

201 MOBILIZATION

201.1.00 DESCRIPTION

Mobilization consists of preparatory work and operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; for the establishment of offices, buildings, and other facilities necessary for the work; for premiums on bond and insurance for the work; and for other operations performed or costs incurred before the beginning of work.

201.2.00 MATERIALS

All materials required to accomplish the work as specified shall be provided.

201.3.00 CONSTRUCTION

The Contractor shall set up construction facilities in a neat and orderly manner within designated or approved work areas. All labor and equipment necessary to accomplish the work as specified shall be supplied. Contractor shall conform to applicable requirements of Section 100 of GENERAL REQUIREMENTS, including but not limited to, (1) required notifications, (2) protection of surveying monuments and other markers, (3) temporary traffic control, (4) temporary utility connections, (5) protection of property, and (6) pollution control.

201.4.00 MEASUREMENT AND PAYMENT

201.4.01 Lump Sum Basis

When listed in the proposal as a separate pay item, payment for mobilization will be made on a lump sum basis.

Amounts to be allowed for mobilization in the partial payment to be made under the Contract will be as follows:

1. When 5 percent of the total original contract amount is earned from other bid items, 50 percent of the amount bid for mobilization, or 5 percent of the total original contract amount, whichever is least, less normal retainage, will be paid.
2. When 10 percent of the total original contract amount is earned from other bid items, 100 percent of the amount bid for mobilization, or 10 percent of the total original contract amount, whichever is least, less normal retainage, will be paid.
3. Upon completion of all work on the project, payment of any amount bid for mobilization in excess of 10 percent of the total original amount will be paid.

The above schedule of partial payments for mobilization shall not be interpreted to limit or preclude partial payments otherwise provided by the Contract.

201.4.02 Incidental Basis

When not listed in the Proposal, all mobilization costs will be considered incidental work and no separate payment will be made.

202 TEMPORARY TRAFFIC CONTROL

202.1.00 DESCRIPTION

This section covers all work necessary to conduct construction and maintenance operations so as to offer the least possible obstruction and inconvenience to the public and to protect pedestrians, vehicular traffic, and workers, complete.

Additional Traffic Control provisions are contained in Subsection 105 CONTROL OF WORK, and 107 LEGAL RELATIONS AND RESPONSIBILITIES, of the GENERAL REQUIREMENTS.

202.2.00 MATERIALS

All devices to be furnished and used by the Contractor, and their placement shall conform to the requirements indicated on the approved traffic control plan. Cases, conditions, and details not covered on the approved traffic control plan shall conform to the applicable provisions of Part IV of the Manual on Uniform Traffic Control Devices for Streets and Highways, including current Oregon supplements.

202.3.00 CONSTRUCTION

202.3.01 General

The public shall be adequately warned at all times of existing conditions on all streets affected by work operation.

Contractor shall maintain the traffic-control area and reset all disturbed signs and traffic-control devices on a 24 hour basis or immediately upon notification of a problem. The Contractor must designate an on-site person as a contact for traffic control problems. Contractor must submit the name of the contact person with emergency phone number to the City at least 5 (five) working days prior to construction. Nonapplicable signs shall be removed or covered during periods not needed, as approved on the traffic control plan or by the Engineer. Prior to closing or partial closing of any street, Contractor shall conform to Subsection 105.06 Notifications Relative To Contractor's Activities.

If construction signing is left in effect when there is no need, the Contractor has two (2) hours upon notification to cover or move these signs. If the Contractor has not taken care of the signs beyond two (2) hours of notification, the Engineer reserves the right to have City of Springfield employee/s move or cover the signs and bill the Contractor for time and materials (two (2) hour minimum), or deduct said City's cost from payments due the Contractor.

202.3.02 Traffic Control Within the Project

The Contractor shall submit a traffic control plan for work within the public right-of-way showing all temporary traffic control devices for each phase of work. The plan shall show each individual phase of the project with a schedule and map showing placement and description of each temporary traffic control device. The "Traffic Control Plan" shall comply with the Manual on Uniform Traffic Control Devices (including Oregon supplements) and the Oregon Department of Transportation, Traffic Management Section on Signing Policy and Guidelines, and the ODOT Handbook "Signing and Flagging Standards for Short-Term Work Zones; current edition. The plan must illustrate changes in lane usage, locations and type of traffic control devices, and shall encompass Advanced Warning, including Oregon Department of Transportation Sign OR4-20 "TRAFFIC FINES DOUBLE IN WORK ZONES" for all intersecting streets.

A traffic control plan must be submitted for all projects in the public right-of-way no later than five (5) working days before work begins. If this plan is not received and approved prior to starting, the Engineer reserves the right to shut down all work at the Contractors expense (with a written stop work order to follow within 24 hours) until a plan has been approved and implemented. No work shall be permitted until the area has been signed as per the approved traffic control plan. The signing shown on the traffic control plan is the minimum required signing. All signs, barricades, cones, flaggers, and other such "devices" to warn, safeguard, protect, guide, and inform the public and the workers during the life of the project shall be furnished, constructed, installed, maintained, moved and removed by the Contractor.

Approved access shall be provided to private properties at all times, except during urgent stages of construction when it is impractical to perform construction and maintain access to private property simultaneously. When access is to be denied, occupants of affected properties shall be given written notice at least 24 hours prior to work. When, in the judgment of the Engineer, vehicle parking is a hazard to thru-traffic or to the work, Contractor shall furnish and place TEMPORARY NO PARKING signs on any street which is directly involved in the construction work.

All existing guide signs, warning signs, and regulatory signs shall be maintained at locations readily visible to the traveling public throughout the life of the project, or until new signs replacing them are installed, whichever occurs first.

