

TITLE XV: LAND USAGE
CHAPTER 151: STORMWATER MANAGEMENT

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GENERAL PROVISIONS

§ 151.01 AUTHORITY.

The State Legislature has authorized the Town Council to adopt regulations designed to promote public health, safety, and general welfare of its citizens pursuant to I.C. 36-7-4-201, including the adoption of stormwater management regulation ordinances.

This chapter sets forth the administrative procedures, standards, and enforcement remedies which shall be used by the Town of Brownsburg for stormwater management to meet the requirements of Phase II of the National Pollutant Discharge Elimination System (NPDES) program (FR Doc. 99-29181) authorized by the 1972 amendments to the Clean Water Act, the Indiana Department of Environmental Management's (IDEM's) Municipal Separate Storm Sewer System General Permit (MS4GP), and IDEM's Construction Stormwater General Permit (CSGP).

§ 151.02 PURPOSE.

It is the general purpose of this chapter to promote the public health, safety, and general welfare, and to minimize public and private losses due to stormwater conditions in residential, commercial, and industrial development. This chapter is designed to accomplish the following:

- A. To protect human life and improve public health.
- B. To promote the use of low-impact development (LID) practices and green infrastructure components to help protect and restore water quality and reduce the quantity of stormwater runoff throughout the Town.
- C. To reduce the risk of stormwater damage to properties and structures through the implementation of stormwater management facilities and practices and to ensure that adequate stormwater infrastructure is installed.
- D. To protect local waterways from unmitigated stormwater runoff and the potentially damaging pollutants and erosion associated with runoff.
- E. To ensure that drainage easements are under the control of the Town to enforce the protection of those drainage facilities from filling and other damage by the adjacent property owners.
- F. To ensure that the natural flow of water shall not be obstructed by any man-made land improvement.

§ 151.03 DEFINITIONS.

Words and phrases in this ordinance shall be construed according to their common and accepted meanings. Words and phrases defined herein shall be construed according to the respective definition given unless the context clearly indicates or requires a different meaning. Technical words and phrases that are not defined in this ordinance, but which have acquired particular meanings in law or in technical usage shall be construed according to such meanings.

AGRICULTURAL CONSERVATION PRACTICES. Practices that are constructed on agricultural land for the purposes of controlling soil erosion and sedimentation. These practices include, but are not limited to grass waterways, sediment basins, terraces, and grade stabilization structures.

AGRICULTURAL LAND DISTURBING ACTIVITY. Tillage, planting, cultivation, or harvesting operations for the production of agricultural or nursery vegetative crops. The term also includes pasture renovation and establishment, the construction of agricultural conservation practices, and the installation and maintenance of agricultural drainage tile.

BEST MANAGEMENT PRACTICE (BMP). BMP can refer to a structural measure (erosion control measure, wetland, pond, hydrodynamic separator, filter, etc.) or non-structural measure (restrictive zoning, reduced impervious area, inspections, etc.). BMPs are designed for the benefit of water

quality and quantity control. For the purposes of this chapter, BMPs refer to structural water quality BMPs.

BUSINESS DAY. Monday through Friday excluding holidays.

CERTIFIED PROFESSIONAL. An individual who is trained and experienced in the principles of stormwater management, including erosion and sediment control as is demonstrated by completion of state registration, or professional certification that enable the individual to make judgments regarding stormwater management, treatment, and design.

CONCRETE WASHOUT. The rinsing of chutes, hoppers, wheelbarrows, and hand tools that are used to handle concrete, mortar, stucco, grout, or other mixtures of cement. Concrete washout water is a wastewater slurry containing metals and is caustic or corrosive, having a high pH.

CONSTRUCTION. Building, clearing and grubbing, grading, excavating, demolition, and other activities resulting in land disturbance.

CONSTRUCTION ACTIVITY. Land-disturbing activities and land-disturbing activities associated with the construction of infrastructure and structures. This term does not include routine ditch or road maintenance.

CONSTRUCTION SITE ACCESS. A stabilized stone surface at all points of ingress or egress to a project site for the purpose of capturing and detaining sediment carried by tires of vehicles or other equipment entering or exiting the project site.

CONTOUR. An imaginary line on the surface of the land that connects points of equal elevation.

CONTOUR INTERVAL. The vertical distance between contour lines.

CONTOUR MAP. A map that shows the shape of the surface features of the ground by use of contour lines.

CONTRACTOR OR SUBCONTRACTOR. An individual or company hired by the project site or individual lot owner, their agent, or the individual lot operator to perform services on the project site.

CROSS SECTION. A drawing that shows the features that would be exposed by a vertical cut through a man-made or natural structure.

DEMOLITION. Solid waste resulting from the demolition of buildings and other structures, including, but not limited to, wood, plaster, metals, asphaltic substances, bricks, block, and unsegregated concrete.

DEPOSITION. An accumulation of sediments, gravel, or debris caused by the slowing of wind or water.

DESIGN STANDARD. Requirements which may be established by regulatory agencies or legislative bodies which must be met by designers of water management systems.

DESIGNER. Professional engineers, land surveyors, or architects in the land development planning profession.

DETENTION. Any process that detains stormwater runoff, holding back stormwater runoff in temporary storage. A basin, facility, pond, or BMP may be used for detention purposes.

DEVELOPER. Any person financially responsible for construction activity; or an owner of property who sells or leases, or offers for sale or lease, any lots in a multiple lot project.

DEWATERING. The act of draining rainwater and/or ground water from excavations, stormwater measures, building foundations, vaults, and trenches.

DITCH MAINTENANCE. To restore a conveyance system to its originally constructed channel capacity and to perform the function for which it was originally constructed. Maintenance includes cleaning (removal of accumulated sediments, debrushing, and mowing), spraying, removing obstructions, and conducting minor repairs.

DISCHARGE. The flow from a watershed, point source, or stormwater facility into a stormwater conveyance system. The rate of flow may be measured in cubic feet per second.

DOMESTIC WASTE. Typical household trash, garbage, or rubbish.

DRAIN. Any place where water accumulates and flows toward the rivers, whether natural or man-made.

DRAINAGE ORDINANCE. An ordinance to regulate the drainage of developing land passed by a legislative body.

EASEMENT. A grant by a property owner (“grantor”) to specific persons, the public, corporations, utilities, and/or others (aka: “grantee” or “easement holder”) for the purpose of providing services, facilities, infrastructure, landscaping, full access, or limited access on the subject property.

ENTITY. An individual, association, organization, partnership, firm, corporation, or other person or group of persons recognized by law and acting either as the owner or the owner’s agent.

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

EROSION AND SEDIMENT CONTROL SYSTEM. The use of appropriate erosion, runoff, and sediment control measures to minimize sedimentation by first reducing or eliminating erosion at the source and then, as necessary, trapping sediment to prevent it from being discharged.

EXCAVATION. Earth moving activities related to land use changes and treatment.

EXISTING GRADE, PLANNED GRADE, FINISH GRADE. Grade of the land or structures as they now exist. Grade of the land or structures as they are planned to be. Grade of the land or structures at the completion of the construction.

FILL. Any area that has had soil added to it and regraded or the material itself that is used for filling.

FILL MATERIAL. A combination of topsoil, soil, small aggregate, sand, organic material, and/or any similar resource which is not intended to sustain landscape material, or when used under structures will not conflict with proper installation of foundations. Fill material does not include metal, glass, industrial waste, household waste, asphalt, ash, or similar material.

FILTER STRIP. An area of undisturbed or planted vegetation used to retard or collect sediment for the protection of watercourses, reservoirs, or adjacent properties.

GRADING. The cutting and filling of the land surface to a desired slope or elevation.

GROUND COVER. Grasses or other vegetative ground cover used to prevent erosion.

HYDRAULIC GRADE LINE. An imaginary line representing the water surface elevation in open channel flow and the height to which a water column would rise if open to the atmosphere for pressure flow.

IMPAIRED WATER. Any waterbody included on IDEM's current 303(d) list.

IMPERVIOUS SURFACE. Surface materials that include, but are not limited to, concrete, asphalt, rooftop, blacktop and gravel, such that the infiltration of storm water is prevented or impeded. Driveways, roadways, parking lots and other areas used for vehicular traffic are considered impervious surface areas. Undisturbed land, tilled agricultural land, ponds, lawns and fields are not considered impervious surface area.

INDIVIDUAL BUILDING LOT. A single parcel of land within a multi-parcel development.

INDIVIDUAL LOT OPERATOR. A contractor or subcontractor working on an individual lot.

INDIVIDUAL LOT OWNER. A person who has a financial interest in the construction activities for an individual lot.

INFEASIBLE. Not technologically possible, or not economically practicable and achievable considering best industry practices.

INFILTRATION. Passage or movement of water into the soil.

INFRASTRUCTURE. All of the utilities, including storm sewers, sanitary sewers, electric, telephone, water lines, and the like, which allow the Town to function.

LAND DISTURBANCE. Any man-made change of the land surface, including removing vegetative cover that exposes the underlying soil, excavating, filling, stockpiling, and grading. Land disturbance shall include, but not be limited to, site development, site redevelopment, site amendments or alterations, soil disturbances without improvements, utility projects, and soil stockpiles.

LAND DISTURBING ACTIVITY. Any man-made change of the land surface including, but not limited to removing vegetative cover that exposes the underlying soil, excavating, filling, and grading.

LARGER COMMON PLAN OF DEVELOPMENT OR SALE. A plan, undertaken by a single project site owner or a group of project site owners acting in concert, to offer lots for sale or lease; where such land is contiguous, or is known, designated, purchased, or advertised as a common unit or by a common name, such land must be presumed as being offered for sale or lease as part of a larger common plan. The term also includes phased or other construction activity by a single entity for its own use.

LEGAL DRAIN. Drains which are under the jurisdiction of the County Drainage Board.

MEASURABLE STORM EVENT. A precipitation event that results in a total measured precipitation accumulation equal to, or greater than, one-half (0.5) inch of rainfall, unless otherwise specified as a condition of this permit. A measurable storm event excludes an accumulated snow event.

MULCH. Straw, excelsior, stone, or other natural and man-made materials to cover soil as a protection against erosion evaporation and to control temperature.

NATURAL BUFFER. An undisturbed area adjacent to, or surrounding surface waters within which construction activity is restricted. A natural buffer may include natural vegetation, exposed rock, overflow channels, or barren earth that existed prior to land-disturbing activities.

NUISANCE. No person shall erect, construct, cause, permit, keep or maintain within the Town limits, anything whatsoever which is injurious to the public health or safety, or offensive to the senses of inhabitant. The existence of any of the above is declared to be a nuisance and shall be regulated as set forth in Chapter 93.

OPEN OUTLET CHANNEL. Man-made ditches to contain total flow of stormwater from the watershed, plus it is deep enough to provide deep outlets for subsurface drain tile, storm sewers, and retention basins.

PEAK FLOW or PEAK RUNOFF. The maximum flow of water from a given storm at a specific location. This is measured in cubic feet per second.

PERMITTEE. The individual required to obtain a permit as defined by the Project Site Owner

POLLUTANT. Anything which causes or contributes to pollution. **POLLUTANTS** may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous liquid and solid wastes and yard wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

POND. A body of water formed naturally or by hollowing or embanking. A pond may remain wet or could become dry depending on soil characteristic, ground water levels or watershed areas flowing into or out of the pond.

