

TAM HEATHER CURLING AND TENNIS CLUB BUBBLE SOGR
730 Military Trail, Scarborough
CITY OF TORONTO

SPECIFICATIONS INDEX

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Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications

Tree Protection - City of Toronto Tree Protection Policy & Specifications for Construction Near Trees

END

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract includes the life cycle renewal of the existing dome fabric membrane including site preparation, staging, tree protection, shut down of mechanical and electrical systems supporting the dome operations, removal, cutting and disposal of existing dome membrane fabric, general contractor coordination of the turn-key removal and replacement of the existing air-supported dome fabric membrane by vendor of the original dome fabric membrane, site cleaning, and restoration, restart of mechanical and electrical systems supporting the dome operations.
- .2 Refer to technical specifications for the turn-key air-supported dome fabric membrane replacement scope of Work and membrane replacement vendor information.

1.3 CONTRACT METHOD

- .1 Construct Work under an itemized Lump Sum Contract.

1.4 DOCUMENTS REQUIRED

- .1 Maintain at job site documents as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents.

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.11 Other documents as specified.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 ACCESS AND EGRESS

- .1 Construct and maintain temporary "access to" and "egress from" work areas independent of finished surfaces and in accordance with drawings, relevant municipal, provincial and other regulations.

1.3 USE OF SITE.

- .1 Execute work with least possible interference or disturbance to adjacent premises.

1.4 EXISTING SERVICES

- .1 Notify utility companies of intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give 48 hours notice for necessary interruption. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance.
- .3 Establish location and extent of service lines in area of work before starting Work.
- .4 Submit schedule to and obtain permission for any shut-down or closure of active service or facility including power and communications services. Adhere to permitted schedule and provide notice to affected parties.
- .5 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.
- .6 Where unknown services are encountered, immediately advise of findings in writing.
- .7 Protect existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .8 Record locations of maintained and abandoned service lines.

1.5 SPECIAL REQUIREMENTS

- .1 Carry out noise generating Work as per terms in Contract document.

- .2 Ensure personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.
- .3 Keep within limits of work and avenues of ingress and egress.
- .4 Deliver materials outside of peak traffic hours.

1.6 SMOKING ENVIRONMENT

- .1 Comply with smoking restrictions.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 CASH ALLOWANCES

- .1 Cash allowances, unless otherwise specified, cover net cost of services, products, construction machinery and equipment, freight, handling, unloading, storage, installation, and other authorized expenses incurred in performing Work.
- .2 Contract Price, and not cash allowance, includes overhead and profit in connection with such cash allowance.
- .3 Contract Price will be adjusted by Change Order to provide for excess or deficit to each cash allowance.
- .4 Where costs under a cash allowance exceed amount of allowance, compensation will be made for excess incurred and substantiated plus allowance for overhead and profit as set out in Contract.
- .5 Include progress payments on accounts of work authorized under cash allowances in monthly progress payment claim.
- .6 Prepare schedule to show when items called for under cash allowances must be authorized for ordering purposes so that progress of Work will not be delayed.
- .7 Amount of each allowance, for Work specified in respective specification Sections is as per Contract.

1.3 CONTINGENCY ALLOWANCE

- .1 Expenditures under contingency allowance will be authorized in accordance with procedures set out in Contract.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REQUIREMENTS

- .1 Drawings and Technical Requirements Specifications stipulate pertinent requirements for products and methods to achieve Work stipulated.

1.3 ALTERNATIVES

- .1 Alternatives for the dome fabric membrane this project will not be considered. The original dome fabric membrane is uniquely specific to the Tam Heather Tennis Club site conditions and services and shall be replaced by the original membrane vendor with a new and improved membrane that meet the uniquely specific Tam Heather Tennis Club site and services requirements.
- .2 Refer to technical specifications for the turn-key air-supported dome fabric membrane replacement scope of Work and membrane replacement vendor information.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REFERENCES

- .1 Owner & Contractor Agreement.

1.3 APPLICATIONS FOR PROGRESS PAYMENT

- .1 Make applications for payment monthly as Work progresses.
- .2 Date applications for payment last day monthly payment period and ensure amount claimed is for value, proportionate to amount of Contract, of Work performed and Products delivered to Place of Work at that date.
- .3 Submit at least 5 days before first application for payment. Schedule of values for parts of Work, aggregating total amount of Contract Price, to facilitate evaluation of applications for payment.

1.4 SCHEDULE OF VALUES

- .1 Provide schedule of values supported by evidence.
- .2 Include statement based on schedule of values with each application for payment.
- .3 Support claims for products delivered to Place of Work but not yet incorporated into Work by such evidence as required to establish value and delivery of products.

1.5 PROGRESS PAYMENT

- .1 After receipt of an application for payment, Work will be reviewed to verify validity of application, and no later than 7 days after completing review, the Contractor will be notified if application is accepted for the Work performed.
- .2 Certificate for payment in amount accepted will be issued.

1.6 SUBSTANTIAL PERFORMANCE OF WORK

- .1 Apply for a review to establish Substantial Performance of Work or Substantial Performance of designated portion of Work.

- .2 Work will be reviewed to verify validity of application and corrective items will be recorded.
- .3 Contractor will be notified if Work or designated portion of Work is deemed substantially performed.
- .4 Certificate for Substantial Performance will be issued.
- .5 Immediately following issuance of certificate of Substantial Performance of Work, Contractor will submit schedule for completing corrective items.

1.7 PAYMENT OF HOLDBACK UPON SUBSTANTIAL PERFORMANCE OF WORK

- .1 After issuance of certificate of Substantial Performance of Work:
 - .1 Submit application for payment of holdback amount.
 - .2 Submit Statutory Declaration sworn statement that accounts for labour, subcontracts, products, construction machinery and equipment, and other indebtedness which may have been incurred in Substantial Performance of Work, except for amounts properly retained as holdback.
- .2 After receipt of application for payment and sworn statement, certificate for payment of holdback amount will be issued.
- .3 Amount authorized by certificate for payment of holdback amount is due and payable on day following expiration of holdback period stipulated in lien legislation applicable to Place of Work.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 APPOINTMENT AND PAYMENT

- .1 Owner will appoint for services of testing specified in Section 014500 Quality Control.
- .2 Contractor shall appoint and pay for following:
 - .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.
- .3 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 verify acceptability of corrected work.

1.3 DESIGNATED LOCATION FOR DELIVERY OF SAMPLES.

- .1 Material samples specified to be tested will be left on the construction site at designated location.

1.4 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 Give 48 hours notice for assignment of laboratory personnel and scheduling of test.

- .3 Where materials are specified to be tested, deliver representative samples in required quantity to designated location.
- .4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 PRECONSTRUCTION MEETING

- .1 Senior representatives of Contractor, major Sub-Contractors, field inspectors and supervisors will be in attendance.
- .2 Agenda to include but not be limited to:
 - .1 Appointment representative.
 - .2 Schedule of Work.
 - .3 Schedule of submission of shop drawings, samples, colour chips.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences.
 - .5 Delivery schedule of specified equipment.
 - .6 Proposed changes, change orders, procedures, reviews required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .7 Products provided by others.
 - .8 Record drawings.
 - .9 Maintenance manuals.
 - .10 Take-over procedures, acceptance, warranties.
 - .11 Monthly progress claims, administrative procedures, photographs, holdbacks.
 - .12 Appointment of inspection and testing agencies.
 - .13 Permits.
 - .14 Other.

1.3 PROGRESS MEETINGS

- .1 Contractor and major Sub-Contractors are to be in attendance.
- .2 Agenda to include but not be limited to:
 - .1 Review, approval of minutes of previous meeting.

- .2 Review of Work progress since previous meeting.
- .3 Field observations, problems, conflicts.
- .4 Problems which impede construction schedule.
- .5 Review of off-site fabrication delivery schedules.
- .6 Corrective measures and procedures to regain projected schedule.
- .7 Revision to construction schedule.
- .8 Progress schedule, during succeeding work period.
- .9 Review submittal schedules: expedite as required.
- .10 Maintenance of quality standards.
- .11 Review proposed changes for affect on construction schedule and on completion date.
- .12 Other.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Submit Schedule for review. Ensure Schedule is practical and within specified Contract duration. Make necessary revisions requested by review and resubmit until acceptance. Include as a minimum in the Schedule:
 - .1 Adverse weather conditions normally anticipated.
 - .2 Necessary crews and manpower to meet schedule requirements.
 - .3 Simultaneous use of multiple crews.
 - .4 Sequence and interdependence of construction activities.
 - .5 Start and completion of all items of Work, their major components, and interim milestone completion dates.
 - .6 Activities for procurement, delivery, installation and completion of each major activity, including:
 - .1 Time for submittals, resubmittals and review.
 - .2 Time for fabrication and delivery of manufactured products for Work.
 - .3 Interdependence of procurement and construction activities.
 - .7 Include sufficient detail to assure adequate planning and execution of Work.
- .2 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated and allow co-ordination and control of project activities. Show continuous flow.
- .3 Insert Change Orders in appropriate location of Schedule. Clearly state and report on effects created by insertion of new Change Order.

1.3 COMPLIANCE WITH SCHEDULE

- .1 Comply with accepted Schedule.

- .2 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.
 - .1 Corrective measures may include:
 - .1 Increase of personnel
 - .2 Increase in equipment.
 - .3 Overtime work.
 - .3 Submit justification, project schedule data and supporting evidence for approval of extension to Contract completion date or interim milestone date when required. Include as part of supporting evidence:
 - .1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule.
 - .2 Prepared schedule indicating how change will be incorporated into the overall Schedule. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.
 - .3 Other supporting evidence requested.
 - .4 Do not assume approval of Contract extension prior to receipt of written acceptance.

1.4 PROGRESS MONITORING AND REPORTING

- .1 On ongoing basis, Schedule on job site must show "Progress to Date". Arrange participation on and off site of Sub-Contractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring
- .2 Submit Schedule update monthly with on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.
- .3 Requirements for monthly progress monitoring and reporting are basis for progress payment request.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 ADMINISTRATIVE

- .1 Submit submittals listed 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 Prepare shop drawings, product data, samples and mock-ups in SI Metric units. If items or information is not produced in SI Metric units converted values are acceptable.
- .4 Review submittals prior to submission. 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.
- .5 Identify deviations from requirements of Contract stating reasons for deviations.
- .6 Contractor's responsibility for errors and omissions in submission is not relieved by review of submittals.
- .7 Contractor's responsibility for deviations in submission from requirements of Contract is not relieved by review of submittals.
- .8 Keep one reviewed copy of each submission on site.

1.3 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 to illustrate details of a portion of Work.

- .2 Submit drawings stamped and signed by professional engineer registered or licensed in Ontario.
- .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 Adjustments noted on shop drawings by review are not intended to change Contract Price. If adjustments affect value of Work, state such in writing prior to proceeding with Work.
- .5 Make changes in shop drawings as review may require, consistent with Contract Documents. When resubmitting, note revisions other than those requested.

