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Division VII: Stormwater Drainage and: Erosion and Sediment Control

ARTICLE 1 AUTHORITY AND PURPOSE

Section 1-1 AUTHORITY AND PURPOSE

This Article is enacted pursuant to the police powers granted to the Village of Caseyville, Illinois by, 65 ILCS 5/1-2-1, 5/11-12-12, 5/11/30-2, and 5/11/31-2.

The purpose of this Article is to diminish threats to public health and safety, protect property, prevent damage to the environment and promote public welfare by guiding, regulating and controlling the design, construction, use and maintenance of any new development or redevelopment or other activity which disturbs or breaks the topsoil or otherwise results in the movement of earth and/or changes the stormwater drainage pattern and/or stormwater flows from that which would have occurred if the land had been left in its natural state. This stormwater runoff and resulting soil erosion could result in the inundation of damageable properties, the erosion and destabilization of downstream channels, and the pollution of valuable stream and lake resources. One cause of increases in stormwater runoff quantity or rate and impairment of quality and loss of valuable topsoil is the new development or redevelopment of the land. This Article regulates these activities to minimize adverse impacts.

This Article is adopted to accomplish the following objectives:

(a) To assure that new development or redevelopment does not increase the drainage or flood hazards, or create unstable conditions susceptible to soil erosion;

(b) To protect new buildings and major improvements to buildings from flood damage due to increased stormwater runoff and soil erosion;

(c) To protect human life and health from the hazards of increased flooding and soil erosion on a watershed basis;

(d) To lessen the burden on the taxpayer for flood control projects, repairs to flood-damaged public facilities and utilities, correction of channel erosion problems, and flood rescue and relief operations caused by stormwater runoff and soil erosion quantities from new development or redevelopment;

(e) To protect, conserve, and promote the orderly development of land and soil, water, air, animal, and plant resources;

(f) To preserve the natural hydrologic and hydraulic functions of watercourses and flood plains and to protect water quality and aquatic habitats; and

(g) To preserve the natural characteristics of stream corridors in order to manage flood and stormwater impacts, improve surface water and groundwater quality, reduce soil erosion, protect aquatic and riparian habitat, maintain quality forest resources, provide recreational opportunities, provide aesthetic benefits, enhance community and economic development.

Section 1-2 OTHER RELEVANT PERMITTING

Before a Development Permit under this Article becomes effective, all required Federal, State, and Local permits will have been received for the site subject to new development or redevelopment. The acquisition of these permits shall be the sole responsibility of the applicant. These may include but are not limited to Section 404 of the Clean Waters Act, Section 106 of the National Historic Preservation Act, Section 10 of the Rivers and Harbors Act or permitting required by the Illinois Department of Natural Resources, Office of Water Resources in accordance with the Rivers, Lakes and Streams Act, 615 ILCS, the Soil and Water Conservation Districts Act, 70 ILCS, the Farmland Preservation Act, 505 ILCS the Illinois Groundwater Protection Act, 415 ILCS and the National Pollutant Discharge Elimination System Permit (NPDES) thru the Illinois Environmental Protection Agency, Division of Water Pollution Control. Compliance is also required with but not limited to the Development Code of the Village of Caseyville.

Section 1-3 APPLICABILITY

This Article shall apply to all new development or redevelopment in the Village of Caseyville. Except as otherwise provided in this Article, no person, firm or corporation, public or private, the State of Illinois and its agencies or political subdivisions, the United States of America, and its agencies or political subdivisions, any agent, servant, officer or employee of any of the foregoing which meets the following provisions or is otherwise exempted in this Article, shall not commence any development activities without first having obtained a development permit from the Administrator of the Village of Caseyville.

A development permit shall be required for the following:

(a) Any new development or redevelopment that will include an area that will meet or exceed ten thousand (10,000) square feet of total impervious surface (i.e., streets, roof, patio or parking area or any combination thereof); or

(b) Any land disturbing activity (i.e., clearing, grading, stripping, excavation, fill, or any combination thereof) that will affect an area that will meet or exceed ten thousand (10,000) square feet or that will exceed 100 cubic yards; or

(c) Any land disturbing activity if the activity is within twenty-five (25) feet of a river, lake, pond, stream, sinkhole, or wetland; and is done in conjunction with Division VII Subsections 1-3.1 or 1-3.2; or

(d) Any land disturbing activity on the sloping side of the slope disturbance line and is in conjunction with Division VII Subsections 1-3.1, 1-3.2, or 1-3.3; or

(e) Any tree cutting or mechanized land clearing where the tree, native to Southwestern Illinois, is in excess of eight (8) inches in diameter and is done in conjunction with Division VII Subsections 1-3.1, 1-3.2, 1-3.3 or 1-3.4.

Section1-4 EXEMPTIONS

A development permit shall not be required for the following:

(a) Any new development, redevelopment or other activity falling below the minimum standards as set forth in Division VII Section 1-3.

(b) The agricultural use of land, including the implementation of conservation measures included in a farm conservation plan approved by the St. Clair County Soil and Water Conservation District, and including the construction of agricultural structures.

(c) The maintenance of any existing stormwater drainage/detention component or structure or any existing soil erosion/sediment control component or structure; including dredging, levee restoration, tree removal or other function which maintains the original design capacities of the above.

(d) The construction of, improvements to, or the maintenance of any street, road, highway or interstate highway performed by any unit of government whose powers grant such authority.

Section 1-5 EXCEPTIONS

The Zoning Board of Appeals may, in accordance with the following procedures, authorize exceptions to any of the requirements and regulations set forth in this Article.

1-5.1 Application for exception shall be made by a verified petition of the applicant for a development permit, stating fully the grounds of the petition and the facts relied upon by the applicant. Such petition shall be filed with the development permit application. In order for the petition to be granted, it shall be necessary that the Zoning Board of Appeals find all of the following facts with the respect to the land referred to in the petition:

(a) That the land is of such shape or size or is affected by such physical conditions or is subject to such title limitations or record, that it is impossible or impractical for the applicant to comply with all of the requirements of this Article;

(b) That the exception is necessary for the preservation and enjoyment of a substantial property right of the applicant; and

(c) That the granting of the exception will not be detrimental to the public welfare, environment or injurious to other property in the vicinity of the subjects property.

1-5.2 Each application for an exception shall be made to the Administrator. The Administrator and the Village Engineer will review and transmit recommendations to the Zoning Board of Appeals, which shall review such recommendations prior to granting or denying the exception.

1-5.3 The Zoning Board of Appeals shall hold a public hearing on each application for exception, within thirty (30) days after receiving the application, in the manner provided with respect to appeals. Within thirty (30) days after public hearing, the Zoning Board of Appeals shall either approve the site development permit application with the exceptions and conditions it deems necessary or it shall disapprove such development permit application and exception application or it shall take other such action as appropriate.

Section 1-6 SEPARABILITY

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

Section 1-7 RESPONSIBILITY

The applicant shall not be relieved of responsibility for damage to persons or property otherwise imposed by law, and the Village of Caseyville or its officers or agents will not be made liable for such damage, by (1) the issuance of a development permit under this Article, (2) compliance with the provisions of that development permit or conditions attached to it by the Administrator, (3) failure of Village of Caseyville Officials to observe or recognize hazardous or unsightly conditions, (4) failure of Village of Caseyville Officials to recommend denial or to deny a development permit, or (5) exemptions from development permit requirements of this Article.

Section 1-8 REFERENCE STANDARDS

Appendix A: Illinois Department of Transportation, Drainage Manual, (as amended); Appendix B: Illinois Environmental Protection Agency, Illinois Urban Manual, (as amended); and Appendix C: Southwestern Illinois Metropolitan and Regional Planning Commission; Desirable Trees Native to Southwestern Illinois, (as amended) are adopted by reference as applicable standards to assist applicants to gain compliance with Division VII STORMWATER DRAINAGE AND DETENTION; EROSION AND SEDIMENT CONTROL.

ARTICLE 2 DEFINITIONS

Section 2-1 DEFINITIONS

For the purposes of this Article certain terms are defined and set forth below:

Adverse Impacts: Any negative impact on plant, soil, air or water resources affecting their beneficial uses including recreation, aesthetics, aquatic habitat, quality, and quantity.

Applicant: Any person, firm, or governmental agency who executes the necessary forms to procure official approval of a development or permit to carry out construction of a new development or redevelopment from the Village of Caseyville.

Base Flood Elevation: The elevation at all locations delineating the level of flooding resulting from the 100-year frequency flood event, which has a one (1) percent chance of occurring in any given year.

Building Permit: A permit issued by the Village of Caseyville for the construction, erection or alteration of a structure or building and the related ground and surface preparation prior to and after completion of construction, erection or alteration of a structure or building.

Bypass Flows: Stormwater runoff from upstream properties tributary to a property's drainage system but not under its control.

Certify or Certification: Formally attesting that the specific inspections and tests were performed, and that such inspections and tests comply with the applicable requirements of this Article.

Channel: Any defined river, stream, creek, brook, branch, natural or artificial depression, ponded area, on-stream lake or impoundment, karst area (sinkhole), flowage, slough, ditch, conduit, culvert, gully, ravine, wash, or natural or manmade drainageway, which has a definite bed and bank or shoreline, in or into which surface or groundwater flows, either perennially or intermittently.

