Chapter 50 - Table of Contents

What articles will be amended with the NFP Overlay.

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Article 6: Zoning Standards: Overlay District Standards (add article for overlay

(replacing Article 6. Street Types)

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Article 50-3. Zoning Districts.

50-1.3 Definitions

(these are new definition to be integrated into the existing 50-1.3 Zoning)

Basal Area. A method of determining Woodland density by measuring the cross-sectional area of individual tree stems over a particular unit area.

Best Management Practices (BMP). Commercial or professional procedures that are accepted or prescribed as being correct or most effective.

Canopy, Tree. The upper layer of a Woodland formed by the crowns of mature trees.

Critical Root Zone (CRZ). The zone encompassing the majority of the tree's roots. It is calculated by measuring the diameter of the tree trunk at breast height and measuring outward from the trunk eighteen (18) inches for every inch of trunk diameter. Refer to Figure 50.XX Measuring Critical Root Zone.

Develop. The construction, removal, or renovation of a primary or accessory structure or other impervious surfaces on a parcel.

Diameter at Breast Height (DBH). The diameter of a tree trunk measured at breast height, or 4.5 feet above ground level.

Disturbance. Any placement of impervious surface or structure; exposure or movement of soil, including removal or

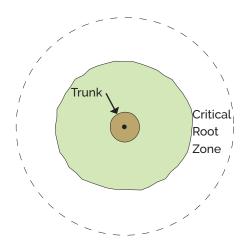


Figure XX Measuring Critical Root Zone

addition of soil or other natural or manufactured materials; or clearing, cutting, or removing of vegetation.

Ecosystem Assessment. A method for quickly gathering useful data on the ecologically and biologically significant components of a Woodland habitat over small spatial scales.

Endangered Species. Any species recognized by the State of Michigan and/or Federal government as being in danger of extinction throughout all or significant portion of its range.

Forbs. Non-woody plants and wildflowers other than grasses.

Graminoids. Grasses, sedges, and rushes.

Habitat. The natural home or environment of an animal, plant, or any other organism.

Invasive Species. Any living organism that is not native to an ecosystem and causes the ecosystem harm.

Native Species. A species that normally lives and thrives in a particular place as a result of natural processes, not human disturbance or intervention. For the purposes of this Article, place is defined as Kalamazoo/Southwest Michigan.

Natural Communities. Groups of plants and animals and their physical environment that have experienced minimal human-caused disturbance or recovered from that disturbance.

Natural Features. Features defined in the Natural Feature Protection Overlay (refer to 50-6.2, specifically Wetlands, Water Resources, Trees, Woodlands, Floodplains, Slopes, and Natural Heritage Areas).

Natural Vegetation. Plants that grow naturally, especially but not limited to those that provide habitat for wildlife; deep-roots to stabilize banks, shorelines, and slopes; or canopy for shade.

NREPA. Michigan's Natural Resources and Environmental Protection Act, 451 of 1994, as amended.

Ordinary High Water Mark. The upper limit that the water level reaches during regular changes in water level.

Parcel, Parent. The boundaries of a site before it is divided into lots for development.

Restoration. The process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.

Riparian. The area alongside a Water Resource or Wetland.

Runoff. The portion of precipitation that does not soak into the ground or evaporate.

Slope. The area of the ground surface where there is a change in elevation over a horizontal distance.

Slope Face. The surface area of the slope from Top to Toe of Slope. Refer to Figure 50-XX Parts of a Slope.

Slope Percent Grade. The vertical change in the elevation of the ground surface (rise) divided by the specific hortizontal distance (run) multiplied by 100.

Species of Concern. Any species considered to be rare, threatened, or endangered by the State of Michigan and/or the Federal government.

Slope Analysis. An analysis based upon a topographic survey used to calculate the grade of slopes.

Stormwater Best Management Practices (BMP). Tools used to prevent or reduce stormwater runoff and/or associated pollutants.

Stormwater Runoff. Runoff and any other surface water drainage that flows into natural or man-made drainage ways.

Top of Slope. The highest part of a slope. Refer to Figure 50-XX Parts of a Slope.

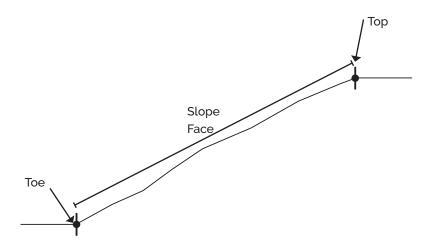


Figure XX Parts of a Slope

Toe of Slope. The lowest part of a slope. Refer to Figure 50-XX Parts of a Slope.

Threatened Species. Any species recognized by the State of Michigan and/or Federal government which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Turf Grass. Any variety of commercial grasses grown and maintained to form turf.

Understory. The layer of vegetation that naturally grows beneath a Tree Canopy.

Wetland Determination. A limited study to determine whether an area meets the definition of a Wetland.

Wildlife Habitat Corridor. A link of wildlife habitat, generally native vegetation, which joins two or more larger areas of similar wildlife habitat.

Vegetated Buffer. A permanent, maintained strip of vegetation designed to slow surface Stormwater Runoff velocity and filter out sediment and other pollutants.

Zoning District, Base. Also referred to as underlying zoning. This is the Zoning District and regulations applied to a parcel through the 50.XX Zoning Map.

Zoning District, Overlay. Another set of standards placed on a parcel or area in addition to the standards of the Base Zoning District.

Article 50-3. Zoning Districts.

50-3.2 Overlay Zone Districts. Refer to Figure XXX Zoning Overlay Map of the following overlay districts.

A. Natural Feature Protection (NFP) Overlay District. Natural Features Protection (NFP) Overlay District is an overlay district providing additional development standards for parcels containing or adjacent to Natural Features.

DRAFT 2 Article 6. Zoning Standards: Overlay District Standards

50-6.1 Overlay District Requirements.

A. Applicability. Overlay Districts are applied to parcels in addition to the base or underlying Zoning District as mapped in Figure XX Zoning Map.