The contractor shall install city supplied "Project Signs" as directed by the Engineer and as shown on the plans. The City supplied sign is a 4' X 3' sign mounted on a 4" X 4" wood post. The contractor shall pick up said sign(s) at the Traffic Maintenance Shop, 201 South 18th Street, Springfield before the start of construction. The contractor shall

also remove the signs when all construction is complete or as directed by the Engineer and deliver them in good condition to the Traffic Maintenance Shop. Payment for said sign work shall be incidental to Temporary Traffic Control, Bid Item No. 061. No lane closures will be allowed on arterial or collector streets between the hours of 7:30 - 8:30 a.m. and 4:00 - 5:30 p.m. unless approved by the engineer.

202.3.03 Construction and Maintenance of Detours

Temporary detours shall be constructed and maintained for protection of the work and the safe passage of traffic around work areas. All detour routes must receive prior approval by the Engineer.

Contractor shall conform to requirements in Subsection 107.15, Detours, of the GENERAL REQUIREMENTS.

202.3.04 One-Way Piloted Traffic Control

When detours are not available, operations shall be confined to a width which provides for safe passage of traffic. If, in the judgment of the Engineer, one-way piloted traffic is necessary, Contractor shall provide at least two (2) State certified flagpersons to control traffic - one flagperson being stationed at each end of the roadway being limited to restricted use, a State certified pilot car, and a State certified driver furnished to lead traffic. At the end of each day, work shall be left in such condition that the road can be traveled without damage to the work and without danger to public.

202.3.05 Construction Grade Pavement Tape

If required by the Engineer, the Contractor shall place temporary construction grade pavement tape to provide the traveling public with a safe well marked route. All conflicting pavement markings, as determined by the Engineer, shall be removed by the Contractor within 24 hours upon notification. If the conflicting markings are not removed within the 24 hours, the City reserves the right to have the work done and to bill the Contractor for that work and administrative costs.

The temporary construction grade pavement tape shall be removable retro-reflective and must be readily removable when the tape is no longer applicable. The tape shall be removable from asphalt intact or in large pieces without the use of heat, solvents, grinding, or blasting. Heat may be used on approval from the Engineer, but the Contractor is liable to repair any damage to the asphalt surface during the removal of pavement tape.

If temporary construction grade pavement tape is required, it must be put down prior to the lane/street being opened to the traveling public. The tape must be laid in accordance

to an approved pattern. If the tape is not in accordance to an approved pattern within 24 hours of paving, the City reserves the right to have the work done and bill the Contractor for that work and administrative costs. The tape shall be applied in accordance to manufacturer's recommendations. If weather conditions do not allow the pavement tape to be used, an approved alternative must be set up by the Contractor to help safely move the traveling public.

The temporary construction grade pavement tape shall conform to requirements in Subsection 317.2.04, Plastic Pavement Marking.

202.4.00 MEASUREMENT AND PAYMENT

202.4.01 Lump Sum Basis

When listed in the Proposal as a separate pay item, payment for temporary Traffic Control will be made on a lump sum basis.

202.4.02 Incidental Basis

When not listed in the Proposal for separate payment, all Temporary Traffic Control will be considered incidental work for which no separate payment will be made.

202.4.03 Construction Grade Pavement Tape

Payment for any construction grade pavement tape (application and/or removal) shall be included in the lump sum price for temporary traffic control. The projected need for this item will be discussed at the pre-bid meeting.

203 CLEARING AND GRUBBING

203.1.00 DESCRIPTION

This section covers work necessary to clear, remove and dispose of all debris and vegetation, such as stumps, trees, logs, roots, shrubs, vines, grass and weeds within the designated limits, to preserve from injury or defacement such objects and vegetation as are designated to remain in place, and to perform final cleaning of the designated area.

Clearing is defined as cutting of trees, bushes, vines and other vegetative growth at or above ground surface and removal from the site all such cut or down vegetation.

Grubbing is defined as removal of vegetative growth and natural wooden items remaining at or below ground surface following the clearing operation.

Contractor shall review with the Engineer the location, limits, and methods to be used prior to commencing work under this section.

Removal of man-made structures including, but not limited to, concrete slabs, walls, vaults, footings, asphaltic surfaced areas and graveled areas, shall be included in payment for excavation or excavation and backfill as provided in Subsection 301.3.03 Excavation of Existing Improvements, and will not be included in Clearing and Grubbing.

203.2.00 MATERIAL

Explosives shall be used only on written approval of the Engineer. Use of explosives shall comply with Subsections 301.2.02 Explosives and 301.3.08 ROCK EXCAVATION AND EXPLOSIVES.

All herbicides and soil sterilants shall conform to Section 205 LANDSCAPING.

203.3.00 CONSTRUCTION

203.3.01 General

Trees and plants shall be removed as designated within the area of work, and all sod, topsoil, and organic earth shall be removed within designated area.

203.3.02 Merchantable Timber

Owner reserves the right to merchantable timber, as designated in the Contract Documents and as marked at the project site by the Engineer. Contractor shall assume

ownership, remove, and dispose of all other timber. Contractor shall cut, trim, and handle merchantable timber in such a manner as to ensure the best sale value to Owner and dispose of resulting waste materials as specified.

203.3.03 Protection of Existing Vegetation

All trees, shrubbery and other vegetation not designated for removal shall be protected from damage caused by the work. Tree branches shall be cut as specified in ANSI 260.1-1973, American Standard for Nursery Stock, and removed when directed to provide a balanced appearance of any tree.