Channel Modification: Alteration of a channel by changing the physical dimensions or materials of its bed or banks. Channel modification includes damming, riprapping (or other armoring), filling, widening, deepening, straightening, relocating, lining, and significant removal of bottom or woody rooted vegetation. Channel modification does not include the man-made clearing of debris or removal of trash.

Clearing: Any activity which removes the natural vegetative ground cover.

Compensatory Storage: An artificially excavated, hydraulically equivalent volume of storage within the floodplain used to balance the loss of natural flood storage capacity when fill or structure is placed within the floodplain.

Conduit: Any channel, pipe, sewer or culvert used for the conveyance or movement of water,

whether open or closed.

Cubic Yard: A one (1) yard by one (1) yard by one (1) yard amount of material in excavation and/or fill.

Detention Basin: A facility constructed or modified to provide for the temporary storage of stormwater runoff and the controlled release by gravity of this runoff at a prescribed rate during and after a flood or storm.

Detention Time: The amount of time stormwater is held within a detention basin.

Development: Any manmade change to real estate or property, including:

(a) The division or subdivision of any duly recorded parcel of property;

(b) Construction, reconstruction or placement of a building or any addition to a building;

(c) Installation of a manufactured home on a site, preparing a site for a manufactured home, or installing a travel trailer on a site for more than 180 days per year;

(d) Construction of roads, bridges, or similar projects;

(e) Redevelopment of a site;

(f) Filling, dredging, grading, clearing, excavating, paving or other non-agricultural alterations of a ground surface;

(g) Storage of materials or deposit of solid or liquid waste;

(h) Any other activity that might alter the magnitude, frequency, direction, or velocity of stormwater flows from a property.

Drainage Plan: A plan, including engineering drawings and supporting calculations, which describes the existing stormwater drainage system and environmental features, including grading, as well as proposed alterations or changes to the drainage system and environment of a property.

Dry Basin: A detention basin designed to drain after temporary storage of stormwater flows and to normally be dry over much of its bottom area.

Erosion: The general process whereby soil or earth is moved by rainfall, flowing water, wind or wave action.

Excavation: Any act by which organic matter, earth, sand, gravel, rock or any other similar material, is cut into, dug, quarried, uncovered, removed, displaced, re-located or bulldozed and shall include the conditions resulting from such actions.

Excess Stormwater Runoff: The volume and rate of flow of stormwater discharged from a new development or redevelopment which is or will be in excess of that volume and rate which existed before development or redevelopment.

Existing Grade: The vertical location of the existing ground surface prior to excavation or filling.

Fill: Any act by which earth, sand, gravel, rock, or any other material, is deposited, placed, replaced, pushed, dumped, pulled, transported or moved by man to a new location and shall include the conditions resulting therefrom.

Final Grade: The vertical location of the ground surface after grading work is completed in accordance with the engineering plans.

Flood Fringe: That area as designated by the Federal Emergency Management Agency (FEMA) on either side of the floodway. This area is subject to inundation from the base flood but conveys little or no flow.

Flood Hazard Boundary Map (FHBM): A very generalized map prepared by the Federal Emergency Management Agency (FEMA) which shows only where floodplains are located based on very basic data. FHBM's do not include base flood elevations.

Flood Insurance Rate Map (FIRM): A map prepared by the Federal Emergency Management Agency (FEMA) that depicts the special flood hazard area (SFHA) within a community. This map includes insurance rate zones and regulatory floodplains and may or may not depict regulatory floodways.

Floodplain: That land adjacent to a body of water with ground surface elevations at or below the base flood or the 100-year frequency flood elevation which is subject to inundation. The floodplain as designated by the Federal Emergency Management Agency (FEMA) is also known as the Special Flood Hazard Area (SFHA). This area is the collective combination of the regulatory floodway and the flood fringe.

Floodway: The channel and that portion of the floodplain, including on-stream lakes, adjacent to a stream or watercourse which is needed to store and convey the anticipated existing and future 100-year frequency flood discharge with no more than a 0.1 foot increase in stage due to any loss of flood conveyance or storage and no more than a ten percent (10%) increase in velocities.

Grading: The excavation or fill or any combination thereof and shall include the conditions resulting from any excavation or fill.

Hydrograph: A graph showing for a given location on a stream or conduit, the flow rate with

respect to time.

Hydrograph Method: This method estimates runoff volume and runoff hydrographs for the point of interest by generating hydrographs for individual subareas, combining them, and routing them through stream lengths and reservoir structures. Factors such as rainfall amount and distribution, runoff curve number, time of concentration, and travel time are included.

Impervious Surface: That area of property that is covered by materials other than soil and vegetation and that has no intended capacity to absorb stormwater, such as parking lots, driveways, sidewalks, patios, tennis courts, roofs and other structures.

Infiltration: The passage or movement of water into the soil surfaces.

Loessal Soil: A sediment, commonly non-stratified and un-consolidated, composed predominately of silt sized particles with accessory clay and sand.

Lot: An individual platted parcel in an approved subdivision.

Major Drainage System: That portion of a drainage system needed to store and convey flows beyond the capacity of the minor drainage system.

Minor Drainage System: That portion of a drainage system designed for the convenience of the public. It consists of street gutters, storm sewers, small open channels, and swales and, where manmade, is to be designed to handle the 10-year runoff event.

Mitigation: Mitigation is when the prescribed controls are not sufficient and additional measures are required to offset the development, including those measures necessary to minimize the negative effects which stormwater drainage and development activities might have on the public health, safety and welfare. Examples of mitigation include, but are not limited to compensatory storage, soil erosion and sedimentation control, and channel restoration.

Modified Rational Method: As described in the Illinois Department of Transportation "Drainage Manual" is based on the principal that the maximum rate of runoff from a given drainage area occurs at that point in time when all parts of the watershed are contributing to the flow. The rainfall generating the peak flow is assumed to be of uniform intensity for the entire watershed with a rainfall duration equal to the time of concentration.

Natural: Conditions resulting from physical, chemical, and biological processes without intervention by man.

Natural Drainage: Channels formed in the existing surface topography of the earth prior to changes made by unnatural causes.

One Hundred-Year Event: A rainfall, runoff, or flood event having a one percent chance of occurring in any given year. A 24 hour storm duration is assumed unless otherwise noted.

Parcel: All contiguous land in one ownership.

Peak Flow: The maximum rate of flow of water at a given point in a channel or conduit.

Permittee: Any person to whom a building permit is issued.

Person: Any individual, firm or corporation, public or private, the State of Illinois and its agencies or political subdivisions, the United States of America, and its agencies or political subdivisions, and any agent, servant, officer or employee of any of the foregoing.

Positive Drainage: Provision for overland paths for all areas of a property including depressional areas that may also be drained by storm sewer.

Prime Farmland: Prime farmland is land that is best suited to food, feed, forage, fiber and oilseed crops. It may be cropland, pasture, woodland, or other land, but it is not urban and built up land or water areas. It is either used for food or fiber or is available for those uses. The soil qualities, growing season and moisture supply are those needed for a well managed soil to economically produce a sustained high yield of crops. Prime farmland produces the highest yields with minimum inputs of energy and economic resources, and farming it results in the least damage to the environment.

Property: A parcel of real estate.

Retention Basin: A facility designed to completely retain a specified amount of stormwater runoff without release except by means of evaporation, infiltration, emergency bypass or pumping.

Sedimentation: The process that deposits soils, debris, and other materials either on other ground surfaces or in bodies of water or stormwater drainage systems.

Site: A parcel of land, or a contiguous combination thereof, where grading work is performed as a single unified operation.

Sinkhole, (Karst Areas): A Sinkhole or Karst topography is a land surface depression or blind valley which may or may not have surface openings to cavernous underground areas and are the result of water movement through silts and jointed limestone. These conditions make such areas unstable and susceptible to subsidence and surface collapse. Fractures in the limestone may channel runoff water to public or private water supplies, making those sources especially susceptible to groundwater contamination.

Slope Disturbance Line: The line which delineates relatively level building areas from areas where slopes exceed 8 percent (8%) and where special precautions must be taken.

Stormwater Drainage System: All means, natural and manmade, used for conducting stormwater to, through or from a drainage area to the point of final outlet from a property. The stormwater drainage system includes but is not limited to any of the following: conduits and appurtenance

features, canals, channels, ditches, streams, culverts, streets, storm sewers, detention basins, swales and pumping stations.

Stormwater Management: Managing the quantity and quality of stormwater using both structural or engineered control devices and systems, as well as operational or procedural practices, but also including strategic site design, measures to control the sources of runoff, and landscape planning.

Stormwater Runoff: The waters derived from melting snow or rain falling within a tributary drainage basin which are in excess of the infiltration capacity of the soils of that basin, which flow over the surface of the ground or are collected in channels or conduits.

Storm Sewer: A closed conduit for conveying collected stormwater.

Stream: Any river, creek, brook, branch, flowage, ravine, or natural or man-made drainageway which has a definite bed and banks or shoreline, in or into which surface or groundwater flows, either perennially or intermittently.

Stripping: Any activity which removes the vegetative surface cover including tree removal, by spraying or clearing, and storage or removal of top soil.