PONDING. A state of temporary flooding in depressed areas or in areas where drainage is being impeded.

PROJECT SITE. The entire area on which construction activity is to be performed.

PROJECT SITE OWNER/OPERATOR. The person required to submit the NOI letter and required to comply with the terms of this permit, including either of the following: a developer or a person or entity that has financial and operational control of construction activities and project plans and specifications, including the authority to approve expenditure of funds and ability to make modifications to plans and specifications.

RETENTION. A process that retains stormwater on-site with a typical release to the air through evapotranspiration or to the ground through infiltration. A basin, facility, pond, or BMP may be used for retention purposes.

RUNOFF. Water that originates during a precipitation event and flows over the land as surface water rather than infiltrating into the ground or evaporating.

SEDIMENT. Solid material (both mineral and organic) that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the Earth's surface.

SEDIMENTATION. The settling and accumulation of unconsolidated sediment carried by stormwater runoff.

SEWER, SANITARY. An underground pipe system designed only for wastewater or sewage.

SEWER, STORM. An underground pipe system designed only for stormwater and groundwater and no sanitary wastewater.

SEWER, COMBINATION. An underground pipe system that is used for both wastewater and stormwater.

SILVICULTURAL. The practice of controlling the establishment, growth, composition, health, and quality of forests to meet diverse needs and values.

- a) Nonpoint activities include source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance from which there is natural runoff. Some of these activities (such as stream crossing for roads) may involve the placement of dredged or fill material which may require a CWA section 404 permit and a 401 Water Quality Certification.
- b) Point source activities include any discernible, confined, and discrete conveyance related to rock crushing, gravel washing, log sorting, or log storage facilities which are operated in connection with silvicultural activities and from which pollutants are discharged into waters of the United States or the State.

SOIL. The unconsolidated mineral and organic material on the surface of the earth that serves as the natural medium for the growth of plants.

SOIL AND WATER CONSERVATION DISTRICT OR SWCD. A political subdivision established under IC 14-32.

SOIL SURVEY. Published soil survey of the county and the technology of soil science used to develop it.

STEEP SLOPE. Slopes that are 1:3 (V:H) or 33.3 percent or steeper in grade.

STOP WORK ORDER. An order issued by the Town to stop construction activity on a site.

STORMWATER. The portion of precipitation that does not naturally infiltrate into the ground or evaporate, but flows via overland flow, interflow, channels, or pipes into a defined surface water channel.

STORMWATER CONVEYANCES, FACILITIES, & FEATURES. A permanent stormwater or drainage component, either natural or constructed, for collecting and transferring stormwater between two (2) points, including public streets, roads, alleyways, and highways; curbs; gutters; inlets, catch basins, storm manholes, and other storm structures; stormwater quality units; stormwater pumping stations; pipes, culverts, subsurface drains, and other conduits; outfalls; legal drains, open channels, creeks, ditches, swales, streams, and other open waterways; retention or detention facilities; and other structural components and equipment that transport, move, or regulate stormwater.

STORMWATER MANAGEMENT. The process of designing, installing, and implementing various combinations of drainage plans, structures, and facilities to control stormwater quality and quantity.

STORMWATER MANAGEMENT MEASURE. A practice or a combination of practices selected to improve the quality of runoff discharges, divert runoff, or mitigate the impacts related to quantity of runoff.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP). A plan developed to minimize the impact of stormwater pollutants resulting from construction activities.

STORMWATER QUALITY MEASURE. A practice, or a combination of practices, to control or minimize pollutants associated with stormwater runoff.

SUBSURFACE DRAIN. Perforated drain tile placed in trenches and covered to remove surplus groundwater from the soil to provide greater soil stability and remove wetness from subsurface structures. Sections near tree roots may not be perforated.

SURFACE DRAIN. A shallow open drain with flat side slopes to quickly move surface water toward the major drainage system.

SWALE. Small surface drains along lot lines to collect and move surface water from the lot toward the project drainage system.

TOTAL MAXIMUM DAILY LOAD OR TMDL. A Total Maximum Daily Load (TMDL) is a regulatory term in the U.S. Clean Water Act, describing a plan for restoring impaired waters that identifies the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards.

TRAINED INDIVIDUAL. An individual who is trained and experienced in the principles of stormwater management, including erosion and sediment control, as is demonstrated by completion of coursework, state registration, professional certification, or annual training that enables the individual to make judgments regarding stormwater management, treatment, and monitoring. This definition is to remain consistent with the CSGP.

VELOCITY. Speed that water flows expressed in feet per second.

WATERCOURSE, WATERWAY. A natural or man-made channel through which water flows; includes legal drains, creeks, ditches, swales, streams, and other open channels.

WATERSHED. As in the White Lick Creek Watershed, it is the acreage of land from which the drainage flows to a common point. The boundaries are determined by aerial photograph interpretation, topographic maps, and visually viewing the land.

§ 151.04 ABBREVIATIONS.

ACOE. United States Army Corps of Engineers.

ASTM. American Society for Testing and Materials.

USEPA. United States Environmental Protection Agency

BMP. Best Management Practice.

CFS. Cubic feet per second.

IDNR. Indiana Department of Natural Resources.

FHWA. United States Department of Transportation Federal Highway Administration.

HGL. Hydraulic Grade Line.

HEC-1. ACOE Hydrologic Engineering Center Flood Hydrograph Package.

HEC-12. United States Department of Transportation Hydraulic Engineering Circular 12.

HEC-14. FHWA Hydraulic Engineering Circular No. 14

HEC-HMS. ACOE Hydrologic Engineering Center Hydrologic Modeling System.

HEC-RAS. ACOE Hydrologic Engineering Center River Analysis System.

IDEM. Indiana Department of Environmental Management.

LID. Low Impact Development.

MS4. Municipal Separate Storm Sewer System.
NOAA. National Oceanic and Atmospheric Administration.
NRCS. Natural Resources Conservation Service.
NOI. Notice of Intent.
NOT. Notice of Termination.
NPDES. National Pollutant Discharge Elimination System.
O&M. Operation and Maintenance.
SMP. Self-monitoring program.
SCS. Soil Conservation Service.
SWCD. Soil and Water Conservation District
SWPPP. Stormwater Pollution Prevention Plan.
TSS. Total Suspended Solids.
USDA. United States Department of Agriculture.

§ 151.05 APPLICABILITY.

This chapter shall regulate all land disturbances, including disturbances without improvements, occurring within the corporate limits of the Town of Brownsburg. No land disturbance or land disturbing activity shall be started until the plans required by this chapter have been accepted in writing by the Town of Brownsburg's Development Services Department. Exemptions for agriculture, silviculture, oil and gas facilities, county drainage board ditch maintenance, individual single family residential disturbing less than one acre, and certain activities conducted under other applicable state permits are defined in section 151.22.

§ 151.06 BASIS FOR ESTABLISHMENT OF STANDARDS.

The Town of Brownsburg has adopted the *Town of Brownsburg Construction Standards*, which is incorporated herein by reference. This manual shall contain the technical standards for compliance with construction requirements and may be amended from time to time.

Other references include the following:

- A.** HERPIC-County Storm Drainage Manual.
- B.** USDA NRCS Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds.
- C.** Indiana Drainage Handbook.
- D.** Indiana Stormwater Quality Manual.
- E.** Hendricks County Stormwater Technical Standards Manual.
- F.** FHWA Hydraulic Design Series Number 5 (HDS-5): Hydraulic Design of Highway Culverts.
- G.** FHWA Hydraulic Engineering Circular No. 14 (HEC-14): Hydraulic Design of Energy Dissipators for Culverts and Channels.
- H.** USDA NRCS Part 654 Stream Restoration Design National Engineering Handbook, Chapter 10: Two-Stage Channel Design.
- I.** USDA NRCS WinTR-20: Computer Program for Project Formulation Hydrology.

§ 151.07 ADMINISTRATION

- A. The Development Services Department is appointed to administer and implement this chapter by granting or denying applications in accordance with the provisions of the chapter.

§ 151.08 DUTIES OF DEVELOPMENT SERVICES DEPARTMENT

- A. The duties and responsibilities of the Development Services Department shall include, but not be limited to, the following:
 - (1) Review each stormwater management application to determine that the requirements of this chapter have been satisfied.
 - (2) Ensure that post-construction stormwater quality measures are appropriately planned.
 - (3) Review all applications to assure that all land is temporarily guarded by sediment and erosion control measures and pollution prevention practices during the construction phase.
 - (4) Review all applications to assure permanent erosion control measures are planned to prevent future erosion problems.
 - (5) Review all applications to assure that stormwater from upstream and through the downstream properties has been properly considered.
- B. Town personnel have the authority to inspect the site and evaluate the site plan. If the Town determines that the site plan does not satisfy the provisions of this chapter, it shall notify the applicant of the plan's disapproval and give the applicant its reasons for disapproving the plan in writing.
- C. The review shall consider the nature of the soil types at the site and the inherent limitations of each one.

§ 151.09 REMEDIES.

The Town of Brownsburg, any designated enforcement official, or any person or persons, firm, or corporation, jointly and severally aggrieved, may institute a suit for injunction in the Circuit or Superior Courts of the county, to restrain an individual or government unit from violating the provisions of this chapter. The Town of Brownsburg may also institute a suit for mandatory injunction directing an individual, corporation, or a governmental unit to remove a structure erected in violation of the provisions of this chapter. Any building erected, raised, or converted, or land or premises used in violation of the provisions of this chapter or the requirements thereof, is declared to be a public nuisance and as such, they may be abated in such a manner as nuisances are now or may hereafter be disposed of under existing law.

§ 151.10 ABROGATION AND GREATER RESTRICTIONS.

- A. This chapter is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this chapter and another ordinance, easement, covenant, or deed restriction conflict or overlap, whichever imposes a more stringent restriction shall prevail.
- B. This chapter shall be construed whenever possible as consistent with the Unified Development Ordinance and regulations of the Town, and in conformity with its Master Plans.
- C. If a project site is determined to impact or discharge to a sensitive area the Town may, at its discretion, require more stringent stormwater quantity and quality measures than detailed in this chapter or the references listed in § 151.06. Sensitive areas include highly erodible soils, wetlands, threatened or endangered species habitat, outstanding waters, impaired waters, recreational waters, and surface drinking water resources.

§ 151.11 INTERPRETATION.

In the interpretation and application of this chapter, all provisions shall be:

- A.** Considered minimum requirements;
- B.** Liberally construed in favor of the governing body;
- C.** Deemed neither to limit nor repeal any other powers granted under the statutes of the state.

§ 151.12 SEVERABILITY

The provisions of this chapter are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this chapter or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this chapter.

§ 151.13 DISCLAIMER OF LIABILITY.

The degree of protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger storms can and will occur on occasion. Drainage runoff and intensity can cause drainage structures to overflow and erosion control and pollution prevention measures to fail. This chapter does not imply that these provisions are absolute fail-safe against every event that the ferocity of nature may provide. This chapter shall not create any liability on the part of the Town or any officer or employee thereof for any damages from water or sediment that result from reliance on this chapter or any administrative decision lawfully made under this chapter.

