Arlington County Tree Conservation Guide

The Chesapeake Bay Preservation Ordinance requires all projects with a Land Disturbance Permit to show tree conservation measures, and the Trees and Shrubs ordinance requires protection of public trees. This document is a guide on current practices, as a support manual for these ordinances, and their associated guidance material.

Tree protection details can be found at https://www.arlingtonva.us/Government/Departments/Parks-Recreation/About/Design-Standards

Maximizing conservation

For all land disturbance projects, maximizing conservation of existing woody vegetation is achieved by:

1. Involving arborist advice at the design phase, allowing for changes, before settling on architectural or site design.
2. Minimizing disturbance on the site in the plan, and particularly inside the Critical Root Zones of conserved trees.
3. Minimize changes to local hydrology, retaining flow normally received by conserved trees or providing for replacement flow.
4. Maintaining tree conservation measures until all site disturbance, including construction vehicle access, is stopped.
5. Obtaining approval for any changes to tree preservation or silt fencing from the assigned arborist.
6. Watering of conserved trees during construction.
7. Providing for after care for trees with damaged critical root zones.
8. Retain non-invasive plants within retained CRZ whenever possible. Remove plants from retained tree areas by cutting them to the ground and treating when necessary rather than digging.

Responsible tree conservation

Not all trees are good candidates for conservation. The amount of impact to a trees roots or trunk, the condition of the tree, and the species' capacity for handling damage should all be considered as a part of tree conservation. Trees should not be conserved if the post-construction condition of conserved trees could elevate risk significantly.

Consider using this report on relative tolerance of tree species to construction damage to make the best decisions for different species: Relative tolerance of tree species to construction damage

Guiding documents for conservation

The industry's leading document on tree conservation is the *ANSI A300 – Management of Trees and Shrubs During Site Planning, Site Development, and Construction.* The BMP documents associated with ANSI A300 are great resources to communicate the requirements. Arlington County has also developed construction details to expand on the interpretation of this document.

Best use of tree protection measures

Arlington County benefits from a high tree canopy percentage, which means most land disturbance projects impact trees both on and off-site, through direct or indirect damage to trunk, branches, and/or roots.

1. Project siting and design phase: Plot all tree locations and critical root zones of all trees impacted on your plan, and:
    a. Early surveys can help improve tree conservation during the project massing and footprint stage, by understanding how the project can minimize impact.
    b. Prioritize the reduction of damage near the trunk. The closer the disturbance, the higher the impact is likely to be, and this damage may destabilize a tree. Damage within 5 times the diameter of the trunk measured from the outside of the trunk (also known as the Structural Root Zone) is likely to cause stability issues with the tree.
    c. Plan for growth. Trees expand in diameter every year, sometime as much as 1 ½" depending on species and health. If a project is a good bit down the road, plan for a larger tree than is surveyed.
    d. Work with the desired design of the project, to adjust the limits of disturbance, to reduce impact to existing on and off-site trees. Adjust the desired design, to maximize conservation.
    e. Calculate the percentage impact to each tree. Where the impact to a critical root zone exceeds 30%, adjust the design to reduce impact, or work to limit root impact in other ways. Damage below 30% can still significantly impact the tree, and after care may be needed. Note that smaller trees can more easily handle impact and larger trees or certain species may respond negatively to any impact.
    f. Where off-site trees are impacted, work with the owner to reduce impact, or plan for replacement.
2. Tree protection measures.
    a. Reduce soil disturbance and compaction to the maximum extent practicable.
    b. Use tree protection fencing at the limit of disturbance (LOD). Where the LOD impacts the Critical root zone of trees, plan to use trenchless silt fence and other root protection methods, to reduce root impact and protect roots that extend beyond the LOD.
    c. Use root protection matting, where access is needed for project completion but no excavation is occuring. Plan for matting to be present throughout and for grade to be the same in this location without modification after construction
    d. Provide trunk protection in close quarters, where tree fencing may not be enough to protect the trunk form being damaged.
    e. Use root pruning only where excavation occurs. Root pruning reduces damage to the tree caused by the ripping of roots by excavation equipment, but does not limit the damage done by loss of roots. Logical locations for root pruning include the edge of a construction over dig, or the edge of utility installation trenches. Root pruning shall not be used within the Structural Root Zone. Root pruning at the edge of a structural root zone shall not be performed on more than one side of the tree.

3. Tree damage avoidance during construction
    a. Following the tree protection plan throughout the project.
    b. Coordinate changes to the limit of disturbance or any other changes to the site exterior with the County arborist.
    c. Watering during construction is standard for trees impacted by construction because of the loss of part of their root system. Follow the Watering guidance
4. Landscaping phase
    a. Respect the Critical Root Zones during landscape installation. Soil should not be spread in conserved root zones. Do not prepare soil for planting in cnserved root zones. Plan to impact no more than 30 percent of the root zone as part of construction, including by planting, except for hand-planted plug or quart sized plants where no roots are cut.
    b. Grass can compete with tree roots for nutrients. Avoid installation of grass in the critical root zones, and opt for hardwood mulch or green mulch (non-competitive plants adapted to live with trees, instead, where appropriate.
    c. Remove non-native invasive vines inside the tree conservation area by hand-cutting and/or spot herbicide application.
5. After care
    a. Follow ANSI standards for soil management and pruning and associated BMP publications from the International Society of Arboriculture to provide appropriate after- care for trees, after disturbance is completed.
    b. Do not prune tree branches to compensate for root loss.
    c. Mulch the critical root zones with up to 4” of leaf mulch or arborists wood chips or no more than 2” undyed natural shredded hardwood mulch.
    d. Water trees for at least two years after damage or until the root system recovers, whichever is longer.

Examples of applications of tree protection and planting follow:

