

## SECTION 311000 - SITE CLEARING

## PART 1 - GENERAL

## 1.1 GENERAL

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes the following:
  - 1. Removing existing trees and vegetation
  - 2. Clearing and grubbing.
  - 3. Stripping and stockpiling topsoil.
  - 4. Removing above- and below-grade site improvements.
  - 5. Disconnecting, capping or sealing, and abandoning site utilities in place and/or removing site utilities when indicated.
  - 6. Temporary erosion and sedimentation control measures.
- B. Related Sections include the following:
  - 1. Division 01 Section "Temporary Controls and Facilities" for temporary utilities, temporary construction and support facilities, temporary security and protection facilities.
  - 2. Division 31 Section "Earth Moving" for soil materials, excavating, backfilling, and site grading.

## 1.3 DEFINITIONS

- A. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of subsoil and weeds, roots, toxic materials, or other non-soil materials.
  - 1. Existing topsoil may require screening or amendment before being considered suitable for use.
- B. Best Management Practices (BMP's) means schedules of activities, prohibition of practices, maintenance procedures, and other management practices to prevent or reduce pollution. BMP's also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

## 1.4 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.

## 1.5 SUBMITTALS

- A. Product data for silt fence fabric.
- B. Reports, records, and certifications required by this Section, regulatory agencies having jurisdiction, and permit requirements.

## 1.6 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. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Division 31 Section "Earth Moving."
  - 1. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

### 2.2 EROSION CONTROL DEVICE MATERIALS

- A. Straw Bale Fence: Clean, dry, commercially available straw bales.
- B. Anti-Erosion Mulch: Clean, dry straw of winter wheat, rye, oats, or barley.
- C. Silt Fence Fabric: Synthetic filter fabric or a pervious sheet of polypropylene, nylon, polyester, or polyethylene yarn, containing ultraviolet ray inhibitors and stabilizers providing a minimum of six months usable construction life at a temperature range from 0 to 120 degrees F., and meeting the following requirements:
  - 1. Sediment retention efficiency: Not less than 85 percent.
  - 2. Grab strength at 20 percent maximum elongation:
    - a. Standard Strength Fabric: 30 pounds per lineal inch.
    - b. Extra Strength Fabric: 50 pounds per lineal inch.
  - 3. Flow Rate: Not less than 0.30 gallons per square foot per minute.
- D. Silt Fence Posts: Contractor has option of the following.
  - 1. 4 inch diameter pine.
  - 2. 2 inch diameter oak.
  - 3. 1.333 pound per lineal foot steel posts a minimum of 4 feet in length.
    - a. Steel posts shall have projections for fastening the fabric.

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper and timely completion.
  - 1. Do not proceed until unsatisfactory conditions have been corrected.

## 3.2 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
  - 1. Restore damaged improvements to their original condition, as acceptable to Owner.
- C. Use all means necessary to control dust on and near the work, and on and near off-site storage, and spoil areas, if such dust is caused by performance of the work of this Section, or if resulting from the condition in which Project Site is left by Contractor.
- D. Moisten surfaces, as required, to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of other work on Project Site.

## 3.3 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 requirements of authorities having jurisdiction, erosion and sediment control plans, and the Storm Water Pollution Prevention Plan prepared for this project and bound separately.
- B. Install erosion control systems at the site's boundary at locations where storm water runoff will leave the site prior to starting any clearing, stripping, or earthwork operations
- C. Minimize the time areas are to be exposed without vegetative cover.
- D. Clearing and grubbing within 50 feet of a defined drainage way is strictly prohibited unless such activity is clearly indicated and then shall not commence until the specific erosion control systems and BMP's for that specific area are in place.
- E. Properly dispose of solid waste, paints, solvents, cleaning compounds, etc.
- F. Store construction materials in designated areas away from drainage ways and low areas.
- G. Provide portable toilets and properly dispose of sanitary sewage.
- H. Construct containment berm and utilize drip pans at fuel and liquid storage tanks and containers.
- I. Minimize areas to be stripped to those areas of construction activity.
- J. Exposed surfaces shall be roughened to inhibit runoff and promote infiltration.
- K. At completion of topsoil stockpiling operations, stockpiles shall be shaped and graded to drain.
- L. Installation of Erosion Control Devices

