

SECTION 32 90 00 – PLANTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preparation of planting beds.
 - 2. Excavation for trees, shrubs, and vines.
 - 3. Planting trees, shrubs, and vines.
 - 4. Mulching.
 - 5. Planting ground cover.
 - 6. Protection, maintenance, repair, and guarantee of plantings.
- B. Related Sections:
 - 1. 31 22 00 "EARTHWORK" for basic subgrade preparation and conservation of onsite topsoil.
 - 2. 32 05 00 "COMMON WORKS FOR EXTERIOR IMPROVEMENTS" for furnished / import topsoil, mulches, and soil amendments.

1.2 SUBMITTALS:

- A. Certifications:
 - 1. Certificates of inspection as required by governmental authorities.
 - 2. Manufacturer's or vendors certified analysis for soil amendments and fertilizer materials.
 - 3. Nursery certifications for plant material, stating botanical and common name.
 - 4. Any other data substantiating that materials comply with specified requirements.
- B. Copies of laboratory results for soil testing.
- C. Notice for Design Professional inspection of plants for Acceptance.
- D. Written plant maintenance instructions to the Owner, prior to the plant guarantee period.
- E. Updated plant maintenance instructions to the Owner, during the Guarantee period.

1.3 QUALITY ASSURANCE

- A. The (Sub) Contractor performing landscape work shall be a single firm specializing in landscape work.

- B. The (Sub) Contractor performing landscape work shall provide continuous superintendence by an experienced plantsman during the layout, preparation and execution of all landscape work.
- C. Pre-Landscape Conference
 - 1. Prior to the commencement of any landscape work, meet at the site with:
 - a. Owner
 - b. Design Professional/Landscape Design Professional
 - c. Contractor's Project Manager
 - d. Contractor's Job Superintendent
 - e. (Sub) Contractor and performing landscape work and its Foreman who will be on site full time during the preparation and installation of landscape work.
 - 2. Review foreseeable methods and procedures related to the landscape work, including but not necessarily limited to the following:
 - a. Review project requirements (drawings, specifications, and other contract documents, and in particular landscape work).
 - b. Review availability of materials, tradesmen, equipment, and facilities needed to make progress and avoid delays.
 - c. Review required inspection, testing, certifying, and accounting procedures.
 - d. Review regulations concerning code compliance, environmental protection, health, safety and similar considerations.
 - e. Review required submittals, both completed and yet to be completed.
 - f. Review soils conditions, soil preparation, installation methods and drainage conditions for landscape work.
 - g. Review protection and maintenance of landscape work.
 - 3. Record (by the Contractor) the discussions of the conference and the decisions and agreements (or disagreements) reached and furnish a copy of the record to each party attending.
- D. Source Quality Control
 - 1. General: Ship landscape materials with certificates of inspection required by governing authorities. Comply with regulations applicable to landscape materials.
 - 2. Do not make substitutions. If specified landscape material is not obtainable, submit proof of non-availability to Design Professional, together with proposal for use of equivalent material.
 - 3. Analysis and Standards: Package standard products with manufacturer's 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.
 - 4. Trees, Shrubs and Plants: Provide trees, shrubs and plants of quantity, 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". Provide healthy, vigorous stock, grown in 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.
5. Label at least one tree and one shrub of each variety with a securely attached waterproof tag bearing legible designation of botanical and common name. Where 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.
 6. Inspection: The Design Professional 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. Design Professional retains right to further inspect trees and shrubs for size and conditions 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.

1.4 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 Design Professional. 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 six (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.

1.5 SITE CONDITIONS

- A. Proceed with and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required.
- B. Excavation: When conditions detrimental to plant growth are encountered, such as rubble fill, adverse drainage conditions, or obstructions, notify Design Professional for instructions before planting.
- C. Coordination with Lawns: Plant trees and shrubs after final grades are established and prior to planting of lawns, unless otherwise acceptable to Design Professional. If planting of trees and shrubs occurs after lawn work,

protect lawn areas and promptly repair damage to lawns resulting from planting operations.

