MEMO

SQUAMISH
HARDWIRED *for* ADVENTURE

Tree Protection Barriers

Prior to any construction, demolition, excavation, or installation works and services occurring on a parcel, **tree protection barrier**(s) shall be installed (specifications below).

Tree fencing protects trees from disruption, injury, or damage to trunks, branches, and roots – all of which can impact the health and survival of a tree.

What Trees Need Tree Protection Fencing?

- trees for retention
- *Significant Trees*: trees with a diameter at breast height (DBH) of 80 cm or more
- *Replacement Trees*: trees required to be planted and maintained in accordance with the Tree Management Bylaw, No.2640, 2018
- trees with evidence of migratory bird nesting or use by raptors, osprey, or heron
- trees on District property

Notes on Critical Root Zones (CRZ)

Disturbing or cutting roots in a CRZ may be unavoidable. In such cases, the work should be done only under the on-site supervision of a Certified Arborist.

Cutting or disturbing a large percentage of a tree's roots increases the likelihood of the tree's failure or death. Never cut tree roots that are more than four inches wide; roots that large are usually structural. Cutting them can destroy the stability of the tree, causing it to fall over!

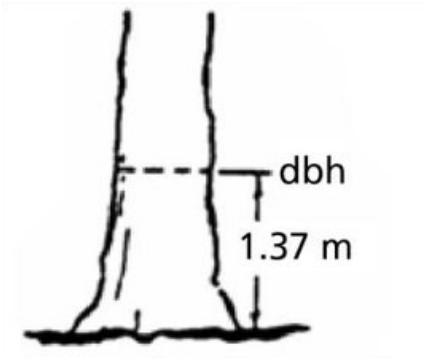
If you must cut tree roots, do so cleanly with sharp tools. Never tear with a backhoe or other dull instrument. A clean cut encourages good wound closure and confines the spread of decay. If damage is severe, consider removing the tree because its stability may have been compromised.

How to Measure Diameter at Breast Height

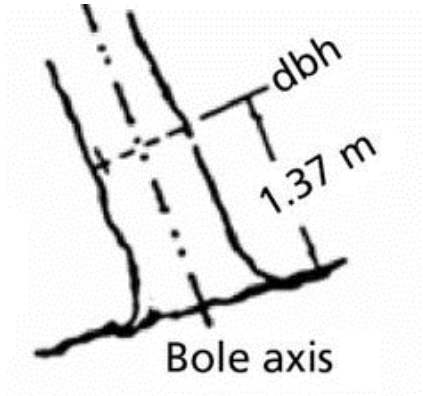
Diameter at Breast Height (DBH) is the standard for measuring trees. DBH refers to the tree diameter measured at 1.37 m (4.5 feet) above the ground.

Measuring Trees on Level Ground
DBH can be measured using a calibrated diameter tape, or d-tape, that displays the diameter measurement when wrapped around the circumference of a tree. If you do not have a d-tape you can find the diameter using a measuring tape, a string, a thumbtack, and a calculator.

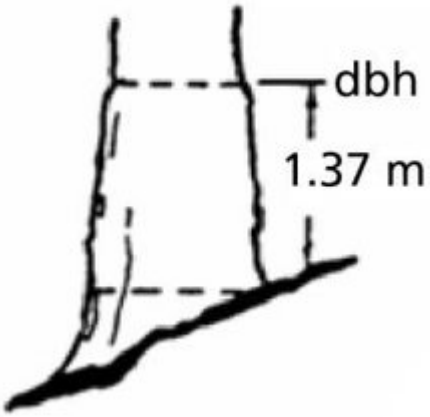
1. With the measuring tape, measure 1.37 m up the trunk of the tree from the ground.
2. Mark the height on the tree with the thumbtack.
3. Wrap the string around the tree at the 1.37 m mark. Make sure it is straight and tight.
4. Measure the length of the string to get the *circumference*.
5. Convert the circumference measurement to *diameter* by dividing the circumference by pi (3.14).



Measuring Trees on an Angle
When the trunk is at an angle, the trunk is measured at a right angle to the trunk 1.37 m along the centre of the trunk axis. Repeat steps 2-5 above.

