

ORDINANCE NO. _____

AN ORDINANCE OF THE TOWNSHIP OF LOWER MAKEFIELD, BUCKS COUNTY, PENNSYLVANIA, AMENDING THE PROVISIONS OF THE LOWER MAKEFIELD TOWNSHIP CODE RELATED TO SUBDIVISION AND LAND DEVELOPMENT TO PROVIDE FOR THE USE OF NATIVE PLANTS

WHEREAS, the Board of Supervisors of the Township of Lower Makefield, Bucks County, Pennsylvania, after public hearing and a careful review of the Subdivision and Land Development provisions of the Lower Makefield Township Code has determined that the health, safety and general welfare of the residents and property owners of Lower Makefield Township will be served by amending the Subdivision and Land Development provisions of the Lower Makefield Township Code in accordance with the provisions of this Ordinance.

WHEREAS, Native Plants are localized, well adapted to the local soils and climate, tend to be more insect and disease resistant, and require less watering and fertilizing than non-native plants.

WHEREAS, wildlife such as birds are more attracted to the Native Plants with which they co-evolved, and use such plants for food, cover, and rearing their young.

WHEREAS, Native Plants, having evolved in the climate, are extremely hardy and therefore have lower maintenance and replacement costs.

WHEREAS, in much the same way as saving an historic home, the use of Native Plants helps to preserve our local heritage.

WHEREAS, Native Plant usage helps restore the ecological balance we have lost through development and can help maintain, or even increase, property values.

NOW, THEREFORE, BE IT ORDAINED and ENACTED that the provisions of the Lower Makefield Township Code as it relates to Subdivision and Land Development are amended as provided hereinafter.

Section 1. The provisions of **Article III, Word Usage and Definitions, Section 178-11, Definitions**, are hereby amended by adding the following definitions:

INVASIVE PLANT - An invasive plant is one which grows aggressively, spreads, displaces other plants and has generally been introduced from other continents. Lacking natural predators, disease, or other natural controls, these plants can dominate large areas, diminish and/or limit biodiversity, are

expensive to control and are directly responsible for the extinction and loss of natural plants that have evolved in communities with other plants, wildlife, insects and micro-organisms. The Pennsylvania Department of Conservation & Natural Resources maintains a periodically updated list of Invasive Plants that is available to the general public.

NATIVE PLANT - A Native Plant is one that occurs naturally in an area without human intervention and that was growing in the area prior to the time of European Settlement. Such plants are adapted to the local climate and tend to be more drought, disease and insect resistant than introduced varieties and they help preserve the balance and beauty of natural eco-systems. For purposes of this Ordinance the range of Native Plants shall be the Lower Delaware Valley, Piedmont-Coastal Plain areas; provided, however, that Native Plants from outside but close to that general area will satisfy the requirements of this Ordinance with the approval of the Township's Plant Expert.

NOXIOUS WEED - A generally invasive plant that once declared noxious becomes illegal to sell, transport, plant or otherwise propagate within the Commonwealth. Lists of Noxious Weeds are periodically updated and are available from the Pennsylvania Department of Conservation & Natural Resources.

PENNSYLVANIA CERTIFIED HORTICULTURIST (PCH) - A horticulturist registered under the laws of Pennsylvania and skilled in the use of native vegetation.

PLANT EXPERT – A registered Landscape Architect (RLA) or Pennsylvania Certified Horticulturist (PCH) registered under the laws of Pennsylvania.

REGISTERED LANDSCAPE ARCHITECT (RLA) - A landscape architect registered under the laws of Pennsylvania and skilled in the use of native vegetation.

Section 2. The provisions of **Article XI, Landscape and Open Lands Requirements, Section 178-80, Landscape plan required**, shall be amended to read as follows:

§ 178-80. Landscape plan required.

