

PART ONE GENERAL REQUIREMENTS**1.1 REFERENCES**

- 1 This section, along with the drawings, forms part of the contract documents and is to be read, interpreted and coordinated with all other parts.
- 2 The intent of this written specification is to complement the drawn information as indicated on the **Landscape Plan** and used in conjunction with each other to conform to all applicable governing codes and provisions.
- 3 All landscape works to be performed under this contract to meet the applicable provisions and recommendations set forth in the B.C.S.L.A. / B.C.N.T.A. Landscape Standard.
- 4 All landscape works to be performed under this contract to meet the applicable provisions and recommendations set forth in the Master Municipal Specifications & Standards Details and respect all Municipal Bylaws.

1.2 TESTING

- 1 The subcontractor shall furnish from a recognized soil testing laboratory a certified analysis of the planting-soil at their expense. A period of 7 days must be allowed for return of analytical data.

1.3 SUBMITTALS

- 1 Any alternate products that differ from those specified in the contract documents, must be pre-approved by the Landscape Architect.
- 2 All submittals are to include a product sample and or specification sheet.

1.4 SITE REVIEW

- 1 The subcontractor shall examine, well in advance of commencing operations, that all rough graded areas are free of large boulders, concrete and other debris, and have been prepared to the required sub-grades and cross sections allowing for the specified depth of planting soil and mulch before the planting soil is placed. The subcontractor shall remove at their cost any planting soil placed in areas not inspected and approved by the consultant.
- 2 The subcontractor shall report all defects, irregularities, or unacceptable conditions in writing to the consultant. Start of work shall imply acceptance of surfaces and conditions and waive grounds for after claims by the subcontractor.
- 3 All plant material shall be available at one location ten(10) days prior to scheduled planting time for inspection by the consultant prior to delivery to the job site. **Notify** the consultant when plants are available for inspection and approval by the consultant at any time up to declaration of substantial performance. Rejected plant material shall be removed and replaced at no charge to the contract amount.
- 4 During construction of this Section(02900) it is the **subcontractor's responsibility to contact and inform the consultant as to the work in progress and to call for regular inspections.** If inspections are not called for by the subcontractor and a portion of the work is completed i.e. site or sub-base preparation, drainage course over slab, which cannot be visually inspected by the consultant, the subcontractor may be requested at own their expense to remove and replace the work, so that the inspection may occur and the work be approved.
- 5 Notify the consultant when planting operations and clean-up have been completed and the substantial performance inspection will be held. Should the work meet the consultant's approval, the 45 day maintenance period begins. Correct all deficiencies as required by the consultant.
- 6 Final inspection will be carried out at least 45 days after the substantial performance inspection. If all deficiencies have not been corrected at that time, the final inspection will take place when all deficiencies have been corrected.

1.5 WORKMANSHIP

- 1 The subcontractor shall identify and become familiar with the location of all new and existing utilities, surfaces, structures on site which may affect the work and to be noted on drawings at commencement of this contract. Any damages shall be repaired by the subcontractor at their own expense to the satisfaction of the consultant.
- 2 The subcontractor shall take all precautionary measures to protect all existing trees and plants to be retained as indicated on the drawings. No trees or plants shall be cut nor their roots or limbs cut unless authorized by the consultant. No roots shall be cut during installation of utilities, wall footings, or other underground work where such work passes close to a tree or plant. Tree roots shall be carefully uncovered and the utility passed through or bridged over them. All cut or damaged roots or limbs over 1"(25mm) in diameter shall be painted with carbicide.
- 3 All existing trees to be saved shall be protected from the following:
 - a) Stockpiling of earth or materials under spread of tree.
 - b) Vehicle parking and/or driving under spread of tree.
 - c) Dumping of refuse or chemically injurious materials or liquids.
 - d) Continual puddling or running water.
- 4 The subcontractor shall be aware of the structural limitations of the slab and is responsible for the protection of the water proofing membrane.

1.6 WARRANTIES

- 1 Guarantee plants for one year from date of substantial completion of the project. Replacements will be required under this contract until each plant unit so replaced will have successfully established itself to the consultant's satisfaction.
- 2 Guarantee that material and workmanship of this trade found defective will be replaced at no cost to the contract within a period of one year from date of substantial performance of the project.

PART TWO PRODUCTS**2.1 DESCRIPTION OF WORK and SCOPE OF WORK**

This work includes all labour, materials, equipment, transportation and services necessary for, but not limited to, the following:

- 1 Finish grading of all planted areas to meet flush with all paved surfaces and building elevations as specified on the landscape architectural and engineering drawings.
- 2 Improvement of existing planting-soil and supply and placement of new planting-soil to required depths.
- 3 Planting and maintenance of new shrubs, trees. All substitutions and changes to the original plant list as indicated on the plans must be approved by the consultant prior to shipment of the plant material to the site.
- 4 Supply and installation of drainage course where required. Refer to architectural detail.
- 5 Supply and install bark mulch in shrub beds only.
- 6 Supply A.I. system as a design/ build installation to the standard as per the written specification Section # 02970 Irrigation.
- 7 Insert unit prices to the work of this section. Such unit prices to be used in adjusting the contract amount in the event of changes to the scope of work.

