

**McHENRY COUNTY SUBDIVISION ORDINANCE  
CONSERVATION DESIGN STANDARDS AND PROCEDURES**

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## Background

Unless otherwise stated in this Addendum, provisions for Variations in the McHenry County Zoning Ordinance shall apply.

## Purpose

- To preserve the integrity of the land and its natural functions;
- To enhance community character and access to nature and open space for children and families;
- To conserve open space and sensitive natural features;
- To preserve and restore remnant wetlands, woodlands, Savannas, and prairies and provide for the long-term ecologic management of these areas
- To preserve the hydrologic condition and infiltrative capability of the soil by minimizing mass grading and impervious surfaces;
- To preserve natural Groundwater recharge functions and protect the quality of Surface water and Groundwater;
- To minimize stormwater runoff and associated flooding and erosion;
- To provide diverse lot sizes, building densities, and housing choices;
- To create neighborhoods with views of open land and with a strong neighborhood identity;
- To preserve important historic and archeological sites;
- To conserve scenic views and elements of the County's rural character;
- To promote interconnected greenways and wildlife corridors throughout the county;
- To provide convenient walking trails and bike paths within subdivisions and connecting to neighboring communities and businesses;
- To reduce infrastructure costs and the cost of public services required for new development, improve housing affordability, and enhance property values; and
- To create more livable and sustainable communities.

## Applicability

The following regulations set forth are intended to apply to proposed subdivisions that contain, and/or abut, sensitive natural resource areas. In addition, applicants may voluntarily choose to apply as a conservation development and thereby conform to all of the applicable requirements of this chapter. Such applications also are eligible for the relevant density bonuses and related benefits offered.

The Conservation Design regulations are mandatory for a parcel if either an Automatic Trigger or a Cumulative Trigger is met, as defined below. Note that all such natural resource areas that exist on the site are eligible to meet the open space requirements of this Chapter.

Automatic Triggers: The site contains or abuts within 100 feet\*:

- Designated McHenry County Natural Area Inventory (MCNAI) sites
- Streams, rivers, and lakes designated as Advanced Identification (ADID) high quality habitats

Cumulative Triggers: The site contains, or abuts within 200 feet, the following areas whose cumulative acreage equals or exceeds 20 percent of the total area of the site and the 200 foot abutting zone:

- Wetlands: regulatory wetlands, except farmed wetlands
- Floodplains: FEMA "A", the 100-year, the "flood of record" from the USGS HA series
- Glacial kettle holes
- Native woodlands and Savannas based on on-site determination
- Remnant prairies based on on-site determination
- Soils characterized as having one or more of the following characteristics:
  - Excessive permeability as defined in Table 6, Soil survey of McHenry County, Illinois, USDA-NRCS, 2002 (or current version).
  - High Leach Potential, reflecting conditions where pesticides/herbicides have a high potential to reach the bottom of the soil profile as defined by CRP Manual, USDA-NRCS, Leaching Index Values, McHenry County, Illinois, 4/25/2006.
  - High Potential for Aquifer Contamination based on Illinois State Geological Survey Circular 559, "Geologic Mapping for Environmental Planning, McHenry County, all A units.
  - "E" slopes and greater, reflecting highly erodible slopes of 12% and greater as defined in Soil survey Legend, Soil survey of McHenry County, Illinois, USDA-NRCS, 2002.
  - Depressional Hydric soils based on a coverage developed by NRCS using the USDA-NRCS Hydric soil List, McHenry County: Detailed Soil Map Legend, 12/03/2003.
- State-designated Class III Special Resources Groundwater areas
- Publicly owned or private deed-restricted natural open spaces and preserves

**Commentary:** Most of the preceding natural resources data categories are available digitally from the Planning and Development Department and/or the McHenry County Soil and Water Conservation District. A few of the categories -- such as woodlands, Savannas, prairies, and kettle holes -- will need to be determined via on-site analysis. Applicants, therefore, should plan on using a combination of methods in assembling the necessary natural resources inventory to comply with this Applicability determination.

## Exceptions

Exceptions that comply with the *Plat Act*.

Parcels that have obtained Tentative Plat approval from the Planning and Development Committee prior to the effective date of this amendment.

## Application Process

Refer to Article Four of the *McHenry County Subdivision Ordinance*.

## Site Analysis/Information Requirements for the Pre-application/Sketch Plan Submittal

Natural Resources Inventory (unless otherwise indicated in existing ordinances), all of the following information shall be provided for the site and within 200' of the boundary.

- topography (min. 2 foot contours, 1 foot for Tentative Plat)
- streams, rivers, lakes, watercourses and the ADID classification of each
- wetlands (U.S. Army Corps of Engineers jurisdictional, County jurisdictional, and farmed and the ADID classification)
- floodplain/floodway
- depressional storage areas/flood of record from USGS HA series and soil maps showing soils that are depressional
- drainage ditches, field tiles (from tile survey), storm sewers and outlets
- existing drainage patterns, drainage divides, and flow paths
- designated natural areas (INAI and MCNAI)
- threatened and endangered species
- woodlands, Savannas, prairies
- Vegetation analysis (e.g., vegetation communities)
- tree inventory
- soils classifications/types, esp. hydric/organic, slope ranges
- soil interpretation/suitability assessment: including excessive permeability, leach potential, Groundwater recharge or discharge potential, septic suitability, basement suitability, aquifer sensitivity (the Illinois State Geological Survey Circular 559, *Geologic Mapping for Environmental Planning, McHenry County, Illinois*), prime farmland, soil erosion potential
- public open space and preserves
- farmland
- historic buildings and/or sites and archeological sites
- septic systems and sewer lines

## Site Capacity Analysis/Site Yield Plan

Residential: These calculations are intended to determine site capacity for residential development: buildable acreage and number of units.

- The entire area of the parcel (the acres of land within the bounds of the legal description) shall be determined and considered the "gross area"
- Ninety (90) percent of the gross area, as defined above, excluding one half (0.5) of all land located within wetlands shall be considered the "par acreage." For example, if the gross area is 80 acres with 20 acres of wetlands, the par acreage would be 63 acres,  $(80 - (20 \times 0.5)) \times 0.9 = 63$ .
- The par acreage, as determined above, shall then be multiplied by the maximum allowable dwelling units per acre as determined by the underlying zoning class. The resulting computation shall represent the maximum number of dwelling units that can be built in the conservation design, prior to any density bonus that may be approved.

Non-residential: Commercial, office, research and light industrial uses shall not exceed a site coverage ratio of 0.6, prior to any site coverage bonus that may be approved.

## Density Bonuses for Open space and Innovative Design

At the request of the applicant, the staff may recommend and the County Board may approve an increase in density if it is demonstrated that the proposed conservation design plan offers a superior layout and quality of design which incorporates environmentally sensitive design features that substantially exceed the minimum requirements of the ordinance. If density bonuses (increases) are requested under this subsection, the applicant is required to authenticate all site amenities and improvements. In addition, it shall be the applicant's responsibility to present appropriate evidence and documentation that each standard, for every density bonus requested, has been met or exceeded for County Board consideration.

The maximum increase in density shall be limited to twenty (20) percent of the permitted density. In determining the number of additional units allowed, fractions will be rounded to the nearest whole number. For non-residential development, the density bonus shall be in the form of increased floor area ratio (FAR), but site coverage should not increase.

