SECTION 02900 - LANDSCAPING

PART 1 - GENERAL

1.1 DESCRIPTION:

Provide complete landscaping shown on Drawings and described

1.2 RELATED WORK SPECIFICED ELSEWHERE:

A. Lawns - 02930

1.3 QUALITY ASSURANCE:

- A. Comply with applicable Federal, State and County regulations governing
- landscape materials and work. B. Architect reserves the right to review materials at growing site.
- C. Observation at growing site does not preclude right of rejection at job site.
- Plants damaged in transit or at job site shall be rejected. D. Personnel: Employee only qualified personnel familiar with required work.

1.4 REFERENCE STANDARDS:

- A. American Standard for Nursery Stock, Edition approved 1986 by Amerocan National Standards Institute, Inc. (Z60.1) - plant materials.
- B. Hortus Third, 1976 Cornell University plant materials.
- C. ASTM: American Standards Testing Material sharp sand.

1.5 SUBMITTALS:

- A. Samples: Provide representative quantities of sandy loam, sharp sand, bark
- B. Submit three representative samples of each of ornamental trees, shrubs,
- and groundcover plants for Architect's approval. When approved, tag. install and maintain as representative samples for final installed plant material.
- C. File Cirtificates of Inspection of plant material by State, County and Federal authorities with Architect, if required.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING:

A Preparation:

- 1. Balled & Burlapped (B&B) Plants: Dig and prepare for shipment in a manner that will not damage roots, branches, shape, and future development.
- 2. Container Grown Plants: Deliver plants in container sufficiently rigid to

hold ball shape and protect root mass. B. Delivery:

- 1. Deliver packaged material in sealed containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during
- delivery and while stored at site. 2. Deliver only plant materials that can be planted in one day unless adequate
- storage and watering facilities are available on site.
- 3. Protect root balls by healing in with sawdust, if not planted within 24 hours of delivery.
- 4. Protect during delivery to prevent damage to root balls or desicration of
- leaves. Keep plants moist at all times. Cover all materials. 5. Notify Architect of delivery schedules 48 hours in advance so plant
- materials may be observed upon arrival at job site.
- 6. Remove rejected plant materials immediately from site.
- 7. Do not lift, move, adjust to plumb, or otherwise manipulate plants by trunk or stems.

1.7 JOB CONDITIONS:

- A. Planting Restrictions: Perform actual planting only when weather and soil conditions are suitable in accordance with locally accepted practices.
- B Protection 1. Do not move equipment over existing or newly placed structures without
- approval of Architect or General Contractor. 2. Provide board-roading as required to protect paving.
- 3. Protect other improvements from damage, with protection boards, ramps and protective sheeting

C. Utilities:

- 1. Determine locations of underground utilities and perform work in a manner which will avoid possible damage. Hand excavate, if required, to
- minimize possibility of damage to underground utilities.
- 2. Coordinate work with irrigation contractor to prevent damage to underground sprinkler system.

1.8 WARRANTY:

- A. Warranty plants and trees for one year after final acceptance. Replace dead materials and materials not in vigorous, thriving condition as soon as weather permits and on notification by Architect. Replace plants, including trees, which in opinion of Architect have partially died thereby damaging shape, size, or
- B. Replace plants and trees with same kind and size as originally planted, at not cost to Owner. Provide one-year warranty on replacement plants. Trees should be replaced at start of next planting or digging season. In such cases, remove dead trees immediately. Protect irrigation system and other piping conduit or other work during replacement. Repair any damage immediately.
- C. Warranty excludes replacement of plants after final acceptance because of injury
- by storm, drought, drowning, hail, freeze, insects, or disease.
- D. At end of warranty period, staking and guying materials shall be removed from the site by the Contractor at no additional costs.

1.9 MAINTENANCE:

- A. Water will be available on site. Provide nessary hoses and other watering
- equipment required to complete work
- B. Maintain plantings and trees by watering, cultivating, weeding, spraying, cleaning and replacing as necessary to keep landscape in a vigorous, healthy condition and rake bed areas as required until final acceptance.
- C. Coordinate watering schedules with irrigation contractor during installation and until final acceptance.
- 1.10 WORK INCLUDED BUT SPECIFIED ELSEWHERE: NONE

PART 2- PRODUCTS

2.1 PLANTS:

- A. General: Equal to well-formed No. 1 grade nursery stock. Listed plant heights
- are from tops of root balls to naminal tops of plants. B. Shrubs & Ground Covers: Nursery grown, healthy, vigorous, of normal habit of growth for species, free from disease, insect eggs and larvae. Specified sizes are

before pruning and measured with branches in normal position. Plants shall be

well rooted and established in the container. C. Ornamental & Shade Trees: Healthy, vigorous, full-branched, well-shaped, trunk diameter and height requirements as specified. Balls shall be firm, neat, slightly tapered and well burlapped. Trees with loose or broken balls at time of planting shall be rejected. Trees will be individually approved by Architect. Root balls shall be ten (10") inches in diameter for each inch of caliper, measured twelve (1/2") inches above root ball. Trees shall be free of physical damage such as scrapes, bark abrasions or split branches.