2.2 MATERIALS

- 1 Growing Medium: On-site planting soil to be excavated top layer of a virgin or ungraded source free on any subsoil. Imported planting-soil must be submitted to the specified laboratory for analysis. The laboratory will specify any required additions of sand, organic matter, fertilizers and lime to meet specifications. In the event that the laboratory advises that the planting-soil displays sufficient undesirable properties the planting-soil may be rejected and must be replaced with a superior preparation.
- 2 Commercial fertilizer shall be selected after soil analysis. It shall be uniform in composition, dry and free-flowing. The fertilizer shall be delivered to the site in the original, unopened containers each bearing the manufacturer's guarantee statement of analysis and shall meet the recommendations stipulated in the soil analysis report. No substitutions may be made without the written consent of the consultant. Manure shall be well-rotted mushroom, horse or cattle manure with no greater than an estimated 10% by volume of sawdust, shavings or refuse. Manure soluble levels will not exceed 4 mm/cm on a saturated paste. Any fertilizers shall conform to the N, P and K requirements set out by the soil analysis.
- 3 Lime shall be ground limestone containing not less than 85% of total carbonate and shall be ground to such a fineness that 50% will pass through a 100-mesh sieve and 90% will pass a 20-mesh sieve. Coarser material will be accepted provided the specified rates of application are increased proportionately.
- 4 Peat (Peat Moss) shall be a domestic product consisting of partially decomposed vegetable matter of natural occurrence. It shall be brown in colour, clean, low in content of mineral and woody material with a pH between 4.0 and 6.0 and may be either granulated or shredded. Peat shall not contain fragments greater than 1" (25mm) in dimension.
- 5 Sand: Clean washed pumped sand to meet requirements of B.C.Landscape Standard.

- 6 Organic mulch shall be maximum size 2" (50mm) in any dimension with written analysis from a recognized lab to the approval of the consultant prior to installation.
- 7 Fertilizers
- 8 Filter Fabric: Woven "Perma Liner", Type 3100, as manufactured by Synflex Industries, or other polypropylene mat, approved by the consultant.
- 9 Drain Pipe
- 10 Washed drain rock 1/4 - 1/2 in. (5-10mm) diameter.
- 11 Plant Material
- 12 Sod
- 13 Miscellaneous

PART THREE EXECUTION**3.1 SITE CONDITIONS**

- 1 The subcontractor shall inspect the site prior to commencement of work and report to the consultant any discrepancies between existing site conditions and conditions shown on the drawings.
- 2 Install plant material during the season or seasons which are normal for such works determined by weather conditions and by accepted practice in the locality of the project. At the option of and on the responsibility of the contractor, planting of the lawn and plant material may be done under reasonable conditions without additional compensation, but the subcontractor shall not proceed with such work until they have received written approval from the consultant or their representative of the changed time or work and methods of operation.

3.2 SITE PREPARATION

- 1 Scarify existing subgrade 24" (600mm) below finish grade at planted areas. Do not scarify within 8'0" of existing trees. Determine location and depth of existing utilities before scarifying.
- 2 Grades: Establish finished grades in planting areas, to elevations shown on architectural drawings. Upon completion, ensure absence of pockets or other drainage obstructions.
- 3 Layout: Layout work from dimensions on drawings. Verify measurements on the site, report discrepancies to consultant before proceeding with the work.
- 4 Surface Drainage: Slope and pitch grades as shown on plan, drain to gutters and catch basins.
- 5 Clean-up: Remove and dispose of stumps, roots, pieces of wood, bushes, leaves, refuse, concrete rubble and similar debris from site before spreading of planting soil.

3.3 PLANTING-SOIL PREPARATION

- 1 Native planting-soil and/or imported planting-soil, to be amended according to recommendations of the soil analysis. No other additions or amendments shall be made to the planting-soil without prior approval by the consultant.
- 2 Mixing may be done at the job site in an area approved by the consultant.
- 3 Planting-soil depths - off slab:
 - Groundcover - 12" /600mm;
 - Shrub Beds - 18" /460mm
 - Trees- 12" /300mm (around & beneath rootball).
- 4 Planting-soil depths - on slab:
 - Groundcover - 18" /460mm;
 - Shrub Beds - 18" /460mm;
 - Trees- 12" /300mm (around & beneath rootball).

3.4 LIME AND FERTILIZER

- 1 Lime: Apply as necessary determined by the soil analysis to raise planting-soil pH to 6.5.
- 2 Fertilizer: Apply fertilizer as determined by the soil analysis and as noted in this section.