1.4 SAMPLES

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

1.5 MOCK-UPS

- .1 Erect mock-ups as specified on drawings in accordance with 01 45 00 - Quality Control.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REFERENCES

- .1 Latest update at time of bidding.
- .2 Province of Ontario
 - .1 Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990, c.0.1, as amended and O. Reg. 213/91 as amended.

1.3 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.
- .2 Be responsible and assume the Principal Contractor role for work zone. Provide a written acknowledgement of this responsibility following contract award.
- .3 Install proper work zone site separation and identification in order to maintain time and space at all times throughout life of project.

1.4 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.
- .2 Schedule and administer Health and Safety meeting prior to commencement of Work.
- .3 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

1.5 GENERAL REQUIREMENTS

- .1 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.

1.6 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 Be responsible and assume the role Constructor as described in the Ontario Occupational Health and Safety Act and Regulations for Construction Projects.
- .3 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.7 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 Province having jurisdiction.

1.8 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have site-related working experience specific to activities.
 - .2 Have working knowledge of occupational safety and health regulations.
 - .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
 - .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

1.9 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 Province having jurisdiction.

1.10 CORRECTION OF NON-COMPLIANCE

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

1.11 PRECEDENCE

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

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Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REFERENCES

- .1 Latest updates.
 - .1 Ontario Environmental Protection Act, R.S.O. 1990, c. E. 19

1.3 DEFINITIONS

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction.

1.4 FIRES

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

1.5 DRAINAGE

- .1 Implement erosion and Sediment Control Plan as indicated.
- .2 Provide temporary drainage and pumping required to keep excavations and site free from water. Ensure pumped water into drainage systems is free of suspended materials.

1.6 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees 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 Dumping and storage of materials over root zones Is not permitted.
- .3 Minimize stripping of topsoil and vegetation.
- .4 Restrict tree removal to areas indicated.

1.7 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.
- .3 Do not construct temporary crossings over waterways unless specifically designed as part of the Work.
- .4 Do not skid construction materials across waterways.

1.8 POLLUTION CONTROL

- .1 Control emissions from equipment in accordance with local authorities' emission requirements.
- .2 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.9 NOTIFICATION

- .1 Contractor will be notified of observed non-compliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements. After receipt of such notice, propose corrective action.
 - .1 Proceed with corrective action only after review and acceptance.
- .2 Work stop order may be issued until satisfactory corrective action has been taken.
- .3 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REFERENCES

- .1 Latest updates.
- .2 Perform Work in accordance with Ontario Building Code (OBC).
- .3 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

1.3 HAZARDOUS MATERIAL DISCOVERY

- .1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Provide immediate notice.
- .2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Provide immediate notice.
- .3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Provide immediate notice.

END OF SECTION

Part 1

General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 INSPECTION

- .1 Refer to Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications.

1.3 SAMPLES

- .1 Refer to Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications.

1.4 MOCK-UPS

- .1 Refer to Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications.

1.5 REJECTED WORK

- .1 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .2 If, upon examination such work is found not in accordance with Contract, correct such Work and pay cost of re-examination and correction
- .3 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised at no cost. Pay costs for retesting and reinspection.
- .4 Make good other Contractor's work damaged by such removals or replacements promptly.

1.6 REPORTS

- .1 Submit field inspection and test reports.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REFERENCES

- .1 Latest updates.
 - .1 Ontario Environmental Protection Act, R.S.O. 1990, c. E.19

1.3 INSTALLATION AND REMOVAL

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.4 DEWATERING

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.5 WATER SUPPLY

- .1 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.
- .2 Provide continuous supply of potable water for construction use.

1.6 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heat and ventilation in enclosed areas as required to facilitate progress of Work.
- .2 Provide temporary ventilating to prevent accumulations of dust, fumes, mists, vapours or gases.

1.7 TEMPORARY POWER AND LIGHT

- .1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools.

1.8 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

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.2 Burning rubbish and construction waste materials is not permitted.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REFERENCES

- .1 Latest updates:
 - .1 Canadian Construction Documents Committee (CCDC)
 - .2 Canadian General Standards Board (CGSB)
 - .3 Canadian Standards Association (CSA International)
 - .4 Public Works Government Services Canada (PWGSC).
 - .5 Ontario Environmental Protection Act, R.S.O. 1990, c. E.19

1.3 INSTALLATION AND REMOVAL

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

1.4 SCAFFOLDING

- .1 Scaffolding in accordance with CAN/CSA-S269.2.

1.5 CRANES

- .1 Provide, operate and maintain cranes required for moving of materials and equipment.
- .2 Cranes to be operated by qualified operator.

1.6 SITE STORAGE / LOADING

- .1 Confine work and operations of employees by Contract. Do not unreasonably encumber premises with products.

- .2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.7 CONSTRUCTION PARKING

- .1 Parking is permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.

1.8 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.

1.9 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.

1.10 CONSTRUCTION SIGNS

- .1 Project identification construction signs will be provided.
- .2 Install signs where indicated.
- .3 Maintain signs in good condition for duration of project.
- .4 Be responsible for typical construction zone regulations signs.
- .5 Advertisement signs are not permitted.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REFERENCES

- .1 Latest updates.
 - .1 Canadian General Standards Board (CGSB)
 - .2 Canadian Standards Association (CSA International)
 - .3 Public Works Government Services Canada (PWGSC)

1.3 INSTALLATION AND REMOVAL

- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.4 HOARDING

- .1 Erect temporary site enclosures as noted on drawings.
- .2 Provide lockable truck entrance gates.
- .3 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.5 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations.
- .2 Provide as required by governing authorities

1.6 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.7 PROTECTION FINISHES

- .1 Provide protection for finished and partially finished finishes until cured and accepted.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Be responsible for damage incurred due to lack of or improper protection.

TAM HEATHER CURLING AND TENNIS CLUB BUBBLE SOGR
730 Military Trail, Scarborough

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Parks, Forestry & Recreation

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TEMPORARY BARRIERS & ENCLOSURES
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END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards. Conform to these reference standards, in whole or in part as specifically requested in specifications.

1.3 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .3 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .4 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.4 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

1.5 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense.
- .9 Touch-up minor damages of factory finished surfaces until acceptance. Use touch-up materials to match original. Do not paint over name plates.

1.6 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.

1.7 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify of conflicts between specifications and manufacturer's instructions.
- .3 Improper installation or erection of products, due to failure in complying with these requirements may require removal and re-installation at no increase in Contract Price or Contract Time.

1.8 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties.

1.9 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.10 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.11 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested.
- .3 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage.
- .4 Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 REFERENCES

- .1 OLS Topographic Survey.

1.3 QUALIFICATIONS OF SURVEYOR

- .1 Qualified registered land surveyor, licensed to practice in Ontario.

1.4 SURVEY REFERENCE POINTS

- .1 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .2 Make no changes or relocations without prior written notice.
- .3 Report when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .4 Require surveyor to replace control points in accordance with original survey control.

1.5 SURVEY REQUIREMENTS

- .1 Establish permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data.
- .2 Establish lines and levels, locate and lay out, by instrumentation.

1.6 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major stages in the Work, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

1.7 SUBSURFACE CONDITIONS

- .1 Notify if subsurface conditions at Place of Work differ materially from those indicated in Contract, or a reasonable assumption of probable conditions based thereon.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 MATERIALS

- .1 Required for original installation.
- .2 Submit request for substitutions in accordance with Section 01 33 00 - Submittal Procedures.

1.3 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during Work.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of Work means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

- .1 Fit several parts together, to integrate with other Work.
- .2 Remove and replace defective and non-conforming Work.
- .3 Remove samples of installed Work for testing.
- .4 Execute Work by methods to avoid damage to other Work.
- .5 Restore damaged areas by construction with new products in accordance with requirements of Contract.
- .6 Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and dispose of waste materials for in accordance with Section 01 74 21 -
Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 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.
- .3 Clear snow and ice.
- .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 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .8 Provide adequate ventilation during use of volatile or noxious substances.
- .9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .10 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 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 other than that caused by others, 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.

- .5 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .6 Remove dirt and other disfiguration from exterior surfaces.
- .7 Sweep and wash clean paved areas.
- .8 Clean drainage systems.
- .9 Remove snow and ice.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and dispose of waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 WASTE MANAGEMENT GOALS

- .1 Waste management goal:
 - .1 Divert a minimum 75% Project Waste from landfill sites.
 - .2 Minimize amount of non-hazardous solid waste generated by project and accomplish maximum source reduction, reuse and recycling of solid waste produced by construction activities.
 - .3 Protect environment and prevent environmental pollution damage.

1.3 REFERENCES

- .1 Latest updates:
 - .1 Ontario Ministry of Environment
 - .1 Ontario 3 R's Regulations (regulation 102/94) for waste management programs applicable to construction and demolition projects greater than 2,000 m².
 - .2 Ontario Environmental Protection Act (EPA)
 - .1 Regulation 102/94, Waste Audits and Waste Reduction Workplans.
 - .2 Regulation 103/94, Source Separation Programs.
 - .3 Canadian Construction Association (CCA)
 - .1 CCA 81-2001: A Best Practices Guide to Solid Waste Reduction.
 - .4 Public Works and Government Services Canada (PWGSC)
 - .1 2002 National Construction, Renovation and Demolition Non-Hazardous Solid Waste Management Protocol.

- .2 CRD Waste Management Market Research Report (available from PWGSC's Environmental Services).
- .3 Sustainable Development Strategy 2007-2009: Target 2.1 Environmentally Sustainable Use of Natural Resources.
 - .1 Real Property projects over \$1 million and in communities where industrial recycling is supported, implementation of CRD waste management practices will be completed, with waste materials being reused or recycled.
 - .2 Contractually ensure resources used in construction or maintenance are consumed and recovered in a sustainable manner.

1.4 WASTE PROCESSING SITES

- .1 Contractor is responsible to research and locate waste diversion resources and service providers. Salvaged materials are to be transported off site to authorized recycling facilities or to users of material for recycling.

1.5 STORAGE, HANDLING AND PROTECTION

- .1 Unless specified otherwise, materials for removal do not become Contractor's property.
- .2 Protect, stockpile, store and catalogue salvaged items.
- .3 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .4 Protect structural components not removed and salvaged materials from movement or damage.
- .5 Separate and store materials produced during project in designated areas.
- .6 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated processing facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off site processing facility for separation.
 - .3 Obtain waybills, receipts and/or scale tickets for separated materials removed from site.
 - .4 Materials reused on-site are considered to be diverted from landfill.

1.6 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
 - .1 Number and size of bins.
 - .2 Waste type of each bin.
 - .3 Total tonnage generated.
 - .4 Tonnage reused or recycled.
 - .5 Reused or recycled waste destination.
- .4 Remove materials on-site as Work progresses.
- .5 If required, prepare project summary to verify destination and quantities on a material-by-material basis.

