RESOURCE PROTECTION

Toolkit:

Conditional rezoning guide

Since its authorization, Michigan municipalities have had a variety of experiences with conditional rezoning. While some communities have found it useful, if used incorrectly, conditional rezoning can cause citizen discord and applicant dissatisfaction. This Guidebook provides some direction on how best to utilize this new regulatory tool.

Model ordinances:

- Model groundwater ordinance
- Model surface water ordinance
- Model PUD open space ordinance
- Model soil erosion ordinance
- Model shoreland overlay ordinance
- Model stormwater ordinance

Ordinance examples:

- Stormwater ordinance example
- Natural buffers ordinance example
- Comprehensive Environmental Protection example (includes wetland, woodland, floodplain, stormwater and wellhead protection standards)

CONDITIONAL REZONING GUIDE

The Michigan Zoning Enabling Act (P.A. 110 of 2006, as amended), has been amended to allow consideration of conditions with a rezoning request, if they are voluntarily offered by the applicant. **The law is very clear on this issue, and specifies that the governmental unit may not alter the requested conditions, nor may they suggest additional conditions to the rezoning application.** Municipalities are not required to accept any contracts or conditions offered by the applicant, but they may not reduce or alter any conditions offered. This essentially requires either whole acceptance or denial of any contract presented, unless the applicant voluntarily offers to revise it. Local units of government do have the right to specify a timeframe within which a conditional zoning is valid, and may require the applicant to act on their application, if approved, within a certain timeframe, otherwise the property would revert to its previous zoning. Timeframes or expiration dates are often applied to site plans and other development approvals to ensure that the development activity allowed will occur within a reasonable time, when the same laws and regulations are in place. A common concern of local communities is that an approved development may not be realized until years later, giving time for local ordinances and other regulations to change. Finally, if any contract is approved, subsequent development must adhere to both the conditions of the contract and any zoning regulations for the newly approved zoning classification.

Use of conditional rezoning has had mixed reviews. If a community wishes to consider conditional requests, it should do so according to an established ordinance (model ordinances can be found on the Michigan Township's Association website at www.mta.org). Once established, execution of conditional rezoning should involve oversight by a community's municipal attorney, and final approval should be documented in a formal agreement, a sample of which is provided on the following pages.

Ordinance No.__

REZONING ORDINANCE

_____, _____ COUNTY, STATE OF MICHIGAN

ADOPTED: _____, 2008

EFFECTIVE: _____, 2008

An ordinance to amend the _____ Zoning Ordinance, Ordinance Number _____, by "conditionally" rezoning certain property located at *add property address* having the property identification number *add property tax identification number* to the *add zoning district name* Zoning District classification from the *add zoning district name* Zoning District classification pursuant to the terms of a conditional rezoning agreement between the property owner, *add name of property owner* and *add name of county, township, city or village* dated *add date of agreement*, and to repeal all Ordinances or parts of Ordinances in conflict herewith.

THE _____, _____ COUNTY, MICHIGAN

ORDAINS:

SECTION 1
REZONING OF PROPERTY

The Official Zoning Map as incorporated by reference in the *add the name of the county, township, city, or village* Zoning Ordinance is hereby amended so as to rezone the property having the legal description of Property Tax Identification Number *add property tax identification number* from the *add zoning district name* Zoning District classification to the *add zoning district name* Zoning District classification of the Covert Township Zoning Ordinance, pursuant to the provisions of the Conditional Rezoning Agreement between *add name of property owner* and *add name of county, township, city or village* and dated *add date of agreement*.

SECTION 2
SEVERABILITY

Should any section, clause or provision of this Ordinance be declared unconstitutional, illegal or of no force and effect by a court of competent jurisdiction, then and in that event such portion thereof shall not be deemed to affect the validity of any other part or portion of this Ordinance.

SECTION 3
REPEAL OF CONFLICTING PROVISIONS AND EFFECTIVE DATE

This ordinance shall take effect immediately seven (7) days after publication. All ordinances or parts of ordinances in conflict herewith are repealed.

THIS ORDINANCE DECLARED ADOPTED THIS _____DAY OF ____, 200__

Members voting YES ____
Members voting NO ____
Members absent ____
Members not voting ____

I, the undersigned Clerk, hereby certify and attest that the above and forgoing is a true and correct copy of an ordinance adopted by the _____ , _____, Michigan at a regular meeting held pursuant to public notice on the __ day of ____, 200___.

_____
add name of clerk
add name of county, township, city or village , Clerk

MODEL CONDITIONAL REZONING AGREEMENT

The italic and underling denote portion of the model where information concerning a specific conditional rezoning matter is to be addressed.

SECTION 1 - TITLE

CONDITIONAL REZONING AGREEMENT

between

add legal name of company or property owners **(the applicant)**
and the
add name of local government or county *indicate County, Township, City or Village*
for the rezoning of property located at
add mailing address of property

Property Identification Number *add property tax identification number*

SECTION 2 - PROPERTY AND PARTIES

THIS CONDITIONAL REZONING AGREEMENT is made of this __th day of _____ 2009, by *add name of applicant - either individuals or business plus whether they are married, if husband and wife or, corporation or partnership if a business* having the mailing address of *add applicant mailing address* (herein after referred to as the applicant) being the property owner of certain property having the Property Identification Number *add property tax identification number* and *the name of county, township, city or village and mailing address* (herein after referred to as the *indicate county, township, city or village*).

SECTION 3 - REQUESTED ACTION

WHEREAS, The applicant being the owners of certain property located in the *add information as to location of property, township, city or village and county*, State of Michigan, located at *add address of property* having the Property Identification Number *add property tax identification number* legally described on the attached Exhibit "A" which is incorporated herein by reference, have petitioned the *add the name of the county, township city of village* Planning Commission for the rezoning of this property from the *add the name or the current* Zoning District

Classification to the *add the name of the zoning district classification being requested* District Zoning District Classification as set forth in *add the county, township, city or village* Zoning Ordinance, being Ordinance *add zoning ordinance number*, as amended, for the purpose of *add definition of why the rezoning is being requested*, and

SECTION 4- STATUTORY AUTHORITY

WHEREAS, the applicant has requested the temporary rezoning of the subject property to allow for the operation *add description of the use of the property* by a contract that stipulates the terms of and conditions for use, of the property under the authority of Section 405 of the Michigan Zoning Enabling Act, P.A. 110 of 2006 (MCL125.404) and Ordinance Number *add zoning ordinance number* of the *indicate county, township, city or village* Zoning Ordinance, Ordinance Number *add zoning ordinance number*, adopted *add date of zoning ordinance adoption*.

SECTION 5 - TERMS AND CONDITIONS

NOW, THEREFORE, in consideration of the premises and rights reserved, herein, and in order to accomplish the forgoing purposes, the undersigned hereby agree:

In the following paragraphs specific terms and conditions must be listed. Below is the most common terms and condition. Other will be added specially designed to address each unique situation

1. The subject property is deemed to be a *temporary land use*, that being a land use that will, at some time at a future date, revert to a use in conformance with the *indicate county, township, city or village* Master Plan and Zoning Ordinance.

SECTION 6 - TERMINATION

2. The approval action of the *indicate county commission, township board, city council or village council* granting the *add the name of the zoning district classification being requested* Zoning District Classification to the subject property shall remain in full force and effect upon the subject property, legal description which is attached and incorporated herein as "Exhibit A," until:

   add specific provisions indicating if and how the contact terminates

SECTION 7 - TRANSFERABILITY

6. This agreement shall be not transferable and shall not run with the land and shall not transfer to successors and assigns, and their respective heirs, successors and assigns.

add whether or not the agreement is transferable and if transferable to whom and under what terms

SECTION 8 - OTHER REPRESENTATIONS AND AGREEMENTS

7. This agreement constitutes the entire agreement between the parties with respect to the matter set forth herein, and there are no representations, warranties, covenants, or obligations except as set forth herein. This Agreement supersedes all prior contemporaneous agreements, understandings, negations statements and discussion, written or oral, of the parties hereto, relating to the matters contemplated by the Agreement.

SECTION 9 - VIOLATION AND ENFORCEMENT

8. The failure of any party to complain or enforce of any act or omission on the part of another party, no matter how long the same may continue, shall not be deemed to be an acquiescence or waiver by such party of any of its rights hereunder. No waiver by any party at any time, expressed or implied, or any breach of any provision of this Agreement shall be deemed a waiver of a breach of any other provision of this Agreement or a consent to any subsequent breach of the same or any other provision of this agreement. If any action by any party shall require the consent or approval of another party(ies), such consent or approval of such action shall not be deemed a consent to or approval of any other provision of this agreement.

SECTION 10 - GOVERNING LAW

9. This Agreement shall be governed by the laws of the State of Michigan.

SECTION 11 - DELIVERY OF NOTICES

10. Notice shall be deemed as given hereunder upon personal delivery to the addresses set forth below, or if properly addressed, one (1) day after depositing such notice, with postage prepaid, in a United States mailbox or one (1) day after depositing such notice in the custody of a nationally recognized overnight delivery service. Notice shall be deemed properly addressed if sent to the following addresses:

Applicant and
Property Owner: *add name and mailing address*

add county, township, city or village *add name and mailing address*

SECTION 12 - SIGNATURE BY FACSIMILE

11. The parties agree that this Agreement may be executed by facsimile or in counterparts, and that all counterparts together, with or without facsimile signatures, shall constitute one integrated agreement and be deemed an original document.

Section 13 - Recording with Register of Deeds

12. This document or Affidavit or Memorandum giving notice of this document shall be recorded with the *insert county name* County Register of Deeds Office.

    While it is left up to the local government to decide, it is recommended that all conditional rezoning agreements, or notice thereof, be recorded with the county Register of Deeds

SECTION 14 - PLANNING COMMISSION REVIEW AND PUBLIC HEARING

add county, township, city or village **PLANNING COMMISSION REVIEW AND RECOMMENDATION**
After proper public notice was given and a public hearing held on *add date of public hearing* , 2009 before the *add county, township, city or village* Planning Commission, a motion was duly made and approved as recorded in the minutes of the Planning Commission meeting of the same date recommending the *add county commission, township board , city council or village council* approve this Conditional Rezoning Agreement.

add signature of Planning Commission Chair and Secretary

_____ _____
add name of Planning Commission, Chair *add name of Planning Commission*, Secretary

SECTION 15 - SIGNATURE AND NOTARIZATION

IN WITNESS WHEREOF, the undersigned has executed this **CONDITIONAL REZONING AGREEMENT** for and on behalf of the on the date first above written.

add the names of the property owners, or business entity property owner

_____

_____

STATE OF MICHIGAN)
) SS.
COUNTY OF _____)

On this___ day _____ ,2009, before me, a Notary Public, in and for said County, personally appeared _____

Notary Public
Acting in _____ County, Michigan
My Commission Expires:

IN WITNESS WHEREOF, the undersigned has executed this **CONDITIONAL REZONING AGREEMENT** for and on behalf of the *add name of county, township, city or village* , *add name of county*, County, Michigan pursuant to a resolution duly approved by the *add name of county, township, city or village* on the date first above written.

FOR THE *add name of county, township, city or village* **:**

By: _____
add name of chief elected officer
Its: *add chair, mayor, supervisor or president*

By: _____
add name of local government clerk
Its: Clerk

STATE OF MICHIGAN)
) SS
COUNTY OF_____)

On this _____ day _____2009, before me, a Notary Public, in and for said County, appeared _____of the *add name of county, township, city or village* for and on behalf of the *add name of county, township, city or village*

Notary Public
Acting _____ County, Michigan
My Commission Expires:

EXHIBIT "A"
PROPERTY LEGAL DESCRIPTION

Property Identification Number *add property tax identification number*

add legal description here

Drafted by:

add author name and contact information

Reviewed By:

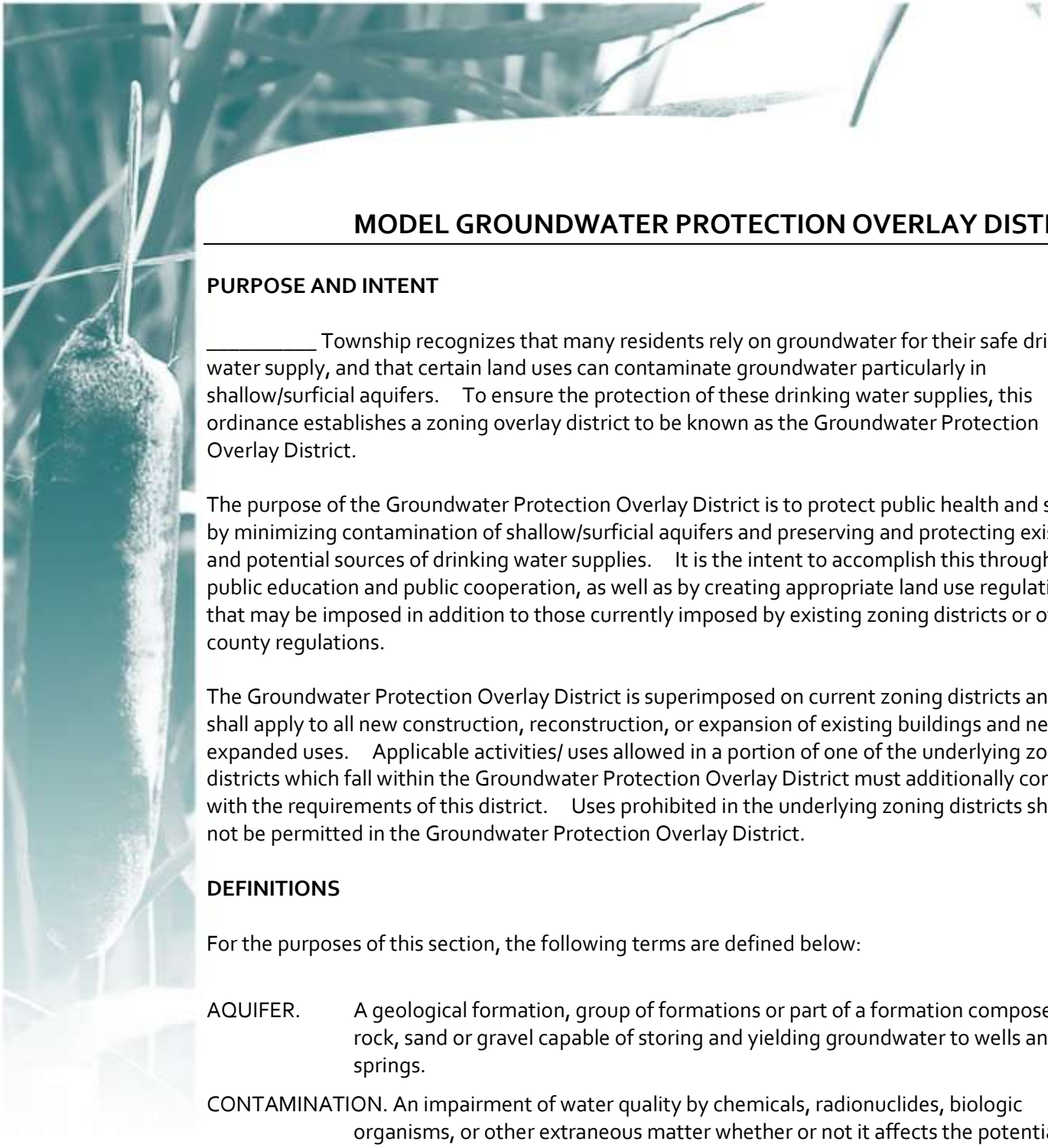
add name and contact information for
municipal attorney who completed legal review

Return to:
Clerk

add name *add name of county, township, city or village* and mailing address

Sample motion for _____ approval of Conditional Rezoning agreement.....