2. Condition of Plant Material:

- a) Plants shall be nursery grown under climatic conditions similar to those in the location of the project. Plants shall be healthy, vigorous and of normal habit of growth for the species. They shall be free from diseases, insects, insect eggs and larvae and shall equal or exceed the size indicated in the Plant List. The plants shall not be pruned prior to delivery except upon special approval. All plant material shall conform to the applicable provisions and recommendations as specified in Section General -1,2,3.
- b) Dig bare rooted plants with sufficient roots to assure proper growth and development of the plants.
- c) Deliver conifers and trees over 2" (50mm) caliper balled and burlapped (B&B). Container stock shall be established in container delivered to site for at least 6 months and not more than one year. The roots shall not have grown beyond the limits of the container.
- d) Protect plants at all times from sun and drying winds.
- e) Take precautions during digging, handling, and shipping of plant material to avoid injury to plants and roots systems.
- 3 Plants shall be subject to inspection and approval at place of growth for quality, size and variety by the consultant. Such approval shall not impair the right of inspection and rejection at the site during progress of work for size and condition of ball or roots, latent defects or injuries. Rejected plants shall be removed immediately from site.
- 4 All burlapped and/or nylon wrapped rootballs to be punctured and carefully broken without damaging the root system after placement in planting pit.
- 5 See Section 3.5.12 d) for tree staking and ties.

3.5 INSTALLATION OF PLANTING and MAINTENANCE

- 1 Complete the scarification noted in Clause 3.2.1.
- 2 Place plants in position as indicated on drawings and obtain permission of consultant who will indicate exact position before planting begins. The consultant may exercise the privilege of relocating such plants before planting.
- 3 Excavate pits of circular outline with vertical sides for all plants except vines.
- 4 Tree pits shall be at least 24" (600mm) greater in diameter than the diameter of ball, width of container, or spread of roots.
- 5 Shrub pits shall be at least 12" (300mm) greater in diameter than the diameter of the ball, width of container, or spread of roots and no greater depth than the size of the rootball.
- 6 Planting-soil shall be limed and fertilized as determined by the soil analysis prior to plant installation. Shrubs under 36" (900mm) in height shall receive a total of 1/3 cup each of CIL Super Tournament 1/20-5-15; half the volume sprinkled into the planting pit and the remainder around the drip line. Increase the rate to 1/2 cup for shrubs 36"-72" (900mm - 1800mm) in height, and 1 cup for plants over 72" (1800mm) in height. Groundcover plants shall receive a broadcast application of 20-5-15 at a rate determined by the soil analysis.
- 7 Place the planting-soil firmly around the balls of the plants and water thoroughly. Place shrubs on a minimum 6" (150mm) layer of planting-soil and trees on a minimum 12" (300mm) layer.
- 8 All trees and shrubs shall be planted 2" (50mm) higher than grown in the nursery or in the original container. Trees and shrubs not 2" (50mm) higher shall be raised at the request of the consultant prior to substantial performance.
- 9 Mulch all planted areas with bark mulch to a uniform depth of 2" (50mm).
- 10 Prune plants as needed or as requested by the consultant.

- 11 To facilitate watering, form a ridge of planting-soil around the edge of the pit or trench, the diameter of the rootball.
- 12 Secure trees as follows:
 - a) Stake or guy each tree immediately after planting. Confirm with the consultant which trees are to be guyed or staked.
 - b) Stake each tree with two stakes. Set each stake vertically a minimum of 24" (600mm) in ground. Guy trees to stakes at top and bottom of stakes with tree-ties composed of wire encased in pieces of rubber hose. Tree-ties shall be large enough to allow for a two year growth, and neatly constructed.
 - c) Secure trees over 2" (50mm) caliper with 3 guys equally spaced about each tree. Each guy shall consist of two strands of 14 gauge wire attached to the tree trunk at an angle of 60 degrees and at 2/5ths the height of the tree, where the wire attaches to the tree it shall be adequately encased in hose as noted in (d) below. Anchor guys at the ground to 3"x 3"x 3'-0" (84mm x 84mm x 900mm) stakes driven at 45 degree angle away from the tree and a minimum of 24" (600mm) into the ground.
 - d) Stakes for supporting trees over 2" (50mm) caliper to be #2 D.Fir - 2"x 2" x 10'-0" (38mm x 38mm x 3000mm) long; stakes for all other trees to be #2 D.Fir - 2"x 2" x 8'-0" (38mm x 38mm x 400mm) long. The bottom 36" (900mm) of the stakes shall be thoroughly dipped and soaked in antichlorophenol preservative before stakes are set in ground. Wire for guys shall be pliable zinc-coated iron of #14 gauge. Hose used for covering wire shall be new or used rubber garden hose at least 1/2" (13mm) I.D. or approved equal.