- B. Intent. Overlay Districts provide an additional set of requirements for the development and use of parcels with the overlay designation.
- C. Conflict. If a conflict arises between the Overlay District regulations and those of the base Zoning District, the Overlay District regulations take precedent unless otherwise approved by the City Planner.
- D. Existing Structures. Structures existing on (insert date of approval) that do not meet the setbacks required in this Overlay are permitted and may be altered or expanded provided that they do not increase the amount of their non-conformance with the standards in this Article.

50-6.2 Natural Features Protection Overlay Standards

A. Intent. The NFP Overlay is intended to protect Natural Features in Kalamazoo, specifically Wetlands, Water Resources, Trees, Woodlands, Floodplains, Slopes, and Natural Heritage Areas. Refer to Figure XX NFP Overlay Map.

- B. Applicability. The NFP Overlay standards apply as follows.
 - (1) The Natural Features Standards are divided by defined Natural Feature. When a parcel is developed, redeveloped, or the Natural Feature is impacted due to any site alterations, the standards for all applicable Natural Features are applied.
 - (2) The Site Development Standards shall be applied to all parcels in the NFP Overlay.
 - (3) Overlay standards shall not eliminate the need to obtain a permit from the Michigan Department of Environmental Quality (MDEQ) or any other State, Federal, or regional permitting agency, if required.
- C. Natural Feature Standards.
 - (1) Wetlands. A Wetland is any area, regardless of parcel boundaries, that is characterized by the presence of water at a frequency and duration sufficient to support wetland vegetation or aquatic life, or otherwise defined in Part 303 of the NREPA. It is commonly referred to as a bog, swamp, or marsh.
 - (a) Wetland Determination. If any area on a parcel appears to be supporting wetland vegetation or is identified on the National Wetlands Inventory (NWI) map, one of the following is required.
 - [1] The area in question shall be treated as a Wetland and the standards of this Overlay apply.

- [2] A Wetland Determination shall be completed by a qualified professional to confirm whether the area in question is a Wetland.
- (b) Altering a Wetland. Alteration to a Wetland is prohibited except as allowed by the NREPA. A copy of any required permits obtained from the State must be submitted to the City.
- (c) Wetland Setbacks. Setback distance is measured from the outer edge of Wetland vegetation. Refer to Figure 50.XX Measuring Wetland and Water Resource Setbacks.
- [1] The size of the Wetland setback is based on the size of the parent parcel.
- [a] 25' setback on parcels greater than one (1) acre.
- [b] 20' setback on parcels between a half (1/2) acre and up to one (1) acre.
- [c] 15' setback on parcels less than a half (1/2) acre.
- [2] Prohibited Activities. The follow activities are prohibited in the setback.
- [a] Development activities, including structures, impervious surfaces, parking, driveways, etc.
- [b] New Stormwater BMPs.
- [3] Permitted Activities. The follow activities are permitted in the setback.
- [a] Water and sewer lines, utility lines, required infrastructure, bridge abutments or approaches, or semipervious, non-motorized trailways, may be developed and maintained within a Wetland setback with approval from all applicable local, State, and/or Federal agencies.
- [b] Restoration activities, including replanting with approval from all applicable local, State, and/or Federal agencies.

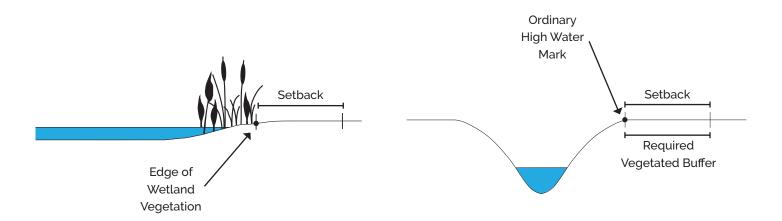


Figure XX Measuring Wetland and Water Resource Setbacks.

- [c] Mitigation activities required under the NREPA.
- (d) Protection During Construction. Appropriate erosion control measures must be used according to Chapter 30.
- (2) Water Resources. A Water Resource is any lake, pond, or impoundment; a river, stream, or creek which may or may not be serving as a drain; or any other body of water that has defined banks, a bed, and visible evidence of a continued flow or continued occurrence of water.
 - (a) Altering a Water Resource. Alteration to a Water Resource is prohibited except as allowed by the NREPA. A copy of any required permits obtained from the State must be submitted to the City.
 - (b) Water Resource Setbacks. Setback distance is measured from the Ordinary High Water Mark of all Water Resources, including when the Water Resource is located off of the parcel. Refer to Figure 50.XX Measuring Wetland and Water Resource Setbacks.
 - [1] The size of the Water Resource setback is based on the size of the parent parcel.
 - [a] 25' setback on parcels greater than one (1) acre.
 - [b] 20' setback on parcels between a half (1/2) acre and up to one (1) acre.
 - [c] 15' setback on parcels less than a half (1/2) acre.
 - [2] Prohibited Activities. The follow activities are prohibited in the setback.
 - [a] Development activities, including structures, impervious surfaces, parking, driveways, etc.
 - [b] New Stormwater BMPs.
 - [3] Permitted Activities. The following activities are permitted in the setback.
 - lal Up to twenty (20) percent of the setback area may be developed with semi-pervious materials, such as paths, or mowed Turf Grass.
 - Ib] Water and sewer lines, utility lines, required infrastructure, bridge abutments or approaches, or semi-pervious, non-motorized trailways, may be developed and maintained within a Water Resource setback with approval from all applicable local, State, and/or Federal agencies.
 - Icl Disturbance to the bank or shoreline, as expressly allowed under State law, is permitted when a restoration plan is prepared by a qualified professional, such as a Michigan Certified Natural Shoreline Professional.
 - [d] Operation and maintenance of existing flood control facilities or Stormwater BMPs that are located within the setback is permitted.
 - (c) Required Planting. The setback must contain Natural Vegetation, including a combination of Riparian trees, shrubs, grasses, and Forbs to form a Vegetative Buffer. The Vegetative Buffer must meet one (1) of the following.
 - [1] Where the bank or shoreline is already covered in Natural Vegetation.
 - [a] Existing vegetation must remain undisturbed during and after construction activities.
 - [b] Supplemental planting or seeding is allowed when Native Species are used. Mowed turf grass does not qualify as Natural Vegetation.

