

**NATIONAL CAPITAL COMMISSION
COMMISSION DE LA CAPITALE NATIONALE**

National Capital Commission (NCC)

**EMERALD ASH BORER REPLACEMENT PROGRAM
SPRING 2019**

**Leamy Lake
Champlain Parking Lot**

LOT #2

**CONTRACT SPECIFICATIONS
FOR TENDER**

March 2019

Canada

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Mesure de protection et d'atténuation plantation d'arbustes et d'arbres indigènes dans le cadre du programme de compensation d'agrile du frêne terrains urbains de la CCN (only available in French)

Basis of Payment

- .1 Payment at the price per item listed in the Tender Form shall be full compensation for all labour, services and equipment as well as the supply, delivery and installation of all materials required for the proper execution of this Contract.

1.0 SITE PREPARATION

1.1 Mobilization and general requirements

- .1 This item includes, but may not be limited to, steps to obtain permits, implementation of safety measures, environmental protection, temporary facilities, signage, cleaning, layout, utility locates, contractor testing, moving equipment, supply of a spill kit on-site, site reinstatement, removing equipment and fencing at job completion, and all other requirements identified in the contract documents not covered under specific items.
- .2 This item will not be measured but will be paid on a lump sum basis.

1.2 Invasive species removal

- .1 This item includes all labor, materials, tools, and equipment necessary for the removal and off-site disposal, including dumping fees, of designated invasive plant material (primarily Buckthorn roots) left behind after the preliminary invasive species removal operations of the fall/winter 2018-2019.
- .2 This item includes the protection of desirables species present within areas designated for invasive species removal.
- .3 Refer to specification Section 32 94 00, Invasive Species Removal.
- .4 This item will be measured and paid for on an hourly rate for a crew of 2 workers.

1.3 Installation and removal of temporary fencing and signage including transport of materials to and from NCC storage facility

- .1 This item includes the collection, transport and installation of temporary fencing and signage from the designated NCC storage facility.
- .2 This item includes the removal, transport and drop-off of temporary fencing and signage at the designated NCC storage facility upon completion of the contract.
- .3 This item includes the supply of installation hardware and accessories as required.
- .4 This item includes a 2 year warranty on all parts supplied by the Contractor.
- .5 This item includes maintenance of the fence in working order for the duration of the contract.
- .6 Fencing type shall be either snow fencing (to protect planting areas from pedestrians, approx. 285m), tall modular metal fencing (to protect planting areas from wildlife, approx. 2440m), or welded wire mesh fencing (to protect planting areas from beavers, approx. 280m) as directed on site by the NCC representative.
- .7 This item will be measured and paid for on an hourly rate for a crew of 2 workers.

2.0 SOFTSCAPE

2.1 Supply and install plant material

- .1 This item includes the supply and installation of deciduous and coniferous trees and shrubs of various sizes as indicated in the contract documents.
- .2 This item includes the supply and installation of all plant accessories as indicated in the contract documents.
- .3 This item does not include the supply or installation of mulch.
- .4 This item includes the maintenance and warranty of all plant material in accordance with the contract documents to ensure healthy plant material.
- .5 This item will be measured and paid on a per unit basis as follows:
 - .1 80% of the contract planting sum, upon receipt and approval of plant materials by the Purchaser and completion of planting of all the plant materials.
 - .2 10% of the contract planting sum, after the first warranty year once the replanting of replacement material (if required) is completed.
 - .3 10% of the contract planting sum after final acceptance, following the warranty period (see 2.5 Section 32 93 10, Tree and Shrub Planting), once the replanting of replacement material (if required) is completed.

3.0 OTHERS

3.1 Mulch installation (supplied by NCC)

- .1 Wood mulch shall be supplied by the NCC.
- .2 This item includes the collection of mulch from the designated NCC storage facility, transport to site and the installation in designated planting areas.
- .3 This item includes the removal of excess mulch from site as required. Mulch shall be returned to the NCC storage facility, spread out on site, or disposed of off-site as directed by the NCC representative.
- .4 This item will be measured and paid for on a cubic meter basis of mulch installed in designated planting areas.

END OF SECTION

Basis of Payment

- .1 Payment at the price per item listed in the Tender Form shall be full compensation for all labour, services and equipment as well as the supply, delivery and installation of all materials required for the proper execution of this Contract.

1.0 SITE PREPARATION

1.1 Mobilization and general requirements

- .1 This item includes, but may not be limited to, steps to obtain permits, implementation of safety measures, environmental protection, temporary facilities, signage, cleaning, layout, utility locates, contractor testing, moving equipment, supply of a spill kit on-site, site reinstatement other than seeding adjacent pathways, removing equipment and fencing at job completion, and all other requirements identified in the contract documents not covered under specific items.
- .2 This item will not be measured but will be paid on a lump sum basis.

1.2 Invasive species removal

- .1 This item includes all labor, materials, tools, and equipment necessary for the removal and off-site disposal, including dumping fees, of designated invasive plant material (primarily Buckthorn roots) left behind after the preliminary invasive species removal operations of the fall/winter 2018-2019.
- .2 This item includes the protection of desirables species present within areas designated for invasive species removal.
- .3 Refer to specification Section 32 94 00, Invasive Species Removal.
- .4 This item will be measured and paid for on an hourly rate for a 2 worker crew.

1.3 Installation and removal of fencing and signage including transport of materials to and from NCC storage facility

- .1 This item includes the collection, transport and installation of fencing and signage from the designated NCC storage facility.
- .2 This item includes the removal, transport and drop-off of fencing and signage at the designated NCC storage facility upon completion of the contract.
- .3 This item includes the supply of installation hardware and accessories as required.
- .4 This item includes a 2 year warranty on all parts supplied by the Contractor.
- .5 This item includes maintenance of the fence in working order for the duration of the contract.
- .6 Fencing type shall be either snow fencing (to protect planting areas from pedestrians, approx. 500m) or silt fence (approx. 200m) as directed on site by the NCC representative.
- .7 This item will be measured and paid for on an hourly rate for a 2 worker crew.

2.0 SOFTSCAPE

- 2.1 Supply and install plant material
- .1 This item includes the supply and installation of deciduous and coniferous trees and shrubs of various sizes as indicated in the contract documents.
 - .2 This item includes the supply and installation of all plant accessories as indicated in the contract documents.
 - .3 This item does not include the supply or installation of mulch.
 - .4 This item includes the maintenance and warranty of all plant material in accordance with the contract documents to ensure healthy plant material.
 - .5 This item will be measured and paid on a per unit basis as follows:
 - .1 80% of the contract planting sum, upon receipt and approval of plant materials by the Purchaser and completion of planting of all the plant materials.
 - .2 10% of the contract planting sum, after the first warranty year once the replanting of replacement material (if required) is completed.
 - .3 10% of the contract planting sum after final acceptance, following the warranty period (see 2.5 Section 32 93 10, Tree and Shrub Planting), once the replanting of replacement material (if required) is completed.

3.0 OTHERS

- 3.1 Mulch installation (supplied by NCC)
- .1 Wood mulch shall be supplied by the NCC.
 - .2 This item includes the collection of mulch from the designated NCC storage facility, transport to site and the installation in designated planting areas.
 - .3 This item includes the removal of excess mulch from site as required. Mulch shall be returned to the NCC storage facility, spread out on site, or disposed of off-site as directed by the NCC representative.
 - .4 This item will be measured and paid for on a cubic meter basis of mulch installed in designated planting areas.
- 3.2 Supply and install topsoil (Champlain Parking Lot)
- .1 This item includes the supply and installation of topsoil, where necessary, per specification section 32 93 10, Tree and Shrub Planting and 32 94 00 Invasive species removal followed by planting of trees and shrubs.
 - .2 This item will be measured and paid for on a cubic meter basis of topsoil supplied and installed.
- 3.3 Supply and install topsoil and seed.
- .1 This item includes the supply and installation of topsoil and seed for reinstatements adjacent parking lots and pathways, per the contract documents.
 - .2 This item will be measured and paid for on a square meter basis.

END OF SECTION

PART 1 - GENERAL

1.1 TIME OF COMPLETION

- .1 Begin work as soon as possible and complete locates, site preparation, pathway construction, furniture assembly and installation, and minimum 80% of planting operations including installation of tree accessories and mulching requirements **on or before June 15th, 2019**. A maximum of 20% of tree planting and associated accessories and mulching can be extended until **Sept 30th 2019** with the approval of the NCC Representative. Tree maintenance is the responsibility of the Contractor until the end of the warranty period as per Section 32 93 10, Tree and Shrub Planting.

1.2 DESCRIPTION OF WORK

- .1 Work under this Contract covers but is not limited to:
 - .1 The supply, planting, and maintenance of trees and shrubs as per the contract documents. See plans for general site locations. Exact planting location of each large-sized caliper deciduous tree or 1.5-2.0m high coniferous tree to be staked by a NCC representative;
 - .2 The installation, maintenance and removal of snow fencing and signage supplied by the NCC including the transport of materials to and from the designated NCC storage facility;
 - .3 The collection and installation of mulch supplied by the NCC;
 - .4 The supply, installation and maintenance of the tree support systems, tree guards and winter protection in accordance with Section 32 93 10, Tree and Shrub Planting;
 - .5 The repair of any damages to assets occurring during the work as per Article 1.9 Damages;
 - .6 Drawings and specifications are complementary. Items shown or mentioned in one and not in the other are deemed to be included in the contract work.

1.3 DEFINITIONS

- .1 Wherever the term "NCC representative" appears throughout these specifications, it shall be interpreted to mean an Inspector representing the National Capital Commission (NCC) or a duly named consultant on their behalf.
- .2 Wherever the terms "equal", or "approved equivalent" appear after specific types of materials and items throughout this specification, they shall be interpreted to mean being equal or superior in the opinion of the NCC representative, in material content, workmanship and quality to that designated as being the minimum acceptable standard, and his/her written approval must be obtained prior to submitting an alternative, five (5) days before close of tender.

1.4 COMMUNICATION

- .1 The successful bidder shall ensure he has been informed and is aware of the official NCC representative. The only contact for the successful contractor is the official NCC representative. The contractor will be notified if the official NCC representative changes. Site problems and deficiencies shall be reported to the NCC representative immediately.

- .2 The successful bidder shall arrange with the NCC representative, in conjunction with the NCC Contracting Officer, a communication link. The communication link must be established for urgent situations which may arise during operations. Furthermore, the contractor shall identify the level of authority of his personnel. The site crew shall have a communication device in order to permit the NCC representative to communicate with them at all time during the working hours.
- .3 Provide within five (5) working days after Contract award, schedule showing anticipated progress stages and final completion of work within time period required by Contract documents.

1.5 CODES

- .1 Perform work in accordance with the National Building Code of Canada 2015 and any code of provincial or municipal application. In any case of conflict or discrepancy, the more stringent requirement shall apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents;
 - .2 Specified standards, codes and referenced documents;
- .3 Obtain and pay for permits, inspector's approvals, public utilities locates, and other licenses required for this project and also pay any charges incidental to such permits. Provide copy of permits to the NCC Representative;
- .4 The NCC site access permit is necessary and will be supplied at no charge by the NCC.

1.6 COMPLIANCE – LAWS REGULATIONS AND PERMITS

- .1 The Contractor will operate in accordance with all Federal, Provincial and Municipal codes and standards. Proper safety precautions must be exercised at all times, with extra precautions taken to protect the general public.
- .2 This Tender Document and the Contract resulting there from are to be interpreted, construed, governed by, and the relation between parties is to be determined in accordance with the laws of the Province of Ontario and of Québec (where applicable) and such federal laws applicable therein.
- .3 The Contractor must obtain, at his/her cost, all the licenses and permits required in respect to the execution of the work in the provinces of Ontario and Quebec.

1.7 EXISTING SERVICES

- .1 Before commencing work, the Contractor is responsible for establishing locations and identifying extents of all utility/ service lines in area of work. Once completed, the Contractor must notify NCC representative of findings;
- .2 Contact City and Provincially approved public/ private utility providers to determine location and extents of their service lines;
- .3 Where unknown services are encountered, immediately advise NCC representative and confirm findings in writing;
- .4 Identify by use of marking paint, identification flags or other standard industry approved manner;
- .5 Where work involves adjusting of existing services, carry out work as directed by the NCC representative.
- .6 Repair all damage caused by work to existing public services at Contractor expenses.

1.8 PROTECTION

- .1 Protect existing structures against damage until completion of work.
- .2 Take all precautions to protect vegetated areas and trees from any damage.
- .3 Take all necessary precautions in order to prevent mud accumulation on asphalt roads and pathways. Clean immediately any soil accumulation.
- .4 Provide and maintain guard-rails, fences, barricades, lights and other devices required for protection of workmen and public in accordance with the requirements of provincial and Local by-law and the Canadian Construction Safety Code.
- .5 The contractor is responsible for the supply, installation and maintenance of traffic control devices necessary for the protection of the public and the work site. Traffic control must be in accordance with the Manual of Uniform Traffic Control Devices for Canada.
- .6 Contractor to keep a spill kit on site at all times.

