

## SECTION 02100

### CLEARING, GRUBBING AND STRIPPING

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. Clearing the entire area within the limits of work of all rubbish, debris and other objectionable material, and disposal of same.
- B. Stripping the entire area within the limits of work of all swamp grass, shrubs, weeds, and other vegetative growth of any nature, and disposal of same.
- C. Grubbing the entire area within the limits of work of all vegetative material and disposal of same.
- D. Removal of trees and preservation, care, and pruning of trees to remain in place.
- E. Trimming of tree (limbs and tree roots) as may be required to construct the improvements.
- F. Dust alleviation and control.
- G. The work shall include the provision of all labor, materials, equipment and apparatus not specifically mentioned herein or noted on the plans, but which are incidental and necessary to complete the work specified.

##### 1.02 JOB CONDITIONS

- A. The Contractor will be held responsible for any damage to trees injured during construction, i.e., limb breakage, tearing of bark along trunk or excessive root damage
- B. Contractor shall provide adequate dust alleviation and control measures at all times during the course of the work.

##### 1.03 QUALIFICATIONS

- A. All tree pruning and removal performed shall be executed by a company, having in full-time employment, an Arborist certified by the Western Chapter International Society of Arboriculture. Certification must be verified, and the Arborist must be directly responsible for decisions made, and should visit the work sites daily.
- B. Pruning shall be performed to the standards of the International Society of Arborists Pruning Guidelines, and to ANSI A-300.

- C. Tree pruning shall not occur without first securing a “Heritage Tree” pruning permit for all trees meeting the Tree Preservation Ordinance’s size description. Permit applications shall be submitted to the Public Works Services Department.
- D. Tree removal shall not occur without first securing a “Heritage Tree” Removal Permit. For regulations on size description, application procedure and fees, refer to the City’s Tree Preservation Ordinance available from Public Works Services.

#### **1.04 APPLICABLE PUBLICATIONS**

- A. Trees and Building Sites: Official Publication of the International Society of Arboriculture.
- B. Arboriculture: The care of trees and shrubs by Dr. Richard Harris.
- C. Redwood City’s Tree Preservation Guide for the public.

### **PART 2 - PRODUCTS**

**NONE**

### **PART 3 - EXECUTION**

#### **3.01 PERFORMANCE**

- A. Clearing shall consist of the removal of ground cover of every nature including grass, shrubs, weeds, and vegetation that will otherwise impede construction operations, as approved by Engineer.
- B. At sites where the excavation has taken place near trees to remain, and many living roots remain exposed to the air, the contractor shall cover the exposed roots within 2 hours with sand, soil, moist burlap or other means acceptable to the Engineer.
- C. Spoils from the work site resulting from clearing, grubbing and stripping operations shall be removed from the entire limits of worksite and properly disposed of in accordance with applicable laws and regulations.

#### **3.02 TREE PRUNING**

- A. Tree pruning shall be performed to balance the crown and eliminate hazards. The main work performed shall be to reduce the sail effect through thinning, reducing end weights, shortening long heavy limbs, removing deadwood, weak limbs and sucker growth. Limbs shall be pruned back to an appropriate lateral branch.

- B. All final cuts shall be made at the outer edge of the branch collar per City Details. The pruning work shall be performed in a safe and proper manner, adhering to CAL-OSHA and ANSI Standards.
- C. The Contractor shall be responsible for the preservation of all public and private property. Pruning includes the cutting of limbs, cleanup, removal and disposal of cuttings and debris. Elm logs must be properly disposed of per State Quarantine. Work shall be performed by a two-man crew with one climber, one ground person, a dumping chipper truck and chipper, and any other necessary saws, lines, tools and safety equipment. The work area shall have appropriate cones and signs for safe pedestrian and vehicle traffic.

### **3.03 TREE REMOVAL**

- A. Trees designated by the Engineer for removal shall be removed prior to the construction of the new improvements. The work shall be performed in a safe manner, adhering to CAL-OSHA and ANSI Standards. The work area shall have appropriate cones and signs for safe vehicle and pedestrian traffic. The contractor shall be responsible for the preservation of all public and private property. All wood shall be properly disposed of.
- B. Stumps shall be ground to a minimum 8" below finished subgrade, including the removal of surface roots, all woody portions and stump debris, within 24" of the tree trunk.
- C. For sidewalk repair work, trees shall be removed in the order designated by the Engineer, approximately 2 weeks prior to start of work.

### **3.04 ROOT PRUNING**

- A. Tree roots greater than 3" in diameter and less than 12" below ground level shall not be cut without approval of the Engineer.
- B. Roots shall be cut cleanly, as far from the trunk of the tree as possible, and not underneath the newly constructed sidewalk. Root pruning shall be to a depth of 18".
- C. Root pruning shall be performed using a Vermeer Root Cutting Machine. Alternate equipment or techniques must be approved by the Engineer. Root pruning shall be completed prior to base or subgrade preparation.
- D. Root pruning shall be completed prior to base or subgrade preparation, or to any excavation adjacent to the tree.
- E. Excavation in an area where roots are present shall not cause the tearing or ripping of tree roots. Roots must first be cleanly severed prior to continuing with the excavation, or tunneled around to prevent damage to the root.
- F. Tree roots shall not remain exposed to drying out. Root ends shall be covered with soil or burlap and kept moist until the final backfill or grade is established.

### **3.05 TREE PROTECTION**

- A.** Construction materials, debris, washout water and stockpiles shall not be stored within the drip line or protective fencing area under any tree.
- B.** Vehicles shall not be parked under any tree within the drip line or protective fencing area.
- C.** Where vehicles or equipment must operate or travel under drip line or unpaved landscape areas, Contractor shall place a minimum 10-inch layer of woodchips or other cushioning surface material approved by the Engineer before starting work there. This mulch layer shall be replenished as necessary to maintain a ten-inch depth until operations in this area are complete and shall be removed upon completion of work unless directed by Engineer. Where crane outriggers or other heavy equipment must be positioned in drip line or unpaved landscape areas, contractor shall provide additional protection against soil compaction and landscape damage. Means of providing additional protection may include placement of additional mulch, base rock, heavy timbers or steel plates. Contractor shall obtain Engineers approval for protective measures prior to placing or operating heavy equipment in unpaved landscape over the root areas of trees to remain.
- D.** Where called for on the plans, place storm fence or other approved protective barriers around trees to be saved.

### **3.06 DUST ALLEVIATION AND CONTROL**

- A.** Contractor shall be responsible for providing pollution and dust abatement and control measures continuously during the course of the work.
- B.** Contractor shall utilize reclaimed water, or dust palliatives, in compliance with the City's Water Conservation Ordinance.

### **3.07 CLEANUP**

- A.** Upon completion of clearing and stripping operations, the entire work site shall be cleaned of all construction debris, waste, rubbish of any nature.
- B.** Contractor shall repair any damage to the existing irrigation system caused by the work and replace any portion of the existing irrigation system that is removed as a result of work per section 02910. Contractor shall incur these costs at own expense.
- C.** Except where shown or specified otherwise, any lawn area or existing groundcover area disturbed by the work shall be restored to existing grade and replanted with sod or plants as those removed with Engineers approval.
- D.** Construction debris, waste and rubbish remaining on-site upon completion of clearing and stripping operations shall become the property of the Contractor, and shall be removed from the work site and disposed of in a lawful manner.

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