Ten-Year Event: A runoff, rainfall, or flood event having a ten percent (10%) chance of occurring in any given year. A 24 hour storm duration is assumed unless otherwise note.

Time of Concentration: The elapsed time for stormwater to flow from the most hydraulically remote point in a drainage basin to a particular point of interest in that watershed.

Tributary Watershed: All of the land surface area that contributes runoff to a given point.

Two-Year Event: A runoff, rainfall, or flood event having a fifty percent (50%) chance of occurring in any given year. A 24 hour storm duration is assumed unless otherwise noted.

Vacant Land: Land on which there are no structures or only structures which are secondary to the use or maintenance of the land itself.

Watershed: All land area drained by, or contributing water to, the same stream, creek, ditch, lake, marsh, stormwater facility, groundwater or depressional area.

Wet Basin: A detention basin designed to maintain a permanent pool of water after the temporary storage of stormwater runoff.

Wetlands: Wetlands are defined by regulation as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." For general, but not inclusive locations of designated wetlands refer to mapping prepared jointly by the U.S. Department of Interior, Fish and Wildlife Service and the Illinois Department of Natural Resources, Office of Resource Conservation; National Wetlands

Inventory Mapping, 1987. The applicant may be required to provide a field investigation by a qualified wetland delineator.

ARTICLE 3 STORMWATER DRAINAGE AND DETENTION

Section 3-1 DRAINAGE PLAN SUBMITTAL REQUIREMENTS

Each applicant shall submit the following information, to ensure that the provisions of this Article are met. The submittal shall include sufficient information to evaluate the environmental characteristics of the property, the potential adverse impacts and benefits of the development on water resources both on-site and off-site, and the effectiveness of the proposed drainage plan in managing stormwater runoff, and meet the provisions of Division VII Section 1-2. The applicant shall certify on the drawings that all clearing, grading, drainage, and construction shall be accomplished in strict conformance with the drainage plan. The following information shall be submitted for both existing and proposed property conditions for all new developments or redevelopments that meet or exceed the minimum requirements of Division VII Section 1-3.

3-1.1 DRAINAGE PLAN REQUIREMENTS:

A topographic survey of the property at two-foot (2) contours unless otherwise specified or approved by Village of Caseyville Engineer. The plan map shall be keyed to a consistent datum specified by the Village of Caseyville. The mapping will use a digital format and the Global Positioning System (GPS), the applicant will provide both paper and digital copies including GPS points. Each outfall will have its position delineated, noted and referenced on the mapping, using GPS points.

3-1.2 MAPPING AND DESCRIPTIONS:

An existing drainage and proposed drainage plan for the property and one hundred (100) feet surrounding the property at a scale of not more than one hundred (100) feet to one (1) inch, and including the following:

(a) property boundary, dimensions, and approximate acreage;
(b) building setback lines;
(c) all existing and proposed structures and sizes;
(d) square feet of existing and proposed impervious surface;
(e) all existing, or proposed easements;
(f) all existing, abandoned, or proposed water or monitoring well head locations;
(g) all sanitary or combined sewer lines and septic systems;
(h) the banks and centerline of streams and channels;
(i) shoreline of lakes, ponds, and detention basins with normal water level elevation;
(j) farm drains and tiles;
(k) soils classifications;
(l) location, size and slope of stormwater conduits and drainage swales;
(m) depressional storage areas;
(n) detention facilities;
(o) roads, streets and associated stormwater inlets including finished grades;
(p) base flood elevation, flood fringe, and regulatory floodway;
(q) basis of design for the final drainage network components;
(r) a statement giving any applicable engineering assumptions and calculations;
(s) a vicinity map showing the relationship of the site to its general surroundings at a scale

of not less than two thousand (2,000) feet to one (1) inch (1:24,000)

(t) title, scale, north arrow, legend, seal of Licensed Professional Engineer, date, and name of person preparing plans.
(u) cross-section data for open channel flow paths and designated overland flow paths;
(v) direction of storm flows;
(w) flow rates and velocities at critical points in the drainage system;
(x) a statement by the design engineer of the drainage system's provision for handling events greater than the 100-year, 24 hour runoff; and
(y) a statement of certification of all drainage plans, calculations, and supporting data by a Licensed Professional Engineer.

3-1.3 ENVIRONMENTAL FEATURES:
A depiction of environmental features of the property and immediate vicinity including the following:

(a) the limits of designated regulatory and non-regulatory wetland areas;
(b) the location and limits of sinkholes (karst areas);
(c) the location of trees greater than eight (8) inches in diameter
(d) any designated natural areas, prime farmland; and
(e) any proposed environmental mitigation features.

Section 3-2 MINIMIZATION OF INCREASES IN RUNOFF VOLUMES AND RATES

In the selection of a drainage plan for a new development or redevelopment, the applicant shall evaluate and implement site design features which minimize the increase in runoff volumes and rates from the site. The applicant's drainage plan submittal shall include evaluations of site design features which are consistent with the following hierarchy:

(a) Preservation of regulatory floodplains, flood prone and wetland areas;
(b) Minimize impervious surfaces on the property, consistent with the needs of the project;
(c) Attenuate flows by use of open vegetated swales and natural depressions and preserves the existing natural stream channel.
(d) Infiltration of runoff on-site
(e) Provide stormwater retention structures;
(f) Provide wet or wetland detention structures;
(g) Provide dry detention structures; and
(h) Construct storm sewers.

Section 3-3 WATER QUALITY AND MULTIPLE USES

The drainage system should be designed to minimize adverse surface and groundwater quality impacts off-site and on the property itself. Detention basins shall incorporate design features to capture stormwater runoff pollutants. In particular, designers shall give preference to wet bottom and wetland type designs and all flows from the development shall be routed through the basin (i.e. low flows shall not be bypassed). Detention of stormwater shall be promoted throughout the property's drainage system to reduce the volume of stormwater runoff and to reduce the quantity

of runoff pollutants.

The drainage system should incorporate multiple uses where practicable. Uses considered compatible with stormwater management include open space, aesthetics, aquatic habitat, recreation (boating, fishing, trails, playing fields), wetlands and water quality mitigation.

Section 3-4 DESIGN CRITERIA, STANDARDS, AND METHODS

3-4.1 RELEASE RATES:

The detention system for new developments or redevelopments shall be designed to control the peak rate of discharge from the property for the two year, 24-hour and 100-year, 24 hour events to levels which will not cause an increase in flooding or channel instability downstream when considered in aggregate with other developed properties and downstream drainage capacities. For new developments or re-developments meeting the provisions of Division VII Article 3 the Modified Rational Method of design as specified in the Illinois Department of Transportation (IDOT) "Drainage Manual" may be used to calculate release rates or detention basin storage may be computed using Hydrograph Methods utilizing reservoir routing (also called modified puls or level pool) or equivalent method..

3-4.2 DETENTION BASIN OUTLET DESIGN:

Backwater on the outlet structure from the downstream drainage system shall be addressed when designing the outlet.

3-4.3 DETENTION STORAGE REQUIREMENTS:

The design maximum storage to be provided in the detention basin shall be based on the runoff from the runoff difference before and after development from the 100-year, 24-hour event. All detention basin storage shall be computed using Hydrograph Methods utilizing reservoir routing (also called modified puls or level pool) or equivalent method.

3-4.4 DRAINAGE SYSTEM DESIGN AND EVALUATION:

The following criteria should be used in evaluating and designing the drainage system. The design will provide capacity to pass the 25-year design storm flow in the storm sewer (minor drainage) and an overland flow path for flows in excess of the design capacity. Whenever practicable, the storm water systems shall not result in the interbasin transfer of drainage unless no other alternative exists. This paragraph defines the requirements for design of the storm water conveyance system only. Storm water detention facilities shall be designed in accordance with Sections 3-4.1, 3-4.2, and 3-4.3 above.

3-4.5 DESIGN METHODOLOGIES:

Major and minor conveyance systems as well as detention basins shall be designed as specified in Division VII Subsection 3-4.1.

3-4.6 POSITIVE DRAINAGE:

Whenever practicable, all developments must be provided an overland flow path that will pass the 100-year, 24 hour flow at a stage at least one (1) foot below the lowest foundation grade in the vicinity of the flow path. Overland flow paths designed to handle flows in excess of the

minor drainage system capacity shall be provided drainage easements. Street ponding and flow depths shall not exceed curb heights.

3-4.7 RAINFALL:
Unless a continuous simulation approach to drainage system hydrology is used, all design rainfall events shall be based on the Illinois State Water Survey's Bulletin 70. The first quartile point rainfall distribution shall be used for the design and analysis of conveyance systems with critical durations less than or equal to 12 hours. The third quartile point rainfall distribution shall be used for the design and analysis of detention basins and conveyance system with critical durations greater than 12 and less than or equal to 24 hours. The fourth quartile distribution shall be used in the design and analysis of systems with durations greater than 24 hours. The first, third, and fourth quartile distributions described by Huff are presented in Table 37 of Bulletin 70. Refer to Table 13 of Bulletin 70 for rainfall depth, duration, and frequency. The NRCS Type II distribution may be used as an alternate to the Huff distributions.

3-4.8 ANTECEDENT MOISTURE:
Computations of runoff hydrographs which do not rely on a continuous accounting of antecedent moisture conditions shall use wet antecedent moisture condition as a minimum.