All major subdivisions and land development plans shall contain a Landscape Plan approved before construction and as part of the subdivision/land development approval process which shall address the conservation of the natural landscape to enhance the development and to protect surrounding areas. All required plants shall be Native Plants. The basic goal is to preserve the native flora by mimicking the localized native plant community. The Landscape Plan shall address all areas of a site that are preserved from development and all site

development exclusive of building areas. The Landscape Plan must address the following requirements: minimization of site disturbance, street trees, buffers, parking area landscaping, preservation of trees in the right-of-way, tree protection during grading and construction and planting in conjunction with stormwater management. The plan shall also indicate the proposed location, quantities and types of plantings and such plants shall be selected from the Township Plant List (Ref. Ex.-1). Since locally grown plants are acclimated to the area, they tend to perform best; therefore, it is desirable, whenever possible, to purchase plants from local sources. The plan shall be prepared by, signed and sealed by the Developer's RLA or PCH and approved by the Township's Plant Expert. ~~A plan for landscaping and street tree planting shall be required with all preliminary and final subdivision and land development plans. The plan shall be prepared at a scale of one inch equals 50 feet. All proposed plant materials shall meet the standards of the American Standard for Nursery Stock (ASNS) American Association of Nurserymen (AAN) and shall be planted, geyed, fertilized and watered in accordance with ASNS AAN standards.~~

Section 3. The provisions of **Article XI, Landscape and Open Lands Requirements, Section 178-81, Street trees**, shall be amended to read as follows:

§178-81. Street trees.

- A. General requirements. Within any land development or subdivision, street trees shall be planted along both sides of all streets where suitable existing street trees or natural wooded areas do not exist.
- B. One of the following street tree planting concepts shall be used:
 - (1) Formal alley of street trees.
 - (a) Use a uniform street tree variety along each side of the right-of-way.
 - (b) Coordinate new plantings with existing street tree plantings where applicable. A uniform canopy from both sides shall be provided.
 - (c) The location of street trees shall be outside the right-of-way, 30 to 35 feet on center.
 - (d) Where a formal row of trees exists, the subdivision or land development shall be planned in a manner which will preserve it, where possible.
 - (e) Trees shall be a minimum of three-inch caliper when planted based on the standards of the American Standard for Nursery Stock ~~American Association of Nurserymen~~.

- (2) Naturalized street tree planting.
 - (a) Vary street tree varieties. The minimum size shall be three-inch caliper.
 - (b) An average of one street tree shall be installed for every 30 feet of curb line.
 - (c) Planting design shall accentuate views and integrate contrasting landscape elements.

C. At intersections, trees shall be located no closer than 30 feet from the intersection of the street right-of-way lines, except when governing standards increase the distance for clear sight.

D. Each tree must have a setback of at least four feet from curbs and sidewalks, but no more than 15 feet beyond the street right-of-way line **and be planted outside any utility easements.**

E. Street tree ~~trees shall meet the following~~ standards:

- (1) **Branching height.** The height of branching shall bear a relationship to the size and kind of tree, so that the crown of the tree is in good balance with the trunk. Those trees selected for street tree usage shall have a minimum clearance height of seven feet above grade before branching begins.
- (2) **Caliper.** The minimum trunk diameter shall be three inches. Caliper of the trunk shall be measured six inches above the ground level up to and including four-inch caliper size and 12 inches above the ground level for larger caliper sizes.
- (3) **Height.** The table lists the approved range permitted:

<u>Caliper (inches)</u>	<u>Minimum Height Range (feet)</u>
3 to 3 1/2	14 to 16
3 1/2 to 4	14 to 16
4 to 5	16 to 18
5 to 6	18 and up

- (4) **Root Ball Standards.** All trees to be **installed** shall be balled and burlapped in accordance with **American Standard for Nursery Stock** specifications. ~~American Association of Nurserymen Standards.~~ The ball depth shall be not less than than 60% of the ball diameter and in all cases contain the maximum of the fibrous roots of the tree. Bare root material is not acceptable. The following standards shall apply **to root ball diameters:**