1.9 DAMAGES

- .1 Damages caused to existing plant material, landscaping, lawns, roadways, pathways, structures, finishes and public utilities due to work of this contract, will be restored to their original condition, replaced or adequate compensation made to affected parties by the Contractor, as determined by NCC representative and to the satisfaction of the NCC.
- .2 It is understood that restored work includes labour, equipment and material cost.
- .3 The restored or replaced work shall be completed within seven (7) days of notification by the NCC representative.

1.10 EMPLOYEES

.1 General

- .1 Any employee hired by the Contractor shall communicate in one of the two official languages of Canada, be experienced in dealing with the public, respect all health and safety requirements and regulations, and act in a manner that does not adversely affect the reputation of the NCC or its representatives and employees.
- .2 Any employee hired by the Contractor will be relieved of his/her duties and immediately replaced by the Contractor, if in the opinion of the NCC, this employee is unqualified or is acting in a manner contrary to the best interests of the NCC, the requirements of this contract, or if the employee does not meet the requirements stated above.
- .3 The Contractor shall ensure that he/she is able to demonstrate at any time to the NCC that he/she is in compliance with the experience requirements as indicated above and in **1.10.4** by providing any and all proof of work experience for all of his/her employees.

.2 Security Risks

- .1 The Contractor shall ensure that none of the Employees of the Contractor and others for whom the Contractor is responsible and who are to perform the

Contractor's obligations under this Contract constitute a security risk and shall, at the request of the NCC, ensure that all Employees of the Contractor and others for whom the Contractor is responsible who are to perform the Contractor's obligations under this Contract complete the NCC's security screening process in order that the NCC may obtain a security assessment of that person before accessing any site included in this Contract.

- .2 There are three levels of screening: Reliable status, site access or secret. It will be determined depending on the site where the work is performed or the type of task required. At the minimum, the NCC shall require Reliability clearance. The NCC shall process the clearances once the individuals have been identified. The appointed individuals shall receive appropriate instructions and training from NCC Security.

.3 Work Dress

- .1 All field employees of the Contractor shall be neatly dressed, at the Contractor's expense and wear approved safety equipment when required. All employees shall wear an appropriate standard uniform adapted to their area of activity with the company name prominently displayed (name tag).

.4 Training and Experience

- .1 The Contractor shall have at least one full-time field employee/ foreperson assigned to this contract, who is certified as having successfully completed his/her post-secondary training in horticulture/arboriculture, **and** have at least five (5) years of relevant horticultural/arboriculture work experience in the field. This employee will be on site for all planting operations and be responsible for ensuring all specifications and best practices are followed. **Proof of education, certification, field experience and references shall be supplied by the contractor with submission.**
- .2 Other supportive field employees shall have appropriate experience and skills to perform the duties of the Contract with supervision. They shall have at least one (1) season of experience (such workers must be supervised at all times by horticulture-trained and certified employees/foreperson).
- .3 Unsatisfactory work, completed by unqualified tradesmen will be redone and paid for by the Contractor.

.5 NCC Regulations

- .1 The Contractor shall ensure its agents and employees are familiar with and comply with *NCC Traffic and Property Regulations*, *NCC Animal Regulations* and other specific directives relating to its facilities and services.

1.11 PRODUCTS SUPPLIED

- .1 Contractor's duties:
 - .1 Unless otherwise directed by NCC representative, order products in quantities and at times compatible with specifications, construction schedule and site storage capacity.

- .2 Unload the material on site and ensure proper material handling and storage.

1.12 VEHICLES AND EQUIPMENT

- .1 The Contractor shall provide all vehicles and equipment required to fulfil the contractual obligations of this Contract. This includes any vehicles and equipment and/or tools required for transportation purposes and/or for providing Maintenance services as requested in this Contract, such as watering, etc. The Contractor shall assume all risks inherent to the use of general or specialized vehicles and/or equipment. All vehicles and equipment used by the Contractor shall be kept in a clean condition, exempt of rust and shall meet all provincial (Ontario & Québec) safety standards. The company name shall be prominently displayed on all road vehicles. Contractor vehicles shall be parked only on hard surfaces in designated areas and not on soft surfaces such as sod and fields.
- .2 The Contractor will minimize unnecessary idling of vehicles in accordance with municipal by-laws in this matter.

1.13 PAYMENT

- .1 This is a unit price Contract. Any minor or miscellaneous items indicated on the drawings as being part of the work of this Contract must be included by the Contractor in his or her overhead and indirect charges and incorporated into the various unit rates.
- .2 The estimated quantities set forth in the tender are provisional. If the quantity of work to be done and materials to be supplied exceeds or are less than the estimated quantity, the contractor shall proceed with the work after approval by NCC representative. Payment will be made for the actual amount of work done and materials supplied at the unit prices set forth in the contract.
- .3 Upon completion of the requirements, the contractor may invoice the NCC. Terms of payment are Net 30 days.

1.14 CONSTRUCTION SAFETY MEASURES

- .1 Observe construction safety measures required by *Canadian Construction Safety Code*, Provincial Government, Worker's Compensation Board and municipal authority's. In any case of conflict or discrepancy, the more stringent requirement shall apply.

1.15 DISPOSAL OF WASTE

- .1 The NCC encourages that when possible, material shall be recovered, reused or recycled. We encourage the contractor to compost organic waste generated by this contract except for invasive plants which are to be disposed of as per item 4.1 .2 .6 of Tree and Shrub Planting or at the direction of the NCC Representative. Remaining waste must be transported to a landfill site approved and designated by the municipality.

1.16 SITE VISIT

- .1 It is highly recommended that interested parties visit the sites prior to submitting a bid.

1.17 REQUIRED DOCUMENTS

- .1 Maintain at job site, one copy of each of the following:
 - .1 Contract drawings
 - .2 Specifications
 - .3 Addenda
 - .4 Change orders and other modifications to Contract
 - .5 Copy of current and approved work schedule
 - .6 Permits

1.18 GUARANTEES AND WARRANTIES

- .1 Before completion of Work, collect all Manufacturer's guarantees and warranties, and submit to NCC Representative.
- .2 All non-planting work shall be warranted for a period of two (2) years from the date of written preliminary acceptance by the NCC Representative. A warranty inspection will be carried out at the end of the warranty period.
- .3 All planting work shall be warranted according to specification 32 93 10.

PART 2 - PRODUCTS

- .1 Not used

PART 3 - EXECUTION

- .1 Not used

END OF SECTION

PART 1 – GENERAL

1.01 RELATED REQUIREMENTS

- .1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by NCC Representative are specified under various sections.

1.02 APPOINTMENT AND PAYMENT

- .1 NCC Representative will appoint and pay for services of testing laboratory except as follows:
 - .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
 - .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.
 - .4 Mill tests and certificates of compliance.
 - .5 Tests specified to be carried out by Contractor under supervision of NCC Representative.
- .2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by NCC Representative to verify acceptability of corrected work.

1.03 CONTRACTOR'S RESPONSIBILITIES

- .1 Provide labour, equipment and facilities to:
 - .1 Provide access to Work for inspection and testing.
 - .2 Facilitate inspections and tests.
 - .3 Make good Work disturbed by inspection and test.
 - .4 Provide storage on site for laboratory's exclusive use to store equipment and cure test samples.
- .2 Notify NCC Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.
- .3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by NCC Representative.

PART 2 - PRODUCTS

- .1 Not used

PART 3 - EXECUTION

- .1 Not used

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

- .1 Shop drawings and product data
- .2 Samples
- .3 Certificates and transcripts

1.02 ADMINISTRATIVE

- .1 Submit to NCC Representative submittals listed in the specifications for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Review submittals prior to submission to NCC Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify NCC Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by NCC Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by NCC Representative review.
- .10 Keep one reviewed copy of each submission on site.

1.03 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

- .2 Where indicated, submit drawings stamped and signed by professional engineer registered or licensed in Ontario, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
 - .4 Allow 5 days for NCC Representative's review of each submission.
- .5 Adjustments made on shop drawings by NCC Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to NCC Representative and wait for written approval prior to proceeding with Work.
- .6 Make changes in shop drawings as NCC Representative may require, consistent with Contract Documents. When resubmitting, notify NCC Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Wiring diagrams.
 - .9 Single line and schematic diagrams.

.10 Relationship to adjacent work.

1.04 SAMPLES

- .1 Submit for review samples as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to NCC Representative's business address.
- .3 Notify NCC Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by NCC Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to NCC Representative prior to proceeding with Work.
- .6 Make changes in samples which NCC Representative may require, consistent with Contract Documents.
- .7 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.05 PHOTOGRAPHIC DOCUMENTATION

- .1 When requested by NCC Representative, submit electronic colour digital photography in jpg format at standard resolution as work progresses and at milestones or to indicate issues.
- .2 Project identification: name and number of project and date of exposure indicated.

PART 2 - PRODUCTS

- .1 Not used

PART 3 - EXECUTION

- .1 Not used

END OF SECTION

PART 1 - GENERAL

1.01 REFERENCE STANDARDS

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Province of Quebec
 - .1 An Act Respecting Occupational Health and Safety, R.S.Q., c.S-2.1 (current edition) - Updated [2005].

1.02 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .1 Name of on-site Health and Safety Officer if it is someone other than site construction supervisor.
 - .2 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications. NCC Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.03 FILING OF NOTICE

- .1 File Notice of Project with Province of Quebec authorities prior to beginning of Work.
- .2 Contractor shall agree to install proper site separation and identification in order to maintain time and space at all times throughout life of project.

1.04 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.
- .2 Check site for hazardous plants listed below and familiarize workers with information sheets provided in appendix of these specs.
 - .1 Common Buckthorn
 - .2 Poison Ivy
 - .3 Stinging Nettle
 - .4 Tick Safety
 - .5 West Nile Virus
 - .6 Wild Parsnip
 - .7 Giant Hogweed
- .3 The Leamy Lake site floods in the spring. The Champlain Parking Lot may also flood. Work to commence once flood waters recede and the site is determined to be safe and accessible. The machinery must not stall in the existing soil. Notify NCC representative 2 days prior to start of work and obtain approval before proceeding on existing soil.

1.05 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Contractor shall be the Principal Contractor as described in the Quebec Act Respecting Health and Safety code for the Construction for only their scope and areas of work as defined and described this project specification.

1.06 COMPLIANCE REQUIREMENTS

- .1 Comply with R.S.Q., c. S-2.1, an Act respecting Health and Safety, and c. S-2.1, r.4 Safety Code for the Construction Industry.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.07 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Quebec and advise NCC Representative verbally and in writing.

1.08 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Quebec, and in consultation with NCC Representative.

1.09 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by NCC Representative.
- .2 Provide NCC Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 NCC Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.10 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

1.11 PERSONNEL HEALTH, SAFETY AND HYGIENE

- .1 Training: Ensure personnel entering site are trained in accordance with specified personnel training requirements.
- .2 Personnel shall not eat or smoke near areas of excavation and grubbing due to the presence of

contaminated soils. Wash hands to remove contaminated soil prior to eating.

PART 2 - PRODUCTS

.1 Not used

PART 3 - EXECUTION

.1 Not used

END OF SECTION

PART 1 - GENERAL

1.01 FIRES

- .1 Fires and burning of rubbish on site is not permitted.

1.02 DRAINAGE

- .1 Develop and submit erosion and Sediment Control Plan (ESC).
- .2 Storm Water Pollution Prevention Plan (SWPPP) may be substituted for erosion and sediment control plan.
- .3 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .4 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.
- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.03 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees and plants on site and adjacent properties as indicated.
- .2 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.
 - .1 Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .3 Minimize stripping of topsoil and vegetation.
- .4 Do not remove trees unless authorized in writing by NCC Representative.

1.04 WORK ADJACENT TO WATERWAYS

- .1 Construction equipment to be operated on land only.
- .2 Waterways to be kept free of excavated fill, waste material and debris at all times.

1.05 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 If any visual or olfactory evidence of soil contamination (bricks, debris, metal etc.) is observed during excavation work, work must be halted and the NCC Representative must be contacted for an on-site solution.
- .3 Control emissions from equipment and plant in accordance with local authorities' emission requirements.

- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.06 WILDLIFE PROTECTION

- .1 To avoid any adverse effects on active nests of birds protected under the Migratory Birds Convention Act (MBCA), the NCC Representative will ensure that an area search for evidence of nesting is conducted a maximum of 48 hours prior to the activities by a skilled and experienced observer using appropriate methodology¹ as recommended by Environment Canada. If one or more nests containing eggs or chicks of migratory birds are spotted or discovered during this survey, the NCC will develop an action plan and share it with the contractor when work begins.
- .2 If one or more nests containing eggs or chicks of migratory birds are spotted or discovered during the work, the contractor must stop any disruptive activity in the nesting area and contact the NCC Representative immediately to discuss mitigation measures to be put in place.
- .3 Any wildlife incidentally encountered during activities will not be knowingly harmed and must be able to safely leave on its own.

1.07 HISTORICAL / ARCHAEOLOGICAL CONTROL

1. The NCC archaeologist will monitor buckthorn root removal and planting.
- .2 If any archaeological resources or human remains are discovered in the absence of an archaeologist, all work at the location must be halted immediately and the NCC Heritage Program must be notified at Archaeology-Archeologie@ncc-ccn.ca and the NCC representative as well. Work shall not be resumed at that location until measures for the protection of those resources have been put in place.