2.2 SOIL PREPARATION MATERIALS:

- A Sandy Loam: 1. Friable, fertile, dark, loamy soil, free of clay lumps, subsoil, stones, and other extraneous material and reasonably free of weeds and foreign
- grasses. Loam containg Dallisgrass or Nutgrass shall be rejected. 2. Physical properties as follows: Clay-between 7-27 percent Silt-between 15-35 percent Sand-less than 52 percent
- 3. Organic matter shall be 4-percent of total dry weight.
- B. Sharp Sand: Clean, washed sand, (fine aggregate) ASTM C-33. C. Peat Moss: Commercial sphagnum moss or hyphum peat, or decomposed gin trash with ph between 5 and 7. The gin trash shall be sterilized to eliminate all active residues, i.e., insecticides, pesticides, herbicides, fungus, virus and defoliant chemicals. Organic matter shall not be less than 90 percet.
- D. Commercial Fertilizer: Complete fertilizer (1:2:1 element ratio) with minimum 8% sulfur and 4% iron plus micronutrients.

2.3 MISCELLANEOUS MATERIALS:

- A. Steel Edging: 1/8" x 4" by Ryerson or equal.
- B. Wrapping material: Waterproof crepe tree wrapping paper. C. Tree Paint: Asphaltic based paint with antiseptic properties, manufactured for use
- on tree wounds. D. Mulch: Shredded hardwood bark mulch by Living Earth Technology, Inc.
- E. Guying Material:
- 1. Tie wire: 12 gauge, galvanised wire.
- 2. Black hose: 2 ply, fiber reinforced hose minimum 1/2 inch inside
- 3. T-shaped metal posts: Painted flat black, 8 foot long, or wood stakes 2x2 x 9 feet long dense pine, untreated.

PART 3- EXECUTION

3.1 CONDITION OF SERVICES:

Lawn and other planting areas will be left +/-, 1 feet below finish grade.

3.2 INSPECTION:

Examine subgrade upon which work is to be performed and verify conditions under which work is to be performed. Notify General Contractor and Architect of unsatisfactory conditions. Do not proceed with work until satisfactory conditions have been corrected in manner acceptable to Contractor.

3.3 BED PREPARATION:

- A. Provide 6 inches of thoroughly mixed and prepared soil for all shrubs, ground cover, perennials and seasonal color beds (except Azalea) as follows:
- 1 part mulch 1 part peat moss
- 1 part organic compost Add 4 pounds commercial fertilizer per 100 square feet of bed area and mix
- thoroughly to all beds, including azaleas. B. Provide 12"-18" minimum of 1/2 peat moss and 1/2 shredded pine bark
- thoroughly mixed for all azalea beds. Establish good drainage in beds. C. Excavate bed areas of existing soil where necessary prior to placement preparation mix, and allow 2" additional depth to accomodate bark mulch flush with adjacent concrete surface or lawn areas. DO NOT BUILD UP BEDS AND

IMPEED SITE DRAINAGE. Insure that all beds have sufficient slope for

drainage 3.4 SHRUB AND GROUNDCOVER PLANTING:

- A. Place plants in positon on bed areas before cans have been removed. Obtain approval from Architect. Architect reserves right to interchange or shift locations of plants prior to planting. Do not remove burlap from BB plants. Add 4 pounds commercial fertilizer per 100 square feet of bed area and mix throughly. Plant where located, setting plants with tops of balls even with tops of beds, and compact soil carefully around each plant ball. Water thoroughly to eliminate air pockets. Carefully prune plants to remove dead or broken branches and hand-rake bad areas to smooth even surfaces.
- 3.5 TREE PLANTING:
- A. Ornamental Trees: Plant in pits 12 inches larger than tree ball, backfill with 25% organic mix and 75% existing soil.

B. Install ryerson steel edging to separate all planter beds from lawn areas.

- B. Shade Trees:
- 1. Stake locations for approval by Architect.
- 2. Plant in pits 12" greater in diameter than root balls or to edge of tree leave-outs in paved areas, backfill with 25% organic mix and 75% existing soil. Remove excavated soil from site no used in backfill mix.