<u>Caliper (inches)</u>	<u>Minimum Root Ball (Diameter) (feet/inches)</u>
3 to 3 1/2	32
3 1/2 to 4	36 <u>38</u>
4 to 5	44 <u>42</u>
5 to 6	54

F. Trees should be planted outside any underground utility line easements. Also, trees planted under overhead utility lines shall be of a type that when mature shall not substantially grow through such lines. To help prevent tree branches from growing into wires, the following guidelines are recommended: low growing trees (e.g., maximum of 25 to 30 feet high at maturity) can be planted within 15 feet of utility wires and in narrow planting areas (at least 3 feet wide); medium sized trees (e.g., 45 feet maximum height) should be planted a sufficient distance from overhead wires such that their branches do not extend within 15 feet of, or grow over, utility wires; large trees (e.g., over 45 feet high) generally should not be planted within 40 to 50 feet of utility wires nor within 35 feet of a building.

G. Trees shall be planted according to the following procedures:

- (1) Dig hole 2 1/2 to 3 times the width and as deep as the root ball.**
- (2) Backfill with native/existing soil, removing any large debris.**
- (3) Create a circular ridge of soil at the edge of the root zone forming a saucer so that rainwater flows towards the tree roots.**
- (4) Always remove the nursery stake.**
- (5) Tree guying/staking. General tree staking/guying is not recommended except for the following:**
 - (a) Where the tree falls over after the nursery stakes is removed.**
 - (b) In high wind areas.**
 - (c) If required, guying/staking shall follow best current practices as approved by the township's plant expert.**
- ~~(5) Excavated plant pits shall be two feet wider than the ball size.~~
- ~~(6) Backfill mix for the excavated plant pit area shall be composed of one part topsoil, one part peat moss and one part coarse sand.~~
- ~~(7) Tree guying:~~
 - ~~(a) Three No. 12 galvanized steel wires shall be spaced equally around the tree and connected to the tree within rubber hoses so that the wire does not come in contact with the tree.~~
 - ~~(b) For trees up to and including three and one half inch caliper, use three oak rough sawed stakes two inches by two inches by eight feet zero inches.~~

- (e) ~~For trees over three and one half inch caliper, use three ground anchor stakes two inches by two inches by two feet six inches driven flush with grade.~~
- (86) ~~Provide tree wrapping paper the entire length of the tree trunk from the top of ball to the start of lateral branching.~~ Tree wrap shall be tied on with natural twine **and must be removed within one year after planting. If guyed, remove all tree guying material one year after planting.**
- (97) All plantings should be mulched to a depth of three inches in a six-foot diameter ring around the base of each tree or continuous beds if trees or shrubs are less than six feet apart. **Mulch should not be placed against tree trunks and should be placed 4-6" away from the tree trunk flare.**
- (408) ~~Pruning-~~ **Based on best current ASNS practices** each plant shall be pruned to preserve the natural character of the plant. ~~in a manner appropriate to the particular requirements. Branches should be thinned by approximately 25% by removal of crossing, damaged or competing limbs back to a major~~ **intersecting branch.** The leader is to be left intact.
- (449) Plant material. Trees shall be nursery grown stock of specimen quality. They shall be of symmetrical growth or typical of the variety and supplied from sources in the same hardiness zone as the development is located and free of insect or disease problems.
- (10) Alternate planting methods are acceptable upon approval of the Township's Plant Expert.**
- (4211) ~~Approved shade tree/street tree list (See Exhibit 1 located at the end of this chapter) Trees marked with an asterisk may be used where shade trees are required but may not be used as street trees. Other species may be used with the prior approval of the Township.~~ **Other native species not listed and native cultivars may be used with prior approval of the Township's Plant Expert.**

Section 4. The provisions of **Article XI, Landscape and Open Lands Requirements, Section 178-82, Buffer yards**, shall be amended to read as follows:

§ 178-82. Buffer yards.