STORMWATER MANAGEMENT APPROVAL PROCESS

§ 151.20 SUBMITTAL REQUIREMENTS AND PROCEDURES

A. Application and Approval Process

(1) Conceptual Review

- (a)** A cursory review of stormwater management and water quality improvements, including verification of an adequate outlet will be completed by the Development Services Department during the plan review period for a zoning map amendment.

(2) Preliminary Review

- (a)** Stormwater management features shall be included in the Primary Plat submittal. Drainage easements shall be included in accordance with § 151.21(J).
- (b)** The Primary Plat submittal shall be reviewed to ensure that conceptual stormwater management systems have been included and requirements of this chapter are acknowledged by the applicant.

(3) Final Review

- (a)** Stormwater management features shall be included in the Development Plan and Final Plat submittal. The legal description of the lot or site shall include the appropriate drainage easements in accordance with § 151.21(J).
- (b)** The Development Services Department or their authorized representative shall perform a review of all stormwater, erosion control, and pollution prevention features included in the Development Plan for compliance with the requirements and intent of this chapter. Final review shall include an engineering/technical plan review.
- (c)** Stormwater Management Plan approval shall be obtained prior to the initiation of any construction activities. Non-compliance with the terms and conditions of the approved

Stormwater Management Plan will be subject to enforcement as described in this chapter. The applicant shall inform all contractors, sub-contractors, construction management firms, and other entities having oversight of construction activities on the site or individual building lots of the terms and conditions of the Stormwater Management Plan approval and schedule for proposed implementation.

- (4) NOI Submittal
 - (a) Submittal of the NOI to IDEM and the Development Services Department shall be conducted according to § 151.22 (A)(7).

B. Minimum Requirements of All Projects

- (1) All projects shall comply with the requirements of this section. The Development Services Department may require projects with one (1) acre or less of land disturbance to comply with § 151.21, § 151.22, and § 151.23 when the project site is located within, near, or along a tributary to an environmentally critical/sensitive area or an area with known erosion or drainage problems.
- (2) Fueling areas include an existing or proposed land use with fuel tanks or fueling activities. Regulated activities include any fueling area, publicly or privately owned (regardless of the size of land disturbance), that installs or replaces fuel tanks. Refer to § 151.23 for stormwater quality treatment requirements specific to fueling areas. A fueling area may be a part of other land disturbing activities or may be individually permitted.
- (3) All projects must demonstrate an adequate outlet in accordance with § 151.21 (H).
- (4) Application for approval shall include the following items at a minimum:
 - (a) Completed Application.
 - (b) Stormwater Application Fee (according to an established fee schedule). Inspection fees shall be assessed following the application approval. Fees are to be paid prior to the pre-construction meeting with Town personnel.
 - (c) Statement of Financial Responsibility Form, signed and completed.
 - (d) Affidavit & Consent of Property Owner Form, signed and completed.
 - (e) Design plans certified by a Professional Engineer or Land Surveyor licensed in the State of Indiana. Each sheet shall be drawn to scale and shall include a scale bar and north arrow. Plans shall include the following sheets and elements at a minimum to show the nature, location, dimensions, and elevations of the area and improvements in question.
 - 1. Title sheet:
 - a. Location plan
 - b. Vicinity map
 - c. Legal description of property
 - d. Parcel number or numbers of the site
 - e. Provide the total impervious surface area for the completed project in square feet. In addition to total area, provide a breakdown of total compacted gravel, building footprint and pavement (asphalt plus concrete) in square feet.
 - 2. Overall existing condition site plan:
 - a. Location, elevation, and datum of benchmark placed within the area of the site. If no benchmark is available, the elevation of the nearest road intersection as shown on the U.S. Geological Survey Map shall be indicated.
 - b. Site and the surrounding area one hundred (100) feet in every direction around the site

- c. Location, size, and invert elevation of any drainage structures within one hundred (100) feet of the site
 - d. Existing site grading with contour intervals of one (1) foot
 - e. General description and nature of the site
 - f. Soil Survey Map with the site delineated upon it
3. Existing condition plan sheets (maximum scale of one (1) inch equals fifty (50) feet):
- a. Contour lines with maximum one (1) foot contour interval
 - b. One hundred-year (100-yr.) (1% chance/year) floodplain elevation and boundary
 - c. Existing legal drains and other waterways, detention/retention facilities, roadside ditches and culverts, storm sewer systems, and all other drainage features as applicable
 - d. Areas potentially impacted by flooding of surface waters including:
 - i. Designated floodways or floodplains
 - ii. Land within seventy-five (75) feet of each bank of any legal drain
 - iii. Land within fifty (50) feet of each bank of a natural drainageway
 - iv. Areas above restricted outlets
 - e. Wetlands
 - f. Street names, widths, and rights-of-way
 - g. Existing easements
4. Proposed condition plan sheets (maximum scale of one (1) inch equals fifty (50) feet):
- a. Contour lines with maximum one (1) foot contour interval
 - b. One hundred-year (100-yr.) (1% chance/year) floodplain elevation and boundary
 - c. Pond water surface elevations including 100-yr. (1% chance/year) and normal pool elevations
 - d. Proposed grading and areas of cut or fill
 - e. Elevation of the first floor for all proposed and existing structures
 - f. Elevation of lowest floor, including basement, for all proposed and existing structures in accordance with § 151.21 (K).
 - g. Proposed areas for storage of materials and construction staging
 - h. Proposed modifications to existing drainage features
 - i. Proposed discharge location for site
 - j. Location and size/dimensions of all existing and proposed detention/retention facilities, roadside ditches and culverts, subsurface drains, legal drains, and all other drainage features, whether permanent or temporary, including those facilities which are crossing or adjacent to the site
 - k. Location, size/dimensions, and profile of all existing and proposed storm sewer systems, whether permanent or temporary, including those facilities which are crossing or adjacent to the site
 - l. Drainage plan including flow arrows for both surface and subsurface water. The drainage plan shall indicate the natural flowage of water to be managed coming into or leaving the site.
 - m. Flood routing plan including path and ponding locations and flow arrows and standards included in § 151.21 (I)
 - n. Street names, widths, rights-of-way, and cross sections, including elevation of street centerline

- o. Existing and proposed easements
 - 5. Design details, including applicable standard details from the *Town of Brownsburg Construction Standards*
 - 6. SWPPP, details, and notes in accordance with § 151.22:
- (f) Drainage Report. Engineering design computations and drainage report prepared by a registered Professional Engineer or Land Surveyor licensed in the State of Indiana which include the following applicable items at a minimum.
1. Written description of the project, including:
 - a. Discussion of the steps taken in the design of the stormwater management system
 - b. Description of significant drainage problems
 - c. Soil types, conditions, and limitations
 - d. Analysis procedure to evaluate problems and propose a solution
 - e. Hydrologic and hydraulic analysis methodologies and calculations
 - f. Exhibits showing existing and proposed drainage patterns, drainage areas, flow paths, land uses, etc.
 - g. Assumptions or special conditions associated with the methods used
 - h. Proposed design of stormwater management system
 - i. Results of analysis demonstrating that the proposed system addresses existing drainage problems, accounts for off-site drainage (if applicable), and does not create new drainage problems upstream or downstream of the site
 - j. Proposal for protecting proposed improvements from loss or damage due to ponding or runoff of surface water
 - k. Conclusion summarizing the design and explaining how the design satisfies the requirements and intent of this chapter
 2. Engineering design computations shall be provided for land drainage practices, erosion control measures, pollution prevention practices, and flood prevention practices, including, but not limited to:
 - a. Runoff coefficients or curve numbers, as appropriate
 - b. Times-of-concentration
 - c. Peak runoff rates
 - d. Detention storage volumes
 - e. Peak discharge rates
 - f. Outfall structure and emergency spillway calculations
 - g. Storm sewer, inlet, open channel, culvert, subsurface drain, and other stormwater conveyance design calculations
 - h. Low-impact development features design calculations and supporting information
 - i. Input and output files for computer models and exhibits detailing the setup and relationships within the computer model
 3. Development sites making use of regional or master planned stormwater detention areas must include the following information in the stormwater drainage report:
 - a. Design assumptions, maps, and calculations from the master planned drainage report for the proposed development area.
 - b. Written narrative, maps, and supporting calculations demonstrating that the master planned assumptions will be achieved.
 - c. Current standards and regulations may require additional storage and/or water quality measures if the master planned drainage report does not include those measures.

4. Projects disturbing less than 1 acre of land that are residential uses converting to non-residential commercial and for projects that result in a minor increase in impervious surface projects shall provide the following at a minimum:
 - a. A drainage report including design calculations for onsite stormwater drainage conveyances in accordance with this chapter.
 - b. Demonstrate an adequate outlet is available in accordance with § 151.21 (H)
 - c. Demonstrate that the change in peak runoff at all outlets is less than 0.2 cfs for up to the 100-year frequency storm.
- (g) Operations and Maintenance (O&M) Manual. Prepare an O&M manual in accordance with § 151.29.
- (h) Performance Bonds. As condition of Stormwater Management Plan approval, the applicant shall provide performance assurances in accordance with § 151.26.
- (5) Where the minimum standards of this chapter cannot be met, additional engineering design calculations and narrative shall be provided to the Development Services Department for consideration.

§ 151.21 STANDARDS FOR STORMWATER QUANTITY MANAGEMENT

A. Watercourse Protection

- (1) Legal drains within the Town are under the jurisdiction of the Hendricks County Drainage Board. The Indiana Drainage Act has established seventy-five (75) foot easements to either side of legal drain tile lines and seventy-five (75) feet from the top of the bank on each side of open legal drains. Any stormwater discharge or work to be completed within a legal drain easement must obtain approval from the Hendricks County Drainage Board.
- (2) Waterways within the Town may be under the jurisdiction of the IDEM or the ACOE.
- (3) Work within a floodway is under the jurisdiction of the IDNR.
- (4) Any relocation of a watercourse shall require a plan approved by the Development Services Department, and it shall not discharge water onto downstream adjacent property owners in any location different from its existing location.
- (5) Alterations shall be designed to accommodate all on- and off-site upstream drainage areas. Design capacities shall be determined as described in this chapter.
- (6) Entities owning property through which a watercourse passes, or such an entity's lessee, shall keep and maintain that part of the watercourse in accordance with this chapter and all applicable state and federal statutes and regulations. In addition, the entity or lessee shall maintain existing privately owned structures within or adjacent to the watercourse so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse. The entity or lessee shall not place or construct a privately-owned structure or other impairment within or adjacent to the watercourse such that is an impairment or a detriment to the flow of water within the channel.

B. Determination of Stormwater Runoff Rates

- (1) Stormwater runoff rates shall be calculated in accordance with Chapter 2 of the *Hendricks County Stormwater Technical Standards Manual*. Composite Runoff Coefficients shall be calculated and account for connected impervious surfaces such as downspouts connected to stormwater conveyance system; typical composite Runoff Coefficients shall not be used.
- (2) Stormwater drainage systems shall be designed to accommodate the following:
 - (a) All upstream off-site drainage
 - (b) Existing drain tiles from upstream

- (c) Diffused water flow from upstream properties
- (d) Storm sewers from upstream
- (e) The drainage collection system from within the project or property

C. Detention/Retention and Pond Requirements

(1) General Requirements

(a) Storage Volume

1. Storage volumes shall be computed using a computer model that can generate hydrographs based on the NRCS TR-55 time of concentration and curve number calculation methodologies.
2. Storm durations shall be used that maximize the peak flow for the pre-developed condition and maximize detention storage volume for the post-developed condition. The storm duration shall be equal to or greater than the site time of concentration but shall not be less than thirty (30) minutes.
3. When determining curve numbers for post-developed conditions, the initially determined hydrologic soil group for disturbed areas should be changed to the next less infiltrating capacity category (i.e., A to B, B to C and C to D).