3-4.9 WET DETENTION BASIN DESIGN:
Wet detention basins shall be designed to remove stormwater pollutants, to be safe, to be aesthetically pleasing, and as much as feasible to be available for recreational use.

3-4.10 WET BASIN DEPTHS:
Wet basins shall be at least three feet deep, excluding near-shore banks and safety ledges. If fish habitat is to be provided they shall be at least eight (8) feet deep over twenty-five (25%) percent of the bottom area to prevent winterkill.

3-4.11 WET BASIN SHORELINE SLOPES:
The side slopes of wet basins at the normal pool elevation shall not be steeper than three to one (3 to 1 horizontal to vertical). It is recommended that aquatic vegetation be established around the perimeter to provide protection from shoreline erosion.

3-4.12 PERMANENT POOL VOLUME:
The permanent pool volume in a wet basin at normal depth shall be equal to the runoff volume from its watershed for the 2-year, 24 hour event as a minimum.

3-4.13 WET BASIN INLET AND OUTLET ORIENTATION:
The distance between detention inlets and outlets shall be maximized. Inlets and outlets shall be at opposite ends of the basin providing that the orientation does not create undue hardship based on topography or other natural constraints. Designers are encouraged to use baffles or berms in the basin bottom to prevent short circuiting. There shall be no low flow bypass between the inlet and outlet. Paved low flow channels shall not be used. The minimum flow length shall be ten (10) feet with a recommended minimum ratio of two to one (2:1) for width.

3-4.14 DRY DETENTION BASIN DESIGN:
In addition to the other requirements of this Article, dry basins shall be designed to remove stormwater pollutants, to be safe, to be aesthetically pleasing and as much as feasible to be available for multiple uses.

3-4.15 DRY BASIN DRAINAGE:
Dry basins shall be designed so that eighty percent (80%) of their bottom area shall have standing water no longer than seventy-two (72) hours for any runoff event less than the 100-year, 24 hour event. Grading plans shall clearly distinguish the wet portion of the basin bottom. Underdrains directed to the outlet may be used to accomplish this requirement.

3-4.16 VELOCITY DISSIPATION:
Velocity dissipation measures shall be incorporated into dry basin designs to minimize erosion at inlets and outlets and to minimize resuspension of pollutants.

3-4.17 DRY BASIN INLET AND OUTLET ORIENTATION:
Shall be the same as Division VII Subsection 3-4.13.

3-4.18 TEMPORARY STILLING/SEDIMENTATION BASIN:
A stilling/sedimentation basin shall be constructed at each major inlet to a dry basin during construction. The volume of the basin shall be a minimum of 500, ft.3 per acre, of impervious surface in the drainage area. Side slopes shall be no steeper than three (3) feet to one (1) foot and basin depths shall be minimum of three (3) feet to minimize resuspension.

3-4.19 EXISTING DEPRESSIONAL AREAS:
Existing depressional storage volume will be maintained and the volume of detention storage provided to meet the requirements of this Article shall be in addition to existing storage.

3-4.20 MINIMUM DETENTION OUTLET SIZE:
Where a single pipe outlet or orifice plate is to be used to control discharge, it shall have a minimum diameter of twelve (12) inches. If this minimum orifice size permits release rates greater than those specified in this Section, and regional detention is not a practical alternative, outlets, structures such as perforated risers, or flow control orifices shall be used.

3-4.21 DETENTION IN FLOODPLAINS:
The placement of detention basins within the floodplain is strongly discouraged because of questions about their reliable operation during flood events. However, the stormwater detention requirements of this Article may be fulfilled by providing detention storage within flood fringe areas on the project site provided the following provisions are met as well as compliance with Division VII Section 1-2.

3-4.22 DETENTION IN FLOOD FRINGE AREAS:
The placement of a detention basin in a flood fringe area shall require compensatory storage for 1.5 times the volume below the base flood elevation occupied by the detention basin including any berms. The release from the detention storage provided shall still be controlled consistent with the requirements of this section. The applicant shall demonstrate its operation for all

stream-flow and floodplain backwater conditions. Excavations for compensatory storage along watercourses shall be opposite or adjacent to the area occupied by detention. All floodplain storage lost below the existing ten-year flood elevation shall be replaced below the existing ten-year elevation. All floodplain storage lost above the existing ten-year flood elevation shall be replaced above the existing ten-year flood elevation. All compensatory storage excavations shall be constructed to drain freely and openly to the watercourse and comply with Division VII Section 1-2.

3-4.23 DETENTION ON PRIME FARMLAND:
The placement of detention basins shall avoid the utilization of prime farmland. All detention basin construction shall examine potential impacts to adjacent agricultural land and shall address measures that will be implemented to eliminate such impacts and comply with Division VII Section 1-2.

3-4.24 DETENTION IN FLOODWAYS:
Detention basins shall be placed in the floodway only in accordance with Division VII Subsection 3-4.10.

3-4.25 ON-STREAM DETENTION:
On-stream detention basins are discouraged but allowable if they provide regional public benefits and if they meet the other provisions of this Article with respect to water quality and control of the two-year and 100-year, 24-hour events from the property. Further criteria are presented in Division VII Section 3-5. If on-stream detention is used in watersheds larger than one square mile, the applicant will use hydrographic modeling to demonstrate that the design will not increase the water level for any properties upstream or downstream of the property. Also, impoundment of the stream as part of on-stream detention:

(a) shall not prevent the migration of indigenous fish species, which require access to upstream areas as part of their life cycle, such as for spawning,

(b) shall not cause or contribute to the degradation of water quality or stream aquatic habitat,

(c) shall include a design calling for gradual bank slopes, appropriate bank stabilization measures, and a pre-sedimentation basin,

(d) shall not involve any stream channelization or the filling of wetlands,

(e) shall require the implementation of an effective non-point source management program throughout the upstream watershed which shall include as a minimum: runoff reduction "Best Management Practices" (BMP's) consistent with Division VII Section 3-2; 2 year, 24 hour detention/sedimentation basins for all development consistent with Division VII Subsection 3-4.10,

(f) shall not occur downstream of a wastewater discharge,

(g) shall not contribute to the duration or flood frequency of any adjacent land and

(h) shall comply with Division VII Section 1-2.

3-4.26 DRAINAGE INTO WETLANDS, RIVERS, STREAMS, LAKES, PONDS, AND DEPRESSIONAL STORAGE AREAS:
Wetlands, lakes, ponds and depressional storage areas shall be protected from damaging modifications and adverse changes in runoff quality and quantity associated with land developments. In addition to the other requirements of this Article, the following requirements shall be met for all developments whose drainage flows into wetlands, rivers, lakes, ponds or depressional storage areas:

(a) Existing wetlands, rivers, lakes, ponds or depressional storage areas shall not be modified for the purposes of stormwater detention unless it is demonstrated that the proposed modifications will maintain or improve its habitat and ability to perform beneficial functions and shall comply with Division VII Section 1-2. Existing storage and release rate characteristics of wetlands, rivers, lakes, ponds or depressional storage areas shall be maintained and the volume of detention storage provided to meet the requirements of this section shall be in addition to this existing storage.

(b) The existing wetlands, rivers, lakes, ponds, or depressional storage areas shall be protected during construction and as further regulated in Division VII Article 3, and shall not be filled.

(c) Site drainage patterns shall not be altered to substantially decrease or increase the existing area tributary to the wetlands, rivers, lakes, ponds or depressional storage areas.

(d) All runoff from the development shall be routed through a preliminary detention/sedimentation basin designed to capture the two-year, 24-hour event and hold it for at least 24 hours, before being discharged to the wetland, river, lake, pond, or depressional storage area. This basin shall be constructed before property grading begins and shall be maintained throughout the construction process. In addition, the drainage hierarchy defined in Division VII Section 3-2 should be followed to minimize runoff volumes and rates being discharged to the wetland, river, stream, lake, pond, or depressional storage area and as further regulated in Division VII Section 1-2 and Division VII Article 4.

3-4.27 VEGETATED BUFFER STRIP:
A buffer strip of at least 25 feet in width, preferably vegetated with native plant species, shall be maintained or restored around the periphery of a wetland, river, stream, lake, pond or depressional storage area.

3-4.28 LOESSAL SOILS:
Care must be taken to avoid open flow discharges of stormwater over silt (loessal) soils due to high potential for erosion.

3-4.29 SINKHOLES, KARST AREA:
The following requirements apply for new developments or redevelopments where sinkholes are determined to be present:

(a) A stormwater detention basin shall not be placed in or over a sinkhole.

(b) Stormwater detention basins shall not be located closer than one hundred (100) feet from the rim of a sinkhole.

(c) The outflow from a stormwater detention basin, channel, ditch or any stormwater runoff generated as a result of a new development or redevelopment shall not empty into or be directed, redirected by any means into or through any sinkhole.

(d) If, after the review of the stormwater drainage plan, the Village Engineer may determine that more detailed information is required, a sinkhole evaluation may be required. A sinkhole evaluation which addresses the geologic, engineering and environmental factors resulting from a new development or redevelopment be performed by a professional with experience and expertise in karst topography, whom shall certify the results of the evaluation. This evaluation shall be the responsibility of the applicant and performed at no cost to the Village of Caseyville. After a review of this evaluation and with the consultation of the St. Clair County Soil and Water Conservation District, the Village of Caseyville, Engineer may either approve or disapprove the drainage plan as submitted.