- A. All buffer requirements of the Lower Makefield Township Zoning Ordinance regarding requirements for buffers, type of buffer, buffer width and planted area shall be met.
- B. Type I buffer. Buffer design and plant materials (nonresidential/residential separation buffer and single-family/multifamily separation buffer) shall be as follows:
- (1) A twenty-five-foot wide buffer is required.

- (2) Berming shall be provided. Berms shall be between two and five feet in height and shall meander in a naturalistic fashion without adversely affecting drainage. Slope-to-height ratios shall not be less than 3 to 1.
- (3) Evergreen trees shall be **a minimum of** six ~~to seven~~ feet in height **and balled and burlapped or containerized**; evergreens shall be planted in a naturalistic fashion, averaging one tree for each 20 feet of buffer, and planted in a manner as to not overtake walks, paths, sidewalks, drives and roadway at the planting's maturity. **Evergreen trees shall be planted a minimum distance of twelve feet from any sidewalk.**
- (4) Shade trees shall be a minimum of three inches in caliper; one shade tree for every three evergreen trees.
- (5) Ornamental flowering trees shall be **a minimum of** eight ~~to ten~~ feet in height; minimum of two-and-one-half-inch-caliper. ~~And~~ **One** flowering tree **is required** for every three evergreen trees.
- (6) Shrubs shall be not less than three feet in height and planted in naturalistic groupings of mixed plant varieties and sizes in masses within mulched planting beds; five shrubs for every evergreen tree with not more than 75% being deciduous varieties and not less than 50% being ornamental flowering varieties.
- (7) Groundcovering plants shall be 18 inches in height maximum at maturity; planted in masses with shrub beds at a rate of one per square foot of shrub bed area with a minimum of 10 plants for each shrub.

Summary of Type 1 Buffer Planting Requirements

Plant Types	Size	Plant Quantities Required
Evergreens	6 to 7 -feet in minimum height	1 evergreen per 20 feet of buffer length
Shade trees	14 feet minimum height; 3 to 3 inch minimum caliper three and one inch caliper	1 shade tree per every 3 evergreens or approximately 1 per 60 feet of buffer length
Ornamental flowering trees	8 to 10 feet minimum in height; 2 1/2 inch minimum caliper	1 flowering tree per every 3 evergreens or approximately 1 per 60 feet of buffer length
Shrubs	Minimum of 3 feet in height	5 shrubs for every 1 evergreen tree or approximately 1 per 4 feet of buffer

length

Groundcovering plants Eighteen-inch maximum height at maturity Ten plants for every 1 shrub

C. Type II buffer. Buffer design and plant materials (reverse frontage buffer) shall be as follows:

- (1) minimum screened planted area of 25 feet closest to the street or bordering lot line.
- (2) Preserve existing **native** trees and supplement with shade-tolerant evergreens, ornamental trees and shrubs selected from the **Township's** plant list. ~~Provided in this chapter.~~ **(See Exhibit 1 located at the end of this chapter).**
- (3) Planted area shall completely screen the views of abutting yards from the street from ground level to six feet above ground level at plant maturity.
- (4) Berming shall be provided; vertically and horizontally meandering berms suggesting a rolling landscape shall be incorporated into the grading design without adversely affecting drainage. Berms shall be 2 to 5 feet in height and shall vary in height and slope. **Slope shall not exceed 3 to 1.** ~~Slope to height ratios shall not be less than 3 to 1.~~
- (5) Planting requirements

Plant Type	Size	Plant Quantities Required
Shade trees	14 feet minimum height; 3 inch minimum caliper	50 trees per 1,000 linear feet of buffer
Evergreen	6 feet <u>minimum</u> height to 10 feet in height	55 trees per 1,000 linear feet of buffer
Ornamental flowering trees	8 feet to 10 feet in <u>minimum</u> height; 2 1/2 inch minimum caliper	10 trees per 1,000 linear feet of buffer
Shrubs	3 feet in <u>minimum</u> height	150 shrubs per 1,000 linear feet of buffer

