
HAZARDOUS MATERIALS

Part 1 General

1.1 REFERENCES

- .1 Export and Import of Hazardous Waste Regulations SOR/2002-300.
- .2 National Fire Code of Canada 2005.
- .3 Transportation of Dangerous Goods Act (TDG Act) 1999, (c. 34).
- .4 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2003-400).

1.2 DEFINITIONS

- .1 Dangerous Goods: product, substance, or organism that is specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
- .2 Hazardous Material: product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
- .3 Hazardous Waste: any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment or disposal.
- .4 Workplace Hazardous Materials Information System (WHMIS): a Canada-wide system designed to give employers and workers information about hazardous materials used in workplace. Under WHMIS, information on hazardous materials is provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by combination of federal and provincial laws.

1.3 SUBMITTALS

- .1 Submit product data in accordance with CWSCS.
- .2 Submit to Contract Administrator current Material Safety Data Sheet (MSDS) for each hazardous material required prior to bringing hazardous material on site.
- .3 Submit hazardous materials management plan to Contract Administrator that identifies hazardous materials, their use, their location, personal protective equipment requirements, and disposal arrangements.

1.4 STORAGE AND HANDLING

- .1 Co-ordinate storage of hazardous materials with Contract Administrator and abide by internal requirements for labelling and storage of materials and wastes.
- .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.

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- .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
 - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
 - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Contract Administrator.
- .5 Transfer of flammable and combustible liquids is prohibited within buildings.
- .6 Do not transfer of flammable and combustible liquids in vicinity of open flames or heat-producing devices.
- .7 Do not use flammable liquids having flash point below 38 degrees C, such as naphtha or gasoline as solvents or cleaning agents.
- .8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
- .9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
- .10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers.
 - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
 - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
 - .4 Segregate incompatible materials and wastes.
 - .5 Ensure that different hazardous materials or hazardous wastes are not mixed.
 - .6 Store hazardous materials and wastes in secure storage area with controlled access.
 - .7 Maintain clear egress from storage area.
 - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
 - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
 - .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements. Report spills or accidents immediately to Contract Administrator. Submit a written spill report to Contract Administrator within 24 hours of incident.

1.5 TRANSPORTATION

- .1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

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- .2 If exporting hazardous waste to another country, ensure compliance with federal Export and Import of Hazardous Waste Regulations.
- .3 If hazardous waste is generated on site:
 - .1 Co-ordinate transportation and disposal with Contract Administrator.
 - .2 Ensure compliance with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.
 - .3 Use licensed carrier authorized by provincial authorities to accept subject material.
 - .4 Prior to shipping material obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept this material.
 - .5 Label container(s) with legible, visible safety marks as prescribed by federal and provincial regulations.
 - .6 Ensure that trained personnel handle, offer for transport, or transport dangerous goods.
 - .7 Provide photocopy of shipping documents and waste manifests to Contract Administrator.
 - .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Contract Administrator.
 - .9 Report discharge, emission, or escape of hazardous materials immediately to Contract Administrator and appropriate provincial authority. Take reasonable measures to control release.

Part 2 Products

2.1 MATERIALS

- .1 Only bring on site quantity of hazardous materials required to perform work.
- .2 Maintain MSDSs in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 Execution

3.1 DISPOSAL

- .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .2 Recycle hazardous wastes for which there is approved, cost effective recycling process available.
- .3 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.
- .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

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- .6 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
- .7 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
- .8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:
 - .1 Hazardous wastes recycled in manner constituting disposal.
 - .2 Hazardous waste burned for energy recovery.
 - .3 Lead-acid battery recycling.
 - .4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

TREES, SHRUBS AND GROUND COVER PLANTING

Part 1 General

1.1 SUMMARY

- .1 Section Includes:
 - .1 Materials and installation for plant material, accessories, mulch, planting, tree support, mulching and maintenance.

Part 2 Products

2.1 PLANTING MATERIALS

- .1 The Contractor shall supply and install replacement in kind.
- .2 Where trees have been damaged or removed by the contractor, trees of same size and species shall be used to replace same. Trees and shrubs shall be measured when the branches are in their normal position. Tree caliper or diameter shall be determined by measuring the diameter of the trunk 15 cm above the ground. Shrubs shall be replaced with the three one-gallon plants per existing shrub removed.
- .3 Water is to be potable and free of minerals which may be detrimental to plant growth.
- .4 Planting soil shall consist of black topsoil, a fertile friable natural loam containing by volume not less than 4% and no more than 25% of organic matter for clay loams, and not less than 2% and no more than 25% for sandy loams, with an acidity value ranging from pH 6.0 to 7.5 capable of sustaining vigorous plant growth.
- .5 Root ball burlap shall be 150 g Hessian burlap, biodegradable.
- .6 Anti-desiccant shall be a wax-like emulsion to provide film over tree leaf surfaces reducing evaporation but permeable enough to permit transpiration.
- .7 Wound dress shall be a horticulturally accepted non-toxic, non-hardening emulsion.
- .8 Wire baskets shall be a horticulturally accepted product designed to carry the weight and burlap-covered root ball. Minimum diameter basket size to conform to the same maximum diameter of the tree root ball for the respective minimum tree caliper.
- .9 Mulch shall be a clean bark or wood chip mulch with chips not less than 15 mm nor larger than 75 mm in size and not more than 20 mm thick. Mulch is to be free of leaves, branches, and other extraneous matter
- .10 Fertilizer shall be a slow release formulation of low nitrogen and high phosphorous e.g. 10-50-12. Apply quantities at rates stated by the product manufacturer.
- .11 Quality and source of trees and shrubs shall comply with Guide Specification for Nursery Stock, 1985 Edition of Canadian Nursery Trades Association referring to size and development of the plant and root ball. Nomenclature of specified trees shall conform to the International Code for Nomenclature of Cultivated Plants.