1. Install erosion control devices to protect adjacent and downstream properties from damage and pollution resulting from erosion caused by the work of this Contract.
2. Implement erosion control measures indicated on drawings and additional erosion control measures necessary to prevent damage to adjacent and downstream properties.
3. Install silt fence located along perimeter of site or grading limits immediately following site clearing operations.
  - a. Install silt fence fabric from a continuous roll for the length of the silt fence whenever possible to minimize the number of joints.
    - 1) Create joints in fabric by securely fastening fabric at the support post with overlap extending to the next post.
  - b. Drive support post into ground not less than 18 inches.
  - c. Excavate a 4 inch wide by 4 inch deep trench on up-slope side of silt fence.
  - d. Line trench with silt fence fabric material.
  - e. Backfill trench with soil or gravel.
4. Install straw bale fence at completion of grading operations in affected area as indicated on drawings.
  - a. Install erosion control devices at storm sewer inlets immediately after completion of the storm sewer.
  - b. Place straw bales in a single row, lengthwise on the contour, and embedded 4 inches into soil.
  - c. Secure each individual bale in place by stakes or reinforcement bars driven through bales into the ground to a depth of not less than 18 inches.
5. Install sediment traps at curb inlets.
6. Install straw bale fences as ditch checks in drainage ditches.

M. Maintenance of Erosion and Sediment Control Devices

1. Check all erosion control measures after each rainfall event to ensure that they are in proper working order.
  - a. Immediately restore all measures to installed condition.
2. Inspect silt and straw bale fences at least once a week.
3. Immediately replace damaged portions of the silt fences, including portions which have collapsed, contain tears, have decomposed, or have become ineffective.
4. Remove sediment deposits, as necessary, to provide adequate sediment storage and to maintain the integrity of fences. Dispose of accumulated sediment by spreading over upland areas of the site.
5. Maintain erosion control devices in place, as specified, until completion of the work of this Contract and until permanent stabilization of all disturbed areas is achieved.
  - a. At completion of work, inspect all systems, make necessary repairs, remove and dispose of all accumulated sediment, and turn completely operable systems indicated to remain over to Owner for continued maintenance.

N. Remove erosion and sedimentation controls not indicated to remain and restore and stabilize areas disturbed during removal.

O. Inspection of Erosion and Sediment Control Systems

1. Inspect all erosion control systems and devices at least once every seven calendar days.
2. Inspect all erosion control systems and devices within 24 hours of the end of any storm which results in precipitation of 1/2 inch or more.
3. During inspections, locations where storm water leaves the site shall be inspected for evidence of erosion or sediment deposition.

4. Correct deficiencies within three calendar days.
5. Complete a report of each inspection. Report shall contain the following minimum information:
  - a. Inspector's name
  - b. Inspection date
  - c. Observations of the effectiveness of erosion control systems
  - d. Actions taken if necessary to correct deficiencies
  - e. Listing of areas where construction operations have permanently or temporarily stopped
  - f. Authorized signature

P. Chemical and sewage spills

1. Report hazardous substance or oil spills in accordance with requirements of 40 CFR 117 and 40 CFR 302.
2. Report discharge or escape of sewage, substances, or waste which may contaminate or pollute water or soil to the Kansas Department of Health and Environment.

Q. Removed Substances

1. Solids, sludges, sediments, or other pollutants removed in the control of runoff shall be managed in accordance with applicable statutes and regulations.

3.4 UTILITIES

A. Arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing. Coordinate disconnection with Owner.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap off utilities indicated to be removed.

1. Arrange with utility companies to shut off indicated utilities.

C. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

D. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, grass, and other vegetation to permit installation of new construction.

1. Grind stumps and completely remove roots, obstructions, and debris.
2. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 9 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.
  - 1. Remove subsoil and non-soil materials from topsoil, including trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Limit height of topsoil stockpiles to 72 inches.
  - 2. Dispose of excess topsoil as specified for waste material disposal.

3.7 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.

3.8 DISPOSAL

- A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

END OF SECTION 311000

## SECTION 312000 - EARTH MOVING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns and grasses, and exterior plants.
2. Excavating and backfilling for buildings and structures.
3. Drainage course for slabs-on-grade.
4. Base course for concrete walks and concrete and asphalt pavements.
5. Preparing subgrades for asphalt paving.
6. Subsurface drainage backfill for walls and trenches.
7. Excavating and backfilling for utility trenches.
8. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.

- B. Related Sections include the following:

1. Division 01 Section "Temporary Controls and Facilities" for temporary controls, utilities, and support facilities.
2. Divisions 21, 22, 23, 26, 27, and 28 Sections for installing underground mechanical and electrical utilities and buried mechanical and electrical structures.
3. Division 31 Section "Site Clearing" for temporary erosion and sedimentation control measures, site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.