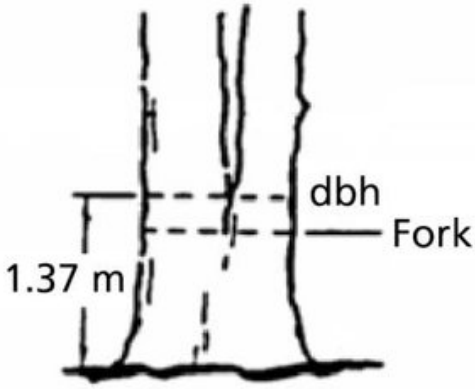


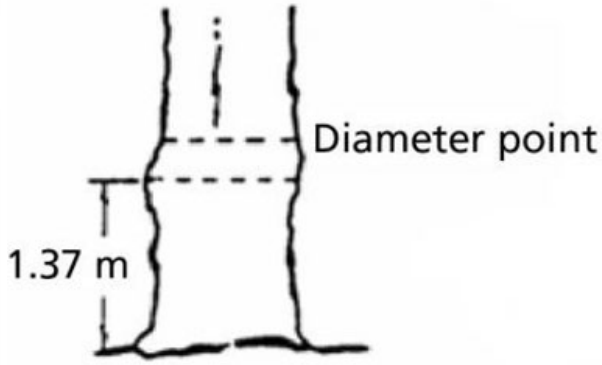
Measuring Trees on a Slope
When the trunk is at a slope, the trunk is measured 1.37 m up the trunk of the tree on the uphill side of the tree. Repeat steps 2-5 above.



Measuring Trees with a Split Trunk

When the trunk branches or splits less than 1.37 m from the ground, measure the smallest circumference below the lowest branch. If the tree has a branch or a bump at 1.37 m, it is better to measure the diameter slightly below or above the branch/bump. Repeat steps 2-5 above.

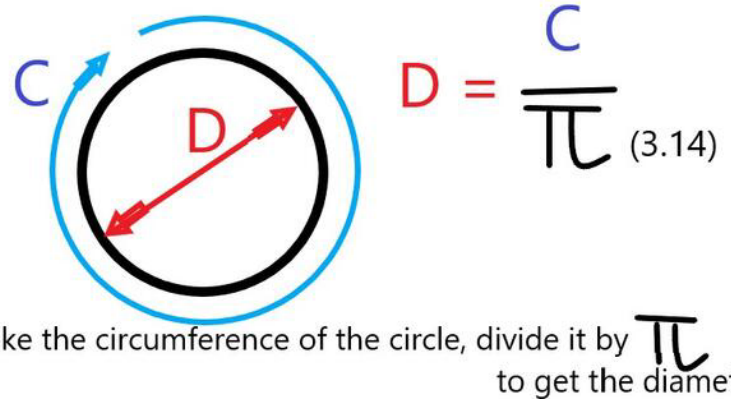




Measuring Multi-stemmed Trees

Measure the diameter of the trunk 30 cm up the trunk of the tree from the ground. Note on your survey or plan that the tree is multi-stemmed. Repeat steps 2-5 above.

Finding the Diameter from the Circumference



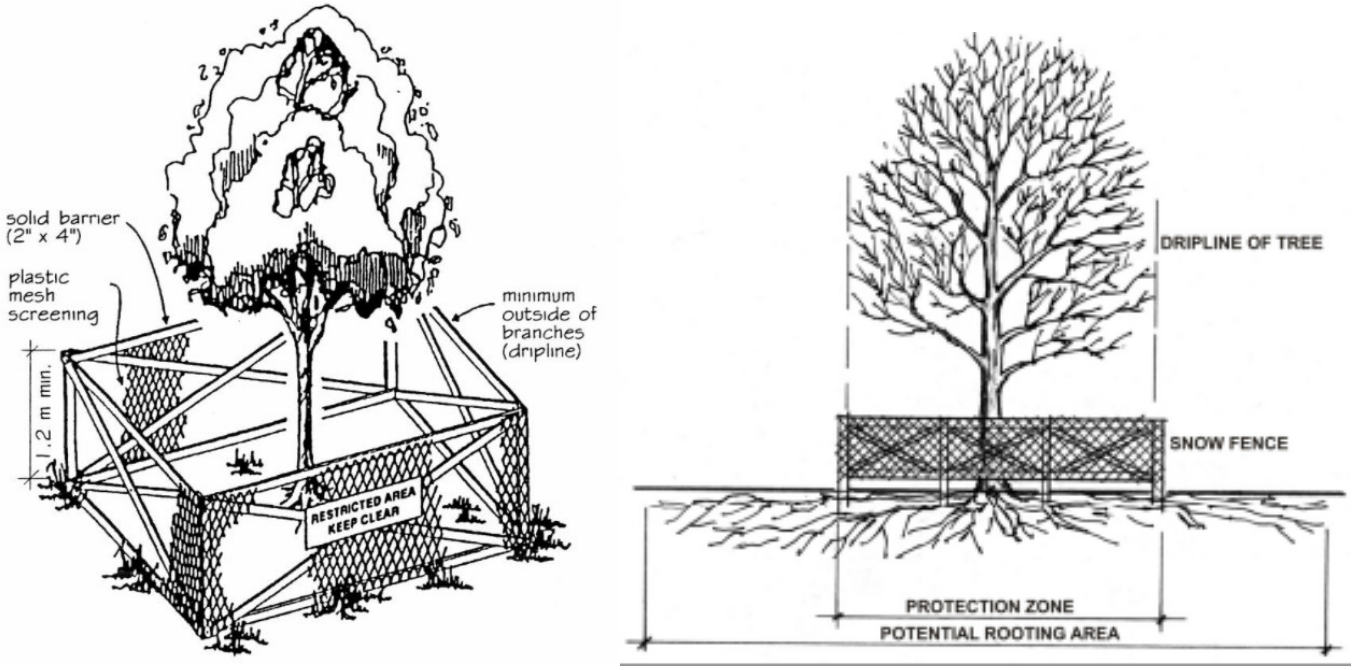
Tree Protection Barrier Specification:

1. The fence to be a minimum of 1.2 m (4') in height.
2. 2 x 4"s or rebar to be used for vertical posts, top and bottom rails, and cross bracing (in an "X").
3. Spacing between vertical posts to be no father apart than 3.7 m (12') on centre.
4. Structure must be sturdy with vertical posts driven firmly into the ground.
5. Continuous plastic mesh screening (e.g., orange snow fencing) to be secured to wood frame.
6. Signage shall be displayed every 15 m indicating that the area within the protection barrier is a "Protection Zone" and stating that no encroachment; no storage of materials or waste; no grade changes; no dumping or filling, digging, or excavating is permitted within the protection zone (sample signage attached). **Signage to remain in place for the duration of construction**.
7. Barriers must be built to a minimum distance of six times the tree diameter at breast height. Minimum protection zones outlined in table below:

According to the ISA website, minimum tree protection zones (TPZ) should be calculated as:

- for every 2.5 cms of trunk diameter at dbh, add 30 cms of area to minimum protection zones.
- Online calculator for DBH and TPZ found here.

Trunk Diameter (DBH) measured at 1.37 m from the ground	**Protection Zone** minimum fence distance from tree
20 cm	2.4 m
25 cm	3.0 m
30 cm	3.6 m
35 cm	4.2 m
40 cm	4.8 m
45 cm	5.4 m
50 cm	6.0 m
55 cm	6.6 m
60 cm	7.2 m
75 cm	9.0 m
90 cm	10.8 m
100 cm	12.0 m



Tree Protection Barrier Examples

Tree Protection Barrier Inspection

Prior to works commencing, documentation of installed tree protection barriers is required. For permits where ≥5 trees are proposed for removal, the inspection must be carried out by a Qualified Professional. Documentation via email of tree protection barriers can be sent to environment@squamish.ca (copy the permit issuer). Include the following information:

- Contact name, phone number, and email
- Address
- Permit number(s)
- Written confirmation from QEP or arborist of installed tree protection barriers and signage
- Photographs from QEP or arborist of installed tree protection barriers and signage

Maintaining your Tree Protection Barriers

Tree protection barriers must be installed and maintained throughout the entire construction process. Barriers that fall over or are in disrepair must be fixed immediately. If you do not maintain your barriers, you could be fined or have a "Stop Work" placed on your property. Broken down or fallen over barriers may also delay permit issuance for the project.

When can I Remove the Tree Protection Fencing?

Tree protection fencing must remain intact and in place until the removal of the tree protection barrier is approved by District of Squamish Environmental Services.

Typically, this is when construction, demolition, excavation, installation works and services, landscaping and restoration, or other works are finished on the parcel.

TREE PROTECTION ZONE

NO ENTRY

NO GRADE CHANGES, DUMPING, OR FILLING

NO STORAGE OF MATERIALS OR WASTE

NO DIGGING OR EXCAVATING

TREE PROTECTION BARRIER MUST REMAIN IN PLACE FOR THE DURATION OF CONSTRUCTION

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