Table 6.2-X Example Plants for Vegetated Buffers

Common Name	Scientific Name	Туре
Silky Dogwood	Cornus amomum	Shrub
Red Osier, Red Twig Dogwood	Cornus stolonifera, sericea	Shrub
Common Elderberry	Sambucus canadensis	Shrub
Atlantic Ninebark	Physocarpus opulifolius	Shrub
Common Winterberry	Ilex verticillata	Shrub
Northern Spicebush	Lindera benzoin	Shrub
Highbush Blueberry	Vaccinium corymbosum	Shrub
Hairy Sedge	Carex lacustris	Graminoid
Tussock Sedge	Carex stricta	Graminoid
Bottlebrush Sedge	Carex hystericina	Graminoid
Bebb's Sedge	Carex bebbii	Graminoid
Common Fox Sedge	Carex vulpinoidea	Graminoid
Prairie Cordgrass	Spartina pectinata	Graminoid
Dark-Green Bulrush	Scirpus atrovirens	Graminoid
Cottongrass Bulrush	Scirpus cyperinus	Graminoid
Bluejoint Grass	Calamagrostis canadensis	Graminoid
Common Rush	Juncus effusus	Graminoid
Spotted Joe-Pye-Weed	Eutrochium maculatum	Forb
White Turtlehead	Chelone glabra	Forb
New England American Aster	Symphyotrichum novae-angliae	Forb
Purple-Stem American Aster	Symphyotrichum puniceum	Forb
Parasol White-Top	Doellingeria umbellata	Forb
Common Boneset	Eupatorium perfoliatum	Forb
Swamp Milkweed	Asclepias incarnata	Forb
Cutleaf Coneflower	Rudbeckia laciniata	Forb
Pin Oak	Quercus palustris	Tree
Swamp White Oak	Quercus bicolor	Tree
Black Tupelo	Nyssa sylvatica	Tree
Tamarack, American Larch	Larix laricina	Tree

- [c] Removal of invasive species and/or dead or diseased woody species are allowed, if they are replaced according to the parameters in 50-6.2X.
- [2] Where the bank or shoreline is not covered in Natural Vegetation.
- [a] A Vegetative Buffer must be planted and maintained in the setback.
- [b] Soil preparation for planting is allowed with proper soil erosion controls.
- [c] A diverse mix of appropriate native species is required, as follows.
- i. At least twelve (12) different species must be planted.
- ii. At least two (2) species from each of the following plant types must be planted: shrubs, Graminoids, and Forbs (see examples in Table 6.2-X Example Plants for Vegetative Buffers).
- iii. Trees may be planted if appropriate to the site (see Table 6.2-X).
- [d] Any combination of native seed mix, plant plugs, bare root trees or shrubs, and/or container plants, trees, or shrubs are permitted.
- (e) Protection During Construction. Appropriate erosion control measures must be used according to Chapter 30.
- (f) Operation and Maintenance Agreement. The Vegetative Buffer must be included in the Stormwater Operation and Maintenance Agreement, if one is required.
- (3) Floodplains. Reserved.
- (4) Trees. Trees that provide special value to the community or ecosystem are protected through the NFP Overlay.
 - (a) Tree Criteria. When Trees meet any of the following criteria and are not counted as part of a Woodland, as defined in 50-6.2C(5), the standards of this overlay apply.
 - [1] Trees on the Special Status Tree List in Table 6.2-X.
 - [2] Any Tree larger than twenty-four (24) inches DBH.
 - (b) Tree Protection. Trees and their CRZ shall be protected during site development and construction.
 - [1] Disturbance. No disturbance is allowed within a CRZ, except as follows.
 - [a] Fences are permitted when they meet all other applicable zoning standards.
 - (b) Management of other Trees or Woodlands with a plan by a qualified professional, such as an International Society of Arboriculture (ISA) Certified Arborist.
 - [2] Protection During Construction. The CRZ of Trees shall be protected following the standards of 50-6.2.D(6) Protection During Construction.
 - (c) Tree Removal. Trees may be removed in the following circumstances.
 - [1] Tree is located such that it impedes access to the site or prevents utility connections.
 - [2] The Tree has sustained substantial damage prior to site work or a qualified professional has determined the tree to be diseased or dying.
 - [3] Location of the Tree presents a threat to the structural integrity of an existing structure or other infrastructure.



- (d) Replacement. Any Tree meeting the criteria which is removed from the parcel must be replaced as follows.
- [1] The replacement ratio is 1:1, where for every inch of Tree removed in total from the parcel, an equivalent number of inches must be replaced by newly planted Trees as follows.
- [a] Inches of Tree shall be measured at DBH.
- Ib] Replacement Trees shall be selected from the Replacement Tree List in Table 6.2-X. Site context should be taken into consideration when selecting a replacement Tree.
- [c] Replacement Trees must be two (2) inch caliper or greater, unless otherwise stated in Table 6.2-X.
- [2] A replacement ratio of 2:1 is applicable in the following circumstances.
- [a] Replacement Tree is four (4) inch caliper or greater.
- [b] Replacement Tree has a special value in terms of long-term survival rate, habitat quality, and climate change adaptation, as indicated by the ratios in Table 6.2-X Replacement Tree List.
- [3] Location. Replacement Trees shall be located as follows.
- [a] Replacement Trees shall be located on the site from which they are removed.
- [b] The NFP Review Board can approve alternative locations, if on-site replacement is not possible provided that the alternative is within the City of Kalamazoo.
- [c] Replacement Trees cannot be located within a parking lot.
- (5) Woodlands.
 - (a) Woodland Criteria. When trees located on a parcel meet the following criteria, the area shall be considered a Woodland and the standards of this overlay apply.
 - [1] Minimum Size. Trees cover a minimum area of 21,780 square feet or a half (1/2) acre, regardless of parcel boundaries.
 - [2] Tree Count. The area supports the equivalent of at least forty (40) trees per acre of at least two (2) inches DBH and reach at least fifty (50) feet height at maturity.
 - [3] Natural Ground Cover. No more than twenty-five (25) percent of the area is mowed.
 - [4] Understory. The area supports shrubs attaining a height of at least five (5) feet and/or Forbs.
 - (b) Woodland Delineation and Assessment. Refer to Figure XX Defining and Delineating a Woodland. Existing Woodland coverage on the parcel shall be delineated and assessed as follows.
 - [1] Gaps. Areas without trees or that have sparse trees are common within a Woodland and should be included in area and density measurements except when the gap is larger than 8,000 square feet.
 - [2] Woodland Assessment Tools. A Woodland must be assessed using a Basal Area, Ecosystem Assessment, or tree survey conducted by a qualified professional, such as an ISA Certified Arborist.
 - (c) Woodland Protection. For areas meeting the definition of a Woodland, a portion of the Woodland on the parcel must be preserved as follows.