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- .12 All trees and plants shall be clearly labeled as to species, size, and nursery origin until such time as they have been set in place on Site, and approved by the Contract Administrator. After approval the Contractor shall remove all tags and labels.
- .13 Trees are to have been root pruned regularly, but not later than one growing season prior to arrival on Site. The Contractor may be required to provide the Contract Administrator with documentation outlining his root-pruning program.
- .14 Trees are to characteristically developed for their species and structurally sound, well branched, healthy and vigorous and densely foliated when in leaf. The tree is to have a healthy, well developed, fibrous root system which may be verified through a testing procedure that destructively samples one or more randomly selected root balls.
- .15 Trees are to have only one, sturdy, reasonably straight and vertical trunk, and a well balanced crown with fully developed leader.
- .16 Trees shall be free from disease, insect infestation, rodent damage, sun scald, frost cracks, abrasions, unhealed scars, scars exceeding 5 cm in diameter, major forks or crooks in the trunk, broken branches, or angled leaders.
- .17 Trees exhibiting suppressed, weakly developed branches due to competition from other closely spaced trees in the nursery will not be accepted. Trees exhibiting dead branches will not be accepted.
- .18 Balled and burlap trees in excess of 3 m height must have been dug with large firm balls. Roots in balls must be comprised of 75% fibrous and feeder root systems.
- .19 Tree spade dug trees are to be dug with mechanized digging equipment with hydraulic spade. Root balls are to satisfy C.N.T.A. standards.
- .20 Use of collected and native trees is not permitted.
- .21 Sod is to be in accordance with CW 3510.

Part 3 Execution

3.1 TREE PLANTING

- .1 Trees and shrubs shall be planted during unfrozen ground conditions and suitable weather conditions for plant growth. Trees are to be planted within forty-eight (48) hours of excavation from the nursery. The location of plantings will be staked out or painted on Site by the Contract Administrator.
- .2 Excavate planting pits as indicated by the stakes or paint marks. Excavated soil shall be removed off Site. Remove any water that enters excavations prior to planting. Loosen bottom of planting hole to depth of 100-150 mm, cover the bottom of each excavation with minimum 150 mm topsoil mixture and incorporate with the subgrade. Plant trees vertically and orient to give the best appearance in relation to structure, roads, and sidewalks. With balled and burlap root balls and root balls in wire baskets, loosed burlap and cut away to top 1/3 without disturbing root ball. Do not pull burlap or rope form under root ball. Non-biodegradable wrapping must be removed.

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- .3 Tamp planting soil around root system in layers of 150 mm eliminating air voids. When 2/3 of planting soil has been placed, fill hole with water. After water has completely penetrated into soil, complete backfilling. Each plant shall have an earth saucer at its base having a diameter as large as the excavation with a 10 cm lip formed at the perimeter of the saucer to retain water. When planting is completed, give surface of planting saucer dressing of fertilizer. Mix fertilizer thoroughly with top layer of planting soil and water in well.
- .4 Trees shall be individually staked within seven (7) calendar days following planting with two 2.4 m metal T-bars located on the northwest and southeast side of the tree, and connected to the trunk with rubber hose or an industry accepted substitute. Prune nursery stock after planting to compensate for loss of roots suffered during transplanting.
- .5 Trees and shrubs shall be watered during the planting procedure and once a week thereafter, or more frequently if required, during the growing season.
- .6 Sod is to be in accordance with CW 3510.

3.2 MAINTENANCE

- .1 The Contractor shall provide a one year maintenance of trees, shrubs and sod from the date of Total Performance. Maintenance Work shall include:
- .2 Fertilizing – Spread Fertilizer consisting of synthetic slow release with maximum 35% nitrogen evenly at a frequency, ratio and rates recommended by the Manufacturer.
- .3 Watering –Apply 40 litres of water per tree twice a month or more if drought conditions prevail.
- .4 Tree Supports and Tie Adjustments – Maintain tree supports and ties in proper repair. Remove supports as directed by Contract Administrator. Strengthen any tree that is leaning.
- .5 Replace trees and shrubs that die within the one-year maintenance period.
- .6 Sod is to be in accordance with CW 3510

END OF SECTION