- C. Geotechnical Engineering Report: A geotechnical engineering report titled "Geotechnical Engineering Report, Leavenworth High School Activity Center, 2012 10<sup>th</sup> Avenue, Leavenworth, Kansas" has been prepared by Terracon Consultants, Inc., Lenexa, Kansas and is included herein and is referred to herein as Geotechnical Report.

## 1.3 DEFINITIONS

- A. Excavation consists of the removal of material encountered to subgrade elevations and the reuse or disposal of materials removed.
- B. Subgrade: The uppermost surface of an excavation, including excavation for trenches, or the top surface of a fill or backfill immediately below base course, pavement, drainage fill, or topsoil materials.
- C. Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavations.
- D. Base Course: The layer placed between the subgrade and surface pavement in a paving system.
- E. Drainage Fill: Course of washed granular material supporting slab-on-grade placed to cut off upward capillary flow of pore water.

- F. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions without direction by the Architect. Unauthorized excavation, as well as remedial work directed by the Architect, shall be at the Contractor's expense.
  - G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface.
  - H. Utilities include underground pipes, conduits, ducts, and cables, as well as underground services within building lines.
  - I. Unforeseen Excavation: Excavation of material, regardless of its character or nature, below the subgrade elevation required to construct the work as indicated on the drawings or specified herein.
  - J. Bedding Material: Granular material utilized to bed piped utilities placed in trench excavations.
  - K. Subsurface Drainage Backfill: Granular material utilized to backfill walls or utilized to backfill subsurface trench drainage systems.
  - L. Backfill: Soil material or controlled low-strength material used to fill an excavation.
    - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
    - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
  - M. Fill: Soil materials used to raise existing grades.
- 1.4 SUBMITTALS
- A. Product Data: For the following:
    - 1. Each type of plastic warning tape.
    - 2. Geotextile drainage fabric.
  - B. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
    - 1. Classification according to ASTM D 2487 of each on-site or borrow soil material proposed for fill and backfill.
    - 2. Laboratory compaction curve according to ASTM D 698 for each on-site or borrow soil material proposed for fill and backfill.
- 1.5 QUALITY ASSURANCE
- A. Codes and Standards: Perform earthwork complying with requirements of authorities having jurisdiction.
  - B. Testing and Inspection Service: Owner will employ a qualified independent geotechnical engineering testing agency to classify proposed on-site and borrow soil materials to verify that soils comply with specified requirements and to perform required field and laboratory testing.
- 1.6 PROJECT CONDITIONS
- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Architect not less than two days in advance of proposed utility interruptions.
  2. Do not proceed with utility interruptions without Architect's written permission.
  3. Contact utility-locator service for area where Project is located before excavating.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.
- C. Utilities have been located from surveys and available existing records. Not all utilities may be shown on the Drawings. Locate all utilities prior to beginning any construction activities.
- D. Where utilities require adjustment or relocation to construct the Work, and those utilities are shown on the Drawings, relocation or adjustment is a part of the Work and shall be completed at no additional expense to the Owner.
- E. Where utilities require adjustment or relocation to construct the Work, and those utilities are not shown on the Drawings, notify Architect before proceeding. Relocate or adjust utility as directed. Utility relocation and/or adjustment will be paid for according to the Contract provisions for changes in Work.
- F. If utility is damaged by Contractor, notify utility owner and Architect immediately. Repair or replacement of utilities damaged by Contractor, whether utilities are shown on the drawings or not shown on the drawings, shall be Contractor's expense.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 soil classification groups GC, GW, GP, GM, SC, SW, SP, SM, ML, MH and CL or CH or a combination of these group symbols; free of rock or gravel larger than 2 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: ASTM D 2487 soil classification groups OL, OH, and PT, or a combination of these group symbols.
1. Unsatisfactory soils also include satisfactory soils not maintained between optimum moisture content and 4 percent above optimum moisture content at time of compaction.
- D. Base Course: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2- inch sieve and not more than 5 percent passing a No. 8 sieve.
- E. Bedding Material: Clean, granular materials of crushed rock or pea gravel with not less than 95 percent passing a 3/4 inch sieve and not less than 95 percent retained on a 3/8 inch sieve.
- F. Drainage Fill: Washed, evenly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2- inch sieve and not more than 5 percent passing a No. 8 sieve.
- G. Subsurface Drainage Backfill Material: Evenly graded mixture of natural or crushed gravel, or crushed stone and natural sand; with 100 percent passing a 1-1/2 inch sieve and 0 to 5 percent passing a No. 50 sieve.

