rotted rice hulls or peat moss and 1" sand unless the drawings specify otherwise. Thoroughly mix components after spreading. See Owner about modifying depth of tilling and soil amendments in tree root zones.
  - 2. Remove all rocks over 1 inch diameter. Rake off clods to leave surface smooth, without ridges or depressions.
  - 3. Incorporate 10-10-10 fertilizer into the top 2 inches of soil at the rate of 5 lbs/1000 square feet. Lightly drag area to smooth.
  - 4. For sod laid in existing lawn areas, edge the borders of the area with a sod cutter and remove any excess soil from the area to insure a level surface after sod is laid.
- C. Preparation for planting ground cover plants:
  - 1. Prepare groundcover beds as per lawn preparation, item 1 and 2 above.
  - 2. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water. Water thoroughly by hand after planting, taking care not to cover crowns of plants with wet soils. Space plants as shown or schedule.

- D. Excavation for Trees and Shrubs:
1. Excavate pits, beds and trenches with vertical sides and with bottom of excavation slightly raised at center to provide proper drainage. Loosen hard subsoil in bottom of excavation.
  2. For balled and burlapped (B&B) trees and shrubs, make excavations at least twice as wide as the ball diameter and equal to the ball depth.
  3. For container grown stock, excavate as specified for balled and burlapped stock.
  4. Fill excavations for trees and shrubs with water and allow to percolate out before planting.

### 3.02 PLANTING TREES & SHRUBS

- A. Soil mix to be used to backfill shrub and tree pits shall consist of 3 parts soil removed from planting pit and 1 part composted rice hulls or peat moss.
- B. Set balled and burlapped (B&B) stock plumb and in center of pit or trench with top of ball at same elevation as adjacent finished landscape. Remove rope from top of ball, cut away as much burlap as possible without disturbing root ball and remove from planting hole. Add planting soil in layers 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 is absorbed. Water again after placing final layer of backfill.
- C. Set container grown stock as specified for balled and burlapped stock, except cut cans on 2 sides with an approved can cutter before removal; remove bottoms of wooden boxes after partial backfilling so as not to damage root balls.
- D. Dish top of backfill to allow mulching. Spread pre-emergent herbicide at specified rate immediately before mulching.
- E. Mulch pits, trenches and planted areas. Provide not less than 3" thickness of mulch and finish level with adjacent finish grades.
- F. If deciduous trees or shrubs are moved in full-leaf, spray with anti-desiccant at nursery before moving and again 2 week after planting. Apply anti-desiccant using power spray to provide an adequate film over trunks, branches, stems, twigs and foliage.
- G. Prune, thin out and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread, unless otherwise directed by Owner. Do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any. Prune shrubs to retain natural character.
- H. Remove and replace excessively pruned or malformed stock resulting from improper pruning.
- I. Guy and stake trees immediately after planting, if requested by Owner.

### 3.03 SEED NEW LAWNS

- A. Acceptable times for fescue seeding are March 1-15 and September 1 to October 1. If lawn areas are to be seeded at other times, a cover crop specified by the Owner shall be planted. The cover crop shall be killed and the area seeded with fescue at the next acceptable seeding time.
- B. Sow seed at a rate of 8 pounds per 1,000 square feet.
- C. Do not use wet seed or seed which is moldy or otherwise, damaged in transit or storage.
- D. Sow seed using a spreader or seeding machine. Do not seed when wind velocity exceeds 5 miles per hour. Distribute seed evenly over entire area by sowing equal quantity in 2 directions at right angles to each other.
- E. Rake seed lightly into top 1/8" of soil, roll lightly, and water with a fine spray.

- F. Protect seeded areas against erosion by spreading Penn Mulch or Seed Aide at manufacturers specified rate. The use of straw is prohibited.
- G. If called for on drawings, cover sloping seeded and hydro mulched areas with jute mesh fabric, anchored as specified on drawings.
- H. Contractor is responsible for first mowing of seeded areas, and rolling and/or topdressing as needed after mowing to provide a smooth, level lawn.

#### **3.04 SODDING NEW LAWNS**

- A. Lay sod within 24 hours from time of stripping. Do not plant dormant sod or if ground is frozen.
- B. 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 sub-grade or sod. Tamp or roll lightly to ensure contact with sub-grade. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent grass.
- C. Anchor sod on slopes with wood pegs to prevent slippage. Use at least 2 pegs per slab or 1 peg per running foot for long rolls of sod.
- D. Water sod thoroughly by hand immediately after planting. In non-irrigated areas, Sod Contractor shall water sod thoroughly every day for two weeks after installation. In irrigated areas, Sod Contractor shall be responsible for contacting owner regarding altering watering schedules to insure survival of the sod.
- E. Sod shall be rolled and tamped as necessary after watering to achieve a smooth, even surface free of detectable high or low spots. Add sifted soil and or sand to fill cracks between sod panels. Seed cracks larger than 1".
- F. Sod Contractor is responsible for erecting and maintaining fencing or other barriers as heeded to prevent foot or vehicle traffic over newly sodded areas. Repair of areas damaged by such traffic is the responsibility of the sod contractor.
- G. Sod contractor is responsible for first mowing of sodded area and rolling and/or topdressing as needed after mowing to provide a smooth, level lawn.

#### **3.05 RECONDITIONING EXISTING LAWNS**

- A. Recondition existing lawn areas damaged by Contractor's operations including storage of material and equipment and movement of vehicles. Also recondition existing lawn areas where minor re-grading is required.
- B. Provide fertilizer, seed or sod and soil amendments as specified for new lawns and as required to provide a satisfactory reconditioned lawn. Provide new topsoil as required to fill low spots and meet new finish grades.
- C. Cultivate bare and compacted areas to a depth of 5" to provide a satisfactory planting bed.
- D. Remove diseased and unsatisfactory lawn areas; do not bury into soil. Remove topsoil containing foreign materials resulting from Contractor's operations including oil drippings, stone, gravel and other loose building materials.
- E. Where substantial lawn remains (but if thin), mow, rake, aerate if compacted, fill low spots, remove humps and cultivate soil, fertilize, and seed. Remove weeds before seeding or if extensive, apply selective chemical weed killers as required. Apply a seeded mulch, if required, to maintain moist conditions.
- F. Water newly planted areas and keep moist until new grass is established.

### **3.06 MAINTENANCE**

- A. Begin maintenance immediately after planting.
- B. Maintain trees, shrubs and other plants until final acceptance by pruning, cultivating and weeding as required for healthy growth. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Restore and replace damaged wrappings. Spray as required to keep trees and shrubs free of insects and disease.
- C. Maintain lawns until final acceptance by watering, fertilizing, topdressing, weeding, mowing, trimming, and other operations such as rolling, re-grading and replanting as required to establish a smooth acceptable lawn, free of high and low spots and eroded or bare areas.

### **3.07 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 operation, operation by other contractors and trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape work as directed.

### **3.08 INSPECTION AND ACCEPTANCE**

- A. When landscape work is completed, including maintenance, Owner will, upon request, make an inspection to determine acceptability.
- B. Landscape work may be inspected for acceptance in parts agreeable to Owner, provided work offered for inspection is complete, including maintenance.
- C. Where inspected landscape work does not comply with requirements, replace rejected work and continue specified maintenance until re-inspected by Owner and found to be acceptable. Remove rejected plants and materials promptly from project site.

END OF SECTION