- D. The Design Professional has the right to inspect and approve material or representative samples at the place of growth or any mutually agreed location prior to digging or delivery. Subsequent inspections during installation (with the right of rejection for reasons of disease, damage, or nonconformity) can be anticipated. All plants shall be inspected and approved before they are planted.

1.6 PLANT REPLACEMENT GUARANTEE

- A. Guarantee: Replace any plant found by the Design Professional or Owner's Representative to be in an unhealthy condition or not to be thriving during the period of 1 full growing season (April 15 – October 15) year following <Substantial Completion> <Acceptance at no expense to the Owner, provided that the Owner has followed the prescribed maintenance procedures and that no replacements are necessitated by neglect or abuse by the Owner. Disputes arising under this Paragraph shall be referred to the Design Professional for arbitration. The Design Professional's determination shall be final and binding on the parties hereto and may be enforced by the entry of judgment in any court of competent jurisdiction.
- B. Replacements shall be made by (weather and seasonal conditions permitting) within 10 calendar days of notification by the Design Professional or Owner's Representative.
- C. Materials and Operations: All replacements shall be plants of the same size and kind and as specified in the Plant List and consistent with the sizes of adjacent, thriving plants.

PART 2 - PRODUCTS

2.1 TOPSOIL AND SEEDBED PREPARATION AMENDMENTS

- A. Refer to 31 22 00 "EARTHWORK" for conserved onsite topsoil when available. If necessary, amount of topsoil is not present on site, secure topsoil of specified quality from off-site source. Topsoil shall be approved by the Design Professional prior to delivery onsite.
- B. Refer to 32 05 00 "COMMON WORKS FOR EXTERIOR IMPROVEMENTS" for furnished (import) topsoil, lime, water, compost, pre-emergent weed control, and fertilizers.

2.2 AMENDED PLANTING SOIL

- A. Amended Planting Soil is made by thoroughly mixing the following:

1. 5 parts topsoil or suitable existing soils. Do not use very poor soil, hardpan or soil injurious to plants. Ensure soil is reasonably clean of roots, plants, sods, stones, clay lumps, and other extraneous materials harmful or toxic to plant growth.
 2. 1 part composted manure. (32 05 00 "COMMON WORKS FOR EXTERIOR IMPROVEMENTS")
 3. 1 part peat moss.
 4. Commercial fertilizer, 5-10-5, at rate of 5 lbs/cu-yd.
 5. Lime at rate of 5 lb/cu-yd.
- B. For tree/shrub planting pit backfill areas, mix Amended Soil prior to backfilling, and stockpile at the site.
- C. For planting beds Contractor options to mix Amended Soil:
1. Prior to planting and stockpile at the site.
 2. In place. Apply manure, peat, and fertilizer amendments on surface of topsoil/suitable soil and mix thoroughly in-place.

2.3 MULCHES FOR PLANTING BEDS

- A. Provide mulches of the types and depths shown, that are clean and free from debris, and reasonably free of weeds, can be distributed uniformly. Mulches may include, but are not limited to:
1. Pine straw (default- mulched planting beds are pine straw unless otherwise shown).
 2. Pine bark.
 - a. Derived from disease free wood.
 - b. Contain no noxious weed seeds, soil, sawdust, or any substance toxic to plant growth.
 - c. Be at least 2 years old.
 3. Shredded hardwoods.
 - a. Contain a maximum of 25% by volume shredded Cypress and shredded shredded pine mulch up to 35% by volume.
 - b. Derived from disease free trees.
 - c. Particle size less than 1 inch diameter and less than 3 inch length.
 - d. Viable weed seeds destroyed by 2 cycles of composting at 140°F and decomposition due to nitrification is complete.
 - e. Free from toxic levels of acidity and alkalinity.

2.4 PLANT MATERIALS

- A. Quality:
1. 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".
 2. Plant materials shall be readily adaptable to soil and climatic conditions on the site (from relatively indigenous sources); in natural form of growth, unless otherwise specified; sound, healthy, vigorous and free of insects, insects' eggs, and larvae.

