



STREETS CABINET

PUBLIC SHADE TREE

FIELD PROTECTION GUIDANCE

This guidance applies to all City contractors, utility companies, and Public Works crews performing work within the public right-of-way. This guide is intended for field use and provides practical steps crews can use to Protect Public Shade (trees) during construction projects that go no further than the base of the sidewalk or roadway (e.g. typical sidewalk repairs and paving). If the project includes utility work or excavation below the base please contact the Parks Department for further guidance. Public shade trees include any tree located in the public right-of-way (ROW) or along its boundary.

Use this guide to protect trees, minimize ROW project delays and stay in compliance with governing requirements. Tree pits in the ROW shall be constructed to the maximum extent feasible in conformity with all governing laws and regulations, namely the American with Disabilities Act (ADA); Public Right of Way Accessibility Guidance (PROWAG); and 521 CMR. et. al.

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A. GOAL

Protect trees, city assets, and public safety by avoiding damage from:

- Heavy equipment, Excavators, Dump Trucks;
- Material storage or equipment staging within the CRZ of a tree;
- Soil compaction;
- Do not cut roots greater than 2” in diameter without approval from the tree warden;
- Broken tree limbs from Heavy equipment and trucks;
- Heat/Exhaust damage to tree canopies from equipment; AND
- Urban forestry planning.

Keep both people and trees safe by setting tree protection early, following established procedures, and using good judgment.

Contact the Tree Warden immediately if:

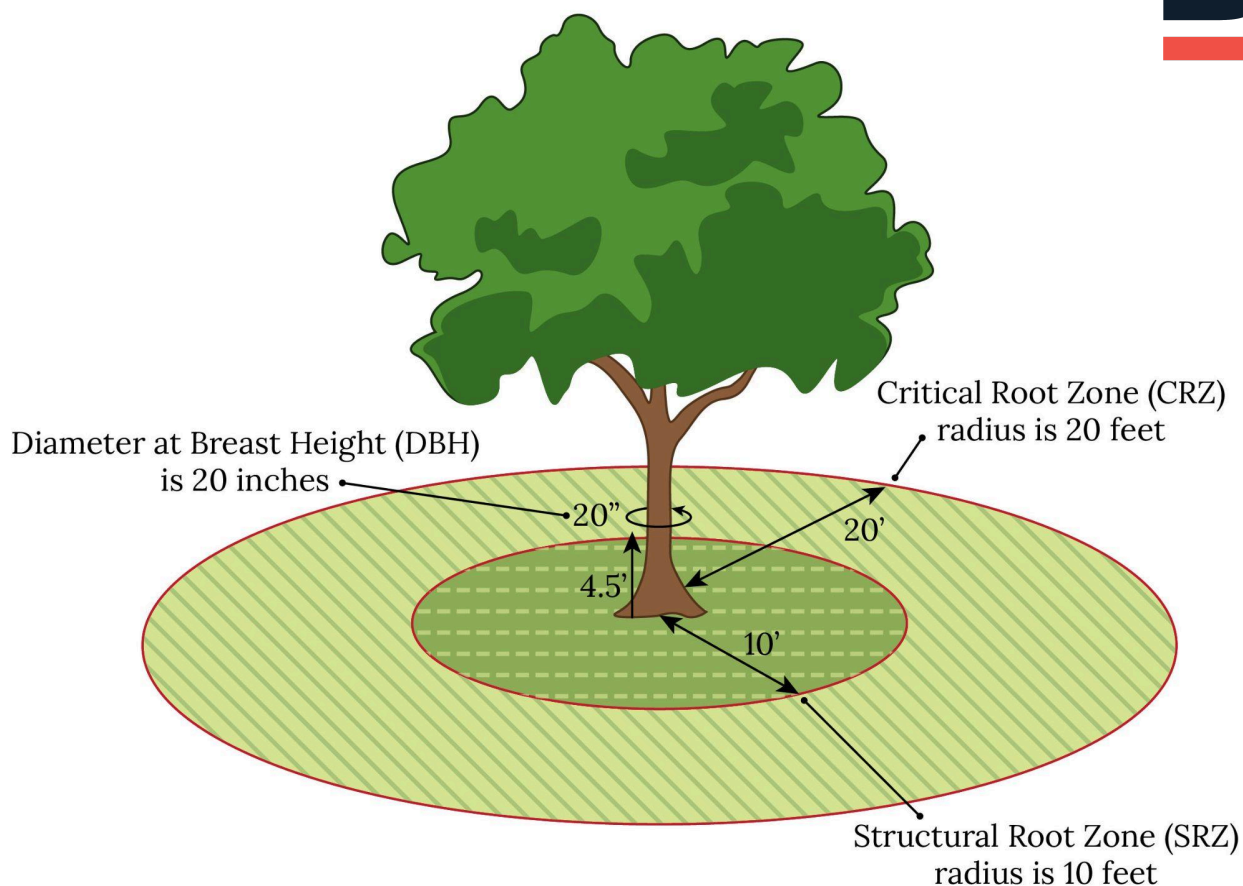
- Work occurs within the CRZ
- Roots greater than 2” are encountered
- Tree pruning is required
- Tree removal is being considered
- Tree damage occurs