3.6 STONE WORK: NONE 3.7 TOP DRESSING:

- After planting has been completed and approved by architect, top dress bed areas with bark mulch, 2 inches deep. Beds shouldbe left 2" below desired finish grade during excavation process. Delay this operation until near final acceptance.
- 3.8 TREE WRAPPING: Provide wrapping only at the Owner's request.
- 3.9 PRUNING OF NEW TREES: Prune trees to preserve natural character of plant. In general, remove sucker growth and broken or badly bruised branches.
- 3.10 TREE SAUCERS: Form a 4" (four inch) high saucer around each new tree planted in the lawn areas for deep watering place 2" of bark mulch within saucer. Contractor shall water until final acceptance.
- 3.11 TREE GUYING AND STAKING: Perform guying only as required and as directed by the Architect, due to site or weather conditions. Precaustions shall be taken during guying operation to prevent damage or injury to the plant't branches and roots. If guying is required, the Contract amount will be adjusted using the unit price provided in the Contract.
- 3.12 CLEANUP: Keep premises neat and orderly including storage area. Remove trash and debris from excavating planting areas, preparing beds, or planting plants from site daily as work progresses. Keep paved areas clean by sweeping / hosing.
- END OF SECTION 02900

SECTION 02930 - LAWNS

PART 1 - GENERAL

- 1.1 SCOPE: Furnish all labor, tools, transportation, materials, equipment, supervision, etc. required to adequately establish a dense lawn of permanent grasses, free from lumps and depressions as indicated by plans and specifications.
 - Redo any part of the area failing to show cover until a dense lawn is established. The cost of miscellaneous labor and materials for topsoil, weeding, tilling, pest control, fertilizing, etc., are not separate pay items and shall be included in the bid price for grassing.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Landscaping,- Section 02900.

1.3 PAYMENT:

- A. Payment for grass planting, or hydromulching for general turf areas will be made after final acceptance based on hte method of payment stated in the bid proposal. If based on area units, such as square feet or square yards, payment will be based on actual field measurements. The contractor shall seed, fertilize, maintain and establish a healthy stand of grass before acceptance or payment for grass will be considered by the owner.
- B. Bidders shall be aware that estimates of work under the specifications for monthly payments are made on nonperichable materials only. Payments for perishables will be made after final acceptance of the project. All grass planting, tilling, fertilizer, etc. shall be considered perishable, therefore, no partial payments will be paid for grass planting and associated work.
- 1.4 MAINRTENANCE OF GRASS: The contractor shall maintain the grass until final acceptance. Such maintenance shall include spraying, weeding, cultivation, watering, disease and insect control, top dressing low spots, plus any procedures consistant
- with horticultural practice necessary to insure normal, vigorous, and healthy grass. 1.5 JOB CONDITIONS: Water will be available on site, including irrigation system. Lawn areas will be left within 0.1 foot of finish grade plus or minus. Fine grading, raking and smoothing will be the responsibility of the contractor.
- 1.6 SCHEDULE:
- A. Seeding/hydromulching bermudagrass only between April 15th and Sept. 1st. B. Seeding/hydromulching Ryegrass - only between Sept. 30th and Dec. 15th, or February 1st and April 15th.
- C. Quaalifications: Due to unseasonable weather, the above dates may vary, however, do not proceed with grassing operations beyond these dates without assuming full responsibility for a stand of grass.
- 1.7 ACCEPTANCE: The work will be accepted when a completed, undamaged stand of grass is achieved, as approved by the Owner or Architect.

PART 2 - MATERIALS

- 2.1 TOPSOIL: Friable, fertile, dark, loamy soil, free of clay lumps, subsoil, stones and other extraneous material and reasonably free of weeds and foreign grasses. Topsoil containing Dallisgrass or nutgrass shall be rejected.
 - Physical properties as follows: Clay- between 7-27 percent Silt- between 28-50 percent Sand-less than 52 percent
- A. Bermudagrass/Ryegrass: Extra fancy, hulled and treated, lawn type, delivered to sit in original, unopened containers meeting requirements of Texas State
- Seed Law. Minimum purity germination ninety percent (90%). B. Seasonal Ryegrass: Extra Fancy, hulled and treated, lawn type, delivered to site in original, unopened containers meeting requirements of Texas State Seed
- Law. Minimum purity germination ninety percent (90%). C. Solid Sod: Healthy, free of weeds and disease and overseeded with perennial rye if installed between September 15, and May 15.
- 2.3 FERTILIZER: Fertilizer shall be organic base, uniform in composition, dry and free
- flowing. Deliver fertilizer to site in original unopened containers. A. First application: 12-12-12 element raito w/ min. 8% sulfur, 4% iron & micro nutrients. B. Second application: 3-1-2 element ratio. Nitrogen source to be a minimum 50% slow release organic nitrogen (SCU or UF) plus minimum 8% sulfur and 4% iron
- 2.4 MULCH FIBER: Wood cellulose fiber for hydromulch: Weyerhauser or equal with
- green color nutrients. 2.5 TACKIFIER: Natural, non-asphaltic vegetable gum with gelling and hardening agents
- 2.6 SHARP SAND: Clear, washed sand (fine aggregate) ASTM C-33.
- 2.7 HERBICIDE: Round-up or equal.

