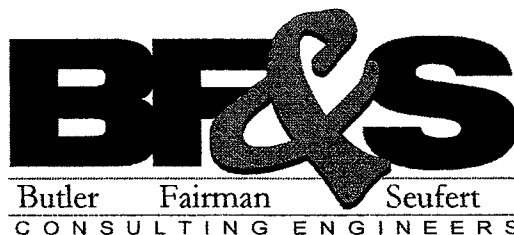


Storm Drainage, Erosion and Sediment Control Ordinance

Ordinance # 2000-10

Shelby County Board
of County Commissioners



Adopted: November 13, 2000

Effective: January 1, 2001

Revised: May 21, 2001

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ARTICLE 1 – GENERAL PROVISIONS

SECTION 1.1 – TITLE

This ordinance will be known and may be cited and referred to as the "Storm Drainage, Erosion, and Sediment Control Ordinance of Shelby County, Indiana" and will hereafter be referred to as "this ordinance."

SECTION 1.2 – PURPOSE

The purpose of this ordinance is to conserve the natural resources; to protect the quality of air and water, and to protect and promote the health, safety and welfare of the people of Shelby County, to the extent practicable by:

Minimizing the amount of sediment and other pollutants resulting from soil erosion due to land disturbing activities, from being transported off-site to adjacent public or private lands including open ditches, open legal drains, subsurface tile drains, subsurface legal tiles, streams, lakes, wetlands and reservoirs, thus reducing the immediate runoff from development land during major storm events and requiring the detention and/or retention of storm water on site until it can be released gradually over a period of time after the storm event.

SECTION 1.3 – POLICY

It is recognized that streams and drainage channels serving Shelby County may not have sufficient capacity to receive and convey storm water runoff resulting when land use changes from underdeveloped or agricultural use to a more urbanized land use. It is further recognized that deposits of sediment from developments during and after construction can reduce capacities of storm sewers, open ditches, legal tiles, and drainage systems and result in damages to receiving lakes and streams.

Therefore, it shall be the policy of the Shelby County Drainage Board that the storage and controlled release of storm water runoff shall be required of all new subdivision development, any redevelopment of existing developed areas, and certain other new commercial and industrial site and residential construction in Shelby County. The allowable discharge rate is now the staged detention 10-100. For storms with intensities between the pre-developed 10-year rate and the 100 year developed rate, the allowable discharge is the c.f.s. for the pre-developed 10 year storm. The difference is to be detained. Exception: in some watersheds the allowable discharge rate is based upon the most restrictive downstream structure where the standard allowable release rate has been determined to cause flooding. There are certain circumstances where detention is not justified or may be detrimental to the overall drainage basin. The Drainage Board may waive stormwater detention requirements in these cases.

SECTION 1.4 – APPLICABILITY

This ordinance applies to all non-agricultural land disturbing activities on land within the boundaries and jurisdiction of the Shelby County Drainage Board, Shelby County Health Department, Shelby County Highway Department, and Plan Commission. All non-agricultural land disturbing activities approved prior to passage of this ordinance which have initiated construction within 12 months of the passage of this ordinance and have shown progress consistent with standard construction practice shall continue development under guidelines, requirements or commitments previously established in coordination with the Shelby County Drainage Board, Shelby County Health Department, Shelby County Highway Department, the Plan Commission, or by law.

It is further recognized that land disturbing activities may cause soil loss, siltation, and degradation of natural resources. The erosion control standards of this ordinance are applicable to all land disturbing activities that are necessary for any land development regulated by this

ordinance. Typical agricultural uses as defined in Section 2.2 Agricultural Land Use are exempt from this ordinance.

SECTION 1.5 – CONFLICTING ORDINANCES

The provisions of this ordinance shall be deemed as additional requirements to minimum standards required by other local and state ordinances. In the case of conflicting requirements, the most restrictive requirement shall apply.

SECTION 1.6 – PERMITS FOR CONSTRUCTION IN A FLOODWAY

The 1945 Flood Control Act (Indiana Code 14-28-1) of the State of Indiana prohibits the construction of abodes or residences in or on a floodway. Flood Hazard Management Ordinance says that prior approval of the Department of Natural Resources is required for any type of construction, excavation, or filling in or on a floodway. All projects proposed to be located in a floodway must also comply with the requirements of this ordinance.

All applications made to and granted approval by the Indiana Department of Natural Resources (IDNR) do not in any way relieve a property owner of the necessity of securing easements or other property rights, permits or approvals from affected property owners and/or local, state and federal agencies.

SECTION 1.7 – WETLANDS

Applicants for primary subdivision plats and commercial, institutional or industrial site development project, Indiana Department of Transportation projects, or Local Public Agency Projects shall provide the appropriate planning entities with a U.S. Fish and Wildlife Service National Wetlands Inventory Map of the site obtained from the Shelby County Surveyor's Office or the Shelby County Soil and Water Conservation District. If a wetland is shown to exist on a subject property by the National Wetlands Inventory Map, it shall be the responsibility of the property owner(s) or developers to notify and make application to all appropriate state and federal agencies with authority for wetland delineation and protection. In cases where federal or state jurisdictional wetlands have been determined to exist, such wetland areas and boundaries shall be indicated on all development plans and an appropriate easement for the wetland shall be provided on the recorded Secondary Plat document.

The Drainage Board will make no determinations of the accuracy of delineation or extent of jurisdictional wetlands. Approvals required by this ordinance shall be deferred until wetland related approvals have been obtained from the appropriate federal or state agencies.

SECTION 1.8 – ADEQUATE DRAINAGE OUTLETS

1.8.1 All subdivision or individual residential, commercial, institutional or industrial site development projects, and INDOT projects subject to this ordinance must provide documentation that drainage outlets for a development comply with the following adequacy standards:

1.8.1.1 Use of the outlet will not increase the velocity or rate of outflow above that allowed by this ordinance;

1.8.1.2 The outlet shall be approved by all involved regulatory agencies including the Drainage Board: and

1.8.1.3 Use of the outlet will not cause hardship or compound existing drainage problems on the site or in the adjoining area of a project.

1.8.2 The following outlets will generally not be deemed to be adequate:

1.8.2.1 An outlet that is not legally and physically accessible and maintainable;

1.8.2.2 Overland flow that is not a watercourse as defined by this ordinance;

1.8.2.3 Existing or future county roadside ditches;

- 1.8.2.4 Existing agricultural field tiles shall not be used as conduits to collect drainage from development projects; and
- 1.8.2.5 Railroad side ditches without adequate improvements.

The Shelby County Drainage Board may grant exceptions to these restrictions.

SECTION 1.9 – COMPLIANCE WITH 327 IAC 15-5

All land disturbing activities including subdivision development and individual commercial, institutional and industrial site development that disturb 5 acres or more in total must comply with 327 IAC 15-5 (Rule 5) "Storm Water Runoff Associated With Construction Activity". It shall be the responsibility of the landowners or developers to determine if this rule applies to their project. The Drainage Board will make no determination of the applicability of this rule to individual projects. Copies of the Notice of Intent (NOI) letters shall also be filed with the Plan Commission prior to the start of land disturbing activity.

SECTION 1.10 – COMPLIANCE

In addition to the requirements of this ordinance, compliance with the requirements set forth in other applicable Shelby County ordinances with respect to submission and approval of primary and secondary subdivision plats, site plan review on residential lots, site improvement plans, building and zoning permit requirements, construction inspections, appeals, and similar matters and compliance with applicable State of Indiana statutes and regulations shall be required.

ARTICLE 2 – DEFINITIONS

SECTION 2.1 – INTERPRETATION OF ITEMS OR WORDS

For the purpose of this ordinance, certain terms or words are defined. The words and terms used shall be interpreted as follows:

- 2.1.1 The word "person" includes a firm, association, organization, partnership, trust, company, corporation, or other legal entity, as well as an individual.
- 2.1.2 The present tense includes the future tense, the singular number includes the plural, and the plural number includes the singular;
- 2.1.3 The word "shall" is a mandatory requirement; the word "may" is a permissive requirement; the word "should" is a preferred requirement;
- 2.1.4 The words "used" or "occupied" include the words "intended, designed, constructed, converted, altered, or arranged to be used or occupied";
- 2.1.5 The word "lot" includes the words "metes and bounds tract, legally platted lot, or parcel";
- 2.1.6 Any word or term not defined herein shall be given a meaning found in Webster's Standard English dictionary or determined by the Drainage Board.

SECTION 2.2 – DEFINITIONS

AGRICULTURAL LAND USE. Means use of land for the production of animal or plant life, including forestry, pasturing of livestock, and soil preparation activities related to the planting, growing, cultivating, and harvesting crops for human or livestock consumption.

CAPACITY (of a storm drainage facility). The maximum flow that may be conveyed or stored by a storm water drainage system or structure without causing damage to the system or properties in the area adjacent to the site. Also, the maximum design flow or storage ability of a given engineered structure.

CHANNEL. A natural or artificial watercourse which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water. It has a defined bottom and banks which serve to confine and direct the flow of water.

COMMERCIAL/INDUSTRIAL LAND USE. Use of land for the manufacturing, wholesale distribution, warehousing, or retail sale of goods or services.

COMPENSATORY STORAGE. An artificial volume of storage within a floodplain used to balance the loss of natural flood storage capacity when artificial fill or structures are placed within the floodplain.

CONDUIT. A pipe, storm sewer, subsurface tile drain, manhole, inlet, or other type of drainage structure used to channel the flow of water within a drainage system.

CONTIGUOUS. Adjoining or in actual contact with.

CULVERT. A closed conduit usually made of concrete, steel, or rigid wall polyethylene plastic used for the passage of surface drainage water under a street, roadway, railroad, or other impediment.

CUT. An excavation. The difference between a point on the original ground surface and a designated point of lower elevation on the final grade. Also, the material removed in excavation.

DETENTION BASIN. A facility constructed or modified to restrict the flow of storm water to a prescribed maximum discharge rate, and to detain concurrently the excess waters that accumulate behind the outlet.

DETENTION STORAGE. The permanent or temporary detaining of storm water in wet or dry storage basins, lakes, streets, parking lots, grassy swales, open spaces, or pond structures under predetermined and controlled conditions, with the rate of drainage therefrom regulated by appropriately installed devices or structures.

DRAINAGE AREA. The surface area usually measured in acres or square miles from which water is carried off by a drainage system; a watershed or catchment area. A major drainage area accepts stormwater runoff from a watershed of more than one square mile.

DRAINAGE BOARD. The Drainage Board of Shelby County, Indiana, and any elected or appointed official to whom it shall specifically delegate the responsibilities authorized by this Ordinance.

DRAINAGE SYSTEM. The network of subsurface drainage tiles, pipes, culverts, swales, open ditches, ravines, manholes, inlets, streams, rivers, ponds and lakes which carry, store, or enhance the flow and storage surface and subsurface drainage.

DRY BOTTOM DETENTION BASIN. A storage area designed to be completely drained after having provided its planned detention of drainage runoff during a storm event.

DURATION. The time period of a rainfall event.

EROSION. The detachment and movement of soil, sediment, or rock fragments by water, wind, ice or gravity or temperature change.

EROSION CONTROL MEASURE. A practice or a combination of practices to control erosion and resulting sedimentation.

EROSION CONTROL PLAN. A written document of pertinent information concerning erosion control measures designed to meet the requirements of this ordinance and submitted by the applicant for review and approval by the Drainage board and appropriate planning entities.

EXCAVATION. Any act by which earth, sand, gravel, rock or other similar material is dug into, cut, quarried, uncovered, removed, displaced, relocated, or bulldozed and shall include the conditions resulting therefrom.