Part 2 Execution

2.1 APPLICATION

- .1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Drawings.
- .2 General Requirements Specifications.
- .3 Technical Reports.
- .4 City General Provisions / Conditions of the Contract.
- .5 Technical Specification as referenced herein.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-warranty Meeting:
 - .1 Convene meeting in accordance with Section 01 31 19 - Project Meetings to:
 - .1 Review warranty requirements.
 - .2 Establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.

1.3 AS -BUILT DOCUMENTS

- .1 Assemble and submit prior to Substantial Performance the following:
 - .1 As built drawings.
 - .2 Reviewed shop drawings, product data, and samples.
 - .3 Field test records.
 - .4 Inspection certificates.
 - .5 Manufacturer's certificates.
 - .6 Final site survey certificate, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.4 COMPLETED SYSTEMS

- .1 For each system include description and component parts. Note function, normal operation characteristics and limiting conditions.
- .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
- .3 Include installed colour coded wiring diagrams.

- .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
- .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- .6 Include manufacturer's printed operation and maintenance instructions.
- .7 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- .8 Provide installed control diagrams by controls manufacturer.
- .9 Provide co-ordination drawings, with installed colour coded piping diagrams.
- .10 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
- .11 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

1.5 MATERIALS AND FINISHES

- .1 Products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
 - .1 Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specifications sections.

1.6 MAINTENANCE MATERIALS

- .1 Spare Parts:
 - .1 Provide spare parts, in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
- .2 Extra Stock Materials:

- .1 Provide maintenance and extra materials, in quantities specified.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Special Tools:
 - .1 Provide special tools, in quantities specified.
 - .2 Provide items with tags identifying their associated function and equipment.

1.7 WARRANTIES

- .1 Submit warranty statement in accordance with Contract.
- .2 Submit product and system specific manufacturer's guarantees.
- .3 Provide product and system specific extended warranties.
- .4 Respond in timely manner to notification of required warranty repair work.

END OF SECTION

TAM HEATHER CURLING AND TENNIS CLUB BUBBLE SOGR
730 Military Trail, Scarborough
City of Toronto
Parks, Forestry & Recreation

Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications

TERMINOLOGY:

“Bubble” = “Dome” = “Air Structure”

DISCLAIMER:

This specification is intended for the Turn Key Dome Fabric Membrane Replacement and includes Work and Responsibilities for the General Contractor. The General Contractors, who are bidding on this project, shall contact and confirm with the specified Dome Fabric Membrane Vendor the exact Work scope and Responsibilities. The General Contractors, who are bidding on this project, shall account in their bid price for all the Work and Responsibilities applicable and required to replace the Dome Fabric Membrane at the Tam Heather Tennis Club.

BACKGROUND:

The Tam Heather Tennis Club Air Supported Dome Fabric Membrane has reached the end of its life cycle and is due for a turn-key replacement by the vendor of the original dome fabric membrane under the coordination of the general contractor.

DOME FABRIC MEMBRANE ALTERNATIVES:

Alternatives for the dome fabric membrane this project will not be considered. The original dome fabric membrane is uniquely specific to the Tam Heather Tennis Club site conditions and services and shall be replaced by the original membrane vendor with a new and improved membrane that meet the uniquely specific Tam Heather Tennis Club site and services requirements.

TURN KEY DOME FABRIC MEMBRANE REPLACEMENT VENDOR & CONTACT:

Vendor:

THE FARLEY GROUP INC.
6 Kerr Crescent
Puslinch, Ontario N0B 2J0 Canada

Contact for Coordination and Installation:

Jason W. L. Abbott
Vice President - Sales
THE FARLEY GROUP
416-737-2589
jabbott@thefarleygroup.com

MECHANICAL AND ELECTRICAL SYSTEMS SHUT DOWN AND RESTART:

Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications

1. The General Contractor shall be responsible to shut down the mechanical and electrical systems supporting the dome by specialty licensed mechanical and electrical contractors in coordination with the turn-key membrane replacement vendor and regulatory requirements.
2. The General Contractor shall be responsible to restart the mechanical and electrical systems supporting the dome by specialty licensed mechanical and electrical contractors in coordination with the turn-key membrane replacement vendor and regulatory requirements.

EXISTING DOME MEMBRANE FABRIC REMOVAL:

3. The General Contractor shall be responsible for the removal, cutting, and disposal of the existing dome fabric membrane in coordination with the turn-key membrane fabric replacement vendor and requirements for disposal.

NEW FABRIC MEMBRANE SUPPLY AND INSTALLATION SCOPE OF WORK:

The specified vendor shall supply, deliver and non-union / non prevailing wage install on truck to site one Air structure and components. Air structure will be approximately 216' long x 118' wide x 36' high, plan as per finished drawings which will be signed and confirmed by General Contractor; and the General Contractor agrees to pay for such structure including the following:

1) FABRIC MEMBRANE:

- a) **Outer Fabric:** vinyl coated **Opaque** polyester fabric with acrylic exterior top-coating. The exterior surface color of the fabric will be white.
- b) **Liner Fabric:** 15 oz per square yard high gloss finish vinyl coated polyester fabric. The structure will be manufactured with blue liner 3m high along the sides of structure, and the remainder being white.
- c) **Skylight:** We have NOT accounted for any skylight. Client to advise in writing if they wish to have a skylight add. Size to be determined based on the suppliers design team. **Note:** This can be provided at No Charge if HVAC sizing is not effected. Recommended on larger domes.
- d) **Insulation:** Hi-performance reflective insulation with an E-value of 0.03 and an average R-value of 10. The insulation is constructed of 2 layers of polyethylene bubbles with low emissivity aluminum foil laminated on both sides. Air structure will be prepared to facilitate installing insulation between inner and outer membranes. The insulation will be installed on site by the supplier.
- e) **Divider Nets:** Re-Use existing
- f) **Sections:** The dome will be manufactured in 3 sections fastened using aluminum joining plates with velcro fastened fabric covers to the outside.
- g) **Flame Resistance:** The outer and liner fabric have been tested for flame resistance and meet California fire marshal requirements, UL 214, NFPA 701, UBC (#42-1 & #55-5), and ULC S109 Standard for Flame Tests of Flame-Resistant Fabrics and Films.

Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications

- h) Seams and Edges:** All seams are dielectrically welded to form the dome's profile. Membrane shall be manufactured with rope edge to suit extruded profile anchoring system.
- i) Openings:** The fabric membrane will be provided with openings to accommodate:
 - 1 - Three-leaf revolving door and one (1) pedestrian airlock combo will be provided.
 - 3 - Single-width exit doors
 - 1 - Extra width exit door
 - Mechanical Unit openings as required

2) DOORS AND OTHER ACCESS COMPONENTS:

- a) Single-Width Emergency Exits:** Re-use existing
- b) Extra-Width Emergency Exit:** Re-use existing
- c) Revolving Door / Pedestrian Airlock:** Re-use existing
- d) Automated Operators:** New automated operators (Provisional Item)
- e) Fire Alarm System:** There have been no provision for Fire Alarm systems by the supplier. The General Contractor is advised to consult a Fire Protection company if required.

3) LIGHTING:

- a) Hanging Light Fixtures:** Re-use existing
- b) Egress Lighting:** It is the responsibility of the General Contractor to have an egress lighting expert advise them on the local requirements. The Supplier is willing to assist with a possible solution once advised.
- c) All electrical work, including installation of plugs, receptacles at service attachment point, and connections to be the responsibility and to the account of the General Contractor.**

4) MECHANICAL EQUIPMENT:

- a) Mechanical Design Parameters:** Re-use existing.
- b) Heat and Inflation Unit:** Re-use existing.
- c) Standby Inflation Unit:** Re-use existing.
- d) Remote Control Panel:** Re-use existing.

Note: 4 a, b, c and d above all voltage to suit 3 phase 480. The General Contractor will be responsible for all conduits, electrical wiring and all natural gas connections to all heating and standby.

5) AIR STRUCTURE RETENTION:

- a) Retention Channel:** Re-use existing.
- b) Restraining Cables:** Not required
- c) Lengthwise Restraining Cables:** Not required
- d) Anchor Plates:** Not required

6) OTHER HARDWARE AND SERVICES:

- a) Turnbuckles and Hardware Openings:** Turnbuckles and hardware for all openings for the provided components above is included.

Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications

- b) **Mechanical Start Up:** Mechanical Start-up is included. Owner is responsible to have a local HVAC representative on site for training.

7) SHIPPING AND HANDLING:

- a) Shipping of the Membrane and Components included (FOB site).
- b) Delivery of all components to project site.

8) INSTALLATION:

- a) The Supplier has provided for a complete turnkey installation of the Dome membrane, Insulation and Components listed above including all non-union non-prevailing wage temporary labor and equipment

9) INSTALLATION CONDITIONS:

- a) Site work must be completed prior to Farley technicians scheduling arrival at the site. If Farley supervisors arrive on site and are unable to start the work for any of the reasons on the above schedule the General Contractor will be responsible to pay the daily charge out rate for each of Farley Manufacturing Inc's employees plus extra room and board. Daily charge out rate is \$1,250.00 per man plus \$350.00 per man for room and board and ground transportation. In the event that delays occur due to inclement weather, the General Contractor will be responsible to pay one half the above rate. Once it is agreed on the arrival date of the Farley Manufacturing Inc. employees, the General Contractor will be responsible for additional travel costs caused by changes in the install date,
- b) Electric and natural gas services must be commissioned 30 days before installation schedule can be confirmed. The installation shall not proceed until the jobsite has been approved by the manufacturer. If temporary power and/or gas are being used the Supplier reserves the right to refuse the installation until an adequate plan is presented and approved.
- c) All electrical and natural gas connections to mechanical equipment and commissioning of generator must be completed before installation of air structure membrane can commence.
- d) If natural gas or electric is not ready, General Contractor will be responsible for the rental of the equipment.
- e) If the site is not ready for the scheduled delivery date the installation could be delayed by weeks or months depending on the time of year which will be determined by the supplier.
- f) General Contractor to confirm that concrete grade beam is at full strength.
- g) If weather or other conditions on site delay the installation process, the General Contractor will be responsible for extra costs associated with the inactivity of the Supplier's installation
 - a. supervisors.
- h) The Supplier will make every effort to avoid the air structure membrane and components from getting dirty during the installation process. The Supplier will not be responsible for any protective field poly, ground coverage or cleaning of the air structure or components that may be required as a result of unfavorable site conditions.

Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications

- a. **Once it is agreed on the arrival date of the Farley Manufacturing Inc. employees, the General Contractor will be responsible for additional travel costs caused by changes in the install date.**

7) PLANS AND SPECIFICATIONS:

- a) **Plans and Specifications:** Layout Drawings, specifications and load calculations pertaining to the air structure will be provided by the supplier. **General Contractor is responsible for the Structural, Mechanical and Electrical Stamped drawings with respect to the dome portion of the project.**

10) GENERAL CONTRACTOR'S DESIGNATE:

- b) All tasks and other responsibilities of General Contractor herein may be delegated or outsourced by the General Contractor to, or otherwise performed on behalf of General Contractor by, General Contractor's designate. However, any such delegation or outsourcing to, or other performance by, such a designate will not relieve General Contractor of any obligation hereunder, and General Contractor will at times be responsible for the activities of such designate.