1.08 NOTIFICATION

- .1 Various Government agencies may be on-site during construction to ensure compliance with requirements. Contractor shall provide timely and easy access.

1.09 COMPLEMENTARY PROTECTION AND MITIGATION MEASURES

- .1 The Contractor shall implement the measures outlined in **Mesure de protection et d'atténuation plantation d'arbustes et d'arbres indigènes dans le cadre du programme de compensation d'agrile du frêne, Terrains urbains de la CCN** as an appendix to this document.

PART 2 - PRODUCTS

- .1 Not used

1

PART 3 - EXECUTION

.1 Not used

END OF SECTION

PART 1- GENERAL

1.01 INSTALLATION AND REMOVAL

- .1 Inform NCC Representative of need for supplemental or other staging area.
- .2 Provide construction facilities in order to execute work expeditiously.
- .3 Remove from site all such work after use.

1.02 CONSTRUCTION PARKING

- .1 Parking will not be permitted on soft surfaces at the site.
- .2 Provide and maintain adequate access to project site.

1.03 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
- .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.04 SANITARY FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.05 CONSTRUCTION SIGNAGE

- .1 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .2 Maintain approved signs and notices in good condition for duration of project, and dispose of off- site on completion of project or earlier if directed by NCC Representative.
- .3 No other signs or advertisements, other than warning signs, are permitted on site.

1.06 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Protect travelling public from damage to person and property.
- .2 Provide a flag person for planting sites near the trails / bike path.

PART 2 - PRODUCTS

- .1 Not used

PART 3 - EXECUTION

- .1 Not used

END OF SECTION

PART 1 - GENERAL

1.01 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by NCC Representative. Do not burn waste materials on site
- .3 Clear snow and ice from access.
- .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 Provide on-site containers for collection of waste materials and debris.
- .6 Provide and use marked separate bins for recycling.
- .7 Dispose of waste materials and debris off site.
- .8 Clean areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10 Provide adequate ventilation during use of volatile or noxious substances.
- .11 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .12 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate nearby building systems.

1.02 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including subs waste.
- .5 Remove waste materials from site at regularly scheduled times.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

- .7 Remove stains, spots, marks and dirt from surfaces.
- .8 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .9 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .10 Remove dirt and other disfiguration from exterior surfaces.
- .11 Sweep and wash clean paved areas.

1.03 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and/or recycling.

PART 2 - PRODUCTS

- .1 Not used

PART 3 - EXECUTION

- .1 Not used

END OF SECTION

PART 1 - GENERAL

1.01 SCHEDULING

- .1 Schedule seeding to coincide with preparation of soil surface.
- .2 Schedule seed installation when frost is not present in ground.
- .3 Sowing shall be done during the following periods:
 - .1 Between April 15 and June 15;
 - .2 Between August 15 and October 15.
 - .3 Dormant seeding after November 1st when daytime temperatures are consistently below 5°C.

1.02 QUALITY ASSURANCE

- .1 Submit in accordance with submittal procedures the following:
 - .1 Product data for seed mix and fertilizer.

PART 2 - PRODUCTS

2.01 SEED

- .1 The primary seed mix will be Graminis by Aiglon Indigo (Ph: 819-385-4509), or approved equivalent.
- .2 Packages will be individually labeled in accordance with 'Seeds Regulations' and indicate clearly the name of the supplier, species, content, grade and mass.

2.02 EQUIPMENT

- .1 Use appropriate manual equipment. NCC Representative to approve all proposed equipment for the work.

2.03 TOPSOIL

- .1 Top-dress seeded areas with pre-approved topsoil.

2.04 WATER

- .1 Potable water supplied by Contractor.

2.05 STRAW MULCH

- .1 Derived from wheat, barley or native grass. Straw that has been used for stable bedding shall not be used.

PART 3 - EXECUTION

3.01 WORKMANSHIP

- .1 Do not perform work under adverse field conditions such as frozen soil, excessively wet soil or soil covered with snow, ice, or standing water.
- .2 Additional care shall be taken when seeding adjacent to watercourses or paved area to ensure that seed does not spread or blown onto those areas.

3.02 SEED BED PREPARATION

- .1 Mow existing grass to 5cm or less and remove clippings. Remove and dispose of dead grass, weeds, debris, stones 50 mm in diameter and larger and other deleterious materials off-site.
- .2 Aerate the soil with a plug aerator to a depth of 150mm.
- .3 Top-dress entire area with 50mm layer of topsoil and work the topdressing into the grass to the soil level with the back of a rake.
- .4 Do not carry out seed bed preparation more than 1 calendar day before seeding to avoid erosion.

3.03 SEEDING

- .1 Seed must be applied to all bare areas unless alternate surface treatment is specified.
- .2 Seed and fertilize with a manual seed spreader at the rate recommended by the supplier. Water seeded areas with a fine spray to a depth of 50mm.
- .3 Do not hydro-seed.

3.04 STRAW MULCH

- .1 All bare soil areas shall be stabilized with straw mulch immediately after seeding.
- .2 Apply loose straw over seed in a thin uniform layer by hand distribution. Anchor mulch in place by punching it into soil using a spade or shovel.

3.05 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Water seeded areas to maintain optimum soil moisture level for germination and continued growth of grass. Control watering to prevent washouts.
- .2 Gully formations and washouts as a result of rain events greater than 20 mm per day shall be repaired, including regrading and re-seeding.
- .3 Control weeds by mechanical means utilizing acceptable integrated pest management practices.

3.06 ACCEPTANCE

- .1 The Contractor shall maintain the seeded areas including mowing until acceptance by the NCC Representative. Unacceptable areas shall be reseeded.
- .2 Seeded areas shall be accepted by the NCC Representative provided that:
 - .1 seeded areas are properly established;
 - .2 seeded areas are free of weeds and bare or dead spots;
 - .3 no surface soil is visible when grass has been cut to a height of 50 mm when we are standing;
 - .4 seeded areas have been cut minimum once at 100mm.
- .3 Areas seeded in fall will be accepted the following spring, one month after the beginning of the growing season, provided the acceptance conditions are met.

END OF SECTION

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- .1 Agriculture and Agri-Food Canada (AAFC).
 - .1 Plant Hardiness Zones in Canada-2000.
- .2 Canadian Nursery Landscape Association (CNLA)
 - .1 Canadian Standards for Nursery Stock-latest edition.

1.2 SCOPE OF WORK

- .1 Provide labour, material, services and equipment necessary to complete the work of this section including but not limited to:
 - .1 Installation of tree and shrub material and plant accessories as itemized on the plant list and in accordance with specifications, details and maps.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 The Contractor must provide the NCC Representative with confirmation of the supplier's order for the plants within two weeks of the signing of the contract.
 - .1 The confirmation of the plant order must include the following information:
 - 1. The name and address of the supplier;
 - 2. For each species of plant: quantity, height / caliper, scientific name, rooting type
- .2 Scheduling: 7 days in advance of shipment of plant material, obtain approval from NCC Representative.
 - .1 Schedule to include:
 - .1 Quantity, species and size plant material.
 - .2 Shipping dates.
 - .3 Arrival dates on site.
 - .4 Planting dates.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with the species name for the plants, manufacturer's name and address for other products.
 - .1 Co-ordinate with NCC representative the shipping of plants and excavation of holes to ensure minimum time lapse between digging and planting.
 - .2 Abundant watering must be done before the plants leave the nursery or the Contractor's shop to the job sites. Regular watering should be done when the plants are stored to keep the root systems moist.
 - .3 Protect plant material from frost, excessive heat, wind and sun during delivery.
 - .4 Protect plant material from damage during transportation:
 - .1 Delivery distance is less than 30 km and vehicle travels at speeds under 80 km/h, tie tarpaulins around plants or over vehicle box.
 - .2 Delivery distance exceeds 30 km or vehicle travels at speeds over 80 km/h, use enclosed vehicle where practical.
 - .3 Protect foliage and root balls using anti-desiccants and tarpaulins, where

- use of enclosed vehicle is impractical due to size and weight of plant material.
 - .4 Tie branches of trees securely and protect plant material against abrasion, exposure and extreme temperature change during transit. Avoid binding of planting stock with rope or wire which would damage bark, break branches or destroy natural shape of plant. Give full support to root ball of large trees during lifting.
 - .5 Protect the trunk with a wax cardboard during transportation
- .2 Storage and Handling Requirements:
- .1 Immediately store and protect plant material which will not be installed within 1 hour and after arrival at site in storage location approved by NCC Representative.
 - .2 Protect stored plant material from frost, wind and sun and as follows:
 - .1 For bare root plant material, preserve moisture around roots by heeling-in or burying roots in sand or topsoil and watering to full depth of root zone.
 - .2 For pots and containers, maintain moisture level in containers. Heel-in fibre pots.
 - .3 For balled and burlapped and wire basket root balls, place to protect branches from damage. Maintain moisture level in root zones.
 - .4 Store in shaded areas.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL SUPPLIED BY THE CONTRACTOR

- .1 Notify NCC representative of source of plant material in the next two (2) weeks following the signature of the contract and purchase order. No work under this Section is to proceed without approval.
- .2 Trees and shrubs to be from a certified nursery approved in writing by the NCC representative.
- .3 NCC representative reserves the right to inspect the plants at the source.
- .4 Obtain approval by NCC representative of plant material on site before commencing installation.
- .5 Acceptance of plant material on site or at the source does not prevent rejection prior to or after planting operations due to damage to root balls, branch structure, bark, or the like by the Contractor.
- .6 **Plants shall conform to the varieties specified in the plant list** (See Schedule of Items and Prices) and be legibly tagged with their proper name and size. No substitutions will be accepted without prior written approval of the NCC representative.

2.2 PLANT MATERIAL

- .1 **Size:** Refer to the Schedule of Items and Prices and planting schedules on the drawings for the plant sizes included in this contract.
- .2 **Quality:** Comply with the latest edition of the *Canadian Standards for Nursery Stock*, published by the Canadian Nursery and Landscape Association (CNLA), referring to

size and development of plant material and root ball. Measure plants when branches are in their natural position.

.3 **Source:**

- .1 Large stock deciduous and coniferous trees are to be **obtained from the same climatic zone as the National Capital Region (5a) or a lower climatic zone**, according to Agriculture Canada Plant Hardiness Zone Map;
- .2 Container stock trees and shrubs (1-7 gal) and bare root trees shall be grown from seeds collected from seed **zone 36** in accordance with the Seed Zone Boundary Map (Ontario Ministry of Natural Resources). Upon request, the supplier shall provide proof of seed collection zone (except for this proof to be requested).

.4 **Additional plant material qualifications:**

- .1 Use trees with strong fibrous root system free of disease, insects, defects or injuries and structurally sound. Use trees with straight trunks, well and characteristically branched for species. Plants must have been root pruned regularly, but not later than one growing season prior to arrival on site;
- .2 Plant material that has come out of dormant stage and is too far advanced will not be accepted unless prior approval is obtained by the NCC representative.

.5 **Container-grown stock:**

- .1 Acceptable if containers large enough for root development. Trees must have grown in container for minimum of one growing season but no longer than two. Root system must be able to 'hold' soil when removed from container. Plants that have become root bound are not acceptable. Container stock must have been fertilized with slow releasing fertilizer.

.6 **Balled and bur lapped:**

- .1 Coniferous and broad-leaved evergreens over 500 mm tall must be dug with soil ball. Deciduous trees in excess of 3 m height must have been dug with large firm ball. Root balls must include 75% of fibrous and feeder root system. This excludes use of native trees grown in light sandy or rocky soil. Secure root balls with wrap ball in double layer of burlap and drum lace with minimum 10 mm diameter rope. Protect root balls against sudden changes in temperature and exposure to heavy rainfall.
- .2 Tree spade dug material – at source: Dig plant material with hydraulic spade or clam. Root balls to satisfy the CNLA standards or as approved by NCC representative. Lift root ball from hole, place in a standard wire basket designed for purposes and line with burlap. Replace root ball and tie basket to ball with heavy rope. Do not damage trunk of tree with basket ties or rope. **Field-collected plant materials will not be accepted.**

2.3 PLANT ACCESSORIES

- .1 **Water:** Free of impurities that would inhibit plant growth.
- .2 **Topsoil:** Mixture of mineral particulates, micro-organisms and organic matter which provides suitable medium for supporting intended plant growth.

- .1 Soil texture based on The Canadian System of Soil Classification, to consist of:
 - .1 Friable loam / sandy loam with the following parameters: 40 to 60% sand, 25 to 45% silt, 5 to 25% clay.
 - .2 Contain 5-10% organic matter by weight.
 - .2 Fertility: macro and micro soil nutrients adequate to support germination and establishment of intended vegetation. Adjust topsoil nutrients to meet analysis recommendations.
 - .3 pH value: 5.5 to 6.5;
 - .4 Contain no toxic elements or growth inhibiting materials;
 - .5 Free from:
 - .1 Debris and stones over 50 mm diameter;
 - .2 Course vegetative material, 10 mm diameter and 100 mm length, occupying more than 2% of soil volume;
 - .3 Of cut grass, crabgrass, couch grass, or other noxious weeds.
 - .6 Consistency: friable when moist.
- .3 **Staking and guying materials:**
- .1 Stakes: Wood Stake (untreated wood-spf), 50mm x 50mm x 2.44m;
 - .2 Wires: Flat, woven polypropylene: DeepRoot; *ArborTie*, or approved equivalent. Color: Green.