FILL. Any act by which earth, sand, gravel, rock or any other clean fill material is placed, pushed, dumped, pulled, transported, or moved to a new location above the natural surface of the ground or on top of the stripped surface and shall include the conditions resulting therefrom. The difference in elevation between a point on the original ground surface and a designated point of higher elevation on the final grade. The material used to make a fill.

FLOOD ELEVATION. The maximum level of high waters for a flood of given return period and rainfall duration.

FLOOD HAZARD AREA. Any flood plain, floodway, floodway fringe, or any combination thereof which is subject to inundation by the peak discharge from a 100-year frequency flood event. The area shown as Zone A on the Flood Hazard Boundary Maps of Shelby County.

FLOOD PLAIN. The area adjacent to a stream or river which is subject to inundation by flood waters, including the floodway fringe and the regulatory floodway.

FLOOD PROTECTION GRADE. The elevation above Mean Sea Level at which the lowest floor area of any building should be located in the event flood damage from a 100-year frequency rainfall event.

FLOODWAY. The channel of a river or stream and those areas adjacent to the channel which are expected to carry and discharge the peak flow of the 100 year frequency rainfall event.

FOOTING DRAIN. A subsurface tile drain pipe installed around the exterior of a basement wall or a crawl space foundation to relieve water pressure and prevent groundwater from entering a basement or crawl space.

GRADIENT. The inclination or slope of a channel, conduit or natural ground surface expressed as a ratio of the vertical rise or fall to the corresponding horizontal distance.

IDNR. The Indiana Department of Natural Resources.

IMPACT AREAS. Areas defined by the Drainage Board which are unlikely to be easily drained because of one or more factors including, but not limited to, any of the following: Soil type; topography; land where there is not an adequate outlet; a floodway or floodplain; land within 75 feet of each bank of a legal drain or within 75 feet from the centerline of any legal tile drain; or within the recorded drainage easement of a legal drain.

IMPERVIOUS. A term applied to material through which water cannot pass or through which water passes with difficulty.

IMPROVEMENT LOCATION PERMIT. A permit stating that the proposed erection, construction, enlargement or moving of a building or structure complies with the provisions of the appropriate Zoning Ordinance.

INLET. An opening into a stormwater drainage system to allow for the entrance of surface storm water runoff.

JUNCTION CHAMBER. A structure used to facilitate the flow from one or more drainage conduits into a main conduit. This structure is usually large enough for a person to enter in order to perform maintenance.

LAND DISTURBING ACTIVITY. Any man-made change of the land surface or sub-surface, including removing vegetative cover, excavating, filling, transporting, and grading. In the context of this ordinance, it includes only non-agricultural land disturbing activities on sites which also require a local improvement location permit or an approved subdivision plat.

LEGAL DRAIN. Any open ditch or subsurface tile drain that has been accepted and is under the jurisdiction of the Drainage Board of accordance with the 1965 Drainage Act and its amendments (IC 36-9-27).

LEGAL DRAIN EASEMENT. A legally enforceable access strip of land measured at right angles 75 feet from the top of each bank of an open drainage way, the center line of a buried tile drain, or storm sewer determined to be a regulated rural or urban drain by the Shelby County Drainage Board and verified through records located in the Shelby County Surveyor's Office. Legal drain easements in platted subdivision urban drains may be less than 75 feet wide if so approved by the Drainage Board.

MANHOLE. A storm sewer structure usually constructed of concrete or polyethylene plastic which is used to collect storm water from underground storm sewer pipes and distribute the water into other larger storm sewer pipes for eventual disposal to an outfall point. Also a junction chamber.

NON-AGRICULTURAL LAND USE. The use of land for commercial, industrial, institutional, recreational, or transportation purposes which are intended to shelter, employ, or transport people. Includes all other land uses not defined under agricultural land use.

OFFSITE. Not included as a part of a development under review. Located on land outside the boundaries of a subject property.

OUTFALL. The point or location where stormwater runoff discharges from a storm sewer, culvert, drain, conduit, etc. Also, an outfall storm sewer structure or channel which carries stormwater to a point of discharge.

PEAK FLOW. The maximum rate of flow of water at a given point in a channel or conduit resulting from a particular storm event or flood.

PERIMETER DRAIN. A subsurface tile drain located around and below the perimeter of septic system absorption field in compliance with regulations established by Shelby County Ordinance and administered by the Shelby County Health Department.

PLAN COMMISSION. The appropriate body that administers, enforces, and interprets the Planning and Zoning Ordinance of a given jurisdictional area.

PRIVATE DRAIN. A storm sewer, subsurface tile drain, open ditch, grassed waterway or drainage structure that is located on land owned by one or more landowners and which was not established under the Indiana code as a Legal Drain or which is not under the maintenance jurisdiction of the Shelby County Drainage Board and County Surveyor.

RAINFALL INTENSITY. The cumulative depth of rainfall occurring over a given duration normally expressed in inches per hour.

REGULATED AREA. The land and drainage facilities within Shelby County under the jurisdiction of the Shelby County Drainage Board and the appropriate planning entities.

REGULATORY FLOOD. A flood with a peak having a probability of occurrence of 1% in any given year, which is commonly referred to as a 100-year flood as calculated by a method and procedure which is acceptable to the Drainage Board. If a permit for construction in a floodway is required by the Indiana Department of Natural Resources, the regulatory peak discharge shall be calculated by the method and procedure acceptable to the Drainage Board and the Indiana Department of Natural Resources.

RELEASE RATE. The amount of storm water runoff exiting from a storm sewer, conduit, detention basin, or other drainage structure over a prescribed unit of time.

RETENTION BASIN. A basin designed to retain a permanent pool of water. Most often designed to provide a planned detention of runoff during a storm event.

RETURN PERIOD. The average interval of time within which a given rainfall event will be equaled or exceeded once. A flood having a return period of 100 years has a one percent chance of being equaled or exceeded in any one year.

RUNOFF. The water derived from rains falling within a tributary basin, flowing over the surface of the ground, or collected in channels or conduits.

RUNOFF COEFFICIENT. A decimal fraction relating to the amount of rain which appears as runoff and reaches the storm drainage system to the total amount of rain falling. A coefficient of 0.5 implies that 50 percent of the rain falling on a given surface appears as storm water runoff.

SEDIMENT. Material of soil or rock origin, lifted, transported, carried or deposited elsewhere by the force of water or wind.

SITE. The entire area included in the legal description of the land upon which land disturbing activities have been proposed in an improvement location permit or subdivision application.

SLOPE. The face of an embankment or cut section; any ground whose surface makes an angle with the plane of the horizon. Slopes are usually expressed in a percentage based upon vertical difference in feet per 100 feet of horizontal distance.

SOIL STABILIZATION. Chemical or structural treatment of a mass of soil to increase or maintain its stability or otherwise improve its engineering properties.

SOIL SURVEY. A study conducted by the Natural Resources Conservation Service (former Soil Conservation Service) in which maps of each legal land section of Shelby County have been prepared detailing the types of soil that can be found on land in various parts of the county.

SPILLWAY (Principal). A hydraulic structure designed to allow for the escape of excess storm water runoff from a pond, lake, detention basin, etc. up to and including a 100 year design return period storm event.

SPILLWAY (Emergency). A hydraulic structure designed to allow for the escape of excess storm water from a pond, lake, detention basin, etc. that exceeds a 100 year design return period storm event.

STORAGE DURATION. The length of time that water may be stored in any storm water control facility, computed from the time water first begins to be stored in the system.

STORM SEWER. A closed conduit for conveying collected storm water runoff to an acceptable drainage outlet as determined by the Drainage Board.

STORM WATER DRAINAGE SYSTEM. All means, natural or manmade, used for conducting storm water to, through or from a drainage area to an outlet acceptable by the Drainage Board.

SUBSURFACE TILE DRAIN. A plastic, concrete, asbestos concrete, or clay tile drain placed under a street curb, around the perimeter of a septic system absorption field, or attached to foundation drains, which serves as a drainage outlet and reduces the level of the groundwater table in adjacent soils.

SWALE. A grassy or paved structure used to convey concentrated surface water runoff from its source to a storm sewer, conduit, channel, or other natural drainage outlet.

TECHNICAL ADVISORY COMMITTEE. A committee comprised of representatives from each of the following offices: the Plan Commission, Shelby County Surveyor's Office, Shelby County Building Inspector's Office, Shelby County Highway Department, Shelby County Health Department, Shelby County Soil and Water Conservation District, IDNR Division of Soil Conservation, and a Shelby County engineering representative.

TOPSOIL. Surface soils and subsurface soils which presumably are fertile and soil materials, ordinarily rich in organic matter or humus debris. Topsoil is usually found in the uppermost soil layer called the "A Horizon".

TRIBUTARY. A channel containing contributing storm water from upstream land areas.

URBANIZATION. The development, change or improvement of any parcel of land consisting of one or more lots for a residential, commercial, industrial, institutional, recreational or public purpose.

WATERCOURSE. Any river, stream, brook, branch, natural or man-made drainage way in or into which storm water runoff or flood waters flow either regularly or intermittently.

ARTICLE 3 - DRAINAGE, EROSION, AND SEDIMENT CONTROL PLAN PROCEDURES

SECTION 3.1 – INFORMATION REQUIREMENTS

All proposed development of single parcel or multi-parcel residential, commercial, industrial, institutional, or recreational development on public or private lands in Shelby County, Indiana, shall be required to file a Site Development and Drainage Plan with the Plan Commission prior to altering the topography of any site for construction of the following:

- 3.1.1 Non-farm waterways or construction or repair of Shelby County Regulated (Legal) Drains
- 3.1.2 Lakes or retention/detention ponds of any type and size.
- 3.1.3 All non-farm buildings requiring a building permit to be issued by the Plan Commission.
- 3.1.4 Gravel or paved parking or storage areas of more than 200 square feet in area.
- 3.1.5 Individual metes and bounds residential parcels, platted residential subdivisions, apartments or other multi-family housing developments, commercial office and retail development, industrial development in industrial park subdivisions or on individual sites, mobile home parks, and Planned Unit Developments.
- 3.1.6 Public or private recreational facilities such as golf courses, recreation complexes, theme parks, athletic fields or stadium, race tracks, swimming pools, etc.
- 3.1.7 Public and private utility installations such as solid waste facilities, water and sewage treatment plants, electrical generating facilities and substations, pipeline substations, gasification plants, communication towers, etc.
- 3.1.8 Schools and government buildings.
- 3.1.9 Public or private road or highway.

SECTION 3.2 – SITE PLAN REQUIREMENTS – CLASS 1

A site development and drainage plan shall be required for all Class 1 developments. A Class 1 development is any residential, commercial or industrial subdivisions, planned unit development, or development which requires an Indiana Department Of Natural Resources permit. Site plans for Class 1 developments shall contain the information listed in **Table A** in addition to and not exclusive of the information requirements of the most recent Shelby County Subdivision Ordinance and Shelby County Zoning Ordinance and amendments thereto wherever applicable. The plan shall be drawn and certified by a Registered Engineer or Land Surveyor licensed by the Indiana Professional Licensing Agency.