203.3.04 Clearing

The area above the natural ground surface shall be cleared of all vegetative growth and objectionable materials, and timber growth shall be cut so that no stump extends above ground surface more than six (6) inches.

203.3.05 Clearing Borrow and Waste Disposal Areas

Contractor shall clear areas designated as borrow and waste disposal areas to designated limits and dispose of all waste as specified.

203.3.06 Grubbing

All stumps shall be completely removed. Use of explosives for stump removal shall conform to requirements of Subsections 301.3.08C Use of Explosives and 107.17 Use of Explosives.

On areas to be occupied by embankments, all roots and embedded wood shall be removed to a depth not less than one (1) foot below subgrade or slope surface on which the embankment is to be constructed.

On excavation areas, all roots and embedded wood shall be removed to a depth not less than eight (8) inches below subgrade or slope surface through which excavation is required.

203.3.07 Disposal of Waste Material

Contractor shall remove and dispose of all waste materials or debris in a manner satisfactory to the engineer and in compliance with federal, state, and local laws and ordinances.

203.3.08 Backfilling and Clean-up

In areas not subject to future excavations, all holes and depressions caused by clearing and grubbing shall be filled and compacted with material acceptable to the Engineer and area reshaped to conform to adjacent undisturbed topography.

Work area shall be left in a clean and sightly condition, free from litter and debris.

203.4.00 MEASUREMENT AND PAYMENT

203.4.01 Acreage Basis

When shown in the Proposal, payment for clearing and grubbing will be made on an acreage basis for the area cleared and grubbed within limits staked by Engineer, measured to the nearest 0.1 acre.

203.4.02 Lump Sum Basis

When shown in the Proposal, payment will be made on a lump sum basis for all clearing and grubbing.

203.4.03 Incidental Basis

When not listed in the Proposal for separate payment, all clearing and grubbing will be considered incidental work for which no separate payment will be made.

204 DUST, NOISE, EROSION AND POLLUTION CONTROL

204.1.00 DESCRIPTION

This section covers work necessary for the alleviation or prevention of dust, noise, erosion and pollution. Dust, noise, erosion and pollution resulting from the Contractor's performance of work, either inside or outside the right-of-way, shall be controlled by the Contractor.

The contractor shall conduct the work in accordance with local laws and ordinances, with the applicable sections of ORS 449, with all regulations of the Department of Environmental Quality and other agencies of the state, and with all laws and regulations of the Federal government. All practicable means shall be exercised to prevent, control and abate the pollution of waters and to maintain reasonable purity of the air.

The contractor shall conduct the work in conformity to all applicable laws and regulations governing construction noise. Work hours outside of 7:00 am to 6:00 pm (City Code Section 5-12-8) will require council approval based on noise level.

204.2.00 MATERIALS

All materials required to accomplish the work as specified shall be provided.

204.3.00 CONSTRUCTION

Dust control by watering shall conform to Section 304 WATERING.

The absence of adequate control of these items shall be justification for suspension of work as provided in Subsection 108.05 SUSPENSION OF WORK.

The contractor shall implement temporary erosion control measures to contain sediments on the construction site. This shall include construction areas where the ground surface will be disturbed with clearing, grading, fills, excavations and where runoff is likely to occur from surface or subsurface drainage.

204.4.00 MEASUREMENT AND PAYMENT

No separate payment will be made for any work performed or material used to control dust, noise and pollution resulting from the Contractor's performance of the work, either inside or outside the right-of-way. Full compensation for such control will be considered as included in the prices paid for the various items of work involved.

Unless stated in the Bid Document, no payment shall be made to the contractor for temporary erosion control measures.

The City guarantees no source of water for the Contractor. The cost of water will be considered as included in the prices paid for the various items of work.

205 LANDSCAPING

205.1.00 DESCRIPTION

This section covers the work necessary for: (1) finish grading, addition of topsoil, fertilizer and weed control, establishment of lawns or grass area by sod or seeding, and maintenance of lawn or grass area, complete; (2) mulching, fertilizing and planting of ground cover, establishment of nursery stock, such as trees, shrubs, and small plants, and maintenance of ground cover and nursery stock, complete; (3) subsurface drainage, complete.

205.1.01 Contractor's Qualifications

Landscaper must be licensed under ORS 671.510 - 671.680. Landscaping prime Contractor or sub-contractor must have at least two (2) years prior landscaping experience of similar scope. Only qualified Contractors are invited to submit bid proposals. Submit names and addresses of previous projects, owners, and locations if requested by Engineer.

205.2.00 MATERIALS

205.2.01 Plants

Names of plants shall conform to standardized names of the American Joint Committee on Horticultural Nomenclature. Names of varieties not included therein shall conform to names generally accepted in the nursery trade. Contractor shall provide plants which are nursery-grown with growth habit that is normal for the species, sound, healthy, vigorous, and free from insects, diseases, and injuries and equal to or exceeding measurements specified. Contractor shall provide sizes according to the current issue of American National Standard Institute (ANSI) 260.1-1973, American Standard for Nursery Stock.

205.2.02 Grass Seed

Grass seed mixtures shall be selected to match existing adjoining lawns whenever possible. Grass seed mixtures for planting in parkstrips or in other areas not previously seeded shall be composed of the following:

Kentucky Blue Grass..	.0	- 10%
Perennial Rye.....	.70%	- 50%
Fine Fescue.....	.30%	- 40%

All seeds shall be of blue tag stock and from the current or latest season's crop. The seed shall be in containers labeled in accordance with Oregon State and U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act.

A label showing seed variety, 95 percentage of purity by weight, 90 percent germination rate, maximum weed content, date of test within 9 months of date of delivery, and set forth in the General Certification Standard by the Oregon State University Certification Board shall be provided. Mold or evidence of container having been wet or otherwise damaged will be cause for rejection of each seed lot.