Note: All Class C1 caliper-sized deciduous and coniferous trees 1.5m to 2.0m in height will require staking and guying. No bare root plants will require staking and guying.

- .4 **Trunk protection:**
- .1 SURTRONC from Dendrotik (1 800 653-7066) or approved equivalent. Fine mesh wrap around guard protecting against rodents and deer. The well ventilated mesh prevents development of pests and diseases. Anti-UV treated polyolefins.

Color: Black.
Size: diameter: 15cm
Height : 80cm S1580 Surtronic.

This protection will be loosely installed (not in contact with tree trunk) and joined with tie-wraps at the top, bottom and every 20cm in between (black- plus one identifier see 2.3.7) to ensure protection from both animals and other mechanical damage.
- .5 **Burlap** (winter protection): Non-treated 150 g Hessian burlap
- .6 **Wood Mulch:** Wood mulch to be supplied by the NCC. Inform NCC representative of schedule three (3) weeks in advance of mulching operations to confirm supply and arrange for pickup of materials.
- .7 **Tree Identification:** Each tree planted as a part of this contract will have a unique identifier (tie-wrap style) of a **PINK** cable tie with a minimum width of .19". This identifier will be affixed to deciduous trees on the trunk protection and conifers on a branch in the crown- not so tight as to limit growth, but visible.

2.4 REPLACEMENT

- .1 When replacements are required under the assigned warranty and maintenance category, it is the responsibility of the Contractor to supply a list of trees that he/she plans to replace based on warranty criteria on two occasions:
 - .1 6 months after acceptance of the planting
 - .2 1 year later.These lists will be approved by the NCC Representative who may make changes.
- .2 Regardless of warranty or maintenance categories, replace all plant material damaged by the following means:
 - .1 During loading and unloading operations;
 - .2 During transportation;
 - .3 During planting operations;
 - .4 During other works performed by the Contractor.
- .3 Not covered under the terms of the warranty are trees that die or are damaged beyond repair by mechanical means (vehicles, mowing etc.) carried out by parties other than the Contractor. This will be determined by the NCC representative and followed by site remediation (refer to section 4.1.2.2).
- .4 Replace plant material from approved source immediately if appropriate, or during the next planting season.

2.5 WARRANTY PERIOD

There may be a variety of warranty terms expected as part of this contract, depending on the accessibility of the planting locations for maintenance purposes and which party supplies the plant material. See the Schedule of Items and Prices for the warranty periods and maintenance requirements for each area. The terms of each warranty period category are as follows:

WG0

- .1 As the NCC is purchasing and supplying the trees and shrubs for this area, the Contractor will not be subject to a typical two-year warranty period. However, the planting of the trees and shrubs will require the acceptance of the NCC representative at the time of the planting operations.
- .2 Please consult the Schedule of Items and Prices for the maintenance category required for areas assigned the WG0 warranty category.
- .3 Replacements are not required under this warranty category, but any plant material that has died, shows more than 30% dieback in live crown or has failed to grow or establish satisfactorily as determined by the NCC representative must be removed from site and the planting site reinstated.
- .4 The NCC representative will conduct several inspections at their discretion until the end of the two-year maintenance period, ending in the **Spring of 2021**.

WG1

- .1 The Contractor warrants that plant material will remain free of defects for a period of **two growing seasons** from the date of completion of planting.
- .2 The Contractor must replace any tree or shrub that shows more than 30% dieback in live crown or has failed to grow or establish satisfactorily as determined by the NCC representative
- .3 Please consult the Schedule of Items and Prices for the maintenance category required for areas or plants assigned the WG1 warranty category.
- .4 The NCC representative will conduct several inspections until the end-of-warranty period, ending in the **Spring of 2021**.
- .5 **When trees are replaced, extend warranty on replacement plant material for a period equal to the original warranty period.** Continue such replacement and warranty until plant material is acceptable.

WG2

- .1 The NCC representative will conduct several inspections until the end-of-warranty period, ending in the **spring of 2021**.
- .2 During warranty period, remove from site and replace qualifying plant material (see .3 below) that has died, shows more than 30% dieback in live crown or has failed to grow or establish satisfactorily as determined by the NCC representative.
- .3 The Contractor warrants this plant material for two (2) years as such:
 - .1 A maximum of 25% of the plant total within all the planting areas of a project site can be replaced based on warranty criteria in any one warranty year per site. No carryover year to year.

Example:

An inventory performed in Fall 2019 of 100 trees planted in Spring 2019 reveals that thirty (30) trees qualify for replacement. Twenty-five (25) trees will be replaced in Spring 2020 (25%). In Fall 2020, an additional five (5) new trees qualify for replacement. Fall 2020 inventory reveals (5) new trees qualify for warranty replacement and five (5) new trees will be replaced in Spring 2021. All other stipulations to warranty replacements apply such as Section 2.4.

PART 3 - EXECUTION

All Specifications below must be adhered to. Any proposed changes to these specs must be submitted at time of tender and approval required before changes are made. Any specification that is omitted will be noted, reparations made whenever possible. A warning will be given followed by an Unsatisfactory Performance Report for specifications not being followed (specific to the infraction).

3.1 WORKMANSHIP

- .1 Coordinate operations. Keep site clean and planting holes drained. Immediately remove debris spilled onto pavement.
- .2 Remove surplus materials from worksite.
- .3 Tree planting and associated work will be accomplished following industry best management practices for horticulture/arboriculture in relation to tree planting, and as directed by the NCC representative.

3.2 PLANTING PROCEDURE

- .1 Refer to planting details on drawings.
- .2 Water 10-20 minutes before planting and again immediately after planting to prevent drying of roots.
- .3 Depth - the rootball should sit on undisturbed soil to limit any shifting or settling. It is crucial that this depth be established properly as the trees trunk flare must be above grade and the trees uppermost structural roots should be within 25-75mm of grade.
- .4 When planting Class C2 container stock, remove entire plant from container without disturbing root ball. Non bio-degradable wrappings must be removed (wire). With balled and bur lapped root balls, loosen burlap and cut away minimum top 2/3 without disturbing root ball. Do not pull burlap or rope from under root ball.
- .5 For Class C3 bare root stock, **never** allow roots to dry out. Dig the planting hole to the diameter of the spread of the roots to a depth in the center that maintains the root collar at the elevation of the surrounding finished grade and slightly deeper along the edges of the hole. Spread all roots out radial to the trunk in the prepared hole, making the hole wider where needed to accommodate long roots. Root tips shall be directed away from the trunk. Prune any broken roots removing the least amount of tissue possible. Maintain the trunk plumb while backfilling soil around the roots. Lightly tamp the soil around the roots to eliminate voids and reduce settlement.
- .6 If there is evidence that roots are circling they should be loosened and spread out, even cut if necessary.
- .7 Backfill with excavated soil. Add topsoil (section 2.3.2) as required.
 - i. Begin backfilling around base of rootball to ensure stability and tamp (bottom 100mm of hole).
 - ii. Water to slurry and tamp in lifts of 150mm.
 - iii. Fill in and gently tamp top portion of hole.
- .8 Build a saucer around outer edge of hole to assist with maintenance watering, as per details. Rake out saucer at end of warranty period.
- .9 The Contractor is responsible for the removal of any other undesirable materials from the tree and planting site (ex: twine, rope, flagging tape, wire basket, burlap, large stones, etc.)

****If any suspected contamination at the site is discovered during excavation, the NCC must be notified immediately****

For further detail on planting please consult the International Society of Arboriculture's Best Management Practises for Tree Planting.

3.3 TREE SUPPORT

- .1 Immediately after planting, supply and install tree supports for all Class C1 large deciduous and coniferous trees.
- .2 For trees smaller than 5 gallons, guy and stake only those plants designated by the NCC Representative. A maximum of 30% of those caliper trees may require staking.
- .3 Place stake on prevailing wind side of tree.
- .4 Drive stake minimum 500 mm into undisturbed soil beneath roots, at the outside edge of the root ball.
- .5 Ensure stake secure and vertical. Stakes will be a minimum of 1m in height but will be lower than the trees crown.

- .6 Install *DeepRoot-ArborTie* or approved equivalent. Cut off excess material.
- .7 Include tightening of guying materials to bring trees and plants to upright position.

3.4 MULCHING

- .1 Obtain approval of planting before mulching material is applied, if required. Spread mulch to minimum thickness as detailed on the drawings. No mulch should be piled around or in contact with the root flare of the tree. Mulch material susceptible to blowing must be moistened and mixed with topsoil before applying.
- .2 If there is enough material on-site, rake the chipped wood to form a pile in designated areas indicated by a NCC representative. Then, the Contractor must disperse these wood chips around the newly planted trees. If the on-site wood chips have all been utilized, complete the mulching process with purchased mulch after receiving approval from the NCC Representative.

3.5 TRUNK PROTECTION

- .1 Install trunk protection on Class C1 deciduous trees and Class C2 deciduous trees (but not shrubs).

3.6 TILLAGE

- .1 Where indicated in plan, till the planting surface to a depth of 300mm to loosen compacted soils. Take care not to disturb the root zones of existing trees and shrubs.

PART 4 - MAINTENANCE

4.1 GENERAL

- .1 The Contractor shall prepare a maintenance schedule / tracking chart for each area with a list of all required items from the corresponding maintenance category, and a column to indicate the dates that each item is carried out. This chart template will need to be approved by the NCC Representative prior to planting and thereafter provided to the Representative every month for the duration of the maintenance period for tracking and reporting purposes.
- .2 Maintenance requirements in this contract may vary from planting area to planting area, depending on accessibility of the planting locations for maintenance purposes. See the Schedule of Items and Prices for maintenance requirements for each planting. The terms of each maintenance category are as follows:

ME1: Maintenance category ME1 is typically applied to planting areas with access appropriate for regular maintenance with pick-up trucks and water trucks, but consult the Schedule of Items and Prices for confirmation of the areas subject to ME1. From time of substantial acceptance by the NCC representative to end of warranty period, perform maintenance operations as described.

- .1 At no additional cost to the Commission, the Contractor shall, as soon as conditions permit during the specified planting period (spring or fall), remove and replace any trees which are not found to be in acceptable

- health or overall condition (section 2.5), as determined jointly by the Contractor and by the NCC representative, during the warranty period
- .2 Trees that die or suffer damage that will ultimately result in the death of the tree that are not covered under warranty will be removed in their entirety - this includes but is not limited to the tree, the root ball, mulch, and tree support system. The site will be remediated to its pre-planting condition- soil and seed when complete.
 - .3 Watering per Section 4.2
 - .4 Winter protection per Section 4.3
 - .5 Remove all competing vegetation to grade, once in the spring or fall following planting, and once again a year later, in a 1m diameter around each plant. The use of brush saws may be required for the removal of woody vegetation.
 - .6 All parts of invasive plants that are removed must be placed immediately into plastic garbage bags at the site of removal and then disposed of in the designated landfill. Do not stockpile or drag invasive plants around the planting site.
 - .7 For non-mulched areas, cultivate to keep top layer of soil friable;
 - .8 Repair/ replace tree support systems (stakes and ties) if required;
 - .9 Top-up or re-spread damaged or missing mulch;
 - .10 Remove dead, broken or hazardous branches from plant material;
 - .11 Keep trunk protection and tree supports in proper repair and adjustment;
 - .12 Remove and replace: dead plants; plants displaying low vigour and vitality; and if the tree's crown appears 1/3 dead. Make replacements in same manner as specified for original plantings.

ME2: Maintenance category ME2 is typically applied to planting areas that are too difficult for water trucks to access, but consult the Schedule of Items and Prices for confirmation of the areas subject to ME2. From time of acceptance by the NCC representative to end of warranty period, perform maintenance operations as described.

- .1 Items 1-2 and 4-11 as per ME1.
- .2 Watering will be undertaken according to section 4.2 at time of planting at the exact planting site. After initial installation, watering will **not** be expected due to lack of access.

4.2 WATERING :

- .1 Apply water using a soft spray nozzle to avoid packing of the soil.
- .2 Ensure that water penetrates the soil to a depth of 300 mm in the area from the trunk to the outer extent of the dripline.
- .3 **Water as needed and confirm soil humidity using a moisture probe with gauge.** However, in order to obtain optimal results, we suggest the following watering frequency:
 - a. Water weekly from May 1st to August 31st;
 - b. During drought conditions (no rain for 3 consecutive days), water trees twice (2) weekly;

- c. Water deciduous trees biweekly from September 1st until mid-October;
 - d. Water coniferous trees biweekly from September 1st until mid-October.
 - e. After September 1st, during drought conditions (no rain for 5 consecutive days), water trees on the 6th day.
- .4 Replace and repair any sod, mulch, paving or other materials disturbed by watering procedures.
 - .5 Repair damaged watering saucers;

4.3 WINTER PROTECTION

- .1 Install winter protection (burlap) on all coniferous trees 1.5m in height or more.
- .2 To be installed beginning of December and to be removed beginning of April.
- .3 To be done every winter during the warranty period.