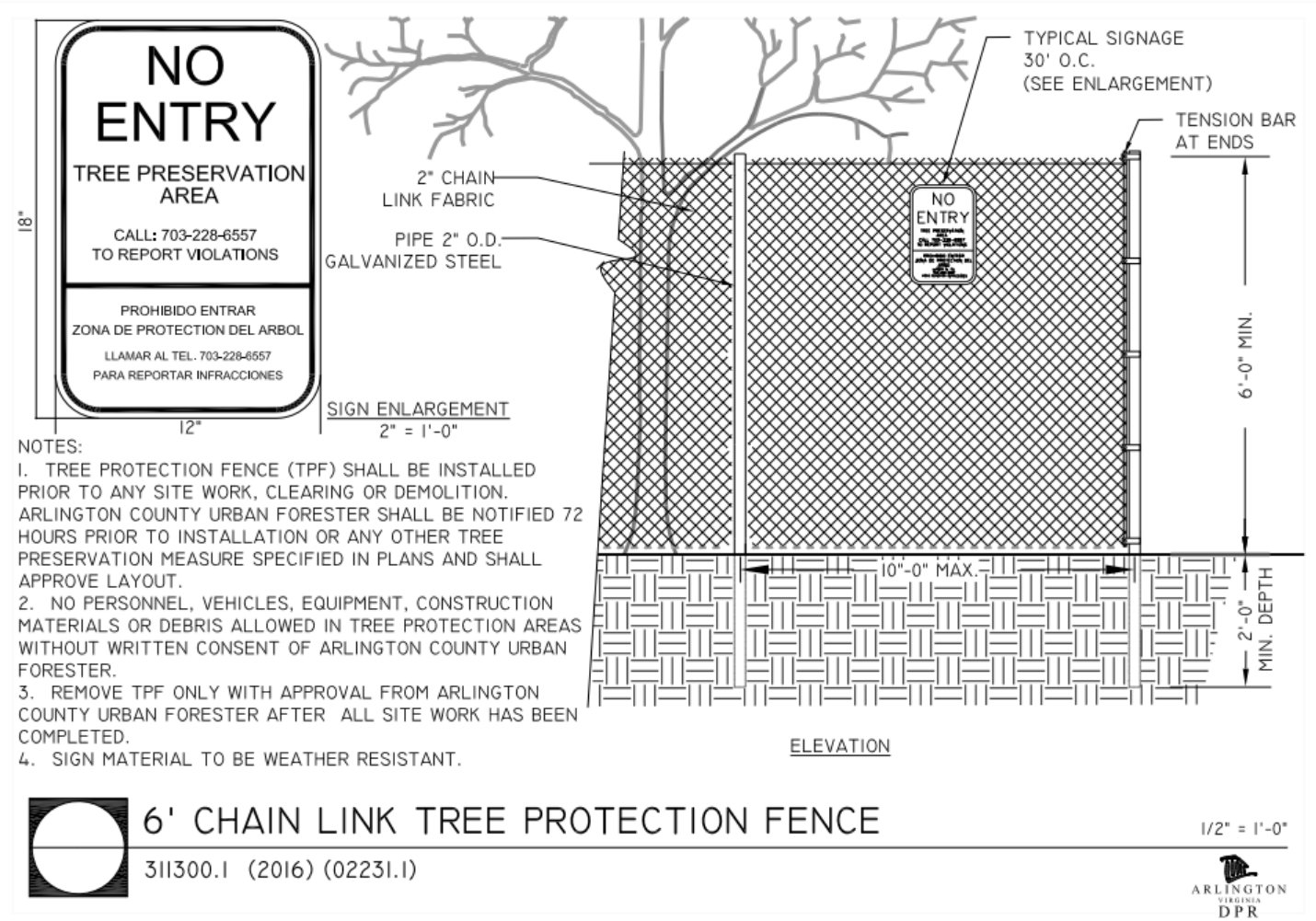
Tree Protection, Planting, and Soil Remediation – Visual Guide

A visual guide of appropriate installation of details. Up-to-date design standards can be found here:

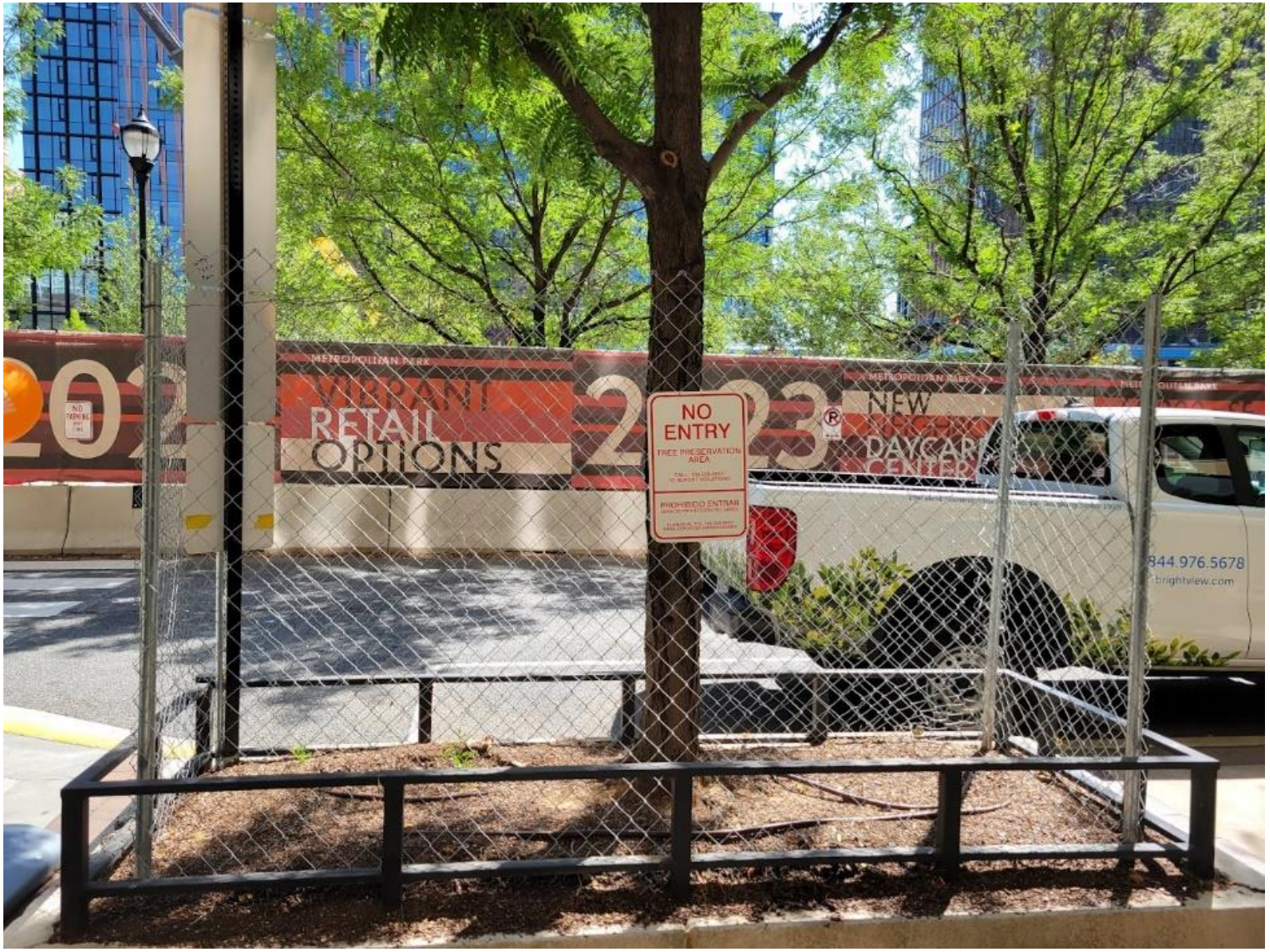
https://www.arlingtonva.us/Government/Departments/Parks-Recreation/About/Design-Standards