205.2.03 Sod

Contractor shall provide grass sod from certified or approved source, strongly rooted and free of pernicious weeds. Sod shall be not less than 10 months old.

205.2.04 Imported Topsoil

Where imported topsoil is specified in the Contract Documents, Contractor shall provide natural, fertile, friable topsoil, representative of local productive soil, and 90 percent free of clay lumps or other foreign matter larger than 2 inches diameter, not frozen or muddy, with pH 5.0 to 7.0, not less than 3 percent humus as determined by loss on ignition of moisture-free samples dried at 100 degrees C. Gravel portion (particles larger than 2 mm) shall not exceed 15 percent of total volume. Imported topsoil shall be free of quack grass, horsetail and other noxious vegetation and seeds. Should such regenerative material be present in the soil, resultant growth, both surface and root, shall be removed by Contractor within 1 year of acceptance of the work at no expense to Owner.

205.2.05 Peat

Contractor shall use a peat consisting of natural residue formed by decomposition of reeds, sedges, or mosses from freshwater site, free from lumps, roots, and stones, absorbing at least 4 times its dry weight of water, organic matter not less than 90 percent on a dry weight basis, and maximum moisture content at time of delivery of 65 percent by weight.

205.2.06 Lime

Contractor shall provide a lime composed of ground dolomitic limestone not less than 85 percent total carbonates and magnesium, ground so that 50 percent passes 100 mesh sieve and 90 percent 20 mesh sieve. Coarser material will be acceptable provided the specified rates of application are increased proportionately on the basis of quantities passing 100 mesh sieve.

205.2.07 Street Trees

Only those trees of a species approved by the City of Springfield shall be planted in the public right of way. Article 32, Section 32.050 STREET TREES, of the Springfield

Development Code lists trees that are unlawful to plant. The following are examples of prohibited trees:

- Poplar - Cottonwood - Ailanthus
- Willow - Fruit-bearing Trees - Nut trees
- Elm - Locust
- Conifer trees

Trees approved for planting shall be selected from a City approved source and shall be free from blight or other diseases. The tree(s) shall be nursery grown showing good growth equal to or exceeding the specified measurements, as specified in ANSI 260.1-1973, American Standard for Nursery Stock. The following is an example list of approved trees in the public right of way from the current Springfield Development Code section.

Only trees with a minimum trunk caliper of 2 inches, as measured 6 inches above the root collar, shall be selected for planting in the public right of way.

205.2.08 Product Substitutions

In the event that a species of tree or plant becomes unavailable following the award of contract, submit requests for product substitution of a similar type and same caliper tree size for approval to Engineer, in writing, in accordance with these documents. The Contractor will be paid only the invoice price, plus fifteen percent in accordance with Subsection 109.06, Payment for Force Account Work, of these documents. For substitution approval, the Contractor shall provide the City with 3 quotes, based on tree bid item only, from nursery wholesale dealers to show that the lowest cost bid is being used.

205.2.09 Root Barrier

Root retaining barriers shall be of a type equal to or better than that shown in the Standard Drawing No. 2-2, Street Tree Installation. The root control barriers shall be Filon (fabric) or equal, and shall be installed on the sidewalk-side and/or curbside of the roots.

205.2.0.10 Planting Pellets

Planting tablets shall be 10 or 12 gram compressed plugs with a mixture of 20 parts nitrogen, 10 parts phosphorous, 5 parts potash (20-10-5) of a type approved by the City of Springfield.

205.2.11 Subdrains

Subdrains shall conform to requirements for underdrains in DIVISION 4 -SEWERS. Perforated PVC drain pipe, 3 to 4 inch diameter, shall be used. A separator of approved one pound density superfine fiberglass shall be used.

205.2.12 Fertilizer

Fertilizers used for lawn seeding shall be a complete fertilizer which shall supply 2 pounds of actual nitrogen per 1000 square feet to the soil with a ratio of 3 parts nitrogen, 1 part phosphorous, and 2 parts potash (3-1-2).

Contractor shall furnish fertilizer in moisture-proof bags marked with weight and the manufacturer's certified analysis of the contents showing the percentage of each ingredient. Fertilizer shall be in a dry condition free from lumps and caking, in granular or pelletized form, of standard commercial grade conforming to all State and Federal regulations and to the standards of the Oregon Department of Agriculture. Fertilizer may be furnished in bulk form if an approved transfer hopper is provided.

205.2.13 Mulch and Ground Covers

One or more of the following types of mulch shall be used:

1. Organic mulch of clean ground fir or hemlock bark graded so that 50 percent consists of particles larger than 1/4 inch but not exceeding 1 inch.
2. Straw mulch of threshed straw of oats, wheat, or rye free from seed of obnoxious weeds or salt hay.
3. Fiber mulch of heavy, twisted jute mesh, or equal, weighing one pound per square yard, with openings between strands approximately 1 inch square.

205.2.14 Tie Downs

One or more of the following materials may be used as the need arises:

1. Eye-bolt masonry anchors of galvanized steel, with approved lead shield or flush shell for setting into masonry joint or concrete.
2. Sound wood stakes, 2 inch by 2 inch by 96 inch, consisting of clear straight cedar,

fir of construction grade or better, or approved equal, capable of lasting at least two (2) years ground burial.