Site Plan Requirements – Class 1 Development

Jan. 1, 2001

1.	Project name, developer, project engineer or land surveyor and their address and telephone number; the legal description of the subject property; date of site development plan and any revisions, scale of the plan, and north point;
2.	Area vicinity map detailing project environs, current zoning, the names of adjoining property owners, and street lines located within 1,000 feet of the project boundaries;
3.	Topography of the subject site based on mean sea level elevations at no greater than 2-foot intervals for the project site and any adjoining areas whose topography may affect project drainage. If the drainage area is extensive, an additional map of sufficient clarity must be provided.
4.	All Federal Flood Hazard Areas shall be delineated on the site development plan with the 100 year flood event elevation line shown on the plan and expressed in Mean Sea Level (M.S.L.) elevation.
5.	The location of rivers, creeks, streams, open waterways, and open ditches impacted/impacting subject area and existing drainage structures located within a 2,500 foot radius from the subject property.
6.	The shoreline of all lakes, ponds, wetlands, retention/detention basins, etc. on the site and within a radius from the subject property.
7.	The location and size of existing Shelby County Regulated (legal) Drains, private farm drainage tiles, storm sewers and subsurface drainage tiles located within subdivision developments and on individual residential parcels located within 500 feet of the site.
8.	The location, layout, size, grade profiles, invert elevations, cross sections, and material type of culverts, storm sewers, inlets, outfall structures, castings, manholes, sanitary sewers, and surface swales to be placed on the site and those found on adjacent properties within a 500 foot radius of the subject property.
9.	The location; material type; grade profiles; cross sections; and dimensions of state highways, county roads, local streets, bridges, curbs, parking areas and other pavement areas on the site and within a 500 foot radius of the site including those areas used to temporarily store storm water overflows.
10.	Easements or right-of-way dimensions intended to define the locations of streets, drainage system structures etc. The minimum width of a legal drain system shall be 30 feet and may be divided among lots in a platted subdivision.
11.	Proposed locations and corner or pad elevations of all building structures and sewage disposal systems with adequate system repair area shown.
12.	Calculations for existing conditions shall be provided which indicate the following: time of concentration (TR-55 method is recommended), the weighted C-factor if using the Rational Method, weighted CN number if using Soil Conservation Service Calculation method, the allowable release rate (pre-developed 10-year event or flow through a limiting downstream condition), 10-year and 100-year runoff rates passing through the development from off-site areas within the watershed
13.	Calculations for proposed conditions shall be submitted with the preliminary plat and shall include the anticipated weighted C-factor or CN number for the overall development and the anticipated storage volume required to store the runoff from a 100-year post-developed storm event while limited to the allowable release rate as determined above.
14.	A soils map of the area detailing individual soil types from the Shelby County Soil Survey.

Table A

SECTION 3.3 – SITE PLAN REQUIREMENTS – CLASS 2

A site development and drainage plan shall be required for all Class 2 developments. A Class 2 development is any individual residential, commercial or industrial development, or any other non-agricultural development that requires a permit that is not defined as a Class 1, Class 3, or Class 4 site as defined in this ordinance. Site plans for Class 2 developments shall contain the information listed in **Table B** in addition to and not exclusive of information requirements of the most recent Shelby County Zoning Ordinance and amendments thereto wherever applicable. The plan shall be drawn and certified by a Registered Engineer or Land Surveyor licensed by the Indiana Professional Licensing Agency. The Class 2 site development and drainage plan shall not require approval of the Drainage Board. Class 2 site development and drainage plans shall be submitted to the Plan Commission for review and approval by a representative from each of the following five offices: The Plan Commission, Shelby County Surveyor's office, Shelby County Building Inspector's Office, Shelby County Health Department, and the Shelby County Engineering Representative. The title of the required plan shall be "Site Plan".

SECTION 3.4 – SITE PLAN REQUIREMENTS – CLASS 3

A site development and drainage plan shall be required for all Class 3 developments. A Class 3 development is any individual residential development that is within a platted subdivision or planned unit development that has been approved under the requirements of this ordinance and is not to be served by septic system. Site plans for Class 3 developments shall contain the information listed in **Table B** in addition to and not exclusive of information requirements of the most recent Shelby County Zoning Ordinance and amendments thereto wherever applicable. The plan shall be drawn and certified by a Registered Engineer or Land Surveyor licensed by the Indiana Professional Licensing Agency. The Class 3 site development and drainage plan shall not require approval of the Drainage Board. Class 3 site development and drainage plans shall be submitted to the Plan Commission for review and approval by the appropriate staff. The title of the required plan shall be "Site Plan".

SECTION 3.5 – SITE PLAN REQUIREMENTS ~~CLASS 4~~ (Revised 5/21/2001)

A site plan shall be required for all Class 4 developments. A Class 4 development is any addition to an existing structure which does not increase the area of the existing structure by more than 50% or 1000 square feet whichever is smaller or any accessory structure which does not qualify as a principal structure. In addition, any existing Class 1, 2 or 3 structure which is destroyed by fire or other natural disaster, if rebuilt within 12 months of the disaster, shall be classified as a Class 4 development. Site plans for Class 4 developments shall contain the information listed in **Table B** in addition to and not exclusive of information requirements of the most recent Shelby County Zoning Ordinance and amendments thereto wherever applicable. Class 4 site plans shall not require approval of the Drainage Board. Class 4 site plans shall be submitted to the Plan Commission for review and approval by the appropriate staff. The title of the required plan shall be "Site Plan".

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Development Classification			Site Plan Requirements – Class 2, 3, & 4 Developments
2	3	4	Revised: May 21, 2001
X	X	X	1. The Site Plan shall contain the landowner or developer's name and address and the date of the plan's latest revision.
X	X		2. The Site Plan must be drawn and certified by a Registered Engineer or Land Surveyor licensed by the Indiana Professional Licensing Agency and shall be drawn to a scale not to exceed 1 inch = 100 feet.
X	X	X	3. The Site Plan shall include a North arrow.
X	X		4. The Site Plan shall be submitted on 18" x 24" plan sheets.
X	X	X	5. The Site Plan shall contain an area map showing the location of the proposed site and the county roads and streets in the vicinity of the site.
X			6. The watershed area affecting the site shall be shown on the Site Plan.
X	X		7. The Site Plan shall contain a legal description of the land involved.
X	X		8. All elevations used in the Site Plan shall be referenced to USGS datum with a temporary bench mark set on or near the point of construction and expressed in feet above Mean Sea Level (M.S.L.). The proposed and existing topography shall be shown with contour lines at no greater than one-foot intervals. Contour lines should be shown within 100 feet of all areas of disturbed earth.
X			9. The Flood Zone in which the development is located, per the FEMA Flood Insurance Rate Maps, shall be stated on the site plan. All Federal Flood Hazard Areas shall be delineated on the Site Plan with the 100-year flood event elevation line shown on the plan and expressed in feet above Mean Sea Level (M.S.L.).
X		X	10. The Site Plan shall show the location of any proposed individual septic systems and an adequate repair area. It should also include septic tank size; length and cross section of absorption trenches with bottom of trench elevation shown, subsurface drain size and location, and location of dosing chamber if an elevated or pressure system is required.
X	X		11. Location, type, and size of any surface and subsurface drainage outlet for the subject property. An animal guard shall be noted where required.
X	X		12. The finished floor elevations of the basement and first floor of the proposed building or buildings shall be shown on the site plan.
X	X		13. The Site Plan shall show the locations of existing and proposed driveways, parking and loading areas, right-of-way, set back lines, etc. to be placed on the site.
X	X		14. The Site Plan shall show the location of all existing and proposed easements on the site and on adjoining properties.
X	X		15. The Site Plan shall include the locations of existing and proposed wells.
X			16. The Site Plan shall include the flow line elevation of open ditches and invert elevations of all drainage tiles, sanitary lines, manholes, storm sewer pipes, and culverts located on the site or within 300 feet of the subject property.
X	X	X	17. The Site Plan shall include a statement on the plans that all existing subsurface drain tiles that are disturbed during construction will be repaired and rerouted to maintain their existing flow.
X			18. The Site Plan shall show the location of the soil test borings.
X	X		19. The Site Plan shall show the elevations of the proposed finished yard grades at the corners of proposed buildings showing a minimum positive slope away from the building of six (6) inches in the first ten (10) feet.
			20. Not Used
X			21. The Site Plan shall show trees located within the septic field that are 4 inches or larger in diameter; fences; lakes; ponds; surface swales; wetlands; springs; etc.
X	X	X	22. The Site Plan shall show the dimensions of the parcel in feet and the orientation and outside dimensions of the proposed buildings on the site.
X	X		23. All utilities located on the site or in adjacent right-of-way or easement must be shown on the Site Plan, including but not limited to power, telephone and cable television.
X			24. Drainage calculations for and design drawings of retention/detention basins, lakes, ponds, inflow pipes; outflow structure; etc. showing inflow and outfall pipe invert elevations; acre feet of storage below proposed outfall elevation; normal pool elevation of retention basin, etc. shall be shown on the Site Plan.
X	X		25. The Site Plan shall contain a statement that the plan complies with all State and County regulations and that any changes that may be made to the plan must first be approved by the appropriate agency.
X			26. The Site Plan shall contain a note stating that the contractor shall provide erosion control measures as required in Article 10 of the Shelby County Storm Drainage, Erosion, and Sediment Control Ordinance
Classification Definitions: Class 2 - residential, commercial, and industrial developments and any other non-agricultural land disturbing activity that is not defined as a Class 1, 3, or 4. Class 3 - residential development in a platted subdivision approved under this ordinance and not served by septic system. Class 4 - residential additions or accessory building.			

Table B

SECTION 3.6 – SUBMITTAL AND CONSIDERATION OF SITE PLANS - (Revised 5/21/2001)

All applications must be submitted on forms approved by the Drainage Board and provided by the Shelby County Surveyor's office and/or the Plan Commission. All applicants shall pay a filing fee as set out in a fee schedule established by the Shelby County Board of Commissioners. Projects which require approval through the Plan Commission, such as subdivisions and site plan reviews, shall submit Primary and Secondary Plat construction plans to the Drainage Board according to the Drainage Board Rules of Procedure.

The Technical Advisory Committee shall give notice of its decision and deliver the same to the applicant. The Technical Advisory Committee shall approve or reject a Class 1 site plan within 45 days, and a Class 2, 3, or 4 site plan within 21 days of submission unless the applicant consents to a continuance or extension. The Drainage Board shall be notified of all Technical Advisory Committee action and incorporated into minutes.

SECTION 3.7 – PROCEDURE AND IMPLEMENTATION

The Shelby County Board of Commissioners may adopt additional procedures for the implementation of this ordinance.

SECTION 3.8 – AMOUNT OF RUNOFF TO BE ACCOMMODATED BY VARIOUS PARTS OF A DRAINAGE FACILITY

Various parts of a drainage facility must accommodate runoff water as follows:

- 3.8.1 The drainage system, such as inlets, catch basins, street gutters, component swales, storm sewers and small channels which collect storm water must accommodate peak runoff from at least a 10-year return period storm. The allowable spread of water on collector streets is limited to maintaining two clear 10-foot moving lanes of traffic. One lane is to be maintained on local roads and subdivision streets.
- 3.8.2 For rainfall heavier than a 10-year return period storm, these minimum requirements must be satisfied:
 - 3.8.2.1 Open channels carrying peak flows greater than 30 cubic feet per second shall be capable of accommodating peak runoff for a 50-year return period storm within the drainage easement;
 - 3.8.2.2 New culverts shall be capable of accommodating peak runoff from a 100-year return period storm when crossing under any public or private road; and
 - 3.8.2.3 Drainage systems shall have adequate capacity to convey the storm water runoff from all upstream tributary areas through the development under consideration for a storm of 100-year design return period calculated on the basis of the upstream land in its present state of development. An allowance, equivalent to the reduction in flow rate provided, shall be made for upstream detention when such upstream detention and release rate have previously been approved by the Drainage Board and evidence of its construction can be shown.

SECTION 3.9 – DRAINAGE EASEMENTS

Legal drain easements must be provided to cover all elements of the drainage system and must be designed:

- 3.9.1 To be adequate to install, access, and maintain the drainage facilities;
- 3.9.2 To minimize conflicts with utility easements; and
- 3.9.3 To maintain a sufficient buildable area on each lot or parcel.
- 3.9.4 No trees, shrubs, or other vegetative obstructions shall be allowed within drainage easements as per Indiana Code 36-9-27-33.