1 Tree protection

1.1 6 Ft Chain Link Fence – Detail – Public projects and site plans

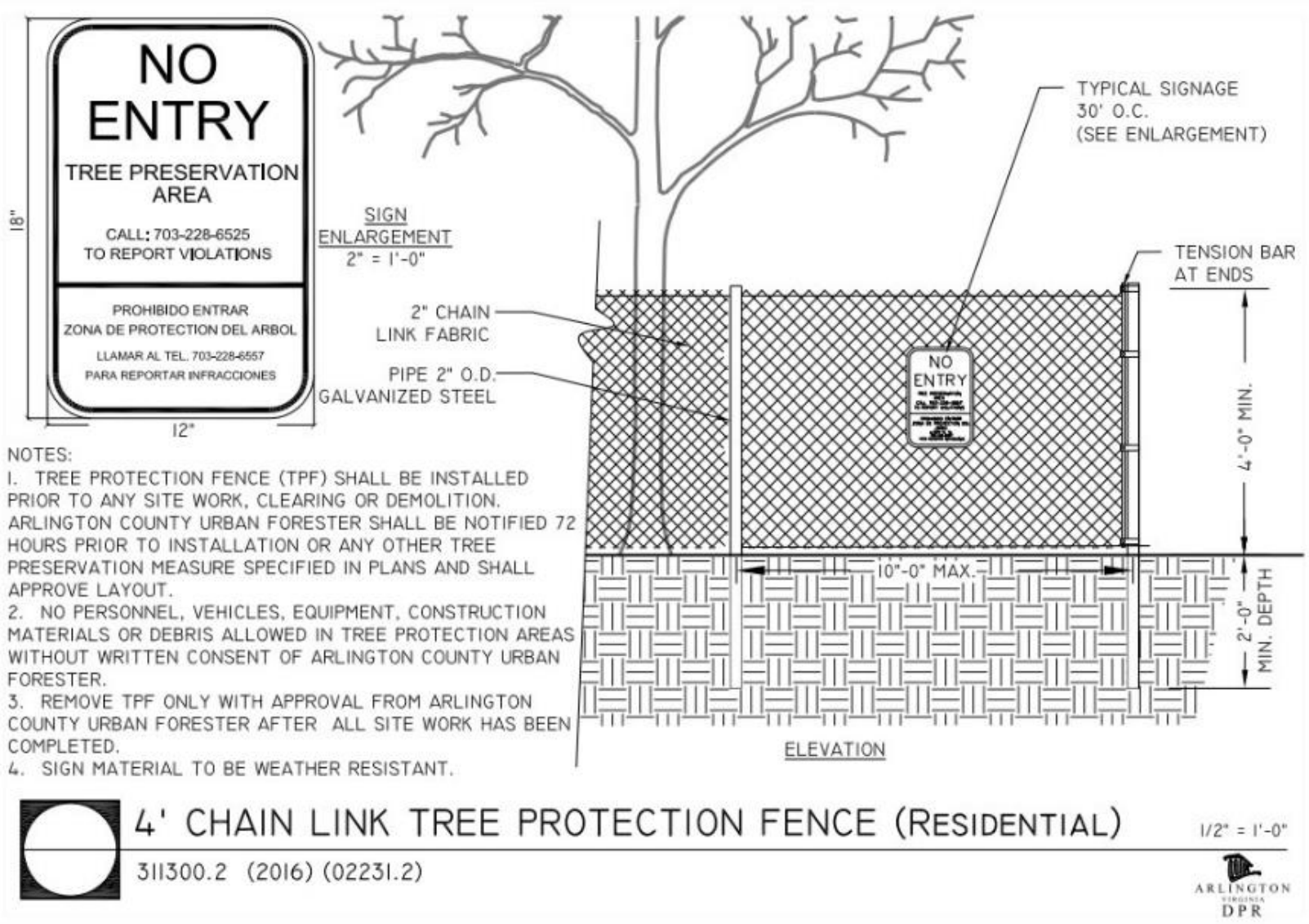


1.2 6 Ft Chain Link Fence – Example 1 – Tree pit



1.3 6 Ft Chain Link Fence – Example 2 – Open-grown tree

1.5 4 Ft Chain Link Fence - Detail

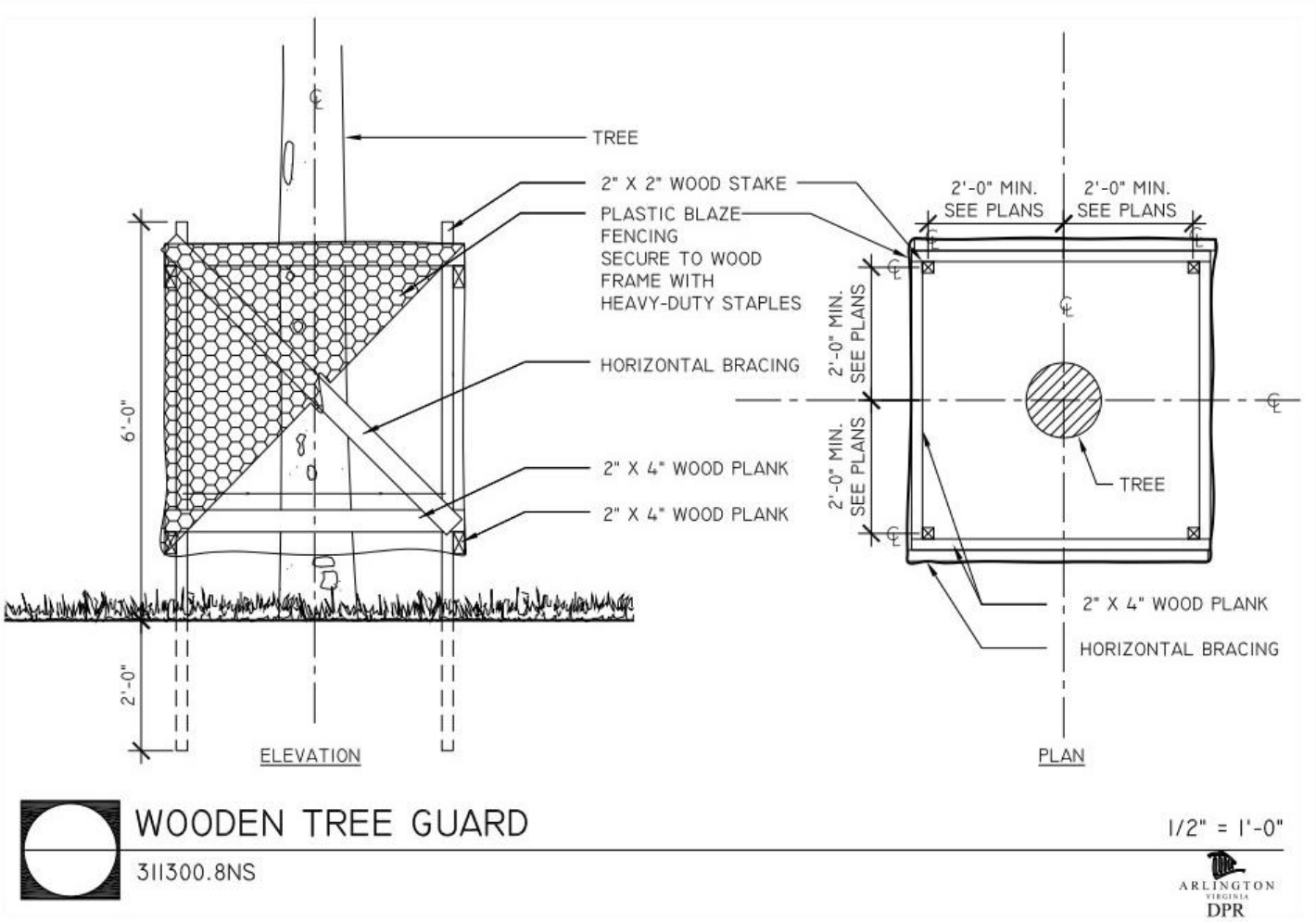


1.6 4 Ft Chain Link Fence – Example 1 – Small street tree

1.7 4 Ft Chain Link Fence – Example 2 – Open grown tree with partial CRZ protection

1.8 4 Ft chain Link Fence – Example 3 – With Silt Fence

1.9 Wooden Tree Guard – Detail



1.10 Wooden Tree Guard – Example

1.11

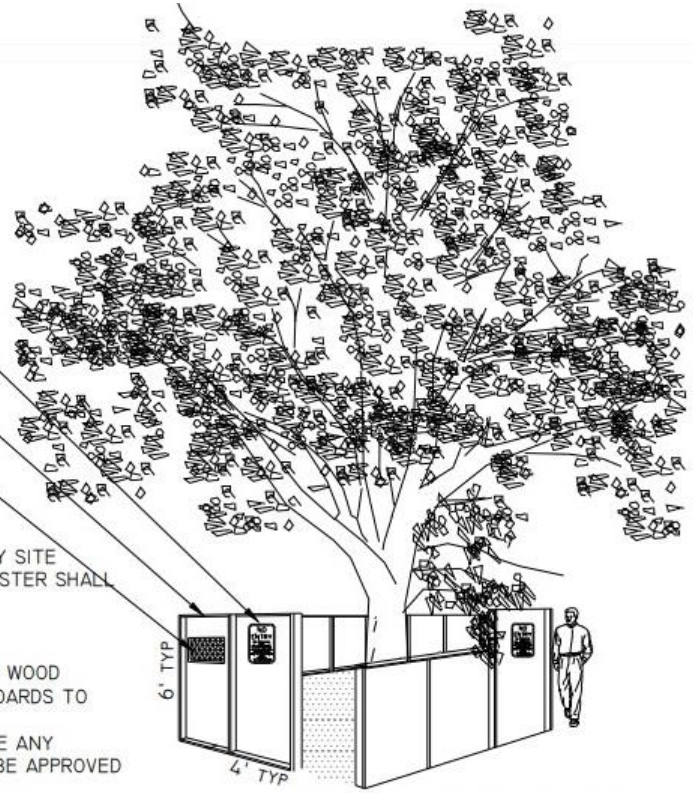
1.13 6 Ft Tree protection barrier for restricted spaces – Detail

SIGN ENLARGEMENT

SIGN LOCATED ON EACH SIDE OF FENCING

4'W . x 6' H. PLYWOOD (TYP)

PROVIDE VIEWING WINDOW COVERED WITH PLASTIC WEB



*NO PERSONNEL, VEHICLES, EQUIPMENT, CONSTRUCTION MATERIALS OR DEBRIS ALLOWED IN TREE PROTECTION AREAS WITHOUT WRITTEN CONSENT OF ARLINGTON COUNTY URBAN FORESTER.