3. Wire for guys or for fastening trees to stakes, of 12 gauge, pliable galvanized steel.
4. Hose for guy wire encasement, of 2 ply reinforced rubber garden hose, minimum ½ inch diameter new or used.
5. Turnbuckles, zinc-coated, with a 6-1/2 inch lengthwise opening, 3/8 inch diameter threaded openings fitted with screw eyes.
6. Wrapping material of first quality burlap, minimum 8 ounce weight, 6 inches to 10 inches in width.
7. Plastic chain-type tie down for trees, 1 inch wide by 1/8 inches thick, or approved equal.

205.2.15 Soil Sterilant

Contractor shall use products manufactured for use as an herbicide and as specified in the current issue of Pacific Northwest Weed Control Handbook.

205.3.00 INSTALLATION

205.3.01 General

Installation shall conform to manufacturer's and supplier's recommendations and instructions and to accepted practices in the industry.

205.3.02 Soil Test

If directed by Engineer, a soil test shall be performed before the project schedule is submitted. The test may be performed by any Oregon State University County Extension Agent or by any other approved soils testing laboratory. The soils analysis shall provide a chemical analysis of the soil and recommendation for soil improvements for the crop to be utilized. The recommendations may be used to select the particular fertilizer and soil improvement chemicals to be used prior to planting when directed by the Engineer.

205.3.03 Lawn and Grass

205.3.03A Project Schedule

Within 20 Calendar days of the date specified for commencement of work, Contractor shall submit for approval a time schedule indicating dates for beginning and completion of the following operations:

1. Delivery of Material
2. Preparation of Seedbed
3. Planting Grass
4. Maintenance

205.3.03B Delivery, Handling and Storage

Sod shall be delivered immediately on lifting and after lawn bed is prepared for planting. Sod shall be protected from drying by covering during delivery to protect from sun and wind. Materials shall be stored only in designated areas of site.

205.3.03C Preparation of Subgrade

After rough grading is completed and before topsoil or loam is spread, the subgrade shall be loosened to a depth of 4 inches by rototilling. All rocks larger than 2 inches shall be removed, as well as any roots or other materials considered to be detrimental to the future growth of the completed lawn or planting.

Limits of all areas to be restored with grass seed or bark mulch shall be identified in the field by the Engineer or on the construction drawings. Contractor's work areas beyond the identified limits of the project which are restored by the Contractor shall become the responsibility of the Contractor. Lawn restoration and bark mulch restoration shall be two separate items, unless specified in the Proposal as lawn restoration which may include bark mulch in the same item.

205.3.03D Subsurface Drainage

Perforated PVC pipe shall be laid on firm beds of gravel with minimum fall of 0.5 percent and located as detailed on drawings. Minimum depth shall be 24 inches and no deeper than required to produce minimum fall. Installation of subsurface drain pipes shall conform to the requirements of Subsection 404.3.04, Perforated Pipe Underdrains. Pipes shall be covered with filter fabric to prevent infiltrations of soil. Trenches shall be backfilled with gravel to within 4 inches of subgrade.

Contractor shall place other drain materials in conformance with the applicable requirements in Sub-section 404.3.04, Perforated Pipe Underdrains. Backfilling of trenches shall be completed with a 4 inch layer of coarse sand and tamped for

compaction, as approved.

205.3.03E Topsoil and Finish Grading

Topsoil and soil conditioner shall be spread over the prepared rough grade using a rubber-tired tractor with grader blade or equivalent, weighing maximum of 3-1/2 tons; the applied materials shall be thoroughly mixed to a depth of 8 inches with a disc or cultivator over the entire area in two directions at right angles.

Contractor shall rake topsoiled area to a uniform grade so that all areas drain, as shown or as approved. Topsoil shall be 90% free of all trash and stones exceeding 2 inches in diameter, which shall be removed from the area. However, the top 2" shall be 100% free of all foreign material prior to preparation and planting grass.

205.3.03F Soil Sterilant

When required Contractor shall thoroughly water area to be treated with soil sterilant one day prior to application or as specified by manufacturer. Area shall be thoroughly watered after application and soil kept moist to a depth of one inch for three weeks. Three weeks after soil sterilant application, the area shall be raked immediately before seeding or sodding.

205.3.03G Seeding

Grass seed shall be planted only at times when local weather and other conditions are favorable to the preparation of the soil and to the germination and growth of grass seed. Grassed areas shall be sown evenly with a mechanical spreader at a rate of one pound per 150 square feet, rolled, covered to 1/4 inch with approved mulch, and watered with fine spray. Method of seeding may be varied, such as hydro-seeding or as approved, however, responsibility to establish a smooth, uniformly grassed area will not be waived.

205.3.03H Sodding

Before the sod is laid, soft spots and irregularities in grade of prepared bed shall be corrected to the satisfaction of the Engineer. Topsoil shall be brushed or raked with no lumps or stones larger than 3/4 inch over the area to be sodded. Sod shall be laid so that no voids occur. Sod shall be tamped and rolled. Sod shall be watered thoroughly. Sodded surface shall be completed true to finished grade, even and firm. On slope steeper than 2 horizontal to 1 vertical sod shall be fastened with pins 6 inches long driven through sod into soil flush with top of sod.

205.3.03I Mulching and Protection

All areas with a slope greater than 5 percent shall be mulched by spreading a uniform light cover of straw mulch over the seeded area at a rate of 0.62 pounds per square yard.

All areas with a slope greater than 20 percent shall be mulched by placing fiber mulch in strips paralleling the slope to completely cover newly seeded areas. Mulch shall be pinned to ground with 4 inch long wire staples at 5 foot intervals immediately after seeding.

All areas with a slope steeper than 25 percent shall be mulched with spray mulch applied at a rate of 15 gallons per 1000 square feet after wetting the ground to a depth of at least one inch.