D. Type III buffer. Buffer design and plant material (farmland buffer) shall be as follows:

- (1) The buffer width shall be 25 feet, in which a ten-foot wide planted area is required.
- (2) The farmland area shall be separated from the residential area by a five-foot-high chain-link fence **or approved substitute** placed on the property line.
- (3) The 10 feet immediately adjacent to the fence shall be planted with **appropriate native species** in informal groupings to achieve a naturalized farmland buffer as an adequate separation between farmland and developed land.
- (4) The remaining 15 feet abutting the farmland shall be planted in grasses or wildflowers to be mowed or groundcovering plants ~~on a slope not to exceed a four to one slope to height ratio.~~ **Buffer areas having a slope of 4 to 1 or steeper shall require groundcover plantings.**
- (5) Planting requirements

Plant Type	Size
Shade trees	14 feet minimum height; 3 inch minimum caliper
Evergreen	6 feet <u>minimum</u> height to 10 feet in height
Ornamental flowering trees	8 feet to 10 feet in <u>minimum</u> height; 2 1/2 inch minimum caliper
Shrubs	3 feet in <u>minimum</u> height

E. Type IV buffer. Buffer design and plant materials (separates institutional use from residences and accessory uses) shall be as follows:

- (1) A twelve-foot-wide buffer area is required.
- (2) Provide berming two to three feet in height with masses of evergreen, shade and ornamental trees and shrubs. ~~The planting shall be mixed varieties of shade trees and evergreen shrubs.~~ All neighboring properties shall be screened from parking areas using a double row of ornamental shrubs or upright habit evergreens ~~evergreens planted three feet on center.~~ The screening shrubs should be **spaced** ~~able~~ to form a compact hedge.

(3) Planting requirements.

<u>Plant Type</u>	<u>Size</u>	<u>Plant Quantities Required</u>
Shade trees	14 feet minimum height; 3 inch minimum caliper	1 tree per 25 linear feet of buffer
Ornamental flowering trees	8 feet minimum height; 2 1/2 inch minimum caliper	
Shrubs	3 feet minimum height	5 shrubs per each shade tree

F. Type V buffer. Buffer design and plant materials (vision screen for storage and maintenance activities) shall be as follows:

- (1) A buffer wide enough to accommodate a fence and plantings abutting the fence, as described below is required.
- (2) A solid **approved** fence shall be provided and shall be placed within the building envelope and not in any required yard area. The fence height shall be adequate to provide a complete visual screen from adjoining properties but not to exceed eight feet in height. Fence details shall be provided with the landscape plan and are subject to approval by the Township.
- (3) Along the exterior face of the fence there shall be a row of ornamental shrubs and/or evergreens in a ~~hedge-habit~~ **hedge-like configuration** planted at a rate to obscure the appearance of the fencing after a five-year growing period. Minimum shrub and upright habit evergreen height at planting shall be four feet.

G. Type VI buffer. Buffer design and plant materials (placed between a commercial, industrial and shopping center use and the street) shall be as follows:

- (1) A ten-foot-wide buffer area is required.
- (2) Shrubs with a planted minimum height of three feet shall be planted, with shade trees interspersed, in a continuous band with a spacing not exceeding five feet on center for shrubs and 30 feet on center for trees.
- (3) Planting requirements

<u>Plant Type</u>	<u>Size</u>
Shade trees	14 feet minimum height; 3 inch minimum caliper
Ornamental flowering	8 feet minimum height

trees 2 1/2 inch minimum caliper

H. Plant materials suitable for buffers may be found in Exhibit 1, Lower Makefield Township’s Native Plant List located at the end of this chapter. Plant materials suitable for buffer yards are listed in the following pages. These pages supplement the street tree/shade tree list in §178.81.