- H. Impervious Fill: Clay soils capable of compacting to a dense state.
- I. Low Volume Change Soil Material: Low plasticity cohesive soils having a liquid limit less than 45 and a plasticity index less than 23, or well-graded granular materials having at least 15 percent fines passing the No. 200 sieve, and approved by Owner's Testing and Inspection Service.
- J. Surfacing Aggregate: KDOT Type SA-6.

## 2.2 GEOTEXTILES

- A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
  - 1. Survivability: Class 2; AASHTO M 288.
  - 2. Grab Tensile Strength: 157 lbf (700 N); ASTM D 4632.
  - 3. Sewn Seam Strength: 142 lbf (630 N); ASTM D 4632.
  - 4. Tear Strength: 56 lbf (250 N); ASTM D 4533.
  - 5. Puncture Strength: 56 lbf (250 N); ASTM D 4833.
  - 6. Water Flow Rate: 150 gpm per sq. ft.; ASTM D 4491.
  - 7. Apparent Opening Size: No. 50 sieve, maximum; ASTM D 4751.
  - 8. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.
- B. Roadway Stabilization / Separation Geotextile Fabric: Geotex 315ST, woven geotextile, by Propex Geosynthetics.

## 2.3 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored as follows:
- B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:
  - 1. Red: Electric.
  - 2. Yellow: Gas, oil, steam, and dangerous materials.
  - 3. Orange: Telephone and other communications.
  - 4. Blue: Water systems.
  - 5. Green: Sewer systems.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

- B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 31 Section "Site Clearing."
- C. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section "Site Clearing," during earthwork operations.

### 3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

### 3.3 EXPLOSIVES

- A. Explosives: Do not use explosives.

### 3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
  - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
- B. Borrow Material: If excavated materials of a suitable nature are not of sufficient quantity to complete the work, provide borrow material in sufficient quantity to complete the work at no additional cost to the Owner.
- C. Disposition of Excavated Material: Dispose of excess satisfactory soil material and all unsatisfactory soil material and rock obtained from excavations in accordance with the provisions of this Section.

### 3.5 STABILITY OF EXCAVATIONS

- A. Comply with local, state, and federal codes, ordinances, and regulations regarding maintaining safe and stable excavations.

### 3.6 EXCAVATION FOR BUILDING AREAS

- A. At locations where, after clearing and grubbing operations as specified in Division 31 Section "Site Clearing", the ground surface is within 20 inches of the bottom of the drainage fill course to be placed under the building slab, excavation for the building areas, extending a minimum of five feet beyond the building footprint, shall extend to a depth of 20-inches below the bottom of the drainage fill course to be placed under the building slab. For the purposes of this contract the elevation of the surface at the completion of this excavation is the subgrade elevation for the building area.

### 3.7 EXCAVATION FOR TRACK AREA AND FOR FIELD EVENTS AREAS

- A. At locations where, after clearing and grubbing operations as specified in Division 31 Section "Site Clearing", the ground surface is within 17 ½ inches of the top of the track surfacing or within 17 ½ inches of the top of the field events surfacing, excavation for the track areas and for the field events areas, extending a minimum of five feet beyond the periphery of these areas, shall extend to a depth of 17 ½ inches below the top of the track surfacing or 17 ½ inches below the top of the field events surfacing. For the purposes of this contract the elevation of the surface at the completion of this excavation is the subgrade elevation for the track area or the subgrade elevation for the field events area.

### 3.8 EXCAVATION FOR FOOTBALL FIELD AREA

- A. At locations where, after clearing and grubbing operations as specified in Division 31 Section "Site Clearing", the ground surface is within 8 ½ inches of the top of the field surface, excavation for the football field area, extending a minimum of five feet beyond the periphery of this area, shall extend to a depth of 8 ½ inches below the top of the field surfacing. For the purposes of this contract the elevation of the surface at the completion of this excavation is the subgrade elevation for the football field area.

### 3.9 EXCAVATION FOR FOUNDATIONS AND STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
  - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
  - 2. Excavation for Underground Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch (25 mm). Do not disturb bottom of excavations intended as bearing surfaces.
- B. Following excavation to the above described elevation; the exposed excavation shall be evaluated by the Owner's Testing and Inspection Service. The Contractor shall be responsible for scheduling this evaluation.
- C. If, in the opinion of the Owner's Testing and Inspection Service, the exposed materials are unsuitable, the unsuitable materials shall be removed to the extent and depth required by the Owner's Testing and Inspection Service and replaced with materials approved by, and placed in accordance with, the requirements of the Owner's Testing and Inspection Service.
  - 1. Excavation and disposal of unsuitable material below plan elevation and replacement of that material with suitable material will be paid according to the Contract provisions for changes in the Work.
  - 2. Excavation, utilization, and / or disposal of materials, whether suitable or unsuitable, to the plan elevation is included in the Work of this Contract.