NOTES:

1. TREE PROTECTION FENCE (TPF) SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION. ARLINGTON COUNTY URBAN FORESTER SHALL BE NOTIFIED 72 HOURS PRIOR TO INSTALLATION.
2. TPF SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
3. SIGN MATERIAL TO BE WEATHER RESISTANT.
4. TREE PROTECTION BARRIERS MUST BE CONSTRUCTED WITH A SOLID WOOD FRAME CLAD WITH PLYWOOD OR APPROVED EQUIVALENT. SECURE BOARDS TO ENSURE PROTECTION IS NOT MOVED DURING PROJECT.
5. HEIGHT OF BOARDING MAY BE LESS THAN 6 FEET TO ACCOMMODATE ANY BRANCHES THAT MAY BE LOWER. HEIGHT OF LESS THAN 6' SHALL BE APPROVED BY ARLINGTON COUNTY URBAN FORESTER.
6. REMOVE TPF ONLY WITH APPROVAL FROM ARLINGTON COUNTY URBAN FORESTER AFTER ALL SITE WORK HAS BEEN COMPLETED.
7. PROVIDE 12"(WIDTH) X4"(HEIGHT) CUT-OUTS ALONG PANELS FACING PAVED SURFACES SUCH AS SIDEWALKS, TWO CUT-OUTS PER FENCE PANEL.

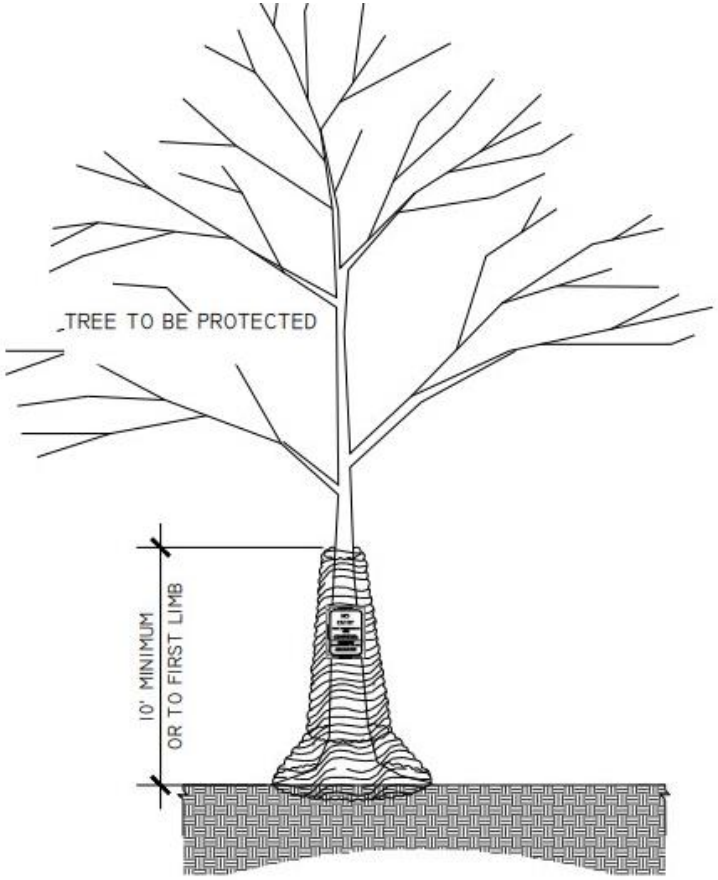
TREE PROTECTION BARRIERS FOR RESTRICTED SPACE AND TREE PITS N.T.S.