I. Buffer yards within the Historic District. The following buffer standards shall apply and supersede all other provisions of this subsection for the Historic District, which includes all or a portion of the following zoning districts:

- H-C Historic Commercial
- C-1 Commercial Neighborhood Shopping
- R-2 Residential Medium Density
- R-4 Residential Multiple Family High Density

(1) Summary of buffer locations and types.

Types of Buffer

Required Locations	I	II	III	IV	V
Nonresidential/residential Separation buffers	X				
Single-family/multifamily Separation buffers		X			
Farmland preservation buffer			X		
Institutional/residential Separation buffers				X	
Residential accessory uses in Residential districts				X	
Visual screen for storage and Maintenance activities					X

(2) Types of buffer.

(a) Nonresidential/residential separation buffers. A buffer shall be provided wherever a nonresidential use abuts a residential use or a residentially zoned district. The buffer shall be located on the nonresidential property and shall be located long the side and/or rear property line(s) abutting the residential use or district.

[1] A Type I buffer shall be required.

[2] The minimum buffer width shall be five feet.

[3] There shall be an approved solid board fence a minimum of five feet in height.

[4] For buffer design and plant materials, see Chapter I 78, Subdivision and Land Development for Type I buffer design and planting standards.

(b) Single-family/multifamily separation buffers. Buffers shall be provided wherever a multifamily residential development, single-family attached development or a mobile home park abuts a sign-family residential use or district. The buffer shall be located on the multifamily or mobile home park property.

[1] A Type I buffer shall be required.

[2] The minimum buffer width shall be five feet.

[3] There shall be an approved solid board fence a minimum of five feet in height.

[4] For buffer design and plant materials, see Chapter 178, Subdivision and Land Development for Type I buffer design and planting standards.

(c) Preserved open space buffer, such as woodland or farmland. A buffer yard shall be required adjacent to all preserved open space on the side where open space abuts adjacent residential uses or land zoned for residential uses.

[1] A Type III buffer shall be required.

[2] The minimum buffer width shall be five feet.

[3] There shall be a split rail fence with turkey wire attached or approved substitute a minimum of four feet in height.

[4] For buffer design and plant materials, see Chapter 178, Subdivision and Land Development for Type III buffer design and planting standards.

(d) Institutional/residential separation buffers. A buffer shall be provided by an institutional use which abuts a residential use or residential district.

[1] A Type IV buffer shall be required.

[2] The minimum buffer width shall be five feet.

- [3] There shall be an approved solid board fence a minimum of five feet in height.
 - [4] For buffer design and plant materials, see Chapter 178, Subdivision and Land Development for Type IV buffer design and planting standards.
- (e) Residential accessory uses in residential districts. A buffer shall be provided by a residential use where an accessory use has been permitted by special exception which shall separate parking areas and yard areas from adjacent residences or residential districts.
- [1] A Type IV buffer shall be required.
 - [2] The minimum buffer width shall be five feet.
 - [3] There shall be an approved solid board fence a minimum of five feet in height.
 - [4] For buffer design and plant materials, see Chapter 178, Subdivision and Land Development for Type IV buffer design and planting standards.
- (f) Visual screen for storage and maintenance activities. An approved solid fence with evergreen plantings along the exterior face shall be required to be planted around storage areas and maintenance yards to provide security and a complete visual screen.
- [1] A Type V buffer shall be required.
 - [2] The minimum buffer width shall be five feet.
 - [3] There shall be an approved solid board fence with a height in the range of a minimum of five feet to a maximum of seven feet.
 - [4] For buffer design and plant materials, see Chapter 178, Subdivision and Land Development for Type V buffer design and planting standards.
- (g) Parking lot periphery for commercial, institution and office use. A landscaped area with a minimum of five feet in width shall be provided at the periphery of all lots used for commercial, office or industrial activities.