A density bonus of up to five (5) percent may be offered for each of the following:

- a. Internal trails and open spaces are connected with existing or potential open spaces and multi-use trails outside of the development and provide access to the public.
- b. The amount of open space provided exceeds the minimum required for the development by 10 percent or more.
- c. Open space within the development is placed into a conservation easement with a legally incorporated Land conservation organization or donated to a public open space agency.
- d. Wetland restoration and/or enhancement is performed that is substantially in excess of the County and U.S. Army Corps of Engineers permit requirements.
- e. Remnant prairies, Savannas, and woodlands are substantially restored prior to the turnover of the property to the Homeowners Association or Land conservation organization. Such restoration will consist of the removal of invasive trees, brush, and herbaceous species and the establishment of native herbaceous species.

A density bonus of up to three (3) percent may be offered for each of the following:

- a. The development proposes a mix of housing types and price ranges (offers at least ten (10) percent of available units to households at eighty (80) percent of the median income for McHenry County residents as established annually by the U.S. Department of Housing and Urban Development).
- b. Recognized Historical Buildings and structures are preserved and reused.

## Conservation Design Procedures

The proposed development shall be designed to fit the topography, physical features, and soil conditions of the subject site. More specifically, conservation design shall preserve natural drainage patterns, use and preserve Native vegetation and stabilize soils during construction, and protect, enhance, and maintain natural resources.

Conservation design proposals shall include the following information at the Pre-application/ Sketch Plan stage:

- Identify all natural resources, conservation areas, open space areas, and physical features (floodplain, wetlands, lakes, ponds, channels and other water bodies, Steep slopes, woodlands, Savannas, significant native trees, meadows and prairies, Hydric soils,

significant vistas and scenic areas, and historic buildings and/or sites and archeological sites). To the maximum extent practical, these features shall be preserved as open space and protected from any negative impacts generated as a result of the development or other land disturbing activities. In so doing, the design of open space network also shall preserve or establish greenway and trail connections to adjacent natural areas, subdivisions, and local and regional trails and greenways.

- Locate building sites to take advantage of open space and scenic views. Lot areas and lot widths which facilitate the access of neighborhoods and lots to open space and conservation areas should be considered in order to provide more efficient use of the land, as well as to protect the development rights of the property owner and preserve the number of occupancy units permitted by the underlying zoning of the property.
- Design the streets network to minimize encroachment in sensitive natural resources such as wetlands, woodlands, significant tree stands, and wildlife habitats, and to take advantage of open space vistas. Interconnection of internal streets and street connections to adjoining land parcels should be provided to create opportunities for future connectivity while also recognizing potential safety issues involving ingress/egress.
- Establish lot lines and lot sizes in order to take maximum advantage of conservation subdivision concepts.

## **Conservation Design Standards**

### **General Standards for Residential Development**

1. Lots, buildings, and building sites should be clustered. Lot and building site size may be less than that required by the underlying zoning in order to achieve greater preservation and protection of natural resources.
2. Such clusters shall be located so as to minimize negative impacts on the natural, visual, and cultural resources of the site and between incompatible uses and activities.
3. Such clusters shall be designed and sited to achieve the following objectives:
  - Minimize disturbance to woodlands, wetlands, prairies, mature trees, and Steep slopes.
  - Minimize fragmentation of natural areas and open space while also providing for access and views from clusters.
  - Avoid encroaching on rare plant communities, high quality habitats, or endangered species.
  - Minimize encroachment in natural depressions, drainageways, and sensitive recharge areas to facilitate their use for runoff infiltration and filtering.
  - Maintain and protect scenic views of open land from adjacent and proposed roads. Minimize visual impact through the use of natural landscaping.
  - Protect buildings and sites of historic significance or incorporate them through adaptive reuse.
4. Landscaping around the building clusters shall be provided, where appropriate, to reduce off-site views of the buildings, and such landscaping shall be comprised to the greatest extent possible of native plant species.

## Buffer Standards

1. A minimum thirty (30) foot vegetative buffer designated as a separate outlot shall be maintained around the exterior of the development on all sides. The buffer shall be measured from the road right-of-way or adjacent property line, as appropriate. This buffer shall be designed, as appropriate, to screen new housing or incompatible development, to preserve scenic views, or otherwise enhance the landscape as seen from existing perimeter roads. A trail or sidewalk may be constructed within the perimeter buffer area and should, where feasible, connect to any neighboring trails or sidewalks.
2. A fifty (50) foot wide buffer is required along the perimeter of an area that borders an A-1 AGRICULTURAL DISTRICT, an adjacent natural area, or a public or private deed-restricted open space.
3. All other required buffers shall comply with Article V, Paragraph C or of the *McHenry County Stormwater Management Ordinance*.

## Street and Trail Standards

1. Neighborhood streets may take the form of a two-way street or a one-way loop street.
2. Pavement width shall be as follows:

Residential streets:	22 feet
Major residential streets:	24 feet
Business and Industrial access streets:	24 feet
3. Streets shall be developed according to standards that promote road safety, provide adequate access for emergency vehicles, provide access to trails and, where appropriate, to accommodate bikeways on roads, and allow for adequate vehicular circulation and movement within the subdivision and connecting to adjacent subdivisions.

Where appropriate, to accommodate roadside parking needs, creative designs are encouraged. Wider grass shoulders (i.e., between road edge and roadside swale) also are encouraged where necessary to accommodate roadside parking.

4. The street network shall be laid out in a manner that optimizes connectivity both within the subdivision and to adjacent roads. Cul-de-sacs are discouraged unless there are no practical alternatives to serve the buildable portions of the property.
5. Private roads may be allowed in conservation subdivisions but must conform to the respective structural standards (e.g., pavement composition and thickness) of the township and/or county. Private drives and parking areas may be built with alternative permeable paving surfaces and designs.
6. The use of enclosed curb, gutter, and storm sewer systems is strongly discouraged in favor of vegetated swales.
7. Installation of a multi-purpose trail system is encouraged to provide access to open space areas within the subdivision as well as access to adjacent subdivisions and regional trails.

The trail system shall be privately owned and maintained, unless the adjacent open space system is dedicated to a public land management agency.

8. Shared or common drives shall be permitted, provided there is a recorded covenant applicable to the properties utilizing shared access which establishes standards for maintenance and use.

### **Stormwater Best Management Practice Requirements**

Conservation design shall adhere to the requirements of the *McHenry County Stormwater Management Ordinance*. In particular, the design shall incorporate a strategy to meet the ordinance release rate requirements, to minimize the increase in runoff volumes and rates, and to address the identified water quality treatment requirements of the ordinance. The applicant shall use appropriate best management practices as presented in the McHenry County Stormwater Management Ordinance *Technical Reference Manual* and the following hierarchy in preparing a drainage plan suitable for the development site. These practices shall be given preference in the site plan according to the following sequence:

- a. Preservation of natural resource features of the development site (e.g. floodplains, wetlands, Isolated Waters of McHenry County, prairies and woodlands);
- b. Preservation of the existing natural streams, channels and drainageways;
- c. Minimization impervious surfaces created at the site (e.g. narrowing road width, minimizing driveway length and width, clustering homes and shared driveways);
- d. Use of natural landscaping as an alternative to turf grass;
- e. Use of open vegetated swales, bio-swales, filter strips, rain gardens, and infiltration devices to convey, filter, and infiltrate stormwater runoff;
- f. Preservation of the natural infiltration and storage characteristics of the site (e.g. disconnection of impervious cover and on-lot bio-retention facilities); and
- g. Structural measures that provide water quality and quantity control.