4.4 MAINTENANCE AT THE END OF WARRANTY PERIOD

The following tasks are required for ALL maintenance and warranty categories:

- .1 At the end of warranty period, before the final inspection, remove all tree supports systems (stakes and ties), remove any weeds or grass that has grown into the mulched area, and top up all mulch to original specs.
- .2 Remove tie-wraps on tree protection and leave tree protection.
- .3 Remove all coloured cable ties identifying the trees from sites indicating a completion of contract responsibilities- with the exception of any trees that warranties have been extended on- those will be removed once warranty and maintenance obligations are fulfilled.

4.5 FINAL INSPECTION AND ACCEPTANCE

- .1 At the end of the two year warranty period, and once the Contractor has requested in writing, the NCC representative will perform the final inspection. Once final inspection is completed, and observed deficiencies or repairs required according to the NCC representative are completed, he will advise in writing that the requirements of this contract are complete and approve payment of remaining *hold back*.

END OF SECTION

PART 1 - GENERAL

1.1 SCOPE OF WORK

- .1 Provide labour, material, services and equipment necessary to complete the work of this section including but not limited to:
 - .1 Removal and disposal of invasive plant material (primarily Buckthorn roots) in areas indicated in the tender documents and as directed on site by the NCC Representative.

PART 2 - PRODUCTS

2.1 SILT FENCING

- .1 Silt fencing shall be provided by the NCC. Collect fencing from NCC warehouse located at 1740 Woodroffe, Ottawa.

PART 3 - EXECUTION

3.1 METHODOLOGY

- .1 Before work commencement, install silt fencing in proximity of the bank in accordance with the direction of the representative of the NCC. Furthermore, a site visit must take place before work commencement so that the NCC representative identifies the work area to the contractor.
- .2 The work is divided into three different categories:
 - .1 Stump with diameter of 5 cm or more: Using a small excavator, wrap the stump with a metal chain (or other resistant chain material) connected to the excavator to lift the stump and roots at the same time.
 - .2 Stump with diameter of less than 5 cm: With a Pullerbear™ tool, hoe, spade grub or similar tools, uproot invasive species including the root system.
 - .3 Young stems of invasive species: The use of a brush cutter may be necessary in the case where many young invasive plants are present near to the planting area. It is then required to clear this plant competition to favor the new trees and shrubs to be planted.
- .3 Once the aerial and underground portions of the plants have been removed from the soil, these residues should be piled in a windrow in an acceptable and authorized location by the NCC.
- .4 If roots from native species are pulled out of the ground while the invasive species roots are being pulled, these roots should be cut cleanly at the ground level or be buried back into the ground. Tools must be disinfected with a solution of 70% ethyl alcohol.
- .5 All invasive species waste will have to be chipped (including the roots) and this material must be hauled off-site to a NCC pre-approved landfill site.
- .6 Following the removal, an opening in the ground will be created. When planting trees or shrubs in areas where roots have been removed, it is not necessary for the ground to be flat. High points and depressions are acceptable; however some soil may need to be added to ensure that the rootball is completely covered. Add topsoil as required to fill air pockets and compact by firmly stepping on it, and plant a tree or shrub in accordance with the planting plan and specifications provided by the NCC. Apply mulch around the

newly planted trees or shrubs to prevent germination of invasive species seeds according to contract drawings.

- .7 Clean sludge, dirt and plant material from equipment and tools before leaving a site infested with invasive species. High pressure air hoses, mobile cleaning stations which retain water runoff, and brushes or brooms are acceptable cleaning methods.

END OF SECTION

Common Buckthorn

(*Rhamnus cathartica*)

Common buckthorn (also known as European buckthorn) is a small shrub or tree native to Eurasia. It was introduced to North America in the 1880s as an ornamental shrub and was widely planted for fencerows and windbreaks in agricultural fields. Since then it has spread aggressively throughout southern Ontario and in other provinces.

Common buckthorn can thrive in a wide range of soil and light conditions, enabling it to invade a variety of habitats. It is most often found in woodlands and open fields, where it forms dense stands under which few other plants can grow. Buckthorn can spread widely with the help of birds and animals that eat its fruit, carry the seeds long distances and deposit them in their droppings. Stands of buckthorn can invade roadsides, riverbanks, mature forests, farm fields and hydro corridors.



Common buckthorn leaves and flowers.
Photo: Credit Valley Conservation Area

Range

Outside its native range, common buckthorn is found in Canada as far west as Saskatchewan and as far east as Nova Scotia. It also grows throughout the northeastern and north central United States.

Impacts of Common Buckthorn

- Buckthorn thrives in a variety of habitats and forms dense thickets that crowd and shade out native plants. It can alter nitrogen levels in the soil, creating better conditions for its own growth and discouraging the growth of native species.
- It produces large numbers of seeds that germinate quickly and prevent the natural growth of native trees and shrubs.
- The shrub can host oat rust, a fungus that causes leaf and crown rust and affects the yield and quality of oats.
- The soybean aphid, an insect that damages soybean crops, can use buckthorn as a host plant to survive the winter.



Common buckthorn, showing typical deep green foliage in fall, dominates the lower layers of forests. Photo: Wasył Bakowsky, MNR

Because it can affect agricultural crops, common buckthorn is listed as a noxious weed under Ontario's Weed Control Act.

How to Identify Common Buckthorn

- Buckthorn is usually the first shrub to leaf out in the spring and the last to drop its leaves late in the fall.
- It often grows two to three metres tall. Occasionally it reaches six metres, with a trunk up to 25 centimetres in diameter.
- Smooth, dark green leaves are finely toothed, 2.5 to six centimetres long, and arranged in opposing pairs along the stem.
- Most branches older than one year end in a short, sharp thorn.
- Flowers have two to six small yellowish-to-green petals.
- Common buckthorn produces clusters of berry-like black fruit in late summer and fall.

Common buckthorn resembles another invasive species, glossy buckthorn (*Frangula alnus*), and a much smaller native shrub, alder-leaved buckthorn (*Rhamnus alnifolia*).

Check the chart below to identify common buckthorn, glossy buckthorn and alder-leaved buckthorn.



Illustration by Andrea Kingsley



Illustration by Andrea Kingsley



Illustration by Andrea Kingsley

Common buckthorn

(*Rhamnus cathartica*) (invasive)

- Grows in drier areas
- Often two to three metres tall; can reach six metres
- Twigs end in sharp thorn
- Usually opposite leaves with finely toothed edges

Glossy buckthorn

(*Frangula alnus*) (invasive)

- Grows in wet areas
- Often two to three metres tall; can reach six metres
- No sharp thorn on end of twig
- Alternate, shiny leaves with smooth, wavy edges

Alder-leaved buckthorn

(*Rhamnus alnifolia*) (native)

- Grows in very wet areas
- Up to one metre tall
- No sharp thorn on end of twig
- Alternate, shiny leaves with toothed edges
- Small growths (stipules) at base of leaves

What You Can Do

- Learn how to identify common buckthorn, glossy buckthorn and other invasive plants, and how to effectively manage these species on your property. See *The Landowner's Guide to Controlling Invasive Woodland Plants*. Go to ontario.ca/invasivespecies, click on **Here's a list of things you can do to help fight invasive species**, and click on the title.
- Avoid using invasive plants in gardens and landscaping.
- Buy native or non-invasive plants from reputable garden suppliers. Native plants provide habitat and food sources for native wildlife. See *Grow Me Instead: Beautiful Non-Invasive Plants for Your Garden*. Go to ontario.ca/invasivespecies, click on **Here's a list of things you can do to help fight invasive species**, and click on the title.
- Dispose of invasive plants in the garbage. Do not put them in the compost or discard them in natural areas. Discarded flowers may produce seeds.
- When hiking, prevent the spread of invasive plants by staying on trails and keeping pets on a leash.
- If you've seen common buckthorn or other invasive species in the wild, please contact the Invading Species Hotline at 1-800-563-7711, or visit www.invadingspecies.com to report a sighting.

Other Resources:

www.invasivespeciescentre.ca
ontario.ca/invasivespecies
www.ontarioinvasiveplants.ca
www.invadingspecies.com

For More Information:

Please contact the Invading Species Hotline at 1-800-563-7711.

Photo: Greg Bales, MNR



Common buckthorn ripe fruit cluster.

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Cette publication est également disponible en français.

Poison Ivy Fact Sheet

Poison ivy grows in woods, fields and along roadsides and riverbeds. It can be a high-climbing woody vine, a small low-growing shrub or ground cover. Poison ivy grows in every region of the United States except the Southwest, Hawaii and Alaska.



Distinguishing Characteristics – “Leaves of three let them be”

- Three thin, pointy and shiny leaves; however, the shape, texture and color of leaves can vary.
- Leaves are reddish in spring, green in summer and orange, red or bronze in the fall.

Jennifer Anderson @ USDA-NRCS PLANTS Databasepdf'd

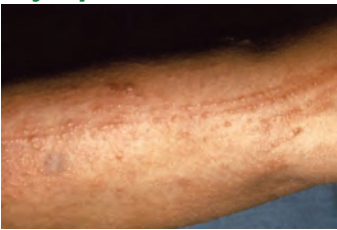
Toxicity

- Most people are sensitive to the oily resin or sap of poison ivy (urushiol). Urushiol is found year round in all parts of the plant including the roots, stems, flowers and leaves.
- Animals are not sensitive to poison ivy, but people can get poison ivy from an animal's hair or fur.

Potential Exposures

- Exposures are more common in the spring and summer.
- A person can get a rash by touching any part of the poison ivy plant or anything that has come in contact with poison ivy and still has the oily resin on it. Examples include sporting or camping equipment, gardening tools, shoes, clothes and pets or contaminated surfaces.
- Contact with fluid-filled blisters that develop does not spread poison ivy.
- Smoke from burning poison ivy can cause irritation to the eyes, skin, nose and throat and difficulty breathing. This irritation can sometimes be severe.

Symptoms



- A rash may develop between 1 hour and 5 days after contact. The rash can vary in severity and usually starts with itching, redness and swelling sometimes followed by tiny pimples or blisters.
- Delayed symptoms may appear if skin comes in contact with contaminated items or surfaces.

Treatment

- Immediately after exposure (within 10-15 minutes) wash exposed areas, including nails, with cool water and soap.
- Wash contaminated surfaces with rubbing alcohol and clothes and shoes with hot water and soap.
- See your health care provider if symptoms are severe or persist and for treatment advice.
- If you experience difficulty breathing, swelling in the throat, dizziness or weakness call 911.

Prevention

- Learn to recognize poison ivy and avoid exposure.
- Always wear vinyl gloves when removing plants (urushiol can penetrate rubber).
- Wear long pants, long sleeves, socks, closed shoes, hat when walking in areas with poison ivy.
- Do not burn poison ivy.

Contact the Northern New England Poison Center for information or questions at 1-800-222-1222 or visit www.nnepc.org.

Stinging Nettle Safety

Stinging nettle has fine hairs on the leaves and stems that contain irritating chemicals, which are released when the plant comes in contact with the skin. The hairs, or spines, of the stinging nettle are normally very painful to the touch.

Precaution: Avoid this plant to avoid getting stung!

Reaction/Response:

- Reddening and intense itching of short duration
- Sensitive individuals may experience swelling and burning
- Wash affected area or immediately apply a baking soda paste to soothe stinging sensation
- A prolonged tingling sensation may persist on the affected skin for more than 12 hours, even after visible symptoms have faded.

Leaves:

- Fine toothed, tapered, ~3-15 cm heart-shaped leaves
- Thin catkins of tiny green flowers grow from the leaf stems

Height: Generally 1 metre but can grow up to 2 metres depending on location and soil condition.

Habitat:

- Generally in the same locations every year.
- Thrive in rich soil, moist woodlands, thickets, disturbed areas, along partially shaded trails and riversides
- Blooms between June and September.

Control:

- Remove plants by hand -- wear gloves to protect skin from the stinging hairs
- Ensure the underground portion (rhizomes) are removed or the plants will regrow
- Close mowing can prevent the development of fruit
- Be aware cultivating the soil may spread the rhizomes, thus increasing the size of the population
- Repeated cultivation works best as a control for this weed



Fact sheet distributed by Occupational Health Clinics for Ontario Workers (OHCOW). 1-877-817-0336 www.ohcow.on.ca

Sources: Stinging nettle | University of Maryland Medical Center <http://umm.edu/health/medical/altmed/herb/stinging-nettle#ixzz3Uwiz4rys>. University of Maryland Medical Center <http://www.ediblewildfood.com/stinging-nettle.aspx>

Stinging Nettles of Florida0 IFAS Extension –University of Florida-Wendy B. Zomlefer

Burning & Stinging Nettles Statewide Integrated Pest Management Program-University of California Agriculture Natural Resources.

Tick Safety in the Greenbelt

What are ticks?

Closely related to spiders, ticks are a group of about 900 species of parasites in the class Arachnida. These small animals rely on the blood of host animals such as deer, hare, and mice to live. Ticks attach to animals by waiting on shrubs and grasses until an appropriate host brushes by, then finding a good location to cut into the host and feed on the host's blood. In the Capital Region, the blacklegged tick, or deer tick (*Ixodes scapularis*), is the main concern, due to the potential for it to transmit Lyme disease.