(e) Whenever a new sinkhole appears or it becomes apparent that the sinkhole has not yet been identified, it shall be reported to the St. Clair County Soil and Water Conservation District.

(f) Shall comply with Division VII Section 1-2.

3-4.30 STREET DETENTION, PARKING LOT DETENTION, AND CULVERT DRAINAGE:

(a) Street Detention: If streets are to be used as part of the minor or major drainage system, ponding depths shall not exceed curb heights and shall not remain flooded for more than eight (8) hours for any event less than or equal to the 100-year, 24 hour event.

(b) Parking Lot Detention: The maximum stormwater ponding depth in any parking area shall not exceed six (6) inches for more than four (4) hours.

(c) Culvert, Road and Driveway Crossings: Sizing of culvert crossings shall consider entrance and exit losses as well as tailwater conditions on the culvert.

3-4.31 INFILTRATION PRACTICES:
To effectively reduce runoff volumes, infiltration practices including basins, trenches, and porous pavement should be located in hydrologic soil groups "A" and "B" as designated by the U.S.D.A. Natural Resources Conservation Service. Infiltration basins and trenches designed to recharge groundwater shall not be located within seventy-five (75) feet of a water supply well or building foundation and comply with Division VII Section 1-2. A sediment settling basin shall

be provided to remove coarse sediment from stormwater flows before they reach infiltration basins or trenches. Stormwater shall not be allowed to stand more than seventy-two hours over eighty percent of the dry basin's bottom area for the maximum design event to be ex-filtrated. The bottom of infiltration basins or trenches shall be a minimum of four feet above the seasonally high groundwater and bedrock level. Engineering calculations demonstrating infiltration rates shall be included with the application.

3-4.32 VEGETATED FILTER STRIPS AND SWALES:
To effectively filter stormwater pollutants and promote infiltration of runoff, sites should be designed to maximize the use of vegetated filter strips and swales. Whenever practicable, runoff from impervious surfaces should be directed onto filter trips and swales comprised of native grasses and forbs before being routed to a storm sewer or detention basin.

3-4.33 SAFETY CONSIDERATIONS:
The drainage system components, especially all detention basins, shall be designed to protect the safety of any children or adults coming in contact with the system during runoff events and shall comply with the following:

(a) The side slopes of all detention basins at 100-year, 24 hour capacity shall be as level as practicable to prevent accidental falls into the basin and for stability and ease of maintenance. Side slopes of detention basins and open channels shall not be steeper than three (3) to one (1) (horizontal to vertical).

(b) All wet detention basins shall have a level safety ledge at least four feet in width 2.5 to 3 feet below the normal water depth.

(c) Velocities throughout the surface drainage system shall be controlled to safe levels taking into consideration rates and depths of flow.

(d) All stormwater detention basins shall be provided with an overflow structure capable of safely passing excess flows at a stage at least one foot below the lowest foundation grade in the vicinity of the detention basin. The design flow rate of the overflow structure shall be equivalent to the 100-year, 24 hour inflow rate.

(e) All stormwater detention basins shall be provided with a chain link fence. The maximum mesh size for such chain link fences shall be a 2.25 inch square (57 mm square). Acce ss gates shall comply with all of the requirements of the chain link fence and shall be equipped to accommodate a locking device. Pedestrian access gates shall open outward away from the basin and shall be self-closing and have a self-latching device. Gates other than pedestrian access gates shall have a self-latching device. The maximum vertical clearance between grade and the bottom of the fence shall be two (2) inches (51 mm) measured on the side of the fence that faces away from the business.

3-4.34 MAINTENANCE CONSIDERATIONS:
The stormwater drainage system shall be designed to minimize and facilitate maintenance. Turfed side slopes shall be designed to allow lawn mowing equipment to easily negotiate them.

Wet basins shall be provided with alternate outflows which can be used to completely drain the pool for sediment removal. Pumping may be considered if drainage by gravity is not feasible. Pre-sedimentation basins shall be included, where feasible, for localizing sediment deposition and removal. Site access for heavy equipment shall be provided.

Section 3-5 ACCOMMODATING FLOWS FROM UPSTREAM TRIBUTARY AREAS

Stormwater runoff from areas tributary to the property shall be considered in the design of the property's drainage system. Whenever practicable, flows from upstream areas that are not to be detained should be routed around the basin being provided for the site being developed.

3-5.1 UPSTREAM AREAS NOT MEETING ARTICLE REQUIREMENTS:

When there are areas not meeting the storage and release rates of this Article, tributary to the applicant's property, regionalized detention on the applicant's property shall be explored by the applicant. The following steps shall be followed:

(a) The applicant shall compute the storage volume needed for his property using the release rates of Division VII Section 3-4, the applicant's property area, and the procedures described in Division VII Section 3-3.

(b) Areas tributary to the applicant's property, not meeting the storage and release rate requirements of this Article, shall be identified.

(c) Using the areas determined above plus the applicant's property area, total storage needed for the combined properties shall be computed.

Allowable release rates shall be computed using the combined property areas. Storage shall be computed as described in Division VII Section 3-4. If tributary areas are not developed, a reasonable fully developed land cover, based on local zoning, shall be used for the purposes of computing storage.

Once the necessary combined storage is computed the Village of Caseyville may choose to pay for over-sizing the applicant's detention basin to accommodate the regional flows. The applicant's responsibility will be limited to the storage for his property as computed above. If regional storage is selected by the Village of Caseyville, then the design produced in Division VII Section 3-3 shall be implemented. If regional storage is rejected by the Village of Caseyville, the applicant shall bypass all tributary area flows around the applicant's basin whenever practicable. If the applicant must route upstream flows through his basin and the upstream areas exceed one-square mile in size, the applicant must meet the provision of Division VII Subsection 3-4.25 for on-stream basins.

3-5.2 UPSTREAM AREAS MEETING ARTICLE REQUIREMENTS:

When there are areas which meet the storage and release rate requirements of this Article, tributary to the applicant's property, the upstream flows shall be bypassed around the applicant's detention basin if this is the only practicable alternative. Storage needed for the applicant's property shall be computed as described in Division VII Subsection 5-5.1. However, if the

Village of Caseyville decides to route tributary area flows through an applicant's basin, the final design stormwater releases shall be based on the combined total of the applicant's property plus tributary areas. It must be shown that at no time will the runoff rate from the applicant's property exceeds the allowable release rate for his/her property alone.

Section 3-6 EARLY COMPLETION OF DETENTION FACILITIES

Where detention, retention, or depressional storage areas are to be used as part of the drainage system for a property, they shall be constructed as the first element of the initial earthwork program. Any eroded sediment captured in these facilities shall be removed by the applicant on a regular basis and before project completion in order to maintain the design volume of the facilities.

Section 3-7 STORMWATER MANAGEMENT

Stormwater management systems, including, but not limited to, infiltration, evapo-transpiration; rainwater harvest and runoff reuse; shall be provided and maintained on the building site. Stormwater management systems shall address the increase in runoff that would occur resulting from development on the building site and shall either:

1. Manage rainfall on-site and size the management system to retain, at a minimum, the volume of a single storm which is equal to the Development Code Division VII; Article 3; Section 3-4; Sub-Section 3-4.7 Rainfall and all smaller storms and maintain the predevelopment natural temperature of the runoff; or

2. Maintain or restore the pre-development stable, natural runoff hydrology of the site throughout the development or redevelopment process. Post construction runoff rate, volume, duration, and temperature shall not exceed predevelopment rates. The stormwater management system design shall be based, in part, on a hydrologic analysis of the building site.

The stormwater management system shall not redirect or concentrate off-site discharge that would harm adjoining lots or public property.

Section 3-8 FEE IN LIEU OF DETENTION

All new development or redevelopment not exceeding fifteen thousand (15,000) square feet of impervious surface may pay a fee of $10,000 for each acre-foot of detention which would be required under this Article rather than installing detention facilities on the property, unless specifically directed to do otherwise by the appropriate local official. The Village of Caseyville also shall have the option for new development or redevelopment exceeding fifteen thousand (15,000) square feet of impervious surface of requiring a fee of $10,000 for each acre-foot of detention needed in lieu of the applicant building a basin on-site provided the property will discharge stormwater to the Village of Caseyville storm sewer system if applicable.

In instances where regional benefits and economies of scale can be achieved, it will be

permissible for adjacent properties to utilize a common regional detention basin. Applicants shall have the option of paying a fee of $10,000 for each acre-foot of detention required so that the Village of Caseyville can build regional facilities or they can jointly build the necessary facilities themselves.