### 3.10 EXCAVATION FOR PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

### 3.11 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
  - 1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

2. Where utilities are in fill, compact fill material to 95% standard proctor maximum dry density to at least 12" above the top of the proposed utility prior to excavation of trench.
- B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
1. Clearance: 12 inches on each side of pipe or conduit.
- C. Trench Bottoms when no bedding course is indicated: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
1. For pipes and conduit less than 6 inches in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
  2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
  3. If rock or other unyielding material is encountered at required trench bottom elevation, excavate trenches 6 inches deeper than subgrade elevation required to allow for installation of a 6 inch thick bedding course.
    - a. Excavation and disposal of rock or other unyielding material below required trench bottom elevation and replacement of that material with bedding material will be paid according to the Contract provisions for changes in the Work.
- D. Trench Bottoms when bedding course is indicated: Excavate trenches to depth below bottom of utility indicated to allow for bedding course. Hand excavate for bell of pipe.

### 3.12 SUBGRADE PREPARATION AND INSPECTION

- A. Notify Architect and Owner's Testing and Inspection Service when excavations have reached required subgrade.
- B. Following excavation to required subgrade; the exposed subgrade shall be proof rolled in the presence of the Owner's Testing and Inspection Service and evaluated by the Owner's Testing and Inspection Service. The Contractor shall be responsible for scheduling this subgrade evaluation.
1. Proof rolling shall be accomplished by use of heavy construction equipment such as a loaded scraper or loaded tandem axle dump truck. Proof rolling equipment shall have a minimum gross weight of 25 tons.
  2. Subgrade materials that deform under proof rolling wheel loads shall be scarified to a depth of 12 inches; moisture conditioned, and re-compacted in accordance with the requirements of this Section.
  3. Following scarifying, moisture conditioning, and re-compaction, the subgrade materials shall again be proof rolled in the presence of the Owner's Testing and Inspection Service.
- C. If, in the opinion of the Owner's Testing and Inspection Service, the subgrade materials prepared in accordance with 3.12.B.1, 3.12.B.2, and 3.12.B.3 deform under proof rolling wheel loads, or the subgrade materials are unsuitable, the subgrade materials shall be removed to the extent and depth required by the Owner's Testing and Inspection Service and replaced with materials approved by, and placed in accordance with, the requirements of the Owner's Testing and Inspection Service.

1. Excavation and disposal of unsuitable material below subgrade elevation and replacement of that material with suitable material will be paid according to the Contract provisions for changes in the Work.
2. Excavation, utilization, and / or disposal of materials, whether suitable or unsuitable, to the subgrade elevation is included in the Work of this Contract.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Owner's Testing and Inspection Service at no additional cost to Owner.

### 3.13 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi may be used when approved by Owner's Testing and Inspection Service.

1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect.

B. Where indicated widths of utility trenches are exceeded, provide stronger pipe, or special installation procedures, as required by the Architect.

C. All additional costs incurred as a result of unauthorized excavation are the Contractor's responsibility.

### 3.14 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

### 3.15 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:

1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on subgrades free of mud, frost, snow, or ice.

### 3.16 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

- C. Place and compact initial backfill of material indicated, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.
  - 1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.
- D. Coordinate backfilling with utilities testing.
- E. Fill voids with approved materials while shoring and bracing, and as sheeting is removed.
- F. Place and compact final backfill of material indicated to final elevation required.
- G. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below sub-grade under pavements and slabs.