B. KEY TERMS

Tree Warden: The City Arborist responsible for all public shade trees in the ROW, including enforcement of MGL Chapter 87 and approval of tree-related work.

Public Shade Tree: Any tree rooted within the ROW or within a project area, or that may be affected by a project area construction, which has not been designated for removal by the Tree Warden, and for which precautions must be taken to ensure its existing health and survival throughout the course of a construction project.

Critical Root Zone: The Critical Root Zone (CRZ) is the area of soil immediately surrounding the tree trunk that contains its most important roots responsible for the greatest significance to the tree health and stability.



DBH = Tree trunk diameter at 4.5 feet above grade.
CRZ = Radius protection of 1 foot per inch of DBH.
SRZ = Radius protection of 1/2 foot per inch of DBH.

CRZ = 1 foot radius per 1 inch DBH

Example: 20" DBH = 20 ft radius

Determining CRZ area:

- First measure the diameter from the breast height (DBH); then
- The CRZ extends one foot for every inch of DBH, in all directions from the trunk.

Example: A 20" DBH tree shall have a TPZ of 20' in radius surrounding the tree trunk (20" DBH x 1' Tree Protection Factor = 20' radius CRZ).

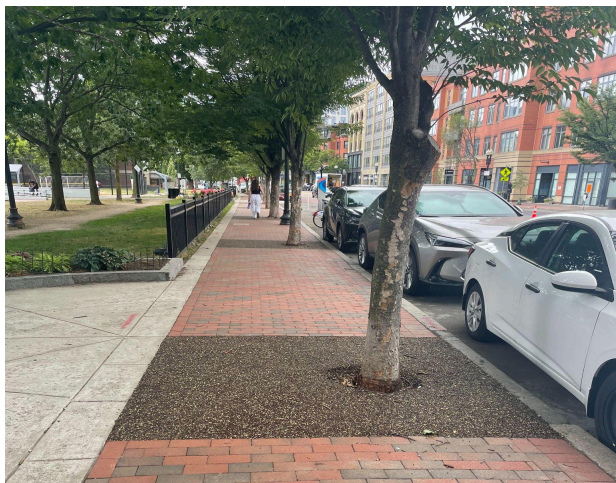
C. TREE PLANTING, REPLANTING AND PIT INSTALLATION

1. PLANTING RESTRICTIONS

Do not plant or replant trees:

- On top of underground utilities;
- Within 15ft of a utility pole; or
- In the "wing" area of a pedestrian ramp or no less than 20 feet from the end of the wing or Point of Curvature (PC) to the edge of the tree pit.