Payment Terms:

- 1/3 of contract value less 10% holdback due upon execution of contract. **Note:** The original requested delivery date is predicated on the receiving the full deposit and confirmed site voltages *not* from date of signed contract.
 - Payment must be received within 30 days of execution
- 1/3 of contract value less 10% holdback due upon notice of fabrication of membrane
 - If the project is delayed payment must be received no later than 30 days after the originally requested delivery date to avoid increases or delays
- 1/3 of contract value less 10% holdback due upon notice of shipment
 - If the project is delayed payment must be received no later than 60 days after the originally requested delivery date to avoid increases or delays
- 10% holdback due within 30 days of signing 'Acknowledgement of Substantial Completion'

Delivery of Components to Site: On or before _____, 2025, weather permitting (eg. no rain, extreme cold or high winds). This delivery date is subject to date of execution of contract and receipt of deposit, which are expected to be returned by no later than _____, 2024.

General: the air structure package supplied as per items 1 - 6 will perform satisfactorily at this location for the intended use. *Note:* The parties agree that labour rates will be increased if delays beyond the Supplier's control force installation into winter weather conditions.

Responsibility of the General Contractor

- a) Obtaining and paying for all permits, including permit requirements for all other plans and specifications, including but not limited to Architectural, Structural, mechanical and electrical stamped drawings relating to the air structure membrane.

Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications

- b) All additional drawings, with the appropriate professional stamps (if necessary) that may be required by local building officials, such as but not limited to, architectural site plan drawings for the air structure and/or other project elements (club house, parking, etc...).
- c) Review of local building codes and by-laws for permit application. Any additional components that may be necessary to meet the building code requirements before, after or at the time of a review by local building code officials, are considered as extras to this Contract and are not included in this price.
- d) Structural, Mechanical and Electrical Stamped Construction Drawings for the dome portion of the project if required.
- e) Excavation, concrete pad adjustments, foundation repair, site grading and landscaping.
- f) Supply and install of Fire shutter at the 3-leaf revolving door or Automated Operators where required.
- g) Any field protection, poly or required cover for spreading the dome.
- h) Light cords, plug and wire if the current wire cannot be saved or re-used.
- i) Any building connections or connections to walkways, front of building, tunnels or otherwise.
- j) Supply and install Egress Lighting that may be required by code or local building officials beyond the standard emergency exit lights provided at each exit door including but not limited to any Fire Alarm systems that may be required.
- k) Furnishing and placement of concrete grade beam, equipment pads, and all concrete work required to meet plans and specifications. The Supplier will have provided construction drawings as part of this contract. These drawings are for the use of the General Contractor in constructing the grade beam and other concrete components related to the air-supported structure. **If inspections by a structural engineer are required of the work being performed by the General Contractor to ensure conformity with these plans, the resulting cost will be borne by the General Contractor.**
- l) Providing electrical plans, panels, distribution, receptacles, and all electrical hookups as required.
- m) Providing electrical and natural gas connection to the furnace and standby.
- n) Additional Warranty and/or Service Coverage on HVAC if the project is delayed.
- o) Signing ‘Substantially Complete’ form prior to **any** usage of the facility, including confirmation of General Contractor’s insurance coverage (see Appendix “C” attached).

Responsibility of the Supplier

- a) Supervisory personnel to direct installation.
- b) Supply of non-union, non-fare wage, non-prevailing wage temporary labour and equipment to effect installation of air structure and equipment.
- c) Layout Drawings and Load calculations. **General Contractor to supply Structural, Mechanical and Electrical Stamping** (if required)
- d) Delivery of all components to project site. **General Contractor responsible for off loading.**
- e) Startup and operational check of furnace, inflator, and emergency backup systems.
- f) Inflation and stabilization of air structure.
- g) Operational instruction and review of Operating & Maintenance Instruction Manual requirements with General Contractor.

Turn Key Dome Fabric Membrane Replacement - Scope of Work & Specifications

- p) Provide Farley Manufacturing Inc. fabrication 3-year warranty.

OTHER CONSIDERATIONS

- A) Title does not pass to the General Contractor until payment is received in full.
- B) This Contract cannot be altered, modified and/or abridged in any way without prior written agreement from both parties.
- C) This Contract contains all the covenants and agreements of the parties with respect to the product(s). All amendments to or modifications of this Contract will be made in writing to be approved (signed) by all parties hereto.
- D) General Contractor is responsible for all site preparations and site access.
- E) Any dispute resolution regarding this Contract will be under the laws of Ontario.
- F) Slight variations in fabric coating thicknesses are standard. This may be apparent in bright sunlight as shading or color variation between fabric panels in translucent membranes. This is normal and has no bearing on the true color of panels.
- G) General Contractor is responsible for all costs to install the grade beam and equipment pads, including mechanical equipment pad, door pads and airlock slabs, winch concrete bases, perimeter drainage, field surfacing, handicap access, etc. as may be required. Any costs relating to site visits required by the General Contractor relating to the provided stamped construction drawings will be the responsibility and the cost of the General Contractor.
- H) The General Contractor agrees that the above detailed Scope of Work will take precedent and supersede all other Contracts that relate to the dome portion of the project. It clearly identifies what the Supplier has agreed to supply, deliver and install.
- I) The General Contractor agrees to sign Supplier's 'Substantial Completion' in the form attached prior to use of the air structure for any purpose whatsoever.
- J) The General Contractor agrees that any requirements for Union Labour and/or legislated premium rates will be a direct, additional cost to the General Contractor.
- K) This agreement shall be governed by and constructed in accordance with laws of the State or Province, without regard to principles of conflicts of law.
- L) Warranty: The dome and component parts are only warranted as set forth in the Supplier's printed warranty, a copy of which has been delivered to General Contractor (or General Contractor's Designate) or the manufacturer's warranty. To become effective, the Supplier's warranty requires that payment in full of the Contract price be made in accordance with the terms of this Contract. Period of warranty coverage commences from date of signing 'Substantial Completion' or date of inflation of air structure, whichever occurs first.
- M) Force Majeure: Supplier will not be in breach of this Contract if it does not perform any obligation hereunder due to, or otherwise suffer any liability to the General Contractor as a result of, any event or condition not under its reasonable control.
- N) Any changes to this Contract will be made by completing a change order form.

END

Tree Protection Policy and Specifications for Construction Near Trees

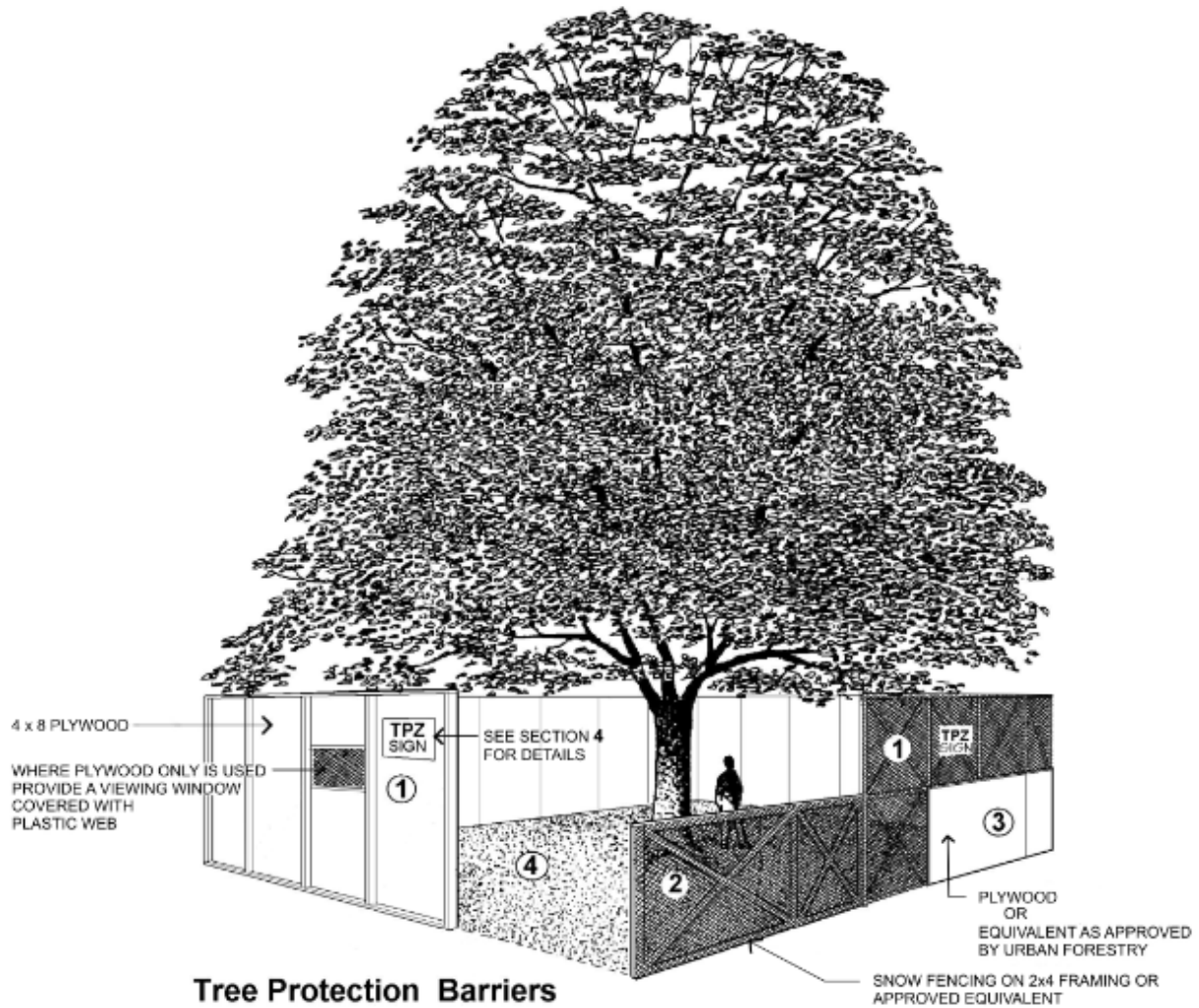


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1. Introduction

Maintenance, growth and enhancement of the urban forest are important goals of the City of Toronto. Preserving and protecting healthy trees can help the City to achieve these goals. Considering tree protection in the initial stages of construction planning may mean the difference between preserving a healthy tree and having to remove it. Plans created with tree protection in mind help protect the city's urban forest.

The tree protection policy and specifications outlined below reflect the policy of Toronto City Council. Anyone failing to adhere to the tree protection policy and specifications will be financially responsible for any resulting damage to trees and may be charged under the provisions of the applicable City of Toronto tree by-law or subject to orders to comply.