[1] Woodland Preservation Minimums. Woodlands shall be preserved following the coverage requirements in Table 6.2-X Woodland Preservation.

[2] Criteria for Woodland Preservation. In determining which areas of a Woodland are to be preserved, the following priorities shall be applied.

- [a] Woodlands contiguous to forested areas on adjacent parcels.
- [b] Woodlands on or adjacent to another Natural Feature(s), floodplains, or a publicly accessible open space.
- [c] Woodlands with the highest Basal Area score or another Ecosystem Assessment score.
- [d] Woodlands with older growth, higher DBH trees, or trees noted in 50.XX Replacement Trees List.

Table 6.2-X Woodland Preservation

Woodland Coverage of Parent Parcel	Minimum Required Woodland Coverage to be Preserved
75% to 100%	25%
50% up to 75%	50%
25% up to 50%	75%
Less than 25%	90%

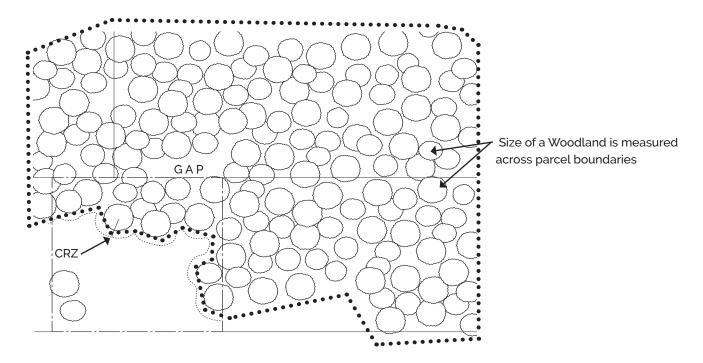


Figure XX Defining and Delineating a Woodland

Table 6.2-X Special Status Tree List

Common Name	Scientific Name	DBH (inches)*
Ash	Fraxinus spp. (not culivars)	18"
Basswood, Linden	Tilia americana	18"
Beech	Fagus spp.	18"
Buckeye (Horsechestnut)	Aesculus spp.	18"
Cherry, Black	Prunus serotina	18"
Elm, American	Ulmus americana	18"
Elm, Slippery	Ulmus rubra	18"
Elm, Winged	Ulmus alata	18"
Fir	Abies spp.	18"
Fir, Douglas	Pseudotsuga menziesii	18"
Kentucky Coffeetree	Gymnocladus dioicus	18"
Maple, Red	Acer rubrum	18"
Maple, Silver	Acer saccharinum	18"
Maple, Sugar	Acer saccharum	18"
Pine, Red	Pinus resinosa	18"
Pine, White	Pinus strobus	18"
Spruce	Picea spp.	18"
Sycamore, American	Plantanus occidentalis	18"
Tuliptree	Liriodendron tuliperifera	18"
Walnut, Black	Juglans nigra	18"
Honey Locust	Gleditsia triacanthos	16"
Oak, Black	Quercus velutina	16"
Oak, Bur	Quercus macrocarpa	16"
Oak, Northern Red	Quercus rubra	16"
Oak, White	Quercus alba	16"
Arbor-vitae, Eastern White Cedar	Thuja occidentalis	12"
Birch	Betula spp.	12"
Birch, River	Betula nigra	12"
Cherry, Flowering	Prunus spp.	12"
Crabapple	Malus spp.	12"
Dawn Redwood	Metasequoia glyptostroboides 12"	
Eastern Hemlock	Tsuga canadensis	12"

Table 6.2-X (Continued) Special Status Tree List

Common Name	Scientific Name	DBH (inches)*
Hickory, Bitternut	Carya cordiformis	12"
Hickory, Pignut	Carya glabra	12"
Hickory, Shagbark	Carya ovata	12"
Hickory, Shellbark	Carya laciniosa	12"
Oak, Chinkapin	Quercus muehlbergii	12"
Oak, Northern Pin	Quercus ellipsoidalis	12"
Oak, Swamp White	Quercus bicolor	12"
Pear	Pyrus spp.	12"
Persimmon	Diospyros virginiana	12"
Poplar	Populus spp.	12"
Sassafras	Sassafras albidum	12"
Sweet gum	Liquidambar styraciflua	12"
Willow, black	Salix nigra	12"
Yellowwood	Cladrastis lutea	12"
American Chestnut	Castanea dentata	8"
Black tupelo, black gum	Nyssa sylvatica	8"
Butternut	Juglans cinerea	8"
Cedar, Eastern Red	Juniperus virginiana	8"
Hackberry	Celtis occidentalis	8"
Hawthorn	Crataegus crus-galli and other spp.	8"
Larch/Tamarack	Larix laricina	8"
Maple, Mountain/Striped	Acer spicatum/pensylvanicum	8"
American Hophornbeam	Ostrya virginiana	4"
American Hornbeam, Blue Beech	Carpinus caroliniana	4"
Dogwood, Flowering	Cornus florida (native only)	4"
Dwarf Hackberry	Celtis tenuifolia	4"
Eastern Redbud	Cercis canadensis	4"
Pawpaw	Asimina triloba	4"
Serviceberry	Amelanchier spp.	4"

^{*}Tree species with DBH greater than or equal to the values in this column of the table require replacement with any species on the Replacement Tree List if removed for construction/development.

