

**SECTION 02110
CLEARING AND GRUBBING**

PART 1 GENERAL

1.1 REQUIREMENTS, CODES

- A. All applicable portions of Division 1 - General Requirements shall be considered as included with this section.
- B. The following are minimum requirements and shall govern except that all Federal, Local and/or State Codes and Ordinances shall govern when their requirements are in excess hereof.

1.2 RELATED DOCUMENTS

- A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 1 Specifications Sections, apply to this Section.

1.3 SUMMARY

- A. Clearing the land within the limits of construction and appurtenant designated areas which are a part of the contract, of trees, bushes, grass, and other plant life, building debris, brush piles, wood piles, rubbish and all objectionable material as indicated or directed and in strict accordance with the contract documents. Not included under this is building demolition and removal and road pavement removal which shall be included under the appropriate items in these Specifications.

The limits of clearing and grubbing shall be staked in the field by the Contractor and the limits shall be approved by the Engineer prior to beginning clearing and grubbing operations.

- B. Protection of existing structures, trees, or vegetation indicated on the Construction Drawings to remain.
- C. Installation of construction fence for tree and shrub protection (If Shown).
- D. Protection of existing trees and shrubs designated to remain.
- E. Topsoil Stripping
- G. Stake-out of site layout and grading.
- H. Clearing, tree cutting: tree removal, grubbing and removal of other vegetation in areas so designated.
- I. Disposal of existing site material not otherwise stockpiled, stored or salvaged.
- J. Temporary erosion and sedimentation control measures in accordance with Section 02115.

1.4 SUBMITTALS

- A. Test Reports: Submit the following reports directly to Engineer from the Owners consultant testing service with copy to Contractor.

1. Test reports on topsoil suitability and corrective recommendations to make the topsoil acceptable for use on the project.
- B. Photographs or videotape, sufficiently detailed, of existing conditions of trees and plantings, adjoining construction, and site improvements that might be misconstrued as damaged caused by site clearing.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Construct temporary erosion control systems as shown on Construction Drawings or as directed by the "Storm Water Pollution Prevention Plan" (SWPPP) to protect adjacent properties and water resources from erosion and sedimentation.
- B. In event that sitework on this project will disturb 5 or more acres; Contractor shall not begin construction without "National Pollution Discharge Elimination System" (NPDES) permit governing discharge of storm water from site for entire construction period. NPDES permit requires SWPPP to be in place during construction.
- C. Contractor shall be totally responsible for conducting storm water management practices in accordance with NPDES permit and for enforcement action taken or imposed by Federal or State agencies, including cost of fines, construction delays, and remedial actions resulting from Contractor's failure to comply with provisions of NPDES permit.

1.6 RELATED SECTIONS

- A. Division 2 Section 02112 Restoration for repair of damages caused by Clearing and Grubbing activities.
- B. Division 2 Section 02115 Erosion and Sedimentation Control for temporary erosion and sedimentation control procedures.
- C. Division 2 Section 02200 Earthwork for soil materials, excavating, backfilling and site grading.
- D. Division 2 Section 02931 Lawn for finish grading including preparing and placing soil mixes and testing of topsoil material.

1.7 MATERIAL OWNERSHIP

- A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.8 QUALITY ASSURANCE

- A. Codes and Standards: Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.
- B. Testing and Inspection Service: Owner will employ and pay for a qualified testing and inspection laboratory or USDA laboratory to perform topsoil testing and inspection service during earthwork operations.
- C. Surveys: The Contractor shall engage a licensed professional survey engineer to do the staking out of the work through the construction period.

1.9 DEFINITIONS

- A. Topsoil: Topsoil is defined as friable loam surface soil found in a depth of not less than 3". Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2" in diameter, and without weeds, roots and other objectionable material.
- B. Tree Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.10 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
 - 1. Do not proceed with work on adjoining property until directed by Architect.
- C. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- D. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- E. Do not commence site clearing operations until temporary or permanent erosion and sedimentation control measures are in place

PART 2 PRODUCTS

- A. Tree Protection

Fence: 4'-0" high "Safety Barricade" fencing model UX4050, as manufactured by Tensar Corporation, Morrow, Georgia and distributed by Contech Construction Products, Colchester, Connecticut (860) 537-1570 or approved equal. Fencing shall be orange in color, with a top tension rope of 3/8" braided nylon/polypropylene.

Posts: Heavy gauge steel posts 6'-0" long, sample to be approved.
- B. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 2 Section 02200 "Earthwork."
 - 1. Obtain approved borrow soil material off-site when satisfactory soil materials are not available on-site.

PART 3 EXECUTION

3.01 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Locate and clearly flag trees and vegetation to remain during construction.
- C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.02 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control Drawings.
- B. Inspect, repair and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- C. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.03 TREE PROTECTION

- A. Erect and maintain temporary fencing around tree protection zones before starting site clearing, Remove fence when construction is complete.
 - 1. Do not store construction materials, debris, or excavated material within fenced area.
 - 2. Do not permit vehicles, equipment, or foot traffic within fenced areas.
 - 3. Maintain fenced area free of weeds and trash.
- B. Do not excavate with tree protection zones, unless otherwise indicated.
- C. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks, comb soil to expose roots, and cleanly cut roots as close to excavation as possible.
 - 1. Cover exposed roots with burlap and water regularly.
 - 2. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 - 3. Coat cut faces of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other approved coating formulated for use on damaged plant tissues.
 - 4. Backfill with soil as soon as possible.
- D. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Architect.