(b) Detention Release Rates

1. Detention control devices shall limit the discharge to a rate such that the post developed release rate from the site is no greater than 0.2 cfs per acre of development for the 0-10 year return interval storms and 0.4 cfs per acre of developed area for the 11-100 year return interval storms.
2. The two-year (2-yr) (50% chance/year) peak runoff from the post-developed condition shall not exceed the two-year (2-yr) (50% chance/year) peak runoff from the pre-developed condition.
3. If the downstream receiving channel or pipe is inadequate to accommodate the post-developed flow, then the release rate must be further reduced.
4. The minimum allowable orifice size is four (4) inches.
5. For sites where the pre-developed area has more than one (1) outlet, the release rate should be computed based on pre-developed discharge to each outlet point. The computed release rate for each outlet point shall not be exceeded at the respective outlet point even if the post developed condition would involve a different arrangement of outlets.

(c) Runoff from upstream tributary areas (off-site areas) may be bypassed around the facility without attenuation. If it is to be routed through the facility, a separate outlet system or channel must accommodate those flows. Unless the pond is being designed as a regional detention facility, the primary outlet structure shall be sized and the invert elevation of the emergency overflow weir determined according to the onsite runoff only. Once the size and location of the primary outlet structure and the invert elevation of the emergency overflow weir are determined by considering on-site runoff, the one hundred-year (100-yr.) (1% chance/year) pond elevation is determined by routing the entire inflow, on-site and off-site, through the pond.

(d) The detention facility shall be designed in such a manner that a minimum of ninety percent (90%) of the maximum volume of water stored and subsequently released at the design release rate shall not result in a storage duration in excess of forty-eight (48) hours from the start of the storm unless additional storms occur within the period. In other words, the design shall ensure that a minimum ninety percent (90%) of the

original detention capacity is restored within forty-eight (48) hours from the start of the design one hundred-year (100-yr.) (1% chance/year) event.

- (e) Refer to the *Town of Brownsburg Construction Standards* for construction specifications for detention and retention ponds related to the maximum allowable depth of water, maintenance and safety ledges, underdrains in dry ponds and maximum side slopes of ponds.
 - (f) An emergency overflow/spillway shall be designed for the release of exceptional storm runoff or in emergency conditions should the normal discharge devices become totally or partially inoperative. The overflow facility shall be of such design that its operation is automatic and does not require manual attention. At a minimum, emergency spillways shall be capable of handling one hundred twenty-five percent (125%) of the inlet peak discharge resulting from the one hundred-year (100-yr.) (1% chance/year) storm event from the entire contributing watershed in the post-developed condition.
 - (g) All ponds (including both dry and wet ponds, and ponds that are not used for stormwater quality or quantity management) shall incorporate applicable requirements included in the Town's standard detail for "Detention/Retention Ponds."
 - (h) All detention/retention facilities (including underground detention) shall have an upstream BMP designed in accordance with §151.23 and installed for each inlet pipe, to collect sediments, debris, floatables, and other material prior to entering the detention/retention facility. Forebays are not acceptable. Position BMPs outside right-of-way and not more than fourteen (14) feet from a concrete or paved area for vac-truck and maintenance vehicle access.
 - (i) Underground detention facilities shall have sufficient observation wells or inspection ports, at least ten (10) inches in diameter, to allow access for inspection, maintenance, and regular cleaning operations in each underground chamber.
 - (j) Designers and developers are encouraged to consider methods of runoff reduction such as reducing impervious surface area, disconnecting impervious areas, promoting infiltration, stormwater capture and reuse, and other low-impact development methods to reduce requirements for on-site stormwater detention.
 - (k) Any regulations of the State Board of Health concerning standing water must be adhered to in the planning and use of temporary ponding facilities or other retention and detention devices.
 - (l) Stormwater detention/retention on roadways or driving lanes is not acceptable.
 - (m) For storm sewer pipes discharging into a pond, the lowest pipe invert at the first upstream storm sewer structure shall not be lower than the normal pool elevation of the pond.
 - (n) The outlet location must be approved by the Town of Brownsburg. The outlet control structure and piping shall be designed to operate simply and effectively with minimal maintenance. The outlet structure shall be positioned in an accessible location for maintenance.
 - (o) A safety ramp and ingress/egress easement from a nearby road must be provided for all ponds. The safety ramp shall be minimum twenty (20) feet wide and have a maximum exit slope of 6H:1V.
 - (p) Detention ponds located within a floodplain must be protected from the base flood elevation and shall not be designed to hold flood waters. Detention ponds may not be used for compensatory flood storage.
- (2) Pond Safety Signs

- (a) Provide sign with minimum sign area of one (1) square ft. and maximum sign area of four (4) square ft.
 - (b) Sign must be constructed of a permanent material, either wood or metal.
 - (c) At a minimum, pond safety signs must have the words “danger”, “no swimming”, and “stay off ice” and must have “no swimming” and “stay off ice” symbols. Warning may also prohibit trespassing, wading, or other recreational activities that would involve a person entering a pond.
 - (d) The sign color will be determined by the homeowners’ association, property owner or developer.
 - (e) Install signs no more than five hundred (500) feet apart. If pond has less than three thousand (3,000) square feet of water surface area, a minimum of two (2) signs are required. If pond has greater than three thousand (3,000) square feet of water surface area, a minimum of four (4) signs are required. A sign must be placed at all public access areas to the pond.
 - (f) Each developer of the construction area and subsequent homeowners’ association or property owners shall be responsible for the cost of maintenance and replacement of pond safety signs.
- (3) Landscaping for Ponds
- (a) Vegetation planting within drainage easements around ponds must be perennial grasses. Trees and/or shrubs are not allowed.
 - (b) Native grasses may be planted but must be periodically mowed or otherwise maintained to prevent woody vegetation from growing in easements.

D. Storm Sewer Design Standards

(1) Storm Sewer Requirements

- (a) Storm sewers, inlets, and manholes shall accommodate the ten-year (10-yr.) (10% chance/year) peak runoff and maintain the HGL below the crown of the pipe. Flood routing shall be provided in accordance with §151.21 (I). If an overflow route is not available, then the storm sewer system shall be designed for the one hundred-year (100-yr.) (1% chance/year) peak runoff HGL below the ground surface and less than six (6) inches of ponding at inlets.
- (b) The hydraulic capacity of storm sewers shall be computed using Manning’s Equation. Where storm sewers discharge into submerged outfalls, a backwater analysis shall be performed.
- (c) Minimum pipe size shall be twelve (12) inches.
- (d) Minimum full-flow velocity of two (2.0) feet per second is desirable to prevent sedimentation in the pipe. Maximum full-flow velocity of ten (10.0) feet per second is recommended. The minimum Manning’s n roughness value shall be twelve thousandths (0.012), regardless of material.
- (e) Storm sewer pipes shall have a minimum of twenty-four (24) inches of cover, measured from the crown of pipe to the ground surface. Shallower depth of cover may be considered by the Town under conditions where engineering design will alleviate concern for surface loadings and frost heave.
- (f) A minimum vertical separation of eighteen (18) inches shall be provided between storm sewers and other utilities (sanitary sewers, water mains, etc.).

(2) Storm Structure Requirements

- (a) Storm sewers shall be straight between storm structures (inlets and manholes).

- (b) Manholes shall be provided at the following locations:
 1. Where two (2) or more storm sewers converge
 2. Where the pipe size changes
 3. Where a change in horizontal alignment occurs
 4. Where a change in pipe grade occurs
 5. At intervals not to exceed four hundred (400) feet for pipes less than forty-eight (48) inches in diameter and not to exceed five hundred (500) feet for pipes forty-eight (48) inches in diameter and larger.
 - (c) A minimum drop of one tenth (0.1) foot shall be provided in storm structures.
 - (d) When changing pipe sizes in a storm structure, the crowns of pipe shall be matched unless HGL modeling shows that another arrangement would be as effective.
 - (e) All storm grate castings shall be pre-cast with a pollution prevention message permanently attached. The message shall be included on the site development plans and comply with the *Town of Brownsburg Construction Standards*.
 - (f) Exposed pipes greater than eighteen (18) inches in diameter shall be equipped with an animal guard or trash rack. Trash racks are typically installed at the inflow end of pipes and animal guards at the outflow end.
- (3) Inlet Sizing and Spacing
- (a) Inlets shall not be in the path where a pedestrian or bicycle is likely to travel.
 - (b) Inlet grate openings shall be designed to pass the ten-year (10-yr.) (10% chance/year) peak flow with fifty percent (50%) of the inlet area clogged with a maximum six (6) inches of ponding depth.
 - (c) When underground detention is utilized, inlet grate openings shall be designed to pass the one hundred-year (100-yr.) peak flow with fifty percent (50%) of the inlet area clogged with a maximum six (6) inches of ponding depth.
 - (d) Inlets shall be spaced to prevent water spread over six (6) feet into a travel lane of a street. Bypass flow from upstream inlets shall be incorporated into inlet calculations. Manufacturer's literature should provide the inlet casting's flow-intercept-efficiency coefficient. The United States Department of Transportation Hydraulic Engineering Circular-12 (HEC-12) methods may be used.
 - (e) Stormwater may not be stored on any pavement with pedestrian traffic. Stormwater may be stored on remote areas of pavement with a maximum water depth of six (6) inches.
 - (f) Flood routing shall be provided in accordance with § 151.21 (I).
- (4) Connections to the Storm Sewer System
- (c) Sump pumps which receive and discharge groundwater and other stormwater shall be connected to the storm sewer system where possible, preferably at an inlet or manhole structure. Sump pumps may also be connected to subsurface drains in accordance with § 151.21 (F).
 - (d) Footing, perimeter, and other subsurface drains shall be connected to the storm sewer system where possible, preferably at an inlet or manhole structure. Footing and perimeter drains may also be connected to subsurface drains in accordance with § 151.21 (F). Footing, perimeter, and other subsurface drain connections to the sanitary sewer are prohibited.
 - (e) Roof downspouts, roof drains, and other roof discharge piping shall be directly connected to a storm sewer system, preferably at an inlet or manhole structure. Downspouts and roof drains connections to the sanitary sewer are prohibited.

- (f) Floor drains and swimming pool drains shall not be directly connected to the storm sewer system. Discharges must flow over land surface before entering a storm system. Discharge must not impact adjacent properties. Floor drains and swimming pool drains shall be connected to an approved outlet and comply with the requirements of other Town ordinances established for control of illicit discharges and connections.
- (5) Landscaping for Underground Infrastructure
 - (a) Vegetation planting within drainage easements for underground storm systems, sewer pipes, cables, and other underground infrastructure must be perennial grasses. Trees and/or shrubs are not allowed.
 - (b) Native grasses may be planted but must be periodically mowed or otherwise maintained to prevent woody vegetation from growing in easements.