- 3.9.5 No driveways shall be allowed in drainage easements except for the purpose of crossing a frontyard drainage easement to provide access to the property.
- 3.9.6 Minimum drainage easements are as per Indiana Code 36-9-27-33.

ARTICLE 4 – STORM WATER SYSTEM DESIGN STANDARDS FOR COUNTY JURISDICTIONS AND RECOMMENDED FOR SUBORDINATE JURISDICTIONS

All storm sewer systems, whether public or private and whether constructed on public or private property, shall conform to the design standards and the other requirements contained in this ordinance.

SECTION 4.1 – HYDRAULIC CAPACITY

The hydraulic capacity of a storm sewer shall be determined using Manning's Equation.

SECTION 4.2 – MINIMUM SIZE

Storm sewers shall be sized to handle the expected runoff from the calculated area of paved streets; parking and storage areas; roofs; unpaved areas such as yards and grassed drainage swales; wetlands; and other types of open land. No storm sewer shall be of a size less than 12 inches in diameter. An orifice plate or other devices, subject to approval of the Drainage Board shall control rate of release for detention storage.

SECTION 4.3 – GRADE

Storm sewer grade shall be such that, in general, a minimum of 36 inches of cover is maintained over the top of the pipe. Pipe cover less than the minimum may be used only upon written approval of the Drainage Board or County Highway Superintendent of Shelby County or proof of manufacturer recommendation.

Uniform slopes of sewer pipe shall be maintained between inlets, manholes, and other structures. A maximum pipe slope of 8% shall not be exceeded between structures. Storm sewer pipes shall not enter manholes or inlet structures at less than a 60° angle. Final grade shall be set with full consideration of the capacity required, sedimentation problems and other design parameters. Minimum and maximum slopes shall be those capable of producing velocities of 2½ and 15 feet per second, respectively, when the sewer is flowing full. All grade elevations should be verified during placement by the use of surveying instruments such as a transit or a laser beam.

SECTION 4.4 – ALIGNMENT

Storm sewers shall be installed in a straight line between manholes where possible. Where long radius curves are necessary to conform to street layout, the minimum radius of curvature shall be no less than 100 feet for sewers that are 42 inches or less in diameter. Deflection of pipe sections shall not exceed the maximum deflection recommended by the pipe manufacturer. The deflection shall be uniform and finished installation shall follow a smooth curve.

SECTION 4.5 – INLETS AND MANHOLES

Inlets and similar drainage structures shall be utilized to collect surface water through grated openings and convey it into storm sewers, manholes, channels, or culverts. Inlets shall be placed at the intersection of streets except where a high point or a change of grade makes such inlets ineffective. At least one inlet shall be placed along each side of a street pavement at intervals not to exceed every 400 linear feet of street. The minimum grade of any curbed road or street shall be three tenths (0.3%) percent. The inlet street grate shall be so designed as to direct water flow into the inlet using left or right-angled vane. Grates located at low points or on flat grade shall not be vanned. The grate opening shall be capable of allowing a design 10 year

return period storm water flow to enter and shall not permit more than a 6 inch maximum depth of water to accumulate. Stormwater shall not be permitted to spread more than 5 feet from the face of curb onto the pavement surface. An overflow swale or diversion mound behind the curb inlet should be considered when ponding of stormwater could exceed 6 inches in a major storm event. Velocity of water flows in the curbs shall be limited to less than 10 feet per second. All grates shall be sized to handle anticipated flows and shall fit securely on the casting.

Manholes shall be installed to provide access to continuous underground storm sewers for the purpose of inspection and maintenance. The maximum distance between storm structures on pipes from 12" to 42" in diameter shall be 400 feet. The maximum distance between storm structures on pipes larger than 42" shall be 600 feet. If manhole is greater than 4 feet deep, it requires steps to the bottom. All manhole castings shall be properly secured to prevent unauthorized access. Manholes shall be provided at the following locations:

- 4.5.1 Where two or more storm sewers converge.
- 4.5.2 At the point of beginning or at the end of a curve and at the point of reverse curvature in a storm sewer pipe.
- 4.5.3 Where storm sewer pipe size changes.
- 4.5.4 Where an abrupt change of alignment occurs.
- 4.5.5 Where a change in grade occurs.
- 4.5.6 Where there is a change in pipe material.

Storm sewer pipes and subsurface drain tiles shall extend through the walls of a manhole or inlet structure a sufficient distance to allow for proper connections and to prevent the pipes from withdrawing from the structure. All pipes and tiles shall be properly secured, grouted and sealed on the inside and the outside of the inlet or manhole structure so that the end result is a flush surface.

Excavations for inlets and manholes shall be to the established bottom of the structures. The finish bottom surface of the excavation shall be smooth and properly compacted. If soft spots are detected at the foundation bottom they shall be excavated and removed. The bottom shall be backfilled with a suitable material such as stone, clay, or sand and be properly compacted and tested to support the weight of the structure. If proper compaction cannot be obtained, then a reinforced poured in place or reinforced precast concrete slab of an 8 inch minimum depth shall be installed as a base for the structure.

Manholes and inlets may be pre-cast and pre-formed with removable knockouts or be field cut to receive storm sewer pipes. The space between the pipe and the structure shall be no more than 4 inches wide and shall be form-filled with fiberglass reinforced concrete, butyl rope, or a pre-cast concrete collar that has been properly sealed and grouted. In no case shall a void be left between the bottom of the pipe and the structure. Inlet and manhole structures with holes formed or cut in the wrong place or to the wrong dimension shall not be used unless the contractor can show that the problem can be repaired to the satisfaction of the Shelby County Surveyor, the Shelby County Highway Superintendent and the Director of the Plan Commission.

Where a new storm sewer pipe is connected to an existing manhole or inlet, the contractor shall first clean out the structure and verify the elevations and sizes of all existing pipes and entering and exiting the structure. Where existing elevations do not allow the storm sewer pipe to be constructed to the design grade or if the pipe is below the invert of the outfall pipe, the project engineer shall be notified so that he or she can redesign the structure prior to installation of the pipe. A new flow channel may be required to be established in the bottom of the structure to accommodate the new pipe. Damage to any existing drainage structure during the installation of new pipes or fittings shall be the responsibility of the contractor.

When grade adjustments of manholes and inlets are required in the field to meet finish design or existing curb grade, a pre-fabricated reinforced concrete ring or square concrete riser shall be used wherever possible. If these materials are not available to the proper dimensions, the contractor may seek written approval from the Shelby County Surveyor, Shelby County

Highway Superintendent and the Director of the Plan Commission to use a cast in place reinforced formed and poured concrete lift, steel riser, polyethylene riser, polybutyl rope, or solid concrete bricks to elevate the casting. All interior and exterior joints, gaps, voids, connecting surfaces in such materials or the structure located less than 40 inches below final grade shall be properly sealed on the inside and outside with a flexible latex concrete mortar, rubber rings, polybutyl rope or tape, bituminous mastic, or a similar type of approved waterproofing material that will prevent cracking and other damage caused by local freeze and thaw conditions.

SECTION 4.6 – INSPECTION

Upon installation and prior to the release of the performance surety, all inlets and manholes shall be visually inspected by the Shelby County Surveyor, Shelby County Highway Superintendent and the Plan Commission to insure that castings are properly fitted on the structure, all sealing and grouting has been completed, concrete bottoms and flow lines are in place, and that they are free of silt, gravel, or other debris.

All structures, detention ponds, drainage improvements and street inlets, located on lands regulated under this ordinance shall be subject to periodic observations during installation and upon completion for maintenance. The Shelby County Surveyor, Shelby County Highway Superintendent, the Shelby County Commissioners, and the Director of the Plan Commission and their assigns shall have the authority under this ordinance to enter upon any property in Shelby County upon which such structures are being installed to conduct periodic observations within the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, upon presentation of proper identification.

SECTION 4.7 – WORKMANSHIP AND MATERIALS

If any item relating to the installation of storm sewers, manholes and inlets is not covered by this Ordinance it shall be installed per the specifications contained in the latest editions of the Indiana Department of Transportation's "Standard Specifications" and the current volume of the Shelby County Highway Department "Road Construction Standards". A contractor shall be required to obtain proper permits and approvals prior to construction of a utility or improvement within a Shelby County road or street right-of-way. The contractor shall be completely responsible for the expense involved in the restoration and repair of streets, roads or highways, or private driveways which may have been damaged during the installation of any improvements. Pavement restoration shall meet the satisfaction of the Shelby County Highway Superintendent.

All soil excavations shall be returned to their previous grade and condition unless specific construction plans show otherwise. Soil excavations shall be properly seeded, sodded or covered with erosion control matting.

SECTION 4.8 – MATERIALS

Storm sewer manholes, inlets, drop boxes, and other types of drainage structures shall be constructed of reinforced cast in place concrete or precast reinforced concrete. Molded polyethylene or PVC structures and pipe shall be used ONLY upon written approval by the Shelby County Surveyor and the Shelby County Highway Superintendent. Site constructed brick or block masonry structures shall be prohibited. Structures shall be installed in the field to established design grade. Where extensions for grates or castings are necessary, they shall consist of precast concrete, polybutyl materials, polyethylene fittings, steel and concrete rings or other approved materials detailed in Section 4.5 above. These extensions shall be properly sized, grouted and sealed to the specifications as detailed above.

Extensions of these structures using brick or block with grouted masonry shall be prohibited unless granted special approval in writing by the Shelby County Surveyor, the Director of the Plan Commission and the Shelby County Highway Superintendent.

Precast concrete manholes, extension sections, catch basins, inlets, and bases shall conform to ASTM C 478 and shall be free of breaks and fractures upon site delivery. Manhole

steps shall conform to ASTM A 48. All steps shall consist of galvanized steel rebar, polyethylene coated rebar, or rust coated steel rod, shall be of uniform size and shape, and shall be placed the same distance apart, not less than 12 inches nor exceeding 16 inches. Sewer brick shall conform to ASTM C 32 and shall be grade MA. Field placement of these structures prior to obtaining specific plan approval or written variance may require their removal. When ordering street inlet boxes and/or other drainage structures that are designed to accept a street under drain, a minimum 6 inch diameter pre-formed hole shall be installed at the plant. If holes must be created or enlarged in the field, they shall be cut to a uniform 6 inch diameter using a concrete drill, saw or chisel.

SECTION 4.9 – STORM SEWER PIPE

Pipes and fittings used in storm sewer construction with diameters between 12 and 18 inches shall consist of reinforced concrete pipe or high density polyethylene pipe. For all pipes and fittings with diameters greater than 18 inches, reinforced concrete pipe shall be used. Reinforced concrete pipe shall be Class III, IV, or V in accordance with ASTM C 76. A minimum "B" wall thickness will be required. All joints shall be sealed with the placement of a rubber gasket in conformance with ASTM C 443. The gasket shall be a continuous ring fitting snugly into the annular space between the overlapping surfaces of the assembled pipe joint to form a flexible soiltight seal. With Drainage Board approval, mastic joints installed in conformance with manufacturer's recommendations may be accepted as an alternative provided that the mastic concrete pipe couplings are wrapped with a one-foot wide strip of nonwoven geotextile fabric around the entire pipe diameter. Sealant material located on the inside of pipe shall be troweled smooth.

High Density Polyethylene (HDPE) pipe shall be in accordance with ASTM F 714 for the specified sizes. Pipe manufactured under this specification shall have a minimum Cell Class of 35434C in accordance with ASTM D 3350. HDPE pipe shall possess male and female pipe ends which allow the construction of overlapping, gasketed pipe joints, in conformance with the requirements of ASTM D 3212. The gasket material shall conform to all requirements of ASTM F 477. Other types of storm sewer pipes and fittings not specified herein shall be used only when granted specific written approval by the Shelby County Drainage Board and County Highway Superintendent. All excavated trenches shall be kept free of water and backfill material until any joint filling material has had time to cure to the manufacturer's specifications. Disturbance of storm sewer pipes after the joints have been made shall be avoided.