PD-USGov-USDA-ARS

Why should you be concerned?

Ticks are a vector of various diseases. Susceptible hosts can become infected while ticks are feeding. Lyme disease, caused by bacterial infection spread by the blacklegged tick, is an illness that, left untreated, can cause severe symptoms such as nervous system disorders, mental issues, and paralysis.



Michael Apel

What can you do to reduce the risk?

When walking in tick habitat (shrubby and brushy areas where host animals such as deer and mice can be found), simple measures can help to reduce the risk of getting bitten:

- Apply insect repellent.
- Wear long-sleeved shirts and long pants.
- Tuck pant legs into socks.

After any activity in tick habitat, a thorough check for ticks is always a good idea.

What to do if you are bitten by a tick?

If you are bitten by a tick, the best course of action is to remove the tick as soon as possible, since Lyme disease will usually manifest only from infected ticks that have been attached for more than 24 hours. This is done by grasping the tick with tweezers or a tick remover as close to your skin as possible, and gently pulling it straight out. After the tick is removed, disinfect or wash the area well with soap and water.

For more information about ticks and Lyme disease, including signs and symptoms, please visit:



West Nile virus



Anyone bitten by a mosquito carrying the West Nile virus can experience symptoms that range from nothing at all to high fever, tremors, muscle weakness and more.

Learn how to protect yourself and reduce your risk of getting West Nile.

How you get West Nile virus

West Nile virus is carried by mosquitoes. The mosquitoes become infected by feeding on an infected bird. If an infected mosquito bites you, it will pass the disease onto you. Everyone in Ontario who spends time near infected mosquitos could get West Nile.

Symptoms

Four out of five people do not show any symptoms. Others see symptoms 2-15 days after being bitten by an infected mosquito.

Common symptoms include:

- fever
- headache
- body ache
- nausea
- vomiting
- rash on chest, stomach or back

Approximately one in 150 people will have serious symptoms including:

- high fever
- severe headache
- muscle weakness
- stiff neck
- confusion
- tremors
- numbness
- sudden sensitivity to light

How to avoid West Nile virus

Cover up

Cover up when going outside between the hours of dusk and dawn (when most mosquitoes feed). Remember to wear:

- a long-sleeved shirt or jacket and long pants (tucked into your socks for extra protection)
- light-coloured clothing
- if you will be outside for a long time, wear special clothing that is designed to protect you from bugs

Clean up

- once a week, get rid of standing water around your home (mosquitoes lay their eggs in stagnant water, even small amounts)
- keep bushes and shrubs clear of overgrowth and debris (adult mosquitoes like to rest in dense shrubbery)
- turn your compost pile often

Use insect repellent

- use a bug repellent containing DEET or icaridin
- always read and follow all the label directions when using any insect repellent or ask a pharmacist for help when choosing an insect repellent product

If you think you have West Nile virus

If you think you've contracted the West Nile virus, contact:

- your doctor or other health care provider
- your local public health unit (PHU)
- Telehealth Ontario – a free service which uses registered nurses to answer your health concerns around the clock
 - toll free 1-866-797-0000
 - TTY 1-866-797-0007

Wild Parsnip

(*Pastinaca sativa*)

Wild parsnip is an invasive plant native to Europe and Asia. It was likely brought to North America by European settlers, who grew it for its edible root. Since its introduction, wild parsnip has escaped from cultivated gardens and spread across the continent.

Wild parsnip roots are edible, but the sap of the plant can cause severe burns. Collecting the plant from the wild should only be done with extreme care. See the section Protective Clothing below.

Wild parsnip, which is also known as poison parsnip, is a member of the carrot/parsley family. It typically grows a low, spindly rosette of leaves in the first year while the root develops. In the second year it flowers on a tall stalk and then dies. The plant can form dense stands and spreads quickly in disturbed areas such as abandoned yards, waste dumps, meadows, open fields, roadsides and railway embankments. Its seeds are easily dispersed by wind and water, and on mowing or other equipment.

Like giant hogweed and other members of the carrot family, it produces sap containing chemicals that can cause human skin to react to sunlight, resulting in intense burns, rashes or blisters.

Range

In North America, scattered wild parsnip populations are found from British Columbia to California, and from Ontario to Florida. It has been reported in all provinces and territories of Canada except Nunavut. The plant is currently found throughout eastern and southern Ontario, and researchers believe it is spreading from east to west across the province.



Flowers grow in yellowish-green clusters

Photo: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Impacts of Wild Parsnip

- The plant can form dense stands that outcompete native plants, reducing biodiversity.
- Stem, leaves, and flowers contain chemicals that can increase skin sensitivity to sunlight and cause severe dermatitis.
- Wild parsnip reduces the quality and saleability of agricultural forage crops such as hay, oats, and alfalfa.
- Chemical compounds in the plant are known to reduce weight gain and fertility in livestock that eat it.

How to Identify Wild Parsnip

- Grows up to 1.5 metres tall.
- The single green stem is two to five centimetres thick and smooth with few hairs.
- Compound leaves are arranged in pairs, with sharply toothed leaflets that are shaped like a mitten.

- Yellowish green flowers form umbrella-shaped clusters 10 to 20 centimetres across.
- Seeds are flat and round.

Check the chart below to know how to identify wild parsnip.



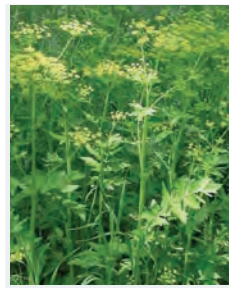
Jeff Muzzi



Diana Shermet, CLOCA



Leslie J. Mehrhoff, U. of Connecticut



Chris Evans, Illinois Wildlife Action Plan



Rachel James



Giant Hogweed
(*Heracleum mantegazzianum*)

Cow Parsnip
(*Heracleum maximum*)

Wild Parsnip
(*Pastinaca sativa*)

Queen Anne's Lace
(*Daucus carota*)

Angelica
Angelica spp.

Height	2.5 to 5 m	1 to 2.5 m	0.5 to 1.5 m	0.3 to 1.5 m	1.2 to 2.1 m
Flowers	Large, white umbrella-shaped flower clusters 30 to 90 cm across, made up of 50 to 150 small flower clusters	White umbrella-shaped flower cluster 10 to 30 cm across, made up of 15 to 30 small clusters	Yellowish-green flower clusters 10 to 20 cm across	White flower cluster 5 to 10 cm across. Pale pink before fully opened. Often single purple flower in centre of flower cluster	Greenish-white globe-like flower clusters 8 to 25 cm across
Leaves	Prominently spiked edges Up to 1.5 m long Leaflets grow right out of each side of main stem, with no leaf stalk	Leaves have lobes shaped like a hand with fingers, with fuzzy undersides Up to 0.5 m long and wide Leaf blade separated from main stem by leaf stalk	Leaves consist of 2 to 5 pairs of leaflets that grow across from each other along the stem, and one diamond-shaped leaflet on the end Leaflets toothed and often shaped like a mitten	Leaves are staggered along the stem (alternate) Leaves consist of leaflets that are finely divided into narrow segments. Each segment of the lower leaves is further divided into fine lobes, resulting in a feathery appearance	Alternate leaves, divided into 2 to 3 leaflets
Stem	Hollow, 5 to 15 cm thick Prominent purple blotches Distinct, coarse, bristly hairs	Hollow, 5 cm thick at base Green, few to no purple spots Soft and fuzzy hairs	Green, 2.5 to 5 cm thick Smooth with few hairs	Green, 1 to 2.5 cm thick Covered with fine bristly hairs	Purple or purple blotched Smooth (no hairs)
Lifecycle	Biennial (lives for 2 years) or perennial (lives longer than 2 years)	Perennial	Biennial/Perennial	Biennial	Perennial
Origin	Invasive	Native	Invasive	Invasive	Native

Wild Parsnip Removal and Management

If you have small clusters of wild parsnip on your property (fewer than 100 plants), you may be able to manage the plant yourself. Wear protective clothing and dispose of plants carefully, as described below. To remove larger infestations (thousands of plants), you will likely need a professional exterminator and repeated treatments over several years.

Note: To manage wild parsnip effectively, learn how to identify the plant in both its first-year stage as a small rosette of leaves, and in its second year, as a tall flowering plant. The area must be monitored for several seasons to ensure complete eradication.

Protective Clothing

Wear protective clothing, including waterproof gloves, long-sleeved shirts, pants and eye protection. A disposable spray suit over your normal clothing provides the best protection. Spray suits are commercial-grade waterproof coveralls. After working around the plant, remove your protective clothing carefully to avoid transferring any sap from your clothing onto your skin. Wash your rubber gloves with soap and water, then take off your spray suit or outer clothing. Wash your rubber gloves again and then take them off. Finally, take off your protective eye wear. Put non-disposable clothing in the laundry and wash yourself immediately with soap and water.

Mechanical Control

For a small infestation in a yard or garden (fewer than 100 plants), dig out as much of the taproot as you can with a sharp shovel or spade. Digging is most effective in the spring when the soil is moist and the taproot is more easily removed. Follow-up digging will be required every few weeks to deal with re-growth (if the taproot was not completely removed) or missed plants.

Pulling up the plants is impractical for larger infestations, but mowing can be effective if begun just after peak blooming, but before the seeds set in the late summer or early fall. Cut plants will likely re-sprout after mowing, so it is important to combine mowing with other control methods.

Another method of control is to cover the dug or mowed areas with black plastic to smother new growth of all plants. The plastic should be left in place for at least one season to ensure the roots are smothered. The area must be replanted after the plastic is removed to replace desirable plants and rehabilitate the soil.

Chemical Control

In Ontario, herbicide use, storage and disposal is regulated under the Pesticides Act. While many uses of herbicides are banned, certain herbicides may be used to control plants that are poisonous to humans who touch them, such as wild parsnip. Herbicides that may be used for this purpose include those containing the active ingredient glyphosate. If you are considering using a pesticide, read the product label before buying it to ensure it can legally be used on wild parsnip.

Herbicides containing glyphosate can be an effective tool to control larger populations of wild parsnip. Glyphosate is a broad spectrum herbicide that kills green plants that it comes into contact with. New seedlings will often germinate and emerge after glyphosate has been applied, meaning that follow up applications may be required.

For the best results, apply herbicide to the leaves of actively growing plants in the spring, followed by a summer application for missed plants that are still growing. Herbicide treatments may need to be repeated in following years. Follow directions on the product label and provincial and federal laws when using herbicides.

Disposal

DO NOT burn or compost wild parsnip plants that have been cut down or dug up. If possible, leave the stems to dry out completely at the site. Carefully dispose of plant material in black plastic bags and leave in direct sun for a week or more. Contact your municipality to determine if the bagged plants can be sent to your local landfill site.

What You Can Do

- Learn how to identify wild parsnip and other invasive plants.
- Stay on trails and away from areas known to have wild parsnip or other invasive species.
- Inspect, clean and remove mud, seeds and plant parts from clothing, pets (including horses), vehicles (including bicycles) and equipment such as mowers and tools. Before travelling to new areas, clean vehicles and equipment in a place where plant seeds or parts aren't likely to spread, such as in a driveway or at a car wash. It's very important to carefully wash any sap from clothing, equipment and pets.
- Avoid disturbing soil and removing plants from natural areas; they may be rare native plants or even invasive plants.



Compound leaves are arranged in pairs

Photo: Ohio State Weed Lab Archive, The Ohio State University, Bugwood.org



Wild Parsnip

Photo: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

- If you think you have wild parsnip on your property or if you see it in your community, please call the Invading Species Hotline at 1-800-563-7711, or report your sighting online at www.invadingspecies.com. You will be asked to send in photos for identification. **DO NOT** touch, cut or collect parts of the plant for identification purposes.



Yellowish-green flowers turn into round, flat brown seeds

Photo: Leslie J. Mehrhoff, University of Connecticut, Bugwood.org

Other Resources:

www.invasivespeciescentre.ca

ontario.ca/invasivespecies

www.ontarioinvasiveplants.ca

www.invadingspecies.com

Ministry of the Environment pesticides information for homeowners

www.ene.gov.on.ca/environment/en/category/pesticides/STDPROD_085338.html#1

Ministry of the Environment fact sheet Managing Pests in Lawns and Gardens

www.ene.gov.on.ca/environment/en/resources/STD01_076153.html

For More Information:

Please contact the Invading Species Hotline at 1-800-563-7711.

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Giant Hogweed

(*Heracleum mantegazzianum*)



Photo courtesy of Patrick Hodge, MNR

Similar Species

There are a number of plants that look very similar to Giant hogweed such as Cow parsnip, Purplestem angelica, Woodland angelica, Valerian, Lovage, and Queen Anne's-Lace (also known as Wild carrot). However, these plants are not as large as a mature Giant hogweed, which grows up to 5.5 metres tall under ideal conditions. The white flower clusters resemble those of Queen Anne's-Lace, but tend to be more widely spaced and can form a flower-head almost one metre wide.