Contractor shall protect new seeded area from pedestrians and bikes. Unless otherwise approved, a fence of 2 inch posts 4 feet high spaced 10 feet on center shall be erected and strung with jute, hemp, or a single strand of No. 12 gauge wire marked with flags at 3 foot intervals between posts.

In lieu of spreading grass seed and mulch, commonly known as a Lawn Restoration item in the Proposal, the Contractor may be directed to place bark mulch in areas that would normally be restored with vegetation. Bark shall be spread evenly to a depth not less than 3 inches, placed on topsoil or original ground which has been scalped or prepared to an even grade, and layered with a polyethylene sheeting, 4 mil or thicker, or as directed by Engineer, to retard the growth of weeds. Measurement and payment of bark mulch restoration shall be per square yard of mulching placed at the same rate of payment as lawn restoration unless a separate bark mulch restoration item is shown in the Proposal.

205.3.03J Lawn Guarantee

If at the end of an 8 week period, a satisfactory stand of grass has not been produced, Contractor shall immediately renovate and reseed the unsatisfactory portions of lawn, or when approved, reseed at the beginning of the next planting season. Lawn guarantee shall also include that a satisfactory stand of grass shall be free of weeds. If a satisfactory stand of grass develops by June 1st of the following year, the lawn will be accepted. If the lawn is not accepted, a complete replanting will be required during the ensuing planting season following the requirements specified.

A satisfactory stand is defined as a lawn or section of lawn that has:

1. No bare spots larger than 1 square foot.
2. Not more than 10 percent of total area with bare spots larger than ½ square foot.
3. Not more than 15 percent of total area with bare spots larger than 6 inches square.

4. No weeds.

205.3.03K Protection of Existing Conditions

Contractor shall preserve and protect the following conditions in the environment:

1. Monuments

- A. Carefully maintain Bench Marks, Monuments, and other Reference Points.
- B. If disturbed, or destroyed, replace as directed at Contractor's Cost.

2. Existing Utilities:

Prior to opening an excavation, effort shall be made to determine whether underground installations, i.e., sewer, communication, water, fuel, electric lines, irrigation systems, etc., will be encountered, and if so, where such underground installations are located.

- A. Utility companies shall be contacted and advised of proposed work 48 hours prior to the start of actual excavation.
- B. When the excavation approaches the estimated location of such installation, the exact location shall be determined.
- C. Means shall be taken to prevent dangerous contact or hazardous unintended movement.

3. Dust Control:

Protect persons and property from damage and discomfort caused by dust. Water is necessary and when directed.

4. Existing Plants and Trees:

Protect against damage. Repair or replace any damaged plantings. Do not change grade within drip line of existing plants and trees which are scheduled to remain untouched unless otherwise specified on drawings.

205.3.04 Trees, Shrubs and Ground Cover

205.3.04A Delivery, Preparation and Storage

Plants designated as balled and burlapped in the Contract Documents shall be dug with firm, natural balls of earth of diameter and depth, as specified in ANSI 260.1-1973, American Standard for Nursery Stock. Balls shall be firmly wrapped with burlap and bound with twine, cord, or wire mesh. Where necessary to prevent breaking or cracking

of ball during process of planting, or where the tree exceeds 4 inches in diameter, the ball shall be secured to a platform.

Bare root plants shall be dug to remove earth with the least possible injury to fibrous root system. Roots shall be covered with a thick coating of mud by puddling or wrapping in wet straw, moss, or other suitable packing material immediately after digging for protection until delivery.

Container grown plants shall be furnished with self-established root systems sufficient to hold earth together after removal from container but not root-bound, grown for at least 3 months in container with inside diameter shown.

If plants are not in dormant state, they shall be sprayed with anti-desiccant to cover foliage as recommended by manufacturer, prior to digging plants. During shipment, plants shall be protected with tarpaulin or other approved covering to prevent excessive drying from sun and wind.

Balls of balled and burlapped plants, and containers of container grown plants which cannot be planted immediately upon delivery shall be covered with moist mulch to protect from drying. Plants shall be watered as necessary to prevent drying until planted. Pruning shall be done only at time of planting.

All bundles of heeled-in plants shall be opened and separated before the roots are covered. Contractor shall avoid leaving air pockets around roots.

205.3.04B Soil Conditioning

After the specified chemical analysis report for topsoil is received, topsoil mixture will be prepared for plant pits and beds by thoroughly mixing approved topsoil with soil conditioner materials, fertilizer, and lime. The mixture shall be thoroughly mixed with rotary mixer or other approved method in the following portions:

<u>Topsoil Classification by Clay Content</u>	<u>Parts By Volume</u>			<u>Required Mixtures</u>	
	<u>Top Soil</u>	<u>Sand</u>	<u>Peat</u>	<u>Ferti- lizer*</u>	<u>Lime*</u>
Clay 5-10 percent	4	0	1	(½)LB/CY	(1)LB/CY
Clay 10-15 percent	2	2	1	(½)LB/CY	(1)LB/CY
Clay 15-25 percent	2	4	1½	(½)LB/CY	(1)LB/CY

*Adjust in accordance with soil test chemical analysis report.

The topsoil mixture and other materials shall be stored and protected at designated area of the site. Topsoil mixture shall be protected from excessive leaching by covering with tarpaulin if stored for more than 6 weeks.