In addition, the stormwater and site design approach shall comply with the following:

- The required stormwater management area may be included within the required Open space Area if the stormwater management area is configured and developed with native wetland and prairie plantings and fits into the overall appearance of the Open space as determined by the County.
- All stormwater detention/retention management areas shall be developed as a separate outlot that is not part of an individual building lot and shall be owned and maintained by the Homeowners Association for the subdivision or an approved open space management entity.
- Rooftop runoff and sump pump discharge shall be directed to pervious areas, such as yards, open space, grassed swales, or vegetated areas, via sheet flow or in a similar diffused manner.

- Where curb and gutter designs are determined to be necessary, creative approaches, where feasible, shall be implemented to convey runoff through curb cuts and similar designs into swales and bio-swales.

### **Natural Landscaping Standards**

The use of native plant materials for landscaping is required throughout and along the perimeter of the development site and in those areas containing bio-swales, detention basins, common areas, buffers of streams, lakes, wetlands, and other water bodies.

Natural landscaping shall consist of grasses, wildflowers, shrubs and trees that are native to the greater Chicago region as identified in *Plants of the Chicago Region* (Swink and Wilhelm, 1994).

The installation of natural landscapes shall conform to the maintenance, monitoring, and performance criteria contained in Attachment A of this ordinance. Also, natural landscapes shall be managed in the long-term following the requirements of Open space Management and Stewardship section of this ordinance.

### **Parking Lot Standards**

Parking lots shall be designed with the intent of minimizing impervious surface area and maximizing the opportunity to infiltrate and filter runoff from the lot. Parking lot designs shall meet the following standards:

1. Parking lots shall provide the minimum number of spaces necessary to meet expected needs. Where feasible, shared parking shall be utilized to minimize space requirements.
2. Parking lot runoff shall be routed to internal and/or peripheral swales and bio-swales. Where curbing is determined to be necessary, frequent curb cuts shall be utilized to allow runoff to enter swale and bio-swale structures.
3. Permeable paving shall be evaluated for use in lieu of conventional asphalt or concrete paving.

### **Performance Standards for Residential Lots**

The following standards shall be adhered to for residential lots, consistent with Paragraph 1 under General Standards for Residential Development:

1. Lot size, shape and orientation shall be appropriate to the use, location and type of development according to the underlying zoning.
2. Lot easements: public, private, utility can occur on the lot or within open space. Where lots have a minimum 10' rear setback, utility easements should be outside of the lot or building envelope.
3. Building envelopes may be considered with no minimum or max., but in no case shall the front yard setback be less than 20' from a public ROW or the edge of road, if private.
4. Every lot shall have access, where practical, to an interior street. However, any existing farmstead that is to be preserved that has a driveway, as part of the historic landscape and that does not access a local street should be preserved and allowed.

5. If agricultural uses are being maintained, lots shall be configured in a manner that maximizes the usable area remaining for such use and should have appropriate buffers between residential and agricultural.

CONSERVATION DESIGN UNDERLYING ZONING	LOT AREA PARCEL AREA & FRONTAGE			MINIMUM REAR YARD	MINIMUM SIDE YARD
	MINIMUM AREA	MINIMUM WIDTH FRONTAGE	MINIMUM YARD ABUTTING ROAD OR STREET		
DISTRICTS	ACRES	FEET	FEET	FEET	FEET
E-5 ESTATE	1	150	50	40	20
E-3 ESTATE	.75	130	30	40	20
E-2 ESTATE	.6	120	30	30	20
E-1 ESTATE	0.33	100	30	20	10
R-1 RESIDENTIAL	0.25	70	20	10	10' & 10%
R-2 TWO FAMILY	0.5	140	20	10	10
R-3 MULTIPLE FAMILY	0.75*	175	20	10	10

### Wastewater Treatment and Disposal

The most appropriate wastewater treatment option shall be selected and implemented based on its ability to ensure Groundwater recharge, beneficial reuse of nutrients, protection of Groundwater quality, protection of Surface water quality, and protection of environmentally sensitive environments. An alternatives analysis of wastewater treatment options shall be completed for all conservation developments to determine the most appropriate treatment option for each specific site.

The analysis shall evaluate shallow Groundwater flow direction, projected wastewater flows, projected strength of the wastewater, sensitivity of the receiving environment, recharge capability, potential cumulative impact of the chemical, organic, nutrient and bacterial loading on Groundwater, and lifetime cost of the system. The analysis also shall evaluate and identify the most appropriate treatment and disposal option that is consistent with state and federal anti-degradation policies. In particular, the analysis shall evaluate options that best protect Groundwater, wetlands, and Surface waters from increased concentrations of nutrients and related pollutants that may impact aquatic life, native plant diversity, and related uses.

The wastewater treatment system shall comply with Article X of the *McHenry County Public Health Ordinance*. Sites utilizing Illinois EPA permitted technology shall conform to all of the

requirements of the Illinois Environmental Protection Agency and receive all applicable permits prior to approval of the conservation design development by the County.

## **Open space Requirements**

Required open space shall vary depending on the underlying zoning. Minimum open space percentages for residential development for the noted zoning districts are as follows:

E5:	70%
E3:	60%
E2, E1:	50%
R1:	40%
R2, R3:	40%

Open space also shall be required for non-residential land uses, based on the site coverage ratio and any associated site coverage bonuses.

Open space includes land and water areas retained for active or passive recreation uses and/or for resource protection and generally will be in an undeveloped state. Open space includes, but is not limited to, the following:

- woods and Savannas;
- wetlands and wetland buffers;
- streams, waterways, lakes, and ponds;
- prairies and grasslands;
- floodplains (credited up to 25 percent of the required open space, unless this criterion would limit the number of lots to something less than allowed under the standard Subdivision Ordinance provisions\*);
- naturally landscaped common areas and buffers;
- walking or bicycle trails;
- naturally landscaped stormwater detention and drainage facilities;
- naturally landscaped areas utilized for spray irrigation of treated wastewater;
- areas of greater than 12% slope;
- pasture and agricultural cropland areas;
- manicured turf grass areas such as those on golf courses, playgrounds, and recreational fields (credited up to 10 percent of the required open space); and
- other conservation-oriented uses compatible with the purposes of this ordinance.

\* Commentary: On parcels with a very high percentage of floodplain this provision may result in fewer lots than would be allowed under the standard Subdivision Ordinance. Under those circumstances, the floodplain percentage that may be counted as eligible open space may be increased beyond 25 percent, up to the point that the number of permitted lots is equal to that allowed under the standard Subdivision Ordinance provisions.

## **Open space Protection Hierarchy**

In developing an open space protection plan to meet the requirements specified above, preference shall be given to land, not necessarily undisturbed, which either retains or has been substantially restored to its original natural or native character. The areas to be preserved shall be identified on a site-specific basis in an effort to conserve and provide the best opportunities to restore and enlarge the best quality natural features of each particular site.

- First priority shall be given to intact natural communities; habitats of rare and endangered species; natural and restored wetlands, prairies, Savannas, and woodlands; environmental corridors; significant historic and archaeological properties; and Steep slopes.
- Second priority shall be given to natural landscaped areas created to provide plant and wildlife habitat and open space amenities.
- Third priority shall be given to areas providing little habitat but providing viewshed, recreation, or a sense of open space.

Areas counted toward this open space requirement shall not include parkways, landscape islands, or similar isolated features. Yard and setback areas on individual lots shall not be considered natural areas or open space unless designated on a recorded final plat of subdivision.