- B. Deciduous Trees: Provide trees of height and caliper scheduled or 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.
 - 1. Provide balled and burlapped (B&B) deciduous trees.
 - 2. 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.
 - 3. Container grown deciduous shrubs will be acceptable in lieu of balled and burlapped deciduous shrubs subject to specified limitations for container grown stock.
- C. 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.
 - 1. Provide balled and burlapped (B&B) evergreens.
 - 2. Container grown evergreens will be acceptable subject to specified limitations for container grown stock.
- D. The Contractor is responsible for all certificates of inspection of plant materials that may be required by Federal, State or other authorities to accompany shipment of plants.
- E. Substitutions are not permitted without written approval. No collected plants other than those shown in the plant list are permitted without written approval.

2.5 GROUND COVER

- 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.

2.6 MISCELLANEOUS LANDSCAPE MATERIALS

- A. Anti-Erosion Mulch: Provide clean, seed-free salt hay or threshed straw of wheat, rye, oats or barley.
- B. Anti-Desiccant: Emulsion type, film-forming agent designed to permit transpiration but retard excessive loss of moisture from plants. Deliver in manufacturer's fully identified containers and mix in accordance with manufacturer's instructions.
- C. Filtration/Separation Fabric: Water permeable filtration fabric of fiberglass or polypropylene fabric.

- D. Wrapping: Tree-wrap tape not less than 4" wide, designed to prevent bore damage and winter freezing.
- E. Stakes and Guys: Provide stakes as detailed of new hardwood, treated softwood, redwood, free of knots holes and any defects. Paint all stakes with flat black enamel paint prior to installation and touch-up paint after installation. Provide wire ties and guy of 2 strand, twisted, pliable galvanized iron wire not lighter than 12 ga. with zinc coated turnbuckles. Provide not less than 1/2" diameter black rubber hose, cut to required lengths and of uniform size to protect tree trunk from damage by wires.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine grading, substrates and conditions where turf and grasses will be established.
- B. Do not proceed with permanent grassing installation unless satisfactory conditions exist. Satisfactory conditions include but are not limited to:
 - 1. Subgrades prepared in accordance with 31 22 00 "EARTHWORK".
 - 2. Provide allowances when establishing subgrade elevations for settlement and additions of topsoil, compost, and other soil amendments.
 - 3. Slopes are stable and are graded to divert any concentrated flow away from slope faces.

3.2 TIME OF PLANTING

- A. Optimum planting of trees and shrubs is from October 15th to March 15th unless otherwise specified on the Drawings.
- B. At the option and on the full responsibility of the Contractor, planting operations may be conducted outside of the optimum planting season defined by these Specifications, the Plans, published or nursery values for individual plant species, or under unseasonable conditions.
- C. Begin planting operations as soon as possible upon completion of other construction within the planting area. Regular maintenance is essential to protect all new plant material.

3.3 PREPARATION

- A. Layout individual tree and shrub locations and areas for multiple plantings. Stake locations and outline areas and secure Design Professional's acceptance before start of planting work. Make minor adjustments as may be required. No planting except ground covers and vines shall be closer than 2 feet to pavements or structures.