E. Open Channel Design Standards

- (1) General Requirements
 - (a) Any relocated open channels shall require stabilization measures to prevent sloughing from layers of seasonally saturated silts and sands.
 - (b) Roadside ditches shall be altered to meet the needs of “strip” housing along that road so that driveway crossings may be installed with adequate cover to prevent frost heave and to be coordinated on grade with each other. They shall be constructed with side slopes flat enough to allow easy mowing and maintenance, even though this may require grading beyond the road right-of-way into the lawns.
- (2) Open Channel Requirements
 - (a) Open channels, roadside ditches, swales, and culverts shall accommodate the twenty-five-year (25-yr.) (4% chance/year) peak runoff without overflowing the banks and shall accommodate the one hundred-year (100-yr.) (1% chance/year) peak runoff within the drainage easement, provided however:
 - 1. Open channels with a carrying capacity greater than or equal to thirty (30) cubic feet per second at bank-full stage shall be designed in accordance with the *National Resources Conservation Service Part 654 Stream Restoration Design National Engineering Handbook, Chapter 10: Two-Stage Channel Design* and be capable of accommodating the twenty-four (24) hour, fifty year (50-yr.) (2% chance/year) peak runoff without overflowing the banks;
 - 2. Culverts shall be capable of accommodating a fifty-year (50-yr.) (2% chance/year) peak runoff when crossing under a road which:
 - a. Carries a higher volume of traffic than other adjacent routes or has the potential for carrying higher volumes;
 - b. Is part of a pattern of arterial routes for the entire urban area;
 - c. Is oriented primarily to moving traffic rather than to serving abutting land use.
 - (b) Flood routing shall be provided in accordance with § 151.21 (I).
 - (c) Any alteration of an existing open outlet channel traversing a property shall be sized as described above or for the capacity of the existing channel, whichever is greater, with provisions made for the one-hundred- year (100-yr.) (1% chance/year) frequency storm so that flooding of adjacent structures, buildings, or properties will not occur. The approval of the IDNR, IDEM, and ACOE must be obtained and their requirements must be followed for all areas within their jurisdiction.

- (d) The hydraulic capacity of open channel systems shall be computed using Manning's Equation. Backwater analysis shall be performed to determine the one hundred-year (100-yr.) (1% chance/year) water surface elevation along open channel systems.
 - (e) Channel lining shall be designed to accommodate the ten-year (10-yr.) (10% chance/year) peak discharge. The channel lining material shall be selected such that the design shear stress is less than the maximum permissible shear stress for the lining material.
 - (f) For grass-lined channels, the side slope shall be no steeper than three (3) horizontal to one (1) vertical.
 - (g) For armored channels (turf reinforcement mat, riprap, etc.), the side slope shall be no steeper than one and one half (1-1/2) horizontal to one (1) vertical.
 - (h) Open channels with a bottom width greater than or equal to fifteen (15) feet shall have a riprap or paved invert to convey low flows and prevent meandering.
 - (i) Minor drainage collector swales in rear yards and between homes shall not exceed four hundred (400) feet in length and shall not be used to convey off-site drainage areas.
 - (j) Subsurface drains shall be required if the channel slope is less than one percent (1.0%). The minimum channel slope shall be three tenths of a percent (0.3%). A minimum channel velocity of two (2) feet per second is desired to prevent deposition within the channel. All rear yard swales shall have subsurface drains.
- (3) Culvert Requirements
- (a) Culverts shall be sized in accordance with the *Federal Highway Administration's HDS-5 Hydraulic Design of Highway Culverts*.
 - (b) Minimum pipe size shall be twelve (12) inches. Minimum full-flow velocity of three (3.0) feet per second is desirable to prevent sedimentation in the pipe. Maximum full-flow velocity of ten (10.0) feet per second is recommended. The minimum Manning's n roughness value shall be twelve thousandths (0.012), regardless of material.
 - (c) Culvert pipes shall have a minimum of twenty-four (24) inches of cover, measured from the crown of pipe to the ground surface, unless shown otherwise in *Town of Brownsburg Construction Standards*.
 - (d) Outlet protection and energy dissipaters shall be used wherever the velocity of flows leaving a culvert exceed the erosive velocity of the downstream channel.

F. Subsurface Drains Design Standards

- (1) Subsurface drains are required for any grass-lined open channel which drains three (3) acres or more.
- (2) Subsurface drains are required along all streets constructed in the Town to lower the seasonally high-water table in Brookston, Crosby, and Miami soil types.
- (3) Tees must be provided along the subsurface system to provide an outlet for footing drains and sump pumps from each lot.
- (4) Subsurface drains shall be a minimum of six (6) inches diameter for areas receiving subsurface flow only. Subsurface drains which may receive surface (roof drains, yard drains, etc.) and subsurface flows shall be a minimum of twelve (12) inches diameter. Underdrain capacity calculations shall be provided to ensure underdrains are properly sized for the subsurface and surface flows.
- (5) Subsurface drains shall have a minimum of twenty-four (24) inches of cover unless shown otherwise in *Town of Brownsburg Construction Standards*.

G. Low Impact Development Design Standards

- (1) Low Impact Development (LID) is an approach to land planning and engineering design which manages rainfall at the source to reduce stormwater runoff and manage runoff timing, emphasizes conservation and natural features, and protects water quality by controlling pollutants.
- (2) Designers and developers are encouraged to consider methods of runoff reduction such as reducing impervious surface area, disconnecting impervious areas, promoting infiltration, stormwater capture and reuse, and other LID methods to reduce requirements for on-site stormwater detention.
- (3) LID features shall conform to current industry guidelines and will be reviewed on a case-by-case basis. Green infrastructure and stormwater BMPs shall be designed in accordance with the *Hendricks County Stormwater Technical Standards Manual* or the *Indiana Stormwater Quality Manual*. All design calculations and justification shall be submitted for review.

H. Standards for Adequate Outlet

- (1) Stormwater and drainage from the site must be discharged into an adequate outlet or outlets so as not to adversely affect other landowners. The criteria for outletting is as follows:
 - (a) Open channels shall outlet into an existing open channel, provided that stream bank and channel erosion shall not be aggravated and that the hazard of flooding shall not be increased.
 - (b) All storm sewers shall outlet into an open channel, storm sewer pipe, detention basin, or retention pond.
 - (c) Subsurface drains shall outlet into an open channel, storm sewer pipe, detention basin, retention pond, or existing tile drain, provided that the existing drain has adequate capacity, is not deteriorated, and can be maintained.
 - (d) Detention/retention ponds shall outlet into an open channel or storm sewer pipe.
- (2) Include calculations demonstrating that the receiving conveyance or pipe has adequate capacity for the total flow, including any additional flow from the development.

I. Flood Routing

- (1) Stormwater ponding and overflow path routing shall be evaluated for the peak one hundred-year (100-yr.) (1% chance/year) storm event.
- (2) Peak runoff flows shall be calculated for all contributing drainage areas, on-site and off-site, in their proposed or reasonably anticipated land use.
- (3) The stormwater collection system (storm sewers, open channels, etc.) shall be assumed full (at capacity) from a previous storm event at the beginning of the flood routing analysis.
- (4) The overflow path/ponding resulting from the flood routing event shall be clearly shown as a hatched area on the plans. Plans shall include cross sections along the flood route path. Cross sections shall include the existing surface, proposed grading, and the maximum water elevation for the peak one hundred-year (100-yr.) (1% chance/year) storm event.
- (5) The flood routing path and ponding areas shall be placed in a right-of-way or drainage easement in accordance with § 151.21 (J). The flood routing path must continue to an adequate conveyance or receiving stream.
- (6) The overflow path/ponding may be modeled as a successive series of natural ponds and open channel segments. The calculations for determining the one hundred-year (100-yr.) (1% chance/year) flood routing elevations may be based on hand calculation methods utilizing normal depth calculations and storage routing techniques or performed by computer models such as USDA SCS Technical Release 20 (TR-20); ACOE HEC-HMS, and ACOE HEC-1 in combination with ACOE HEC-RAS.

J. Drainage Easements

- (1) Drainage easements must be provided for maintenance of the stormwater management system of publicly owned systems and privately-owned ponds, detention/retention basins, water quality BMPs, and LID practices. Easements are not required for other private systems.

Area or Situation	Easement Width
Storm sewer (smaller than 24-in.)	20 feet, centered over sewer
Storm sewer (24-in. and larger)	25 feet, centered over sewer
Grassed waterways (including equivalent sized-lined channels)	Width of channel plus 15 feet, centered over waterway
Subsurface drain	20 feet, centered over drain
Open outlet channel (including equivalent sized-lined channels)	20 feet from top of each bank
Retention pond, detention basin, and/or permanent sediment basin	Elevation of the emergency spillway design flow, plus 20 feet (horizontally)
Underground detention facility	Detention facility footprint plus 15 feet in every direction (horizontally)
Stormwater BMP (above or below grade)	BMP footprint plus 15 feet in every direction (horizontally)
Flood routing path/ponding area	Width of flood path/ponding area

- (2) Access easements must be provided from a public roadway to the drainage easement, for access to stormwater management facilities.
- (3) Structures, fences, or landscaping may not be placed in an easement in a way that will impede the free flow of stormwater.
- (4) Drainage easements shall be maintained by the property owner.

K. Grading and Building Pad Elevation Policy

- (1) No construction of buildings within the Town shall be permitted within twenty-five (25) feet of a stormwater conveyance or within twenty-five (25) feet of the side slopes of open channels without plans prepared by registered engineers, land surveyors or architects, certifying that there is adequate room for maintenance of the drainage facility.
- (2) No building or structure shall be separated by the one hundred-year (100-yr.) (1% chance/year) elevation of stormwater detention facilities by less than twenty-five (25) feet.
- (3) The Lowest Adjacent Grade (including walkout basement floor elevation) of all residential, commercial, or industrial buildings must be located a minimum of two (2) feet above the one-hundred-year (100-yr) (1% chance/year) flood elevation, the one hundred-year (100-yr.) (1% chance/year) pond elevation, or the emergency overflow weir elevation, whichever is higher. The Lowest Adjacent Grade for all residential, commercial, and industrial buildings shall be set a minimum of one (1) foot above the noted overflow path/ponding elevation resulting from flood routing as described in § 151.21 (I) and included on the Final Plat.
- (4) Positive drainage shall be provided over the entire lot. Protective slopes shall slope away from building foundations and water supply wells for a minimum of six (6) inches of fall per ten (10) feet horizontal, except where restricted by property lines. Maximum gradient of protective slopes shall be two and one half (2-1/2) inches per foot or twenty-one percent (21%) for a minimum of four (4) feet away from all building walls, except where restricted by property lines.