### 3.17 FILL, GENERAL

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Where trees have been removed, thoroughly grub to remove roots larger than ½ inch in diameter.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.
- D. Plow, scarify, bench, or break up all surfaces so fill material will bond with existing material.
- E. Where fill to be placed on existing slopes steeper than 5 units horizontal to 1 unit vertical, cut benches into the existing slopes prior to fill placement. Benches must have a minimum vertical face height of 1 foot, a maximum vertical face height of 3 feet, and shall be cut wide enough to accommodate compaction equipment.
- F. Notify Architect and Owner's Testing and Inspection Service when surfaces upon which fill is to be placed have been prepared.
- G. Following preparation of subgrade upon which fills are to be placed, the exposed subgrade shall be proof rolled in the presence of the Owner's Testing and Inspection Service and evaluated by the Owner's Testing and Inspection Service. The Contractor shall be responsible for scheduling this subgrade evaluation.
  - 1. Proof rolling shall be accomplished by use of heavy construction equipment such as a loaded scraper or loaded tandem axle dump truck. Proof rolling equipment shall have a minimum gross weight of 25 tons.
  - 2. Subgrade materials that deform under proof rolling wheel loads shall be scarified to a depth of 12 inches; moisture conditioned, and re-compacted in accordance with the requirements of this Section.
  - 3. Following scarifying, moisture conditioning, and re-compaction, the subgrade materials shall again be proof rolled in the presence of the Owner's Testing and Inspection Service.
- H. If, in the opinion of the Owner's Testing and Inspection Service, the subgrade materials prepared in accordance with 3.17.G.1, 3.17.G.2, and 3.17.G.3 deform under proof rolling wheel loads, or the subgrade materials are unsuitable, the subgrade materials shall be removed to the extent and depth required by the Owner's Testing and Inspection Service and replaced with materials approved by, and placed in accordance with, the requirements of the Owner's Testing and Inspection Service.

1. Excavation and disposal of unsuitable material below subgrade elevation and replacement of that material with suitable material will be paid according to the Contract provisions for changes in the Work.
  2. Excavation, utilization, and / or disposal of materials, whether suitable or unsuitable, to the subgrade elevation is included in the Work of this Contract.
- I. Subsequent to proof rolling, but prior to placing any fill, scarify exposed subgrade to a depth of 9 inches. Moisture condition scarified depth of material to a moisture content between optimum and 4 percent above optimum moisture content. Re-compact scarified material to not less than 95 percent of Standard Proctor maximum dry density. Maintain moisture content within the limits specified above until placement of subsequent layers of fill material.
- J. Place and compact fill material in layers to required elevations as follows:
1. Under lawn and planted areas use "Satisfactory Soils" obtained from excavations or borrow sources.
  2. Under concrete walks, concrete pavements, concrete ramps, and concrete steps or stairs use "Base Course" of thickness indicated with "Satisfactory Soils" obtained from excavations or borrow sources below the "Base Course".
  3. Under asphalt paving use "Satisfactory Soils" obtained from excavations or borrow sources.
  4. Under building slabs, use "Drainage Fill" of thickness indicated with "Low Volume Change Soil Material" of thickness indicated below the "Drainage Fill", and with "Satisfactory Soils" obtained from excavations or borrow sources below the layer of "Low Volume Change Soil Material".
  5. Under Football Field areas, use "Satisfactory Soils" obtained from excavations or borrow sources to 8 ½ inches below surface of Football Field.
  6. Under Track and Field Event Areas, use "Satisfactory Soils" obtained from excavations or borrow sources to 17 ½ inches below surface of Track or Field Event area.
  7. Under footings and foundations, use "Low Volume Change Soil Material". Fill and backfill placed under footings and foundations shall be placed in advance of foundation construction to allow consolidation of fill and backfill and underlying native soils prior to footing or foundation construction. No footings or foundations shall be constructed on areas where fill has been placed until after 30 days following completion of placement and compaction of fills or backfills.
- 3.18 FILL IN BUILDING AREAS
- A. Fill in building areas, extending a minimum of five feet beyond the building footprint, shall be "Low Volume Change Soil Material" for a depth of 20 inches below the bottom of the "Drainage Fill" course.
- 3.19 SOIL MOISTURE CONTROL
- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to between optimum moisture content and 4 percent above optimum moisture content, except in Track and Field Events areas where fill or backfill is to be placed at depths greater than 10 feet below the finish surface. In Track and Field Events areas where fill or backfill is to be placed at depths greater than 10 feet below the finish surface, uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to between 2 percent below optimum moisture content and 2 percent above optimum moisture content.
1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
  2. Remove and replace, or scarify and air-dry, otherwise "Satisfactory Soil" material that exceeds optimum moisture content by 4 percent and is too wet to compact to specified density.
- 3.20 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than 9 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil to not less than the following percentages of Standard Proctor maximum dry density according to ASTM D 698:
  - 1. Under structures, building slabs, steps, stairs, walks, ramps, and pavements, and in the Football Field areas, scarify and recompact top 9 inches of existing subgrade and each layer of backfill or fill material to not less than 95 percent of Standard Proctor maximum dry density.
  - 2. Under the Track and Field Events areas, scarify and recompact top 9 inches of existing subgrade and each layer of backfill or fill material greater than 10 feet below finish surface elevation to not less than 98 percent of Standard Proctor maximum dry density and each layer of backfill or fill material within 10 feet below finish surface elevation to not less than 95 percent of Standard Proctor maximum dry density.
  - 3. Under lawn or unpaved areas, scarify and recompact top 9 inches below subgrade and compact each layer of backfill or fill material to not less than 90 percent of Standard Proctor maximum dry density.