Prior to commencing with any demolition or construction activity it is important that an arborist¹ determines the location, species, size and condition of trees on the property and surrounding properties and becomes familiar with the tree protection by-laws that could impact the proposal.

The following by-laws protect trees in the City of Toronto:

- [Street Tree By-law](#), City of Toronto Municipal Code Chapter 813, Article II, protects all trees situated on City streets.
- [Private Tree By-law](#), Article III, Chapter 813 of the City of Toronto Municipal Code protects trees on private property with diameter of 30cm or more and trees of any diameter that were planted as a condition of a permit issued under this bylaw or a site plan agreement.
- The [Ravine & Natural Feature Protection By-law](#), Chapter 658 of the City of Toronto Municipal Code prohibits and regulates the injury and destruction of trees, as well as filling, grading and dumping within designated areas of the City. There is no minimum diameter for a tree to qualify for protection under the Ravine and Natural Feature Protection By-law. Trees of any size located in the designated areas qualify for protection.
- The [Parks By-law](#), Municipal Code Chapter 608, Article VII protects all trees located in a City park.

All above noted by-laws are implemented by Urban Forestry under the authority of the General Manager, Parks, Forestry and Recreation. City of Toronto's tree protection by-laws can be found at www.toronto.ca/trees.

Types of Tree Damage

Physical injury to the trunk, crown and roots of a tree will occur if construction equipment is permitted close to trees or if structures are built into the growing space of a tree. Inappropriate pruning may also result in tree injury. Physical injuries are permanent and can be fatal.

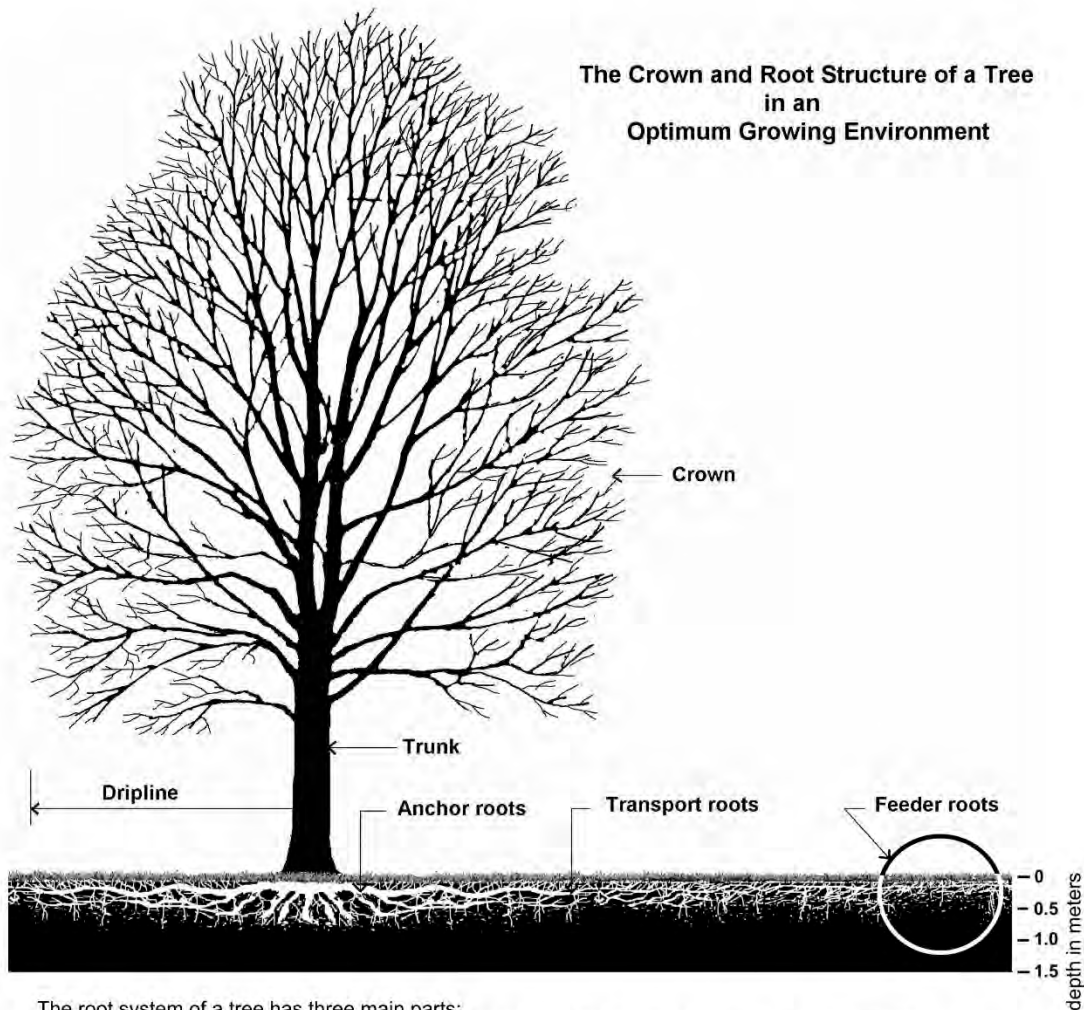
¹ Arborist – An expert in the care and maintenance of trees including an arborist qualified by the Ontario Training and Adjustment Board Apprenticeship and Client Services Branch, a certified arborist qualified by the International Society of Arboriculture, a consulting arborist registered with the American Society of Consulting Arborists, a registered professional forester or a person with other similar qualifications as approved by the General Manager, Parks, Forestry and Recreation.

Root cutting is another type of physical injury that can significantly impact the health of a tree. The majority of tree roots are found in the upper 30 to 60 cm of soil. Excavation for foundations or utility installation may cut roots if the excavation is too close to trees. Trees can become destabilized and may fall over if anchor roots are severed.

Compaction of the soil in the tree root zone is one of the leading causes of tree decline in Toronto's urban forest. Soil compaction occurs primarily from vehicles and equipment moving across the root zones. Piling or storing materials or debris on top of the root system can also result in soil compaction. Soil compaction causes the pore spaces in the soil, which contains air and water necessary for root growth, to be reduced. Without space available for oxygen and water, tree roots will suffocate and tree decline will follow. With rutting, a form of intense compaction, roots are severed by the tires of equipment. Root destruction can also be caused by changes to the existing grade. Adding soil on top of tree roots can smother them by reducing the amount of oxygen and water they can receive. Only a few centimetres of added soil can have a detrimental impact on tree health.

The structural elements of a tree in an optimal growing environment are shown on Figure 1. This figure illustrates the terms used in this policy.

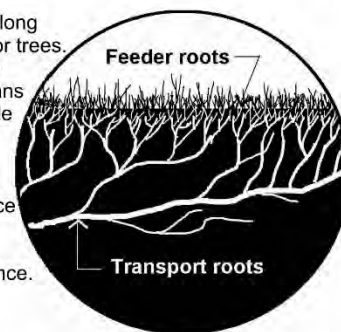
The Crown and Root Structure of a Tree
in an
Optimum Growing Environment



The root system of a tree has three main parts:
Forming the base of the tree are large **anchor roots** from which extend long **transport roots** which together provide the main structural framework for trees. From the transport roots extend a complex network of **feeder roots** that grow outward and upward. These non-woody roots branch out to form fans of thousands of slender roots with fine root hairs. These tiny roots provide the surface where the absorption of air, water and nutrients takes place that sustains the life of the tree.

The root system of a tree grows mainly within the top 60 cm of the surface of good quality, well drained and uncompacted soil.

The root system can extend to more than 2 to 3 times the **dripline** distance.



2. Protecting Trees

There are a number of steps that can be taken to protect trees prior to, during and after any construction project. Hiring an arborist should be the first step. An arborist can advise on current tree maintenance requirements and determine the impact the proposal will have on trees and the surrounding natural environment.

An inventory of trees on subject and adjacent properties that may be impacted by the proposed work should be prepared in accordance with the City tree by-laws so that the project can be designed with tree protection in mind. A tree protection plan prepared by an arborist will identify the location, species, size and condition of all trees within the area of consideration, identify the extent of injury where applicable and outline proposed tree protection measures for the trees identified for protection.

The **area of consideration** for trees protected under the Private Tree By-law (Municipal Code, Chapter 813, Article III) includes the entire area of site disturbance, including construction related traffic and material storage, and extends 6m beyond the limit of site disturbance. For trees protected under Ravine and Natural Feature Protection By-law (Municipal Code, Chapter 658), the area of consideration includes the area of site disturbance and 12m area beyond.

The following chart provides the required distances for determining a **minimum tree protection zone (TPZ)** for trees located on a City street, in parks and on private property subject to Private Tree By-law and for trees located in areas regulated under the Ravine and Natural Feature Protection By-law. The minimum tree protection zones are based on the diameter of the tree. While these guidelines provide minimum protection distances for the anchor and transport roots of a tree, there can still be significant loss of the feeder roots beyond the established tree protection zone. Feeder roots are responsible for water and nutrient absorption and gas exchange. **For this reason, Urban Forestry may require a TPZ larger than the minimum, depending on the tree and the surrounding environment.**

Trunk Diameter (DBH) ¹	Minimum Protection Distances Required ² City-owned and Private Trees	Minimum Protection Distances Required Trees in Areas Protected by the Ravine and Natural Feature Protection By-law
		Whichever of the two is greater:
<10cm	1.2 m	The drip line ⁴ or 1.2 m
10- 29 cm	1.8 m	The drip line or 3.6 m
30 ³ – 40 cm	2.4 m	The drip line or 4.8 m
41 – 50 cm	3.0 m	The drip line or 6.0 m
51 – 60 cm	3.6 m	The drip line or 7.2 m
61 – 70cm	4.2 m	The drip line or 8.4 m
71 – 80cm	4.8 m	The drip line or 9.6 m
81 – 90 cm	5.4 m	The drip line or 10.8 m
91 – 100 cm	6.0 m	The drip line or 12.0 m
>100 cm	6 cm protection for each 1 cm diameter	12cm protection for each 1 cm diameter or the drip line ⁵

Table 1: Minimum Tree Protection Zone (TPZ) Determination

¹Diameter at breast height (DBH) measurement of tree stem taken at 1.4 metres (m) above the ground.

²Minimum Tree Protection Zone distances are to be measured from the outside edge of the tree base.

³Diameter (**30 cm**) at which trees qualify for protection under the Private Tree By-law.

⁴The drip line is defined as the area beneath the outer most branch tips of a tree.

⁵Converted from ISA Arborists' Certification Study Guide, general guideline for tree protection barriers of 1 foot of diameter from the stem for each inch of stem diameter.