L. Adjoining Property Impacts Policy

- (1) Land disturbance, and alterations to the site shall provide for the discharge of all stormwater runoff from upstream off-site areas as well as the stormwater runoff from the areas being developed or altered to one or more acceptable outlets having capacity to receive upstream on-site and off-site drainage (as determined by the Development Services Department).
- (2) No activities conducted as part of the land disturbance shall be allowed to obstruct the free flow of flood waters from an upstream property. Any existing field tile or other stormwater facility encountered during the construction shall be incorporated into the proposed stormwater collection system or otherwise tied to an acceptable outlet. Design calculations shall be provided to demonstrate that the downstream system has sufficient capacity to accommodate flows from existing facility. Calculations shall be certified by a Professional Engineer or Land Surveyor licensed in the State of Indiana.
- (3) Where an adequate outlet is not located on the site or the outfall from a site's stormwater system flows onto or through property not owned by the developer prior to reaching a regulated drain or natural waterway, off-site drainage improvements may be required and the flow path must be contained with a right-of-way or easement. Off-site improvements may include, but are not limited to, extending or replacing storm sewers; clearing, dredging, and removing obstructions to open channels or natural waterways; and replacement of undersized culvert pipes.

§ 151.22 STANDARDS FOR STORMWATER POLLUTION PREVENTION PLANS FOR LAND DISTURBANCES

A. Applicability and Exemptions.

- (1) The Town will require a SWPPP, which includes erosion and sediment control measures, pollution prevention practices and materials handling procedures, to be submitted as part of the construction plans and specifications. Any project located within the Town that involves land disturbance (with exception of items 151.22 (A)(2) and (A)(3) below) shall comply with this section. Calculation of land disturbance should follow the guidelines contained in § 151.22 (C). Land disturbance falls into one of two categories with differing requirements as follows:
 - (a) Land disturbances which are one (1) or more acres shall obtain coverage under IDEM's CSGP for construction activities and are subject to the requirement of this section. This section also applies to disturbances of less than one (1) acre of land that are part of a larger common plan of development or sale if the larger common plan will ultimately disturb one (1) or more acres of land.
 - (b) Land disturbances which are less than one (1) acre shall submit a SWPPP that at a minimum includes the following:
 1. Installation and maintenance of appropriate perimeter control measures. These measures are to be installed prior to land disturbance and maintained until bare soils are permanently stabilized to at least seventy percent (70%) density of permanent perennial vegetated cover. Maintain existing vegetation when possible.
 2. Installation of a temporary construction entrance/drive. Minimize sediment and soil discharge and tracking from the disturbed area. Clean-up sediment that is either tracked or washed on to roads or into stormwater conveyances (sewers, ditches, waterways, storm inlets, and the like). Cleaning surfaces shall not include flushing the area with water. Cleared sediment and soil must be collected and redistributed or disposed of in a manner that is compliant with all applicable statutes and rules.

3. Establish a concrete washout area to contain residual concrete and washout waters. Water collected from washout that does not harden or evaporate must be handled as wastewater.
 4. Bare soils are to be stabilized in areas where work is complete, or where bare soils are to be inactive for more than seven (7) days. Utilize soil stabilization measures that are appropriate for the season.
 5. Adjacent areas disturbed by an individual lot operator must be repaired and stabilized with temporary or permanent surface stabilization.
 6. Install inlet protection at all stormwater inlets that receive runoff from disturbed areas. For inlets within a road or driving lane, inlet protection must be installed below the grate with an overflow or bypass so that ponding water does not cause unsafe driving conditions.
 7. Where construction disturbs surfaces greater than 3H:1V slope or in areas of concentrated flow, establish permanent vegetation with erosion control blanket and seeding.
- (2) The requirements under this chapter do not apply to the following activities:
- (g) Agricultural land-disturbing activities, including tillage, planting, cultivation, or harvesting operations for the production of agricultural or nursery and vegetative crops, pasture renovation and establishment, the construction of agricultural conservation practices, and the installation and maintenance of agricultural drainage tile.
 - (h) Silvicultural activities associated with nonpoint discharges (40 CFR 122.27)
 - (i) Stormwater discharges associated with oil and gas exploration, production, processing or treatment operations, or transmission facilities (40 CFR 122.26).
 - (j) Ditch maintenance for activities performed on a regulated drain by a county drainage board as defined in IC 36-9-27.
 - (k) Single family residential with disturbance of less than five hundred (500) square feet.
- (3) The requirements under this section do not apply to the following activities, provided other applicable state permits contain provisions requiring immediate implementation of soil erosion control and pollution prevention measures:
- (l) Landfills that have been issued a certification of closure under 329 IAC 10.
 - (m) Coal mining activities permitted under IC 14-34.
 - (n) Municipal solid waste landfills that are accepting waste pursuant to a permit issued by IDEM under 329 IAC 10 that contains equivalent stormwater requirements, including the expansion of landfill boundaries and construction of new cells either within or outside the original solid waste permit boundary.
- (4) For an individual lot where land disturbance is expected to be one (1) acre or more, the individual lot owner must complete their own Notice of Intent (NOI) letter, obtain Stormwater Management Plan approval, and ensure that a SWPPP is completed in accordance with the requirements of this chapter and other relevant ordinances.
- (5) An individual lot with land disturbance less than one (1) acre, located within a larger permitted project site, is considered part of the larger permitted project site, and the individual lot operator must comply with the terms and conditions of the Stormwater Management Plan approved for the larger project site. The Stormwater Management Plan for the larger project site must include detailed erosion and sediment control measures for individual lots. The following general requirements apply to all individual building lots, where the individual lot operator/owner is working within a permitted project.

- (o) All stormwater measures, including erosion and sediment control measures, necessary to comply with this permit must be implemented in accordance with the overall project construction plan
- (p) Provisions for erosion and sediment control and project management on individual building lots regulated under the overall project site permit must ensure:
 - 1. The individual lot operator (contractor/subcontractor), whether owning the property or acting as the agent of the individual lot owner, is responsible for erosion and sediment control requirements associated with activities on individual lots.
 - 2. Installation and maintenance of a stable construction site access unless the site is to be accessed solely from impervious or similar non-erosive areas.
 - 3. Installation and maintenance of appropriate erosion and sediment control measures prior to land disturbance.
 - 4. Temporary stabilization is utilized on the building site, but not required during periods when accessibility to the building site is a necessity.
 - 5. Sediment discharges and tracking from each lot is minimized until permanent stabilization has been achieved.
 - 6. Sediment that is either tracked or discharged onto internal project site roads is removed by the end the same day. Clearing of sediment must not include flushing the area with water, unless authorized by the permittee of the overall project site and the sediment is directed to an appropriate on-site sediment control measure. Cleared sediment must be redistributed or disposed of in a manner that is compliant with all applicable statutes and rules.
 - 7. Adjacent lots disturbed by an individual lot operator are required to be repaired and stabilized with permanent surface stabilization.
 - 8. Construction and domestic waste must be managed to prevent the discharge of pollutants and windblown debris. When disposed of in waste containers (trash receptacles) the receptacle must be covered when not in use and at the end of the day. Waste that is not disposed of in trash receptacles must be removed at the end of the day from the site and disposed of properly.
 - 9. Demolition waste must be managed to prevent windblown debris and to protect water quality.
 - 10. Concrete washout areas provided by the permittee of the overall project site are utilized unless a leak-proof containment system is operated on the building lot, or special arrangements are made to properly dispose of the wash water. Concrete washout systems on individual lots must be properly installed and maintained. Wash water must be disposed of by the individual lot operator and is not allowed to discharge.
- (c) For an individual residential lot to be considered stabilized according to the criteria in § 151.28, the individual lot operator must:
 - 1. Complete final stabilization taking into account weather and season;
 - 2. Initiate permanent seeding with appropriately crimped or tackified mulch cover, erosion control blanket, sod; or
 - 3. Install appropriate and/or ensure functional erosion and sediment control measures are in place on the individual lot. Upon issuance of the certificate of occupancy and concurrence of the homeowner, the homeowner is responsible to maintain the sediment control measures until final stabilization has occurred.

- (6) It will be the responsibility of the project site owner to obtain Stormwater Management Plan approval and ensure that a sufficient construction plan is completed and submitted to the Town in accordance with the requirements of this section and other relevant ordinances. It will be the responsibility of the project site owner to ensure compliance with this section during the construction activity and implementation of the construction plan, and to notify the Town with a sufficient NOT letter upon completion of the project and stabilization of the site. However, all persons engaging in construction and land disturbing activities must comply with the requirements of this section.
- (7) For land disturbing projects owned or operated by the Town, construction plans must be submitted to the Development Services Department and County SWCD for review and approval.

B. Policy on Stormwater Pollution Prevention.

Effective stormwater pollution prevention on construction sites is dependent on a combination of preventing movement of soil from its original position (erosion control), intercepting displaced soil prior to entering a waterbody (sediment control), and proper on-site materials handling and pollution prevention practices. The developer must submit to the Town a SWPPP with detailed erosion and sediment control plans as well as a narrative describing materials handling and storage, and construction sequencing. The following principles apply to all land-disturbing activities and should be considered in the preparation of a stormwater pollution prevention plan within the Town.

- (1) Minimize the potential for erosion by designing a development that fits the topography and soils of the site. Deep cuts and fills in areas with steep slopes should be avoided whenever possible, and natural contours should be followed as closely as possible.
- (2) Existing natural buffers that are adjacent to waters of the state to promote infiltration and provide protection of the water resource shall be preserved, unless infeasible. Activities performed by a county drainage board under IC 36-9-27 are excluded.
- (3) Natural buffers must be preserved, including the entire buffer bordering and/or surrounding the water resource. Buffers:
 - (q) Fifty (50) feet or more in width must be preserved to a minimum of fifty (50) feet.
 - (r) Less than fifty (50) feet in width must be preserved in their entirety.
 - (s) May be enhanced with vegetation that is native and promotes ecological improvement and sustainability.
 - (t) Runoff directed to the natural buffer must be:
 - 1. Treated with appropriate erosion and sediment control measures prior to discharging to the buffer.
 - 2. Managed with appropriate runoff control measures to prevent erosion from occurring within the buffer area.
 - (u) Further information regarding buffer requirements is contained in IDEM's "Implementation of Buffers" guidance document.
- (4) Unvegetated or vegetated areas with less than seventy percent (70%) cover that are scheduled or likely to be left inactive for seven (7) days or more must be temporarily or permanently stabilized with measures appropriate for the season to reduce erosion potential. Alternative measures to site stabilization may be acceptable if the project site owner or their representative can demonstrate they have implemented and maintained erosion and sediment control measures adequate to prevent sediment discharge from the inactive area.

Vegetated areas with a density of less than seventy percent (70%) shall be restabilized using appropriate methods to minimize the erosion potential.