Gray Highlight = Tree species must be replaced with a different species from the Replacement Tree List.

Table 6.2-X Replacement Tree List

Common Name	Scientific Name	Replacement Ratio	Condition Code
Basswood, Linden	Tilia americana	1:1	Cs
American Chestnut	Castanea dentata	2:1, (hybrid)	Cr, F, Cul
American Hophornbeam	Ostrya virginiana	1:1	P, Cr
American Hornbeam, Blue Beech	Carpinus caroliniana	2:1	Cr, P
Arborvitae, Eastern White Cedar	Thuja occidentalis	1:1	Cv, Cs
Birch	Betula spp.	1:1	Cv
Birch, River	Betula nigra	1:1	P, Ri
Black Tupelo, Black Gum	Nyssa sylvatica	2:1	Cr, Ri
Buckeye (Horsechestnut)	Aesculus spp.	2:1	Cr, Cs
Butternut	Juglans cinerea	1:1	F, Cv
Cedar, Eastern Red	Juniperus virginiana	2:1	Cr, P
Cherry, Black	Prunus serotina	1:1	
Cherry, Flowering	Prunus spp.	1:1	
Crabapple	Malus spp.	1:1	Р
Dawn Redwood	Metasequoia glyptostroboides	1:1	
Dogwood, Flowering	Cornus florida (native only)	2:1	Cr
Dwarf Hackberry	Celtis tenuifolia	1:1	
Eastern Hemlock	Tsuga canadensis	1:1	Cv
Eastern Redbud	Cercis canadensis	2:1	Cr, P
Elm, American	Ulmus americana	2:1	Cul, Cs
Elm, Slippery	Ulmus rubra	1:1	
Elm, Winged	Ulmus alata	1:1	
Hackberry	Celtis occidentalis	2:1	Cr
Hawthorn	Crataegus crus-galli and other spp.	2:1	Cr, P
Hickory, Bitternut	Carya cordiformis	2:1	Cr, F, Ri, Cs
Hickory, Pignut	Carya glabra	2:1	Cr, F, Cs
Hickory, Shagbark	Carya ovata	2:1	Cr, F, Cs
Hickory, Shellbark	Carya laciniosa	2:1	F, Ri, Sc
Honey Locust	Gleditsia triacanthos	2:1	Cr
Kentucky Coffeetree	Gymnocladus dioicus	2:1	Cr
Larch/Tamarack	Larix laricina	2:1	Ri, Cs
Maple, Red	Acer rubrum	2:1	Cv, Cs
Maple, Silver	Acer saccharinum	2:1	Cr, Ri, Cs

Table 6.2-X (Continued) Replacement Tree List

Common Name	Scientific Name	Replacement Ratio	Condition Code
Maple, Sugar	Acer saccharum	1:1	Cv, Cul
Oak, Black	Quercus velutina	2:1	Cr, Cs
Oak, Bur	Quercus macrocarpa	2:1	Cr, Cul, Cs
Oak, Chinkapin	Quercus muehlbergii	2:1	Cr, Cs
Oak, Northern Pin	Quercus ellipsoidalis	2:1	Cr, Ri, Cs
Oak, Northern Red	Quercus rubra	2:1	Cr, Sc
Oak, Swamp White	Quercus bicolor	2:1	Cr, Ri, Sc
Oak, White	Quercus alba	2:1	Cr, Cul, Sc
Pawpaw	Asimina triloba	2:1	Cr, F
Persimmon	Diospyros virginiana	2:1	Cr, F
Pine, Red	Pinus resinosa	1:1	
Pine, White	Pinus strobus	1:1	
Populus	Populus spp. (except deltoides, alba)	1:1	Cv
Sassafras	Sassafras albidum	1:1	
Serviceberry	Amelanchier spp.	1:1	P, F
Spruce	Picea spp.	1:1	
Sycamore, American	Plantanus occidentalis	2:1	Cr
Tuliptree	Liriodendron tuliperifera	1:1	Cr, Cs
Walnut, Black	Juglans nigra	2:1	F, Cs
Willow, Black	Salix nigra	1:1	Ri
Ash	Fraxinus spp.	RESTRICTED	
Beech	Fagus spp.	RESTRICTED	
Fir	Abies spp.	RESTRI	CTED
Fir, Douglas	Pseudotsuga menziesii	RESTRI	CTED
Ginkgo	Ginkgo biloba	RESTRI	CTED
Pear	Pyrus spp.	RESTRI	CTED
Yellow Wood	Cladrastis lutea	RESTRI	CTED
Maple, Mountain/Striped	Acer spicatum/pensylvanicum	RESTRI	CTED

Condition Codes:

RESTRICTED = Species not to be used as replacement tree

Cr = Climate Resilient

Cs = Carbon sequestration

Cul = Culturally significant

F = Food source

P = Suitable for parking lots and roadways

Ri = Suitable for riparian/wet plantings

Cv = Climate vulnerable

- (d) Prohibited Activities.
- [1] Disturbance. No disturbance is allowed within a preserved Woodland, the boundary of which is defined by the CRZ of trees along its edges, except for the following activities.
- [a] Fences are permitted when they meet all other applicable zoning standards.
- [b] Management of the Woodland vegetation with a plan by a qualified professional, such as an ISA Certified Arborist.
- [2] Stormwater. No new Stormwater BMPs within the CRZ.
- (d) Permitted Activities. Operation and maintenance of public utilities is permitted within the CRZ. Trenching shall be used whenever possible.
- (e) Construction Protection. Woodlands trees and their CRZ shall be protected during site construction following the standards of 50-6.2.D(6) Protection During Construction.
- (6) Slopes. Slopes associated with Water Resources and other Natural Features are protected by the NFP Overlay.
 - (a) Slope Criteria. Slopes protected by the NFP Overlay are those with a grade of twenty (20) percent or greater and meet at least one of the following.
 - [1] Slope Face contains a Woodland, refer to 50-6.2C(5).
 - [2] Slope Face contains Natural Heritage Area, refer to 50-6.2C(7)
 - [3] Any portion of the Slope Face is within five-hundred (500) feet of a Wetland or Water Resource, refer to 50-6.2C(1) and 50-6.2C(2).
 - [4] Any portion of the Slope Face extends onto adjacent parcels.
 - (b) Slope Determination. If any area on a parcel appears to meet the Slope Criteria, one of the following is required.
 - [1] The entire Slope Face in question shall be treated as a protected Slope and the standards of this Overlay apply.
 - [2] An analysis shall be completed by a licensed surveyor, licensed professional engineer, or a geologist certified by the American Institute of Professional Geoscientists (AIPG) following all acceptable practices to determine whether or not any part of the Slope Face meets the Slope Criteria.
 - (c) Slope Protection. Slopes shall be maintained and protected as follows.
 - [1] Setbacks. A setback is required from the Top of Slope and the Toe of Slope equal to half (1/2) the height of the Slope, regardless of whether or not the entire Slope is contained within the parcel, or ten (10) feet, whichever is greater. Refer to Figure 50-XX Slope Setbacks.
 - [2] Permitted Activities in the Setbacks. Setback areas from the Top or Toe of Slope shall remain undisturbed except as follows.