The point of commencement for laying a storm sewer pipe shall be the lowest point in the proposed sewer line. All pipe shall be laid without break, upgrade, from structure to structure. Pipe shall be laid upon a stable foundation with the bell or hub end always facing upgrade. Each end section shall be tightly fitted and sealed together. Each section of pipe shall have a full firm bearing throughout its length true to design grade and with uniform bearing under the full length of the barrel of the pipe. Any pipe which settles or which is not in a proper alignment shall be taken up and reinstalled at the contractor's expense. Storm sewer pipes shall never be installed in frozen or frost-laden trenches. All changes in pipe size or material shall occur in manholes, inlets, or other similar structures.

Trenches shall be excavated to the dimensions and grade established by the approved construction plans unless a field inspection determines that a correction is required. Corrections shall be approved in writing by the Shelby County Surveyor. If a firm foundation material is not detected at the required grade, the contractor shall remove the unstable material and replace it with properly shaped and compacted stable material along the entire length of a pipe section. Granular fill material for pipe embedment under streets, utility crossings, or other types of cuts shall consist of clean sand which shall form an even support for the pipe. All granular pipe fill material shall conform to ASTM D 2321. All job excavated materials that are to be used for trench backfill shall be clean and compacted to 90% relative compaction. At the close of each working day or when weather conditions dictate a halt to pipe installation, the open ends of all

pipes shall be plugged with a close fitting rubber or metal stopper. If such a stopper is not available, a piece of plywood and a layer of dense geo-textile fabric such as Polyfelt TS700 shall be placed at the end of a pipe and supported by straw bales, rebar or steel fence posts.

The contractor shall take all necessary precautions to protect pipe and any damaged sections shall be replaced at the expense of said contractor.

SECTION 4.10 – OTHER STRUCTURES

In certain specific situations other structures such as junction chambers, drop manholes, stilling basins etc. shall be necessary to control storm water runoff. Design and placement of these structures shall be approved by the Drainage Board, County Surveyor, the Director of the Plan Commission, or the County Highway Superintendent prior to inclusion in construction plans.

SECTION 4.11 – BACKFILL REQUIREMENTS

Backfill around storm sewer pipes and structures shall meet the following standards:

- 4.11.1 Backfill under pavement and 5 feet outside of pavement shall pass less than 5% through a No. 200 sieve and shall be placed in layers not to exceed 6 inches and each layer shall be haunched and 95% minimum compacted in the installation to support the pipe in compliance with all the manufacturer's specifications; (where sewer crosses under streets).
- 4.11.2 Backfill of a storm sewer pipe trench, the near edge of which is within 5 feet of the proposed or existing pavement area, shall be granular material as specified in No. 1 above, to the base of pavement along the entire trench (sewer parallel to street). Where a trench is backfilled in such a manner, it shall be covered with a geotextile fabric or a plastic geogrid material prior to the installation of stone street base; and
- 4.11.3 Backfill of a storm sewer pipe trench, the near edge of which is located more than 5 feet outside of the pavement area, may be of selective native material which shall be haunched and compacted in compliance with all manufacturer's specifications.

SECTION 4.12 – SPECIAL HYDRAULIC STRUCTURES

Special hydraulic structures such as siphons, stilling basins, or other special structures required to control the flow of water in storm drainage systems, shall be limited to those locations justified by prudent planning and designed with careful and thorough hydraulic engineering analysis.

ARTICLE 5 – OPEN CHANNEL DESIGN STANDARDS

All open channels, whether constructed on public or private property, shall conform to the design standards and other requirements contained in this ordinance.

SECTION 5.1 – MANNING EQUATION

The waterway for channels shall be determined using the Manning Equation.

SECTION 5.2 – CHANNEL CROSS SECTION AND GRADE

The required channel cross section and grade are determined by the design capacity, the material of which the channel is to be constructed, and the requirements for maintenance. A minimum depth may be required to provide adequate outlets for subsurface drains, tributary ditches or streams. The channel grade shall be such that the velocity in the channel is high enough to prevent siltation but low enough to prevent erosion. The channel shall be sized to handle present and future urbanized development in the watershed. The prevailing range of maximum permissible velocities used for design is from 0.8 to 2.4 meters per second (M/S) or

2.5 to 8.0 feet/second. The maximum permissible velocities will be determined by individual site conditions.

- 5.2.1 A velocity of 0.9 M/S or 3 feet/second should be the maximum if, because of shade, soils, or climate only a sparse cover can be established or maintained.
- 5.2.2 A velocity of 0.9 to 1.2 M/S or 3 to 4 feet/second should be used under normal conditions if the vegetation is to be established by seeding.
- 5.2.3 A velocity of 1.2 to 1.5 M/S or 4 to 5 feet/second should be used only in areas if a dense, vigorous sod is obtained quickly or if water can be diverted out of the waterway while the vegetation is being established.
- 5.2.4 A velocity of 1.5 to 2.4 M/S or 5 to 8 feet/second should be used only in areas if a riprap lining is used in the channel.

SECTION 5.3 – SIDE SLOPES

Earthen channel side slopes shall be constructed no steeper than 3 (horizontal) to 1 (vertical). Flatter side slopes may be required within subdivision developments to prevent erosion and for ease of maintenance. Where channels are to be lined, side slopes shall be no steeper than 1½ (horizontal) to 1 (vertical) with adequate provisions made for weep holes. Side slopes steeper than 1½ (horizontal) to 1 (vertical) may be used for lined channels provided that the side lining and structural retaining wall are designed and constructed with provisions for live and dead load surcharge.

SECTION 5.4 – CHANNEL STABILITY

- 5.4.1 A stable channel does not vary design gradient and cross section from acceptable limits;
- 5.4.2 Channel stability shall be determined for an aged condition. The velocity shall be based on the design flow or the bank full flow, whichever is greater, using values for various channel linings; and
- 5.4.3 Channel stability must be checked using conditions immediately after construction for justification of erosion control measures. See Article 10, "Soil Erosion and Sedimentation Control" for erosion control standards.

SECTION 5.5 – DRAINAGE OF OPEN CHANNELS AND DRY DETENTION BASINS

Vegetated waterways and dry-detention basins with a gradient of less than 1% or that are subject to low flows of long duration or where wet conditions prevail, shall be provided with a subsurface tile drain to keep the channel bottom relatively dry and to prevent the establishment of weed or cattail growth. Subsurface tile drain lines may be outlet through a drop structure at the end of the waterway, through a standard tile outlet pipe or outlet into the storm sewer system. Sub-surface drainage tiles shall be installed with a minimum of 2 feet of cover over the top of the tile and shall be offset from the centerline of the channel.

SECTION 5.6 – DESIGN STRUCTURES

The design of a channel shall provide for the necessary flood gates, water level control devices, tiles, recessed inlets, surface structures, weirs, culverts, bridges and all other appurtenances necessary to prevent erosion and establish a properly functioning channel.

SECTION 5.7 – CHANNEL RECONSTRUCTION AND IMPROVEMENTS

All existing structures on a site such as culverts and bridges shall be examined prior to channel reconstruction to determine if repair, replacement, modification, is required. Earthen spoil may be used to construct levees along the ditch bank so long as the slope of the levee is not such that equipment necessary for maintenance cannot easily access the channel. In flood hazard zones this procedure may be prohibited. Areas disturbed by construction shall be properly re-seeded to Natural Resources Conservation Service (NRCS) specifications.

SECTION 5.8 – MATERIALS

Materials acceptable for channel lining include: grass, stone riprap, concrete riprap, slab concrete, grouted riprap, stone filled gabion baskets, and/or erosion control netting of a biodegradable nature. Any other material proposed shall receive approval in writing from the Drainage Board, County Surveyor and County Highway Superintendent. Channel lining using riprap materials and locations where storm sewer pipes enter channels or detention basins shall be installed over a porous geotextile underlayment to slow down the velocity of water entering the pipe and prevent erosion and undercutting near the pipe outfall.

ARTICLE 6 – LEGAL DRAINS

The Shelby County Drainage Board has established a system of regulated rural and urban drains as shown on official maps located in the office of the Shelby County Surveyor. Maintenance and administrative jurisdiction over these drains is empowered to the Drainage Board by Section 36-9-27-15 of the Indiana Code.

SECTION 6.1

No individual, corporation or partnership may dredge, reconstruct, fill, or outlet any drainage tile or storm sewer pipe into a Shelby county legal drain without the written approval of the Drainage Board. The Shelby County Surveyor shall supervise any work done to a regulated drain by any individual, corporation or partnership granted such written authorization from the Drainage Board.

SECTION 6.2

The Shelby County Surveyor may at times request that certain regulated drains be maintained or reconstructed. The contractors hired by the Drainage Board or County Surveyor to do such work and any representative of the County Surveyor or the Drainage Board shall have the right of entry over an area of land lying within 75 feet of any regulated drain. The 75-foot limit shall be measured at right angles to the centerline of a subsurface tile drain, or the top of each bank of an open drain.

SECTION 6.3

The following are some of the activities that may be authorized by the Drainage Board within the legal drain easement:

- 6.3.1 Repairing damaged tiles or increasing tile size.
- 6.3.2 Deepening, widening or extending an open drain.
- 6.3.3 Changing the course of a regulated drain.
- 6.3.4 Establishing erosion control practices and seeding.
- 6.3.5 Constructing grade stabilization structures.
- 6.3.6 Control and removal of brush and debris.
- 6.3.7 Adding an open drain to a subsurface tile drain or a subsurface tile drain to an open drain.

SECTION 6.4

The Drainage Board may levy assessments to property owners within a regulated drain's watershed in order to maintain the drain in accordance with IC 36-9-27-44 and to reconstruct a regulated drain in accordance with IC 36-9-27-50.

SECTION 6.5

As per IC 36-9-27-66, whenever land has been assessed as benefited by the construction, reconstruction, or maintenance of a regulated drain and there is not an open or tiled drain connecting the land with the regulated drain or the waters from the land flow over or through land owned by others to reach the regulated drain; the owner of the land assessed may petition

the Drainage Board to construct through the land of the other owners a new drain that will connect the petitioner's lands with the regulated drain.

SECTION 6.6

The Drainage Board shall require that developers of residential, commercial, institutional, or industrial land petition the Drainage Board to establish that all subsurface drains; storm sewers, manholes, inlets; etc. within a development be included as part of a new regulated urban drain.

SECTION 6.7

A private crossing, control dam, or other permanent structure or obstruction may not be placed over or through an open drain unless the plans for the structure have been reviewed by the County Surveyor and approved in writing by the Drainage Board.

ARTICLE 7 – STORM WATER DETENTION/RETENTION FACILITIES

Urban stormwater facilities entirely outside the legal jurisdiction of the Drainage Board are not subject to Article 7 of this ordinance unless mutually agreed upon.

SECTION 7.1

Storm water detention/retention facilities shall be designed based on the ability to control a rainfall event with a return period of once in 100 years and hold the volume from such an event until it can be released gradually at the allowable release rate.

SECTION 7.2

The retention/detention facility shall not release stormwater at a rate that exceeds the calculated runoff of a 10-year/24-hour return period from the subject site in its previous undeveloped condition. In the event that a the natural downstream channel or storm sewer system is inadequate to accommodate the allowable release rate, then the rate shall be reduced to the capacity available in the outlet stream or structure and additional storage capacity shall be added to retention/detention facilities to compensate for the additional required storage. The allowable discharge rate is now the staged detention 10-100. For storms with intensities between the pre-developed 10-year rate and the 100 year developed rate, the allowable discharge is the c.f.s. for the pre-developed 10 year storm. The difference is to be detained. Exception: in some watersheds the allowable discharge rate is based upon the most restrictive downstream structure where the standard allowable release rate has been determined to cause flooding.