2. PERMEABLE RESIN BOUND AGGREGATE



Permeable resin bound aggregate may be used as a ground cover when necessary to achieve accessibility compliance while preserving the tree. Such as, in conditions where existing tree roots interfere with sidewalk installation. If PROWAG requirements cannot be achieved, vendors should contact the City to seek guidance before taking action affecting trees or tree pits and ROW.

D. WORKING NEAR TREES

1. TRUNK PROTECTION

When protecting a tree you may either:

- Install vertical 2x4 boards from ground level to at least 8 feet in length with a maximum spacing of 2" between each board without nails or fasteners penetrating the tree; or
- Install corrugated PVC tubing encompassing the tree's circumference.



2. TREE PROTECTION FENCING

For certain projects Tree Protection (TP) fencing is required and must be installed in accordance with Figures TP 1.1, TP 1.2, and TP 1.3 at the end of this document. Please note that for most sidewalk repairs, fencing will not be required. Please refer to tree protection guidelines in the contract to determine whether fencing is necessary.



When installing TP fencing, place the fence at the outer edge of the CRZ. This fenced area should be preapproved by the Tree Warden. Take care not to store any materials within the CRZ.

Be mindful not to disturb the CRZ even when the contract documents do not require TP Fencing.

3. MACHINERY AND REMOVAL OF SURFACE SIDEWALK MATERIALS

Machinery use: Standard excavators like a gradall, are used when space permits without damaging adjacent trees above or below ground.



In areas with restricted space, a smaller excavator should be used to avoid damaging trees and the surrounding ROW. Staging within the CRZ is explicitly prohibited.

Take care to keep equipment, exhaust, and boom arms clear of tree limbs and tree trunks to avoid damaging the tree during excavation.

The Tree Warden should be contacted when construction activities may impact the CRZ.



Avoid soil compaction in the CRZ by properly positioning equipment and not compacting the soil around the tree with equipment or the storage of materials.

Sidewalk Material Removal:

- Remove sidewalk panels carefully using hand tools or controlled equipment to avoid root damage.
- Inspect the underside of sidewalk material for roots.
- If roots are embedded into the sidewalk material, cut these roots cleanly with a saw—never pull or tear with the excavator.
- Never cut roots larger than 2” in diameter without the approval of the Tree Warden.

4. PROPER ROOT EXPOSURE AND EXCAVATION

Carefully excavate around the tree pit and surrounding backfill and then assess the roots to determine whether any root pruning is needed to install the new sidewalk.

Tree roots should be completely exposed and cleared with a shovel or air-wand before the Tree Warden evaluates whether root pruning will be allowed. If you observe a tree root greater than 2 inches that has been severed, call the Urban Forestry Division immediately.

TO CALL 617-635-8733 (TREE) or by emailing trees@boston.gov

5. SIDEWALK PANELS ARE UPLIFTED BY TREE ROOTS

Public Works will determine:

- Whether material can be poured to safely mitigate the sidewalk obstruction including the use of asphalt or resin bound aggregate;
 - PWD Engineer shall contact Tree Warden to discuss root pruning to allow for compliant sidewalk and PROWAG.
- Whether an alternative (see SOP) action would resolve the issue; and
- If tree removal is necessary and permitted, any additional action by PWD to ensure proper maintenance of the ROW.

Public Works must communicate with Parks before closing any tree pits. Tree removal is not an immediate justification for closing a tree pit.

The Urban Forestry Division will evaluate and approve or deny the selected solution. If the solution is unclear or ambiguous, the Tree Warden and PWD Chief Engineer should be notified to come to a resolution.



6. Pruning and Canopy Clearance

Must be pre-approved by the Tree Warden or their designee. Properly pruning trees and raising the canopy prior to construction can help protect trees from damage. If the tree is at risk from equipment or vehicles used nearby, the contractor should notify the Tree Warden two weeks prior to the commencement of work. The Contractor shall take extra caution when working within or under the canopy of a tree to avoid damaging the tree.

