

## Section 16.04 Natural Resources Protection.

This Section is intended to establish minimum regulations necessary to preserve natural resources on sites subject to development. The preservation of natural resources is essential to maintain the continued character and quality of life for current and future Township residents and visitors. Protection of the natural features of the Township will promote the general public health, safety and welfare, encourage the use of lands in accordance with their character and adaptability, protect the natural environment, and conserve natural resources and energy.

### A. Scope.

The standards of this shall apply to all development projects and parcels subject to site plan approval per Article 17.0 (Site Plan Review), condominium site plan approval per Article 19.0 (Condominium Regulations), planned unit development approval per Article 20.0 (Planned Unit Development District), or subdivision plat approval in accordance with the Land Division Act and Township subdivision regulations.

### B. Watercourses, Wetlands, and Floodplains.

No person shall alter, obstruct, fill or otherwise vary the shoreline, area, course, water level or flow, vegetation or natural conditions of any lake, river, stream or other watercourse, wetland or drainage way, except in conformance with this Ordinance and the requirements of outside agencies with jurisdiction.

1. The following setbacks from wetlands and watercourses shall apply:
  - a. A minimum 50-foot open space setback shall be maintained from the ordinary high water mark of any lake, river, stream or other watercourse, provided that development shall be prohibited in the 100-year floodplain.
  - b. A minimum 25-foot open space setback shall be maintained from the edge of any wetland, as defined in Section 25.03 (Definitions).
  - c. A minimum 25-foot open space setback shall be maintained from the boundary of any county drain easement, or a minimum of 50 feet from the centerline of any county drain without a dedicated easement.
2. Detention basins and similar stormwater management facilities may be constructed within a required setback, provided that appropriate replacement plantings are provided and maintained.
3. Development shall be prohibited within the 100-year floodplain of any existing watercourse or wetland. It shall be the applicant's responsibility to delineate the 100-year floodplain boundaries, subject to confirmation by the Township.

### C. Trees and Woodlands.

The following tree and woodland preservation and mitigation standards shall apply to all developments subject to this Section:

1. **Required plan information.** The following required information shall be incorporated into the applicable development review processes of this Ordinance or other Township ordinances:

<b>Required Development Plan Information for Woodlands and Tree Preservation</b>	<b>Preliminary Plan</b>	<b>Final Plan</b>
All information required by this Section shall be provided by a land surveyor, civil engineer, landscape architect or arborist, who shall verify the contents by seal or signature, whichever applies.	●	●
The most current available aerial photograph of the site, at a scale not less than one (1) inch equals 100 feet.	●	●
General evaluation of the quality of woodland areas and trees on and around the site, including but limited to the following: 1. Diversity of tree species, tree sizes, and density. 2. Health and vigor of the trees, including general documentation of dying and diseased trees by species and condition. 3. Soil conditions and drainage characteristics of the site. 4. Other factors such as the value of the woodland area as a scenic asset, wind block, noise buffer or other environmental benefit.	●	
General assessment of trees in adjacent road-rights-of-way, and trees located beyond the lot boundaries that may be affected by development-related access or utility improvements, grading, or other changes; with trees identified by location, size, and species.	●	●
Tree inventory of all regulated trees as specified in Section 16.04C.5. in a form acceptable to the Planning Commission, including: 1. A topographical map at the same scale as the related site plan, plat or survey drawing for the division of the land. 2. All regulated trees shall be inventoried by field survey and shown on the topographical map by identifying tag number, type, location, and crown spread drawn to scale. 3. Existing trees and woodlands shall be superimposed on the related site plan, plat or survey drawing for division of land. 4. Groups of trees whose individual bases are located at a ground elevation within one (1) foot of each other may be shown as a group with the overall crown spread drawn to scale, with estimated number and size of each predominant species. 5. A detailed inventory of woodlands not impacted by the development shall not be required, provided that the inventory includes the general outline and an evaluation of such areas. 6. The inventory shall include regulated trees within adjoining road rights-of-way or beyond the lot boundaries where the drip line of such trees overlaps a lot boundary or right-of-way line.		●
Proposed locations of any existing trees to be relocated, together with a description of how such trees are to be removed, protected, and transplanted during land clearance, development, and construction; and how they are to be maintained after construction.		●
A statement of compliance setting forth how existing trees to be preserved will be protected during land clearance and construction and on a permanent basis thereafter, including proposed use of tree wells, protective barriers, directional drilling, retaining walls, etc.		●

<b>Required Development Plan Information for Woodlands and Tree Preservation</b>	<b>Preliminary Plan</b>	<b>Final Plan</b>
Invasive species information, including the general locations of invasive plants and woody shrubs found on the site, a description of the extent of growth of such species on the site, and a plan for eradication and control of such invasive plants and woody shrubs as part of the development.	●	●
A general grading plan prepared by a registered engineer or land surveyor showing the anticipated drainage patterns, including the location of any areas where cut and fill operations are likely to occur and their potential impact on the viability of the existing trees.	●	●
Such other information and detail as may be required to demonstrate compliance with the requirements of this Section.	●	●