### 3.21 MAINTENANCE OF COMPLETED SUBGRADES

- A. Maintain moisture content of completed subgrades to between optimum moisture content and 4 percent above optimum moisture content and maintain density of completed subgrades to specified requirements.
- B. Moisture content and density of the top 9 inches of prepared subgrades shall be evaluated by Owner's Testing and Inspection Agency within 2 days prior to constructing improvements on prepared subgrades. The Contractor shall be responsible for scheduling this subgrade evaluation.
- C. Scarify, moisture condition, and re-compact subgrades that does not comply with specified requirements at no additional cost to Owner.

### 3.22 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  - 1. Provide a smooth transition between adjacent existing grades and new grades.
  - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
  - 1. Lawn or Unpaved Areas: Plus or minus 1 inch.
  - 2. Walks: Plus or minus 1 inch.
  - 3. Pavements: Plus or minus 1 inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

### 3.23 SUBSURFACE DRAINAGE

- A. Subdrainage Pipe: Specified in Division 33 Section "Subdrainage."
- B. Subsurface Drain: Place subsurface drainage geotextile around perimeter of subdrainage trench. Place a 6-inch (150-mm) course of filter material on subsurface drainage geotextile to support subdrainage pipe. Encase subdrainage pipe in a minimum of 12 inches (300 mm) of filter material, placed in compacted layers 6 inches (150 mm) thick, and wrap in subsurface drainage geotextile, overlapping sides and ends at least 6 inches (150 mm).
  - 1. Compact each filter material layer to 95 percent of maximum dry unit weight according to ASTM D 698.
- C. Drainage Backfill: Place and compact filter material over subsurface drain, in width indicated, to within 12 inches (300 mm) of final subgrade, in compacted layers 6 inches (150 mm) thick. Overlay drainage backfill with 1 layer of subsurface drainage geotextile, overlapping sides and ends at least 6 inches (150 mm).
  - 1. Compact each filter material layer to 95 percent of maximum dry unit weight according to ASTM D 698
  - 2. Place and compact impervious fill over drainage backfill in 6-inch- (150-mm-) thick compacted layers to final subgrade.

### 3.24 BASE COURSES

- A. Place base course on subgrades free of mud, frost, snow, or ice.
- B. Under concrete pavements, walks, steps, stairs, and ramps place "Base Course" on prepared subgrade and as follows:
  - 1. Compact base courses at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of Standard Proctor maximum dry density according to ASTM D 698.
  - 2. Shape base course to required crown elevations and cross-slope grades.
  - 3. When thickness of compacted base course is 6 inches or less, place materials in a single layer.
  - 4. When thickness of compacted base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

### 3.25 DRAINAGE FILL

- A. Place drainage fill on subgrades free of mud, frost, snow, or ice.
- B. Under slabs-on-grade, place "Drainage Fill" course on prepared subgrade and as follows:
  - 1. Compact drainage fill course to required cross sections and thickness to not less than 95 percent of Standard Proctor maximum dry density according to ASTM D 698.
  - 2. When compacted thickness of drainage fill course is 6 inches or less, place materials in a single layer.
  - 3. When compacted thickness of drainage fill course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

### 3.26 AGGREGATE SURFACED ROADWAYS

- A. Install roadway stabilization / separation geotextile fabric in accordance with manufacturer's recommendations on subgrades free of mud, frost, snow, or ice.

- B. Place "Surfacing Aggregate" course on prepared subgrade reinforced with roadway stabilization / separation geotextile fabric and as follows:
  - 1. Compact surfacing aggregate course to required cross sections and thickness and compact until no further compaction is evident.
  - 2. When compacted thickness of course is 6 inches or less, place materials in a single layer.
  - 3. When compacted thickness of course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

### 3.27 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
- B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Owner's Testing and Inspection Service.
- D. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable.
  - 1. Field in-place density tests may also be performed by the nuclear method according to ASTM D 2922, provided that calibration curves are periodically checked and adjusted to correlate to tests performed using ASTM D 1556. With each density calibration check, check the calibration curves furnished with the moisture gauges according to ASTM D 3017.
  - 2. When field in-place density tests are performed using nuclear methods, make calibration check of both density and moisture gauges at the beginning of work, on each different type of material encountered, and at intervals directed by the Architect.
  - 3. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
  - 4. Foundation Wall Backfill: At each compacted backfill layer, at least one test for each 100 feet or less of wall length, but no fewer than two tests.
  - 5. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150 feet or less of trench length, but no fewer than two tests.
- E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

### 3.28 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.
- 3.29 DISPOSAL OF SURPLUS AND WASTE MATERIALS
- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 312000

SECTION 313116 - TERMITE CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Soil treatment with termiticide.