**Standards:**

1. An open space conservation theme, or combination of themes, shall be identified at the time of initial application. Conservation themes shall be based on the natural resource features of the development site and may include, but are not limited to Groundwater recharge protection, woodland stewardship, water quality preservation and enhancement, native landscape restoration and preservation, natural habitat restoration, viewshed preservation, and/or archeological and historical preservation.
2. Conservation developments shall preserve, restore, and/or create environmentally sensitive areas, as identified above, and shall include plans and the means to restore, manage, and maintain such areas. More specifically, where feasible degraded remnant natural areas should be restored to a natural state that will require only routine ecologic management in the form of controlled burns and weed vigilance to maintain that state. Similarly, created natural landscapes shall meet all required performance criteria such that a sustainable situation is achieved requiring only routine ecologic management in the future.
3. The development layout shall take into consideration how abutting land with significant natural areas and resources will impact or be impacted by the development. Natural areas on adjacent properties shall be buffered with open space, and existing wildlife corridors and sensitive ecosystems shall be preserved and enhanced.
4. To the extent practicable, open space shall be preserved as large contiguous areas to optimize habitat conservation, minimize fragmentation, and facilitate efficient ecologic management.
5. To the extent practicable, the open space network shall be designed to facilitate easy access from all streets and neighborhoods within the development. Open space should be interconnected with greenways and trail systems both within the development site and connecting to adjacent subdivisions and to local and regional trails.
6. Wherever practical, open space shall be dedicated as “common open space” to be jointly owned by a qualified conservation agency or organization or the homeowners or property owners association. Where the applicant determines that common open space is not practical, a portion of the required open space may be dedicated as Deed Restricted Open space (DROS) occurring on individual platted lots. Where DROS is utilized it shall be managed and maintained consistent with all the requirements of this ordinance.

7. Re-use of Recognized Historical Buildings and structures is encouraged unless the County determines otherwise for good cause.
8. Designated open space areas shall not be enclosed with man-made fencing, with the exception of areas containing natural or cultural features that may require special protection and exclusions for equestrian facilities and trails.
9. Open space areas shall be maintained in perpetuity and shall not be improved with any buildings, structures, or other development unless approved by the County and where such buildings or structures will not negatively impact the natural and open space areas. Exceptions include simple shelters, viewing stands, interpretive signs, and benches that are compatible with passive open space uses. This restriction shall run with the land and be binding on future owners, successors and assigns of the grantee.

## **Prohibitions**

Open space uses and disturbances that conflict with the stated conservation purposes of this ordinance are prohibited. These include, but are not limited to:

- dumping of grass clippings, yard waste, debris or other objectionable material;
- storage of material, vehicles, etc.
- removal of Native vegetation or trees, except as identified in the approved Maintenance and Management Plan;
- introduction of exotic plant species;
- filling, dredging, grading, drilling, or removal of soil or other natural materials; and
- manipulation or alteration of natural water courses or wetlands, except to enhance natural conditions as identified in the approved Maintenance and Management Plan.

All such uses shall be identified in, and enforced through, the subdivision covenants.

## **Open space Ownership and Funding**

### **Ownership Options**

The ultimate owner of dedicated open space, as well as the entity responsible for maintaining it, shall be identified. Ownership options for common open space includes qualified public or private Land conservation organizations such as the Land Conservancy of McHenry County or the McHenry County Conservation District.

Alternatively, ownership of common open space may reside with the homeowners or condominium association. If a homeowners association or condominium association is the owner, membership in the association shall be mandatory and automatic for all lot and parcel owners and their successors. The association shall have lien authority to ensure the collection of dues from all members. The responsibility for maintaining the open space and any facilities located thereon shall be borne by the owner. In the event an association ceases to exist the responsibility for maintaining the open space and any facilities located thereon shall be borne by all lot and parcel owners.

## **Binding Legal Instrument Required**

Dedicated open space shall be protected in perpetuity by a binding conservation easement or similar binding legal instrument recorded with the McHenry County Recorder and granted in favor of one or more of the following entities, which entities shall be responsible for all maintenance, control, and insurance of common areas, including dedicated open space and natural areas:

1. A public agency with demonstrated expertise in natural area and open space management. This is a preferred option. Such agency may, but is not required to, accept dedication in the form of fee simple ownership of the designated natural area provided it has access to and agrees to maintain such natural areas and open space.
2. A not-for-profit entity whose primary purpose is the preservation and maintenance of conservation areas and natural resources. This also is a preferred option. Such conservation areas and natural resources shall be established in the form of conservation easements.
3. A homeowners or property owners association. This is an acceptable option if it is not practical or appropriate to make arrangements for options 1 or 2. Membership in such an association shall be mandatory for the owners and purchasers of all lots and/or parcels in the development. The association shall be responsible for all maintenance, control, and insurance of common areas, including the dedicated natural areas.

## **Funding Requirements and Options**

Secure and permanent funding arrangements shall be established for the long-term management and maintenance of both common open space and deed-restricted open space. Funding options may include:

1. Homeowners association or condominium association dues and/or capital contributions.
2. An endowment fund. Such a fund could be based on a variety of methods, and could be held by an approved conservation organization. Clear notice shall be provided by the developer to home buyers for any responsibility for such fees.
3. A combination of methods. For example, an endowment fund could be used to offset or reduce future association dues.
4. Back-up special service area.  
The County, at its discretion, may require the establishment of a “back up” special service area (SSA) in order to provide funds necessary to support the maintenance and upkeep of land set aside and dedicated as open space area or used for required utilities and development improvements. Such a requirement may be a condition of final plat approval and the creation of such an SSA shall occur prior to the sale of individual lots or building sites.

## **Corrective Action**

If at any time the County determines that the open space management entity is in violation of the terms of this ordinance or that a violation is threatened, the County shall give written notice

of such violation and demand corrective action sufficient to cure the violation, and where necessary, restore the portion of the property so injured. If the open space management entity fails to cure the violation within thirty (30) days after receipt of notice thereof from County, or, under circumstances where the violation cannot reasonably be cured within thirty (30) day period, fails to commence or fails to continue diligently to cure such violation until finally cured, the County may bring an action to enforce the terms of the ordinance and recover the costs of such corrective action from the property owner, condominium association, homeowners association, conservation organization or not-for-profit organization, or individual property owners, and may include administrative costs and penalties.

If the County, in its sole discretion, determines that circumstances require immediate action to prevent or mitigate significant damage to the conservation values of the property, the County may pursue its remedies under this section without prior notice to the open space management entity. Under such circumstances, the County may enter dedicated open space areas in order to take corrective action necessary to ensure compliance with this ordinance and the provisions of long-term management and stewardship. A maintenance easement shall be granted to the county and recorded on the plat.

## **Open Space Management and Stewardship**

### **Stewardship Plan**

A stewardship plan shall be submitted to identify the means to properly maintain and manage dedicated open space in perpetuity. The plan shall be approved as part of the subdivision review process and recorded in the covenants for the subdivision. The plan shall be in textual form and shall include appropriate maps and/or graphic renderings that identify the various management zones on the site. The plan shall provide specific details and methods regarding the preservation, re-establishment, maintenance, and management of open areas and natural resources in perpetuity on the subject site. It shall be in a format that is easily understood and shall identify the “who, what, when, and where” of specific tasks which must be completed in order to ensure the viability of current and future resources on the site.

The plan shall address and/or allocate:

- the short-term enhancement and restoration of remnant natural areas and the establishment of new natural landscapes and
- the long-term ecologic stewardship of such areas.
- the responsibility and guidelines for performing said tasks, and shall include any necessary provisions for replacement costs and long-term capital improvements.