ARTICLE 4 SOIL EROSION AND SEDIMENT CONTROL

Section 4-1 FINDINGS

The Village of Caseyville hereby finds that:

(a) The soil types found in the Village of Caseyville are susceptible to erosion and if left unprotected could cause severe loss of soil with resultant damage to property;

(b) The topography of the Village of Caseyville contains areas with steep slopes upon which, if clearing of trees and/or inappropriate construction takes place, could result in severe erosion and slope stability problems which could result in damage to property;

(c) Excessive quantities of soil may erode from areas undergoing development for certain non-agricultural uses including but not limited to the construction of dwelling units, commercial buildings and industrial plants, the building of roads and highways, the modification of stream channels and drainageways, and the creation of recreational facilities;

(d) The washing, blowing, and falling of eroded soil across and upon roadways endangers the health and safety of users thereof, by decreasing vision and reducing traction of road vehicles;

(e) Soil erosion necessitates the costly repairing of gullies, washed-out fills, and embankments;

(f) Sediment from soil erosion tends to clog sewers and ditches and to pollute and silt rivers, streams, lakes, sinkholes, wetlands, and reservoirs;

(g) Sediment limits the use of water and waterways for most beneficial purposes, promotes the growth of undesirable aquatic weeds, destroys fish and other desirable aquatic life, and is costly and difficult to remove; and

(h) Sediment reduces the channel capacity of waterways and the storage capacity of floodplains and natural depressions, resulting in increased chances of flooding at risk to public health and safety.

Section 4-2 GENERAL PRINCIPLES

It is the objective of this Article to control soil erosion and sedimentation caused by development activities, including clearing, grading, stripping, excavating, and filling of land, in the Village. Measures taken to control soil erosion and off-site sediment runoff shall be adequate to assure that sediment is not transported from the site by a storm event of ten-year, 24 hour frequency or less. The following principles shall apply to all new development or redevelopment activities within the Village of Caseyville and to the preparation of the submissions required under

Division VII Section 4-3.

(a) New development or redevelopment shall be related to the topography and soils of the site so as to create the least potential for erosion. Areas of steep slopes greater than eight percent (8%) where high cuts and fills may be required are to be avoided wherever possible, and natural contours should be followed as closely as possible.

(b) Natural vegetation shall be retained and protected wherever possible. Areas immediately adjacent to natural watercourses, lakes, ponds, sinkholes, and wetlands are to be left undisturbed wherever possible. Temporary crossings of watercourses, when permitted, must include appropriate stabilization measures.

(c) Special precautions shall be taken to prevent damages resultant from any necessary development activity within or adjacent to any stream, lake, pond, sinkhole or wetland. Preventive measures shall reflect the sensitivity of these areas to erosion and sedimentation.

(d) The smallest practical area of land should be exposed for the shortest practical time during development.

(e) Sediment basins or traps, filter barriers, diversions, and any other appropriate sediment or runoff control measures shall be installed prior to site clearing and grading and maintained to remove sediment from run-off waters from land undergoing development.

(f) The selection of erosion and sediment control measures shall be based on assessment of the probable frequency of climatic and other events likely to contribute to erosion, and on evaluation of the risks, costs, and benefits involved.

(g) In the design of erosion control facilities and practices, aesthetics and the requirements of continuing maintenance must be considered.

(h) Provision shall be made to accommodate the increased run-off caused by changed soil and surface conditions during and after development. Drainageways should be designed so that their final gradients and the resultant velocities and rates of discharge will not create additional erosion on-site or downstream.

(i) Permanent vegetation and structures shall be installed and functional as soon as practical during development.

(j) Those areas being converted from agricultural purposes to other land uses shall be vegetated with an appropriate protective cover prior to development.

(k) All waste generated as a result of site development activity shall be properly disposed of and shall be prevented from being carried off the site by either wind or water.

(l) All construction sites shall provide measures to prevent sediment from being tracked

onto public or private roadways.

(m) All temporary soil erosion and sediment control practices shall be maintained to function as intended until the contributing drainage area has been permanently stabilized at which time they shall be removed.

Section 4-3 EROSION AND SEDIMENT CONTROL PLAN SUBMITTAL REQUIREMENTS

Each applicant shall submit the information depending on development size, as regulated to ensure that the provisions of this Article are met. The submittal shall include sufficient information to evaluate the environmental characteristics of the property, the potential adverse impacts of the development related to erosion both on-site and off-site, and the effectiveness of the proposed erosion and sediment control plan in reducing sediment loss and meet the provisions of Division VII Section 1-2. The applicant shall certify on the drawing that all clearing, grading, drainage, and construction shall be accomplished in strict conformance with the erosion and sediment control plan. The following information shall be submitted for both existing and proposed property conditions; new developments or redevelopments meeting the requirements of Division VII Section 1-3.

4-3.1 EROSION AND SEDIMENT CONTROL PLAN REQUIREMENTS:

Shall meet the requirements of Division VII Section 3-1 Subsections 3-1.1 and 3-1.2.

4-3.2 MAPPING AND DESCRIPTIONS:

The existing and proposed erosion and sediment control features of the property and immediate vicinity including:

(a) As required in Division VII Section 3-1 Subsections 3-1.1 and 3-1.2.

(b) Location of the slope disturbance line.

(c) Location and description of the erosion and sediment control measures to be employed during construction.

(d) For any structures proposed to be located on the slope side of the slope disturbance line the map shall include the limits of disturbance including tree removal, erosion and sediment control measures during construction, cross section view of any proposed cut or fill, erosion and sediment control measures during construction, details of method(s) proposed for providing slope stability, permanent stormwater control measures, and permanent erosion and sediment control measures all being certified by a registered professional engineer or a "Certified Professional Erosion Control Specialist."

(e) The predominant soil types on the site, their location, and their limitations for the proposed use as defined by the U.S.D.A. Natural Resources Conservation Service.

(f) The proposed use of the site, including present and planned development, areas of clearing, stripping, grading, excavation and filling; proposed contours, finished grades, and street profiles; the stormwater plan as required in Division VII Article 3; kinds and locations of utilities, areas and acreages proposed to be paved, sodded or seeded, vegetatively stabilized, or left undisturbed; and the location of trees over eight (8) inches in diameter and their type.

(g) The erosion and sediment control plan showing all measures necessary to meet the requirements of this Article throughout all phases of construction and those remaining permanently after completion of the development of the site, including:

1. Location and description, including standard details, of all sediment control measures, runoff control measures, including diversions, waterways and outlets, and design specifics of sediment basins and traps including outlet details.

2. Location and description of all soil stabilization and erosion control measures, including seeding mixtures and rates, types of sod, method of seedbed preparation, expected seeding dates, type and rate of lime and fertilizer application, kind and quantity of mulching for both temporary and permanent vegetative control measures, and types of non-vegetative stabilization measures.

3. Location and description of methods to prevent tracking of sediment off-site including construction entrance details, as appropriate.

4. Description of dust and traffic control measures.

5. Locations of stockpiles and description of stabilization methods.

6. Locations of off-site fill or borrow volumes, locations and methods of stabilization.

7. Provisions for maintenance of control measures, including type and frequency of maintenance, easements, and estimates of the cost of maintenance.

8. The proposed phasing of development of the site, including stripping and clearing, rough grading and construction, and final grading and landscaping. Phasing should identify the expected date on which clearing will begin, the estimated duration of exposure of cleared area, and the sequence of installation of temporary sediment control measures (including perimeter controls), installation of stormwater drainage, paving streets and parking areas, final grading and the establishment of permanent vegetative cover, and the removal of temporary measures. It shall be the responsibility of the applicant to notify the Administrator of any significant changes which occur in the site development schedule after the initial erosion and sediment control plan has been approved.

Section 4-4 DESIGN AND OPERATION STANDARDS AND REQUIREMENTS

The preparation of soil erosion and sediment control plans shall follow the principles outlined in the "Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control", excepting Article six (6) published by the Urban Committee of the Association of Illinois Soil and Water Conservation Districts. The design criteria, standards, and methods shall be prepared in accordance with the requirements of this Article and the standards and specifications contained in "Illinois Urban Manual" prepared for the Illinois Environmental Protection Agency by the U.S.D.A. Natural Resources Conservation Service, which standards and methods are hereby incorporated into this Article by reference. In the event of conflict between the provisions of said manuals and of this Article, this Article shall govern.

4-4.1 EROSION AND SEDIMENT CONTROL DESIGN REQUIREMENTS:

New developments or redevelopments shall comply with Article VII Section 4-3 and meet the following:

(a) Control measures shall be constructed to control runoff from the property to such an extent possible that sediment is retained on-site.

(b) Temporary on-site control measures required shall be constructed and functional prior to initiating clearing, grading, stripping, excavating or fill activities on the site.

(c) Disturbed areas shall be stabilized with permanent measures within seven (7) calendar days following the end of active disturbance, or re-disturbance consistent with the following criteria:

1. Appropriate permanent stabilization measures shall include seeding, mulching, sodding, with non-vegetative measures as a last resort.

2. Areas having slopes greater than 12% shall be stabilized with sod, mat, or blanket in combination with seeding or equivalent.

(d) All temporary and permanent erosion and sediment control practices must be maintained and repaired as needed to assure effective performance of their intended function.

4-4.2 TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

All temporary erosion and sediment control measures shall be disposed in a proper manner within thirty (30) days after final site stabilization is achieved with permanent soil stabilization measures. Trapped sediment and other disturbed soils resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

4-4.3 SITE DEVELOPMENT REQUIREMENTS:

On-site sediment control measures, as specified by the following criteria, shall be constructed as specified in the referenced handbooks, and functional prior to initiating clearing, grading, stripping, excavating or fill activities on the site.