E. TREE REMOVAL

1. TREE REMOVAL AUTHORIZATION

If there is a concern that a tree is an obstruction or hazard, contractors must notify the Tree Warden and receive written confirmation from the Tree Warden to remove the tree.

Only dead trees or trees that pose a safety risk to the public will be permitted for removal by the Tree Warden without a Public Shade Tree Hearing being held.

2. ROOT AND STUMP REMOVAL EXPECTATIONS

When trees are authorized to be removed, the contractor shall remove roots and stumps to at least 12 inches below the surface of the sidewalk to allow for compliant grading and resurfacing.

F. DAMAGE REPORTING & LIABILITY

1. REPORTING

Contractor must report all damage immediately to the PWD resident engineer who will communicate to the Tree Warden or their designee by **calling 617-635-8733 (TREE) or by emailing Trees@Boston.gov**

2. LIABILITY

The contractor is liable for:

- \$550/inch DBH if the tree is irreparably damaged or must be replaced.
- \$500 per instance of damage to a tree including limbs, bark or root injury.
- The cost for the city to remove the damaged tree.

Urban Forestry Division (Parks Department) is responsible for:

- All trees located within the ROW
- All trees within city owned parks
- Imposing fines for damages to trees

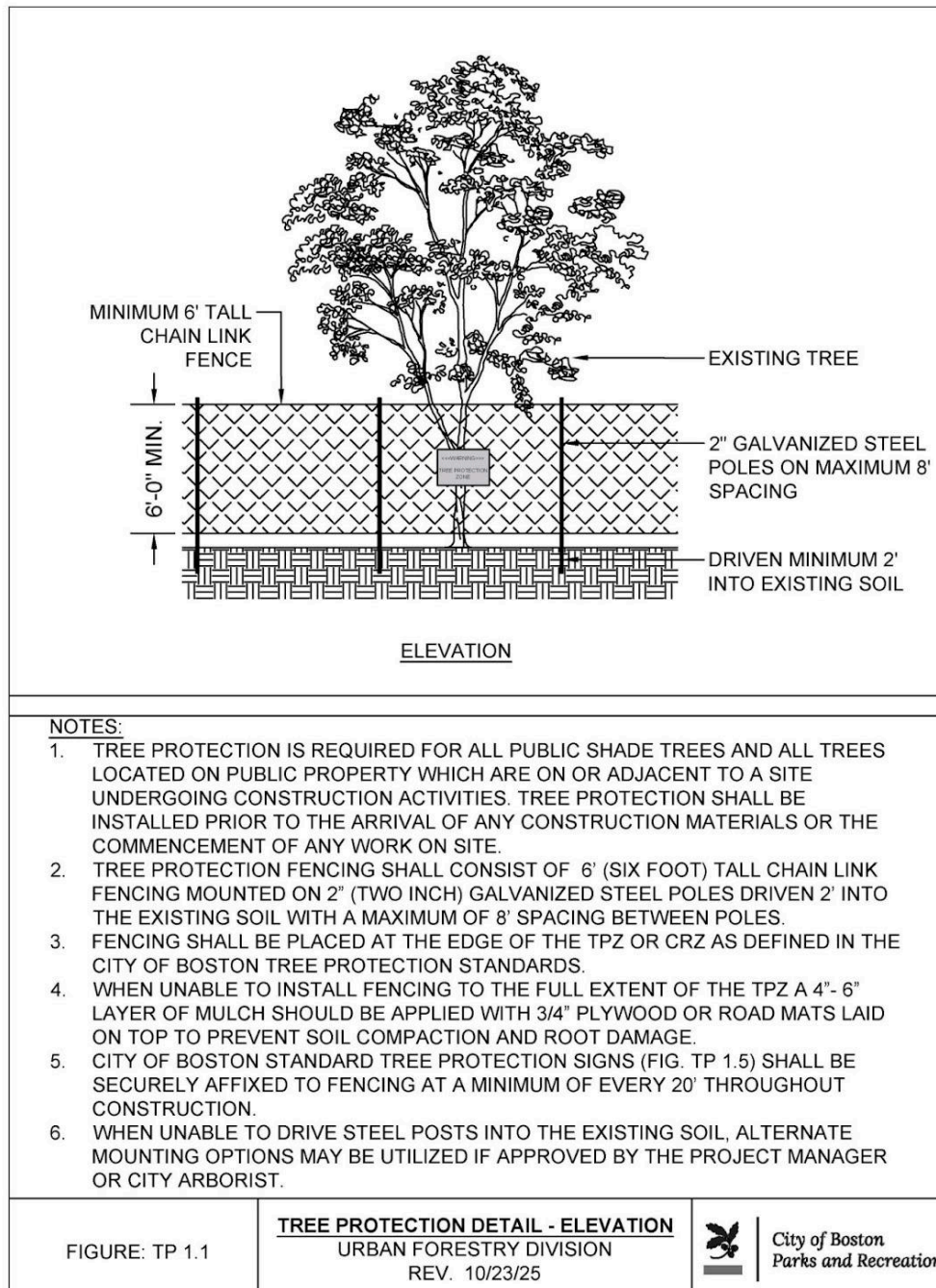
Public Works is responsible for:

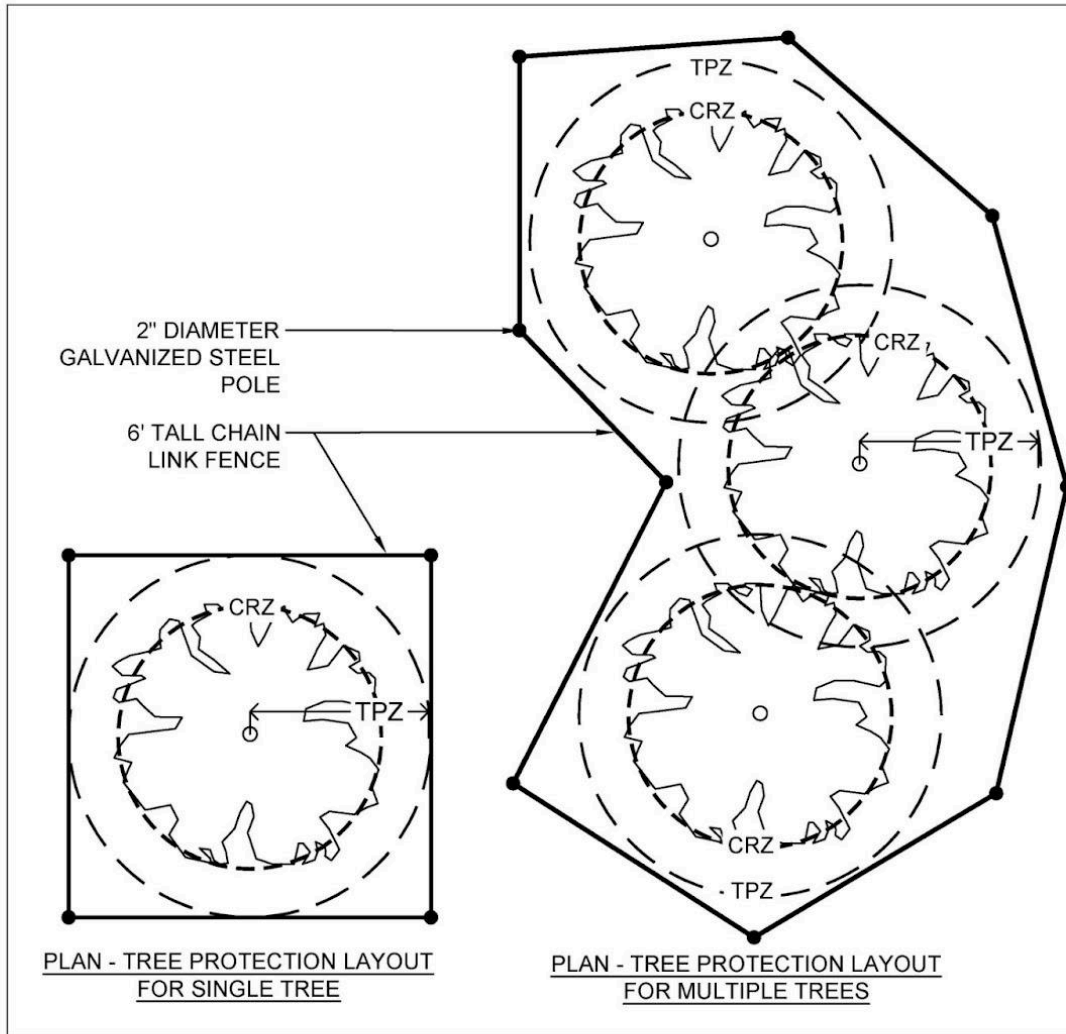
- Sidewalks/Roadway Infrastructure
- Reporting damage to trees or tree support structures caused by a PWD contractor or utility company that is given a permit to work within the ROW. Shall be reported in writing to a PWD Engineer including pictures of the damage.
- A PWD Engineer will report damage to the Tree Warden or their designee once they receive the report from the contractor.