Distribution

Giant hogweed has a scattered distribution across southern and central Ontario, south of the line from Manitoulin Island to Ottawa.

Giant hogweed (*Heracleum mantegazzianum*), also known as Giant cow parsnip is a perennial plant and a member of the carrot family. It is a garden ornamental from southwest Asia that is naturalizing in North America and becoming more common in southern and central Ontario. Giant hogweed has the potential to spread readily and grows along roadsides, ditches and streams. It invades old fields and native habitats such as open woodlands.



Giant hogweed stem. Note coarse hairs.
Photo courtesy of Ron Black, MNR

Biology

Seeds may take several years to germinate and are viable in the soil for up to 15 years. During the first year, the plant produces a rosette of leaves up to one metre high. After 2 to 5 years the plant produces flowers. As it grows a large root, thick hollow stems and large lobed leaves are formed. The stems of the plant are covered with reddish-purple flecks and stiff hairs filled with sap. Sap may also collect in the hollow stem bases. Giant hogweed flowers once in its lifetime, unless the flower clusters are damaged before opening. Once the plant produces seeds it dies. Each plant can produce up to 120,000 winged seeds (typically 50,000). Seeds dropped in streams can float for three days. They can move long distances via water in ditches and streams. Seeds can also be spread up to 10 metres by the wind.

Natural Resource Impacts

There is evidence that Giant hogweed can shade out native plants, although scientists have not done extensive research on its impact in Ontario or Canada. In the United Kingdom it grows in areas bordering lakes, streams, and wetlands and causes rocks, soil and other material on stream banks to fall into streams. This threatens salmon spawning sites. Similar impacts may occur in Ontario.

Health Concerns

The clear watery sap of Giant hogweed contains toxins that can cause severe dermatitis (inflammation of the skin). You can get severe burns if you get the sap on your skin and the skin is then exposed to sunlight. Symptoms occur within 48 hours and consist of painful blisters. Purplish scars may form that last for many years. Eye contact with the sap has been reported (in the media and by various web sites) to cause temporary or permanent blindness. However, evidence of permanent blindness linked to exposure to Giant hogweed cannot be substantiated by any existing research. Coming in contact with Cow parsnip and Wild parsnip can cause similar reactions.

Prevention

Do not purchase, trade or grow Giant hogweed in your garden. Only buy native or non-invasive garden plants. When you transport soil, sand or gravel make sure it is free of Giant hogweed – both plant parts and seeds.



Giant hogweed stalk and flower clusters.
Photo courtesy of Karen Rimmer

Removal and Management

If you have Giant hogweed on your property, it is recommended that you hire a professional exterminator to remove it. The plant will be removed safely and as few seeds as possible will be spread. Reducing a large population of Giant hogweed will take a long term commitment. The best time to remove the plant is in late April or early May. It is usually less than 30 centimetres tall, easier to dig up, and more susceptible to herbicides at this time of year. It is also cooler in the spring than in the summer so wearing protective clothing is more comfortable.

Protective clothing: Wear protective clothing, including waterproof gloves, long sleeve shirts, pants, and eye protection. It is ideal to wear a disposable “spray suit” coverall over top of your normal clothing (spray suits are commercial grade waterproof coveralls). Remove protective clothing carefully to avoid transferring any sap from your clothing onto your skin. Wash your rubber gloves with soap and water, and then take off your spray suit or outer clothing. Wash your rubber gloves again and then take them off. Finally, take off your protective eye wear. Put non-disposable clothing in the laundry and wash yourself immediately with soap and water.

Mechanical control:

Spring Removal (i.e. early May):

Use a spade to remove as much of the root as possible. Digging up older plants can be difficult since roots can grow deeper than one metre. The plant might re-grow from the root and you may need to dig repeatedly to remove it completely. Or, you can cover the dug area with black plastic to smother out new growth. If it's possible to use machinery, mow new growth every two weeks.

Summer Removal (i.e. early July):

- *Plants without flowers:* If the infestation is small dig the stems and roots out and dry them thoroughly before disposing of them.
- *Plants with flowers:* To prevent seeds from growing and spreading, remove flower heads before they ripen (when they are white). **Note: If the flower heads have changed from white to green, seeds are being produced and it will be very hard to remove the seed heads and/or cut the plant without spreading the seeds.** Return to the area regularly and remove any new growth.



Giant hogweed stalk and flower clusters.
Photo courtesy of Karen Rimmer.

Control Using Herbicides:

Herbicides can be used to control plants (like Giant hogweed) that are poisonous to the touch. Glyphosate is effective at controlling the top-growth of Giant hogweed. Foliar herbicide applications are most effective in spring on actively growing plants, followed with a subsequent summer application for missed plants or plants that have re-grown. Since glyphosate is non-selective and removes only the green vegetation that it comes into contact with, new seedlings will often germinate and emerge after glyphosate has been applied. If areas treated with glyphosate are covered in mulch 10 to 14 days after application, it will reduce seedling germination and growth. Herbicide treatments may need to be repeated in following years. If a plant is flowering, herbicides are not effective and control methods should focus on carefully removing the flower heads. Follow label directions and relevant provincial and federal legislation when using herbicides.

Disposal:

Do Not Burn. Do Not Compost. Carefully remove flower heads from stems and place them in black plastic bags. Make sure not to drop any seeds while you are doing this. Seal the bags tightly and leave them in direct sunlight for about a week. Allow stems and roots to dry out thoroughly before disposing of them. Call your municipality to find out if bags containing Giant hogweed can be sent to your local municipal landfill site.

In the event of any direct exposure/contact to this plant

If you get sap on your skin wash the area well with soap and water. Keep the affected area out of the sun. If photo dermatitis (inflammation of the skin caused by exposure to sunlight) occurs, see a doctor.

If you get sap in your eye, flush your eye with water immediately and see a doctor immediately.



Giant hogweed seedling.
Photo courtesy of Rachel Gagnon, Ontario Invasive Plant Council.

If you think you have Giant hogweed on your property or if you see it in your community please call the Invading Species Hotline at 1-800-563-7711 or report your sighting online at www.invadingspecies.com/Report.cfm. You will be asked to send in photos for identification. Do not collect parts of the plant for identification.

The Ontario Ministries of Agriculture, Food and Rural Affairs, Health and Long Term Care, Environment, and Natural Resources are working together with our partners (in particular Ontario Federation of Anglers and Hunters, Ontario Invasive Plant Council, Municipalities and Conservation Authorities) to provide information on the identification and control of Giant hogweed.

Other Resources

Ontario Invasive Plant Council

Invading Species Awareness Program

ontario.ca/invasivespecies

Ontario Ministry of Agriculture, Food and Rural Affairs

Ontario Weeds

For More Information

Contact the Invading Species Awareness Program hotline at 1-800-563-7711.

MESURES DE PROTECTION ET D'ATTÉNUATION
PLANTATION D'ARBUSTES ET D'ARBRES INDIGÈNES
DANS LE CADRE DU PROGRAMME DE COMPENSATION D'AGRILE DU FRÊNE
TERRAINS URBAINS DE LA CCN

MISE EN CONTEXTE

L'agrile du frêne (*Agrilus planipennis*), un insecte ravageur non-indigène, a été détecté dans la région de la capitale nationale pour la première fois en 2008. Au cours des 10 dernières années, la plupart des frênes qui poussent sur les terrains de la CCN ont été affectés par cet insecte très destructeur. Depuis 2014, la CCN a dû couper des dizaines de milliers de frênes morts qui posaient un risque pour la santé et la sécurité du public. Des nouveaux arbres sont plantés à chaque année dans les secteurs touchés par les travaux d'abattage afin d'assurer le reverdissement du couvert forestier. Grâce à des fonds supplémentaires obtenus en 2018 pour la compensation et restauration des habitats touchés par l'agrile du frêne, un projet visant la gestion des espèces envahissantes et le reboisement avec des arbres et des arbustes indigènes sera mis en œuvre au cours des prochaines années.

Trois sites ont été identifiés pour des interventions en 2018-2019, soit le parc des Rapides-Deschênes et l'aire de stationnement Champlain dans le secteur du sentier des Voyageurs, ainsi que le secteur du lac Leamy (voir les Figures 1a, 2a et 3a). Les plantes envahissantes (nerprun et chèvrefeuille) ont été retirées à l'automne-hiver 2018-2019 à l'aide d'équipements mécaniques, tandis que la plantation aura lieu en 2019.

MESURES D'ATTÉNUATION

ESPÈCES EN PÉRIL

- Lors de la rencontre de démarrage, sensibiliser les travailleurs à la présence confirmée et potentielle d'espèces en péril protégées par la loi fédérale et/ou provinciale dans la zone des travaux, ainsi que des procédures à suivre en cas d'observations d'une espèce en péril.
- Aucune excavation ou plantation, aucun stationnement et aucun entreposage ne sont permis dans la zone racinaire critique (à l'intérieur de la limite du feuillage) des arbres en péril protégés par la loi fédérale et/ou provinciale. Les espèces incluent le **noyer cendré** (*Juglans cinerea*), l'**orme liège** (*Ulmus thomasi*) et l'**érable noir** (*Acer nigrum*)¹.
- Tous les arbres en péril doivent être visiblement identifiés et protégés, au besoin, sur le site avant les travaux. Ces arbres doivent être bien marqués à l'aide de ruban forestier visible. Si nécessaire, installer des dispositifs de protection à la limite du feuillage pour s'assurer qu'ils ne soient pas endommagés, élagués ou coupés. Toute nouvelle observation d'arbres en

¹ Voici des liens internet pour l'identification des espèces en péril à protéger :

Orme liège : <http://aimfc.mcan.gc.ca/arbres/fiche/369>

Noyer cendré : <https://aimfc.mcan.gc.ca/arbres/fiche/30>

Érable noir : <https://aimfc.mcan.gc.ca/arbres/fiche/82>



péril doit être signalée à la CCN, avec ses coordonnées GPS. Retirer le ruban de signalisation à la fin des travaux.

ESPÈCES EN GÉNÉRAL

Flore indigène

- Si possible, ne pas stationner des véhicules ou de la machinerie ni entreposer du matériel à l'intérieur de la limite du feuillage des arbres.
- Installer des dispositifs de protection autour de tous les arbres susceptibles d'être endommagés par la machinerie. Signaler tout arbre endommagé gestionnaire de projet qui verra à aviser les biologistes TUQ-PG; des mesures d'atténuation additionnelles pourraient être identifiées.
- Ajouter des protecteurs à tous les arbres qui ont le potentiel d'être broutés par les cerfs ou rongés par le castor.

Flore envahissante

- Déraciner le nerprun avant de procéder avec les travaux de plantation.
- Enlever les fruits (graines) des bottes et du linge des travailleurs avant de sortir du site.
- Les résidus de nerprun (y compris les fruits) doivent être disposés dans un lieu d'enfouissement technique à l'extérieur du Parc. Le transport devra se faire dans un camion fermé.
- Le nerprun ne doit en aucun temps être déchiqueté et laissé sur place.
- S'assurer que les équipements soient propre et exempte de boues, de fragments de végétation, d'espèces envahissantes et de mauvaises herbes nuisibles avant son départ de l'aire des travaux. Suivre le protocole de nettoyage de l'équipement « Clean Equipment Protocol for Industry – Summary » (voir l'annexe A).

Oiseaux migrateurs

- Effectuer les travaux entre le **29 août et le 7 avril**, dans la mesure du possible, afin d'éviter la saison de nidification des oiseaux migrateurs et de maternage des chauves-souris.
- Si les travaux sont nécessaires entre le 8 avril et le 28 août, une inspection visuelle des arbres et des alentours par une personne qualifiée sera requise dans les 48 heures avant le début des travaux afin de repérer les nids ou gîtes actifs. Si un nid ou gîte actif est repéré, aviser les biologistes qui verront à identifier les mesures d'atténuation à mettre en place.
- Entre le 29 août et le 7 avril, effectuer une inspection visuelle des arbres et des alentours par les intervenants sur le terrain avant de procéder avec les travaux. Si un nid ou un gîte actif est repéré, aviser les biologistes qui verront à identifier les mesures d'atténuation à mettre en place.

Faune indigène

- L'ensemble des travaux sera réalisé dans un délai raisonnable afin de minimiser l'impact sur la faune.