(a) For new developments or redevelopments less than one (1) acre, filter barriers (including filter fences, straw bales, or equivalent control measures) shall be constructed to control all on-site runoff. Vegetated filter strips, with a minimum width of twenty five (25) feet, may be used as an alternative only where runoff, in sheet flow is expected.

(b) For new developments or redevelopments more than one (1) acre but less than five (5) acres, a sediment trap or equivalent control measure shall be constructed at the downslope point of the disturbed area.

(c) For new developments or redevelopments greater than five (5) acres, a sediment basin or equivalent control measure shall be constructed at the downslope point of the disturbed area.

(d) Sediment basin and sediment trap designs shall provide for both "dry" detention and "wet" detention sediment storage. The detention storage shall be composed of equal volumes of "wet" detention storage and "dry" detention storage and each shall be sized as regulated in Division VII Article 3. The release rate of the basin shall be that rate as regulated in Division VII Article 3. The elevation of the outlet structure shall be placed such that it only drains the dry detention storage.

(e) The sediment storage shall be sized to store the estimated sediment load generated from the site over the duration of the construction period with a minimum storage equivalent to the volume or sediment generated in one year. For construction periods exceeding one year, the 1-year sediment load and a sediment removal schedule may be substituted.

(f) The alteration of sinkholes by filling, grading or excavation is prohibited, including an area within twenty-five (25) feet from the rim.

(g) To the extent possible or as otherwise regulated in this Article all desirable trees eight (8) inches in diameter and larger shall be protected for their present and future value for erosion protection and other environmental benefits. Trees that have been selected for preservation shall be marked prior to the beginning of any clearing, grading, stripping, excavation, or filling of the site. A "No" construction zone shall be established and marked at the perimeter of the dripline of each tree which is to be preserved.

4-4.4 STORMWATER CONVEYANCE CHANNELS:

Stormwater conveyance channels, including ditches, swales, and diversions, and the outlets of all channels and pipes shall be designed and constructed as regulated in Division VII Article 3. All constructed or modified channels shall be stabilized within 48 hours, consistent with the following standards and as required in the referenced handbooks:

(a) For grades up to four percent (4%), seeding in combination with mulch, erosion blanket, or an equivalent control measure shall be applied. Sod or erosion blanket or mat shall be applied to the bottom of the channel.

(b) For grades of four (4) to eight (8) percent, sod or an equivalent control measure shall be applied in the channel.

(c) For grades greater than eight percent (8%), rock, riprap, or an equivalent control measure shall be applied over filter fabric or other type of soil protection, or the grade shall be effectively reduced using drop structures.

4.-4.5 LAND DISTURBANCE ACTIVITIES:
Land disturbance activities in stream channels shall be avoided, where possible, or as regulated in Article 3. If disturbance activities are unavoidable, the following requirements shall be met:

(a) Construction vehicles shall be kept out of the stream channel to the maximum extent practicable. Where construction crossings are necessary, temporary crossings shall be constructed of non-erosive material, such as riprap or gravel.

(b) The time and area of disturbance of stream channels shall be kept to a minimum. The stream channel, including bed and banks, shall be stabilized within 48 hours after channel disturbance is completed, interrupted, or stopped.

(c) Whenever channel relocation is necessary, the new channel shall be constructed under dry conditions and fully stabilized before flow is diverted, incorporating meanders, pool and riffle sequence, and riparian planting.

4-4.6 STORM SEWER INLETS AND CULVERTS:
Storm sewer inlets and culverts shall be protected by sediment traps or filter barriers meeting accepted design standards and specifications.

4-4.7 SOIL STORAGE PILES:
Soil storage piles containing more than ten (10) cubic yards of material shall not be located with a downslope drainage length of less than twenty-five (25) feet to a roadway, drainage channel, or sinkhole. Filter barriers, including straw bales, filter fence, or equivalent, shall be installed immediately on the downslope side of the piles.

4-4.8 DEWATERING DEVICES:
If dewatering devices are used, discharge locations shall be protected from erosion. All pumped discharges shall be routed through appropriately designed sediment traps or basins, or equivalent and shall not be deposited into a sinkhole.

4-4.9 GRAVELED ENTRANCE ROADS:
Each site shall have graveled (or equivalent) entrance roads, access drives, and parking areas of sufficient length and width to prevent sediment from being tracked onto public or private roadways. Any sediment reaching a public or private road shall be removed by shoveling or street cleaning (not flushing) before the end of each workday and transported to a controlled sediment disposal area.

Section 4-5 MAINTENANCE OF CONTROL MEASURES

All soil erosion and sediment control measures necessary to meet the requirements of this Article shall be maintained periodically by the applicant or subsequent land owner during the period of land disturbance and development of the site in a satisfactory manner to ensure adequate performance.

ARTICLE 5 LONG TERM MAINTENANCE RESPONSIBILITY

Section 5-1 LONG TERM MAINTENANCE RESPONSIBILITY

Maintenance of stormwater drainage, and erosion and sediment control facilities located on private property shall be the responsibility of the owner of that property. Before an appropriate permit is obtained from the Village of Caseyville the applicant shall execute a maintenance agreement with the Village of Caseyville of guaranteeing that the applicant and all future owners of the property will maintain its stormwater drainage and erosion and sediment control system. Such agreement shall be recorded with the Recorder of Deeds of St. Clair County. The maintenance agreement shall include a schedule for regular maintenance of each aspect of the property's stormwater drainage and erosion and sediment control system and shall provide for access to the system for inspection by authorized personnel of the Village of Caseyville. The maintenance agreement shall also stipulate that if the appropriate personnel of the Village of Caseyville notify the property owner in writing of maintenance problems which require correction, the property owner shall begin such corrections within twenty four (24) hours and shall not extend beyond seven (7) calendar days of such notification. If the corrections are not made within this time period the Village of Caseyville may have the necessary work completed and assess the cost to the property owner. The Village of Caseyville has the option of requiring a bond to be filed by the property owner for maintenance of the stormwater drainage and erosion and sediment control system.

ARTICLE 6 INSPECTIONS

Section 6-1 INSPECTIONS

The Administrator shall make inspections as hereinafter required and shall either approve that portion of the work completed or shall notify the permittee wherein the work fails to comply with the stormwater drainage or erosion and sedimentation control plan as approved. Plans for grading, stripping, excavating, and filling work bearing the stamp of approval of the Administrator shall be maintained at the site during progress of the work. In order to obtain inspections and to ensure compliance with this Article, the permittee shall notify the Administrator within two (2) working days of the completion of the construction stages specified below:

(a) Upon completion of installation of the stormwater drainage and erosion and sediment control measures (including perimeter controls and diversions), prior to proceeding with any other earth disturbance or grading,

(b) After stripping and clearing,

(c) After rough grading,

(d) After final grading,

(e) After seeding and landscaping deadlines, and

(f) After final stabilization and landscaping, prior to removal of sediment controls.

If stripping, clearing, grading and/or landscaping are to be done in phases or areas, the permittee shall give notice and request inspection at the completion of each of the above work stages in each phase or area. If an inspection is not made and notification of the results given within five working days after notice is received by the Village of Caseyville from the permittee, the permittee may continue work at his/her own risk, without presuming acceptance by the Village of Caseyville. Notification of the results of the inspection shall be given in writing at the site.

Section 6-2 SPECIAL PRECAUTIONS

If at any stage of the grading of any development site the Administrator determines by inspection that the nature of the site is such that further work authorized by an existing permit is likely to imperil any property, public way, stream, lake, wetland, or drainage structure, the Administrator may require, as a condition of allowing the work to be done, that such reasonable special precautions to be taken as is considered advisable to avoid the likelihood of such peril. "Special precautions" may include, but shall not be limited to, a more level exposed slope, construction of additional drainage facilities, berms, terracing, compaction, or cribbing, installation of plant materials for erosion control, and recommendations of a registered soils engineer and/or engineering geologist which may be made requirements for further work.

Where it appears that storm damage may result because the grading on any development site is not complete, work may be stopped and the permittee required to install temporary structures or take such other measures as may be required to protect adjoining property or the public safety. On large developments or where unusual site conditions prevail, the Administrator may specify the time of starting grading and time of completion or may require that the operations be conducted in specific stages so as to ensure completion of protective measures or devices prior to the advent of seasonal rains.

Section 6-3 AMENDMENT OF PLANS

Major amendments to stormwater drainage and detention or erosion and sediment control plans shall be submitted to the Administrator and shall be processed and approved or disapproved in the same manner as the original plans. Field modification of a minor nature may be authorized by the Administrator by written authorization to the permittee.

ARTICLE 7 PERMITTING

Section 7-1 APPLICATION FOR PERMIT

Application for a development permit shall be made by the owner of the property or his authorized agent to the Administrator on a form furnished for that purpose. Each application shall bear the name(s) and address(s) of the owner or developer of the site, the contractor(s) 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. Each application shall include certification that any land clearing, construction, or development involving the movement of earth shall be in accordance with the plans approved upon issuance of the permit.

Section 7-2 BOND REQUIRED

The applicant for a development permit may be required to file with the Village of Caseyville, a faithful performance bond or bonds, letter of credit, or other improvement security satisfactory to the Village of Caseyville Attorney in an amount deemed sufficient by the Administrator to cover all costs of improvements, landscaping, maintenance of improvements and landscaping, and soil erosion and sediment control measures for such period as specified by the Village of Caseyville, and engineering and inspection costs to cover the cost of failure or repair of improvements installed on the site.