In addition, the plan shall:

- serve as an educational resource for future residents and property owners.
- designate and map the ownership of natural features and dedicated open space,
- allocate responsibility and guidelines for the maintenance and operation of the dedicated open space and any facilities located thereon, including provisions for ongoing maintenance and long term capital improvements,
- estimate the cost and staffing requirements needed for maintenance and operation of, and insurance for, the dedicated open space and describe the means by which such funding will be obtained or provided,

- provide that the plan shall not be changed without the approval of the County and describe how the plan will be enforced.

### **Performance Standards**

The stewardship plan shall include performance standards for all natural open space areas and naturalized stormwater management facilities and buffers. The performance standards shall identify proposed methods for establishing the areas and shall require monitoring and maintenance for at least three full growing seasons following initial enhancement, restoration, and planting, or until initial performance standards have been met. The purpose of establishing and ensuring compliance with performance standards is to ensure that the overall design intent for these areas is achieved and maintained. The design intent for such areas is to provide an aesthetic, healthy, diverse community of Native vegetation to meet the objectives of soil stabilization, water quality improvement, and wildlife habitat. Minimum performance standards for restoration, planting, maintenance, and monitoring of natural open space and naturalized stormwater facilities are included in **Attachment A**. Under circumstances where the minimum performance standards cannot be achieved, alternative performance standards must be presented to and approved through the development review process.

Beyond the initial establishment and restoration period, regular maintenance and management shall be performed in perpetuity to continue to meet the performance criteria and to enhance natural ecologic conditions over time.

### **Annual Reporting**

As described in **Attachment A**, an annual monitoring report shall be submitted to the County for review. The report shall include a summary of vegetation monitoring results, a description of vegetation maintenance needs, photographs and accompanying descriptions, a summary of maintenance activities for the current year and a schedule of planned maintenance for the coming year, and the landscape maintenance budget for the current year and the planned budget for the coming year.

### **Performance Bonding**

The cost of natural landscaping and ecological restoration activities shall be included in the infrastructure estimate. The amount of the performance bond or letter of credit furnished by the developer shall cover the cost of the work and materials required for these activities. This shall be a separate bond from that furnished for road and stormwater work. Final approval of the initial landscape installation and restoration activities shall not occur until final inspection by the County or its designee verifies that all performance criteria have been met. Upon this approval, the performance bond or letter of credit will be released.

### **Professional Land and Property Management**

In identifying both short- and long-term management responsibilities for open space and natural areas, the applicant shall identify a management entity with demonstrated experience and qualifications in natural land management and ecologic stewardship. Such entity may be a

public or not-for-profit conservation agency as identified under “Open space Ownership and Funding.” Alternatively, the entity may be a professional natural land management specialist or company.

In identifying the institutional arrangements for the management entity, the applicant’s stewardship plan shall address responsibilities for each of the following institutional provisions. These provisions shall be in place prior to any turn-over of the property from the applicant to the HOA or other management entity.

- enforcement of CCR’s and the Stewardship Plan
- proper budgeting and managing finances for HOA or easement holders
- collection of dues and/or fees
- filing of required reports and taxes
- education and communication with residents
- insurance and risk management
- maintenance of proper reserves
- outsourcing

## **Tree Protection**

### **Purpose**

While allowing for reasonable development of land within the County, it is the stated public policy of the County to add to the native tree population where possible and to maintain, to the greatest extent possible, existing native trees within the County. In particular, it is the County’s policy to preserve and restore remnant woodlands, particularly oak-hickory Savannas and woodlands that define the historical landscape of much of the County. The preservation of existing trees and the planting of additional trees is intended to accomplish, the following objectives:

- To preserve trees as an important public resource enhancing the quality of life and the general welfare of the County;
- To conserve and enhance the County’s unique character and physical, historical, and aesthetic environment;
- To encourage the protection of healthy trees and provide for the replacement and/or replanting of trees removed during construction, development or redevelopment;
- To prevent clear cutting of native trees and to minimize mass grading;
- To aid in the reduction of air pollution through the transformation of carbon dioxide, the generation of oxygen, and the precipitation of dust and other airborne pollutants;
- To reduce noise pollution through the barrier effect of trees on the spread of noise;
- To reduce topsoil erosion through the soil retention effect of tree roots;
- To reduce energy consumption through the natural windbreak and shade producing functions of trees.
- To preserve and enhance nesting areas for birds, insects, and other wildlife that are essential to the maintenance of the food chain and that help control and eliminate disease-carrying mosquitoes;
- To reduce storm water runoff and replenish ground water supplies; and
- To protect and increase property values.

## Submittals and Standards

1. As part of the tentative plat submittal, the developer/owner shall submit a tree survey, as defined in this ordinance and as provided for below, and a tree preservation plan prepared by a qualified arborist, forester, or similarly qualified professional in the field of natural resources that is acceptable to the County. Failure to submit these items shall be a valid reason to withhold approval of the tentative plat.
  - a The survey shall consist of a scaled drawing that shows the location of all desirable native tree species listed in Table 8A.1 having a diameter at breast height (DBH) of 2 or more inches and all other existing trees with a DBH of 8 or more inches, including dead or dying trees. In the case of a multi-stemmed tree, the diameter of the clump taken as a whole shall be used. The survey shall include, at a minimum, an inventory listing individual trees by tag number, the tree species by common name and scientific name, size (DBH), condition, and any observed problems.
  - b Where trees are located in a permanently dedicated conservation easement or protected through deed restriction and will be free from any grading activity, identification of individual trees is not required.
  - c Where individual trees or stands of trees are removed on property proposed for development or which is the subject of a development approval petition, including a subdivision, planned development, or conditional use, the County may require that the area containing the removed trees or stands of trees be replanted and that said area be dedicated as and made subject to a tree preservation easement, and be maintained in perpetuity as open space.
2. Where mass removal or clearcutting of desirable native trees occurs one year or less prior to the preparation of a required tree inventory, the County shall not process a request for approval of a subdivision until a time period of at least one year has elapsed, unless further processing of said request is approved by the Planning and Development Committee.
3. During development and construction activity, all reasonable steps shall be taken to prevent damage to or destruction of protected trees. These steps will include:
  - a Soils shall not be removed, compacted, or otherwise disturbed within the critical root zone.
  - b A protective fence approved by the County shall be erected around the critical root zone of any protected tree or woodland zone. Signage shall be affixed to said fence indicating the presence of the critical root zone and a protected area.
  - c All trees on property adjacent to the subject site and within 10 feet of the site's property line or have a critical root zone extending into the subject site, shall be protected from unreasonable damage by the use of acceptable tree protection measures.
  - d Mass cuts and mass grading are discouraged to minimize disturbance of woodland or blocks of tree stands.
  - e Boring shall be used to install any underground utilities in tree zones, where feasible.
  - f The developer/owner shall ensure that all applicable subcontractors are trained in proper tree protection.
  - g No excess soil, additional fill, equipment, trailers, liquids or construction debris shall be placed within the identified critical root zone of any tree that is to remain at its original location.
  - h Only protective non-damaging devices or attachments shall be attached to any tree during construction.

## Tree Replacement

Invasive trees and shrubs such as common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Rhamnus frangula*) and honeysuckle (*Lonicera* sp.) and other exotic species are commonly removed as part of good forestry practices and ecological restoration activities and therefore are not treated or acknowledged as protected tree species. Further, aggressive native trees such as box elder (*Acer negundo*) and black cherry (*Prunus serotina*) are sometimes removed as part of ecologic restoration projects in oak-hickory Savannas and woods. Proposals to remove such trees shall be identified in the open space Stewardship Plan (as described below) and submitted to the County for review and approval.