Section 5. The provisions of **Article XI, Landscape and Open Land Requirements, Section 178-83, Existing vegetation**, is hereby amended to read as follows:

§178-83. Existing vegetation.

- A. Where vegetation exists which can meet the objective of the buffer requirements, it shall be preserved and may be used to meet such buffer and planting requirements. **To facilitate this requirement a vegetation study listing quantities, size, species and locations of existing plants must be prepared by the developer's RLA and/or CPH and verified by the Township's Plant Expert.** ~~Quantities, size, species and locations of existing materials must be shown on plans and verified by the Township Engineer.~~
- B. In areas of necessary disturbance, existing quality **native** vegetation may be relocated for use in other areas. Procedures for tree removal and areas of relocation shall be shown on the plan and material for relocation noted in the field by tagging trees for review and inspection by the Township.
- C. **In areas containing Invasive or Noxious Weed Plants, developers are encouraged to remove and destroy such plants to maintain the health of existing vegetated areas.**

Section 6. The provisions of **Article XI, Landscape and Open Lands Requirements, Section 178-84, Landscaping for detention basins**, is hereby deleted in its entirety.

Section 7. The provisions of **Article XI, Landscape and Open Lands Requirements, Section 178-85, Tree protection standards**, shall be amended to read as follows:

§178-85. Tree protection standards.

- A. Tree protection areas shall be delineated to implement the standards contained in the Township Zoning Ordinance and this chapter regarding preservation of trees and woodlands.
- B. Tree protection areas shall be shown on the landscape plan submitted by the applicant.
- C. Tree protection area. An area that is radial to the trunk **in all directions** of a tree. The tree protection area shall be 15 feet from the trunk of the tree to be retained, or the distance from the trunk to the dripline (the line marking the outer edge of the branches of the tree), whichever is greater. Where there is a group of trees or woodlands, the tree protection area shall be the aggregate of the protection areas for the individual trees.

D. Protection from mechanical injury. Prior to construction the tree protection area shall be delineated by the following methods:

- (1) The tree protection area that is delineated on the site prior to construction shall conform to the approved development plans.
- (2) All trees scheduled to remain shall be marked; where groups of trees exist, only the trees on the edge need to be marked.
- (3) A forty-eight-inch-high snow fence or other suitable fence, mounted on steel posts located eight feet on center, shall be placed along the boundary of the tree protection area.
- (4) When the fencing has been installed, it shall be inspected and approved by the Township prior to commencing clearing and further construction. The fencing along the tree protection area shall be maintained until all work and construction has been completed. Any damages to the protective fencing shall be replaced and repaired before further construction shall begin.
- (5) Trees being removed shall not be felled, pushed or pulled into a tree protection area or into trees that are to be retained.
- (6) Grade changes and excavations shall not encroach upon the tree protection area.
- (7) No toxic materials shall be stored within 100 feet of a tree protection area, including petroleum based and/or derived products.
- (8) The area within the tree protection area shall not be built upon nor shall any materials be stored there either temporarily or permanently. Vehicles and equipment shall not be parked in the tree protection area.
- (9) When tree stumps are located within ten feet of the tree protection area, the stumps shall be removed by means of a stump grinder to minimize the effect on surrounding root systems.
- (10) Tree roots which must be severed shall be cut by a backhoe or similar equipment ~~aligned radially to the tree~~ **with its cutting blade aligned perpendicular to a radial line from the tree.** This method reduces the lateral movement of the roots during excavation, which if done by other methods could damage the intertwined roots of adjacent trees.
- (11) Within four hours of any severance of roots, all tree roots that have been exposed and/or damaged shall be trimmed cleanly and covered temporarily with moist peat moss, burlap or other biodegradable material to keep them from drying out until permanent cover can be installed.
- (12) Sediment, retention and detention basins shall not discharge into the tree protection area.

- (13) Sediment, retention and detention basins shall not be located within the tree protection area.
- (14) Trees shall not be used for roping cables, signs or fencing. Nails and spikes shall not be driven into trees.