Replacement Requirements


- Any damaged tree that must be replaced shall be maintained, watered and cared for under a 2-year warranty period, as required in the project contract.
- Sidewalk restoration work must comply with PROWAG (ROW Accessibility Guidelines), and assets must be returned in kind or better.

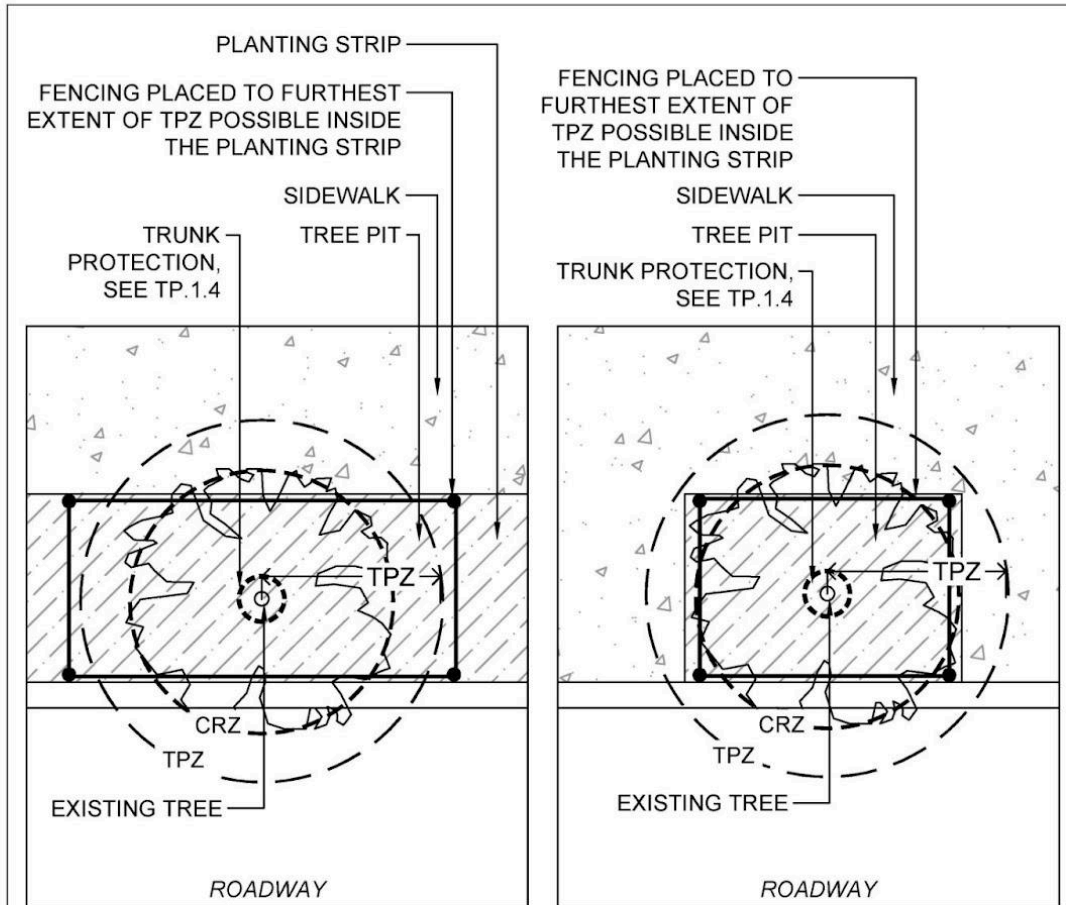
G. TREE PROTECTION INSTALLATION DETAILS





- NOTES:**
1. TREE PROTECTION FENCING SHALL BE PLACED AT OR AS CLOSE TO THE EDGE OF THE TREE PROTECTION ZONE (TPZ) OR CRITICAL ROOT ZONE (CRZ) AS POSSIBLE AS DEFINED IN THE SPECIFICATIONS.
 2. ALL TREE PROTECTION FENCING SHALL MEET ALL REQUIREMENTS AS DEFINED IN FIGURE TP 1.1.
 3. TREE PROTECTION FENCING SHALL BE INSTALLED TO FULLY ENCAPSULATE EITHER THE FULL TPZ OR CRZ OF A SINGLE TREE, OR THE ENTIRE TREE PROTECTION ZONE OF A CLUSTER OF MULTIPLE TREES.
 4. NO TREE PROTECTION FENCING IS NEEDED IN BETWEEN INDIVIDUAL TREES WHEN PROTECTING AN ENTIRE CLUSTER OF TREES.

<p>FIGURE: TP 1.2</p>	<p>TREE PROTECTION FENCE (PLAN) DESIGN AND CONSTRUCTION DIVISION REVISED 10/23/25</p>	 <p>City of Boston Parks and Recreation</p>
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NOTES