I, _____move to “approve the “Conditional rezoning agreement as recommended for approval by the _____ Planning Commission, being subject to the effective date of adoption of an ordinance by this _____ *add commission, board, council* approving the rezoning of the property, subject to the provision of the conditional rezoning agreement.



MODEL GROUNDWATER PROTECTION OVERLAY DISTRICT

PURPOSE AND INTENT

_____ Township recognizes that many residents rely on groundwater for their safe drinking water supply, and that certain land uses can contaminate groundwater particularly in shallow/surficial aquifers. To ensure the protection of these drinking water supplies, this ordinance establishes a zoning overlay district to be known as the Groundwater Protection Overlay District.

The purpose of the Groundwater Protection Overlay District is to protect public health and safety by minimizing contamination of shallow/surficial aquifers and preserving and protecting existing and potential sources of drinking water supplies. It is the intent to accomplish this through both public education and public cooperation, as well as by creating appropriate land use regulations that may be imposed in addition to those currently imposed by existing zoning districts or other county regulations.

The Groundwater Protection Overlay District is superimposed on current zoning districts and shall apply to all new construction, reconstruction, or expansion of existing buildings and new or expanded uses. Applicable activities/ uses allowed in a portion of one of the underlying zoning districts which fall within the Groundwater Protection Overlay District must additionally comply with the requirements of this district. Uses prohibited in the underlying zoning districts shall not be permitted in the Groundwater Protection Overlay District.

DEFINITIONS

For the purposes of this section, the following terms are defined below:

AQUIFER. A geological formation, group of formations or part of a formation composed of rock, sand or gravel capable of storing and yielding groundwater to wells and springs.

CONTAMINATION. An impairment of water quality by chemicals, radionuclides, biologic organisms, or other extraneous matter whether or not it affects the potential or intended beneficial use of water.

DEVELOPMENT. The carrying out of any construction, reconstruction, alteration of surface or structure or change of land use or intensity of use.

FACILITY. Something that is built, installed, or established for a particular purpose.

GREY WATER. All domestic wastewater except toilet discharge water.

GROUNDWATER PROTECTION OVERLAY DISTRICT: The zoning district defined to overlay other zoning districts in the (jurisdiction) of ____. This district may include specifically designated recharge areas that collect precipitation or surface water and carry it to aquifers.

HAZARDOUS MATERIAL. A material which is defined in one or more of the following categories:

Ignitable: A gas, liquid or solid which may cause fires through friction, absorption of moisture, or which has low flash points. Examples: white phosphorous and gasoline.

Carcinogenic: A gas, liquid, or solid which is normally considered to be cancer causing or mutagenic. Examples: PCB's in some waste oils.

Explosive: A reactive gas, liquid or solid which will vigorously and energetically react uncontrollably if exposed to heat, shock, pressure or combinations thereof. Examples: dynamite, organic peroxides and ammonium nitrate.

Highly Toxic: A gas, liquid, or solid so dangerous to man as to afford an unusual hazard to life. Example: chlorine gas.

Moderately Toxic: A gas, liquid or solid which through repeated exposure or in a single large dose can be hazardous to man.

Corrosive: Any material, whether acid or alkaline, which will cause severe damage to human tissue, or in case of leakage might damage or destroy other containers of hazardous materials and cause the release of their contents. Examples: battery acid and phosphoric acid.

PRIMARY CONTAINMENT FACILITY. A tank, pit, container, pipe or vessel of first containment of a liquid or chemical.

RELEASE. Any unplanned or improper discharge, leak, or spill of a potential contaminant including a hazardous material.

SECONDARY CONTAINMENT FACILITY. A second tank, catchment pit, pipe, or vessel that limits and contains liquid or chemical leaking or leaching from a primary containment area; monitoring and recovery are required,

SHALLOW/SURFICIAL AQUIFER. An aquifer in which the permeable medial (sand and gravel) starts at the land surface or immediately below the soil profile.

SPILL RESPONSE PLANS. Detailed plans for control, recontainment, recovery, and clean up of hazardous material releases, such as during fires or equipment failures.

STORMWATER TREATMENT PRACTICES (STPs). Measures, either structural or nonstructural, that are determined to be the most effective, practical means of preventing or reducing point source or nonpoint source pollution inputs to stormwater runoff and water bodies.

TIME-OF-TRAVEL DISTANCE. The distance that groundwater will travel in a specified time. This distance is generally a function of the permeability and slope of the aquifer.

ZONES WITHIN THE GROUNDWATER PROTECTION OVERLAY DISTRICT

A. ZONE 1 - DRINKING WATER CRITICAL IMPACT ZONE.

1. Zone 1 is defined as the area within the 6-month time-of-travel distance mapped around all the public water supply well(s). (NOTE: This zone typically constitutes the area within about 1000 feet of a public water supply well.)

2. **Encouraged Uses**. The following uses are encouraged within Zone 1 provided they meet the appropriate performance standards outlined below and are designed so as to prevent any groundwater contamination.

   a. Parks, greenways, or publicly-owned recreational areas such as foot, bicycle and/or horse paths, and bridges.

   b. Necessary public utilities/facilities including the construction, maintenance,

repair, and enlargement of drinking water supply related facilities such as, but not limited to, wells, pipelines, aqueducts, and tunnels..

c. Conservation efforts for soil, water, plants, and wildlife;

3. **Special Exceptions**. The following uses are permitted only under the terms of a special exception and must conform to provisions of the underlying zoning district and meet the performance standards outlined below.

a. Expansion of existing nonconforming uses to the extent allowed by the underlying district. The applicant should consult the local zoning plan to confirm nonconforming uses. The _____ (zoning authority) reserves the right to review all applications and shall not grant approval unless it finds such expansion does not pose greater potential contamination of groundwater than the existing use.

4. **Prohibited Uses**. The following uses, unless granted a special exception, are prohibited within Zone 1, the 6- month time-of-travel zone. (NOTE: this is typically within about 1000 feet of the public water supply well.)

a. Automobile body/repair shop;

b. Gas station;

c. Fleet/trucking/bus terminal;

d. Dry cleaner;

e. Electrical/electronic manufacturing facility;

f. Machine shop;

g. Metal plating/finishing/fabricating facility;

h. Chemical processing/storage facility;

i. Wood preserving/treating facility;

j. Junk/scrap/salvage yard;

k. Mines/gravel pit

l. Irrigated nursery/greenhouse stock

m. Confined animal feeding operations

n. Land divisions resulting in high density (>1 unit/acre) septic systems;

o. Equipment maintenance/fueling areas;

p. Injection wells/dry wells/sumps, except for single-family residences directing gutter downspouts to a drywell;

q. Underground storage tanks, (except those with spill, overfill, and corrosion protection requirements in place);

r. All other facilities involving the collection, handling, manufacture, use, storage, transfer or disposal of any solid or liquid material or waste having potentially harmful impact on groundwater quality;

s. All uses not permitted in the underlying zone district

B. ZONE 2 - DRINKING WATER POTENTIAL IMPACT ZONE.

1. Zone 2 is established as the remainder of the Groundwater Protection Overlay District not included in Zone 1, but deemed necessary to ensure adequate protection of public drinking water supplies.

2. **Permitted Uses**: All uses permitted in the underlying zoning districts provided that they can meet the Performance Standards as outlined for the Groundwater Protection Overlay District.

3. **Special Exceptions**: All special exceptions allowed in underlying districts may be approved by the _____ (zoning authority) provided they can meet performance standards outlined for the Groundwater Protection Overlay District.

4. **Performance Standards**: The following standards shall apply to uses in Zones 1 and 2 of the Groundwater Protection Overlay District:

   a. Any facility involving the collection, handling, manufacture, use, storage, transfer or disposal of any solid or liquid material or wastes, unless granted a special exception either through permit or another ordinance, must have a secondary containment system which is easily inspected and whose purpose is to intercept any leak or release from the primary containment vessel or structure. Underground tanks or buried pipes carrying such materials must have double walls and inspectable sumps.
   b. Open liquid waste ponds containing materials referred to in item (1) above will not be permitted without a secondary containment system.
   c. Storage of petroleum products in quantities exceeding (_____) gallons at one locality in one tank or series of tanks must be in elevated tanks; such tanks must have a secondary containment system noted in item (1) above where it is deemed necessary by _____.
   d. All permitted facilities must adhere to appropriate federal and state standards for storage, handling and disposal of any hazardous waste materials.
   e. An acceptable contingency plan for all permitted facilities must be prepared for preventing hazardous materials from contaminating the shallow/surficial aquifer should floods, fire, or other natural catastrophes, equipment failure, or releases occur:

      (a) For flood control, all underground facilities shall include but not be limited to a monitoring system and secondary standpipe above the 100 year flood control level, for monitoring and recovery. For above ground facilities, an impervious dike, above the 100 year flood level and capable of containing 100 percent of the largest volume of storage, will be provided with an overflow recovery catchment area (sump).

      (b) For fire control, plans shall include but not be limited to a safe fire fighting procedure, a fire retarding system, effective containment of any liquid runoff, and provide for dealing safely with any other health and technical hazards that may be encountered by disaster control personnel in combating fire. Hazards to be considered are pipes, liquids, chemicals, or open flames in the immediate vicinity.

      (c) For equipment failures, plans shall include but not be limited to:

      Below ground level, removal and replacement of leaking parts, a leak detection system with monitoring, and an overfill protection system.

      Above ground level, liquid and leaching monitoring of primary containment systems, the replacement or repair and cleanup and/or

repair of the impervious surface.

(d) For any other release occurring, the owner and/or operator shall report all incidents involving liquid or chemical material to the groundwater protection coordinator designated by the _____ (local government authority).

Since it is known that improperly abandoned wells can become a direct conduit for contamination of groundwater by surface water, all abandoned wells should be properly plugged according to local and state regulations.

LIABILITY

Nothing in this ordinance shall be construed to imply that the (local government authority) _____ has accepted any of an owner/developer's liability if a permitted facility or use contaminates groundwater in any aquifer.

DISTRICT BOUNDARY DISPUTES

If the location of the Groundwater Protection Overlay District boundary in relation to a particular parcel is in doubt, resolution of boundary disputes shall be through a Special Permit application. The burden of proof shall be upon the owner(s) of the land to demonstrate where the boundaries of the district with respect to their individual parcel(s) of land show should be located. If the owner(s) request that the local government agency determine more accurately the boundaries of the district with respect to individual parcels of land, the agency may engage a professional engineer, hydrologist, geologist, or soil scientist and charge the owner(s) for the cost of the investigation.

ENFORCEMENT

A. CIVIL ENFORCEMENT:

1. Any person may submit a verbal or written complaint alleging a violation of this ordinance.

2. Upon receipt of a complaint, the jurisdiction shall conduct a brief investigation of the substances of the complaint, including a meeting with the landowner involved.

3. Based upon the determination that there is a violation of this ordinance, the jurisdiction shall conduct an informal reconciliation with the violator. As part of such informal reconciliation, the jurisdiction shall:

   (1) Notify the violator by mail of the violation of this ordinance and a desire of the jurisdiction to correct the violation through informal reconciliation. The statement shall also indicate that should the violator refuse to allow the recommended corrective actions within the time set forth by the jurisdiction, action may be taken to correct the violation and the violator will be billed for the cost of taking the corrective action.

   (2) Make a good faith effort to meet the violator and resolve/correct the violation.

4. If after taking the steps above and after a period of (_____) days following the mailing of the notice of the violation, the jurisdiction in good faith determines that the violator is unwilling to participate in informal reconciliation and take the corrective actions prescribed, the jurisdiction shall notify the violator by mail of the termination of the

informal reconciliation.

5. The jurisdiction may take corrective actions deemed necessary following (_____) days after notifying violator by mail of the notice of termination of the informal reconciliation, and bill the violator for the reasonable cost of such action.

B. CRIMINAL ENFORCEMENT. In lieu of civil enforcement proceeding, a person who is alleged to have violated this ordinance may be prosecuted for the commission of a crime. Violation of this ordinance is a misdemeanor and may be punished by imprisonment of not more than (___) days or imposition of a fine of not more than $_____ or both.

SAVING CLAUSE

Should any section or provision of this ordinance be declared invalid, such decision shall not affect the validity of the ordinance as a whole or any other part thereof. A determination that any portion or provision of this overlay protection district is invalid shall not invalidate any special permit previously issued thereunder.

MODEL SURFACE WATER ORDINANCE

A. **Statement of intent.**

The Reservoir Protection Overlay Zone (RPOZ) regulations are intended to ensure the adequate protection of current or potential public water supply reservoirs. The establishment of these regulations is intended to protect public health, insure the availability of safe drinking water, and prevent the degradation of the water supply in the reservoir through the regulation of land uses and development within the reservoir drainage area.

B. **Applicability.**

The special provisions established in this section shall apply to proposed projects identified as possible contaminating activities within areas designated as Reservoir Protection Overlay Zones. These areas may be identified through drainage, groundwater and soils analyses and are considered to be essential to protection of existing or potential reservoirs from the effects of point and non-point source pollution or sedimentation.

The boundaries of the Reservoir Protection Overlay Zone should be adequate to ensure that pollutants of concern are removed from runoff before entering the reservoir. Local officials may consider using a watershed approach to delineating the boundaries to ensure that all surface water/groundwater/recharge areas for the water supply are protected. A tiered zone approach to the overlay size, much like that done with wellhead protection zones to protect public well recharge areas has been used in some parts of the country.

The boundaries of the Reservoir Protection Overlay Zone shall be delineated using the most current and best available location data and must be shown on all master zoning map(s) kept on file. The boundaries should be of sufficient size to guarantee the appropriate level of treatment for stormwater runoff from new and existing projects that can contribute to the contamination of public water supplies. These zones may be modified as necessary by the Township as new assessment data becomes available.

C. **Definitions.** For the purposes of this section, the following terms shall have the following meanings:

Development. Any construction, external repair, land disturbing activity, grading, road building, pipe laying, or other activity resulting in a change in the physical character of any parcel or land.

Potential Contaminating Activity. Activities identified as having the potential to discharge contaminants to surface or groundwaters.

Reservoir. Any impoundment of surface waters designed to provide drinking water to the public.

Tributary stream. Any perennial or intermittent stream, including any lake, pond or other body of water formed therefrom, flowing either directly or indirectly into any reservoir.

Watershed. Any area lying within the drainage basin of any reservoir.

D. **Use regulations.**

1. Within the Reservoir Protection Overlay Zone, the permitted uses, special permit

uses, accessory uses, dimensional standards and special requirements established by the underlying zoning district shall apply, unless specifically modified by the requirements of this ordinance.

2. The following uses shall be specifically prohibited within the RPOZ areas:

   a. Storage or production of hazardous materials as defined in either or both of the following:

      1) Superfund Amendment and Reauthorization Act of 1986; and

      2) Identification and Listing of Hazardous Wastes, 40 C.F.R. §261 (1987).

   b. Disposal of hazardous materials or solid wastes

   c. Treatment of hazardous material, except rehabilitation programs authorized by a government agency to treat hazardous material present at a site prior to the adoption of this ordinance.

   d. Dry-cleaning, dyeing, printing, photo processing and any other business that stores, uses, or disposes of hazardous material, unless all facilities and equipment are designed and operated to prevent the release or discharge of hazardous materials and have undergone an inspection to certify they are in compliance within hazardous material regulations.

   e. Disposal of septage or septic sludge

   f. Automobile service stations

   g. Junkyards

E. **Review requirements for Development in the Reservoir Protection Overlay Zone**

1. A copy of any new application for a building permit, zoning permit, area variance, use variance, zoning amendment, or other land development proposal, including the subdivision of land, occurring wholly or partly in a Reservoir Protection Overlay Zone area shall be submitted to the Township and shall be accompanied by an impact study prepared in accordance with this section.