E. Protection from grade change.

- (1) When the original grade cannot be retained at the tree protection area line, a tree protection wall shall be constructed outside the tree protection area.
- (2) To ensure the survival of trees, the following methods shall be used:
 - (a) The top of the tree protection wall shall be four inches above the finished grade level.
 - (b) The tree protection wall shall be constructed of large stones, brick, building tile, concrete blocks or treated wood beams not less than six inches by six inches. A means for drainage through the wall shall be provided so water will not accumulate on either side of the wall. Weep holes shall be required within any wall.
 - (c) Any severed roots as a result of excavation shall be trimmed so that their edges are smooth and are cut back to a lateral root if exposed.

F. Trees damaged during construction.

- (1) Tree trunks and exposed roots damaged during construction shall be protected from further damage. Damaged branches shall be pruned according to National Arborist Association standards. All cuts shall be made sufficiently close to the trunk or parent limb but without cutting into the branch collar or leaving a protruding stub. All necessary pruning cuts must be made to prevent bark from being torn from the tree and to facilitate rapid healing.
- (2) All trees which have been disturbed or have experienced damage to their roots or branches shall be fertilized. Trees shall be fertilized in early fall or mid-spring. Fertilizer grade shall have approximately 3 parts nitrogen to 1 part phosphorus and potassium (3 to 1 to 1 ratio). Fertilizer shall be broadcast over the soil surface in an area twice the size of the tree protection area at a rate of one pound of nitrogen per 1,000 square feet.

G. Protection from excavations. When there is no alternative but to locate an electrical or other small utility line within a tree protection area, the Township shall determine the most desirable location for the line, and the following guidelines shall be used:

- (1) Where possible, trenches should bypass the root area.

- (2) Where trenches must be dug past the side of a tree, the following precautions shall be observed:
 - (a) Trenches shall be no closer to the trunk than half the distance from the drip line.
 - (b) Cut as few roots as possible.
 - (c) If roots have to be cut, cut them as cleanly as possible.
 - (d) Backfill the trench as soon as possible, avoiding soil compaction.

H. Tree replacement.

- (1) No tree shown to remain on an approved subdivision or land development plan shall be removed without prior Township approval unless it is the cause of immediate danger to life or property.
- (2) No tree shown to remain on an approved subdivision or land development plan other than that which is the cause of immediate danger to life or property shall be removed without Township approval based upon a determination that any of the following considerations exist:
 - (a) Affliction by a disease which threatens injury or destruction of other trees.
 - (b) Federal, state or Township laws, ordinances or regulations superseding this chapter require removal.
 - (c) The tree has been substantially damaged or has died.
- (3) In the event that a tree over three inches caliper which is shown on an approved plan to remain and which must be removed in accordance with Subsection H(1) or (2) above, such tree shall be replaced with a tree a minimum of three inches in caliper of the same species or as approved by the Township at a rate of one new tree for every tree removed.

Section 8. The provisions of **Exhibit 1** and **Exhibit 2** located at the end the Subdivision and Land Development provisions of the Lower Makefield Township Code are hereby deleted and replaced by a new **Exhibit 1** to read as attached to this Ordinance.

Section 9. In all other respects, the Subdivision and Land Development provisions of the Lower Makefield Township Code, as previously amended, are reaffirmed and ratified subject only to the amendments of same as set forth in this Ordinance.

Section 10. Should any Section or provision of this Ordinance be declared invalid by any court of competent jurisdiction, such decision shall not affect the validity of the Ordinance as a whole or any part thereof not declared invalid.

Section 11. This Ordinance shall become effective five (5) days after enactment.

ORDAINED and ENACTED this ____ day of _____, 2007.

LOWER MAKEFIELD TOWNSHIP
BOARD OF SUPERVISORS

By: _____
By: _____
By: _____
By: _____
By: _____