

## Tree Protection Zones (TPZs)

### 1. Introduction

- A. Tree Protection Zones shall be established around all trees not slated for removal which are located within the construction envelope, or located within 100 feet of the perimeter of the construction envelope as agreed upon during a site visit.
- B. TPZs shall be erected after a dig permit is obtained and before any work starts, and shall remain in place until all other construction material has been removed from the site and DUFMD-Landscape Services has given approval for removal (“first up, last down”).
- C. Once TPZs are erected, they may not be moved or removed until all work is finished. No personnel, equipment or materials (including “natural” materials”) shall enter or be stored in the TPZs at any time.
- D. Designers should coordinate exact size, location, and type of TPZs with DUFMD-Landscape Services Department. TPZs should be designed in such a way to allow for all necessary construction activities to be completed without the need to move or alter the TMZ to successfully complete the construction project in its entirety.

### 2. References

- A. Tree Management Plan, Protection Guidelines
- B. Tree Protection Zone Illustration

### 3. Design Standards

*The following information is intended to serve as a guideline. Where the designer believes other factors are appropriate, this should be discussed with DUFMD- Landscape Services Department*

#### A. TPZ Notation

1. Site plans shall have trunk locations and TPZs for all trees located in the construction envelope or within 100 feet of outer most impact of construction site as agreed upon during a site visit
  - a. This includes access areas (excluding existing roads) which lead into and out of the construction site
2. TPZs shall be completely enclosed (may not be open on any end), with the type of fencing specified, and shall be indicated on all plans with a bold, dashed line

## B. TPZ Size

1. TPZ size shall be based on the size of the diameter at breast height (“DBH”) and the age of the tree.
  - a. TPZs around young trees shall be 1 foot radius for each 1 inch DBH, not less than 6 feet radius.
  - b. TPZs around mature trees shall be 2 foot radius for each 1 inch DBH, or extending to the dripline of trees, whichever is larger.
  - c. TPZs around stands of trees shall be based on the outer ring of trees comprising the stands, and will be based on the largest area demanded by those trees.
  - d. For HISTORICAL or SPECIMIN trees, the TPZ shall be 3 feet radius for each 1 inch DBH
  - e. In special cases, the DUFMD-Landscape Services department may determine an extended TPZ is necessary
2. Boring at least 5 feet below the current surface level does not violate the TPZ
  - a. Boring may be an appropriate choice when utility lines would encroach into the TPZ

## C. TPZ Location

1. Tree Protection Zones shall be established around all trees not slated for removal which are located within the construction envelope, or located within 100 feet of the perimeter of the construction envelope
2. TPZ must be designed in such a way to allow for proper logistical functioning of the construction project.
  - a. All access roots must be clearly marked and not impact trees designated for retention within or bordering the construction site
  - b. All staging areas, laydown areas, sanitary facilities and employee break/rest areas must be clearly identified and located outside of TPZs
  - c. Sediment generated on site (such as top soil, wood chips and construction spoil) must be placed down elevation from TPZs, or surrounded on the downhill side with a functioning silt fence
  - d. Material storage areas must be located outside of the TPZ

- e. Parking areas shall be designated outside the TPZ, with access to parking clearly demarked

#### D. TPZ Materials

##### 1. Fencing Specifications

- a. Fence type shall be determined by the individual characteristics of the project, including duration, size and proximity to trees. The default fence type for all projects shall be Type B.

- b. Type A

- (1) Fence shall be 4 to 6 foot high orange, UV resistant high tensile strength poly barricade fabric. This fabric is to be mounted on 133 steel posts, driven into the ground to a depth of at least two feet (24") at intervals of no more than 10 feet apart.

- (2) A dig permit must be obtained before the installation of steel posts

- c. Type B

- (1) Fence shall be 5 to 6 foot high chain link fences. Fences are to be mounted on two inch galvanized iron posts, driven into the ground to a depth of at least two feet (24"), or put on weighted footers

- (2) If iron posts are to be used, a dig permit must be obtained before installation

- d. Type C

- (1) Fence shall be 8 foot wide by 8 foot high sections of 2X4 lumber with diagonal braces at all corners. This structure shall be sheathed with ½ inch plywood and designed to withstand a 20-pound per square inch wind load.

- (2) Posts shall be wooden, a minimum 4x4 pressure treated timbers, and at locations within the grass, of length to permit sinking post at least 3 feet. Shall use ¼ to ½ crushed rock for setting fence posts in grass area. Concrete is not required. At paved/hardscape areas provide jersey barrier support

- (3) Fence shall be painted with Weatherguard, acrylic, flat finish paint composed of three parts Forest Green and one part Flat Black.

## 2. Silt Fencing

- a. When TPZs will be located down slope/down elevation from any part of the construction site, silt fences must be installed just outside the TPZ

## 3. Warning Sign

- a. Every 25 feet the "Warning Sign" shall be securely fastened to the outside of the TPZ fencing materials
- b. Warning Signs shall be weather proof, a minimum of 8.5 X 11 inches and clearly state the following "Tree Protection Zone. Keep Out. No Entry. Do Not Move Fence"

## E. Prohibited Activities in TPZs

### 1. Land Disturbance

- a. There shall be no clearing, excavation, soil compaction (including from incidental vehicle/equipment passage) or changes of the existing grade. Should the removal of underbrush vegetation take place, mechanism of removal shall be approved by DUFMD-Landscape Services in advance and every effort shall be made to minimize disturbance.

### 2. Storage of Equipment or Materials

- a. The storage of construction or other vehicles and/or equipment, site construction materials, portable buildings (including storage facilities and portable sanitation facilities) or other heavy objects is prohibited
- b. The storage of materials generated by construction activities including (but not limited to) top soil, debris, wood chips and construction spoil may not be deposited or stored in the TPZ

### 3. Encroachment

- a. If during the course of construction it becomes necessary for activities to take place inside the TPZ DUFMD-Landscape Services must be consulted in advance of any such activity or incursion into the TPZ. These activities include (but are not limited to) scaffolding, vehicle movement, trenching and excavation.
- b. If utility encroachment becomes necessary, utilities shall be installed by tunneling rather than by trenching. If it is necessary for the roots to be disturbed, the proper root pruning and irrigation procedures shall be utilized.

- c. If compaction may occur due to unavoidable movement of equipment or materials through the TPZ, the area must first be lined with a heavy geotextile fabric then mulched with a minimum of 6 inch layer of processed pine bark or course wood chips.

#### F. Special Considerations

##### 1. Tree Removal adjacent to TPZs

- a. The removal of trees adjacent to TPZs can cause inadvertent damage to protected trees. When possible, a minimum of one and a half foot trench shall be cut (not dug) along the limits of the land disturbance to as to cut, rather than tear, roots.

##### 2. Tree Pruning

- a. If large branches will be in the way of construction activities, branches must be pruned by a certified arborist before construction activities begin

#### 4. Documentation and Review Requirements

- A. The TPZ shall be clearly notated on the drawings at each review phase.
- B. TPZs shall be shown on the plans by 50% CD submittal and verified with DUFMD-Landscape Services no later than 100% CD submittal.

#### 5. TPZ Inspections

- A. Before construction proceeds, DUFMD-Landscape Services must inspect TPZ to ensure it is built as specified. If TPZ is determined to be insufficient to meet goals, it shall be altered.
- B. During construction, if TPZ is violated a stop work order will be issued by OPM until violation is corrected. Upon repeat violates the next higher TPZ fence type shall be installed (from A to B or from B to C). If Type C TPZ is repeatedly violated, a stop work order shall be issued until the cause of the violation is addressed and eliminated.