2. Applications for development within the Reservoir Protection Overlay Zone will be evaluated by the Township to ensure that:

   a. Non-point source pollution is prevented to the maximum extent possible, by taking into account site conditions such as slope, soil type and erosivity, and vegetative cover.

   b. Management practices are in place sufficient to remove or neutralize those pollutants that present a potential impact to the reservoir

   c. Grading and removal of vegetation at a development site is minimized and erosion and sediment control measures are in place and properly installed.

   d. All sewage disposal systems will be monitored, inspected and maintained on a regular basis to ensure proper functioning. If two or more dwelling units share a common sewage treatment system, a perpetual maintenance agreement shall be required by Township.

   e. Businesses involved in potential contaminating activities within the

Reservoir Protection Overlay Zone but which have received a special use permit must submit a spill control plan for approval. This plan shall include the following elements:

1) Disclosure statements describing the types, quantities, and storage locations of all contaminants that will be part of the proposed project.

2) Contaminant handling and spill prevention techniques

3) Spill reporting procedures, including a list of affected agencies to be contacted in the event of a spill

4) Spill recovery plans, including a list of available equipment

5) Spill clean-up and disposal plans

3. Existing land uses located within the Reservoir Protection Overlay Zone and identified as potential contaminating activities by the Township shall comply with the requirements listed above.

F. **Impact study.**

1. An impact study shall be performed or reviewed by a registered professional engineer and shall include, at a minimum, the following information:

a. Description of the proposed project including location and extent of impervious surfaces; on-site processes or storage of materials; the anticipated use of the land and buildings; description of the site including topographic, hydrologic, and vegetative features.

b. Characteristics of natural runoff on the site and projected runoff with the proposed project, including its rate and chemical characteristics deemed necessary to make an adequate assessment of water quality.

c. Measures proposed to be employed to reduce the rate of runoff and pollutant loading of runoff from the project area, both during construction and after.

d. Proposed runoff control and reservoir protection measures for the site. These measures shall be designed with the goal of ensuring that the rate of surface water runoff from the site does not exceed pre-development conditions and that the quality of such runoff will not be less than pre-development conditions. Special emphasis shall be placed on the impacts of proposed encroachments into the required buffer.

e. Where the developer of property subject to the terms of this overlay district seeks to utilize existing or planned off-site stormwater quality management facilities, the developer shall provide a written certification that the owner of the off-site facilities will accept the runoff and be responsible for its adequate treatment to a level acceptable to the Township.

2. Such study shall be submitted to the Township for review and approval concurrent with the submission of applications for review and approval of site or subdivision plans or applications for land disturbing or erosion and sediment control permits. A copy of the impact study shall also be forwarded to those agencies identified as interested parties which are responsible for managing the

reservoir watershed for review and comments.

G. **Buffer Requirements**

1. A _____ foot (_____') wide buffer strip shall be maintained along the edge of all public water supply reservoirs and any tributary stream discharging into these reservoirs. The required setback distance shall be measured from the centerline of such tributary stream and from the mean high water level of such reservoir. The buffer strip shall be maintained in its natural state to the maximum extent possible, and shall be planted with an erosion resistant vegetative cover in those areas that have been disturbed. In the case of tributary streams located upstream from a stormwater management facility designed to provide water quality protection, no buffer shall be required if such facility has been designed to accommodate and manage the quality of runoff from the subject site.

> Stream and shore buffer widths vary from twenty feet to up to 200 feet in ordinances throughout the United States. Since this ordinance is for reservoirs that supply public drinking water, the larger buffer width of 200 feet would be more appropriate.
>
> There is a much more detailed stream buffer ordinance located at this website. Local communities may wish to consult this ordinance to establish an individual stream buffer ordinance

2. A reduction in the required buffer width down to an absolute minimum of seventy-five feet (75') may be granted by the Township, upon presentation of an impact study that provides sufficient documentation and justification that even with the reduction, the same or a greater degree of water quality protection would be afforded as would be with the full-width buffer. In granting such a reduction, the Township may require additional erosion control or runoff control measures as deemed necessary to protect reservoir water quality.

3. All development shall be located outside of the required buffer strip, except for the following:

   a. The buffer strip requirement shall not apply to development which is appurtenant to the production, supply, distribution or storage of water by a public water supplier.

   b. Encroachment into or through the required buffer by roads, main-line utilities, or stormwater management structures may be permitted provided the following performance standards are met:

      1) Road and main-line utility crossings will be limited to the shortest path possible and that which causes the least amount of land disturbance and alteration to the hydrology of the watershed.

      2) Any stormwater management facilities located within the buffer should be sited within the context of a larger watershed stormwater management program.

      3) No more land shall be disturbed than is necessary.

      4) Indigenous vegetation shall be preserved to the maximum extent possible.

      5) Wherever possible, disturbed areas shall be planted with trees and shrubs.

   c. When the property where an encroachment is proposed is owned by the

entity owning and operating the water supply reservoir being protected, and such entity specifically and in writing authorizes and approves the encroachment, it shall be allowed.

4. The following uses shall not be permitted within the buffer strip or within_____ feet (_____') of the required buffer strip:

   a. septic tanks and drainfields;

   b. feed lots or other livestock impoundments;

   c. trash containers and dumpsters which are not under roof or which are located so that leachate from the receptacle could escape unfiltered and untreated;

   d. fuel storage in excess of fifty (50) gallons [200L];

   e. sanitary landfills;

   f. activities involving the manufacture, bulk storage or any type of distribution of petroleum, chemical or asphalt products or any materials hazardous to a water supply (as defined in the Hazardous Materials Spills Emergency Handbook, American Waterworks Association, 1975, as revised) including specifically the following general classes of materials:

      1) oil and oil products;

      2) radioactive materials;

      3) any material transported in large commercial quantities that is a very soluble acid or base, highly biodegradable, or can create a severe oxygen demand;

      4) biologically accumulative poisons;

      5) the active ingredients of poisons that are or were ever registered in accordance with the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 USC 135 et seq.); or

      6) substances highly lethal to mammalian or aquatic life.

MODEL OPEN SPACE ORDINANCE

SECTION I. BACKGROUND

A. Open space development has numerous environmental and community benefits, including:

1) Reduces the impervious cover in a development. Impervious cover contributes to degradation of water resources by increasing the volume of surface runoff, and preventing infiltration of rainfall into the soil surface.

2) Reduces pollutant loads to streams and other water resources.

3) Reduces potential pressure to encroach on resource buffer areas.

4) Reduces soil erosion potential by reducing the amount of clearing and grading on the site.

5) Preserves green space.

6) Preserves open space for recreation.

7) Reduces the capital cost of development.

8) Reduces the cost of stormwater management by concentrating runoff in one area and reducing runoff volumes.

9) Provides a wider range of feasible sites to locate stormwater BMPs.

10) Reduces the cost of future public services needed by the development.

11) Can increase future property values.

12) Creates urban wildlife habitat "islands."

13) Creates a sense of community and pedestrian movement.

14) Can support other community planning goals, such as farmland preservation, affordable housing, and architectural diversity.

B. It is the desire of _____ Township to protect the natural, historic and community resources in its jurisdiction, by promoting open space development within our jurisdiction.

SECTION II. DEFINITIONS

A. Base Density: The original density permitted under the property's residential zoning category (dwelling units per acre).

B. Community Open Space: The area of open space remaining after natural open space has been

C. Space designated: The area may be used for passive or active recreation, or stormwater management.

D. Frontage Distance: The width of a housing lot (in feet) that fronts along the street.

E. Green Space: Open space maintained in a natural, undisturbed or revegetated condition.

F. Impervious Cover: Any surface in the urban/suburban landscape that cannot effectively absorb or infiltrate rainfall.

G. Natural Condition: The topography and vegetation of an area that is unaltered by clearing and grading during construction and protected in perpetuity.

H. Non-Tidal Wetland: Those areas not influenced by tidal fluctuations that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

I. One Hundred Year: The area of land adjacent to a stream that is subject to inundation during a storm

J. Floodplain: event that has a recurrence interval of one hundred (100) years.

K. Open Space: A portion of a development site that is permanently set aside for public or private use and will not be developed. Open space may be used as community open space, or preserved as green space.

L. Open Space Development: A development pattern that arranges the layout of buildings in a compact area of Development the site so as to reserve a portion of the site for community open space or green space that is protected in perpetuity.

M. Stream Buffer: A vegetated area bordering a stream which exists or is established to protect a stream system. Alteration of this vegetated area is strictly limited.

N. Unbuildable Land: The area of a site that includes wetlands and submerged areas, slopes of 25% or more, and the 100-year floodplain.

> The definition of unbuildable land may not include all of these areas. For example, buffers may not be considered unbuildable in many jurisdictions. In additions, other areas may be considered unbuildable in some communities.

SECTION III. APPLICATION

A. The provisions of this ordinance apply to all residential zones with a density less than or equal to eight dwelling units per acre.

B. The minimum size of an open space development shall be five acres.

C. Open space developments shall be considered a permitted use, and shall not require a special land use or additional review.

D. Plats registered before the adoption of this ordinance are exempt from the provisions of this ordinance.

> Open space development can be allowed as: 1) a permitted use, or; 2) as a permitted use. In most communities, open space development requires a special approval process. This requirement discourages the use of open space development because of the time required for approval compared with conventional development. When open space development is a permitted use, an open space plan that meets the requirements of the ordinance will go through the same site plan review process as a conventional development, and must be approved if it meets all of the requirements. This prevents denial of a fully compliant open space plan in favor of a conventional plan.

SECTION IV. DESIGN CRITERIA

A. The total number of residential units allowable within an open space development shall

not exceed the number of units that would otherwise be allowed in the existing zoning district using conventional development. The total number of units allowed shall be determined using the following formula:

$$T = BD \times [A - (U+R)]$$

Where:

T=	Total Units (dwelling units)
BD=	Base Density (dwelling units/acre)
A=	Total Site Area (acres)
U=	Unbuildable Land as defined in Section II (acres).
R=	Road and Utility Right of Way (acres)

This method of determining the total dwelling units is known as a "partial density transfer". In the alternative method, or "full density transfer," the base density would be multiplied by the total area. Typically, the partial density transfer option preserves a greater amount of open space. However, the full density transfer may be preferable in many communities, particularly if regional density goals need to be met.

B. Frontage distance, rear, front and side yard setbacks may be reduced to 50% of the requirements in the base zoning, subject to the following rules:

1. The frontage distance shall be no less than 10 feet.
2. Front and rear yard setbacks shall be no less than 10 feet.
3. Sideyard setbacks shall be a minimum of five feet. This requirement may be waived if the regulations of the appropriate Fire Authority are met.

As an alternative to narratively describing lot geometry requirements, a community may make a table of open space zoning requirements based on zoning category, or provide specific zoning text language that guides planning agency staff in approving appropriate subdivision projects.

C. Lot size may be reduced to 25% of base density but no smaller than 1/8 of an acre.

D. Irregular lot shapes and shared driveways are permitted in open space design.

The values for lot geometry presented here are guidelines; jurisdictions need to select values that make sense within the context of existing regulations, and community goals.

E. Shared septic systems may be permitted provided that the requirements of the County Health Department are met, including appropriate provisions for legal obligations related to maintenance and replacement.

The use of shared septic systems is controversial, primarily because of the maintenance responsibility. In many communities, shared systems become the responsibility of the local jurisdiction. However, requiring one septic system per lot makes open space development more challenging.

G. The number of parking spaces required for a residential open space development shall be two spaces per dwelling unit. Parking may be provided either on-street or in driveways.

SECTION V. OPEN SPACE REQUIREMENTS

A. The total area of dedicated open space shall equal the amount by which all dwelling unit lots are reduced below the base zoning and shall meet the requirements outlined in Table 1.

The amount of open space should increase with decreasing density, because of the feasibility of protecting open space in these areas. In rural open space designs, different techniques are typically used than in more suburban areas, clustering homes in small groups or "pods" that retain a rural character.

Table 1. Open Space Required for Various Densities	
Base Density (du/ac)	Open Space Required (% of buildable area)
>1	35%
0.5<BD<1	40%
0.2<BD<0.5	45%
<0.2	50%

B. The following activities or land uses may not be counted as a part of designated open space:

1. Land considered unbuildable under Section II
2. Existing rights-of-way and utility easements
3. Setbacks and lawns

> In the Full Density Transfer option, a greater percentage of open space would be required (up to 75% of the total site area). However, unbuildable land would be included in the dedicated open space.

C. The following areas shall be high priorities for inclusion in designated open space

1. Resource buffers.
2. High quality forest resources
3. Individual trees
4. Critical habitat areas
5. High quality soil resources

D. At least 75% of designated open space shall be contiguous, with no portion less than 100 feet wide.

E. At least 50% of designated open space shall be designated as "green space" as defined in Section II and shall be maintained in a natural, undisturbed condition.

> In the Full Density Transfer Option, a greater fraction of the open space would be green space, but the open space may include unbuildable areas such as wetlands.

F. Reasonable effort must be made to locate green space adjacent to green space in an adjoining property(s) to the satisfaction the Township.

G. Limited access to green space may be allowed in the form of an walking or hiker/biker path, the total area of which must be no more than 2% of the total green space area.

H. The remaining designated open space may be "community space" and may be used for passive or active recreation, or the location of stormwater management facilities.

1. If used for stormwater management, all design, construction, maintenance, and public safety requirements shall be met, using the design criteria set forth in ____ (*Stormwater Manual)*.
2. If used for active recreation, impervious cover shall not exceed 5% of this area.

SECTION VI. OPEN SPACE MANAGEMENT

A. The boundaries of designated open space areas, recreation areas, stormwater management facilities, and green space shall be clearly delineated on plans, including record plats, and marked in the field with signage approved by the Township to distinguish these areas from private property.

B. Development in designated open spaces in the future is prohibited. Ownership of open space shall be designated through one of the following options:

1. Ownership by the individual lot owners as a homeowner's association. The deed to each lot shall include a proportionate share of the common open space. Each lot owner shall be required to be a member of a homeowner's association, which shall be formed prior to conveyance of the first lot. The assessment of dues or fees for structural improvements requires the affirmative vote of no less than two-thirds of the homeowners' association membership.

2. Conservation Easement.

   a. If owned by a separate entity, a conservation easement shall be established for the area as defined in subsection 3 below and shall be given to the Township.

   b. A conservation easement, established as defined in subsection 3) below may be transferred to an established, designated land trust organization, among whose purposes it is to conserve open space and/or natural resources. This option is recommended for natural open space areas. Such transfer is allowable, provided that:

      1) The organization is acceptable to the Township and is a bona fide conservation organization with perpetual existence;

      2) the conveyance contains appropriate provision for proper reverter or retransfer in the event that organization becomes unwilling or unable to continue carrying out its functions;

      3) a maintenance agreement acceptable to the homeowners' association is entered into by the developer and the organization.

3. The conservation easement shall:

   a. Protect open space from future development and environmental damage by restricting the area from any future building and against the removal of soil, trees, and other natural features, except as is consistent with conservation, recreation, or agricultural uses or uses accessory to permitted uses;

   b. Provide that residents have access to the open space at all times;

   c. Dictate whether open space is for the benefit of residents only, or may be open to residents of the Township.