SECTION 7.3

A drainage system shall have adequate design capacity to convey the storm water runoff from all upstream tributary areas through the development site under consideration for a storm of a 100-year/24-hour design return period calculated on the basis of all of the upstream land in its present state of development. An allowance, equal to the reduction in flow rate provided, shall be made for upstream detention/retention facilities if design calculations are available for such facilities from the Drainage Board or a reliable source.

SECTION 7.4

Dry bottom reservoirs, wet bottom reservoirs, parking areas, drainage swales, athletic fields, etc. may be designed to serve as detention facilities. Detention of storm water on roofs shall not be allowed due to the potential for structural failures.

SECTION 7.5

Parking areas and athletic fields designated as detention areas shall be designed to store a 100 year design return period storm to a maximum overall depth of no more than 6 inches. Drainage swales and dry bottom detention reservoirs shall be designed to store a one hundred-year design storm to a maximum overall depth of no more than 50 inches.

SECTION 7.6

If design considerations determine that several smaller detention facilities will better serve a site, then the sum of the calculated storage areas of all facilities shall equal the amount of storage area calculated for only one large facility.

SECTION 7.7

The maximum time period for a volume of accumulated stormwater from a single rainfall event to remain within a dry detention reservoir shall not exceed 48 hours by design.

SECTION 7.8

Stormwater detention structures shall be designed to operate automatically with as little maintenance required as is practical for proper operation. They shall limit discharge into existing outlet channels or conduits so as not to exceed the predetermined maximum authorized peak flow rate. The minimum size of an outlet pipe on a wet detention basin shall be 12 inches with a reducing orifice plate allowed if necessary.

SECTION 7.9

Structures such as a weir, straight pipe or drop inlet spillways, an elevated conduit or another type of automatic device approved by the Drainage Board shall be provided to allow for the release of exceptional storm runoffs and to prevent serious damage to the facility.

SECTION 7.10

The Drainage Board may require any or all of the following for retention or detention facilities:

- 7.10.1 A 5 foot high fence, wall, or protective shoreline planting to be placed around the retention/detention facility.
- 7.10.2 Signs to be posted warning of possible flooding, rising, or deep waters.
- 7.10.3 A 40-foot separation from adjacent buildings to be provided.
- 7.10.4 A 100-foot separation from road right-of-way to be provided.

SECTION 7.11

Detention facilities shall be seeded with either bluegrass, ryegrass, or fescue so that they can be mowed when not in service. The bottom of a dry detention reservoir shall be gradually sloped to the outlet structure and a 6-inch subsurface drainage tile system shall be installed with at least 18 inches of soil cover to remove pockets of lingering wetness.

SECTION 7.12

The ownership and maintenance of a stormwater detention/retention facility shall be the responsibility of the property owner of the land parcel where the facility is located or as such responsibility has been detailed in legal documents such as covenants or deed restrictions.

SECTION 7.13 – RETENTION FACILITIES

Retention facilities shall be subject to the following requirements:

- 7.13.1 The dam, levee, spillway, weir, or other type of outlet control method built to retain the design pool level of the retention facility shall consist of engineered soils such as dense clays to prevent leakage and to prevent a structural failure. All materials are to be compacted to a minimum of 95% of the modified Proctor density (ASTM D1557). Soil density and compaction tests shall be performed on the dam during the course of construction lifts.
- 7.13.2 If the basin is planned to contain a fish population, then an approximate average depth of 8 feet shall be maintained over 25% of the pond surface area.
- 7.13.3 Underwater side slopes shall be stable but areas of shallow water along the edges of the basin should be avoided to reduce maintenance and to prevent the growth of aquatic vegetation along the shoreline.
- 7.13.4 A safety ledge extending out 10 feet in width shall be placed around the perimeter of the pond approximately 36 inches below the permanent or average pool level.
- 7.13.5 Erosion control measures such as riprap, rock chutes, or gabion baskets may be required around the outfall structure, emergency spillway, or on the entire shoreline of the facility to prevent the cutting action of waves. Slopes of the retention facility from one foot below the permanent water pool line and two feet above this line shall be sodded or riprapped and areas more than two feet above the line shall be hydroseeded, mulched, or provided with erosion control blankets to reduce erosion of the retention pond bank.
- 7.13.6 Aeration units shall be encouraged in all ponds to provide oxygen for fish and other aquatic life. Anchors and cable for such units shall be placed prior to filling of the facility.
- 7.13.7 Wet retention basins shall not be located closer than 50 feet to a septic system.
- 7.13.8 No wet retention basin shall be constructed below the line of the 100 year frequency flood as determined by the Indiana Department of Natural Resources, Division of Water; unless written approval of the Indiana Natural Resources Commission to construct in a floodway has been granted.
- 7.13.9 Storage volume calculations for dry and wet detention/retention basins may be done using computer models such as ILLUDAS, TR-20 and TR-55 which are based on unit hydrograph data from the Natural Resources Conservation Service.
- 7.13.10 Wet retention basins shall be designed with an additional 6% of available capacity to allow for sediment accumulation resulting from development and to permit the pond to function for reasonable periods between cleaning. Basins shall be designed to collect sediment and debris in specific locations such as at the outfall of storm sewer pipes so that removal costs are kept to a minimum.

SECTION 7.14

The outfall structure of a wet retention basin shall consist of a concrete drop structure, a reinforced concrete pipe, or a rigid plastic pipe as approved by the Technical Advisory Committee. All connections shall be watertight. A reinforced concrete slope wall around the inlet end of the outfall pipe of the retention basin or a special designed outfall structure will be required for the purpose of attaching trash guards, grates, etc. Under no circumstances shall storm sewer pipe with a metal end section be used as the outfall structure for a wet stormwater detention facility. The outlet control structure shall be designed to discharge a rate of flow into the receiving outlet channel that will not exceed the design capacity of the outlet channel. The area

Minor adjustments to approved plans do not need formal approval by the original reviewing committee, board or commission, but all applicable parties shall sign a "Consent Form", provided by the Plan Commission office, that the minor adjustment has no effect on compliance with the standards of this Ordinance and other applicable ordinances. Examples of minor revisions may include slight changes in the dimensions, location or elevation of a structure or septic system. A minor adjustment does not include adding any new structures or ponds not previously shown.

ARTICLE 16 – PROJECTS

Any residential, commercial or industrial subdivision plat and/or construction project which has had its drainage plan approved by the Drainage Board prior to the effective date of this ordinance and have initiated construction within 12 months of the passage of this ordinance and have shown progress consistent with standard construction practice shall be exempt from all of the requirements of this ordinance, however, compliance is encouraged.

ARTICLE 17 – PROJECT TERMINATION

An orderly and timely termination of a project with land disturbing activities should be planned between all persons involved with a site.

SECTION 17.1

Nearing the end of the project, but prior to final land grading, seeding and mulching, landowner or developer should inform, in writing, the Plan Commission when the installation of utility lines will occur on the site. Those persons involved in the installation of utility lines shall perform their work promptly to minimize the time period during which some of the land may be left in a relatively unprotected state. After the utility lines have been installed, the developer or landowner shall promptly complete all erosion control activities.

SECTION 17.2

When a project has been completed, the developer or landowner shall petition, in writing, the Plan Commission for approval of erosion control measures which are to remain on the site. The Plan Commission shall subsequently inspect the site to evaluate the adequacy of these control measures based on the construction design plans.

SECTION 17.3

Upon proper completion of the erosion control improvements to the satisfaction of the Technical Advisory Committee, a representative of the Plan Commission shall forward financial surety to be released by the Shelby County Commissioners. A three year maintenance surety shall remain the responsibility of the landowner or developer.

SECTION 17.4

If the erosion control measures are not approved because they are not in keeping with either the erosion control plan or the general principles of this ordinance, the Plan Commission shall notify, in writing, the person holding the permit of unacceptable features. After a minimum period of two weeks during which corrective measures are to be undertaken, a written petition may be submitted requesting the Plan Commission to evaluate the adequacy of the erosion control measures. If in good faith, the Plan Commission again decides that the erosion control measures are inadequate, the Plan Commission may delay the release of any surety bonds and/or letters of credit for up to two months. After an agreed upon time period of two months or longer has elapsed without correct measures being taken, the Plan Commission upon proper legal authority may use the proceeds of the financial surety to finance changes or additions to the erosion control measures needed to complete the project.

ARTICLE 18 - ENFORCEMENT PENALTIES AND STOP WORK ORDER

Individuals, corporations, partnerships, or other parties found to be in violation of this ordinance shall be subject to specific penalties including, but not limited to, a warning letter; a violation ticket; a suit for injunction; or a stopwork order issued by a representative of the Plan Commission, County Commissioners or the Drainage Board.

SECTION 18.1

A representative of the Plan Commission, County Commissioners, or the Drainage Board shall post a stopwork order if:

- 18.1.1 Any land disturbing activity regulated under this ordinance is being undertaken without a permit;
- 18.1.2 The erosion control plan is not being implemented in good faith;
- 18.1.3 The conditions of the permit are not being met.

SECTION 18.2

A warning ticket issued by a representative of the Plan Commission, County Commissioners, or the Drainage Board or notice of legal action to be taken by the Drainage Board shall contain the following information:

- 18.2.1 The date and time of issuance.
- 18.2.2 The name and address of the individual, corporation or partnership determined to be in violation of this ordinance.
- 18.2.3 The name of this ordinance and section number of the ordinance where the violation is defined.
- 18.2.4 The nature and location of the violation.
- 18.2.5 The type of and range of fines which could be assessed upon continuance of non-compliance activities.
- 18.2.6 The name and business address of the person or organization issuing the violation.
- 18.2.7 The specific time limit established for compliance. No legal action shall be brought until this time limit has elapsed and proper legal notice has been issued by as detailed below.
- 18.2.8 Upon expiration of the compliance period, the Drainage Board may initiate legal action.

SECTION 18.3

Upon appeal to the issuing entity, a stop-work order or the revocation may be retracted.

SECTION 18.4

Ten days after posting a stop-work order, the issuing entity may issue a notice of intent to the violator. The notice of intent will state that 14 days after issuing the notice of intent, recommendation will be made to the Plan Commission to seek legal authority to use the proceeds of the financial surety to perform work necessary to provide compliance with this ordinance.

SECTION 18.5

If, within five days after notification, a permit holder does not comply with the erosion control plan or permit conditions, the Plan Commission shall schedule a public hearing and shall seek to revoke the permit until the problems have been corrected.

on either side of the outfall structure of a wet stormwater detention basin shall be covered by a geotextile fabric and large riprap to dissipate the erosion potential of wave action. A metal or PVC molded safety grate or screen shall be securely fastened over the opening to the outfall structure.

SECTION 7.15

An emergency spillway shall be provided near the outfall structure but not within the structure of the dam if possible to allow for the runoff of storm events which exceed the 100-year design storage capacity of the facility.