2. **Tree preservation and replacement.** Any development subject to this Section shall not conduct land clearing or grubbing activities; or remove, replace, transplant, damage, or destroy any woodland or individual tree regulated by this Section, except in accordance with the following:

<b>Standards for Tree Preservation and Replacement</b>	<b>Existing Trees</b>	<b>Replacement Trees</b>																		
<p>The following trees located within the lot boundaries, along with trees adjacent to the lot boundaries or in adjacent road rights-of-way where the drip line overlaps a lot boundary or right-of-way line, shall be considered to be regulated trees for purposes of this Section, and shall be replaced if removed as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><b>Regulated Trees</b></th> <th style="text-align: center;"><b>Replacement Ratio</b> (number of replacement trees per removed tree)</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;"><b>Coniferous (height)</b></td> </tr> <tr> <td style="text-align: center;">6.0 to 15.0 feet</td> <td style="text-align: center;">one to one (1:1)</td> </tr> <tr> <td style="text-align: center;">15.01 to 50.0 feet</td> <td style="text-align: center;">three to one (3:1)</td> </tr> <tr> <td style="text-align: center;">More than 50.0 feet</td> <td style="text-align: center;">five to one (5:1)</td> </tr> <tr> <td colspan="2" style="text-align: center;"><b>Deciduous (D.B.H.)</b></td> </tr> <tr> <td style="text-align: center;">6.0 to 10.0 inches</td> <td style="text-align: center;">one to one (1:1)</td> </tr> <tr> <td style="text-align: center;">10.01 to 18.0 inches</td> <td style="text-align: center;">three to one (3:1)</td> </tr> <tr> <td style="text-align: center;">More than 18.0 inches</td> <td style="text-align: center;">five to one (5:1)</td> </tr> </tbody> </table>	<b>Regulated Trees</b>	<b>Replacement Ratio</b> (number of replacement trees per removed tree)	<b>Coniferous (height)</b>		6.0 to 15.0 feet	one to one (1:1)	15.01 to 50.0 feet	three to one (3:1)	More than 50.0 feet	five to one (5:1)	<b>Deciduous (D.B.H.)</b>		6.0 to 10.0 inches	one to one (1:1)	10.01 to 18.0 inches	three to one (3:1)	More than 18.0 inches	five to one (5:1)	●	●
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The development shall preserve and leave standing a minimum of twenty-five percent (25%) of the total number of regulated trees within the development site as currently existing or that have existed on the subject site within the last five (5) years.	●	●																		

<b>Standards for Tree Preservation and Replacement</b>	<b>Existing Trees</b>	<b>Replacement Trees</b>
<p>No replacements shall be required for following trees otherwise regulated by this Section, subject to documentation and verification as part of the required plan information. Such trees shall not count towards the minimum required percentage of preserved trees:</p> <ol style="list-style-type: none"> <li>1. Dying and diseased trees.</li> <li>2. Any invasive species subject to a plan for eradication and control in accordance with the requirements of this Section.</li> <li>3. Any of the following species of trees: Box Elder (<i>acer negundo</i>), Silver Maple (<i>acer saccharinum</i>), Cottonwood (<i>populus deltoids</i>), Ash varieties (<i>fraxinus x</i>), and Red Cedar (<i>juniperus virginiana</i>).</li> </ol>	●	●
<p>If regulated trees were removed within the past five (5) years, the Township Planner or designee shall use historical aerial photos and other available data to determine the number, characteristics, and extent of such trees; and the amount of additional tree mitigation required for such removed trees.</p>	●	●
<p>Removal of regulated trees shall be limited to the following:</p> <ol style="list-style-type: none"> <li>1. When necessary for location of a structure or site improvement where no alternative location can be identified after consideration of all development options available per this Ordinance.</li> <li>2. Where necessary, as determined by the Township Engineer, to provide reasonable drainage on the site, and when no reasonable alternative drainage is available without the removal of the trees.</li> <li>3. Land clearing shall be minimized and limited to designated road rights-of-way, drainage and utility easements, minimum building and driveway envelopes, and other minimum areas necessary for site improvements, considering the development options available under this Ordinance.</li> </ol>	●	
<p>Regulated trees shall be tagged in the field, using non-corrosive metal tags, with by the identifying number designated on the required tree inventory.</p>	●	
<p>All trees to be removal shall be so identified on site by fluorescent orange spray paint (chalk base) or by red flagging tape prior to any activity. Trees selected for transplanting shall be flagged with a separate distinguishing color.</p>	●	
<p>Replacement trees shall be of a species suitable for the habitat and location that is on the list of landmark trees in this Section or otherwise native to Michigan, except those listed in Section 16.10H (Prohibited Plant Materials).</p> <p>Trees of such species otherwise required by this Ordinance for screening purposes may also be used to satisfy up to fifty percent (50%) of the replacement tree requirements of this Section.</p>		●