C. An open space management entity shall assure that the open space will be protected in perpetuity from all forms of development, except as shown on approved development plan, and that it will never be changed to another use. The management entity shall:

1. Prescribe all allowable and unallowable uses and activities within such open

space,

2. Provide detailed standards and schedules for maintenance of the open space, including vegetative management.

3. Allow for county or municipal maintenance of open space in the event that maintenance specified under a homeowner's agreement is not complied with.

MODEL SOIL EROSION ORDINANCE

INTRODUCTION/ PURPOSE

During the construction process, soil is the most vulnerable to erosion by wind and water. This eroded soil endangers water resources by reducing water quality, and causing the siltation of aquatic habitat for fish and other desirable species. Eroded soil also necessitates repair of sewers and ditches, and the dredging of lakes. In addition, clearing grading during construction causes the loss of native vegetation necessary for terrestrial and aquatic habitat, and to provide a healthy living environment for citizens of _____ Township.

As a result, the purpose of this local regulation is to safeguard persons, protect property, prevent damage to the environment and promote the public welfare by guiding, regulating, and controlling the design, construction, use, and maintenance of any development or other activity which disturbs or breaks the topsoil or results in the movement of earth on land in _____ Township.

DEFINITIONS

Certified Contractor	An individual who has received training and is licensed by _____ (*State or Local Environmental Agency*) to inspect and maintain erosion and sediment control practices.
Clearing	Any activity which removes the vegetative surface cover.
Drainage Way	Any channel that conveys surface runoff throughout the site.
Erosion Control	Measures that prevent erosion.
Erosion and Sediment	A set of plans prepared by or under the direction of a licensed professional engineer
Control Plan	indicating the specific measures and sequencing to be used controlling sediment and erosion on a development site both before, during and after construction.
Grading	Excavation or fill of material, including the resulting conditions thereof.
Perimeter Control	A barrier that prevents sediment from leaving a site either by filtering sediment-laden runoff, or diverting it to a sediment trap or basin.
Phasing	Clearing a parcel of land in distinct phases, with the stabilization of each phase before the clearing of the next.
Sediment Control	Measures that prevent eroded sediment from leaving the site.
Site	A parcel of land, or a contiguous combination thereof, where grading work is performed as a single unified operation.
Site Development	A permit issued by the municipality for which the construction or alteration of ground
Permit	improvements and structures for the control of erosion, runoff and

	grading.
Stabilization	The use of practices that prevent exposed soil from eroding.
Start of Construction	The first land-disturbing activity associated with a development, including land preparation such as clearing, grading and filling; installation of streets and walkways; excavation for basements, footings, piers or foundations; erection of temporary forms; and installation of accessory buildings such as garages.
Watercourse	Any body of water, including, but not limited to lakes, ponds, rivers, streams, and bodies of water which delineated by_____ Township.
Waterway	A channel that directs surface runoff to a watercourse, or to the public storm drain.

SECTION 1. PERMITS

A. No person shall be granted a site development permit for land-disturbing activity which would require the uncovering of *10,000 or more square feet* without the approval of an Erosion and Sediment Control Plan by _____ (*Erosion and Sediment Control Agency*).

> The size of the site regulated under the erosion and sediment control ordinance varies widely. The proposed Phase II NPDES rules regulate disturbances greater than one acre, but communities regulate sites as small as 2,000 square feet.

B. No site development permit is required for the following activities:

1. Any emergency activity which is immediately necessary for the protection of life, property or natural resources.
2. Existing nursery and agricultural operations conducted as a permitted main or accessory use.

> Communities may choose to exempt other activities, such as mining, from an erosion and sediment control permit, or in some cases include the exempted uses cited above.

C. Each application shall bear the name(s) and address(es) of the owner or developer of the site, and of any consulting firm retained by the applicant together with the name of the applicant's principal contact at such firm, and shall be accompanied by a filing fee.

D. Each application shall include a statement that any land clearing, construction, or development involving the movement of earth shall be in accordance with the Erosion and Sediment Control Plan, and that a Certified Contractor shall be on site on all days where construction or grading activity takes place.

> Some states have "Certified Contractor" programs, in which contractors successfully completing a training course in basic erosion and sediment control. This individual would be responsible for ensuring the regular maintenance and proper installation of erosion and sediment control measures.

E. The applicant will be required to file with _____ Township a faithful performance bond or bonds, letter of credit, or other improvement security in an amount deemed sufficient by _____ (*Erosion and Sediment Control Agency*) to cover all costs of improvements, landscaping, and maintenance of improvements for such period as specified by _____ Township and engineering and inspection costs to cover the cost of failure or repair of improvements installed on the site.

F. Review and approval

1. _____ (*Erosion and Sediment Control Agency*) will review each application for a site development permit to determine its conformance with the provisions of this local regulation. Within thirty (30) days after receiving an application, _____ (*Erosion and Sediment Control Agency*) shall, in writing:

   a. approve the permit application;

   b. approve the permit application subject to such reasonable conditions as may be necessary to secure substantially the objectives of this regulation, and issue the permit subject to these conditions; or

   c. disapprove the permit application, indicating the deficiencies and the procedure for submitting a revised application and/or submission.

2. Failure of the _____ (*Erosion and Sediment Control Agency*) to act on original or revised applications within thirty (30) days of receipt shall authorize the applicant to proceed in accordance with the plans as filed unless such time is extended by agreement between the applicant and _____ (*Erosion and Sediment Control Agency*). Pending preparation and approval of a revised plan, development activities shall be allowed to proceed in accordance with conditions established by _____ (*Erosion and Sediment Control Agency*).

SECTION 2. EROSION AND SEDIMENT CONTROL PLAN

A. The Erosion and Sediment Control Plan shall include:

1. A natural resources map identifying soils, forest cover, and resources protected under other chapters of this code.

This map should be at a scale no smaller than 1"=100'. For a more detailed discussion, see the buffer ordinance.

2. A sequence of construction of the development site, including stripping and clearing, rough grading, construction of utilities, infrastructure, and buildings, and final grading and landscaping. Sequencing shall identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas, and the sequence of clearing, installation of temporary erosion and sediment measures, and establishment of permanent vegetation.

3. All erosion and sediment control measures necessary to meet the objectives of this local regulation throughout all phases of construction and permanently, after completion of development of the site. Depending upon the complexity of the project, the drafting of intermediate plans may be required at the close of each season.

4. Seeding mixtures and rates, types of sod, method of seedbed preparation, expected seeding dates, type and rate of lime and fertilizer application, and kind and quantity of mulching for both temporary and permanent vegetative control measures.

5. Provisions for maintenance of control facilities, including easements and estimates of the cost of maintenance.

B. Modifications to the plan

1. Major amendments of the erosion and sediment control plan shall be submitted to _____*Erosion and Sediment Control Agency*) and shall be processed and approved, or disapproved, in the same manner as the original plans.

2. Field modifications of a minor nature may be authorized by _____ (*Erosion and Sediment Control Agency*) by written authorization to the permitee.

SECTION 3. DESIGN REQUIREMENTS

Grading, erosion control practices, sediment control practices, and waterway crossings shall meet the design criteria set forth in the most recent version of _____ (*Erosion and Sediment Control Manual)*, and shall be adequate to prevent transportation of sediment from the site to the satisfaction of _____ (*Erosion and Sediment Control Agency*).

A. Clearing and Grading

1. Clearing and grading of natural resources, such as forests and wetlands, shall not be permitted, except when in compliance all other chapters of this Code.

> For example, the stream buffer codes as well as the forest conservation code in the "Miscellaneous" section would also restrict clearing.

2. Clearing techniques that retain natural vegetation and retain natural drainage patterns, as described in _____ (*Erosion and Sediment Control Manual)*, shall be used to the satisfaction of _____ (*Erosion and Sediment Control Agency*).

3. Phasing shall be required on all sites disturbing greater than *thirty* acres, with the size of each phase to be established at plan review and as approved by _____ (*Erosion and Sediment Control Agency*).

> While many communities encourage phasing, few actually require it. Phasing construction can reduce erosion significantly when well-designed. (See Claytor, 1997).

4. Clearing, except that necessary to establish sediment control devices, shall not begin until all sediment control devices have been installed and have been stabilized.

5. Cut and fill slopes shall be *no greater than 2:1*, except as approved by _____ (*Erosion and Sediment Control Agency*) to meet other community or environmental objectives.

B. Erosion Control

1. Soil must be stabilized within *five days* of clearing or inactivity in construction.

2. If vegetative erosion control methods, such as seeding, have not become established within *two weeks*, _____ (*Erosion and Sediment Control Agency)* may require that the site be reseeded, or that a non-vegetative option be employed.

> Numerical standards regarding the time to stabilization will vary. In particular, the time to establish seeding will depend on the climate.

3. On steep slopes or in drainage ways, special techniques that meet the design criteria outlined in _____ (*Erosion and Sediment Control Manual)* shall be used to ensure stabilization.

4. Soil stockpiles must be stabilized or covered at the end of each work day.

5. At the close of the construction season, the entire site must be stabilized, using a heavy mulch layer, or another method that does not require germination to control erosion.

6. Techniques shall be employed to prevent the blowing of dust or sediment from the site.

7. Techniques that divert upland runoff past disturbed slopes shall be employed.

C. Sediment Controls

1. Sediment controls shall be provided in the form of settling basins or sediment traps or tanks, and perimeter controls.

2. Where possible, settling basins shall be designed in a manner that allows adaptation to provide long term stormwater management.

3. Adjacent properties shall be protected by the use of a vegetated buffer strip, in combination with perimeter controls.

D. Waterways and Watercourses

1. When a wet watercourse must be crossed regularly during construction, a temporary stream crossing shall be provided, and an approval obtained from ___ (*Approving Agency, e.g., Waterways Division, ESC Agency*).

2. When in-channel work is conducted, the channel shall be stabilized before, during and after work.

3. All on-site stormwater conveyance channels shall be designed according to the criteria outlined in _____(*Erosion and Sediment Control Manual)*.

4. Stabilization adequate to prevent erosion must be provided at the outlets of all pipes and paved channels.

E. Construction Site Access

1. A temporary access road shall be provided at all sites.

2. Other measures may be required at the discretion of _____ (*Erosion and Sediment Control Agency)* in order to ensure that sediment is not tracked onto public streets by construction vehicles, or washed into storm drains.

SECTION 4. INSPECTION

A. _____ (*Erosion and Sediment Control Agency*) or designated agent shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the permitee wherein the work fails to comply with the erosion and sediment control plan as approved. Plans for grading, stripping, excavating, and filling work bearing the stamp of approval of the _____ (*Erosion and Sediment Control Agency*) shall be maintained at the site during the progress of the work. In order to obtain inspections, the permitee shall notify _____

(*Erosion and Sediment Control Agency*) at least two (2) working days before the following:

1. Start of Construction
2. Erosion and sediment control measures are in place and stabilized.
3. Site Clearing has been completed
4. Rough Grading has been completed
5. Final Grading has been completed
6. Close of the Construction Season
7. Final Landscaping

B. The permitee or his/her agent shall make regular inspections of all control measures in accordance with the inspection schedule outlined on the approved erosion and sediment control plan(s). The purpose of such inspections will be to determine the overall effectiveness of the control plan, and the need for additional control measures. All inspections shall be documented in written form and submitted to_____ (*Erosion and Sediment Control Agency*) at the time interval specified in the approved permit.

C. _____ (*Erosion and Sediment Control Agency*) or its designated agent shall enter the property of the applicant as deemed necessary to make regular inspections to ensure the validity of the reports filed under Section B.

SECTION 5. ENFORCEMENT

A. Stop-Work Order; Revocation of Permit. In the event that any person holding a site development permit pursuant to this ordinance violates the terms of the permit, or implements site development in such a manner as to materially adversely affect the health, welfare, or safety or persons residing or working in the neighborhood or development site so as to be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood, _____ (*Erosion and Sediment Control Agency*) may suspend or revoke the site development permit.

B. Violation and Penalties. No person shall construct, enlarge, alter, repair, or maintain any grading, excavation, or fill, or cause the same to be done, contrary to or in violation of any terms of this ordinance. Any person violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor, and each day during which any violation of any of the provisions of this ordinance is committed, continued or permitted, shall constitute a separate offense. Upon conviction of any such violation, such person, partnership, or corporation shall be punished by a fine of not more than $_____for each offense. In addition to any other penalty authorized by this section, any person, partnership, or corporation convicted of violating any of the provisions of this ordinance shall be required to bear the expense of such restoration.

> Specific penalties will vary between communities, and should reflect realistically enforceable penalties given the political realities of a jurisdiction.

SECTION 6. SEPARABILITY

The provisions and sections of this ordinance shall be deemed to be separable, and the invalidity of any portion of this ordinance shall not affect the validity of the remainder.

MODEL SHORELAND OVERLAY DISTRICT

PURPOSE AND APPLICATION

A. The purpose of this District Is to recognize the unique physical, environmental, economic, and social attributes of water bodies, watercourses, and shoreland properties In ** Township, to ensure that the structures and uses In this District are compatible with and Protect these unique attributes. Other Specific purposes Include the prevention of water pollution, preservation of wildlife habitat, protection from the negative effects of erosion and storm water runoff, conservation of natural beauty and open space, and management of development in sensitive shoreland areas.

B. The Shoreland Overlay District is a supplemental District which applies to certain designated lands, as described in this Section, simultaneously with any of the other Zoning Districts established In this Ordinance, hereinafter referred to as the "underlying" Zoning District.
Lands Included in the Shoreland Overlay District are:

1. Watercourses - All lands located within five hundred (500) feet of the shoreline of the watercourses In the township (to be listed here); and
2. Water Bodies - All lands located within five hundred (500) feet of the shoreline of the water bodies in the township (to be listed here).
3. In cases where a parcel is partially Inside and partially outside of the Shoreland Overlay District, only those portions located within the Overlay District are required to comply with the requirements of this district.

> The first important issue to determine is to what bodies of water or water courses the regulations will apply. There may be some degree of selectivity; not all lakes and streams need be covered but there should be specific reasons why some are covered and not others.

DEFINITIONS

For the purposes of this Chapter, the following definitions shall apply.

A. Lot Coverage - The part or percent of a lot occupied by impervious surfaces, including, but not limited to, buildings or structures, paving, drives, patios, and decks.

B. Natural vegetative Cover – Natural vegetation, Including bushes, shrubs, groundcover, and trees, on a lot. Lawn shall not qualify as natural vegetative cover.

> The definition of lot coverage proposed for the overlay district emphasizes the total amount of imperviousness and Is designed to address potential adverse impacts associated with stormwater runoff from shoreland areas.

DEVELOPMENTREQUIREMENTS

A. Permitted Uses: With the exception of uses and activities prohibited herein, the following uses of land and structures shall be permitted in the Shoreland Overlay District: Permitted Uses and Special Land Uses permitted In the underlying District, provided that Special Land Uses meet the requirements of the Special Land Use chapter.

B. Prohibited Uses: The following uses and activities shall be specifically prohibited In the Shoreland Overlay District:

1. Confined Feedlots
2. Slaughterhouses
3. Gas Stations
4. Auto Repair Shops (major and minor repairs) and oil change establishments
5. Auto Washes, either self service or automatic
6. Hazardous Waste Storage Facilities
7. Petroleum Storage Facilities
8. Landfills, salvage or Junkyards
9. The construction of a canal, channel, or any artificial waterway
10. Any other use not specifically permitted in the underlying Districts

C. Lot Area, Width, Yard, Building Area, Height, and setback. Requirements

1. Except as noted below, minimum requirements for lot area, lot width, yards, building area and building height shall conform to those required by the underlying District.