- Si les travaux doivent se dérouler lors de la saison de ponte des tortues (mi-mai à mi-octobre), à l'intérieur d'un habitat pour les tortues, minimiser les risques que les tortues pondent dans le chantier en installant une clôture à exclusion autour du chantier et/ou en recouvrant de toile plastique bien ancrée, de tissu ou de paille les zones d'excavation ou de substrat nues dans la zone des travaux ainsi que l'aire d'entreposage **avant le début mai**. Lors des travaux, réinstaller les toiles avant de quitter les lieux à chaque jour. Respecter les recommandations d'aménagement de l'Équipe de rétablissement des tortues du Québec (voir les biologistes des TUQ-PG) ainsi que les meilleures pratiques identifiées par le ministère des Richesses naturelles et des Forêts de l'Ontario (OMNR, 2013) (http://files.ontario.ca/environment-and-energy/species-at-risk/mnr_sar_tx_rptl_amp_fnc_en.pdf; pages 4-5 & 9-10).
- Une personne qualifiée doit inspecter le chantier juste avant la réalisation des travaux afin de s'assurer qu'aucune tortue n'est présente à l'intérieur de la zone des travaux ou de la zone clôturée. Une vérification régulière de la clôture d'exclusion et du chantier sera requise tout au long du projet. Communiquer avec les biologistes des TUQPG si une tortue est observée dans la zone des travaux. Les biologistes détermineront les mesures d'atténuation additionnelles requises et communiqueront avec les experts, au besoin. Respecter une distance minimale en attendant les consignes des biologistes et ne pas manipuler ni déplacer la tortue.
- Si une tortue en train de pondre ou un nid de tortue actif est observé dans la zone des travaux, arrêter immédiatement les travaux, délimiter un rayon de protection de 5 mètres autour du nid et communiquer avec les biologistes des TUQPG. Ces derniers détermineront les mesures d'atténuation additionnelles requises et communiqueront avec les experts, au besoin.
- Si les travaux se déroulent lors de la saison de reproduction du monarque (mai à octobre), les travaux dans les champs devront éviter les secteurs avec une densité élevée d'asclépiades.
- Maintenir le chantier propre et ne pas laisser de déchets ou de restes de nourriture qui risqueraient d'attirer les animaux ou de modifier leur comportement.
- La faune sur le terrain ne doit pas être chassée, harcelée, ou traquée.
- Tout animal repéré pendant les travaux doit pouvoir quitter le site lui-même en toute sécurité. Les travailleurs ne doivent pas tenter de capturer ou de manipuler la plupart des animaux. Aviser les biologistes des TUQPG s'il y a un enjeu particulier avec de la faune dans l'aire des travaux (par ex., animal blessé).

BANDES RIVERAINES ET MILIEUX HUMIDES

- Les travaux devront se limiter aux zones situées à l'extérieur de la zone d'inondation 0–20 ans ou à l'extérieur du 15 mètres de la limite d'un milieu humide, sauf exception.
- S'il y a lieu, installer des dispositifs de lutte contre l'érosion et de contrôle de sédiments (voir l'annexe B) pour les travaux ayant lieu à l'intérieur de la zone d'inondation 0–20 ans.



QUALITÉ DE L'EAU, DES SOLS ET DE L'AIR

Érosion

- Couvrir les sites de plantation avec du paillis (mulch) afin de prévenir l'érosion. S'il n'est pas possible de planter les arbres avant la période recommandée, le site doit être partiellement stabilisé (couvrir les zones exposées avec une couverture anti-érosion) et végétaliser la saison suivante.

Utilisation de la machinerie

- S'assurer que la machinerie est propre et exempte de fuites, de boues, de fragments de végétation, d'espèces envahissantes et de mauvaises herbes nuisibles à son arrivée sur le site et la maintenir dans cet état. Suivre le protocole de nettoyage de l'équipement « Clean Equipment Protocol for Industry – Summary » (voir l'annexe A).
- Le bon fonctionnement des véhicules sera vérifié (notamment les systèmes d'échappement).
- Faire cesser le fonctionnement de tout équipement à moteur lorsqu'il n'est pas employé.
- Utiliser la plus petite machinerie possible et limiter les déplacements sur le site des travaux.
- Effectuer le plein de carburants, l'entretien et les réparations des équipements à une distance de plus de 60 mètres de tout plan d'eau et cours d'eau. Placer une bâche sous les équipements si un remplissage de carburants, d'huiles ou autres produits s'avère nécessaire. Exécuter sous surveillance constante toute manipulation de carburant, d'huile, d'autres produits pétroliers ou de contaminants afin d'éviter les déversements accidentels.
- Procéder au nettoyage de la machinerie et des équipements sur le site des travaux, avant de sortir du site et à la fin des travaux, afin qu'ils soient exempts de boue, de fragments de plantes et d'animaux.
- Prévoir l'instauration et l'application d'un plan d'urgence, connu des travailleurs, en cas d'un déversement accidentel.
- Une trousse d'urgence de récupération des produits pétroliers devra être disponible sur le site pendant les travaux.
- En cas d'accident ou de déversement, l'entrepreneur doit immédiatement appliquer le plan d'urgence en vigueur. Il doit aviser le Service d'urgence de la CCN (613-239-5353) et, dès que possible, le gestionnaire des terrains de la CCN, ainsi qu'Urgence environnement Québec (1-866-694-5454), si requis.
- Les hydrocarbures et les sols contaminés seront récupérés par une firme spécialisée dans ce domaine (déterminée par la CCN) une fois le déversement contenu.
- Si la présence de sols contaminés est observée ou soupçonnée lors des travaux (par ex. taches dans le sol, odeurs, présence de substances délétères tels des cendres, scories, déchets, vitre, briques, métal, etc.), les travaux doivent cesser immédiatement et l'entrepreneur doit aviser le gestionnaire de projet de la CCN.



Aires d'entreposage

- Localiser les aires d'entreposage dans les stationnements existants ou selon les sites approuvés par le gestionnaire de projet. À la fin des travaux, remettre ces sites dans leur état initial.
- Entreposer les carburants, l'huile, les autres produits pétroliers ou les contaminants à plus de 60 mètres de tout fossé/cours d'eau/plan d'eau et dans un secteur de faible pente.
- Entreposer les matériaux d'excavation à plus de 15 mètres de la ligne naturelle des hautes eaux des plans d'eau/cours d'eau. Recouvrir les matériaux d'excavation avec une toile ou utiliser de l'eau pour prévenir la formation de poussière.

VESTIGES ARCHÉOLOGIQUES OU RESTES

- Si des ressources archéologiques ou des restes humains sont découverts pendant les travaux, tous les travaux à l'endroit concerné doivent être suspendus immédiatement et le Programme du patrimoine de la CCN doit être avisé dans les plus brefs délais à l'adresse courriel Archaeology-Archeologie@ncc-ccn.ca. Les travaux ne pourront pas reprendre à cet endroit avant que les mesures pour la protection de ces ressources ou ces restes aient été mises en place.

REMISE EN ÉTAT DU SITE

- Nettoyer le site de tous résidus et disposer à un site approprié à l'extérieur du Parc.
- Les sites perturbés pendant les travaux et l'aire d'entreposage doivent être stabilisés et replantés à la fin des travaux.
- Récupérer la terre végétale excavée et utiliser pour réhabiliter les sites perturbés à la fin des travaux.
- La restauration de la végétation doit être réalisée le plus tôt que possible à la fin des travaux, à une période propice pour la reprise de la végétation. Advenant que la saison de croissance soit trop avancée pour restaurer la végétation, stabiliser les sols remaniés à l'aide d'un matelas anti-érosion afin de limiter le déplacement de matières fines dans l'environnement.
- Couvrir les zones végétalisées de paillis au besoin pour prévenir l'érosion et favoriser la germination dès les travaux achevés afin de stabiliser les sols de façon permanente.
- Toute la surface des fosses de plantation doit être recouverte d'un paillis sur une épaisseur minimale de 100mm. Le paillis pour la plantation doit être des copeaux de bois composés à 100 % d'essences résineuses non-envahissantes.

22-02-2019



Clean Equipment Protocol for Industry – Summary

Invasive species are plants, animals and microorganisms that have been accidentally or deliberately introduced into areas beyond their normal range, that out compete native species. Invasive species are a major threat to Ontario's natural areas, and are very costly to deal with once established.

Invasive species can be spread to new areas by contaminated mud, gravel, soil and plant materials on vehicles and machinery.

The best practice is to prevent the spread of invasive species. By inspecting and cleaning equipment and following some simple guidelines, the risk of spreading invasive plants is greatly reduced.

- Identify invasive plants and plan activities accordingly (i.e. schedule work in areas without invasive plants first, leaving infested areas til the end, to reduce the risk of unintentionally moving plants into a new area).
- Record & report sightings of invasive plants (Invading Species hotline at **1-800-563-7711** or online www.invadingspecies.com/report/ or www.eddmaps.org/Ontario)
- Inspect vehicles and machinery before and after entering sites or conducting work along roadways & waterways.

How to Inspect

Before leaving the site, inspect the vehicle thoroughly inside and out for where dirt, plant material and seeds may be lodged or stuck to interior and exterior surfaces. Remove and clean any guards, covers or plates that are easy to remove.

Pay attention to the underside of the vehicle, radiators, spare tires, foot wells and bumper bars. If clods of dirt, seed or other plant material are found, remove immediately and discard where the contamination occurred or in the garbage.

When Cleaning is required

- Safely locate the vehicle and equipment away from any hazards, ensure engine is off and the vehicle or equipment is immobilized.
- Clean the vehicle/equipment in an appropriate area where contamination and seed spread is not possible (or limited).

The site should be:

- » Mud free, gravel covered hard surface, or, if this is not available, a well maintained grassy area.
- » Gently sloping to assist in draining water and material away from the vehicle or equipment. Care should be taken to ensure that localized erosion will not be created.
- » At least 30m away from any watercourse, water body and natural vegetation.
- » Large enough to allow for adequate movement of larger vehicles and equipment.

Continued...



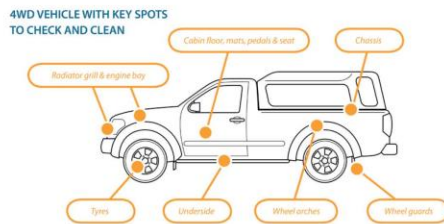
Equipment Required

- A pump and high pressure hose OR High pressure water unit
- Air compressor and blower OR Vacuum
- Shovel
- Pry bar
- Stiff brush or broom

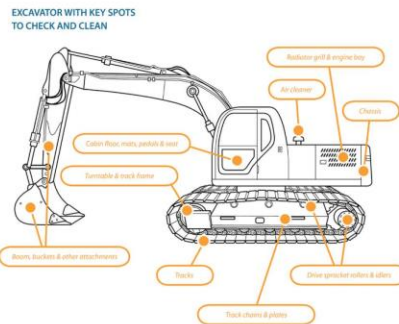
Final Inspection Checklist

- No clods of dirt should be visible after cleaning.
- Radiators, grills and the interiors of vehicles should be free of accumulations of seed, soil, mud and plant material parts including seeds, roots, flowers, fruit and or stems.

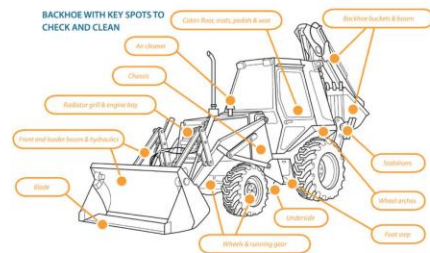
2WD and 4WD Vehicles



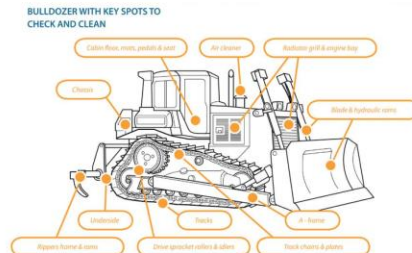
Excavator



Backhoe

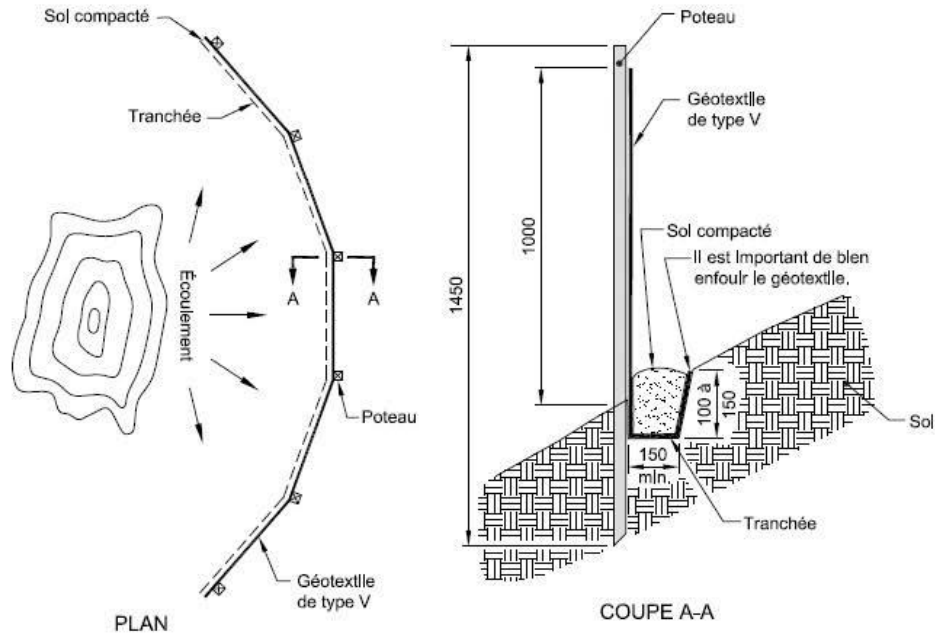


Bulldozer



Annexe B – Barrière à sédiments

Installation d'une barrière munie d'un géotextile



Note :

- les cotes sont en millimètres.

Tiré du Devis type – Protection de l'environnement du Ministère du Transports du Québec, 2015.