1.3 PERFORMANCE REQUIREMENTS

- A. Service Life of Soil Treatment: Soil treatment by use of a termiticide that is effective for not less than five years against infestation of subterranean termites.

1.4 SUBMITTALS

- A. Product Data: For termiticide.
  - 1. Include the EPA-Registered Label for termiticide products.
- B. Soil Treatment Application Report: After application of termiticide is completed, submit report for Owner's record information, including the following:
  - 1. Date and time of application.
  - 2. Moisture content of soil before application.
  - 3. Brand name and manufacturer of termiticide.
  - 4. Quantity of undiluted termiticide used.
  - 5. Dilutions, methods, volumes, and rates of application used.
  - 6. Areas of application.
  - 7. Water source for application.
- C. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A specialist who is licensed according to regulations of authorities having jurisdiction to apply termite control treatment and products in jurisdiction where Project is located.
- B. Regulatory Requirements: Formulate and apply termiticides according to the EPA-Registered Label.
- C. Source Limitations: Obtain termite control products through one source.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: To ensure penetration, do not treat soil that is water saturated or frozen. Do not treat soil while precipitation is occurring. Comply with requirements of the EPA-Registered Label and requirements of authorities having jurisdiction.

1.7 COORDINATION

- A. Coordinate soil treatment application with excavating, filling, grading, and concreting operations. Treat soil under footings, grade beams, and ground-supported slabs before construction.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by Applicator and Contractor certifying that termite control work, consisting of applied soil termiticide treatment, will prevent infestation of subterranean termites. If subterranean termite activity or damage is discovered during warranty period, re-treat soil and repair or replace damage caused by termite infestation.

- 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- 1. Termiticides:
  - a. Aventis Environmental Science USA LP; Termidor.
  - b. Bayer Corporation; Premise 75.
  - c. Dow AgroSciences LLC; Dursban TC.
  - d. FMC Corporation, Agricultural Products Group; Prevail FT.
  - e. Syngenta; Demon TC.

2.2 SOIL TREATMENT

- A. Termiticide: Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in an aqueous solution formulated to prevent termite infestation. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for moisture content of soil, interfaces with earthwork, slab and foundation work, landscaping, and other conditions affecting performance of termite control.

1. Proceed with application only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's written instructions for preparation before beginning application of termite control treatment. Remove all extraneous sources of wood cellulose and other edible materials such as wood debris, tree stumps and roots, stakes, formwork, and construction waste wood from soil within and around foundations.
- B. Soil Treatment Preparation: Remove foreign matter and impermeable soil materials that could decrease treatment effectiveness on areas to be treated. Loosen, rake, and level soil to be treated except previously compacted areas under slabs and footings. Termiticides may be applied before placing compacted fill under slabs if recommended in writing by termiticide manufacturer.
  1. Fit filling hose connected to water source at the site with a backflow preventer, complying with requirements of authorities having jurisdiction.

### 3.3 APPLICATION, GENERAL

- A. General: Comply with the most stringent requirements of authorities having jurisdiction and with manufacturer's EPA-Registered Label for products.

### 3.4 APPLYING SOIL TREATMENT

- A. Application: Mix soil treatment termiticide solution to a uniform consistency. Provide quantity required for application at the label volume and rate for the maximum specified concentration of termiticide, according to manufacturer's EPA-Registered Label, to the following so that a continuous horizontal and vertical termiticidal barrier or treated zone is established around and under building construction. Distribute treatment evenly.
  1. Slabs-on-Grade and Basement Slabs: Under ground-supported slab construction, including footings, building slabs, and attached slabs as an overall treatment. Treat soil materials before concrete footings and slabs are placed.
- B. Avoid disturbance of treated soil after application. Keep off treated areas until completely dry.
- C. Protect termiticide solution, dispersed in treated soils and fills, from being diluted until ground-supported slabs are installed. Use waterproof barrier according to EPA-Registered Label instructions.
- D. Reapply soil treatment solution to areas disturbed by subsequent excavation, grading, landscaping, or other construction activities following application.

END OF SECTION 313116