> As an ' overlay district' most of the underlying development regulations remain the same.

2. The following additional requirements shall apply for structures within the Shoreland Overlay District. Unless otherwise noted, all requirements apply to both watercourses and water bodies.

a. As of the effective date of this Ordinance, no dwelling or other main building, accessory building shall be constructed, erected, installed, or enlarged unless In compliance with the following setback requirements:

> The setback requirements are generally based on Michigan's Natural Rivers regulations.

(1) **Watercourses** – The structures noted shall be set back a minimum of one hundred (100) feet, as measured from the shoreline, except that for each one (1) foot of elevation above a minimum of seven (7) feet above the shoreline, new structures may be placed five (5) feet closer to the shoreline of the watercourse, provided that no structure shall be located closer than seventy-five (75) feet from the watercourse.

(2) **Water Bodies -** The structures noted shall be set back a minimum of twenty-five (25) feet, as measured from the shoreline.

b. No dwelling shall be constructed or placed on lands which are subject to flooding.

D. Shoreline Vegetative Buffer

1. A buffer bordering any watercourse or water body, shall be maintained in its natural vegetative state. Lawn shall not qualify as natural vegetative buffer under this section. The minimum width of the buffer, as measured from the shoreline, shall be:

> The shoreline vegetative buffer is an essential element of this regulation. It is most difficult to implement where development has already taken up the shoreline. However, public education and enforcement where possible can still make this an effective tool.

   a. **Watercourses** - one hundred (100) feet

   b. **Water Bodies** - twenty five (25) feet

2. Within the shoreline vegetative buffer, no more than an aggregate of twenty (20) feet for each one hundred (100) feet of shoreline maybe cleared to afford lake access, provided that the clearing does not cause erosion or sedimentation. Since the Intent of the vegetative buffer is water quality protection, the lake access area must be covered In grass or other vegetative groundcover. Impervious materials such as asphalt or concrete shall not be used within the shoreline buffer area.

3. The Zoning Administrator may allow limited clearing of the vegetative buffer when required for construction of a permitted building or structure outside the vegetative buffer, provided that the land cleared is returned to a vegetative state of approximately the same quality as that which existed prior to clearing and is equally effective In retarding runoff, preventing erosion, and preserving natural beauty.

> Some reasonable maintenance provisions are necessary to maintain safety and prevent the blocking of navigable waters.

4. These provisions shall not apply to the removal of noxious, dead, diseased, or dying vegetation or trees that are in danger of falling, causing damage to dwellings or other structures, or causing blockage of the watercourse or water body.

5. The shoreline vegetative buffer shall not be used for any motorized vehicular traffic, parking, or for storage of any kind, including junk, waste, or garbage, or for any other use not otherwise authorized by this Ordinance.

E. lot Coverage and Natural Vegetative Cover

1. Notwithstanding the requirements of the underlying zoning district, lot coverage shall not exceed forty percent (40%).

> Actual lot coverage requirements are flexible but should be higher than those normally applied when lot coverage only includes buildings.

2. At a minimum, lots shall maintain a minimum of thirty percent (30%) of the entire lot area In natural vegetative cover. To the extent practicable, natural vegetative areas shall be maintained along lot lines, water bodies and watercourses, natural drainage courses, wetlands, and steep slopes. On lots bordering water bodies and watercourses, the Shoreline Vegetative Buffer required by this provision may be included as part of the Natural Vegetative Cover.

3. In the case of planned unit developments, site condominiums, and open space developments, each individual lot need not meet the requirements of this

section, provided that the total project or an individual phase of a project meets the requirements of this section.

F. General Design and Development Standards: For all development in the Shoreland Overlay District, the following design and construction standards shall be followed:

1. Natural vegetation shall be maintained wherever possible.
2. Existing mature trees shall be maintained on site where feasible.
3. To the extent feasible, natural drainage areas should be protected from grading activity.
4. Buildings and structures shall be clustered as much as possible to retain open space and surrounding tree cover and to minimize changes in topography.
5. The smallest practical area may be exposed at any one time during construction.
6. When land is exposed during development, the exposure shall be kept to the shortest practical period of time.
7. Appropriate measures shall be taken to ensure stormwater drainage will not adversely affect neighboring properties or the quality of area water resources. Where feasible, steps should be taken to retain and infiltrate uncontaminated stormwater (such as roof top drainage) on site.

APPROVALS

A. Site plan approval, in accordance with the requirements of the Site Plan Review chapter shall be obtained for the following uses or buildings (including additions or extensions to these uses or buildings) that are located wholly or partially within the Shoreland Overlay District.

1. Any Commercial establishment
2. Any Industrial establishment
3. Multiple Family Residential Dwellings

B. Development within the Shoreland Overlay District must conform with all applicable County, State, and Federal, and Township statutes and ordinances including, but not limited to, Part 91, Soil Erosion and Sedimentation Control, of Michigan Act 451 of 1994. A building permit shall not be issued in the Shoreland Overlay District unless a copy of the soil erosion control permit required pursuant to Part 91 has been submitted to the Zoning Administrator.

C. All other requirements, including parking, signs, and other similar provisions shall be as required by the underlying zone district, except that where specific requirements of the Shoreland Overlay District vary or conflict with the regulations contained In the underlying zoning district, the stricter shall govern.

MODEL STORMWATER ORDINANCE

DEFINITIONS

Best Management Practice (BMP): Structural device, measure, facility or activity that helps to achieve stormwater management control objectives at a designated site.

Plan: A document approved at the site design phase that outlines the measures and practices used to control stormwater runoff at a site.

SECTION I. DESIGN

A. All stormwater BMPs shall be designed in a manner to minimize the need for maintenance, and reduce the chances of failure.

B. Stormwater easements and covenants shall be provided by the property owner for access for facility inspections and maintenance. Easements and covenants shall be recorded with _____ (*Stormwater Agency)* prior to the issuance of a permit.

C. Final design shall be approved by _____ (*Stormwater Agency*)

SECTION II. ROUTINE MAINTENANCE

A. All stormwater BMPs shall be maintained according to the measures outlined in the most recent version of _____ (*Local or State Stormwater Manual*), and as approved in the permit.

B. The person(s) or organization(s) responsible for maintenance shall be designated in the Plan. Options include:

1. Property owner.
2. Homeowner's association, provided that provisions for financing necessary maintenance are included in deed restrictions or other contractual agreements.
3. _____ *(Stormwater Management Agency)*

C. Maintenance agreements shall specify responsibilities for financing maintenance.

SECTION III. NON-ROUTINE MAINTENANCE

A. Non-routine maintenance includes maintenance activities that are expensive but infrequent, such as pond dredging or major repairs to stormwater structures.

B. Non-routine maintenance shall be performed on an as-needed basis based on

information gathered during regular inspections.

C. If non-routine maintenance activities are not completed in a timely manner, or as specified in the Plan, _____ (*Stormwater Agency*) may complete the necessary maintenance at the owner's/ operator's expense.

SECTION IV. INSPECTIONS

A. The person(s) or organization(s) responsible for maintenance shall inspect stormwater BMPs on a regular basis, as outlined in the Plan.

B. Authorized representatives of _____ (*Stormwater Agency*) may enter at reasonable times upon any time to conduct on-site inspections or routine maintenance.

C. For BMPs maintained by the property owner or homeowner's association, inspection and maintenance reports shall be filed with _____ (*Stormwater Agency*), as provided for in the Plan.

D. Authorized representatives of _____ (*Stormwater Agency*) may conduct inspections to confirm the information in the reports filed under Section C.

SECTION I. MAINTENANCE

A. All soil erosion and stormwater runoff control facilities and measures shall be maintained in accordance with permit conditions.

B. The person(s) or organization(s) responsible for maintenance shall be designated in the Soil Erosion and Stormwater Runoff Control Plan or the permit application submitted to the Drain Commissioner. Options include:

1. The owner of the property.
2. Property owners association or other nonprofit organization, provided that provisions for financing necessary maintenance are included in deed restrictions or other contractual agreements.
3. Drain Commissioner, in accordance with provisions of the Michigan Drain Code (Public Act 40 of 1956, as amended).

C. Maintenance agreements shall specify financing responsibilities for maintenance, emergency repairs and other activities required in this ordinance.

D. The Drain Commissioner will make the final decision of what maintenance option is appropriate in a given situation. Natural features, proximity of site to lakes, streams and protected wetlands, extent of impervious surfaces, size of the site and potential need for ongoing maintenance activities will be considered when making this decision.

SECTION II. STORMWATER MANAGEMENT EASEMENTS

A. Stormwater management easements shall be provided by the property owner if necessary for: (1) access for facility inspections and maintenance, or (2) preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event. The purpose of the easement shall be specified in the maintenance agreement signed by the property owner.

B. Stormwater management easements are required for all areas used for off-site stormwater control, unless a waiver is granted by the Drain Commissioner.

C. Easements shall be recorded with the County Register of Deeds prior to issuance of a permit by the Drain Commissioner.

SECTION III. COMPLIANCE ASSURANCES

A. Performance Guarantees

1. Applicants proposing subdivision plats, road construction projects, or other

developments identified by the Drain Commissioner with a high potential for soil erosion shall be required to post a cash escrow, letter of credit, or other acceptable form of performance security in an amount determined by the Drain Commissioner.

2. Letters of credit, if used as a performance guarantee, shall extend for a minimum of one year with the option of renewal. Letters of credit will be returned to the applicant when the site is certified by the licensed professional who designed the site plan and the site is completely stabilized to meet requirements set forth by the Drain Commissioner.

B. Construction Certification by Registered Professional. For any sites that required a professional site plan, a certification letter shall be submitted after soil erosion and stormwater runoff control facilities have been installed to affirm that construction has been completed in accordance with the approved soil erosion and stormwater runoff control plan. This certification letter can be prepared by one of the following registered professionals: civil engineer, land surveyor, architect, and/or landscape architect unless it was specified by the Drain Commissioner that a civil engineer prepare a plan, it would need to be a civil engineer that approves the plan. If there are changes during the course of construction, the Drain Commissioner may require final "as built" drawings for final approval of the site work.

C. Certificate of Compliance. Upon receipt and approval of the certification letter, the Drain Commissioner shall issue a certificate of compliance to the property owner.

SECTION IV. INSPECTIONS

A. Authorized representatives of the Drain Commissioner may enter at reasonable times upon any property to conduct on-site inspections. Such inspections may take place before, during and after any earth change activity for which a permit has been issued.

B. If upon inspection, existing site conditions are found not to be as stated in the permit or approved Soil Erosion and Stormwater Runoff Control Plan, the permit will be invalid. No earth disrupting work shall be undertaken, or continued, until revised plans have been submitted and a valid permit issued.

C. Requests for revisions must be submitted to and approved by the Drain Commissioner in writing before being effective unless approved by the field inspector on the site. If approved, a revised site plan shall be submitted for review and approval.

SECTION V. STOP-WORK ORDERS AND EMERGENCY ACTIONS

A. If necessary to assure compliance with the permit requirements, standards, and other provisions of this Ordinance, or to protect public health safety and welfare, the Drain Commissioner may issue a stop-work order for the purpose of preventing or minimizing accelerated soil erosion, stormwater runoff, or other conditions posing imminent and substantial danger to public health, safety, welfare, or natural resources.

B. If necessary to protect public safety or water resources, including lakes, streams, protected wetlands, and other receiving bodies of water, the Drain Commissioner may

initiate emergency action to abate imminent and substantial danger and risk, subject to Section XIV B of this ordinance.

C. Except as otherwise provided through maintenance agreements, the property owner may be held responsible for reimbursing Grand Traverse County for all costs incurred as a result of emergency action, including administrative costs, provided that a finding is made that the property owner violated provisions of this Ordinance, a permit, or an approved maintenance agreement.

D. The stop-work order, when issued, shall require all specified earth change activities to be stopped. A copy of the stop-work order shall immediately be submitted to other state and local agencies with regulatory jurisdiction.

E. If the Drain Commissioner determines that soil erosion and sedimentation of the waters of this state has or will reasonably occur from a parcel of land in violation of this Ordinance, it may seek to enforce the ordinance by notifying the person who owns the land, by mail, with return receipt requested, of its determination. The notice shall contain a description of specific soil and sedimentation control measures which, if implemented by the property owner, would bring the owner into compliance.

F. A person who owns land subject to this ordinance shall implement and maintain soil erosion and stormwater runoff control measures in conformance with this ordinance within ten (10) days after the notice of violation has been given as specified in Section E above.

SECTION VI. ENFORCEMENT ACTION

A. All earth changes in Grand Traverse County, including earth changes exempt from permit requirements, are subject to the enforcement provisions and penalties of this ordinance.

B. A person who owns land on which an earth change has been made that may result in or contribute to soil erosion or sedimentation of the waters of the state shall implement and maintain soil erosion and sedimentation control measures that will effectively reduce soil erosion or sedimentation from the land on which the earth change has been made.

C. The Drain Commissioner shall notify the Michigan Department of Natural Resources of all violations of the Michigan Soil Erosion and Sedimentation Control Act (Act 347 of 1972, as amended), or rules, as well as violations of this ordinance, including violations attributable to an earth change created by an authorized public agency.

D. Each act of violation, and every day upon which any violation shall occur or continues to occur, shall constitute a separate offense.

E. A person who has not complied with this ordinance and who, after notice, refuses to implement and maintain soil erosion control and stormwater runoff control measures and facilities in conformance with these regulations shall be subject to a fine of not more than $500.00 or ninety (90) days in jail, or both, plus the cost of prosecution.

BUFFER PROTECTION ORDINANCE EXAMPLE

(a) *Authority.* This regulation is enacted pursuant to the authority of the natural resources and environmental protection act, Public Act No. 451 of 1994 (MCL 324.101 et seq.); the Michigan zoning enabling act, Public Act No. 110 of 2006 (MCL 125.3101 et seq.); Mich. Const. art. 4, § 52; and Mich. Const. art. 7, § 34, to protect the public health, safety, property, and welfare of the citizens of the township, and to preserve and enhance the environmental, ecological, and aesthetic values of waterbodies in the township, the Huron River Watershed, and the Lake Erie Drainage of the Great Lakes Basin.

(b) *Intent.* It is the intent of this section to require a minimum buffer adjacent to water features and wetlands, and to regulate property within such buffer, in order to prevent physical harm, impairment and/or destruction of or to a water feature or wetland. It is also the intent of this section to establish and preserve a minimum buffer adjacent to water features and wetlands in order to preserve the relationship between them and the buffer area in terms of plant species, animal species, surface and subsurface hydrology, water table, and water quality. If a greater buffer or prohibition is required by other ordinances, or other provisions of this chapter, such a greater buffer or prohibition shall apply.

(c) *Applicability.*

(1) The provisions of this section shall apply to all lands that are within the jurisdiction of the township and that border water features and wetlands as indicated on the water feature and wetland buffer map unless, and to the extent, it is determined to be in the public interest not to maintain such buffer. This map is diagrammatic, and may not show all water features and wetlands subject to this section, particularly intermittent and ephemeral streams. Actual water and wetland features require field verification to ensure that they meet the definitions in this section.

(2) The provisions of this section shall apply to any land development or any earth disturbance activity resulting from or in connection with activities or uses requiring any of the following:

a. Township board approval.

b. Planning commission approval.

c. Zoning compliance.