205.3.04C Planting Procedures

Within 20 calendar days after the date specified for the commencement of work, a time schedule shall be submitted for approval indicating dates for commencement and completion of the following operations:

1. Tagging of plants in the nurseries
2. Survey and staking of plant locations
3. Delivery of topsoil and other materials
4. Digging and preparation of plant pits and beds
5. Delivery of trees to the site
6. Delivery of other plants to the site
7. Planting of trees
8. Planting of other plants
9. Guying, staking and mulching
10. Completion of work for start of guarantee period

Under the following environmental conditions, planting will not be permitted unless otherwise approved:

1. Cold weather: when air or ground temperature is less than 32 degrees Fahrenheit.
2. Hot weather: when air temperature is greater than 90 degrees Fahrenheit.
3. Wet weather: when ground becomes saturated.
4. Windy weather: when wind velocity is greater than 30 mph.

If weather conditions, as specified herein, make it impossible to continue operations, cease work and notify Owner immediately.

At least 20 days before start of the guarantee period, a schedule of proposed maintenance operations shall be submitted indicating the number of manhours contemplated for each operation by season during autumn, winter, spring and summer.

Within three weeks of the award of Contract, Contractor shall begin to prepare topsoil for plant pits. Thereafter planting operations shall be conducted under favorable weather conditions during next season or seasons which are locally normal for such work.

New planting shall be located where shown, except approved adjustments will be made where obstructions below ground are encountered or where changes have been made in the construction. No planting, except ground cover, shall be dug and soil mixture readied for planting before plants are delivered. Circular pits will be excavated with vertical sides a minimum of one foot greater than the diameter of the root ball. For trees, shrubs and vines, pits shall be excavated to a depth sufficient to accommodate ball or roots when plant is set to finished grade. Three inches of compacted soil mixture shall be placed in the bottom of pit.

Plants shall be set upright and faced as approved to give the best appearance or relationship to adjacent structures. Burlap shall not be pulled from under balls. Wire and surplus binding shall be removed from top and sides of balls. Roots shall be spread in normal position. All broken or frayed roots will be cut off cleanly. Prepared soil mixture will be placed and compacted carefully to avoid injury to roots and to fill voids. When hole is nearly filled, water will be added as necessary and allowed to soak away. The hole shall be filled to finished grade and a shallow saucer formed around the plant by placing a ridge of topsoil around the edge of pit 2 feet greater than the diameter of ball. After ground settles, additional soil shall be placed to the level of finished grade.

Trees will be placed before surrounding smaller plants and covers are placed. Trees shall be positioned as shown or, where spacing dimensions or locations are not clear, as approved.

Trees that will be placed in park strips or within eight feet from any concrete slabs or sidewalk shall be set in approved root barriers as shown in Standard Drawing 2-2, Street Tree Installation. Unless otherwise specified the complete installation of trees at these locations shall strictly follow the standard procedures as outlined on Standard Drawing 2-2, Street Tree Installation.

Shrubs shall be planted on centers as shown. Trenches shall be excavated a minimum of 4 inches deeper and 12 inches wider than the spread of roots or diameter of balls. Adjustments to spacing will be made if necessary to fill trench evenly with the quantity of plants shown.

Ground covers shall be planted in beds having a minimum of 8 inches of prepared soil mixture. Ground cover beds will be treated after preparation for planting but before any plants are installed within the bed area, with soil sterilant to destroy weed seeds. The sterilant shall be applied according to manufacturer's directions, with planting delayed for the recommended minimum period to allow dissipation of herbicide.

The soil shall be conditioned with an application of a complete fertilizer, 5-10-10 with a 50 percent slow release nitrogen, applied at the rate of 40 lbs. per 1000 square feet, well worked into the soil by raking or other approved methods.

Plants shall be spaced as shown. Contractor shall mulch and water immediately after planting. Bulbs will be planted in ground cover beds. As each bulb is placed to the recommended depth it shall receive (1) one tablespoon of bone meal worked into the soil of the planting hole.

Trees and planting beds shall be provided with 3 inch layers of organic mulch within 2 days after planting and kept at this depth throughout maintenance period. The mulch will entirely cover the area of saucer around each tree. Four guys equally spaced as shown shall be used for all trees greater than 4 inches in diameter.

Three guys equally spaced as shown shall be used for all trees 4 inch in diameter or less.

Where shown, trunks of trees shall be wrapped spirally from ground line to height of first scaffold branch. All wrappings will be neat and snug and hold material in place by raffia cord at top and bottom.

205.3.04D Drainage of Pits and Beds

Subsoil drainage shall be furnished where shown. Trenches will be dug with vertical sides and smooth bottoms a minimum of 12 inches wide and 6 inches below tree balls, or 18 inches below finished grade at highest end of drain. Drain pipe will be bedded firmly, laid true to grade with a minimum slope of 0.008 feet per foot and connected to approved outlet or discharge at grade. Pipe joints will be a maximum of 1/8 inch and covered with filter fabric separator to prevent ingress of soil. Entire pipe line will be covered with 4 inch layer of imported granular material, which will be covered with a filter fabric separator and backfilled with well-compacted soil.

205.3.04E Pruning and Repair

At completion of planting work, all plants will be pruned and injuries repaired. The amount of pruning will be limited to minimum necessary to remove dead or injured twigs and branches and to compensate for the loss of roots as a result of planting operations. Contractor shall not change natural habit or shape of plant. Cuts will be flush, leaving no stubs. On all cuts over 3/4 inch in diameter and bruises or scars on bark, the injured cambium will be trimmed back to living tissue and removed. Wounds will be smoothed and shaped so as not to retain water.

205.3.04F Paving Tree Pits

Paving material will be set on a 2 inch sand bed as shown. Joints shall be filled with sand by sweeping sand over surface and watering to settle. Finish joints shall be flush with surface of pavers, or existing sidewalk.