- (5) All practices on a site should be conducted in a logical sequence so that the smallest practical area of land will be exposed for the shortest practical period during land disturbing activities.
- (6) The length and steepness of designed slopes should be minimized to reduce erosion potential. Drainage channels and swales must be designed and adequately protected so that their final gradients and resultant velocities will not cause erosion in the receiving channel or at the outlet. Guidance for determining acceptable velocities and energy dissipation is provided in HEC-14.
- (7) Sediment basins, where feasible, must withdraw water from the surface of the water column.
- (8) Basin slopes must be stabilized upon achieving design grades to eliminate sediment inflow from the measure itself.
- (9) The outfall of a basin must be stabilized and non-erosive within twenty-four (24) hours of installation of the basin outlet.
- (10) Pipe outlets discharging from the project site must be provided with temporary or permanent energy dissipation within twenty-four (24) hours of discharging runoff.
- (11) Sediment-laden water which otherwise would flow from the project site shall be treated by erosion and sediment control measures appropriate to minimize sedimentation
- (12) A stable construction site access shall be provided at all points of construction traffic ingress and egress to the project site.
- (13) Stormwater runoff leaving a project site must be discharged in a manner that is consistent with applicable state or federal law.
- (14) Appropriate measures shall be implemented to prevent wastes or unused building materials, including garbage, debris, packaging material, fuels and petroleum products, hazardous materials or wastes, cleaning wastes, wastewater, concrete truck washout, port-a-let waste, and other substances from being carried from a project site by runoff or wind. Identification of areas where concrete truck washout is permissible must be clearly posted at appropriate areas of the site. Wastes and unused building materials shall be managed and disposed of in accordance with all applicable state statutes and regulations. Proper storage and handling of materials such as fuels or hazardous wastes, and spill prevention and cleanup measures shall be implemented to minimize the potential for pollutants to contaminate surface or groundwater or degrade soil quality.
- (15) Public or private roadways shall be kept cleared of accumulated sediment that is a result of runoff or tracking. Bulk clearing of accumulated sediment shall not include flushing the area with water. Cleared sediment shall be redistributed or disposed of in a manner that is in accordance with all applicable statutes and regulations.
- (16) Natural features, including wetlands and sinkholes, shall be protected from pollutants associated with stormwater runoff.
- (17) Ground water from the dewatering of excavations, trenches, foundations, etc. must not be discharged when:
 - (a) Sediment and ground water is not first directed to an appropriate stormwater quality measure or a series of control measures that minimize the discharge of the sediment.
 - (v) A visible sheen and/or pollutants are present at a level that requires additional treatment and/or an individual permit from IDEM.

- (18) Fertilizer applications associated with the stabilization plan for the project must meet the following requirements:
- (a) Apply fertilizer at a rate and amount as determined by a soil analysis or in accordance with the Indiana Stormwater Quality Manual or similar guidance documents.
 - (w) Apply fertilizer at an appropriate time of year for the project location, taking into consideration proximity to a waterbody, and preferably timed to coincide with the period of maximum vegetative uptake and growth.
 - (x) Avoid applying fertilizer before rainfall events that could result in the discharge of nutrients.
- (19) Soil compaction is to be minimized, especially in areas where permanent vegetation will be re-established and/or areas that are designated to infiltrate stormwater for the post-construction phase.
- (20) Topsoil is to be preserved, unless infeasible.
- (21) Generation of dust shall be minimized through dust suppression techniques to prevent deposition into waters of the state.
- (22) The use of anionic polymers (cationic polymers are not authorized for use) on the project site are authorized for sediment control provided their use is in conformance with current State of Indiana standards and specifications. The use of the polymers requires notification to IDEM and the Town.
- (23) Required Postings.
- (a) The project site owner shall post a notice near the main entrance of the project site. For linear projects sites, such as a pipeline or highway, the notice must be placed in a publicly accessible location near the project field office. The notice must be maintained in a legible condition and contain the following information:
 - 1. Copy of the completed IDEM NOI and the CSGP number issued by IDEM, where applicable.
 - 2. Name, company name, telephone number, e-mail address (if available), and address of the project site owner or a local contact person.
 - 3. Location of the construction plan.
 - (y) This permit and posting of the notice does not provide the public with any right to trespass on a project site for any reason, nor does it require that the project site owner allow members of the public access to the project site.
- (24) All stormwater quality measures must be designed and installed under the guidance of a trained individual (refer to definitions section or according to the requirements of the CSGP).
- (25) Certified professionals shall be utilized for activities associated with the development and design of the SWPPP, stormwater measure implementation, and stormwater project management.
- (26) Personnel associated with the project must be informed of the terms and conditions of this permit and the requirements within the SWPPP. The permittee is required to document this process. Information must be provided through training, preconstruction meetings, written notification, contracts, or other means that effectively communicates the provisions and requirements of the permit and SWPPP. Personnel include, but are not limited to:
- (a) General contractors, construction management firms, grading or excavating contractors, trade industry representatives (i.e., concrete industry), and utility contractors associated with the overall project.

- (z) Contractors or individual lot operators that have primary oversight on individual building lots.
- (aa) Those responsible for the implementation of the SWPPP, and the installation, repair, and maintenance of stormwater measures.
- (bb) Those responsible for the application and storage of treatment chemicals.
- (cc) Those responsible for administering inspections.

C. Calculations and Design Standards and Specifications.

- (1) In calculating the total area of land disturbance, for the purposes of determining applicability of this section to the project, the following guidelines should be used:
 - (a) Off-site construction activities that provide services (for example, road extensions, sewer, water, and other utilities) to a land disturbing project site, must be considered as a part of the total land disturbance calculation for the project site, when the activity is under the control of the project site owner.
 - (dd) Strip developments will be considered as one (1) project site and must comply with this chapter unless the total combined disturbance on all individual lots is less than one (1) acre and is not part of a larger common plan of development or sale.
 - (ee) To determine if multi-lot project sites are regulated by this chapter, the area of land disturbance shall be calculated by adding the total area of land disturbance for improvements, such as, roads, utilities, or common areas, and the expected total disturbance on each individual lot, as determined by the following:
 - 1. A single-family residential project site where the lot(s) is one-half (0.5) acre or more in total size, as one-half (0.5) acre of land disturbance.
 - 2. A single-family residential project site where the lot(s) is less than one-half (0.5) acre in size, as the actual lot size.
 - 3. All other types of project sites, such as industrial and commercial project sites, as a minimum of one (1) acre for all lots regardless of size.
- (2) The calculation methods as well as the type, sizing, and placement of all stormwater pollution prevention measures for construction sites shall meet the design criteria, standards, and specifications outlined in the *Indiana Stormwater Quality Manual* and the *Town of Brownsburg Construction Standards*.

D. Submittal Requirements.

For those projects meeting the requirements of this section, a construction stormwater pollution prevention plan is required in addition to the submittal requirements listed in § 151.20. This plan must include the following information:

- (1) IDEM NOI form along with the information required by the NOI form.
- (2) Proof of publication in a newspaper of general circulation, in the affected area, that notified the public that a construction activity is to commence. The publication must include language required by the CSGP.
- (3) Construction plans and SWPPP shall contain the information required by the CSGP. SWPPP figures shall also contain the following:
 - (a) Contour lines with maximum one (1) foot contour interval
 - (ff) Stormwater infrastructure and facilities
 - (gg) Open conveyances
 - (hh) Flood routing path and ponding locations in accordance with § 151.21 (I)
- (4) SWPPP sequencing shall consider various phases of construction activities and may require more than one (1) SWPPP plan sheet. Possible phases of construction include initial

clearing, earth moving activities, hauling of borrow or fill soils, current site conditions, installation of infrastructure, final stabilization, off-site work associated with the project, etc.

§ 151.23 STORMWATER QUALITY MANAGEMENT FOR POST-CONSTRUCTION

A. Applicability and Exemptions

- (1)** The stormwater application must include post-construction stormwater quality measures. These measures are incorporated as a permanent feature into the site plan and are left in place following completion of construction activities to continuously treat stormwater runoff from the stabilized site. Any project located within the Town that includes clearing, grading, excavation, and other land disturbing activities, resulting in the disturbance of one (1) acre or more of total land area, is subject to the requirements of this section. This includes land disturbances of less than one (1) acre of land that are part of a larger common plan of development or sale if the larger common plan will ultimately disturb one (1) or more acres of land.
- (2)** The requirements under this section do not apply to the following activities:
 - (a)** Land-disturbing activities where there will be no additional impervious surfaces associated with the final completed project, including but not limited to, ditch construction/reconstruction and utility installation/maintenance activities.
 - (b)** Single-family residential strip development offered for sale or lease without land improvements and the project is not part of a larger common plan of development or sale.
 - (c)** Residential developments consisting of four (4) or fewer lots where the proposed impervious surfaces are ten percent (10%) or less of the project acreage. Impervious is determined by the sum of all infrastructure (roads, paths, parking, etc.) and the average projects hard surfaces associated with all building lots within the project.
 - (d)** Single-family residential strip development offered for sale or lease without land improvements, and the project is not part of a larger common plan of development or sale.
- (3)** It will be the responsibility of the project site owner to ensure proper construction and installation of all stormwater BMPs in compliance with this chapter and with the approved Stormwater Management Plan, and to notify the Town with a sufficient NOT letter upon completion of the project and stabilization of the site. However, all eventual property owners of stormwater quality facilities meeting the applicability requirements must comply with the requirements of this chapter and this section.

B. Policy on Stormwater Quality Management.

- (1)** BMPs must be implemented for the management of total suspended solids (TSS) including floatables. BMP systems or treatment trains shall have at least one component of the system providing floatable control. Position BMPs outside right-of-way and not more than fourteen (14) feet from a concrete or paved area for vac-truck and maintenance vehicle access.
- (2)** The project site owner must submit to the Town a SWPPP that would show placement of appropriate BMPs designed, constructed, and maintained.
- (3)** For ease of maintenance and to reduce the frequency of pond dredging, all detention/retention facilities (including underground detention) shall have an upstream BMP installed for each inlet pipe, to collect sediments, debris, floatables, and other material prior to entering the detention/retention facility. Forebays are not acceptable.

- (4) Fueling areas must install appropriate practices to reduce lead, copper, zinc, and polyaromatic hydrocarbons in stormwater runoff. These requirements will apply to all new facilities and existing facilities that replace their fuel tanks.
- (5) Infiltration practices will not be allowed in wellhead protection areas. Discharges will not be allowed directly into sinkholes or fractured bedrock, without treatment that results in the discharge meeting Indiana groundwater quality standards as referenced in 327 IAC 2-11.
- (6) Any stormwater practice that is a Class V injection well must ensure that the discharge from such practices meets Indiana groundwater quality standards as referenced in 327 IAC 2-11.