(3) The following land uses are exempt from this section:

a. Existing land uses, except when changes are proposed that require township approval through the township board, planning commission and/or zoning compliance.

b. Maintenance, repair or operation of gas or oil pipelines, electric transmission and distribution lines and construction of gas or oil pipelines having a diameter of six inches or less, and maintenance or repair of designated county drains, if the pipelines or drains are constructed,

maintained or repaired in a manner to ensure that any adverse effect on the water feature/wetland buffer will be otherwise minimized.

c. Construction of a single-family residence that is part of a plat for a subdivision or approved site plan prior to the adoption of the ordinance from which this section is derived.

d. Other uses permitted under the natural resources and environmental protection act or the federal Clean Water Act, section 404, provided that they are consistent with all best management practices established by the state department of environmental quality and the U.S. Environmental Protection Agency.

e. Notwithstanding the above, all exempted uses, structures or activities shall comply with the requirements of part 91, pertaining to soil erosion and sedimentation control, of the natural resources and environmental protection act, Public Act No. 451 of 1994 (MCL 324.9101 et seq.) and all applicable best management practices and shall not diminish water quality as defined by the state natural resources and environmental protection act and federal Clean Water Act.

(d) *Authorization and prohibition.*

(1) In conjunction with the approval and/or compliance processes listed in subsection (c) of this section, a buffer area as set forth in subsection (e) of this section for a water feature and subsection (f) of this section for a wetland shall be required.

(2) Within an established water feature/wetland buffer, unless and only to the extent determined to be in the public interest by the body responsible for approval and/or compliance as described in subsection (c) of this section, there shall be no construction, removal, or deposit of any structures or soils, including dredging, filling or land balancing. This prohibition shall not apply to permitted or exempted activities set forth in subsections (i) and (j) of this section.

(3) In determining whether proposed construction or operations are in the public interest, the benefit which would reasonably be expected to accrue from the proposal shall be balanced against the reasonably foreseeable detriments of the construction or other operation. The following general criteria shall be applied in making a determination:

a. The relative extent of the public and private need for the proposed activity.

b. The availability of feasible and prudent alternative locations and methods to accomplish the expected benefits from the activity.

c. The extent and permanence of the beneficial or detrimental effects which the proposed activity may have on the public and private use to which the area is suited, including the benefits the water feature, wetland, and/or water feature/wetland buffer provides.

d. The probable impact of the proposed construction and/or operation in relation to the cumulative effect created by other existing and anticipated activities in the water features and/or wetlands to be protected.

e. The probable impact on recognized historic, cultural, scenic, ecological, or recreational values, and on fish, wildlife and the public health.

f. The size and quantity of the water feature/wetland buffer being considered.

g. The amount and quantity of the remaining water feature/wetland buffer.

h. Proximity of the proposed construction or operation to the water feature and/or wetland, taking into consideration the degree of slope, general topography in the area, soil type and the nature of the feature to be protected.

i. Economic value of the proposed construction or operation.

j. The necessity for the proposed construction and/or operation.

(e) *Water feature buffer zones.* Unless otherwise determined by the body responsible for approval and/or compliance as described in subsection (c) of this section, a water feature buffer zone shall be located adjacent to a water feature as defined in section 36-5, as identified on the water feature and wetland buffer map, and as determined by required field investigation and/or natural feature inventories as required in article VI of this chapter. The water feature buffer zone shall consist of three distinct areas requiring the following minimum widths and vegetative targets:

(1) Zone 1--Water-side zone.

a. Undisturbed vegetated area aims to protect the physical and ecological integrity of the particular water ecosystem.

b. Begins at the edge of the stream bank of the channel, lake or pond shore, and extends a minimum distance of 15 feet, measured horizontally on a line perpendicular to the watercourse or water body.

c. The vegetative target for the water-side zone is undisturbed native woody species with native plants forming canopy, understory, and ground layer; where such forest does not grow naturally, then native vegetative cover appropriate for the area (such as grasses, forbs or shrubs) is the vegetative target.

(2) Zone 2--Middle zone.

a. This managed area of native vegetation protects key components of the water ecosystem and provides distance between upland development and the water-side zone.

b. Extends immediately from outer edge of zone 1 for a minimum distance of 30 feet.

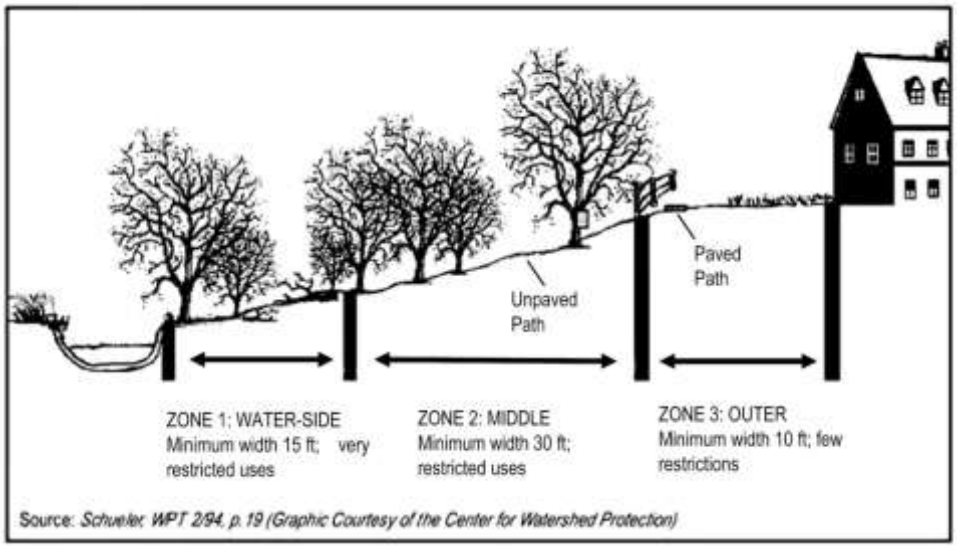
c. The vegetative target for the middle zone is either undisturbed or managed native woody species or, in its absence, native vegetative cover of shrubs, grasses or forbs. Undisturbed forest, as in zone 1, is encouraged strongly to further protect water quality and the water ecosystem.

(3) Zone 3--Outer zone.

a. This zone prevents encroachment into the buffer area, filters runoff from adjacent land, and encourages sheet flow of runoff into the buffer.

b. Extends a minimum of ten feet immediately from outer edge of zone 2.

c. The vegetative target for the outer zone is native woody and herbaceous vegetation to increase the total width of the buffer. While native grasses and forbs are preferred, mown lawn is permitted, but not encouraged.



(4) Where land uses such as agriculture or silviculture within the area of the buffer are proposed to be converted to other uses, the full three-zone buffer shall be reestablished in accordance with this subsection (e) and subsection (g) of this section. In reestablishing the buffer, management measures shall be undertaken to provide native woody, shrub, and/or herbaceous vegetation that ensures the buffer functions as set forth in this section. For specifications on plant type, spacing and density, refer to the USDA NRCS Technical Guide, section IV, Statewide Riparian Forest Buffer 391, available from the township offices.

(f) *Wetland buffer zone.* Unless otherwise determined by the body responsible for approval and/or compliance as described in subsection (c) of this section, a wetland buffer zone shall be located adjacent to wetlands identified on the water feature and wetland buffer map, and shall consist of the following minimum width and vegetative targets:

(1) Undisturbed vegetated area aims to protect the physical and ecological integrity of the particular water ecosystem.

(2) Begins at the wetland edge and extends a minimum distance of 30 feet, measured horizontally on a line perpendicular to the wetland boundary.

(3) The vegetative target for the wetland buffer is undisturbed native woody species with native plants forming canopy, understory, and ground layer; where such forest does not grow naturally, then native vegetative cover appropriate for the area (such as grasses, forbs or shrubs) is the vegetative target.

(g) *Width requirements of the water feature buffer.* The width of the water feature buffer shall be established as the greatest of the following:

(1) The total combined width of zones 1, 2, and 3 shall be no less than 55 feet on each side of a water feature as defined in section 36-5, with minimum required distances as given in subsection (e) of this section.

(2) The buffer width shall be modified if there are steep slopes which are within 200 feet of a water feature. In those cases, zone 3 of the buffer width shall be adjusted, as given in the table below:

WIDTH FOR ZONE 3 VEGETATION IN A WATER FEATURE BUFFER

TABLE INSET:

Percent Slope	Width (feet)
0--8	10
9--15	15
> 15	20

Adapted from the USDA NRCS Technical Guide, section IV, Statewide Riparian Forest Buffer 391.

(h) *Existing nonconforming structures and uses in buffer.* All nonconforming uses and structures existing at the effective date of the ordinance from which this section is derived located within a buffer that are not permitted under this regulation may be continued but shall not be changed or enlarged unless in accordance with article XIII of this chapter, pertaining to nonconforming uses, structures and lots of record.

(i) *Permitted uses.* Where buffers are required or regulated, the following activities shall be permitted within the water feature/wetland buffer areas as follows:

(1) The buffer, including wetlands and floodplains, shall be managed to enhance and maximize the unique value of these resources.

(2) Zone 1--Water-side zone and wetland buffer.

a. Open space uses that are passive primarily in nature, such as wildlife sanctuaries, nature preserves, forest preserves, fishing areas, and educational/public awareness signs. The area encompassed for any such use on a lot shall not include buildings and shall not result in disturbance of soil or vegetation that exceeds 20 percent of the area of the buffer on that lot.

b. Reforestation and stream stabilization.

c. Removal of dead or diseased trees, and those causing safety concerns.

d. Water quality monitoring and stream gauging.

e. Designated historic building reconstruction.

f. Flood control structures and utility rights-of-way.

g. Installation of seasonal recreational structures for water use.

(3) Zone 2--Middle zone.

a. Uses listed in subsection (i)(2) of this section.

b. Public and/or private biking and hiking paths constructed with pervious materials. While not required, property owners are encouraged to consider providing public trails for passive recreation activities such as biking, walking, and jogging within this zone.

c. Public access easements.

d. Stormwater management facilities.

e. Recreational uses that do not involve impervious surfaces or encourage concentrated flow of stormwater into the buffer.

f. Limited forestry management techniques and timber harvesting.

(4) Zone 3--Outer zone.

a. Uses listed in subsections (i)(2) and (i)(3) of this section.

b. There shall be no septic systems, permanent structures or impervious cover, with the exception of paths that measure eight feet or less in width and overhead clearance of eight feet or less.

c. Fences; provided that such fences must be constructed so as not to impede floodwaters.

(j) *Exemptions.* The following activities shall be exempted:

(1) Maintenance of previously established lawn areas.

(2) Grading and filling necessary in order to conform to express requirements imposed by the township engineer.

(3) Planting of native trees and other indigenous vegetation.

(4) Removal of exotic invasive vegetation including buckthorn, honeysuckle, and multiflora rose, or noxious vegetation including poison ivy, poison sumac, and poison oak. See section 36-345(b)(10) for a list of prohibited invasive plant species.

(5) Selected trimming of indigenous vegetation for filtered sight lines. Note that clearcutting, cutting down, or removal of existing native tree, shrub, and ground layer species is not allowed within the water feature and wetland buffer zones.

(k) *Application form.* If the activity is associated with a proposal that will require consideration by the planning commission and/or township board, no application in addition to materials already required for review of the proposal (such as site plan review or others) shall be required. If the proposed activity requires zoning compliance review only, application for activities proposed within the water feature/wetland buffer shall be made under this section on the form approved by the township board and provided by the zoning official.

(l) *Water feature and wetland buffer plan and grading plan requirements.*

(1) As part of any submission that requires planning commission and/or township board consideration, a water feature and wetland buffer plan containing the following information must be provided:

a. Water feature and wetland buffers, field-delineated and surveyed by professional environmental consultants.

b. Steep slopes greater than 12 percent for areas adjacent to and within 200 feet of streams, wetlands, or other waterbodies.

c. A narrative describing the species and distribution of existing vegetation within the buffer.

d. A note stating, "There shall be no clearing, grading, construction or disturbance of vegetation within the water feature and/or wetland buffer except as permitted through the site plan review process of Scio Township."

e. A note stating, "Any water feature and/or wetland buffers shown on this plan are subject to protective covenants that may be found in the land records and that restrict disturbance and use of these areas."

(2) The buffer plan shall be submitted in conjunction with the required grading plan for any development, and the vegetated buffer shall be delineated clearly on the final grading plan.

(3) Permanent boundary markers, in the form of educational signage or other forms as approved by the township shall be installed every 200 feet prior to final approval of the required grading plan. Signs and/or markers shall be placed at the transitional edge of zone 2 and zone 3 of a water feature buffer (see subsection (e) of this section) or at the edge of the wetland buffer (see subsection (f) of this section).

(m) *Buffer maintenance requirements.*

(1) Where approval by the planning commission and/or township board is required, the following shall apply. Note that these requirements do not apply to zoning compliance for single-family residential use permits. All buffers established through the required review processes by the planning commission and/or township board, except as noted above, shall be maintained as described in subsections (e), (f) and (g) of this section through either:

a. Deed restrictions, which are required to be submitted for approval by the township board. The covenant shall be recorded in the land records and shall run with the land and continue in perpetuity; or

b. A conservation easement with a local land conservancy as approved by the township board. The easement shall be recorded in the land records and shall run with the land and continue in perpetuity. Terms of such an easement shall be at least as restrictive as those included in this chapter.

(2) All lease and sales agreements must contain a notation regarding the presence and location of protective covenants for buffers, and which shall contain information on the management and maintenance requirements for the buffer for the new property owner.

(3) An offer of dedication of a buffer area by conservation easement to a land conservancy shall not be interpreted to mean that this offer automatically conveys to the general public the right of access to this area.

(4) The land conservancy to whom the buffer is dedicated shall inspect the buffer annually and immediately following severe storms for evidence of sediment deposition, erosion, or concentrated flow channels and identify corrective actions to be taken to ensure the integrity and functions of the forest buffer.

(n) *Inspection of approved plan.*

(1) Authorized representatives of the township shall have the authority to conduct investigations as it may reasonably deem necessary to carry out its duties as prescribed in this section, and for this purpose to enter at reasonable times upon any property, public or private, for the purpose of investigating and inspecting the sites of any land disturbing or forestry activities within the protection area.

(2) The zoning official may make periodic inspections during the course of land development and shall make a final inspection following completion of the work.

The permittee shall assist the zoning official in making such inspections, if need be.

(3) The zoning official may make periodic inspections following completion of the land development to determine buffer intactness.

(o) *Violations.* Violations of these regulations are subject to section 36-38, pertaining to violations and penalties.