311300.14NS (2019)

ARLINGTON VIRGINIA
DPR

1.14 6 Ft Tree protection barrier for restricted spaces – Example

1.15 Trunk Wrap – Detail



NOTES:

1. TRUNK WRAP MATERIAL SHALL BE DOUBLE SIDED GEOCOMPOSITE, GEONET CORE WITH NON-WOVEN COVERING (SUCH AS TENAX TENDRAIN 770/2) OR AN APPROVED EQUAL.
2. WRAP SHALL BE INSTALLED BY A CERTIFIED ARBORIST.
3. WRAP SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION.
4. WRAP SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE WRAP ONLY WITH APPROVAL AND AFTER ALL SITE WORK HAS BEEN COMPLETED. ARLINGTON COUNTY URBAN FOREST SHALL BE NOTIFIED 72 HOURS PRIOR TO REMOVAL.
5. WRAP SHALL BE REMOVED PROMPTLY AFTER CONSTRUCTION.
6. MAJOR SCAFFOLD LIMBS MAY ALSO REQUIRE THIS PROTECTION AS DIRECTED BY THE PROJECT ARBORIST OR REQUESTED BY ARLINGTON COUNTY URBAN FORESTER.
7. WRAP SHALL EXTEND AS HIGH AS ADJACENT MACHINERY THAT IS WORKING ADJACENT TO TREES. PROJECT ARBORIST AND ARLINGTON COUNTY URBAN FORESTER MAY REQUIRE DOUBLE WRAP OR HEAVY DUTY WRAP IN AREAS OF MAJOR EXCAVATION.

TREE TRUNK AND LIMB PROTECTION WRAP

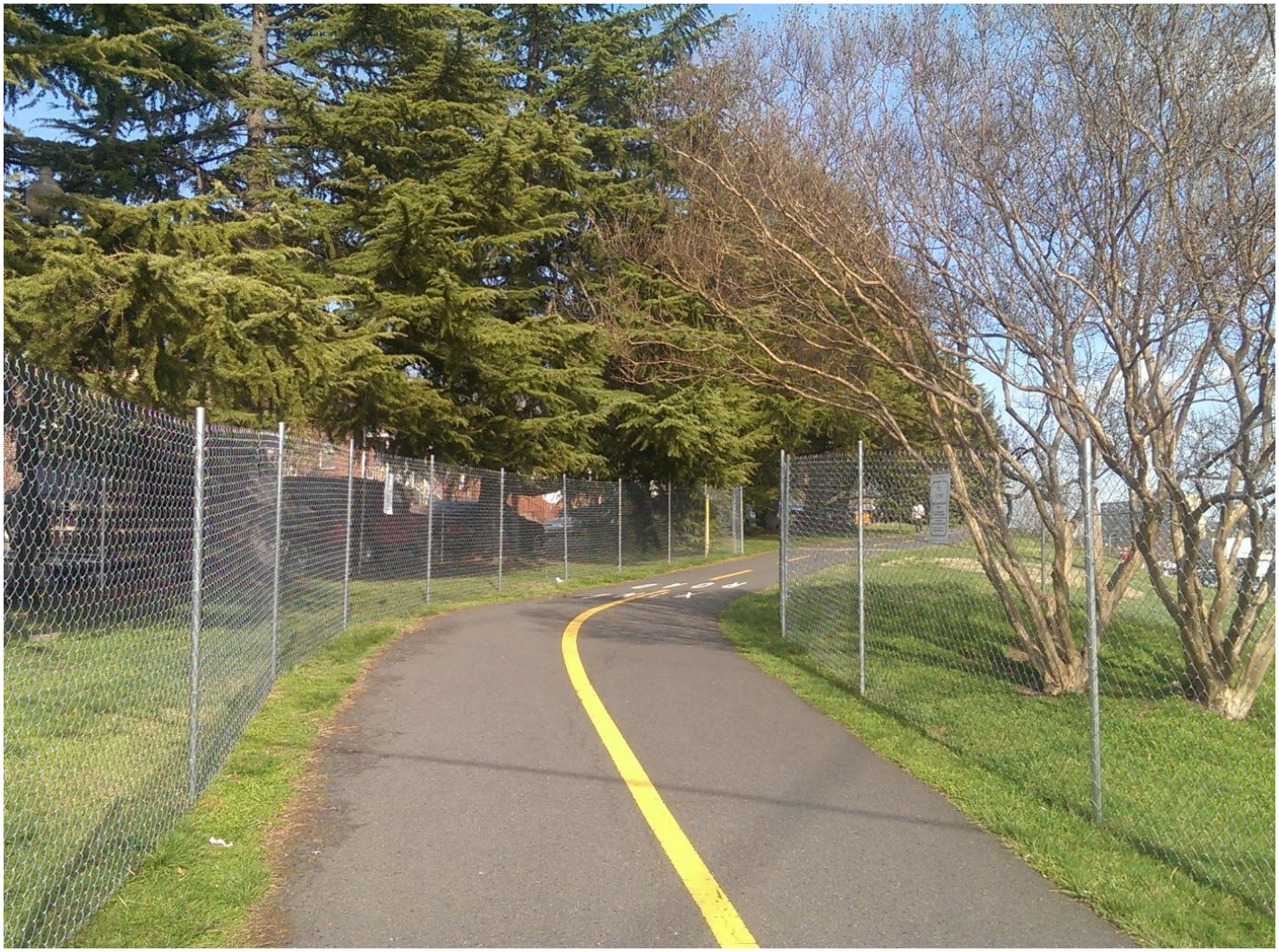
N.T.S.