1. Any protected tree removed pursuant to County approval shall be replaced as provided for below:

Diameter of Removed Tree	Number of Replacement Trees
4 inches	2 trees @ 2 1/2 inches
5-6 inches	3 trees @ 2 inches
7-8 inches	4 trees @ 2 inches or 3 trees @ 2 1/2 inches
9-10 inches	5 trees @ 2 inches or 4 Trees @ 2 1/2 inches
11-12 inches	6 trees @ 2 inches or 5 trees @ 2 1/2 inches
13 – 25 inches	Minimum 12 trees @ 2 inches or 10 trees @ 2 1/2 inches
26 or more inches	Minimum 15 trees @ 2 inches or 12 trees @ 2 1/2 inches

2. When a high density of trees is not appropriate or the full replacement of trees on-site would result in the unreasonable crowding of trees, a fee in lieu of payment for tree replacement and ecological restoration may be approved by the County.
3. A tree replacement plan shall be prepared by a qualified arborist, forester, or similarly qualified professional in the field of natural resources, and familiar with the native ecosystems of the Chicago Region, that is acceptable to the County. The tree replacement plan shall depict the location and corresponding elevation of each replacement tree and each preserved tree. Corresponding text shall state the species and diameter of each tree with a description of the proposed management strategy to ensure its health and survival on the property.
4. Replacement trees shall be high quality and locally grown. Whenever possible, trees with local genotypes (*from a 250 mile radius*) shall be used. All trees shall be installed free of disease and in a manner that ensures the availability of sufficient soil and water to sustain healthy growth. Unless otherwise approved by the County, replacement trees shall be selected from the following native species:

<b>Desirable Native Tree Species</b>	
<i>Acer nigrum</i>	Black Maple
<i>Acer saccharum</i>	Sugar Maple
<i>Aesculus glabra</i>	Ohio Buckeye
<i>Carpinus caroliniana</i>	American Hornbeam
<i>Carya cordiformis</i>	Bitternut Hickory
<i>Carya ovata</i>	Shagbark Hickory
<i>Celtis occidentalis</i>	Hackberry
<i>Fraxinus americana</i>	White Ash
<i>Juglans nigra</i>	Black Walnut
<i>Ostrya virginiana</i>	American Hophornbeam
<i>Quercus alba</i>	White Oak
<i>Quercus coccinea</i>	Scarlet Oak
<i>Quercus ellipsoidalis</i>	Hill's Oak
<i>Quercus macrocarpa</i>	Bur Oak
<i>Quercus rubra</i>	Red Oak
<i>Quercus velutina</i>	Black Oak
<i>Tilia americana</i>	American Linden
<b>Desirable Native Shrub Species</b>	
<i>Prunus Americana</i>	Wild Plum
<i>Corylus americana</i>	Hazelnut
<i>Malus ioensis</i>	Prairie Crab
<i>Viburnum dentatum</i>	Downy Arrowwood

5. Consistent with good forestry and ecological practices, replacement trees shall be of either equivalent or a superior quality of species; for example, a softwood tree may be replaced with a hardwood tree, but an inferior species shall not be substituted for a superior species. In order to preserve and enhance the oak-hickory forest native to McHenry County, oak and hickory trees must be replaced in kind with native oak and hickory species.
  
6. The following trees shall not be used to satisfy the requirements of these tree standards:

<b>Prohibited Tree Species</b>	
<i>Acer negundo</i>	Box Elder
<i>Acer plantanoides</i>	Norway Maple
<i>Acer saccharinum</i>	Silver Maple
<i>Ailanthus altissima</i>	Tree of Heaven
<i>Elaeagnus angustifolia</i>	Russian Olive
<i>Elaeagnus umbellate</i>	Autumn Olive
<i>Fraxinus species</i>	Ash species
<i>Gleditsia triacanthos</i>	Honey Locust
<i>Juniperus virginiana</i>	Red Cedar
<i>Populus species</i>	Poplar species
<i>Rhamnus cathartica</i>	Common buckthorn
<i>Rhamnus fragula</i>	Glossy buckthorn
<i>Robina pseudoacacia</i>	Black locust

<i>Taxodium distichum</i>	Bald Cypress
<i>Thuja occidentalis</i>	Arbor vitae
<i>Ulmus pumila</i>	Siberian elm

### Exceptions

1. Emergencies involving, but not limited to tornados, windstorms, floods, freezes or other natural disasters;
2. Trees which have become, or immediately threaten to become, a hazard to persons, property or other vegetation and require immediate removal or destruction.
3. Diseased, dead or dying trees as confirmed by an arborist, forester, or a qualified professional in the field of natural resources.
4. All active orchards and state or government approved tree farms shall be exempt from the terms and provisions of this chapter, but only in relation to those trees which are planted and growing for the sale or intended sale to the general public in the ordinary course of business or for a public purpose;
5. Invasive species such as common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Rhamnus frangula*) and honeysuckle (*Lonicera sp.*), which are commonly removed as part of good forestry practices and ecological restoration, are not protected tree species.

Note: Final approval and release of improvement guarantees shall not occur until a final inspection by the County confirms that the conditions of the tree preservation plan and tree replacement plan have been met. In the event that conditions of either plan cannot be met, an alternative plan shall be prepared or a fee-in-lieu of payment, to be determined by the County, may be used to meet the objectives of this section.

### Outdoor Lighting Standards

**Except as required in this section, lighting shall otherwise conform to the existing standards in the McHenry County Zoning Ordinance.**

#### Purpose

The purpose of this section is to improve the travel conditions for persons and vehicles on public ways by reducing glare, to reduce light trespass, to protect the general health, safety, and welfare of the public, to decrease the expense of lighting, to decrease light pollution, and to improve the aesthetics of the County, in general while providing adequate night-time safety, utility, and security.

#### Standards for all zoning districts

- All lights shall be shielded in such a way as to direct all light toward the Earth's surface and away from reflective surfaces.

- Light fixtures or lamps shall be shielded/shaded in such a manner as to direct incident rays away from all adjacent property.
- Lights on poles, excluding street lights, shall not be taller than the building whose area they illuminate nor taller than fifteen (15) feet whichever is shorter.
- Floodlighting may not be arranged so that the light will shine towards roadways, onto adjacent residential property or residential use property or into the night sky.
- Any interior lighted signs may not be lit at night when any face of the sign is removed or damaged in such a way that the light may distract drivers or homeowners.
- Except as stated elsewhere in these regulations, light levels will be limited to those published as recommendations by the Illuminating Engineering Society of North America.

**Standards for commercial, business, industrial and any roadway adjacent to residential zones:**

- Any luminaire on a pole, stand or mounted on a building must have a shield, an adjustable reflector and/or non-protruding diffuser.

**Exceptions**

1. Requests for an exception shall be made to the County and shall include, but not be limited to: a description of the lighting plan, a description of the efforts that have been made to comply with the provisions of these regulations and the reasons such an exception is necessary.

In reviewing a request for such exception, the McHenry County Board shall consider safety, design, and other related factors and shall consider the following:

- a) If a lighting recommendation or regulation applies, the minimum/maximum luminance specified by the recommendations or regulation is used.
- b) If no lighting recommendation or regulation applies, the minimum luminance adequate for the intended purpose is used, giving full consideration to safety, energy conservation, glare, and minimizing light trespass.
- c) For roadway lighting, a determination is made that the purpose of the lighting installation or replacement cannot be achieved by installation of reflective roadway markers, lines, warnings or informational signs, or other passive means.
- d) Adequate consideration has been given to conserving energy and minimizing glare, light pollution, and light trespass.