(Ord. No. 275, § 12.03, 10-21-2003; Ord. No. 2009-01, § VI, 1-27-2009)

ENVIRONMENTAL PROTECTION STANDARDS ORDINANCE EXAMPLE

Sec. 24.01 Wetland Protection

a. **Purpose.** The standards of this Section are intended to ensure compliance with the Geomaere-Anderson Wetland Protection Act 203 of 1979 through coordination with the Michigan Department of Environmental Quality (MDEQ) wetland protection and permit program. The standards of this Section exceed the MDEQ regulations by requiring a setback from MDEQ regulated wetlands and encouraging the placement of buildings to protect non-MDEQ regulated wetlands between two (2) acres and five (5) acres in size. This Section, in conjunction with *ARTICLE 13 PLANNED UNIT DEVELOPMENT OVERLAY STANDARDS*, and *ARTICLE 16 SITE PLAN REVIEW*, are mechanisms to promote the *City of Fenton Master Plan* goal to "maximize the preservation of unique and valuable natural resources from the impacts of development." Among the purposes of this Section are to:

1. Recognize the "unique and valuable" attributes of wetlands as a stormwater recharge area, thereby controlling the rate of runoff, improving groundwater quality, providing erosion control and lessening the affects of flooding.
2. Provide open space and enhance aesthetics in the City.
3. Promote preservation of habitat for plants, fish, and/or wildlife.
4. Ensure that the public has access to information on the MDEQ wetland protection regulations, and help ensure compliance with MDEQ wetland regulations through a coordinated local process.
5. Provide a higher degree of protection for wetlands which are MDEQ regulated through requirements for building and parking lot setbacks.
6. Encourage protection of important wetlands which may be exempt from MDEQ regulation;
7. Promote the proper integration of wetlands into site plans.
8. Recognize the property owners right to develop their property in a reasonable manner.
9. Minimize the long term economic and environmental losses associated with the dredging and filling of wetlands.

b. **Applicability**

1. No permit shall be issued for any construction, reconstruction, erection, expansion and/or change in use requiring site plan approval except in accordance with the standards of this Section.
2. The MDEQ wetland standards and regulations under Public Act 203 of 1979 which are referenced in this Section apply to both new and existing development (including grading, parking, storage, building construction, etc.). The standards also apply to any drainage structure or basin within an MDEQ-regulated wetland and/or use of a MDEQ-regulated wetland as a retention or detention ponds/basin; which, if constructed below the ordinary high water mark of an inland lake or stream, will require a MDEQ permit under the Inland Lakes & Streams Act, PA 346 of 1972. Copies of Public Act 203 of 1979 and Public Act 346 of 1972 are available from the

MDEQ.

3. The provisions of this Section are based on the PA 203 of 1979 and the policies, standards and procedures of the MDEQ. Any changes to the legislation, policies, standards and/or procedures of the state shall supersede the appropriate provisions of this Section.

c. **MDEQ Regulated Wetlands Process**

1. Wetlands maps of the Fenton area, available from the City of Fenton, may serve as a guide in determining the likelihood of wetlands. However, the applicant is responsible for the accurate delineation/determination of the wetland area, in accordance with the definition of a wetland in Section 19(3) and Rule 4 of Public Act 203 of 1979. When a potential wetland exists, the applicant can reference available sources of information to further determine if the site exhibits the physical and biological characteristics of a wetland; and/or obtain the opinion of a qualified wetland consultant. Available sources of information, such as local wetland maps and the Genesee County Soil Conservation Survey are available from the City, the U.S. Soil Conservation Service and/or the MDEQ
2. Locations meeting the definition of a wetland in *ARTICLE 28 DEFINITIONS* are regulated by the MDEQ when any of the following apply:

   (a) Wetland is contiguous to an inland lake, pond, river or stream as defined in Rule 1(e) of Public Act 203 of 1979.
   (b) Wetland is more than five (5) acres in size.
   (c) Wetland is under five (5) acres in size where the MDEQ determines that any one (1) of the following conditions exist:

      (1) Wetland supports endangered or threatened plants, fish or wildlife.
      (2) Wetland represents a rare and unique ecosystem.
      (3) Wetland supports plants or wildlife of an identified regional importance.
      (4) Wetland provides groundwater recharge documented by a public agency.

3. The City will not issue a permit for activity (such as dredging or filling) or act on a development proposal on a property where wetlands are believed to exist and/or are indicated on the natural features map in the City of Fenton Master Plan.
4. Should the available sources of wetland information, consultants report or MDEQ wetland determination indicate the potential or known presence of a wetland, the City may require an MDEQ approved wetland determination prior to approving any development plan. Should the site development include disturbing a MDEQ - regulated wetland, locating a stormwater outfall structure or catch basin in the regulated wetland, and/or using a regulated wetland as a retention basin, the Planning Commission will require that the applicant submit a copy of an MDEQ permit, including any attached conditions and mitigation plan, prior to the issuance of a building permit. Should the MDEQ deny an application for permit which is necessary to develop the site plan, the site plan shall be resubmitted according to the standards of *ARTICLE 16 SITE PLAN REVIEW.*

d. **Further Wetland Protection Standards of City**

1. Any disturbance of soils, removal of landmark trees or stumps, grading, alteration of water flowing into or from an MDEQ -regulated wetland, or any prohibited activity as listed in Section 5 of Public Act 203 of 1979, without a permit from the MDEQ, may result in a stop work order issued by the City and/or require restoration of the wetland in accordance with MDEQ standards.
2. All buildings and parking lots shall be set back twenty-five (25) feet from a MDEQ-determined/regulated wetland. Trails and recreational areas, including playground equipment, may be allowed in the wetland setback.
3. Judicious effort shall be made through site plan design to preserve non-MDEQ-regulated wetlands which exceed two (2) contiguous acres in size. Use of non-MDEQ-regulated wetlands as detention or retention ponds may be allowed, following review of such plans by the City engineer. Site plans shall be reviewed in accordance with *ARTICLE 16 SITE PLAN REVIEW* and *ARTICLE 13 PLANNED UNIT DEVELOPMENT OVERLAY STANDARDS*, to determine compliance with the requirements in this Section.
4. Land containing wetlands shall not be divided in a manner creating parcels or lots which cannot be used in conformance with the requirements of this Section or the MDEQ regulations.

e. **Variances from Wetland Setback Requirement**

In considering a variance for the wetland setback, the applicant must demonstrate to the Zoning Board of Appeals that:

1. The setback is not necessary to preserve the ecological and aesthetic value of the wetland.
2. The natural drainage pattern to the wetland will not be significantly affected.
3. The variance will not increase the potential for erosion, either during or after construction.
4. No feasible or prudent alternative exists and the variance distance is the minimum necessary to allow the project to proceed.
5. MDEQ permit requirements have been met and all possible avoidable impacts to wetlands have been addressed.

Sec. 24.02 Woodland Protection

Woodlands are regulated in association with site plans in *Section 21.03 Replacement of Removed Trees* and *Section 21.04 Incentives to Preserve Existing Trees*.

Sec. 24.03 Flood Hazard Area Overlay Zone

a. **Purpose.** It is the purpose of this Section to significantly reduce hazards to persons and damage to property as a result of flood conditions in the City, and to comply with the provisions and requirements of the National Flood Insurance Program, as constituted in accord with the National Flood Insurance Act of 1968, and subsequent enactments and the rules and regulations promulgated in furtherance of this program by the Federal Emergency Management Agency, as published in the Federal Register, Vol. 41, No. 207, Tuesday, October 26, 1976, and redesignated as 44 FR 31177, May 31, 1979. Further, the objectives of this Section include:

1. The protection of human life, health, and property from the dangerous and damaging effects of flood conditions.
2. The minimization of public expenditures for flood control projects, rescue and relief efforts in the aftermath of flooding, repair of flood damaged public facilities and utilities, and the redevelopment of flood damaged homes, neighborhoods, commercial, and industrial areas.
3. The prevention of private and public economic loss and social disruption as a result of flood conditions.
4. The maintenance of stable development patterns not subject to the blighting influence of flood damage.
5. To ensure that the public has access to information indicating the location of land areas subject to periodic flooding.
6. To preserve the ability of floodplains to carry and discharge a base flood.

b. **Delineation of Flood Hazard Area Overlay Zone**

1. The flood hazard area overlay zone shall overlay existing zoning districts delineated on the official Zoning Map of the City. The boundaries of the flood hazard area overlay zone shall coincide with the boundaries of the areas indicated as within the limits of the one hundred-year flood area in the report entitled "The Flood Insurance Study City of Fenton, Genesee County, Michigan," with accompanying flood insurance rate maps. The study and accompanying maps are adopted by reference, appended, and declared to be a part of this Section
2. Where there are disputes as to the location of a flood hazard area overlay zone boundary, the Zoning Board of Appeals (ZBA) shall resolve the dispute in accord with *ARTICLE 27 ZONING BOARD OF APPEALS.*
3. In addition to other requirements of this chapter applicable to development in the underlying zoning districts, compliance with the requirements of this Section shall be necessary for all development occurring within the flood hazard area overlay zone. Conflicts between the requirements of this Section and other requirements of this section or any other section shall be resolved in favor of this Section, except where the conflicting requirement is more stringent and would further the objectives of this Section to a greater extent than the requirements of this Section. In such cases, the more stringent requirement shall be applied.

c. **Use and Principal Structure Regulations**. Within the flood hazard area overlay zone, no land shall be used except for one (1) or more of the following uses:

1. Grading and agriculture, pastureland, and animal grazing.
2. Harvesting of a native or wild crop permitted by law such as wild rice, marsh hay, berries, and seeds.
3. Harvesting of trees.
4. Parks, picnic areas, playgrounds, playfields, athletic fields, golf courses, par three golf courses, golf driving ranges, bridle paths, nature paths, and trails.
5. Wildlife preserves.
6. Fishing, trapping, and hunting in compliance with current laws and regulations.
7. Hunting and conservation clubs, noncommercial archery, rifle, and shooting ranges;
8. Historic sites and structures.
9. Swimming beaches, fishing, and boating docks in accord with the provisions of the Inland Lakes and Streams Act of 1972.

10. Sand and gravel extraction.
11. Required open space or lot area for structural uses that are landward of the overlay zone.

d. **Accessory Buildings, Structures and Uses**

1. Within the flood hazard area overlay zone, no building or structure shall be used except for one (1) or more of the following uses and only in a manner consistent with the requirements of principal uses and accessory buildings, structures and uses in the underlying district, and with those that follow.
2. The following accessory buildings, structures and uses are permitted: off-street parking, streets, roads, bridges, outdoor play equipment, sheds and garages, boathouses, boat hoists, utility lines, pumphouses, bleachers, bank protection structures, signs, fences, gazebos, and similar outdoor equipment and appurtenances; provided each of the following requirements are met:

   (a) The building or structure would not cause an increase in water surface elevation, obstruct flow, or reduce the impoundment capacity of the floodplain.
   (b) All equipment, buildings and structures shall be anchored to prevent flotation and lateral movement.
   (c) Compliance with these requirements is certified by an engineering finding by a registered engineer.

e. **Filling and Dumping**. Dredging and filling and/or dumping or backfilling with any material in any manner is prohibited unless through compensating excavation and shaping of the floodplain, the flow and impoundment capacity of the floodplain will be maintained or improved, and unless all applicable state regulations are met including, but not limited to, approvals pursuant to P.A. 245 of 1929, as amended by P.A. 167 of 1968; P.A. 347 of 1972, as amended; P.A. 346 of 1972, as amended; and P.A. 203 of 1979, as amended.

f. **General Standards for Flood Hazard Reduction**

1. No building or structure shall be erected, converted, or substantially improved or placed, and no land filled or building or structure used in a flood hazard area overlay zone unless a certificate of zoning compliance, or variance from the Z BA, is obtained, which approval shall not be granted until a permit from the MDEQ under authority of Act 245 of the Public Acts of 1929, as amended by Act 167 of the Public Acts of 1968 has been obtained.
2. All public utilities and facilities shall be designed, constructed, and located to minimize or eliminate flood damage.
3. Site plans shall be reviewed in accordance with *ARTICLE 16 SITE PLAN REVIEW* to determine compliance with the standards in this Section.
4. Land shall not be divided in a manner creating parcels or lots which cannot be used in conformance with the requirements of this Section.
5. The flood-carrying capacity of any altered or relocated watercourse not subject to state or federal regulations designed to ensure flood-carrying capacity shall be maintained.
6. Available flood hazard data from federal, state, or other sources shall be reasonably utilized in meeting the standards of this Section. Data furnished by the Federal Insurance Administration shall take precedence over data from other sources.

g. **Flood Hazard Area Overlay Zone Variances** . Variances from the provisions of this Section shall only be granted by the ZBA upon a determination of compliance with the general standards for variances contained in this Section and each of the following specific standards:

1. A variance shall be granted only upon:

   (a) A showing of good and sufficient cause.
   (b) A determination that failure to grant the variance would result in unnecessary hardship or practical difficulty to the applicant.
   (c) A determination that the granting of a variance will not result in a harmful increase in flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing laws or ordinances.

2. The variance granted shall be the minimum necessary, considering the flood hazard, to afford relief to the applicant.

h. **Disclaimer of Liability**

1. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based upon engineering and scientific methods of study. Approval of the use of land under this Section shall not be considered a guarantee or warranty of safety from flood damage.
2. This section does not imply that areas outside the flood hazard area overlay zone will be free from flood damage. This section does not create liability on the part of the City or any officer or employee thereof for any flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder.

Sec. 24.04 Storm Water Management

a. **Purpose.** The standards of this Section are intended to protect the public health, safety, and welfare of City residents and to protect property values, quality of life, and natural systems relating to storm water runoff control and management. The City finds it is a matter of public concern and benefit to protect water bodies and properties within the City and to reduce the future need for public expenditures relating to flooding, water quality, and storm water system maintenance. Both the quality and quantity of storm water runoff are a matter of public concern.

b. **Applicability.** Residential, commercial, and industrial developments should provide two (2) stage storm water management facilities consisting of a sediment forebay and storage for the one hundred (100) year storm event. Commercial and industrial facilities must indicate what type of site precautions will be implemented to minimize the potential of contaminants entering the storm water management facilities.

c. **Sizing of Storm Water Management Facilities**

1. **General Criteria**

   (a) Storm water management facilities should be located in the low area of a site and set at least twenty-five (25) feet from any lakes, streams, wetlands,

or watercourses. In addition, these facilities should not be located in any existing one hundred (100) year floodplains.

(b) Composite runoff coefficients should be based on the values shown in *the table below Storm Water Management Facilities Composite Runoff Coeffients.*

Storm Water Management Facilities Composite Runoff Coeffients			
Type of Surface	**Runoff Coefficient**		
Water surfaces	1.00		
Roofs	0.95		
Asphalt or Concrete Pavements	0.95		
Gravel, Brick, or Macadam Surfaces	0.85		
Semi-Pervious; Lawns, Parks, Playgrounds	Slope <4%	Slope 4%-8%	Slope >8%
Hydrologic Soil Group A	0.15	0.20	0.25
Hydrologic Soil Group B	0.25	0.30	0.35
Hydrologic Soil Group C	0.30	0.35	0.40
Hydrologic Soil Group D	0.45	0.50	0.55

(c) Clear maintenance access that supports heavy equipment should be provided to all sides of the basin.

(d) Side slopes should be no steeper than one to five (1:5) unless a fence has been approved by the City of Fenton.

(e) A minimum one (1) foot of freeboard must be provided above the detention basin design storm event.

(f) All detention basins shall be lined with either a two (2) foot clay liner or geosynthetic liner.

2. **Sediment Forebay**. A sediment forebay should be provided at the inlet of all detention basins for energy dissipation and sediment deposition. The volume of the forebay should be at least five percent (5%) of the design storm event based on the inlet's tributary area.

3. **Detention Basin**. The detention basin should be sized to handle the first flush, bankfull and the design storm events.

(a) The first flush is defined as the half (½) inch rain runoff across the entire site. The volume of first flush storage is determined as follows:
V = 1815*A*C where,
V = volume (cf)
A = acreage
C = composite runoff coefficient

(b) The bankfull flood is defined as the one and a half (1.5) year, twenty-four (24) hour storm runoff across the entire site. The volume of the bankfull flood storage is determined as follows:

V = 8170*A*C where,
V = volume (cf)

A = acreage
C = composite runoff coefficient

(c) The storage volume for each of these events is based on an allowable outflow of 0.15 cfs/acre and is determined in the table below *Detention Basin Storage Volume Designation.*

Table 24.2 Detention Basin Storage Volume Designation			
Frequency of Storm	**Rainfall Intensity I (In/Hr)**	**Storage Time Equation T (Min)**	**Storage Volume Equation V_s (Ft^3/(A×C))**
100 Year	$I_{100} = 275/(T+25)$	$T_{100} = -25 + (10{,}312.5/Q_0)^{1/2}$	$V_{S100} = (16{,}500T / T+25) - 40Q_0T$
Note: Equations from Detention Basin Design Formulas for Oakland County, Michigan, Orifice Outlet Formulas dated January 1, 1990.			