The diagram below shows how the TPZ is determined:

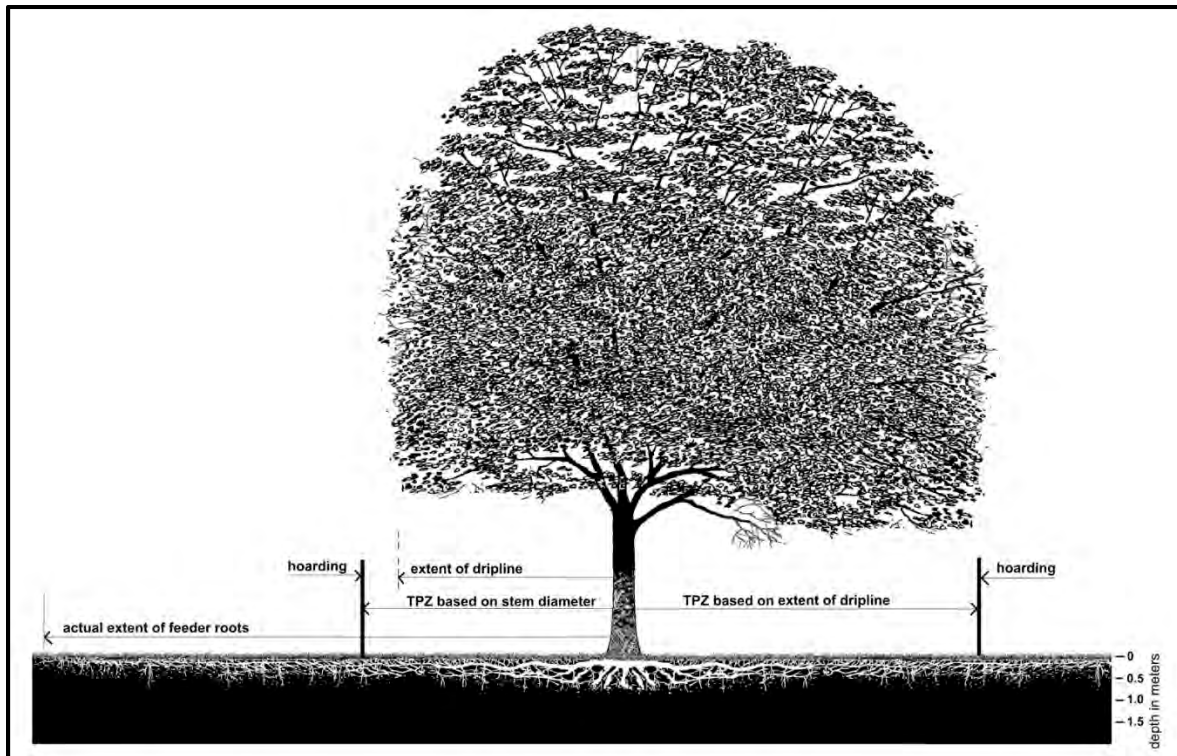


Figure 2: Minimum Tree Protection Zone (TPZ) Determination

In some cases, disturbances in the TPZ may be unavoidable, in which case, the TPZ must be adjusted in consultation with the arborist and Urban Forestry. In these situations, it may be necessary to implement other tree protection measures such as horizontal root protection as noted in section 3 of this document.

In addition to establishing and creating tree protection zones, it may be necessary to implement other protective measures, such as adding mulch to the root zone, aeration of the soil, pruning for deadwood or removing limbs that may be impacted by construction activity. This is also the time to determine the location where new trees can be planted to compliment the construction project and help with the renewal and growth of the urban forest.

Prior to commencing with any excavation, roots approved for pruning by Urban Forestry must first be exposed using pneumatic (air) excavation, by hand digging or by using a low pressure hydraulic (water) excavation. This **exploratory excavation** must be undertaken by an experienced operator under the supervision of a qualified and experienced arborist. The water pressure for hydraulic excavation must be low enough that root bark is not damaged or

removed. This will allow a proper pruning cut and minimize tearing of the roots. The arborist retained to carry out root pruning must contact Urban Forestry no less than three (3) working days prior to conducting any specified work.

Exploratory excavation may also be required for open face cuts outside the minimum tree protection zone (TPZ).

Communication between owners and their designated agents, arborists, contractors and sub-contractors throughout the construction process is critical to ensure that everyone involved is aware of the issues surrounding tree protection, and fully understands the tree protection methodology. Construction damage to trees is often irreversible.

Prohibited Activities Within a TPZ

Except where authorized by Urban Forestry, any activity which could result in injury or destruction of a protected tree or natural feature, or alteration of grade within a Ravine and Natural Feature Protection (RNFP) area, is prohibited within a TPZ, including, but not limited to, any of the following examples:

- demolition, construction, replacement or alteration of permanent or temporary buildings or structures, parking pads, driveways, sidewalks, walkways, paths, trails, dog runs, pools, retaining walls, patios, decks, terraces, sheds or raised gardens
- installation of large stones or boulders
- altering grade by adding or removing soil or fill, excavating, trenching, topsoil or fill scraping, compacting soil or fill, dumping or disturbance of any kind
- storage of construction materials, equipment, wood, branches, leaves, soil or fill, construction waste or debris of any sort
- application, discharge or disposal of any substance or chemical that may adversely affect the health of a tree e.g. concrete sludge, gas, oil, paint, pool water or backwash water from a swimming pool
- causing or allowing water or discharge, to flow over slopes or through natural areas
- access, parking or movement of vehicles, equipment or pedestrians
- cutting, breaking, tearing, crushing, exposing or stripping tree's roots, trunk and branches.
- nailing or stapling into a tree, including attachment of fences, electrical wires or signs
- stringing of cables or installing lights on trees
- soil remediation, removal of contaminated fill
- excavating for directional or micro-tunnelling and boring entering shafts

The above mentioned prohibitions are for area(s) designated as a TPZ. If possible, these prohibitions should also be implemented outside the TPZ in areas where tree roots are located. The roots of a tree can extend from the trunk to approximately 2-3 times the distance of the dripline.

3. Tree and Site Protection Measures

The following are examples of specific tree and site protection measures that may be required by Urban Forestry:

- Plywood tree protection hoarding (minimum 19mm or ¾"), or equivalent barriers, as approved by Urban Forestry, shall be installed in locations as detailed in an Urban Forestry approved Tree Protection Plan. Tree protection barriers must be made of 2.4m (8ft) high plywood hoarding or equivalent as approved by Urban Forestry. Height of hoarding may be less than 2.4m (8ft), to accommodate tree branches that may be lower, or as approved by Urban Forestry. Within a City road allowance where visibility is a consideration, 1.2m (4ft) high orange plastic web snow fencing on a 38 x 89mm (2"x 4") frame should be used. The detail on tree protection barrier construction is shown on Figure 4 in section 7 of this document
- In specific situations where the required full minimum tree protection zone (TPZ) cannot be provided, a **horizontal** (on grade) **root protection**, designed by a qualified professional such as arborist or landscape architect, may be considered, subject to approval by Urban Forestry. Urban Forestry's objective is zero soil compaction within the tree protection zone, therefore best efforts must be made to achieve this objective using materials and best practices available that minimize the vertical loading and spread the loading horizontally.
- Any area designated for stockpiling of excavated soil must be outside of TPZs and be enclosed with sediment control fencing. Sediment control fencing shall be installed in the locations as indicated in an Urban Forestry approved Tree Protection Plan. The sediment control fencing must be installed to Ontario Provincial Standards (OPSD-219.130 – see Section 7, Figure 5) and to the satisfaction of Urban Forestry. When feasible, the sediment control fencing can be attached to the tree protection barrier as shown in Figure 6. Sediment control fencing near trees shall be constructed as per detail shown on Figure 6 of this document

4. Tree Protection Signage

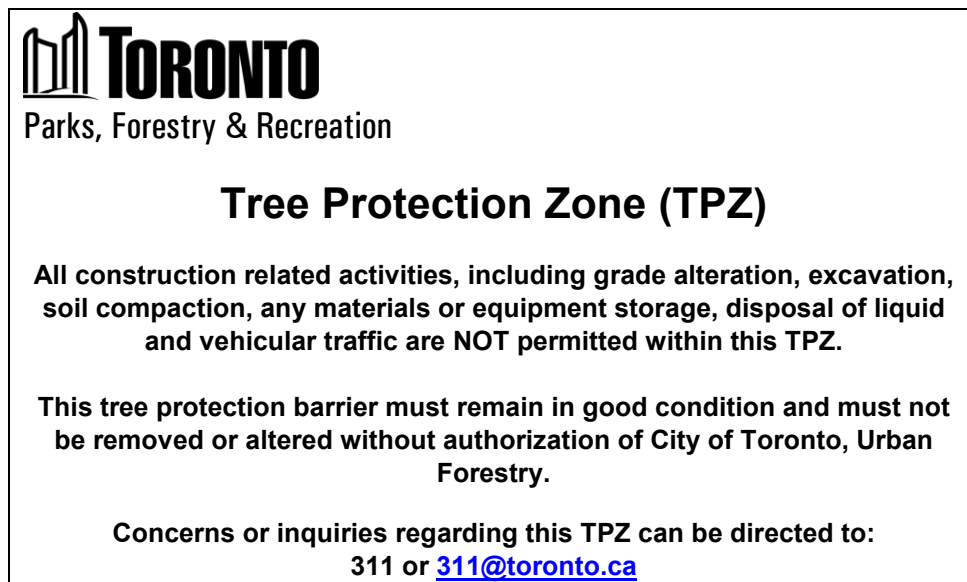


Figure 3: Tree Protection Sign

A sign that is similar to the illustration above may be required to be mounted on all sides of a tree protection barrier for trees protected by the Street Tree By-law and the Private Tree By-law. The sign should be a minimum of 40cm x 60cm and made of white corrugated plastic board or equivalent material. The sign may also be acquired from Urban Forestry Tree Protection and Plan Review (TPPR) district service counters.

5. Tree Protection Plan

All construction related applications must include a Tree Protection Plan that shows details of tree protection, prepared in conjunction with an arborist report or in consultation with an arborist, when protected trees are in proximity to the proposed work. All Tree Protection Plans must be legible, prepared at a usable metric scale and include the following information:

- Show all existing buildings, structures, hard surfaces and all existing trees within the area of consideration (as defined in Section 2 of this document). Depending on the extent of site disturbance, trees on neighbouring properties may need to be included. Note that area of disturbance must include all areas that will be disturbed by the proposed work, including the areas required for over-dig, stockpiling, construction traffic, vehicular access and construction staging
- The extent of the crown (drip line) or the extent of minimum tree protection zone TPZ (whichever is greater) of each existing tree
- Proposed changes on site, including all proposed structures, services, hard surfaces and grade changes
- Indicate vehicular access and construction staging areas. Areas proposed for temporary stockpiling of fill or excavated material shall be fenced with sediment control to prevent sediment runoff
- Indicate location of any excavation that requires root pruning
- Indicate trees proposed to be removed and/or injured
- Highlight and label tree protection barriers and the proposed tree protection zones. (See Table 1 to determine size of tree protection zone. Distances are to be measured from base of tree)
- The extent of proposed tree injury, where applicable.
- Include a comprehensive legend

See Section 6, Tree Protection Plan Notes, and Section 7, Tree Protection Plan Details, for further information.