**Exemptions**

Exemptions from the provisions of this section:

- a) Federal or state laws, rules and regulations take precedence over these provisions.
- b) Fire, police, rescue, or repair personnel need light for temporary emergency situations.
- c) There are special requirements, such as sports facilities and monument or flag lighting; all such lighting shall be selected and installed to shield the lamp(s) from direct view to the greatest extent possible, and to minimize upward lighting and light trespass.
- d) A determination has been made by the County that there is a compelling safety interest that cannot be addressed by any other method.

## Definitions

**Best management practices (BMP):** Land planning and engineered practices designed to reduce soil erosion, sediment deposition, and water quality impacts, and enhance the environmental quality of the stormwater runoff.

**Clearcutting:** Removal of most or all native trees from a given tree grouping or tract of woodland or Savanna versus the selective removal of individual trees for purposes of health or safety.

**Clustering:** The grouping of residential lots on a portion of the available land, reserving a significant amount of the site as protected open space.

**Conservation areas:** Public or private lands that are preserved or managed to encourage native plant and animal communities.

**Groundwater:** Water that collects or flows beneath the Earth's surface, filling the porous spaces in soil, sediment, and rocks.

**Hydric soil:** A soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

**Land conservation organization:** A public or private organization having the statutory authority to hold conservation easements and/or own natural open space, and with a demonstrated capacity to manage and oversee such areas.

**Native vegetation:** Vegetation that originally occurred in northeastern Illinois prior to arrival of European settlers. Native plant species are identified in Plants of the Chicago Region (Swink and Wilhelm, 1994).

**Natural Groundwater recharge functions:** The capacity of uncompacted soils to infiltrate and filter precipitation and runoff water and recharge underlying Groundwater systems.

**Open space:** Includes land and water areas retained for active or passive recreation uses and/or for resource protection and generally will be in an undeveloped state. Open space is defined in greater detail in the open space section.

**Prairie:** An extensive area of flat to hilly, predominantly treeless grassland. Prairies comprise those native plant communities that are dominated by a diversity of perennial forbs, or wildflowers, growing in a perennial graminoid, or grass-like, matrix which forms a dry flammable turf in autumn.

**Recognized Historical Buildings:** Buildings or structures that have been plaqued or designated as landmarks by any duly recognized federal, state or local historic preservation agency/commission.

**Savanna:** Landscapes with between 10 and 50 percent native tree canopy, commonly dominated by oak trees. (Savanna structure was regularly affected by fires set by Native Americans prior to the arrival of European settlers.)

**Soil survey**: The document created by the USDA Natural Resources Conservation Service which records soil types with maps and describes soil characteristics.

**Steep slopes**: Land slopes equal to or greater than 12 percent.

**Surface water**: Water that resides or flows in streams, rivers, natural lakes, constructed reservoirs, and wetlands.

**Vegetation analysis**: An identification and mapping of site vegetation conditions according to their natural ecological communities (e.g., prairies, Savannas, woodlands, and wetlands) and/or man-made state (e.g., old field, cropland, turf, etc.). For natural areas, a Vegetation analysis also involves a concise, qualitative analysis of ecological quality.

**Wetland**: A wetland is considered a subset of the definition of the Waters of the United States. Wetlands are land that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, under normal conditions, a prevalence of vegetation adapted for life in saturated soil conditions (known as hydrophytic vegetation). A wetland is identified based upon the three attributes: 1) hydrology, 2) soils and 3) vegetation as mandated by the current Federal wetland determination methodology.

**Wetland enhancement**: The improvement in wetland functional value of an area currently meeting the technical definition of a wetland.

**Wetland restoration**: The re-introduction of wetlands to an area where wetlands existed historically (e.g., on drained Hydric soils), but not prior to the mitigation activity.

**Woodlands**: Landscapes with native tree canopy covering more than 50 percent of the surface area. (Some portions of native woodlands were regularly affected by ground fires set by Native Americans prior to the arrival of European settlers.)

## Attachment A

### Restoration, Planting, Maintenance, and Monitoring of Natural Open space

#### Purpose

The purpose of these standards is to ensure that the overall design intent for naturalized open space areas – including wetlands, prairies, woodlands, Savannas, naturalized detention basins, drainage swales, and buffers -- is achieved and maintained, particularly during the initial restoration and plant establishment phase. Such areas are intended to provide an aesthetic, healthy, diverse community of Native vegetation to meet the objectives of wildlife habitat, soil stabilization, Groundwater recharge, and water quality protection. This is accomplished by complying with the following requirements:

1. The development and implementation of a landscape/planting/monitoring and maintenance plan.
2. Routine monitoring of planting success.
3. Follow-up repair, re-seeding, and/or replanting to meet performance criteria.
4. Preparation of annual reports summarizing monitoring data, documenting maintenance and remedial activities in comparison to stated performance criteria.
5. Preparation of a long term monitoring and management plan to maintain the areas in perpetuity.
6. Sign-off and acceptance of initial restoration and planting and at the end of a three-year monitoring and management period.

The establishment of Native vegetation communities shall be carefully planned and executed to ensure long term success. Restoration and native planting efforts should be considered on an equal basis with other major infrastructure improvements of a development, such as roads, utilities, and building standards. Without performance standards, open space restoration and native plant establishment has the potential to fail, leaving future home owner associations or the County with major management problems that they may not have the expertise or resources to address. Therefore, it is important to provide reasonable performance standards to regulate the planning, establishment, and monitoring success of restoration and native plantings within developments.

#### Landscape Restoration and Planting Plan

A site specific restoration and planting plan shall be submitted to the County with required site or final engineering plans. The plan shall be prepared by a qualified professional in the field of ecological restoration and/or natural landscaping. At a minimum the plan shall include:

- A map drawn to scale and depicting all proposed restoration and planting areas.  
Identification of proposed management units based on remnant natural areas, soil types,

topography, hydrology, and pre-settlement vegetation. Management unit mapping will also show the overall layout of the development to demonstrate that naturalized areas are adequately set-back from homes and other infrastructure so that the potential for fire hazards during controlled or accidental burns is reduced. Where applicable, fire breaks, including those in the form of mowed paths, should also be identified.

- A list of all plants, seeds, and/or plugs to be used within each management unit. All plantings will consist of species native to McHenry County, of a local genotype, and appropriate for the proposed habitat. The number of plants and plugs to be used and the amount/weight of seed per species shall also be included, along with seeding rates per acre for each species.
- For remnant wetland, prairie, Savanna, and woodland communities, a schedule of management and enhancement activities for areas proposed for restoration. This schedule shall address methods of weed and brush removal, including herbicide, cutting, and hand pulling; replanting necessary to restore native plant diversity and where appropriate, sediment removal, regrading, stabilization and related measures necessary to restore degraded wetlands and aquatic systems.
- A three-year management schedule which includes proposed timing and description of the following: site preparation, application of herbicides, seeding activity, mowing, controlled burns, and similar activities. Areas being restored to native communities should be protected by silt fencing or construction fencing to prevent unnecessary disruption or destruction due to nearby construction activity.

## **Plant Monitoring**

The following tasks shall be performed within each management unit identified in the landscape/planting plan during the first 3 years:

- Plant inventory of all naturally landscaped areas. This inventory shall determine overall vegetative cover, the total number of species, and the prevalence of undesirable/invasive species, consistent with specified performance criteria. This inventory is used to determine where follow-up seeding or planting is needed and to identify, locate, and remove undesirable “weedy” species on a timely basis. Permanent transect vegetation sampling techniques should be used within each management unit to adequately document and monitor plant community establishment over the initial 3 year period. The presence of any plant species observed outside of a transect and not documented by sampling along such transect shall also be noted. Sampling techniques and summaries shall be compiled consistent with methods described in *Plants of the Chicago Region* by Floyd Swink and Gerould Wilhelm, 1994.
- Establishment of permanent photographic monitoring locations: Photographs will be taken to document the establishment of vegetative cover, erosion problems, and other relevant maintenance concerns within each management unit identified in the landscape/planting plan. Photographs must be of satisfactory quality and resolution to accomplish the intent of the performance standards and shall be taken from the same locations during each monitoring event. A detailed description of the camera/photo location based on distance from a permanent structure, the orientation of the photo, and the vegetation zone being

photographed shall be provided. Additional photos should be taken of problem areas and remedial activities.