plus micro nutrients.

PART 3 - EXECUTION:

- 3.1 PREPARATION: A. Scarify lawn areas where excessive compaction is greater than
- 85% Standard Proctor to a depth of 4 inches by discing or rototilling. Repeat cultivation as required to thoroughly loosen soil.
- B. Leave areas free of weeds and ready for final grading. C. Provide barricades around sacrified areas to prevent compaction by construction
- 3.2 FINAL GRADING: Remove from site and legally dispose of stones 1 inch and larger, sticks and other debris exposed during this operation. Provide finish grading leaving surface uniform without depressions and undulations, graded approx.
- 1 inch below paving. Secure approval from Architect prior to grassing operation. 3.3 HERBICIDING: Apply herbicide to remove any remaining weeds. This work is to be
- performed by a licensed applicator following the manufacturer's recommendations. 3.4 FERTILIZER: Place first application w/ hydromulch at rate of 12 lbs. / 1000 s.f.; uniformly distribute second application using a rotary type fertilizer spreader 3-4 weeks after first application at 12 lbs./ 1000 s.f..
- 3.5 HYDROMULCH/SEEDING: A. At time of hydromulch/seeding, soil shall be moist not muddy, and wind velocity
- shall not exceed ten (10) miles per hour. Add water if required to moisten soil. B. Hydromulch seed uniformaly at rate of 2 lbs. of Bermudagrass or Ryegrass seed per 1.000 square feet.
- C. Addackifier to hydromulch mix for slopes 5:1 or greater at the rate of 1 lb. / bag. 3.6 MECHANICAL SEEDING: Seed uniformly at rate of 125 lbs. of Bermudagrass or Ryegrass seed per acre. Use grass drill, brillion seeder or viking roller.
- 3.7 SOLIDSOD: Plant grass by hand, edge to edge with staggered joints. Topdress w/ sharp sand raked in carefully to fill joints. Roll to eliminate undulations and provide complete soil contact. Fertilize immediately after grass is planted @ 4lbs./1000 s.f..
- Fertilizing: Fertilize immediatly after grass is planted at rate of 4 lbs. pre 1,000 square foot. Repeat fertilizing at the same rate 3-4 weeks later.
- 3.8 ESTABLISHMENT AND MAINTENANCE OF LAWN AREAS:

A. Watering:

- 1. Water lawn areas immediately after grassing operation with either the irrigation system in areas covered, or with truck watering along parkways.
- 2. Continue watering as required to keep soil uniformly moist to a minimum depth of 4-inches. 3. Be alert to over-watering newly planted grass, particularly in heavey clay soils.
- B. Replanting/ Erosion Control:
- 1. Correct any erosion that may occur during the establishment of grass.
- 2. Reseed (sod) any areas not showing sufficient growth within 3 weeks after initial grassing.
- Continue seeding (sodding) until a stand of grass is achieved.
- 3. A stand of grass will be defined as a uniform cover of actively growing turf.

If approved, herbicide spot treatments may be used.

C. Mowing/Weed Control:

3.9 CLEANUP: During work, keep premises neat and orderly, including storage areas.

1. Mowing lawn areas weekly until a stand of grass is achieved. Begin mowing when the lawn reaches a height of 3-inches; set mower to cut at 2-inches. A minimum of two mowings is required. 2. Weed lawn areas until acceptance, removing all foreign vegetation, either by hoeing or pulling.

Remove trash, including debris resulting from removing weeds and rocks from site daily as work progresses. Keep paved areas clean by sweeping or hosing.

END OF SECTION 02930

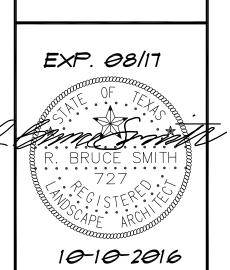
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LANDSCAPE **SPECIFICATIONS**

10/25/2018

S D AD H

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NOTE

DATE:

DRAWING FILE:

SHEET