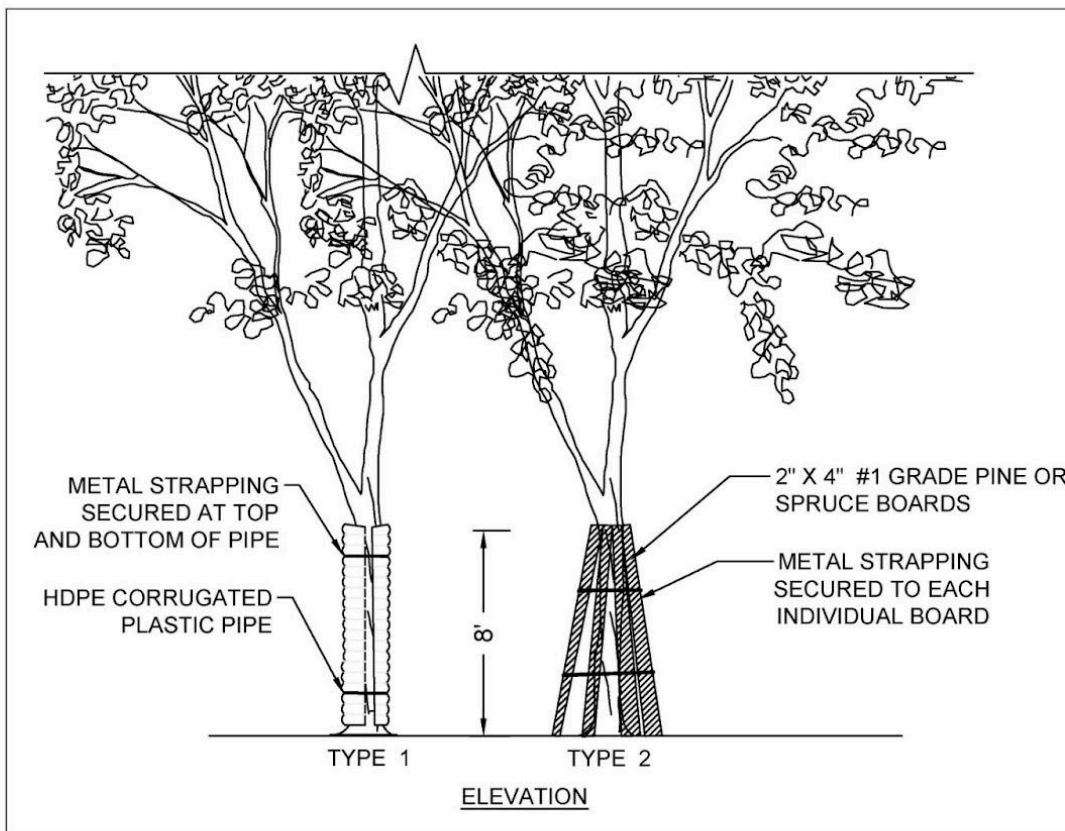
1. ALL TREE PROTECTION FENCING SHALL MEET ALL REQUIREMENTS AS DEFINED IN FIGURE TP.1.1.
2. TREE PROTECTION FENCING SHALL BE PLACED AT THE EDGE OF THE TREE PROTECTION ZONE (TPZ) OR CRITICAL ROOT ZONE (CRZ) AS DEFINED IN THE SPECIFICATIONS.
3. WHEN NOT ABLE TO INSTALL FENCING TO FULL EXTENT OF TPZ SUCH AS IN TREE PITS AND PLANTING STRIPS, FENCING SHALL BE PLACED TO FURTHEST EXTENT POSSIBLE AND A 4-6" LAYER OF MULCH SHOULD BE APPLIED TO EXPOSED SOIL INSIDE THE TPZ, BUT OUTSIDE OF THE FENCING, WITH 3/4" PLYWOOD OR ROAD MATS LAID ON TOP TO PREVENT SOIL COMPACTION AND ROOT DAMAGE. MULCH LAYERS ARE NOT NEEDED IN AREAS WHERE THERE IS EXISTING HARDSCAPE TO REMAIN.
4. TRUNK PROTECTION IS REQUIRED. REFER TO DETAIL TP.1.4.

FIGURE: TP.1.3

TREE PROTECTION FENCING AREA
 URBAN FORESTRY DIVISION
 REVISED: 10/23/25



City of Boston
 Parks and Recreation