- B. Preparation of Planting Beds:
1. Stone / gravel products, regardless of size, that are brought in to the site by the Contractor shall be fully removed from planting bed areas under this section prior to additional preparation activities noted below.
 2. Loosen subgrade of planting bed areas to a minimum depth of 6 inches using a cultmulcher or similar equipment. Remove stones over 1/2 inch in any dimension, and sticks, stones, rubbish and other extraneous matter.
 3. Prepare planting beds where shown and as shown on the Plans. Prepare according to 1 of the following 2 amendment methods. If amendment method is not explicitly shown on the Plans then utilize the 'Topsoil and Compost Amendment' noted below.
 - a. Topsoil and Compost Amendment: Spread 4 inches of screened topsoil and 2 inches of compost and uniformly mix into the top 8 inches of the soil profile. After light rolling and natural settlement the finish surface shall meet grades and elevations shown.
 - b. Amended Planting Soil: Prepare 4 inches total depth of Amended Planting Soil mixture to minimum depth required to meet lines, grades and elevations shown. Place approximately 1/2 of total amount of Amended Planting soil required. Work into top of loosened subgrade to create a transition layer, then place remainder of the Amended Planting soil.
 4. Pre-emergent Weed Control: All areas to be planted shall be treated with Scotts Pro Grow Ornamental Herbicide 2 (granular), or approved equal, at the rate of two and a half (2-1/2) pounds per thousand (1000) square feet.
- C. Excavation for Trees and Shrubs:
1. Dig planting pits and prepare Amended Planting Soils before plants are delivered to the site.
 2. 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. Diameter of pits for trees is at least 2 feet greater than diameter of the ball or spread of roots.
 3. Allow for 4" setting layer of planting soil mixture.
 4. For balled and burlapped (B&B trees and shrubs), make excavations at least half again as wide as the ball diameter and equal to the ball depth, plus following allowance for setting ball on a layer of compacted backfill.
 5. For container grown stock, excavate as specified for balled and burlapped stock, adjusted to size of container width and depth.
 6. Dispose of subsoil removed from planting excavations. Do not mix with planting soil or use as backfill.
 7. Fill excavations for trees and shrubs with water and allow to percolate out before planting.

3.4 PLANTING TREES AND SHRUBS

- A. Set balled and burlapped (B&B) stock on layer of compacted planting soil mixture, plumb and in center of pit or trench with top of ball at same elevation as adjacent finished landscape grades. Face plants to give the best appearance or relationship from existing structures. Remove burlap from sides of balls;

retain on bottoms. 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 is absorbed. Water again, after placing final layer of backfill.

- B. Set bare rootstock on cushion of planting soil mixture. Spread roots and carefully work backfill around roots by hand and puddle with water until backfill layers are completely saturated. Plumb before backfilling and maintain plumb while working backfill around roots and placing layers of soil mixture above roots. Set collar 1" below adjacent finish landscape grades. Spread out roots without tangling or turning up to surface. Cut injured roots clean; do not break.
- C. Set container grown stock as specified for balled and burlapped stock, except cut cans on 2 sides with an approved can cutter; remove bottoms of wooden boxes after partial backfilling so as not to damage root balls.
- D. Dish top of backfill to allow for mulching.
- E. Mulch pits, trenches and planted areas. Provide not less than 3" thickness of mulch, avoiding contact with the tree or shrub, and work into top of backfill and finish level with adjacent finish grades.
- F. Apply anti-desiccant using power spray to provide an adequate film over trunks, branches, stems, twigs and foliage.
- G. If deciduous trees or shrubs are moved in full-leaf, spray with anti-desiccant at nursery before moving and again 2 weeks after planting.
- H. 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 Design Professional, do not cut tree leaders, and remove only injured or dead branches from flowering trees, if any. Prune shrubs to retain natural character.
- I. Remove and replace excessively pruned or misformed stock resulting from improper pruning.
- J. Wrap tree trunks of 2" caliper and larger. Start at ground and cover trunk to height of first branches and securely attach. Inspect tree trunks for injury, improper pruning and insect infestation and take corrective measures before wrapping.
- K. Guy and stake trees immediately after planting, as detailed.

3.5 PLANTING GROUND COVER AND COLOR BEDS

- A. Space plants as shown or scheduled.
- B. Dig holes large enough to allow for spreading of roots and backfill with planting soil. Work soil around roots to eliminate air pockets and leave a slight saucer

indentation around plants to hold water. Water thoroughly after planting, taking care not to cover crowns of plants with wet soils.

- C. Pre-emergent Weed Control: Treat all shrub and color beds with Ornamental Herbicide (granular) at the rate of 2 ½ pounds per 1,000 square feet, or as recommended by the manufacturer. Provide Design Professional with manufacturers certificate from each bag used. Failure to provide certificates or proof of purchase will be considered "not installed".
- D. Mulch areas between ground cover plants, avoiding contact with the plant itself: place not less than 3" thick, unless otherwise shown.