<b>Standards for Tree Preservation and Replacement</b>	<b>Existing Trees</b>	<b>Replacement Trees</b>
<p>Replacement trees shall conform to Section 16.10B (General Plant Material Standards) and Section 16.10C (Standards for Size and Variety of Plant Materials). Such trees shall be:</p> <ol style="list-style-type: none"> <li>1. Nursery grown or comparable relocated from the same lot, with a straight trunk and a well-developed crown.</li> <li>2. Tree spade transplanted while in the dormant state or, if not in the dormant state, balled and burlapped with a solid, well laced root ball when in the dormant state.</li> </ol>		●
<p>The location of any replacement tree shall be on the same lot as the removed tree wherever feasible, as determined by the Township. If tree replacement on the same lot is not feasible, the Township may:</p> <ol style="list-style-type: none"> <li>1. Accept an alternative planting location within the Township; or</li> <li>2. Allow a deposit into a tree-planting fund maintained by the Township in an amount acceptable by the Township, based upon the current retail market value for the tree replacement, to be utilized for planting, maintenance, and preservation of trees and woodland areas in the Township.</li> </ol>		●
<p>Installation and maintenance shall conform to Section 16.10I (Plant Material Installation and Maintenance), and the following:</p> <ol style="list-style-type: none"> <li>1. Replacement and transplanted trees shall be staked, fertilized, watered, and mulched to ensure their survival in a healthy, growing condition and replaced at the developer's expense if they die within three (3) years.</li> <li>2. Prior to the issuance of the first building permit, the developer shall post a performance guarantee with the Township [per Section 1.08C (Performance Guarantee)] in an amount estimated by the developer and approved by the Township to ensure preservation or installation of required trees for a period of three (3) years from the date of receiving written notification from the developer that the last required tree has been planted or preserved, and has been inspected in accordance with this Section.</li> <li>3. The developer shall be responsible for replacing any tree used to satisfy the replacement requirements of this Section that is determined by the developer, Zoning Administrator or Township Planner to be diseased, dead or dying within three (3) years after installation.</li> <li>4. The developer shall be responsible for replacing any regulated tree preserved within the development area that is that is determined by the developer, Zoning Administrator or Township Planner to have been damaged due to on-site construction activity, or that is determined to be diseased, dead, dying, or otherwise destroyed or removed within three (3) years after final approval of a site plan or subdivision plat. Such identified tree(s) shall be replaced in accordance with the replacement ratio specified in this Section.</li> </ol>	●	●

<b>Standards for Tree Preservation and Replacement</b>	<b>Existing Trees</b>	<b>Replacement Trees</b>
Three (3) years after all trees have been planted within the development, the Township shall release the guarantee, less any funds needed to complete required tree replacement.	●	●
After this initial three (3) period, the developer or any successor entity responsible for common area maintenance shall be responsible for replacing any healthy regulated tree or replacement tree within a general common element or other common area of the development that is that is determined by the Zoning Administrator or Township Planner to have been damaged, destroyed or otherwise removed from the site. Such identified tree(s) shall be replaced in accordance with the replacement ratio specified in this Section. No replacements shall be required for dead or diseased trees.	●	●
Road rights-of-way, utility easements, and large land areas separate from the construction or land-clearing area may be cordoned by placing stakes a minimum of 50 feet apart and tying ribbon, plastic tape, or other brightly visible materials at least 30 inches above the ground from stake to stake along the perimeter.	●	
Protected area around trees preserved under this Section, defined by the drip line of all woodlands and individual trees designated to remain, plus an area outside of the drip line defined by a parallel boundary line placed a minimum of five (5) feet outward from the drip line, shall be protected and maintained during development, land clearing, filling or any alteration or construction activity.	●	
Protective barriers of wood, metal or other suitable materials (such as snow or cyclone fencing) acceptable to the Township Engineer shall be placed parallel to the outer perimeter of protected areas.	●	
No person shall conduct any construction activity; place, park or store solvents, building materials, equipment, soil, gravel, debris, vehicles, trailers, temporary structures or similar items; or attach a device or wire to any remaining tree within such protected areas except to cordon off such areas as required.	●	
Protective barriers shall remain in place and be maintained in proper condition until the Township authorizes their removal or issues a final certificate of occupancy, whichever occurs first.	●	
Removal of brush, invasive species, and other land grubbing activities within the protected area of a landmark tree or sovereign tree shall be done by hand. No tracked or wheeled vehicles or machinery shall be permitted within this area.	●	

3. **Additional tree removals.** Additional removal of regulated trees resulting from review or approval of construction plans or outside agency permits or approvals, or any action by the developer following final development plan approval, shall be subject to the requirements of this Section.
4. **Inspections.** To ensure compliance with this Section, the Township may perform periodic inspections of subject lots or parcels during all phases of construction and development as well as for up to three (3) calendar years after completion of the development project.