ARTICLE 8 – SHELBY COUNTY HIGHWAY DRAINAGE REQUIREMENTS

SECTION 8.1

It shall be illegal to outlet the discharge pipe, emergency spillway, tile underdrain, or any other water discharge structure from a wet or dry retention/detention basin into the right-of-way of any roadway including all Shelby County roads, Indiana state highways, federal highways, private streets, regulated open or tile drains, onto adjacent property, etc., without the written approval of the agency having jurisdiction over the roadway, regulated drain, or the owner of the property upon which the water will flow. It shall also be illegal to outlet sump pump drains, downspout drains, perimeter septic system tile drains, farm tile drains, foundation drains, or floor drains from an individual residence or a commercial, industrial, or institutional building into the right-of-ways, regulated drains, or private property mentioned above without written approval of the proper agency or the property owner. Outletting of subsurface tile drains into a outlet tile or open channel of a legal drain located within a county road right-of-way and which has been designed to serve such a purpose shall be permitted subject to plan approval of the Committee. Outletting of downspout, foundation, and sump pump drains into sanitary sewer lines shall be strictly prohibited and subject to the fines imposed under this ordinance.

SECTION 8.2

All new residential, commercial, industrial, or institutional uses which derive site access from a Shelby County highway or Indiana state highway shall be required to acquire a Shelby County Driveway Entrance and Approach Permit as issued by the Shelby County Highway Department, or a driveway access permit from the Greenfield District office of the Indiana Department of Transportation (INDOT).

SECTION 8.3

A drainage culvert shall be required to be placed under all commercial, residential, industrial and/or institutional driveways entering onto a county road or a state highway for the purpose of conveying water from the roadside ditch underneath the driveway subject to the permit requirements of the Shelby County Highway Department and the INDOT. Exceptions may be granted by the Drainage Board or the County Highway Department. The minimum size for such a culvert shall be 12 inches in diameter and 24 feet in length. Larger pipe sizes may be required based on calculation of upstream watershed areas. The size of the drainage culverts shall provide capacity for the flow from a 25-year design return period storm.

SECTION 8.4

The excavation, filling, paving, and/or any other type of construction of roadside drainage ditches located within Shelby County Highway right-of-ways is PROHIBITED. Exceptions may be granted by the Drainage Board or the Shelby County Highway Superintendent and must be in writing PRIOR to beginning construction. Extension and paving of existing driveways within the road right-of-way shall be required to extend existing culverts and must seek and receive driveway construction permit approval from the Shelby County Highway Department.

SECTION 8.5

When a public or private driveway must traverse a natural stream or a Shelby County legal drain, the culvert(s) or other structures shall be sized by a land surveyor or civil engineer licensed by the State of Indiana. The size of the drainage culvert(s) or structures shall provide capacity for the flow of a 100-year design return period storm within the structure. The Drainage Board and the Shelby County Surveyor shall review pipe sizes prior to placement to verify they have been sized to provide the required capacity.

ARTICLE 9 – PROCEDURES AND ADMINISTRATIVE REQUIREMENTS

SECTION 9.1

Persons, partnerships, or corporations planning to develop, subdivide, or otherwise alter land in Shelby County in order to construct streets; install storm drainage structures; retention/detention ponds, open ditches, lakes, etc. shall be required to submit plans for such improvements to the Drainage Board and the office of the Shelby County Surveyor. In the case of subdivision developments or individual sites seeking a building permit, the Plan Commission and the Shelby County Soil and Water Conservation District shall also be supplied with copies of construction plans for review.

SECTION 9.2

All wet and dry detention facilities shall be designed by a land surveyor or civil engineer licensed by the Indiana Professional Licensing Agency. All design calculations and soils information for construction of wet and dry detention basins on individual residential, commercial, industrial, or institutional sites and in platted subdivisions shall be submitted to the County Surveyor and the Drainage Board for a Certificate of Design Release prior to the start of construction. Upon completion of the structure, the designer shall file a Certificate of Completion with the Drainage Board stating that the structure was built to design standards approved by the Drainage Board. A copy of as-built plans shall also be submitted to the Drainage Board and the County Surveyor. All drainage calculations shall reference the Indianapolis rainfall intensity and unit hydrograph data as submitted in the tables at the end of this ordinance.

SECTION 9.3

It shall be the policy of the Shelby County Drainage Board and the office of the Shelby County Surveyor to require that all subdivisions of four lots or more as platted and approved by the Plan Commission be designated as an Urban Legal Drain. The County Surveyor shall establish a schedule for the assessment of each lot in the subdivision in an amount not to exceed \$100 per lot per year to provide an accumulating maintenance and repair fund. These funds can be used to repair and maintain storm sewers, curb inlets, manholes, subsurface tile drains, and outlet pipes in the subdivision.

SECTION 9.4

In all platted residential, commercial, industrial subdivisions; mobile home park and planned unit developments a minimum of a 6-inch plastic underdrain tile shall be provided beneath the curb of all streets along both sides at a depth of 24 inches below subgrade. The purpose of these tiles shall be to drain the stone street base course.

The subsurface underdrain tiles shall be installed in a trench with a minimum width of 12 inches or two times the diameter of the pipe. A laser level or other type of leveling instrument shall be used to insure that the pipe is being installed to proper grade. The underdrain tile shall be backfilled to the finish surface grade of the street using a washed # 8 or equivalent gravel. Subsurface street underdrains shall terminate into street inlet boxes or manhole structures and shall be grouted on the interior and exterior of the box. All section joints in subsurface tile drainpipe shall be joined together using proper methods of attachment.

SECTION 9.5

All platted residential, commercial, or industrial subdivisions, or planned unit developments to be served by septic systems, shall establish an acceptable drainage course for the purpose of providing an outlet for septic system perimeter drains within the development.

ARTICLE 10 – SOIL EROSION AND SEDIMENT CONTROL

SECTION 10.1 – GENERAL PROVISIONS

Measures taken to control erosion and sedimentation shall assure that sediment is not transported from a site by storm events. The following general provisions should be used in the preparation of submissions required under this Ordinance:

- 10.1.1 To minimize potential for soil erosion, development should fit the topography and soils of the site. Steep slopes, deep cuts, and fills in erodible soils should be avoided wherever possible and natural contours should be followed as closely as possible;
- 10.1.2 Natural vegetation shall be retained and protected wherever possible. Areas immediately adjacent to natural watercourses and protected wetlands shall also be left undisturbed wherever possible. Vegetation to be preserved shall be protected prior to construction;
- 10.1.3 All activities on a site must be conducted in a logical sequence so that the smallest practical area of land will be exposed for the shortest practical period of time during development;
- 10.1.4 Practices such as, but not limited to, sediment basins, silt traps or filters shall be installed prior to land disturbing activities and maintained to remove sediment from runoff leaving the site as long as unstabilized soil conditions exist;
- 10.1.5 The selection of soil erosion and sediment control measures shall include the assessment of the probable frequency of climatic events. The aesthetics of the project improvements and the requirements of continuing maintenance shall be considered;
- 10.1.6 Provisions shall be made to accommodate the increased runoff caused by changed soil and surface conditions during and after developments. Drainageways shall be designed so that their final gradients and resultant velocities will not create erosion.
- 10.1.7 In subdivision developments a level graded area at least 15 feet in width and not to exceed 24 inches in elevation above the finished curb shall be either permanently or temporarily provided by the contractor to provide for installation of subdivision utilities.

SECTION 10.2 – DESIGN CRITERIA STANDARDS AND SPECIFICATIONS FOR EROSION CONTROL MEASURES

All erosion control measures including but not limited to those required to comply with this ordinance shall meet the design criteria, standards and specifications for erosion control measures similar to or the same as those outlined in The Handbook for Controlling Erosion in Urban Areas of the Hoosier Heartland Resources Conservation and Development Council; the Field Office Technical Guide of the U.S. Department of Agriculture Natural Resources Conservation Service, the "Indiana Handbook for Erosion Control in Developing Areas" of the IDNR-Division of Soil Conservation and requirements and guidelines set forth in 327 IAC-15-5. These publications are available through the Shelby County Soil and Water Conservation District, the Natural Resources Conservation Service, the U.S. Government Printing Office and the IDNR Division of Soil Conservation. Erosion Control Measures shall be identified on the plans using standard symbols.

SECTION 10.3 – MAINTENANCE OF EROSION CONTROL MEASURES

The applicant or subsequent landowner shall maintain all sediment basins and other erosion control measures necessary to meet the requirements of this ordinance. After land disturbing activities cease, and the soil is stabilized, temporary sediment basins and other temporary erosion control measures may be eliminated if their purpose has been fulfilled. Any disturbed soil resulting from removal of such practices shall be stabilized by approved methods.

SECTION 10.4 – CONTROL OF EROSION AND SEDIMENT DURING LAND DISTURBING ACTIVITIES

The following requirements shall be met on all sites:

- 10.4.1 Sediment Trapping – Sediment laden water flowing from the site shall be detained by temporary sediment basins. Water shall not be discharged in a manner that causes erosion in the receiving channel or an accumulation of sediment within the receiving channel or its outlets;
- 10.4.2 Waste and Material Disposal – Wastes or unused building materials, including hazardous substances shall not be carried by runoff from a site. Proper offsite disposal of all wastes and unused building materials, in line with the nature of the waste or material, is required.
- 10.4.3 Tracking – Prior to the land disturbing activity each site shall have graveled construction access drives or other approved systems of sufficient width and length to eliminate sediment from being tracked onto public or private roadways. Gravel access drives shall be maintained by acceptable methods. Temporary drives may be eliminated upon completion of a development.
- 10.4.4 Temporary Stream Crossings – A stream crossing during land disturbing activities shall be non-erosive and structurally stable and shall not contribute to flooding or safety hazards. Streams should be crossed at a right angle to the stream flow. Erosion control measures shall be employed and shall be appropriate to the expected life of the crossing. Temporary crossings must convey bankfull flow or a 2-year peak discharge, whichever is less. Overflow areas must be protected from erosion for a 10-year peak flow;
- 10.4.5 Sediment Removal – public or private roadways shall be kept cleared of accumulated sediment using acceptable methods. The developer's contractors are responsible for supervision of the construction activity within the development and shall take all necessary actions to remove sediment from the streets. Flushing of the subdivision streets to remove sediment is not an acceptable means of soils removal as it will clog storm sewers and detention facilities with sediment. If appreciable sedimentation occurs after a storm event, the sediment shall be removed from the street and deposited on the parcels of land where it likely originated.
- 10.4.6 Drain Inlet Protection – All storm drain inlets shall be protected against sedimentation with straw bales, slotted barrels, filter fabric or equivalent barriers meeting accepted design criteria, standards and specifications. Filter fabric shall be removed from street inlets within 30 days of final seeding of a project.
- 10.4.7 Site Erosion Control – The following items apply only to the time period when land disturbing activities are taking place which may cause water and sediment to leave the site.
- 10.4.8 Control of Runoff – Runoff passing through a site from adjacent areas shall be controlled by diverting it around disturbed areas. Alternatively, the existing channel may be improved to prevent erosion or sedimentation from occurring. Runoff from a disturbed area shall be controlled by one or more of the following measures:

- 10.4.8.1 Barring unforeseeable weather conditions, all disturbed ground left inactive for seven or more days shall be stabilized immediately by seeding, sodding, mulching covering or by other equivalent erosion control measures such as matting or hydroseeding.
- 10.4.8.2 With disturbed areas within a site of 10 acres or more, where drainage is in the same direction or where runoff will result in loss of soil, an abatement or recovery program shall be required. Where feasible, one or more sediment basins shall be constructed. Each sediment basin shall have a depth of at least three feet and have sufficient surface area to trap the sediment. The size of sedimentation basin should be at least one percent of its drainage area. Sediment shall be removed from time to time to maintain a minimum three-foot depth. When the disturbed area has been stabilized, the sediment basin can be removed. However, if erosion is likely to continue, the sediment basin shall be maintained by the existing or subsequent landowners. The discharge rate from a sediment basin shall not cause scouring in the receiving channel.
- 10.4.8.3 With disturbed areas within a site of less than 10 acres, silt filter fences, straw bales, or equivalent erosion control measures, placed along all sideslope and downslope sides of the site, shall be required. Also, if concentrated runoff passes through the site, filter fences shall be placed along the edges of the concentrated flow area to reduce the amount of sediment removed from the site. However, if these measures are not sufficient to control off-site sedimentation, a sediment basin may still be required. Erosion from all soil storage stockpiles shall be controlled by placing straw bales, filter fence or other appropriate barriers around the piles. Adjacent storm drain inlets shall be protected using similar filter barriers. Moreover, any soil storage stockpile shall be stabilized by mulching, vegetative cover, tarps or other means. Storage piles containing less than 10 cubic yards of material may be located closer than 25 feet to a roadway or a drainage channel but shall be covered with tarps or other means. Storage piles containing less than 10 cubic yards of material may be located closer than 25 feet to a roadway or a drainage channel but shall be covered with tarps or a suitable alternative if in existence for less than seven days.