[a] Any work necessary to maintain the stability of the Slope.

[b] Restoration and management of other Natural Features provided that they meet the requirements of this Overlay.

- [c] Fences are permitted when they meet all other applicable zoning standards.
- [d] Normal maintenance that does not disturb existing terrain.
- [e] Existing impervious surfaces and structures may be maintained.

If] In addition to the requirements in 50-6.1.D, existing structures located in the setback may be expanded up to twenty-five (25) percent of the existing building footprint as follows.

- i. The expansion does not disturb the Slope Face.
- ii. Ground disturbance is the minimum needed for the expansion.
- [3] Permitted Activities in the Slope Face. The Slope Face shall remain undisturbed except as follows.

Table 6.2-6 Existing Structure Expansion Limits

		Expansion Permitted Within	
Existing Building Location	Maximum Expansion*	Slope Setback	Slope Face [≤30% grade]
Slope Setback Only	25%	Yes	No
Slope Setback and Slope Face	25%	Yes	Limited to 15%*

^{*}Expansion limits are expressed as a percentage of the existing building footprint.



Figure XX Slope Setbacks

- [a] Any work necessary to maintain the stability of the Slope Face, including the Top and Toe of Slope.
- [b] Restoration and management of other Natural Features provided that they meet the requirements of this Overlay.
- [c] Normal maintenance that does not disturb existing terrain.
- [d] Existing impervious surfaces and structures may be maintained.
- [e] In addition to the requirements in 50-6.1.D, existing structures where a portion of the structure is in the Slope Face may be expanded up to twenty-five (25) percent of the existing building footprint as follows.
- i. The expansion can only occur on Slopes with a grade of thirty (30) percent or less.
- ii. Expansion in the Slope Face is limited to no more than fifteen (15) percent of the existing building footprint.
- iii. Ground disturbance is the minimum needed for expansion.
- [4] Prohibited Activities. The following activities are prohibited.
- [a] Surface water shall not be directed toward any Slope regulated by this Overlay.
- [b] Stormwater BMPs are not permitted within the Slope Face or the setbacks, including storm sewer outlets.
- [c] No new underground utilities may be placed within the Slope Face or setbacks.
- [5] Construction Protection. The Slope Face and setbacks shall be protected during site development and construction following the standards of 50-6.2.XX Protection During Construction.
- (7) Natural Heritage Areas. Rare species and remnants of historically and culturally significant ecosystems are protected by the NFP Overlay.
 - (a) Natural Heritage Area Criteria. A Natural Heritage Area is defined by the presence of either of the following.
 - [1] Any species considered to be rare, threatened, or endangered by the State of Michigan and/or the Federal government.
 - [2] Any remnant of a Natural Community listed on the Michigan Natural Features Inventory (MNFI) list.
 - (b) Determination of Natural Heritage Area. The MNFI Natural Heritage Database shall be used to determine if any rare species have been located with a two (2) mile radius of the parcel.
 - (c) On-Site Survey. When a database search indicates a rare species has been identified within two (2) miles of the parcel, an on-site survey shall be conducted. The survey must be conducted by a consultant with a Michigan Endangered Species Permit or another qualified professional approved by the City Planner.
 - (d) Natural Heritage Area Protection. If the on-site survey confirms that a Natural Heritage Area exists on the parcel, all State and Federal protections and/or mitigation activities must be followed. A copy of any required permit obtained from a State or Federal agency must be submitted to the City.

- D. Site Development Standards. The following standards apply to all properties within the NFP Overlay.
 - (1) Building Setbacks. When a conflict exists between meeting the 50-6.2.C NFP Standard and the required placement of structures, the setbacks or built-to zones or lines may be adjusted to eliminate or reduce the conflict provided that the adjusted is the minimum required to meet the NFP standards.
 - (2) Use. In addition to the uses permitted in the Base Zoning District, the following apply.
 - (a) Appendix A 3.5 Wellhead Protection Overlay 10-year use restrictions.
 - (b) Outdoor storage of loose materials is prohibited within five hundred (500) feet of a Water Resource or Wetland.
 - (c) Appendix A 3.5 Wellhead Protection Overlay 1-year use restrictions apply within five hundred (500) feet of a Water Resource or Wetland.
 - (3) Lot Coverage. Areas designated to meet the pervious surface requirement of a the Base Zoning District shall meet the following requirements.
 - (a) Natural Features. Areas left undisturbed per the standards in 50.6-2.C count toward a parcel's pervious lot coverage requirement.
 - (b) Undisturbed Areas. All areas designated to meet a parcel's overall pervious lot coverage requirement must remain undisturbed except for the following.
 - [1] Restoration or maintenance of the pervious area when guided by a plan developed by a qualified professional.
 - [2] Planting or restoration of plants or trees per the standards in 50.6-2C.
 - [3] Stormwater BMPs from the Michigan Low Impact Development (LID) Manual BMP Matrix Table in the Runoff Volumes and Infiltration category count toward a parcel's pervious coverage requirement at a ratio of two (2) square feet of BMP equal to one (1) square foot of pervious coverage or at a rate of fifty (50) percent.
 - (c) Location. Areas designated to meet a parcel's overall pervious lot coverage requirement shall be located using the following.
 - [1] Contiguous. Pervious areas shall be located in one (1) contiguous area or clustered into areas that each equal at least twenty (20) percent of the total pervious area.
 - [2] Adjacent to Natural Features. Pervious areas shall be located adjacent to defined Natural Features.
 - (d) Construction. Pervious areas shall be protected during construction and site development through barrier fencing as described in 50-6.2XX.
 - (d) Semi-Pervious Allowance. A semi-pervious allowance of up to fifteen (15) percent may be utilized to meet the lot coverage requirement.
 - (4) Landscape and Screening. Additional landscape and screening activites apply within the NFP Overlay.
 - (a) Relief. A reduction in a parcel's required building perimeter, parking lot, loading zone, perimeter screening, or interior landscaping requirements (refer to Appendix A. 6.2 Landscaping and Open Space) may be permitted to