311300.15NS (2019)

ARLINGTON VIRGINIA DPR

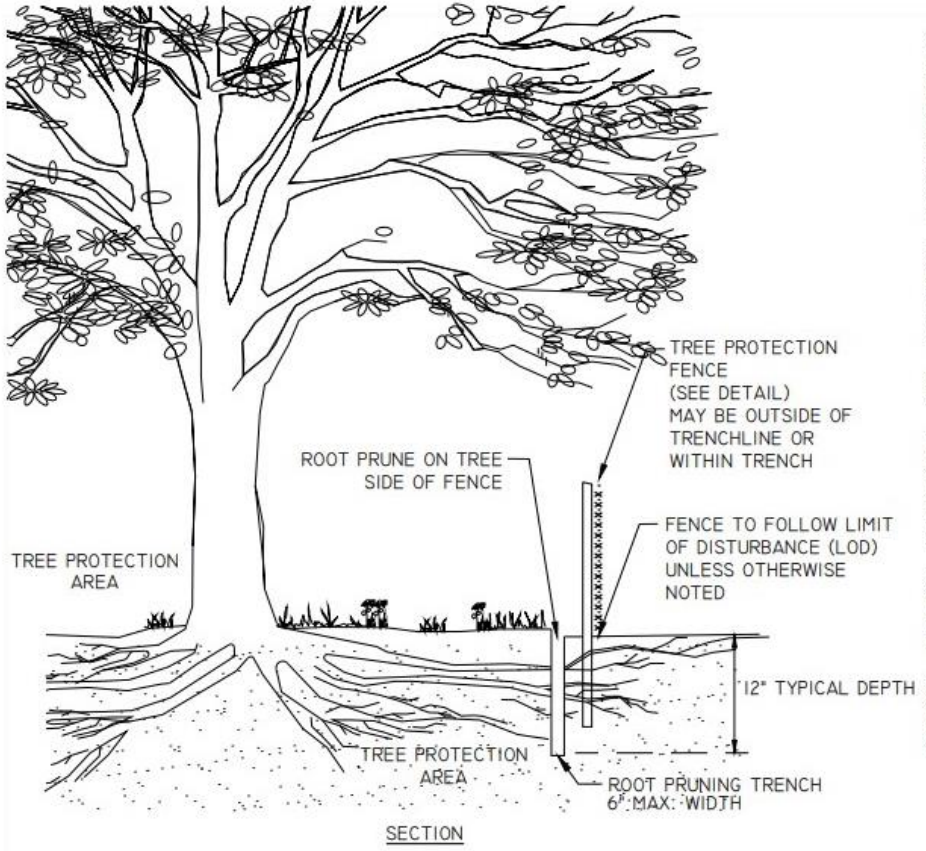
1.16 Trunk Wrap – Example

1.17 Tree protection for linear projects – Example 1



1.18 Tree protection for linear projects – Example 2

1.19 Root Pruning – Detail



SECTION

NOTES

1. ROOT PRUNING SHALL BE DONE WITH A TRENCHER OR VIBRATORY PLOW TO A DEPTH OF 12". ROOTS OVER 1.5" IN DIAMETER SHALL HAVE A CLEAN CUT MADE BY A CLEAN SAW ON THE SURFACE OF THE ROOT, WHICH IS STILL ATTACHED TO THE TREE. DO NOT BREAK OR CHOP. DO NOT PAINT THE CUT ROOT END. IF EXCAVATION IS FOR INSTALLATION OF UNDERGROUND UTILITIES, LEAVE THE ROOT INTACT AND THREAD THE LINES UNDERNEATH.

2. ROOT PRUNING SHALL TAKE PLACE PRIOR TO ANY CLEARING AND GRADING. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING AND SHALL BE APPROVED BY ARLINGTON COUNTY URBAN FORESTER.

3. ROOT PRUNING SHALL BE CONDUCTED WITH THE SUPERVISION OF AN ISA CERTIFIED ARBORIST.

4. BACKFILL THE ROOT-PRUNING TRENCH WITH APPROVED LOOSE TOPSOIL MIX AND TOP WITH 3-4" BARK MULCH AND MARK LOCATION FOR FUTURE REFERENCE. SILT FENCE MAY BE INSTALLED IN TRENCH PRIOR TO BACKFILLING AS LONG AS THE TRENCH IS NOT OPEN FOR LONGER THAN 48 HOURS WITHOUT WATERING.

5. ROOT PRUNING WORK SHALL NOT BE DONE WHEN MORE THAN THE TOP 1 INCH OF SOIL IS FROZEN. ROOT PRUNING SHALL NOT BE UNDERTAKEN WHEN THE SOIL IS WET AND CONDITIONS ARE MUDDY.

6. THE ARLINGTON COUNTY URBAN FORESTER SHALL BE NOTIFIED 72 HOURS PRIOR TO TRENCHING AND WHEN ALL ROOT PRUNING AND TREE PROTECTION FENCE INSTALLATION IS COMPLETE.