ARTICLE 11 – ACCESSORY DRAINS

SECTION 11.1 – SUMP PUMPS

Sump pumps installed to receive and discharge ground waters from floor drains or other storm water shall be connected to a storm sewer, a subsurface drain outlet or a designated storm discharge channel. In no situation shall sump pumps outlet directly into the pavement underdrains, onto the surface of any Shelby County road or subdivision street, or into the area of the septic field. Sump pump drains shall not be outlet into the right-of-way of any roadway, into a regulated drain, or onto private property without the written approval of the agency having jurisdiction or the owner of the property upon which the water will flow.

SECTION 11.2 – DOWN SPOUTS

All down spouts or roof drains shall discharge onto the ground, connect directly to the storm sewer, or connect to the septic system perimeter drain down slope of the septic field. In no situation shall down spouts or roof drains outlet directly into the sanitary sewer, pavement underdrains, onto the surface of any Shelby County road or subdivision street, or into the area of the septic field. Down spouts and roof drains shall not be outlet into the right-of-way of any roadway, into a regulated drain, or onto private property without the written approval of the agency having jurisdiction or the owner of the property upon which the water will flow.

SECTION 11.3 – FOOTING AND FOUNDATION DRAINS

Footing and foundation drains, and floor drains shall be connected to a sump pit, storm sewer, subsurface tile drain, designated storm drainage channel, or septic system perimeter drain if the connection is made down slope of the septic field. In no situation shall footing and foundation drains outlet directly into the sanitary sewer, pavement underdrains, onto the surface of any Shelby County road or subdivision street, or into the area of the septic field. Footing and foundation drains shall not be outlet into the right-of-way of any roadway, into a regulated drain, or onto private property without the written approval of the agency having jurisdiction or the owner of the property upon which the water will flow.

ARTICLE 12 – MAINTENANCE OF EROSION CONTROL MEASURES

During the period of land disturbance at a site, all sediment basins and other erosion control measures necessary to meet the requirements of this ordinance shall be supplied by the applicant or subsequent landowner. If sedimentation is likely to be a problem after land disturbing activities have ceased, some or all of the sediment basins and other erosion control measures shall be maintained by the applicant or subsequent landowners for as long as the problem exists.

ARTICLE 13 – PERMIT APPLICATION, EROSION CONTROL PLAN, AND PERMIT ISSUANCE

No person shall begin a land disturbing activity subject to this ordinance without receiving approval of an erosion control plan. An application should be made at the time of the primary plat submittal or local improvement location permit application to minimize the time delay before a project can begin. By submitting an application, the applicant implies that the Plan Commission has been given permission to enter the site to obtain information required for review of the erosion control plan.

SECTION 13.1 – CONTENT OF EROSION CONTROL PLANS FOR LAND DISTURBING ACTIVITIES COVERING MORE THAN ONE ACRE IN A GIVEN SITE.

- 13.1.1 Existing site map. A map of existing site conditions on a minimum scale of one inch equals 100 feet and adequate to show the site and adjacent areas, including:
 - 13.1.1.1 Site boundaries and adjacent lands which accurately identify the site location;
 - 13.1.1.2 Lakes, streams, wetlands, channels, ditches, and other water courses on and adjacent to the site.
 - 13.1.1.3 One hundred year floodplains, floodway fringes and floodways;
 - 13.1.1.4 Location of the predominant soil types as identified by the Shelby County Soil Survey or as determined by a certified professional soil scientist;
 - 13.1.1.5 Vegetative cover such as grass, weeds and trees;
 - 13.1.1.6 Location and dimensions of storm water drainage systems and natural drainage patterns on land immediately adjacent to the site;

- 13.1.1.7 Locations and dimensions of all utilities, structures, roads, high-ways and paving;
- 13.1.1.8 Site topography at a contour interval not to exceed five feet.
- 13.1.2 Plan of final site conditions. A plan of final site conditions on the same scale as the existing site map showing the site changes.
- 13.1.3 Site construction plan. A site construction plan shall include:
 - 13.1.3.1 Location and dimensions of all proposed land disturbing activities;
 - 13.1.3.2 Location and dimensions of all temporary soil stockpiles and burrow areas.
 - 13.1.3.3 Location, types, and dimensions of all erosion control measures necessary to meet the requirements of this ordinance;
- 13.1.4 Schedule of the anticipated starting and completion dates of each land disturbing activity, including the installation of erosion control measures needed to meet the requirements of this ordinance. Provisions for maintenance of the erosion control measures during construction.

SECTION 13.2 – CONTENT OF EROSION CONTROL PLAN FOR LAND DISTURBING ACTIVITIES COVERING LESS THAN ONE ACRE IN A GIVEN SITE

An erosion control plan statement describing the site and proposed erosion control measures and including a development schedule and a simple map showing the locations of the control measures is all that is required.

SECTION 13.3 – REVIEW OF EROSION CONTROL PLAN

The Shelby County Soil and Water Conservation District shall promptly review the application and erosion control plan in conjunction with the primary subdivision plat and/or local improvement permit application to determine whether the requirements of this ordinance have been met. If the conditions have been met, the TAC shall approve the plan and inform the applicant. If the conditions are not met, the Plan Commission shall inform the applicant in writing and either may require additional information or may disapprove the plan. If requested additional information is submitted, TAC shall again determine whether the plan meets the requirements of this ordinance. If the plan is disapproved, the Plan Commission shall inform the applicant in writing giving reasons for disapproval.

SECTION 13.4 – EROSION CONTROL SURETY REQUIREMENTS

- 13.4.1 Financial surety – as a condition of approval and issuance of permits, the Plan Commission shall require a subdivision developer or developer of a planned unit development, commercial, institutional, or industrial project to provide financial surety such as a performance bond or irrevocable letter of credit to insure that the erosion control plan will be implemented to the specifications included in the project construction plans. The engineering firm responsible for the design of a subdivision shall submit to the Plan Commission an estimate of the costs of erosion control measures to be installed in the development.
- 13.4.2 Permit Conditions – All permits shall require the applicant to:
 - 13.4.2.1 Notify the Plan Commission at least 24 hours before commencing with any land disturbing activity;
 - 13.4.2.2 Notify the Plan Commission of the completion of erosion control measures within seven days after their installation;
 - 13.4.2.3 Obtain permission from the Technical Advisory Committee prior to modifying the erosion control plan;
 - 13.4.2.4 Install all erosion control measures as identified in the approved erosion control plan;

- 13.4.2.5 Maintain all road drainage systems, storm water drainage systems, erosion control measures, and other facilities identified in the erosion control plan until the construction phase of the project has been terminated;
- 13.4.2.6 Where permitted, remove sediment resulting from land disturbing activities from adjacent surfaces and drainageways and/or repair erosion damage to adjacent surfaces, properties, and drainageways;
- 13.4.2.7 Allow the Plan Commission and the Technical Advisory Committee to enter the site during normal working hours of 7:00 a.m. to 7:00 p.m. for verifying compliance with the erosion control plan or to perform any work necessary to bring the site into compliance with the erosion control plan.

ARTICLE 14 – CERTIFICATION REQUIRED

SECTION 14.1 - (Revised 5/21/2001)

Upon completion of the project construction and before final acceptance of all improvements is made, five professionally prepared and certified "as built" sets of plans shall be submitted to the Plan Commission staff for review. For Class 2 and Class 3 site plans, a Certificate of Compliance available at the Plan Commission Office will be accepted in lieu of a new set of plans if the "as built" plans do not differ from the Site Plan approved by the Site Plan Committee. For Class 4 Site Plans, no "as built" plans will be required if the construction does not differ from the approved Site Plan submitted with the permit application. "As built" plans shall include all pertinent data relevant to the completed storm drainage and erosion control systems and shall include:

- 14.1.1. All installed pipe sizes and pipe material;
- 14.1.2 All invert elevations of storm sewers, manholes, inlets, etc.;
- 14.1.3 All top rim of casting elevations and casting type;
- 14.1.4 All structure types and pipe lengths;
- 14.1.5 All permanent sediment basins and their maintenance provisions;
- 14.1.6 Data and calculations showing detention basin storage volume;
- 14.1.7 An engineer or land surveyor's certified statement on the plans stating the completed storm drainage system substantially complies with construction plans as approved by the Drainage board. If during preparation of these "as built" plans it is found that the storm drainage system does not substantially comply with the construction plans approved by the Drainage Board, the new plans shall be resubmitted for approval.
- 14.1.8 Class 1 "as built" plans submitted shall be reviewed for compliance within 45 days and Class 2, 3, and 4 "as built" plans shall be reviewed for compliance within 21 days after submission to the Plan Commission staff. If notice of noncompliance is not given in writing within the appropriate time frame, the plans shall be construed as approved.

ARTICLE 15 – CHANGES IN PLANS - (Revised 5/21/2001)

Any significant change, revision, or deviation in the detailed plans and specifications after formal approval by the Technical Advisory Committee, the Drainage Board and/or the Plan Commission shall be filed with and approved by the original reviewing committee, board or commission prior to implementation of revision or change. Copies of the revisions or changes, if approved, shall be attached to the original plans and specifications. Revised copies of construction plans shall be filed with the Plan Commission, County Surveyor, and the Highway Superintendent.

ARTICLE 19 – ADMINISTRATIVE APPEALS AND JUDICIAL REVIEW

SECTION 19.1

The Drainage Board shall hear and decide appeals where it is alleged that there is error in any order, decision, or determination made by the Technical Advisory Committee, the staff of the Plan Commission, or the Shelby County Surveyor in administering this ordinance.

SECTION 19.2

Changes in the provisions of this ordinance which are not contrary to the public interest and, where owing to special conditions, a literal enforcement of the provisions of the ordinance will result in unnecessary hindrances may be considered by the Plan Commission and/or the Drainage Board.

SECTION 19.3

Final decisions of the Drainage Board or the Plan Commission are subject to review by the local Superior or Circuit Court upon filing of a Writ of Certiorari provided such a writ is filed within 30 days from the date of the final decision of the Drainage Board or the Plan Commission.

This ordinance has been approved this 13th day of November, 2000.

SHELBY COUNTY BOARD OF COUNTY COMMISSIONERS

Bruce W. Knecht, President

John F. Lewis

George David Mohr

ATTEST

Margaret L. Brunk, Shelby County Auditor

SECTION 18.6

Any person violating any of the provisions of this ordinance shall be subject to the legal remedies available to the Drainage Board, County Commissioners, and the Plan Commission which may include a suit for injunction in Shelby Superior or Circuit Court, penalties and fines, and reimbursement of legal fees.

SECTION 18.7

Any individual, corporation or partnership found to be in violation of this ordinance or who have been found to have failed to comply with any of the requirements herein shall be subject to a fine of not less than \$25.00 and not exceeding \$300.00 per each day that the violation exists from the date of issuance of the civil citation.

The appeals process shall serve as an administrative remedy of last resort and shall precede the filing of any legal action in the Courts.