eliminate conflicts with meeting the requirements of the standards in 50.6-2C.

- [1] Relief shall be the minimum required to meet the NFP standards.
- [2] Landscaping serving as a buffer between residential and non-residential uses and between a vehicular parking lot and a street shall not be reduced.
- (b) Plant Selection. Native species must be used for all site landscaping. Plants in Table 6.2-XX Prohibited Planting List shall not be planted on any portion of a parcel.
- (c) Existing Vegetation. When a parcel's existing vegetation is being preserved and utilized to meet landscaping requirements in Appendix A. 6.2 Landscaping and Open Space the following applies.
- [1] Existing nonnative plants must be contained within the planting areas.
- [2] Existing invasive plants must be removed. Refer to *Meeting the Challenge of Invasive Plants* by MNFI or Table 6.2-XX Prohibited Planting List.
- (5) Lighted Signs. Internally illuminated, automatic changeable copy, and blinking and/or flashing lighted signs are not permitted within three hundred (300) feet of a parcel publicly used for open space or recreation purposes.
- (6) Stormwater Management Criteria. Refer to the City of Kalamazoo Performance Standards for Groundwater Protection within Wellhead Protection Capture Zones for additional information and definitions.
 - (a) Channel Protection Performance Standard. Parcels a half (1/2) acre or greater shall maintain the post-development project site runoff volume and peak flow rate at or below pre-development levels for all storms up to the ten (10) year, twenty-four (24) hour event.
 - (b) Water Quality Treatment Runoff Volume Standard. The first one (1) inch of runoff generated from the entire parcel must be treated using one of the following.
 - [1] Multiple Methods. Two or more BMPs shall be utilized with at least twenty-five (25) percent of the required runoff volume treated by BMPs from the Low Impact Development Manual for Michigan, Table 7.1 BMP Matrix Table from "Runoff Volume/Infiltration" and "Runoff Volume/Non-infiltration" categories.
 - [2] Underground Methods. All required runoff shall be treated by underground detention or infiltration BMPs.
 - [3] Non-Infiltration Methods. Sites requiring non-infiltration BMPs, such as those with contamination or within A3.5 Wellhead Protection Overlay, use BMPs from Low Impact Development Manual for Michigan, Table 7.1 BMP Matrix Table, "Runoff Quality/Non-infiltration" category.
 - (c) Maintenance Agreement. A Stormwater Operation and Maintenance Agreement is required by and between the City of Kalamazoo and the owner of the property when Stormwater BMPs are used.
 - (d) Exceptions. Development or redevelopment of a single family home or duplex is exempt from Stormwater standards.
- (7) Fill Materials. Use of fill material containing regulated substances above any State and/or Federal cleanup criteria for soils is prohibited. Fill material shall be sourced as follows.



Table 6.2-X Prohibited Planting List

Common Name	Scientific Name
Trees	
Norway Maple	Acer platanoides
Tree-of-Heaven	Ailanthus altissima
Silktree	Albizia julibrissin
Russian Olive	Elaeagnus angustifolia
Black Locust	Robinia pseudoacacia
Siberian Elm	Ulmus pumila
Shrubs	
Japanese Barberry	Berberis thunbergii
Common Barberry	Berberis vulgaris
Autumn Olive	Elaeagnus umbellata
Glossy Buckthorn	Frangula alnus
Common or European Privet	Ligustrum vulgare
Showy Fly Honeysuckle (or hybrid)	Lonicera x.bella
Amur Honeysuckle	Lonicera maackii
Morrow Honeysuckle	Lonicera morrowii
Tatarian Honeysuckle	Lonicera tatarica
Common Buckthorn	Rhamnus cathartica
Multiflora Rose	Rosa multiflora
Japanese Meadowsweet	Spiraea japonica
European Cranberrybush	Viburnum opulus
Vines	
Asian Bittersweet	Celastrus orbiculatus
Black Swallow-wort	Cynanchum louiseae
European Swallow-wort	Cynanchum rossicum
English Ivy	Hedera helix
Japanese Honeysuckle	Lonicera japonica
Grasses	
Reed Canary Grass	Phalaris arundinacea
Common Reed	Phragmites australis

Common Name	Scientific Name
Herbs	
Garlic Mustard	Alliaria petiolata
	Centaurea biebersteinii or
Spotted Knotweed	C. maculata
Canada Thistle	Cirsium arvense
Bull Thistle	Cirsium vulgare
Leafy Spurge	Euphorbia esula
Dame's Rocket	Hesperis matronalis
Creeping Jenny or Moneywort	Lysimachia nummularia
Purple Loosestrife	Lythrum salicaria
Japanese Knotweed	Polygonum cuspidatum
Giant Knotweed	Polygonum sachalinense

- (a) Fill material shall not be sourced from industrial or commercial sites where hazardous materials were used, handled, or stored or from unpaved parking areas.
- (b) Fill material shall not be sourced from sites where prohibited or restricted species listed by the State have been identified.
- (8) Protection During Construction. A temporary construction fence is required to protect Natural Features and notto-be disturbed areas, such as those designated to meet pervious lot coverage requirements, during the duration of any site work or construction,
 - (a) Fence Construction. Construction fences shall be erected as followed.
 - [1] Fencing must be built using posts six (6) feet in height spaced no more than eight (8) feet apart on center and buried at least two (2) feet below grade.
 - [2] Fence must have two (2) cross beams placed approximately at two (2) and six (6) feet above grade.
 - [3] Plastic mesh barrier fence shall be affixed to the front of the posts.
 - (b) Fence Placement. Refer to Figure 6.2-XX Placement of Construction Fencing. Fencing shall be located no closer than the required setback or edge of a not-to-be disturbed.
 - [1] Where a tree is located in the setback or not-to-be disturbed area, the fencing shall be placed to protect the CRZ. Refer to Figure 50-XX Placement of Construction Fencing.