1. Employ an arborist, licensed in jurisdiction where Project is located, to submit details of proposed repairs and to repair damage to trees and shrubs.
2. Replace trees that cannot be repaired and restored to full-growth status, as determined by Architect.

3.04 CLEARING AND GRUBBING

A. The Contractor shall provide and maintain staking throughout the construction period required for accurate construction of each stage of the work, adequate for Engineers inspection.

1. Stake out the limits of grading at 50-foot intervals and parking area limits, building corners and wall ends and angle points and changes of direction along roadways.
2. Stake-out locations of drainage structures and changes of direction of drainage lines, horizontal alignments, edges of gravel surfaced areas, and all other elements to be constructed or installed to dimensional requirements shown on the Drawings.
3. Provide grade stakes to determine the finish grade and subgrade elevations for rough and finish grading areas. In general, these shall occur at intervals no more than 50' apart and at closer intervals as required at all high and low points, prominent grade breaks, toes and shoulders of slopes, and drainage lines.
4. Set top or base elevations as required for utility structures, and other improvements to be constructed or installed.
5. At completion of the stake out, the Engineer reserves the right to adjust the location of the layouts to minimize damage to trees, shrub or other features to remain and areas to be left undisturbed.
6. Prior to commencing clearing and grubbing operations, the Contractor shall walk the job with the Engineer in order to determine and mark the extent of clearing and grubbing and to determine what specific trees are to be preserved. Tree protection fencing shall be installed as indicated on drawings and as directed. Post burial depth shall be 2'-0" so that top of fence is flush with post. Spacing of posts shall be 6'0" on center. Fencing fabric shall be attached to posts as per manufacturer's recommendations. Provide top tension line and weave through top edge of fence fabric. Secure to terminal posts. Do not remove until the completion of the project or as approved by the Owner or Engineer.

B. Construction

1. Remove within the excavation and fill lines all trees, except otherwise noted on contract drawings, cut off trees, and remove stumps and root systems.

Within embankment fill areas outside of road, parking areas or building limits, stumps may remain where fill depth is greater than 5 feet and stumps are cut to within 6 inches of existing ground surface.
2. Remove all debris and portions of crushed stone as necessary within the limits of construction indicated.

3. Dispose of all timber, stumps, woodchips and vegetation offsite at Contractors expense or as directed by the Engineer. Asphalt, concrete, etc. shall be disposed of off site in a satisfactory manner. Remove all rubbish and refuse to such a point off the site as may be directed. Secure offsite disposal permits from regulatory agencies at no expense to Owner. Do not allow vegetation stumps, etc. to be consolidated within fill material or buried.
4. Salvage any items indicated on the Contract Drawings and store. Dismantle without damage and store in a location directed by the Owner. These items shall remain the property of the Owner. The Contractor shall transport items to be salvaged to a location directed by the Owner.
5. Protect existing trees, shrubs, vegetation, fences etc. to remain outside the work area and within the work area not to be affected by road, building or earthwork construction activity. Protection shall include barricades, construction fencing, silt fences, and other means as ordered and approved by the Engineer and as specified herein or as indicated on the Construction Drawings. Remove protection devices once construction activity has terminated within the work area. If trees or shrubs designated to remain are removed erroneously or damaged beyond satisfactory repair, they shall be replaced with species approved and planted where directed, conforming to Section 02950. Replacement shall be appropriately sized to replace damaged plant.
6. Conduct operations with minimum interference to public or private accesses and facilities. Maintain ingress and egress at all times and clean or sweep roadways daily as required by SWPPP or governing authority. Dust control shall be provided with sprinkling systems or equipment provided by Contractor.
7. Provide traffic control as required, in accordance with the US Department of Transportation's "Manual on Uniform Traffic Control Devices" and applicable state highway department requirements.

3.05 TOPSOIL STRIPPING

- A. Topsoil shall consist of organic surficial soil found in depth of not less than 6-inches. Satisfactory topsoil shall be reasonably free of subsoil, clay lumps, stones and other objects over 2-inches in diameter, weeds, roots, and other objectionable material.
- B. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material.

Remove heavy growths of grass from areas before stripping.
- C. Stockpile topsoil in storage piles in areas shown, or where directed. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind-blown dust.
 1. Do not stockpile topsoil within tree protection zones.
 2. Dispose of excess topsoil as specified for waste material disposal.
 3. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.06 SITE IMPROVEMENTS

- A. Remove existing above and below-grade improvements as indicated and as necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
 - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.
 - 2. Paint cut ends of steel reinforcement in concrete to remain to prevent corrosion.

3.07 DISPOSAL

- A. Disposal: Remove surplus soil materials, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
 - 1. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

END OF SECTION 02110