205.3.04G Plant Guarantee

Contractor shall guarantee all plants for a minimum of 2 years to be alive and in vigorous growing condition at the end of guarantee period. Guarantee period shall extend 2 years from date of acceptance of work as defined in Section 101.01, Definitions. Unsatisfactory plants will be removed and replaced with plants of the same kind, quality and size as originally provided or specified. All plant replacements shall be guaranteed to be alive and in vigorous growing condition 2 years after replacement. All costs of replacement shall be borne by Contractor except for replacements resulting from damage due to the vandalism of others. Plants that die, during a season unfavorable for planting, shall be replaced during the first month of the next favorable planting season.

Contractor shall apply 10 gallons of water to each tree every 2 weeks, for a minimum of 5 to 6 waterings during the heat of the summer months for the first critical year. More water and more frequent waterings shall be provided if necessary to assure health and vigor of the trees. Contractor shall water accordingly, if needed, for the 2nd year of the warranty period. To facilitate the watering process, the Contractor may choose to build earth berms 4 inches to 6 inches high at the base of each tree. Contractor is responsible for providing a healthy tree at the end of the 2 year period.

205.4.00 MEASUREMENT AND PAYMENT

205.4.01 Unit Price Basis

When so listed in the Proposal, payment for the landscaping items, including installation materials and labor, maintenance and warranty per tree planted, will be made on a unit price basis for the number of items actually placed and accepted, as shown in the following example:

<u>PAY ITEM</u>	<u>UNIT OF MEASURE</u>
1. Lawn Restoration	S.Y.
2. Bark Mulch Restoration	S.Y.
3. Tree (type and species)	EACH
4. Installation Materials (per tree)	EACH
5. Installation Labor (per tree)	EACH
6. Maintenance and Warranty (per tree)	EACH
7. Tree-in-Place	L.S.

205.4.02 Lump Sum Basis

When so listed in the Proposal, measurement and payment will be made on the Contract lump sum pay item for Landscaping, complete.

206 RESTORATION AND CLEANUP

206.1.00 DESCRIPTION

This section covers the work necessary to restore and clean up the site, and remove all construction equipment, refuse and unused materials of any kind resulting from project activities.

Additional requirements pertaining to site restoration and cleanup are contained in the GENERAL REQUIREMENTS, Subsection 105.20 - RESTORATION AND CLEANUP. Lawns, planting, mulching and topsoil shall conform to the requirements of Section 205 - LANDSCAPING.

206.2.00 MATERIALS

All materials required to accomplish the work as specified shall be provided and shall conform to the respective requirements for materials contained within this document or as approved by the engineer, and shall be provided.

206.3.00 CONSTRUCTION

206.3.01 Surface Dressing

Slopes, sidewalk areas, planting areas, and roadway shall be smoothed and dressed to the required cross section and grade by means of a grading machine insofar as it is possible to do without damaging the work or existing improvements, trees and shrubs. Machine dressing shall be supplemented by handwork, as directed.

Upon completion of the cleaning and dressing, the project shall appear uniform in all respects. All areas shall be graded true to line and grade, as shown and as approved. Existing planting areas shall be graded to match the elevation of the sidewalk or curb with allowance made for settlement.

206.3.02 Removal of Material

Contractor shall remove and dispose of all excess construction materials, debris, trash or equipment remaining on the jobsite which resulted from the work under contract. Where brush, shrubs and/or trees located outside of the limits of the project have been disturbed, the contractor shall remove, replace or otherwise restore the disturbed materials as directed and to the satisfaction of the City Engineer.

206.3.03 Cleaning Drains

All drainage facilities such as inlets, catch basins, culverts and open ditches shall be cleaned of all excess material and/or debris which is the result of the work.

206.3.04 Cleaning Paved Surfaces and Appurtenances

All pavement surfaces, whether new or existing within the limits of the project, shall be cleaned. Existing improvements such as curbs, gutters, walls, sidewalks, castings for manholes, monuments, water gates, lamp poles, vaults, signs and other similar installations, shall be cleaned.

206.3.05 Restoring Planted Areas

Contractor shall hand-rake and drag all former grassed and/or planted areas leaving disturbed areas free from rocks, gravel, clay, or any other foreign material and ready, in all respects, for seeding. The finished surface shall conform to the original surface, be free-draining and free from holes, rough spots, or other surface features detrimental to a seeded area.

206.3.06 Restoring Mobilization, Borrow and Disposal Areas

All properties which were disturbed during construction of the project shall be cleaned. Haul routes to and from the project site, borrow and disposal areas shall be inspected and cleaned of construction related debris and restored to the condition prior to contractors use. All uprooted stumps, felled trees, brush, excess excavation, rock, discarded materials, rubbish and debris shall be disposed. All equipment, machinery, tools and supplies shall be removed and the property occupied shall be put in a neat, clean and orderly condition, equal to, or better than that existing before move in.

206.3.07 Removal of Temporary Signs

Warning, regulator, guide, or project signs shall not be removed prior to formal acceptance, except as directed.

206.3.08 Restoring Curbs, Sidewalks and Driveways

All curbs, sidewalks, driveways and other structures damaged during construction of the work shall be repaired or replaced.

206.3.09 Replacement of Permanent Signs

Permanent roadway signing removed during the course of the work shall be replaced as directed by the engineer.

206.4.00 MEASUREMENT AND PAYMENT

No additional payment shall be made for permits or fees incurred in the execution of this work.

206.4.01 Lump Sum Basis

When listed in the Proposal as a separate pay item, payment for restoration and cleanup will be made on a lump sum basis.

206.4.02 Incidental Basis

When neither specified nor shown in the Proposal for separate payment, all restoration and cleanup will be considered incidental work for which no separate payment will be made.