NOTES:

1. TRUNK PROTECTION IS REQUIRED FOR ALL EXISTING TREES TO REMAIN.
2. TRUNK PROTECTION SHALL CONSIST OF TYPE 1 OR TYPE 2 TREE PROTECTION AS SHOWN ABOVE.
3. TYPE 1 SHALL BE DUAL-WALL HDPE CORRUGATED PLASTIC PIPING CUT IN HALF AND SECURED WITH METAL STRAPPING AT THE TOP AND BOTTOM OF THE PIPE. THE DIAMETER OF THE PIPE SHALL BE 4" GREATER THAN THE TREE'S DIAMETER AT BREAST HEIGHT.
4. TYPE 2 SHALL BE 2" X 4" #1 GRADE PINE OR SPRUCE BOARDS LAID VERTICALLY OVER THE TRUNK, SPACED NO MORE THAT TWO INCHES APART AND SECURED TOGETHER WITH METAL STRAPPING. NO FASTENERS SHALL BE ATTACHED DIRECTLY INTO THE TREE.
5. TRUNK PROTECTION SHALL BE 8' HT. IF BRANCHING PROHIBITS TRUNK PROTECTION TO FULL 8' HT, CONTRACTOR SHALL CONTACT CITY ARBORIST FOR ALTERNATE HT.

FIGURE:
TP 1.4

TRUNK PROTECTION DETAIL
URBAN FORESTRY DIVISION
REVISED 10/23/25



City of Boston
Parks and Recreation