ROOT PRUNING

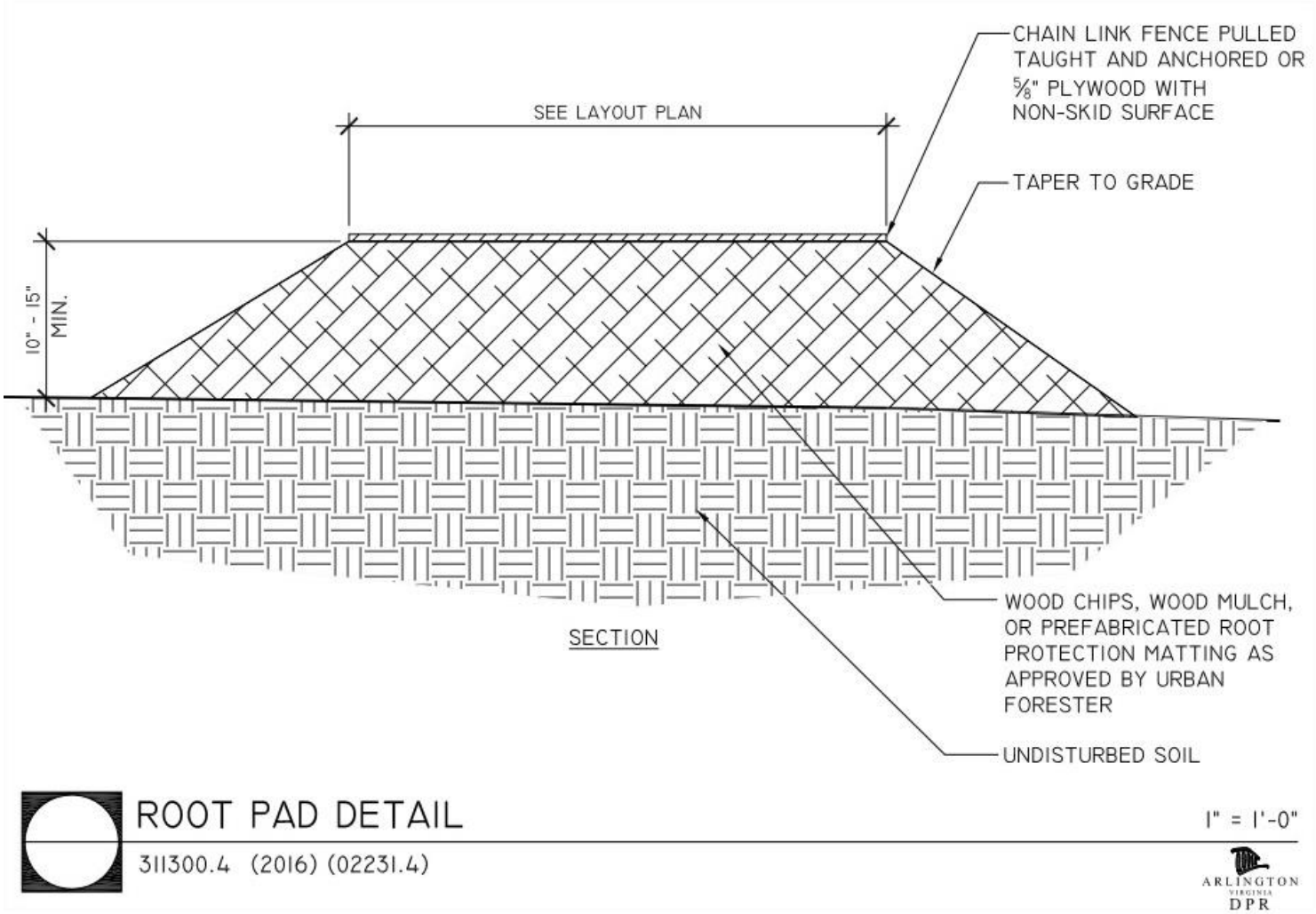
311300.5 (2019)

N.T.S.

ARLINGTON VIRGINIA DPR

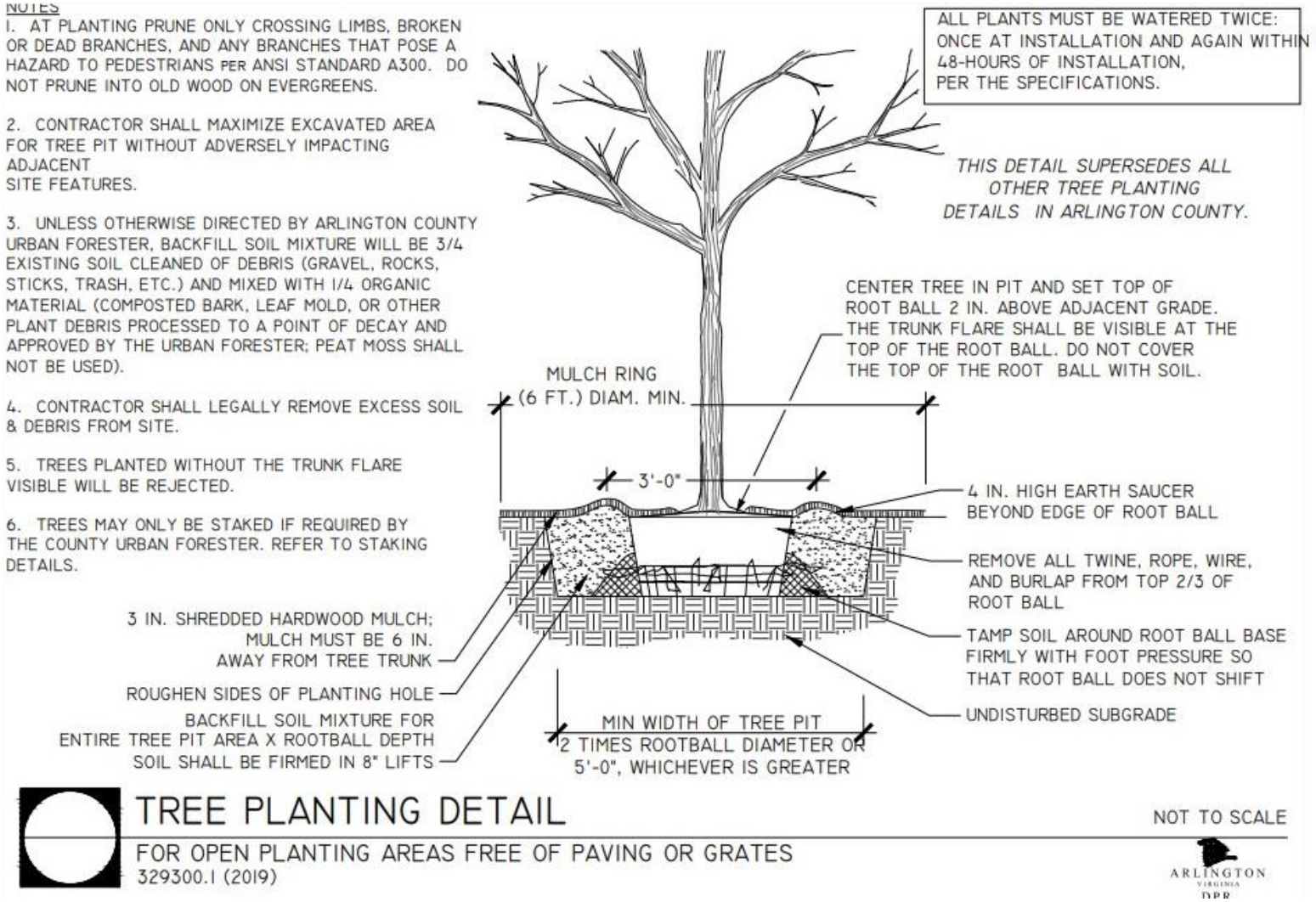
1.20 Root Pruning – Example (signs are missing)