6. Tree Protection Plan Notes

The following notes are to be included on tree protection plans submitted for construction related applications:

General Notes

- It is the applicants' responsibility to discuss potential impacts to trees located near or wholly on adjacent properties or on shared boundary lines with their neighbours. Should such trees be injured to the point of instability or death the applicant may be held

responsible through civil action. The applicant would also be required to replace such trees to the satisfaction of Urban Forestry

- Tree protection barriers shall be installed to standards as detailed in this document and to the satisfaction of Urban Forestry
- Tree protection barriers must be installed using plywood clad hoarding (minimum 19mm or ¾" thick) or an equivalent approved by Urban Forestry
- Where required, signs as specified in Section 4, Tree Protection Signage must be attached to all sides of the barrier
- Prior to the commencement of any site activity such as site alteration, demolition or construction, the tree protection measures specified on this plan must be installed to the satisfaction of Urban Forestry
- Once all tree/site protection measures have been installed, Urban Forestry staff must be contacted to arrange for an inspection of the site and approval of the tree/site protection requirements. Photographs that clearly show the installed tree/site protection shall be provided for Urban Forestry review
- Where changes to the location of the approved TPZ or sediment control or where temporary access to the TPZ is proposed, Urban Forestry must be contacted to obtain approval prior to alteration
- Tree protection barriers must remain in place and in good condition during demolition, construction and/or site disturbance, including landscaping, and must not be altered, moved or removed until authorized by Urban Forestry
- No construction activities including grade changes, surface treatments or excavation of any kind are permitted within the area identified on the Tree Protection Plan or Site Plan as a minimum tree protection zone (TPZ). No root cutting is permitted. No storage of materials or fill is permitted within the TPZ. No movement or storage of vehicles or equipment is permitted within the TPZ. The area(s) identified as a TPZ must be protected and remain undisturbed at all times
- All additional tree protection or preservation requirements, above and beyond the installation of tree protection barriers, must be undertaken or implemented as detailed in the Urban Forestry approved arborist report and/or the approved tree protection plan and to the satisfaction of Urban Forestry
- If the minimum tree protection zone (TPZ) must be reduced to facilitate construction access, the tree protection barriers must be maintained at a lesser distance and the exposed portion of TPZ must be protected using a horizontal root protection method approved by Urban Forestry
- Any roots or branches indicated on this plan which require pruning, as approved by Urban Forestry, must be pruned by an arborist. All pruning of tree roots and branches must be in accordance with good arboricultural practice. Roots that have received approval from Urban Forestry to be pruned must first be exposed using pneumatic (air) excavation, by hand digging or by using low pressure hydraulic (water) excavation. The water pressure for hydraulic excavation must be low enough that root bark is not damaged or removed. This will allow a proper pruning cut and minimize tearing of the roots. The arborist retained to carry out crown or root pruning must contact Urban Forestry no less than three working days prior to conducting any specified work
- The applicant/owner shall protect all by-law regulated trees in the area of consideration that have not been approved for removal throughout development works to the satisfaction of Urban Forestry

- Convictions of offences respecting the regulations in the Street Tree By-law and Private Tree By-law are subject to fines. A person convicted of an offence under these by-laws is liable to a minimum fine of \$500 and a maximum fine of \$100,000 per tree, and /or a Special Fine of \$100,000. The landowner may be ordered by the City to stop the contravening activity or ordered to undertake work to correct the contravention
- Prior to site disturbance the owner must confirm that no migratory birds are making use of the site for nesting. The owner must ensure that the works are in conformance with the Migratory Bird Convention Act and that no migratory bird nests will be impacted by the proposed work

The following additional notes shall be added on plans for properties regulated by the Ravine and Natural Feature Protection Bylaw:

- Ravine and Natural Feature Protection By-law (RNFP) note:

Ravine & Natural Feature Protection By-law

The Ravine & Natural Feature Protection By-law, Chapter 658 of the City of Toronto Municipal Code, regulates the injury and destruction of trees, dumping of refuse and changes to grade within protected areas.

Under this by-law protected trees may not be removed, injured or destroyed, and protected grades may not be altered, without written authorisation from Urban Forestry Ravine & Natural Feature Protection, on behalf of the General Manager of Parks, Forestry & Recreation.

Convictions of offences respecting the regulations in the Ravine and Natural Feature Protection By-law are subject to fines, and the landowner may be ordered by the court to restore the area to the satisfaction of the City. A person convicted of an offence under this Bylaw is liable to a minimum fine of \$500 and a maximum fine of \$100,000 for each tree destroyed, a maximum fine of \$100,000 for any other offence committed under this chapter, and /or a Special Fine of \$100,000. A person convicted of a continuing offence, including failure to comply with ravine permit conditions is liable to a maximum fine of not more than \$10,000 for each day or a part of a day that the offence continues.

- The exact location of the limit of the RNFP area must be shown on all pertinent plans including Tree Protection Plan. The applicant/owner shall have this limit marked on their survey or other plans drawn to a suitable scale. This service costs \$72.37 plus tax and can be requested by contacting the City of Toronto, Information and Technology, Geospatial Competency Centre, Map Service Counter at 416-392-2506 or mapsales@toronto.ca. This line may then be transferred onto other plans to be submitted.
- Sediment control fencing shall be installed in the locations as indicated in the Urban Forestry approved sediment control plan. The sediment control fencing must be installed to Ontario Provincial Standards (OPSD-219.130, see Section 7, Figure 5) and to the satisfaction of Urban Forestry. Sediment control near trees and over root zones shall be installed as shown on Figure 6 of this document and to the satisfaction of Urban Forestry.

7. Tree Protection Plan Details

The following diagrams provide details for tree protection barriers and sediment protection barriers:

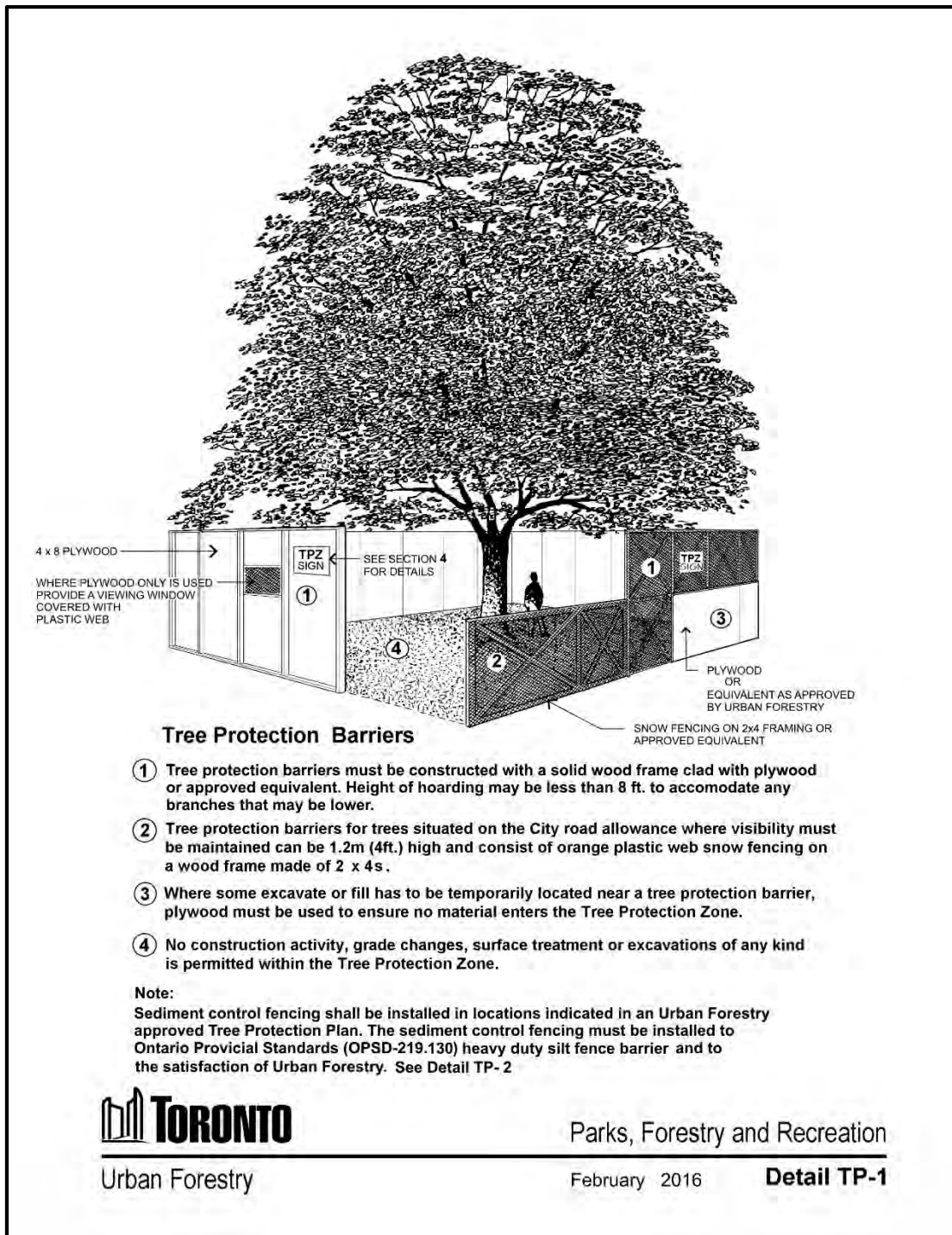


Figure 4: Urban Forestry Detail TP-1

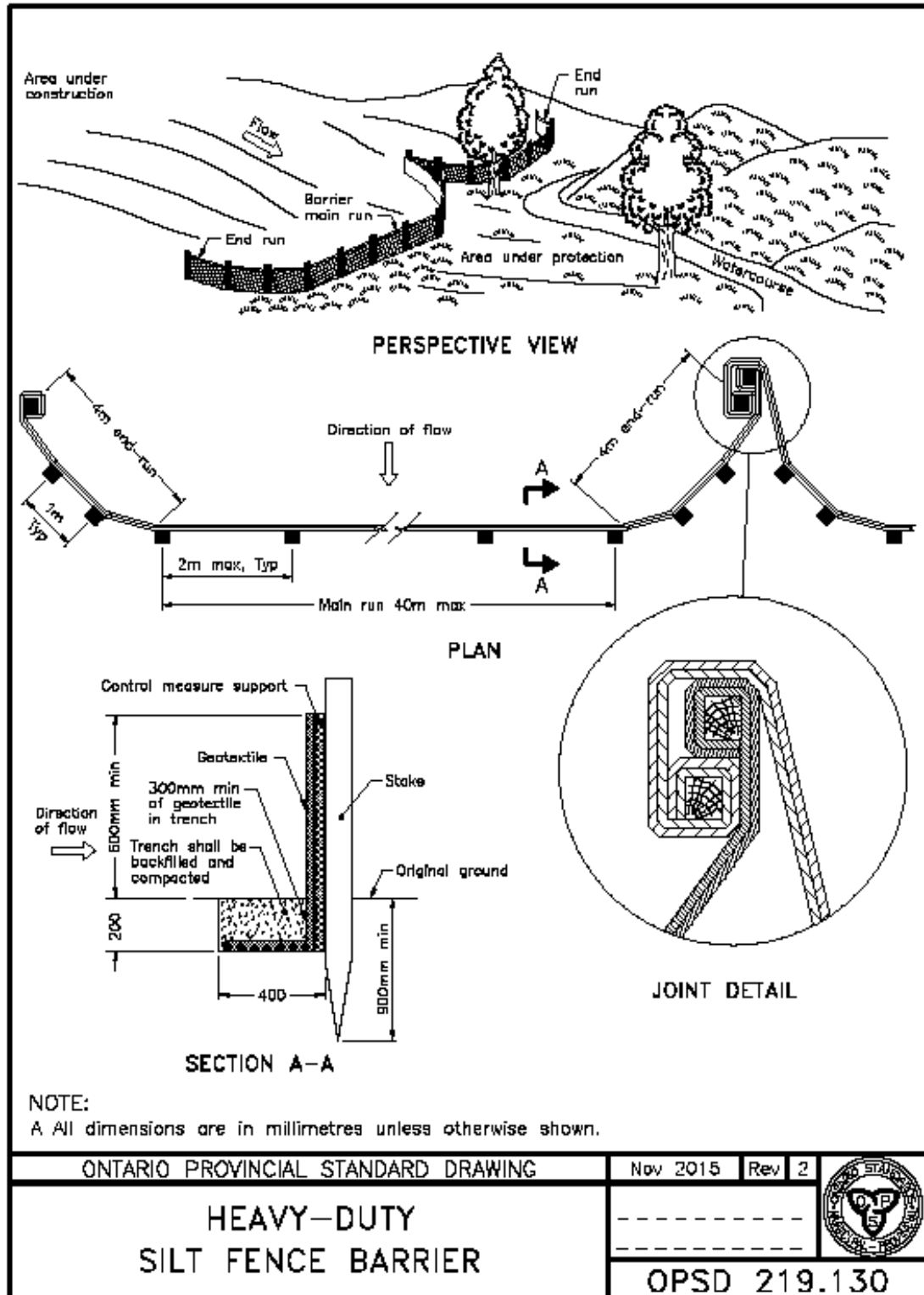


Figure 5: OPSD Detail for Heavy Duty Silt Fence Barrier

The following detail shall be used when constructing sediment protection fencing near trees.

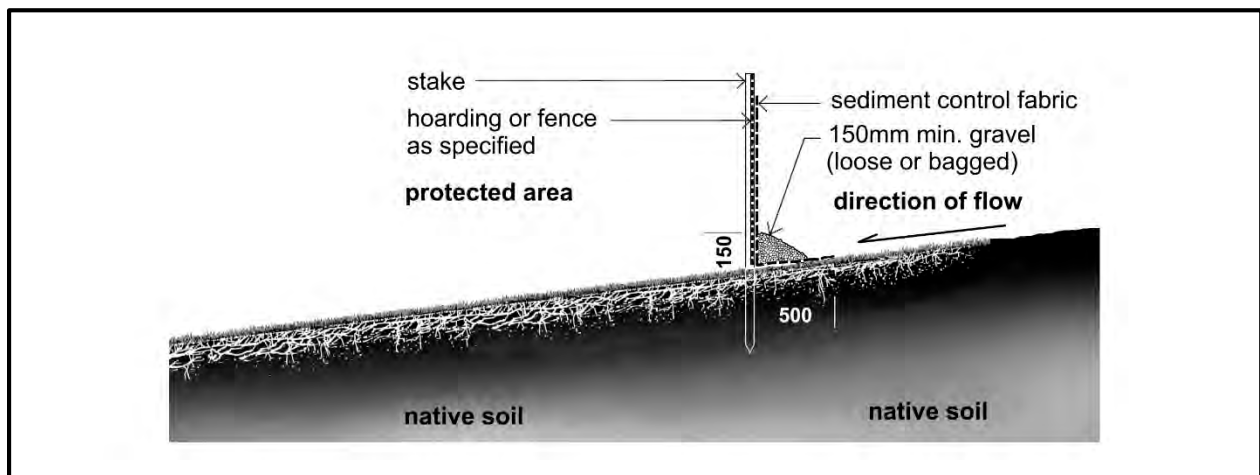


Figure 6: Sediment control barriers for use over tree root zone

8. Permits for Tree Removal or Injury

If the full minimum tree protection zone (TPZ) as identified in Section 2 cannot be provided, a permit to injure the tree must be obtained.

Any requests for removal or injury of a tree protected by City by-laws must be made on the appropriate application forms and submitted to Urban Forestry at the appropriate address. [Permit application forms](#) are available at www.toronto.ca/trees. Any requests for tree relocation will be considered as a tree injury.

If approval is granted for removal of a City-owned tree, applicants will assume all costs involved, which include appraised tree value, removal, and tree replacement costs. If approval is granted for removal of private trees or trees in ravine and natural feature protected areas, the permit will be subject to conditions, including tree replacement. If approval is granted for injury of City-owned, private trees or trees in ravine and natural feature protected areas, the permit will be subject to conditions, including implementation of a Tree Protection Plan, as determined by Urban Forestry.

In some instances, where the tree is healthy and the management of the tree or forest cover has not been addressed to the satisfaction of Urban Forestry, requests received by Urban Forestry may be forwarded to a Community Council and City Council for approval.

Urban Forestry does not have the authority to issue a permit to injure or remove a heritage tree². Such requests would be forwarded to a Community Council and/or City Council for approval.

Butternut (*Juglans cinerea*, L.) is an endangered species. Butternuts and their habitat are protected under [Endangered Species Act](#) (S.O. 2007, c.6) available on the Government of Ontario website at <http://www.ontario.ca/laws/statute/07e06/v1>. A permit to injure or remove a butternut tree must be obtained from the [Ministry of Natural Resources and Forestry Ontario](#).

² Heritage Tree – A tree that has been designated under Part IV of the Ontario Heritage Act or trees recognized as heritage trees by the Ontario Heritage Tree Program of Trees Ontario.

Any person who contravenes any provision of the City's tree protection by-law is guilty of an offence.

More information on tree protection and permit application forms for tree removal and injury are available on Urban Forestry web page at www.toronto.ca/trees.

For additional information regarding the removal or injury of trees protected under City by-laws, please call 311.

9. Tree Guarantee Deposits

Tree Protection Guarantee

Urban Forestry may request a **tree protection guarantee** to secure the protection of trees that may be impacted by work on city streets, or to secure the satisfaction of all conditions of permit issuance. Tree protection guarantees held by the City shall only be released by the City provided that all construction activities are complete, compliance with all permit terms and conditions has been verified, there has been no encroachment into the minimum tree protection zone (TPZ) and the trees are healthy and in a state of vigorous growth.

Where Urban Forestry has confirmed an unauthorized encroachment into the TPZ or the terms and conditions of a permit have not been complied with, Urban Forestry will retain the guarantee until satisfactory compliance.

It is the applicant's responsibility to submit a written request to Urban Forestry for the refund of the tree protection guarantee deposit as soon as construction and landscaping is completed.

Tree Planting Security

Urban Forestry may request a **tree planting security deposit** in an amount equal to the cost of planting and maintenance for two (2) years in order to ensure compliance with approved landscape or replanting plans. The security deposit may be held by the City after the planting of the trees for a period of two (2) years and shall be released by the City provided that the trees have been maintained, are healthy and in a state of vigorous growth upon inspection, two (2) years after planting. It is the applicant's responsibility to advise Urban Forestry that trees have been planted in accordance with approved plans, in order that the two (2) year maintenance period begin.

Prior to release by the City, any dead/dying trees must be replaced, deadwood and sucker growth should be pruned, and mulch should be topped up where necessary. If stakes and ties were used, they must be removed within one (1) year. Any encroachments are to be removed prior to assumption, including walkways, timbers or bricks that result in increased height of soil or mulch around the trees, and lights in trees.

It is the applicant's responsibility to submit a written request to Urban Forestry for the refund of a Tree Guarantee Deposit, two (2) years after the completion of all construction activity and/or two (2) years after tree planting. This request should be made during the growing season, not while

the trees are dormant, so that a site inspection can be arranged to confirm the trees are acceptable. The City will not release security deposits where trees are not in good condition, or if there are encroachments.

Financial securities must be in the form of a certified cheque, letter of credit or an alternative acceptable to Urban Forestry, with amounts payable to the Treasurer, City of Toronto.

10. Emergency Repairs to Utilities

The utility company is responsible for notifying Urban Forestry by calling 311 as soon as possible when by-law regulated trees are involved, so that an inspector can be dispatched. Urban Forestry staff may be contacted after hours by calling 311, and requesting the assistance of an on-call Urban Forestry inspector.

11. Tree Species that are Intolerant of Construction Disturbance

The following tree species are intolerant of construction disturbance, and tree protection plans must take this into account. The tree protection zones required by these species may need to be quite extensive to avoid damage to the roots and crown associated with compaction, excavation or construction above grade that will impact the branches.

Acer rubrum (red maple)
Acer saccharum (sugar maple)
Betula papyrifera (paper birch)
Carya glabra (pignut hickory)
Fagus grandifolia (American beech)
Liriodendron tulipifera (tulip tree)
Ostrya virginiana (ironwood)
Pinus resinosa (red pine)
Pinus strobus (white pine)
Prunus serotina (black cherry)
Quercus alba (white oak)
Quercus velutina (black oak)
Tsuga canadensis (eastern hemlock)
Tilia americana (basswood)

12. Contact Information

Tree Protection and Plan Review (City-owned and Private Trees)

North York District

5100 Yonge Street, 3rd Floor
Toronto, ON, M2N 5V7
Telephone: 416-395-6670
Fax: 416-395-7886
tpprnorth@toronto.ca

Etobicoke York District

399 The West Mall, Main Floor, North Block
Toronto, ON, M9C 2Y2
Telephone: 416-338-6596
Fax: 416-394-8935
tpprwest@toronto.ca

Scarborough District

150 Borough Drive, 5th Floor
Toronto, ON, M1P 4N7
Telephone: 416-338-5566
Fax: 416-396-4170
tppreast@toronto.ca

Toronto and East York District

50 Booth Avenue, 2nd Floor
Toronto, ON, M4M 2M2
Telephone: 416-392-7391
Fax: 416-392-7277
tpprsouth@toronto.ca

Ravine and Natural Feature Protection

General Enquiries

Telephone: 416-392-2513
Fax: 416-392-1915
Email: rnfp@toronto.ca

Office Location

18 Dyas Road, 1st Floor
Toronto, ON, M3B 1V5

Areas regulated under Ravine and Natural Feature Protection By-law can be viewed using the [City's mapping tool](#) available at www.toronto.ca/trees.