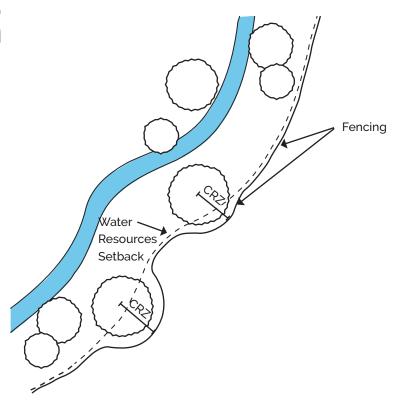


Figure XX Placement of Construction Fencing

- [2] Trees and Woodlands protected through 50-6.2.C(4-5) shall have construction fencing placed outside of the CRZ.
- (c) Prohibited Activities. The following activities are prohibited within the construction fencing.
- [1] Spreading of soil spoils.
- [2] Heavy equipment and vehicle traffic.
- [3] Storage of construction materials and debris.
- [4] Site grading changes that increase or decrease the moisture conditions within a CRZ on a temporary or permanent basis.

E. NFP Review Bodies and Processes.

- (1) Project Review. Review of projects in the NFP Overlay shall occur as follows.
 - (a) Where Site Plan is not required. Administrative Review of the site development or construction permit request shall be completed by the City Planner or designee.
 - (b) Where Site Plan is required. The NFP Review Board shall review the NFP Plan in conjunction with the Site Plan Review process. NFP Review Board approval is required for a project to achieve Site Plan approval.
 - (c) Where Site Plan is required and a zoning review from the Planning Commission and/or Zoning Board of Appeals is requested or the site is located within one hundred (100) feet of a Wetland or Water Resource or adjacent to land publicly used for open space or recreation, the following shall occur prior to review by the NFP Review Board.
 - [1] Owner or developer shall send notice of a project in the NFP Overlay to all property owners and occupants within three hundred (300) feet and the neighborhood association or contact.
 - [2] Notice shall at a minimum include information on the proposed project, a location (physical or digital) where plans can be reviewed, instructions on how to provide comments, and a timeline for project review and construction.
 - [3] Notice shall be sent a minimum of two (2) weeks before application is made for review by the NFP Review Board.
- (2) NFP Review Board. A board will be formed to review projects in the NFP Overlay.
 - (a) Intent. The NFP Review Board will review projects to ensure the standards of the NFP Overlay are met and assist the City with regular review of the NFP standards, map, outreach, and City-wide education.
 - (b) NFP Review Board Members.
 - [1] Board will be comprised of seven (7) members.
 - [2] Members will be those in the greater Kalamazoo community with education or experience in fields related to the Natural Features protected in 50-6.2.

- [a] At a minimum, the Board must have at least one (1) member with education or experience representing each water resources/wetlands, plants/trees, slopes, and site development or building construction.
- [3] Board members will be appointed by the Mayor and approved by the City Commission.
- [4] A City staff will be appointed by the City Planner to be the Board's liaison.
- [5] The NFP Review Board will establish its own by-laws and meeting procedures.
- (3) Relief from NFP Overlay Standards. Relief from the NFP Overlay Standards may be sought from the Zoning Board of Appeals.
 - (a) Criteria. Relief from the NFP Overlay Standards in 50.6-2 may be granted when all the following conditions are met.
 - [1] The parcel cannot be reasonably utilized for its zoned use without the requested relief.
 - [2] The extent of relief is the minimum needed to permit reasonable utilization of the site.
 - [3] It is demonstrated that the relief can be granted without substantial detriment to the public good and will not substantially impair the intent and the purpose of the NFP Overlay.
 - [4] The requested relief is balanced by the use of conservation and/or green development tools and actions, such as utilizing Stormwater BMPs from the Michigan Low Impact Development Manual that promote infiltration, restoration or expansion of a Natural Feature on the site, or use desired plantings as detailed in Table 6.2-X Replacement Trees or Table 6.2-X Example Plants for Vegetative Buffers.
 - (b) Process. The following process shall be followed when relief is sought from 50.6-2 NFP Overlay.
 - [1] NFP Review Board reviews the request using the NFP Site Plan documentation and makes a recommendation on the requested relief to the Zoning Board of Appeals (ZBA).
 - [2] Application for relief from the Zoning Board of Appeals must include the NFP Review Bodies recommendation.

F. Bonding of Projects.

- (1) Intent. To ensure the protection of Natural Features, a bond will be required prior to seeking construction permits for a lot or structure from the City of Kalamazoo.
- (2) Applicability. A bond is required for all NFP Overlay projects that require Site Plan approval.
- (3) Bond Amount. A bond of an amount satisfactory to the City will be held to restore and/or stabilize a site that has been disturbed, not properly managed during site work or construction, or has been abandoned for more than six (6) months.
- (4) Release of Bond. The bond shall be released in two steps: when a Certificate of Occupancy is granted, the bond may be reduced by sixty (60) percent with the remaining percentage returned no sooner than five (5) years after the granting of the certificate of occupancy.

- G. Penalty. A violation of the provisions in 50.6-2 is a municipal civil infraction punishable as follows.
 - (1) A fine of up to \$1,000 per infraction per day with the severest penalty applied to the removal and or destruction of a Natural Feature as defined by this Article.
 - (2) Imposition of court-imposed costs.
 - (3) Issuance of an order by the court to replace, mitigate, or restore a Natural Feature damaged or destroyed by a violation.