Section 7-3 REVIEW AND APPROVAL

Each application for a development permit shall be reviewed and acted upon by the Administrator.

7-3.1 The Administrator will review each application for a development permit to determine its conformance with the provisions of this Division VII. The Administrator may also refer any application to the St. Clair County Soil and Water Conservation District and/or any other local government or public agency within whose jurisdiction the site is located for review and comment. Within thirty (30) days after receiving an application, the Administrator shall in writing:

(a) Approve the permit application if it is found to be in conformance with the provisions of this Article, and issue the permit;

(b) Approve the permit application subject to such reasonable conditions as may be necessary to secure substantially the objectives of this Article, 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.

No development permit shall be issued for an intended development site unless:

(a) The development, including but not limited to subdivision or planned unit development, has been approved by the Village of Caseyville in Illinois where applicable, or

(b) such permit is accompanied by or combined with a valid building permit issued by the Village of Caseyville, or

(c) the proposed earth moving is coordinated with any overall development program previously approved by the Village of Caseyville for the area in which the site is situated; and

(d) all relevant federal and state permits have been received for the portion of the site subject to soil disturbance as noted in Division VII Section 1-2.

7-3.2 Failure of the Administrator to act on an original or revised application within thirty (30) days of receipt shall authorize the applicant to proceed in accordance with the plans as filed and in compliance with the regulations contained herein, unless such time is extended by agreement between the Administrator and the applicant. Pending preparation and approval of a revised plan, development activities shall be allowed to proceed in accordance with conditions established by the Administrator.

Section 7-4 EXPIRATION OF PERMIT

Every development permit shall expire and become null and void if the work authorized by such permit has not been commenced within one hundred and eighty (180) days, or if not completed by a date which shall be specified in the permit; except that the Administrator may, if the permittee presents satisfactory evidence that unusual difficulties have prevented work being commenced or completed within the specified time limits, grant a reasonable extension of time if written application is made before the expiration date of the permit. The Administrator may require modification of the erosion control plan to prevent any increase in erosion or off-site sediment runoff resulting from any extension.

Section 7-5 APPEALS

The applicant, or any person or agency which received notice of the filing of the application, may appeal the decision of the Administrator to the Zoning Board of Appeals. Upon receipt of an appeal, the Zoning Board of Appeals shall schedule and hold a public hearing, after giving fifteen (15) days notice thereof. The Zoning Board of Appeals shall render a decision within thirty (30) days after the hearing. Factors to be considered on review shall include, but need not be limited to, the effects of the proposed development activities on the surface water flow to tributary and downstream lands, any comprehensive watershed management plans, or the use of any retention facilities; possible saturation of fill and unsupported cuts by water, both natural and domestic; runoff surface waters that produce erosion and silting of drainageways; nature and type of soil or rock which when disturbed by the proposed development activities may create earth movement and produce slopes that cannot be landscaped; and excessive and unnecessary scarring of the natural landscape through grading or removal of vegetation. The Zoning Board of

Appeals shall submit its decision to the Board of Trustees. The Board of Trustees shall act on every appeal within thirty (30) days following the decision of the Zoning Board of Appeals. The Board of Trustees may reverse or affirm, wholly or partly, or may modify or amend the decision or order appealed from to the extent and in the manner they deem appropriate. In doing so, the Board of Trustees has all the power of the Administrator.

Section 7-6 RETENTION OF PLANS

Plans, specifications, and reports for all site developments shall be retained in original form or on microfilm by the Administrator.

ARTICLE 8 ENFORCEMENT

Section 8-1 STOP-WORK ORDER; REVOCATION OF PERMIT

In the event any person holding a development permit pursuant to this Article violates the terms of the permit, or carries on-site development in such a manner as to materially adversely affect the health, welfare, environment, or safety of persons residing or working in the neighborhood of the development site or so as to be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood, the Administrator may suspend or revoke the development permit. The Village shall have the right to abate any hazard that adversely affects the health or safety of its residents or the property of its residents within the Village.

8-1.1 Suspension of a permit shall be by a written stop-work order issued by the Administrator and delivered to the permittee or his agent or the person performing the work. The stop-work order shall be effective immediately, shall state the specific violations cited, and shall state the conditions under which work may be resumed. A stop-work order shall remain in effect until the next regularly scheduled meeting of the Zoning Board of Appeals at which time the conditions of Division VII Section 1-5 can be met.

8-1.2 No development permit shall be revoked until a hearing is held by the Zoning Board of Appeals. Written notice of such hearing shall be served on the permittee, either personally or by registered mail, and shall state:

(a) The grounds for complaint or reasons for suspension or revocation, in clear and concise language; and

(b) The time when and place where such hearing will be held.

Such notice shall be served on the permittee at least five (5) days prior to the date set for the hearing. At such hearing, the permittee shall be given an opportunity to be heard and may call witnesses and present evidence on his behalf. At the conclusion of the hearing the Zoning Board of Appeals shall determine whether the permit shall be revoked.

Section 8-2 VIOLATIONS 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 Article. Any person violating any of the provisions of this Article shall be deemed guilty of a misdemeanor, and each day during which any violation of any of the provisions of this Article 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 Seven Hundred Fifty Dollars ($750) 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 Article shall be required to restore the site to the condition existing prior to commission of the violation, or to bear the expense of such restoration.

Nothing contained in this Section shall prevent the Village from taking any other lawful action that may be necessary to secure compliance with this Code.

ARTICLE 9 EFFECTIVE DATE

Section 9-1 Effective Date

Division VII shall be in full force and effect from and after its passage and approval and publication, as required by law.

APPENDIX A STORMWATER DRAINAGE AND DETENTION

APPENDIX B SOIL EROSION AND SEDIMENT CONTROL

APPENDIX C DESIRABLE TREES NATIVE TO SOUTHWESTERN ILLINOIS

Alder, Speckled, Alnus rugosa
Ash, Blue, Fraxinus quadrangulata
Ash, Green, Fraxinus pennsylvanica
Ash, White, Fraxinus americana
Baldcypress, Taxodium distichum
Birch, River or Red, Betula nigra
Buckeye, Ohio or Fetid, Aesculus glabra
Butternut, Juglans cinerea
Catalpa, Northern or Western, Catalpa speciosa
Catalpa, Southern, Catalpa bignonioides
Cherry, Black, Prunus serotina
Cherry, Choke, Prunus virginiana
Chestnut, American, Castanea dentata
Coffeetree, Kentucky, Gymnocladus dioica
Crabapple, Malus
Dogwood, Flowering, Cornus florida
Elm, American, Ulmus americana
Elm, Slippery or Red, Ulmus rubra
Hackberry, Common, Celtis occidentalis
Hackberry, Sugar, Celtis laevigata
Hawthorn, Cockspur, Crataegus crus-galli
Hawthorn, Dotted, Crataegus punctata
Hawthorn, Downy, Crataegus mollis
Hawthorn, Winter King, Crataegus viridis "Winter King"
Hickory, Bitternut, Carya cordiformis
Hickory, Kingnut, Carya laciniosa
Hickory, Mockernut, Carya tomentosa
Hickory, Overcup,
Hickory, Pignut, Carya glabra
Hickory, Shagbark, Carya ovata
Hickory, Sweet Pignut, Carya ovalis
Hornbeam, American (Blue Beech), Carpinus caroliniana
Horsechestnut, Common, Aesculus hippocastanum
Ironwood (Hophornbeam), Ostrya virginiana
Linden, American (Basswood), Tilia americana
Locust, Black, Robinia pseudoacacia
Maple, Red or Swamp, Acer rubrum
Maple, Silver, Acer saccharinum
Maple, Sugar or Rock, Acer saccharum
Mulberry, Red, Morus rubra
Oak, Black, Quercus velutina
Oak, Blackjack, Quercus marilandica
Oak, Bur, Quercus macrocarpa
Oak, Cherrybark, Quercus falcata var. pagodaefolia

Oak, Chestnut, Quercus prinus
Oak, Chinkapin, Quercus muehlenbergii
Oak, Pin or Swamp, Quercus palustris
Oak, Post, Quercus stellata
Oak, Overcup, Quercus lyrata
Oak, Red, Quercus rubra
Oak, Schumard, Quercus, shumardii
Oak, Shingle, Quercus imbricaria
Oak, Swamp Chestnut, Quercus michauxii
Oak, Swamp White, Quercus bicolor
Oak, White, Quercus alba
Pawpaw, Common, Asimina triloba
Pecan, Carya illinoensis
Persimmon, Common, Diospyros virginiana
Plum, Wild, Prunus americana
Poplar, Cottonwood, Populus deltoides
Redbud, Cercis canadensis
Sassafras, Common, Sassafras albidum
Serviceberry, Shadblow, Amelanchier arborea
Sourgum (Black Tupelo), Nyssa sylvatica
Sweetgum, Liquidambar styraciflua
Sycamore, Platanus occidentalis
Tuliptree, Liriodendron tulipifera
Viburnum, Blackhaw, Viburnum prunifolium
Walnut, Black, Juglans nigra
Willow, Black, Salix nigra
Juniper, Eastern Redcedar, Juniperus virginiana
Pine, Eastern White, Pinus strobus