3.6 MULCHES – MULCHED BEDS

- A. Unless otherwise shown, apply pine straw at 4" settled depth.
- B. Apply compost prior to placing mulch when shown. Apply compost as shown in the plans. If compost application is not detailed:
 - 1. Apply over planting beds at 2 inches depth and uniformly incorporate into the top 6 to 8 inches of soil.
- C. Mulched beds: Soak mulch with water immediately prior to or after installation.

3.7 PROTECTION AND MAINTENANCE

- A. Provide all plant maintenance immediately after each plant is planted and continue for a period of 1 **full** growing season (April 15th to October 15th) and terminating at Acceptance of the Work by the Design Professional.
- B. Maintain all planting and incidentals in good condition and perform all necessary operations for promotion of root growth and plant life. Maintenance of new planting includes, but is not limited to: pruning, watering, cultivation, weeding, mulching, tightening, repairing of guys, resetting plants to proper grades or upright position, restoration of planting saucer, and furnishing and applying such sprays as are necessary to keep the plantings free of insects and diseases.
- C. Protect all adjacent site improvements including grass areas during maintenance work and promptly repair any damage.
- D. Protect all planting work at all times against trespassing and damages of any kind for the duration of the maintenance period. If any plants become damaged or injured, repair or replaced as directed by the Design Professional at no additional cost to the Owner. Do not perform any work within, adjacent to, or over any plant or planting area without proper safeguards and protection to the plant material.
- E. Water the root system of all plants at sufficient intervals to provide the best conditions for promotion of root growth and plant life.

- F. All planting and plant materials required by this contract shall be in satisfactory and acceptable condition when Contractor applies for payment.
- G. Sidewalks, streets, and other paved areas shall be kept clean when planting and maintenance operations are in progress.
- H. Remove all guys, and stakes from trees at the end of the maintenance period.
- I. Prescribed Maintenance Procedures Provide the Owner with written instructions on the proper and subsequent care for the new plant material at the end of his maintenance period.

3.8 INSPECTION, ACCEPTANCE, GUARANTEE AND REPLACEMENT

- A. The Design Professional shall inspect all work for acceptance upon written request of the Contractor. Submit request a minimum of 10 days before the anticipated date of inspection.
- B. At the sole discretion of the Design Professional and Owner, Acceptance may be granted for sections or lots of the Work.
- C. Upon completion of all repairs or replacements which may appear at that time to be necessary in the judgment of the Design Professional, the Design Professional will certify in writing the acceptance of the work.
- D. The guarantee period shall begin at Acceptance.
- E. All plant materials shall be guaranteed by the Contractor except relocated materials, for a period 90 days for evergreen plants and 30 days after breaking growth in the spring for deciduous plants.
- F. Perform periodic inspections, no less than bi-weekly, at no extra cost to the Owner, during the guarantee period to determine what changes, if any, should be made in the Owner's maintenance program. Submit such recommended changes in writing to the Owner and the Design Professional.
- G. Replace as soon as weather conditions permit, all dead plants and all plants not in a vigorous thriving condition, as determined by the Design Professional during and at the end of the guarantee period. Thriving plants are free of dead branches and dead branch tips, and bears foliage of a normal density, size, and color. Replacements shall match adjacent specimens of the same species and are subject to all requirements of these Specifications and Plans.
- H. Provide all necessary repairs to grades, and lawn areas required due to maintenance or plant replacements.
- I. The guarantee of all replacement plants shall extend for an additional period of 90 days for evergreen and 30 days from time of breaking growth in spring for deciduous material after replacement. If a replacement plant is not acceptable during or at the end of the said extended guarantee period, the Owner may elect subsequent replacement or credit for each item.

3.9 CLEANUP

- A. Remove any soil, peat or similar material which has been brought onto adjacent areas by planting operations, maintenance, or guarantee work. All excess soil, stones, and debris which has not previously been cleaned up shall be removed from the site and disposed of in a lawful manner.
- B. Upon completion of any maintenance or guarantee work, remove all equipment from the premises to the satisfaction of the Owner.

END OF SECTION 32 90 00