- Monitoring is required annually for a minimum of three full growing seasons during and following restoration and planting. Under circumstances where the minimum performance standards cannot be achieved, alternative performance standards must be presented to the County for review and approval.

### **Performance Criteria**

In order to ensure adequate diversity of plants, to respond to varying environmental and hydrologic conditions, to ensure the establishment of native landscapes that are functional, aesthetic, and cost-effective, and to provide reasonable variety to meet aesthetic expectations, a minimum of 10 species of native plants are required within any naturalized stormwater facility, such as naturalized detention basins or swales. A minimum of 40 native species will be established in any upland landscapes.

The success of natural landscaping can be affected by the appropriateness of the plant species selected, the effectiveness of the grading and seedbed preparation, the quality of the seed and plant material used, the timing of the planting, and attention to early maintenance. With upland prairie, Savanna, and woodland restoration or establishment, it generally is appropriate to leave soils undisturbed since mass grading will result in compacted soils and may lead to serious weed problems. Land currently under agricultural row crop production should remain undisturbed if possible until prairie seeding can be accomplished. This will contribute to the success of the native landscape by preventing the establishment of weeds and minimizing the corruption of the seed bank. The success of the project will be formally evaluated by the following vegetation performance standards monitored over time.

- By the end of the first full growing season, planted areas should have 90 percent vegetation cover and no area greater than 1.0 meter square shall be devoid of vegetation. A cover crop of annual rye or oats may be used to help achieve this goal. At least 75 percent of the plugs, root stock, and tubers, and 50 percent of the seeded species should be present and alive. If an area is designed as an aquatic or emergent system, it is anticipated that portions of the submerged area will be periodically exposed and without vegetation cover due to fluctuating water levels. If, by the end of the first full growing season, the basin emergent zones and/or side slopes fail to support the establishment of sufficient vegetation, then corrective measures regarding the fundamental design of the area and/or planting plan shall be required.
- During the second growing season at least 60 percent of the permanent species planted in seed form should be evident. Ninety percent or more of species planted as plugs, root stock, and tubers, shall also have persisted into the second season. If this fails to occur, a determination must be made as to why and remedial action shall be necessary. Remediation may include overseeding and/or plugging of appropriate species. Finally, undesirable, invasive plant species shall not be prevalent in any of the management units. No invasive, weedy species, including any of the following, shall be among the five most dominant plant species in the overall vegetative cover.

- Reed canary grass (*Phalaris arundinacea*)

- Common reed (*Phragmites australis*)
- Purple loosestrife (*Lythrum salicaria*)
- Non-native thistle (*Cirsium spp.*, *Carduus spp.*)
- Sweet clover (*Melilotus spp.*)
- Crown vetch (*Coronilla varia*)
- Wild parsnip (*Pastinaca sativa*)
- Burdock (*Arctium spp.*)
- Garlic mustard (*Alliaria petiolata*)
- Teasel (*Dipsacus spp.*)
- Ragweed (*Ambrosia spp.*)
- Kentucky bluegrass (*Poa pratensis*)
- Buckthorn (*Rhamnus spp.*)
- Sandbar willow (*Salix interior*)
- Honeysuckle (*Lonicera spp.*)
- Multiflora rose (*Rosa multiflora*)
- Box elder (*Acer negundo*)

A more complete listing of common invasive species is found in the *Illinois Nature Preserve Management Guidelines*: [http://dnr.state.il.us/INPC/Management\\_guidelines.htm](http://dnr.state.il.us/INPC/Management_guidelines.htm)

- At the end of the third full growing season, at least 75 percent of the seeded permanent species and 90 percent or more of species planted as plugs, root stock, and tubers are expected to be established. Alternatively, native perennial species that volunteer on the site, excluding undesirable invasive species, may also be counted in determining the preceding criteria. Qualitative vegetative sampling within each management area shall achieve the following to be determined a success and a mean Coefficient of Conservatism shall meet or exceed 3 and the Floristic Quality Index shall meet or exceed 20, except in designated stormwater management facilities (Swink and Wilhelm).
- The five most dominant species of the overall vegetative cover within each management unit shall not include any of the undesirable species referenced above under the 2<sup>nd</sup> season performance standards. If the identified level of species development fails to occur, a determination must be made as to why, and a remedial action plan must be prepared and submitted to the County for approval. The approved remedial plan must be implemented and continued monitoring will be required beyond the third growing season until these performance criteria are met. Where the minimum performance standards cannot be achieved, a written explanation and alternative performance standards must be submitted for consideration by the County.

## Annual Reporting

An annual monitoring report shall be submitted to the County and shall include the following:

- A summary of vegetation data collected within each management unit, including an assessment of compliance with performance criteria.
- A description of vegetation maintenance activities, including overseeding, replanting, and control of undesirable “weedy” species, and an assessment of their effectiveness in meeting performance criteria.

- Photographs and accompanying descriptions taken at permanent monitoring stations.
- A summary of planned maintenance activities for the coming year.

### **Sign Off and Acceptance**

Approval and release of performance bonds and/or letters of credit shall not occur until a final inspection by the County verifies that initial performance criteria have been met. When the performance standards have been met, the County shall allow the areas to be placed under the control of an approved conservation organization or homeowners association to implement the long term management of the natural areas. In the event that conditions of performance criteria cannot be met, an alternative plan shall be prepared or a fee-in-lieu of payment, to be determined by the County, may be used to meet performance criteria standards.

### **Long Term Monitoring and Management**

- Long-term monitoring, consistent with the criteria specified above, shall be performed on a biennial basis in perpetuity. Monitoring reports shall be submitted to the County for review and approval.
- Continued ecological management shall be provided to maintain a diverse native plant community, consistent with performance criteria, to minimize the proliferation of weeds and undesired woody vegetation, and to prevent erosion. At a minimum, the site shall continue to meet the vegetation performance standards of the 3<sup>rd</sup> season, as specified above, with regard to erosion control, vegetation coverage, species diversity, and control of invasive species. Long term maintenance shall consist of controlled burning, generally every one to three years or as dictated by site conditions. To maintain the established native plant communities, spot control and application of herbicides shall be performed, as necessary.
- Long-term maintenance shall include the removal of trash or debris and the removal of obstructions from detention basin outlet structures. Periodic removal of accumulated sediment from swales, forebays, and settling basins shall be done to maintain the function and aesthetics of stormwater facilities. At a minimum, sediment shall be removed from forebays and sediment basins when one (1) or more feet of sediment has accumulated.

## Appendix

Suggested references for restoration and natural landscaping include:

*Illinois Nature Preserve Management Guidelines*, Illinois Nature Preserves Commission.  
[http://dnr.state.il.us/INPC/Management\\_guidelines.htm](http://dnr.state.il.us/INPC/Management_guidelines.htm)

*Tallgrass Restoration Handbook, for Prairies, Savannas, and Woodlands*, S. Packard and C. Mutel, Society for Ecological Restoration, 1997.

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