1.21 Root Pad – Detail



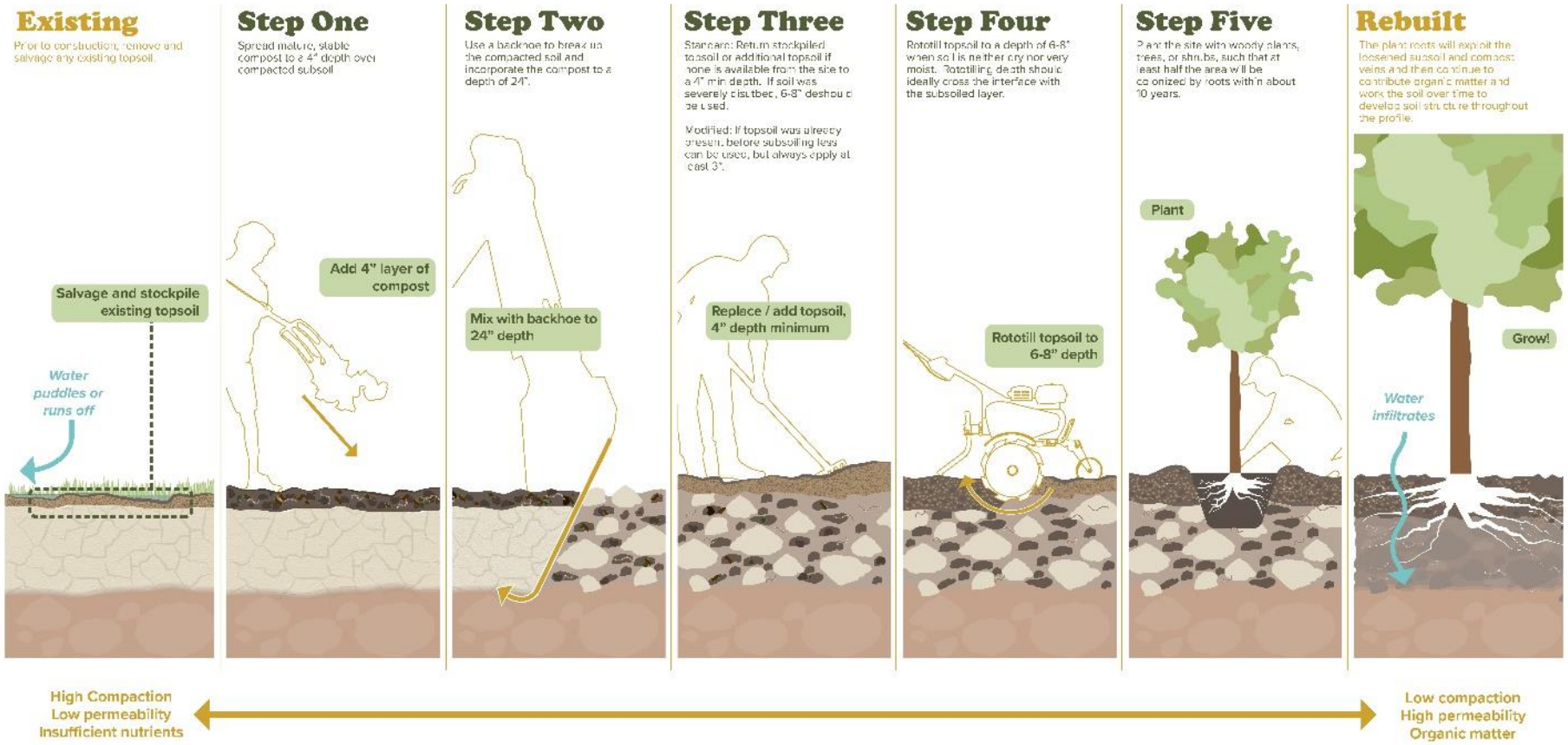
1.22 Root Pad - Example

1.23 Tree Planting – Detail



1.24 Tree Planting – Examples

1.25 Soil Profile Rebuilding – Schematic

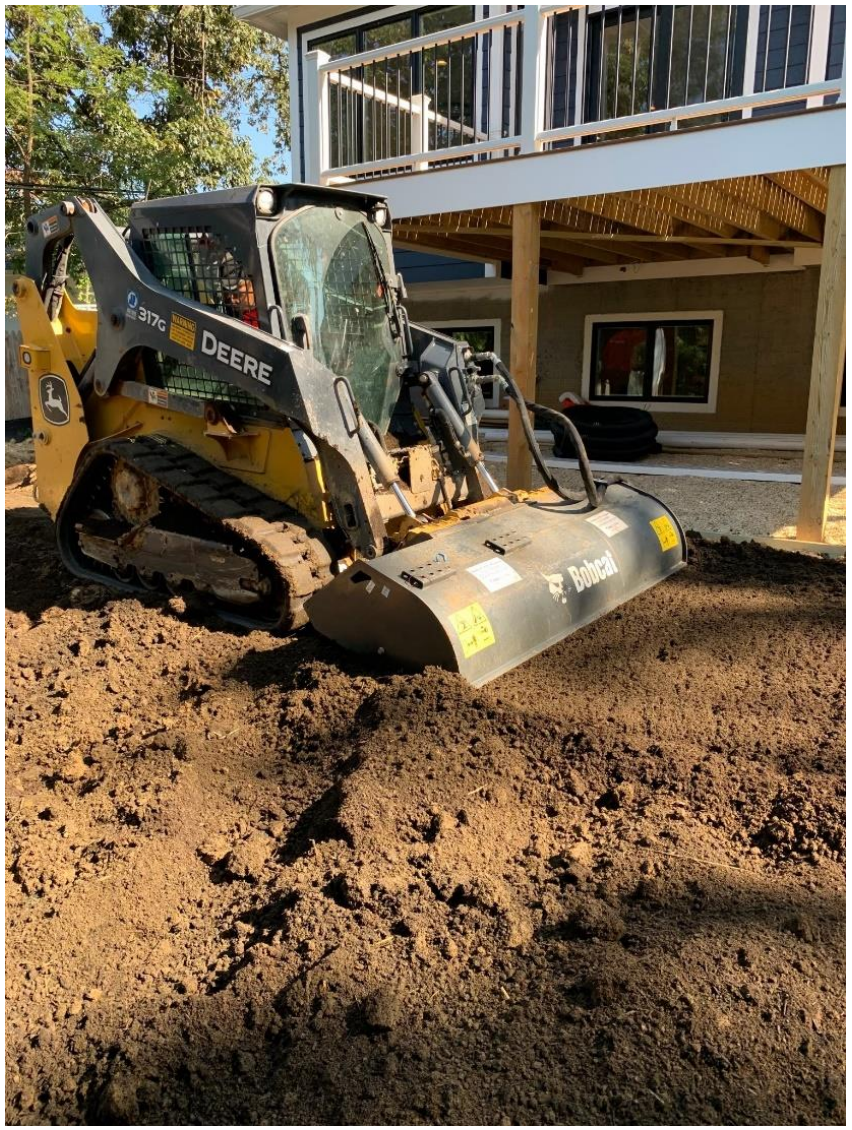


1.26 Soil Profile Rebuilding – Add mature and stable compost

1.27 Soil Profile Rebuilding – Scoop and Dump

1.28 Soil Profile Rebuilding – Scoop and Dump and topsoil installation

1.29 Soil Profile Rebuilding – Tilling of topsoil, starting at the back, reversing out



1.30 Soil Profile Rebuilding – Compaction testing and planting