3.6 CLEAN-UP

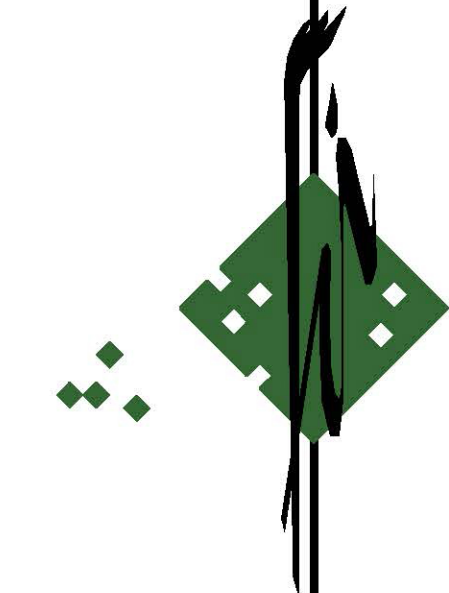
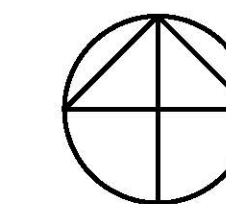
- 1 Remove from the site all surplus materials, cans and other debris resulting from the work of this Section 2900. Neatly dress and finish planting areas; flush clean walks and paved areas with water and broom sweep to the satisfaction of the consultant.

3.7 MAINTENANCE

- 1 Protect plants against trespassing and damage at all times. If any plants are injured they shall be treated or replaced as required by the consultant.
- 2 If necessary, surround planted areas with temporary fencing of stakes and twine, stakes at maximum 6'-0" (1800mm) centres. Remove temporary fencing when planting is accepted by consultant.
- 3 Protect plants against damage including erosion; if plants are installed subsequent to lawn preparation, provide proper safeguards for protection of lawn areas. Replant damaged plants immediately.
- 4 Upon acceptance of the 1 year, (except riparian areas where maintenance period is 3 years), maintenance period by the consultant, and after dead and/or dying plants (if any) have been replaced, the subcontractor shall submit a written request to the consultant for a final inspection unless the date has been previously arranged at the time of substantial performance. At this time the subcontractor shall submit a statement that they have carefully inspected all portions of the work and has received all final drawings and specifications and that, to the best of their knowledge all conditions of the contract have been met.
- 5 It shall be the subcontractor's responsibility and a condition of substantial performance to advise the owner and/or owner's representative in writing as to the recommended fertilizing and liming program as established by the soil analysis with rate of application, type, method, and duration i.e. every 3 months. Copy to be sent to the consultant.
- 6 When substantial performance is made and the work accepted by the consultant, it shall be turned over to the **Owner** for subsequent maintenance.
- 7 Begin maintenance period immediately after each plant is planted. Continue maintenance to the following requirements:
 - a) Maintain plants by regular watering (**minimum one soaking of all plants every second day during hot weather**) cultivating, pruning as directed by the consultant, spraying if necessary, and other necessary operations to ensure healthy plant growth and establishment for a 1 year, (except riparian areas where maintenance period is 3 years) period after substantial performance is approved by the consultant.
 - b) Ongoing removal of all invasive species as defined by the Invasive Species Council of Metro Vancouver.
 - c) Planting areas are to be kept groomed and weed free.
- 8 Maintenance period for plants within riparian areas is THREE (3) years and is subject to the following requirements:
 - a) Maintain plants by regular watering (**minimum one soaking of all plants every second day during hot weather**) cultivating, pruning as directed by the consultant, spraying if necessary, and other necessary operations to ensure healthy plant growth and establishment for a 1 year, (except riparian areas where maintenance period is 3 years) period after substantial performance is approved by the consultant.
 - b) Ongoing removal of all invasive species as defined by the Invasive Species Council of Metro Vancouver.
 - c) Ongoing removal of any volunteer ornamental species and weeds in the riparian zone.

PART FOUR IRRIGATION**1.1 IRRIGATION**

- 1 Irrigation (if it is to be installed) will be a design build at owner's request.



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1. June 22, 2009 DP submission
2. Sept. 1, 2011 revised for final review
3. Jan. 23, 2012 revised to coordinate with engineering
4. Revised for eng. coordination
5. Dec. 17, 2012 resubmitted to DNV
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8. July 22, 2013 resubmitted to DNV
9. Oct. 07, 2013 resubmitted to DNV
10. Dec 20, 2013 revisions to match (legal survey Dec 6, 2013)

consultants:**project:**

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title:**SPECIFICATIONS**

drawn: GRAY
checked: BSJ
date: FEB 08, 2008
scale: as shown

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Contractors shall verify and be responsible for all dimensions on the job and the office shall be informed of any changes made on site.

project no:

sheet no:

07.076

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