(d) Extended detention basins and wet detention basins are preferable over dry basins. Retention ponds are discouraged throughout the community.

(e) Extended detention basins should incorporate the following design components:

(1) Lower stage that functions as a shallow marsh or wetland, has an average water depth of six to twelve (6 –12) inches, and is designed to treat and store the first flush volume.

(2) Upper stage that is sized to handle the design storm event and is graded to remain dry except during large storms.

(f) Wet detention basins should incorporate the following design components:

(1) Minimum three (3) feet permanent pool of water.

(2) Minimum length to width ratio of three to one (3:1).

(3) Native vegetation fringe around at least fifty percent (50%) of the perimeter.

4. **Underground Storm Water Treatment Systems.** Any underground storm water treatment systems should meet a minimum eighty percent (80%) Total Suspended Solids (TSS) removal and eighty percent (80%) Oil/Grease removal criteria. Field data verifying removal efficiencies should be provided to City of Fenton's Storm Water Consultant for review and approval.

(a) Data and calculations supplied to the manufacturer should also be provided to City of Fenton's Storm Water Consultant.

(b) Data and sizing results from manufacturer should also be provided to City of Fenton's Storm Water Consultant.

(c) These systems must be inspected every six (6) months at a minimum to verify proper operation and identify any necessary maintenance.

5. **Outlet Structure**

(a) The storm water inlets and the outlet should be located at opposite ends of

the basin.

(b) The outlet structure should be designed to release the first flush over a minimum of twenty-four (24) hours, the bankfull flood between thirty-six (36) and forty-eight (48) hours, and release the design storm event at no greater than 0.15 cfs/acre.

(c) An emergency spillway should be provided at the elevation of the maximum pond design volume.

d. **Vegetation in Storm Water Management Facilities.** Native vegetation is encouraged for all storm water management facilities, including native grasses for the detention basin side slopes along with native wetland vegetation in the bottom of the basin. Detention basins should be stabilized as soon as practical to minimize soil erosion potential.

e. **Exceptions**

1. **Special Assessment Districts.** The design storm event requirement may be less for those developments that outlet storm water to a storm sewer that has been sized to handle the developed runoff from the site. At a minimum, those sites must still address storm water quality for the smaller storm events. These situations are site specific and the design storm requirement will be determined on a case-by-case basis.

f. **Plan Review**

1. **Site Plan**

(a) Project location map.
(b) Scale not less than 1" = 50'.
(c) Proposed lot divisions and building footprints.
(d) Proposed storm sewer system with rim and invert elevations.
(e) Total drainage area and associated individual tributary drainage areas.
(f) Runoff coefficients associated with each tributary area.
(g) Storm water calculations.
(h) Storage provided by one (1) foot elevation increments.
(i) Proposed storm water management facilities (both plan and profile view).
(j) Overflow detail.
(k) Rip-rap detail.

2. **Grading Plan**

(a) Existing site topography at minimum two (2) foot elevation contour.
(b) Proposed elevations of storm sewer structures and storm water management facilities.
(c) Existing watercourses, lakes, wetlands and any offsite drainage areas contributing flow to the development.
(d) Permanent water elevation of any of the above.
(e) Natural feature buffer areas as applicable.
(f) Average GWT elevation in basin area.
(g) Soil hydraulic conductivity from bottom of basin to five (5) feet below bottom of basin.

3. **As-Built Certification.** A detention basin as-built certification should be provided to City of Fenton's Storm Water Consultant prior to final approval of the development. This certification should include the following items:

(a) A plan view of the detention basin detailing the proposed and final as-built elevation contours. A few spot elevations should be provided on each side of the basin, the bottom of the basin, and along the emergency overflow area.
(b) Detention basin design calculations along with corresponding volumes associated with the as-built elevations should be detailed on this plan. The proposed volume and the final as-built volume should be indicated.
(c) Final as-built invert elevations for all inlet pipes and all associated outlet structure elevations, riser pipe hole sizes, and number of holes should be included. Invert elevations of the final outlet pipe to the receiving stream should also be provided. The elevation of the final overflow structure should also be shown.
(d) The side slopes should also be indicated on the detention basin plan on all sides of the basin and must meet minimum safety requirements.
(e) This certification should be signed and sealed by a licensed professional engineer.

g. **Maintenance Plans**. A maintenance plan that outlines tasks associated with maintenance of the storm water management facilities both during the construction process and once the property owner has assumed responsibility should be provided with the plans.

Sec. 24.05 Wellhead Protection Overlay Zone

a. Purpose

1. The City of Fenton has determined that:

(a) Certain groundwater underlying the City currently is, or may be in the future, the sole source of the City's drinking water supply.
(b) Groundwater aquifers are integrally connected with the surface water, lakes, and streams that constitute significant public health, recreational and economic resources of the City and surrounding area.
(c) Spills and discharges of hazardous substances could threaten the quality of the groundwater supplies and other water related resources, posing potential public health and safety hazards and threatening economic losses.

2. Therefore, the City of Fenton has enacted a Wellhead Protection Overlay Zone to promote the following actions:

(a) Preserve and maintain existing and potential groundwater supplies, aquifers, and groundwater recharge areas for the municipal water supply, and to protect them from adverse land use development or land use practices.
(b) Preserve and protect sources of drinking water supply for public health and safety.
(c) Conserve the natural resources of the City and the surrounding area.
(d) Provide a level of protection for the financial investment that the City has in its drinking water supply.

(e) Assure that State regulations, that help protect groundwater are implemented consistently when new or expanded development proposals are reviewed.

b. **Applicability**

1. The Wellhead Protection Overlay Zone shall overlay existing zoning districts delineated on the official Zoning Map of the City. The boundaries of the Wellhead Protection Overlay Zone are depicted on the Wellhead Protection Overlay Zone Map.

2. It shall be the responsibility of any person owning real property and/or owning and operating a business within the City corporate limits to make a determination of the applicability of this Section as it applies to the property and/or business under his or her ownership or operation. Failure to ascertain the applicability or requirements of this Section shall not excuse any violations of this Section.

c. **Use Regulations.** Permitted land uses in the Wellhead Protection Overlay Zone include all those permitted uses as allowed in the underlying zoning district, except for the following:

1. Petroleum product manufacturing, processing or refining, gasification, recycling, or other derivative activities (including coal).
2. Commercial salvage yards and/or scrap processing.
3. Oil and gas drilling, including oil or gas drilling contractors or operations.
4. Vehicle maintenance services, including public and private garages.
5. Chemical and paint manufacturing operations.
6. Laundry and dry cleaner operations.
7. Electronic equipment manufacturing operations.
8. Electro-plating and chemical coating operations.
9. Recycling operations involving any of the base processes described above.
10. Other similar uses utilizing chemicals on a commercial or industrial basis.

d. **General Provisions**. These provisions shall apply to all properties within the Wellhead Protection Overlay Zone, including private, commercial, industrial, residential and public properties, which use, store or generate hazardous substances, as defined in State or Federal law, in quantities greater than one hundred (100) kilograms (approximately two hundred and twenty (220) pounds or twenty five (25) gallons) per month, and which require site plan review under provisions of the City of Fenton Zoning Ordinance. The General Provisions apply to entire property parcels, providing parcel is at least partially included in the Wellhead Protection Overlay Zone.

1. **Groundwater Protection Standards**

(a) A use, development, or project and any related improvements shall be designed to protect the natural environment, including lakes, ponds, streams, wetlands, floodplains and groundwater, and to ensure the absence of an impairment, pollution, and/or destruction of water, natural resources, and the public trust therein.

(b) Storm water management and drainage facilities shall be designed to promote and continue the natural retention and storage capability of any wetland, water body, or watercourse, and shall not increase flooding or the

potential for environmental contamination, on-site or off-site, and shall not result in loss of the use of property by any third party or adjacent property.

(c) Industrial facilities with a point source discharge of storm water shall maintain a Storm Water Pollution Prevention Plan in accordance with applicable State and Federal regulations.

(d) General purpose floor drains shall be connected to a public sewer system, an on-site holding tank, or a system authorized through a State surface or groundwater discharge permit. If connected to the public sewer system, the volumes and concentrations of waste discharged to a floor drain shall comply with the City's pretreatment requirements.

(e) Sites that at any time use, store or generate substances in quantities greater than one hundred (100) kilograms that include hazardous substances shall be designed to prevent spills and unpermitted discharges to air, surface of the ground, groundwater, lakes, streams, rivers or wetlands.

(f) State and Federal agency requirements for storage, spill prevention, record keeping, emergency response, transport and disposal of hazardous substances and polluting materials shall be met. No discharges to groundwater, including direct and indirect discharges, shall be allowed without applicable permits and approvals.

(g) Bulk storage of pesticides shall be in accordance with applicable County, State and Federal regulations.

2. **Above Ground Storage and Use Areas for Hazardous Substances**

(a) Primary containment of hazardous substances shall be product tight.

(b) Secondary containment shall be sufficient to store the substance for the maximum anticipated period of time necessary for the recovery of any released substance. Products held in containers with a volume of less than forty (40) gallons and packaged for retail use shall be exempt from this subsection (b).

(c) Outdoor storage of hazardous substances shall be prohibited except in product-tight containers that are protected from weather, leakage, accidental damage and vandalism, including an allowance for the expected accumulation of precipitation.

(d) Accessory buildings, storage rooms, sheds and pole barns that are utilized as secondary containment shall not have floor drains that outlet to soil, a public or private sewer system, groundwater, or nearby drains or natural water bodies unless a surface or groundwater discharge permit has been obtained pursuant to applicable County, State and Federal regulation.

(e) Areas and facilities for loading and unloading of hazardous substances as well as areas where such materials are handled and stored, shall be designed and constructed to prevent unpermitted discharges to floor drains, rivers, lakes, wetlands, groundwater, or soils.

3. **Underground Storage Tank Systems**

(a) Existing and new underground storage tanks shall be registered with the authorized State agency in accordance with applicable requirements of the U.S. Environmental Protection Agency (EPA) and the Michigan Department of Environmental Quality (MDEQ).

(b) Installation, operation, maintenance, closure, and removal of underground storage tanks shall be in accordance with applicable requirements of MDEQ. Leak detection, secondary containment, corrosion protection, spill prevention and overfill protection requirements shall be met.

4. **Well Abandonment**. The owner of a parcel of land within the Wellhead Protection Overlay Zone shall determine whether or not any wells exist on the property, and, if wells do exist, they must be properly abandoned in accordance with applicable State requirements.

5. **Well Construction**

(a) Well drilling, construction and installation shall only be performed by State of Michigan Registered Well Drillers.
(b) Well construction shall be completed in accordance with Part 127 of Act 368 of the Public Acts of 1978, as amended, and any rules adopted pursuant to that Act.
(c) Well construction shall include fully grouting the entire length of the well casing in accordance with Part 127 of Act 368 of the Public Acts of 1978, as amended, and any rules adopted pursuant to that Act.

6. **Sites with Contaminated Soils and/or Groundwater**

(a) Site plans shall take into consideration the location and extent of any contaminated soils and/or groundwater on the site, and the need to protect public health and environment.
(b) Information must be provided regarding the type, concentration and extent of identified contamination, land use deed restrictions and any remedial action plans.
(c) Excavation, drilling, direct-push and other earth penetration shall be sealed with grout, or with soil material exhibiting lower hydraulic permeability than the native soil.

7. **Construction Standards**

(a) A general contractor, or if none, the property owner, shall be responsible for assuring that each contractor or subcontractor evaluates each site before any construction is initiated to determine if any site conditions may pose particular problems for handling any hazardous substances. For example, handling hazardous substances in proximity to water bodies or wetlands may be improper.
(b) Hazardous substances stored on a construction site during the construction process, shall be stored in a location and manner designed to prevent spills and unpermitted discharges to air, surface of the ground, groundwater, lakes, streams, rivers, or wetlands. Any storage container with a volume of over forty (40) gallons that contains hazardous substances shall have secondary containment.
(c) If a contractor stores or handles hazardous substances that require a Material Safety Data Sheet (MSDS), the contractor shall familiarize him/herself with the sheet, and shall be familiar with procedures required to contain and clean up any releases of any hazardous substance.

(d) Upon completion of construction, all hazardous substances and containment systems no longer used or not needed in the operation of the facility shall be removed from the construction site by the responsible contractor and shall be disposed of, recycled, or re-used in a proper manner as prescribed by applicable State and Federal law or regulations.

(e) Excavation, drilling, direct-push and other earth penetration shall be sealed with grout, or with soil material exhibiting lower hydraulic permeability than the native soil.

e. **Maintenance.** In areas where hazardous substances are handled, structural integrity of any building, containment facility, or storage must be maintained to avoid inadvertent discharge of hazardous substances to soil and groundwater. Cracks and holes in floors, foundations and walls must be repaired in areas where hazardous substances are handled or stored.

f. **Exclusions**

1. A limited exclusion from *Section 24.04.d. General Provisions* is hereby authorized for hazardous substances as follows:

   (a) The hazardous substance is packaged for personal or household use or is present in the same form and concentration as a product packaged for use by the general public.

   (b) The materials containing hazardous substances that are excluded under this subsection 1 may not exceed a combined total of fifty (50) gallons or four hundred (400) pounds at any time.

2. A limited exclusion from the *Section 24.04.d. General Provisions* is hereby authorized for non-routine maintenance or repair of property in the Wellhead Protection Overlay Zone provided the uses are limited as follows:

   (a) The aggregate of hazardous substances may not exceed a combined total of fifty (50) gallons or four hundred (400) pounds at any time.

   (b) The total use of materials containing hazardous substances may not exceed a combined total of one-hundred (100) gallons or eight hundred (800) pounds at any time.

g. **Site Plan Review Requirements.** In addition to the requirements of *ARTICLE 16 SITE PLAN REVIEW*, the following information shall be provided on a site plan submitted for review to the City:

1. The location and size of interior and exterior area(s) and structure(s) to be used for on-site storage, use, load/unloading, recycling, or disposal of hazardous substances.
2. The location of all underground and above ground storage tanks for such uses as fuel storage, waste oil holding tanks, hazardous substance storage, collection of contaminated stormwater or wash water, and all similar uses.
3. The location of existing and proposed wells, and the plans to properly abandon those wells before site work begins.
4. The location of exterior drains, dry wells, catch basins, retention/detention areas, sumps, and other facilities designed to collect, store or transport stormwater or wastewater. The point of discharge for all drains and pipes shall be specified on the site plan.

5. The areas on the site that the applicant has reason to believe are contaminated, together with a report on the status of any site remedial action plan and land use deed restrictions, if applicable.

h. **Exemptions.** The transportation of any hazardous substance shall be exempt from the provisions of this Ordinance provided the transporting motor vehicle or rail is in continuous transit, or that it is transporting substances to or from a State licensed hazardous waste treatment, storage, or disposal facility.

i. **Appeals.** The Planning Commission may grant a special permit if it finds by written decision that the proposed use:

1. Meets the intent of this section as well as its specific criteria,
2. Will not, during construction or thereafter, have an actual or potential adverse impact on any aquifer or recharge area in the district,
3. Will not actually or potentially adversely affect an existing or potential domestic or municipal water supply, and
4. Is consistent with existing and probable future development of surrounding areas.