C. Calculations and Design Standards and Specifications.

- (1) Calculation of land disturbance should follow the guidelines contained in § 151.22 (C).
- (2) The target TSS removal rate is eighty percent (80%). For the purposes of this requirement, TSS is defined as particles smaller than one hundred twenty-five (125) microns in diameter.
- (3) There are two methods for calculating the required size of a BMP. The first method calculates the water quality volume to be treated, which applies to detention-based BMPs. The second method calculates the water quality peak flow rate to be treated, which applies to filtration processes and mechanical-type BMPs such as hydrodynamic devices.
- (4) The appropriate stormwater quality volume (WQ_v) and/or stormwater quality flow rate (Q_{wq}) generated from a qualifying site shall be adequately treated before discharge. Traditional structural BMPs are presumed to comply with the eighty percent (80%) TSS removal rate if BMPs are:
 - (a) Sized to capture the prescribed water quality volume or flow rate, as applicable;
 - (b) Designed according to the specific performance criteria outlined in *Appendix D* of the *Hendricks County Stormwater Technical Standard Manual* or the *Indiana Stormwater Quality Manual*;
 - (c) Constructed properly; and
 - (d) Maintained regularly.
- (5) Mechanical-type BMPs must be approved by the Town and meet ASTM standard methods for verifying performance and must be certified by a professional engineer. The BMP must meet the eighty percent (80%) TSS removal rate and floatable control without resuspension of particles at the design water quality flow rate resulting from a one inch (1-inch) rainfall depth. Testing of the TSS removal rate must be conducted by an independent testing facility rather than by the manufacturer.
- (6) Water Quality Volume (WQ_v) - The WQ_v is the storage needed to capture and treat the runoff from the first one inch (1-inch) of rainfall. A twenty-four (24) to forty (40) hour emptying time must be used for the release of the WQ_v , with no more than fifty percent (50%) of the water quality volume being released in the first twelve (12) hours. The WQ_v is equivalent to one inch (1-inch) of rainfall multiplied by the volumetric runoff coefficient (R_v) and the site area. The volume of runoff is directly related to the amount of impervious cover at the site and is calculated using the following equation.

$$WQ_v = \frac{P R_v A}{12}$$

where:

WQ_v = water quality volume (acre-feet, ac-ft)

P = rainfall depth (inches, in) = 1 inch

R_v = volumetric runoff coefficient – see the following equation

A = site area (acres)

$$R_v = 0.05 + 0.009 I$$

where:

R_v = volumetric runoff coefficient

I = percentage of impervious cover (%)

- (7) Water Quality Flow Rate (Q_{wq}) - The Q_{wq} is needed to size BMP devices designed to treat runoff at a peak design flow rate through the system. The rational method in conjunction with a rainfall intensity will be used to calculate the Q_{wq} in cfs. This method relies on an intensity that is one-half (0.5) of the two-year (2-yr) (50% chance/year) storm intensity from the intensity-duration-frequency curve along with the percent of impervious cover to identify the appropriate runoff coefficient for the proposed land use.

Step 1 – Using the percent of impervious cover, calculate the corresponding runoff coefficient for land use using the following equation:

$$C = 0.858 i_c^3 - 0.78 i_c^2 + 0.774 i_c + 0.04$$

where:

C = Runoff Coefficient for Land Use

i_c = Percent of Impervious Cover (% / 100)

Step 2 – Calculate the site time of concentration in minutes (T_c) and area in acres (A).

Step 3 – Using the time of concentration (T_c), define the peak intensity (in inches/hour) of the two-year (2-yr) (50% chance/year) storm event utilizing the intensity-duration-frequency curve (shown in table form) from the NOAA Point Precipitation Frequency Estimates which can be found at

https://hdsc.nws.noaa.gov/pfds/pfds_map_cont.html?bkmrk=in. Interpolation may be necessary for times of concentration between given values.

Step 4 – To meet the design specification, divide the intensity determined in Step 3 by two (2) to identify one-half (0.5) of the two-year (2-yr) (50% chance/year) storm intensity.

Step 5 – Use the Rational Method equation shown utilizing the previously calculated values to calculate Q_{wq} .

$$Q_{wq} = C \times p \times A$$

where:

Q_{wq} = Water Quality Flow Rate (cfs)

C = Runoff Coefficient for Land Use

p = one-half (0.5) of the two-year (2-yr) (50% chance/year) storm intensity (inches/hour)

A = Area (acres)

D. Easement Requirements.

All stormwater quality management systems, including detention or retention basins, filter strips, pocket wetlands, in-line filters, infiltration systems, conveyance systems, structures and appurtenances are to be located outside of the right-of-way and shall be incorporated into permanent easements as listed in § 151.21 (J).

E. Submittal Requirements.

A post-construction stormwater pollution prevention plan is required in addition to the submittal requirements listed in § 151.20. This plan must include the following information:

- (1) A description of potential pollutant generating sources and a list of pollutants from the proposed land use that may reasonably be expected to contribute pollutants to stormwater discharges.
- (2) A description of stormwater quality and stormwater management measures that will be installed to address post-construction sources that are expected to generate pollutants in stormwater discharges after construction activities have been completed. The measures selected should achieve, at a minimum, the following objectives:
 - (a) Stormwater quality measures that target pollutants of concern and are designed to remove or minimize pollutants from stormwater runoff that is associated with the final land use.
 - (ii) Stormwater quality measures that will be implemented to prevent or minimize adverse impacts to aquatic resources including, but not limited to, wetlands, streams, karst features, and riparian habitats.
 - (jj) Stormwater management measures that will address the potential impacts of increased runoff from the project. Measures must be designed and approved according to this permit or where applicable local requirements and drainage ordinances. A certified professional must approve that the design meets the applicable requirement(s).
 - (kk) Measures, including structural and those based on low impact development principles, selected to address the pollutant(s) of concern, reduction of peak flows, and ability to infiltrate.
 - (ll) Protective measures that will be implemented during active construction when the type of post-construction measure(s) planned are susceptible to pollutants, specifically sediment that may be generated during land-disturbing activities.
 - (mm) Measures that will prevent or minimize adverse impacts to stream and riparian habitat.
- (3) The location, dimensions, detailed specifications, and construction details of all post-construction stormwater quality and stormwater management measures.
- (4) A sequence describing when each post-construction stormwater measure will be installed in relation to project construction.
- (5) An O&M Manual shall be provided in accordance with § 151.29. This O&M Manual must be signed and provided to future parties who will assume responsibility for the operation and long-term maintenance of the post-construction stormwater measures.

- (6) Calculations demonstrating the required water quality treatment volume or water quality treatment rate for post-construction stormwater quality measures.
- (7) A sequence describing when each post-construction stormwater quality measure will be installed.

§ 151.24 RESERVED

§ 151.25 STORAGE OF POLLUTANTS

Storage or stockpiling of pollutants within any floodplain is strictly prohibited. Storage or stockpiling of pollutants on active construction sites must include adequate protection and/or containment to prevent any such materials from entering any temporary or permanent stormwater conveyance or watercourse.

§ 151.26 REQUIRED ASSURANCES

A. Performance Bonds.

- (1) Applicant shall provide financial performance assurance in the form of a performance bond, certified check, irrevocable letter of credit, or certificate of deposit after receiving an approved secondary plat. Assurance shall be made out to the Town of Brownsburg for an amount equal to one hundred and ten percent (110%) of the total costs of implementing measures required by this chapter. A cost estimate prepared by the design engineer is to be submitted and approved by the Town.
- (2) Said performance bond shall guarantee a good faith execution of the stormwater quantity and quality management plans, stormwater pollution prevention plan, and any other conditions of plan approval (collectively known as the Stormwater Management Plan). Said costs shall be for the installation and continuous installation, monitoring, and maintenance of stormwater infrastructure, temporary and permanent sediment and erosion control measures, detention/retention facilities and other water quantity BMPs, and stormwater quality BMPs, as regulated under this chapter. The intent of this performance bond is not only to complete the installation of stormwater infrastructure for the project, but also to ensure that adequate stormwater pollution prevention measures are properly installed and maintained.
- (3) Performance bonds shall be kept current until the project receives final approval from the Development Services Department. Delinquent performance bonds or other assurances will result in penalties and corrective actions as defined in § 151.90 and § 151.91.
- (4) Should the owner/applicant fail to comply with the provisions of this chapter, in addition to any other remedies the Development Services Department may redeem the performance bond to complete all necessary work, after giving reasonable notice and opportunity for compliance as defined in § 151.90.
- (5) Upon completion of the required stormwater infrastructure, temporary and permanent sediment and erosion control measures, detention/retention facilities and other water quantity BMPs, and stormwater quality BMPs according to the recorded secondary plat and approved Stormwater Management Plan, the applicant shall provide the Development Services Department with “as-built” plans. The applicant may then request the release of the performance bond. Upon satisfaction of all performance requirements, and issuance of NOT, the Development Services Department will release the performance bond within sixty (60) days.

§ 151.27 CONSTRUCTION MAINTENANCE AND INSPECTION

A. Responsibility of Maintenance and Inspection.

- (1) Stormwater quality facilities shall be maintained by the project site owner in good condition, in accordance with the operation and maintenance procedures and schedules recommended by the manufacturer of the BMP or listed in the *Indiana Stormwater Quality Manual* or the *Hendricks County Stormwater Technical Standards Manual Appendix D* and the terms and conditions of the approved Stormwater Management Plan, and shall not be subsequently altered, revised, or replaced except in accordance with the approved Stormwater Management Plan, or in accordance with approved amendments or revisions to the Stormwater Management Plan.
- (2) The SWPPP shall serve as a guideline for stormwater quality but should not be interpreted to be the only basis for implementation of stormwater quality measures for a project site. The project site owner is responsible for implementing, in accordance with this chapter, all measures necessary to adequately prevent polluted stormwater runoff.
- (3) The project site owner shall inform all general contractors, construction management firms, grading or excavating contractors, utility contractors, and the contractors that have primary oversight on individual building lots of the terms and conditions of this chapter and the conditions and standards of the SWPPP and the schedule for proposed implementation.
- (4) Construction project sites will be prioritized based on the nature and extent of the construction activity, topography and the characteristics of soils and receiving water quality.
- (5) If after a recommendation is provided to the project site owner, corrective action is not taken, the Town will pursue enforcement in accordance with this chapter.

B. Inspection by the Town.

- (1) The Town has the authority to assess inspection fees according to an established fee schedule and conduct inspections of the site to ensure full compliance with the provisions of this chapter, and the terms and conditions of the approved Development Plan/SWPPP.
- (2) Inspections may include, but are not limited to, reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in stormwater control facilities; and evaluating the condition of stormwater control facilities and other BMPs.
- (3) The Town reserves the right to perform inspections and provide recommendations to evaluate the installation, implementation and maintenance of stormwater management and sediment and erosion control measures at any project site involved in land disturbing activities.

C. Self-Inspections.

- (1) A SMP must be implemented by the project site owner to ensure the SWPPP is working effectively.
- (2) A trained individual, shall perform a written evaluation of the project site at the following times:
 - (a) By the end of the next business day following each measurable storm event (excludes accumulated snow events); which is defined as a precipitation accumulation equal to, or greater than, one-half (0.50) inch of rainfall. If no rain event occurs within the work week a minimum of one inspection must occur.

3. Remedying a permit violation.
 4. Taking reasonable steps to remediate, minimize or prevent the discharge of pollutants associated with the construction activity until a permanent corrective solution is initiated.
 5. Restoring an impacted area and/or removing accumulated sediment, provided appropriate permission and permits are obtained to conduct the activity.
- (j) A timeline for which the corrective action will occur to remediate the discharge of pollutants. The established corrective action, at a minimum, must occur:
1. On the day the deficiency was discovered or when it is not practical to initiate on the discovery date, no later than the following workday for the repair of a measure.
 2. Within seven (7) days of discovery for the installation of a new measure or replacement of an existing measure unless a shorter period is required as part of a regulatory inspection. The inspecting authority may also allow additional time to take corrective action.
- (k) Documentation of corrective action taken from the previous self-monitoring report.
- (l) Signature of inspector
- D. Although self-monitoring reports do not need to be submitted to the Town, the Town has the right to request complete records of maintenance and monitoring activities involving stormwater pollution prevention measures. All evaluation reports for the project site must be made available to the Town, in an organized fashion, within forty-eight (48) hours of the request.
- E. Regular construction inspections shall be required until the IDEM NOT is completed and the site passes a final inspection by the Development Services Department. A passing inspection shall be defined as an inspection in which the site meets stabilization requirements, all permanent stormwater management facilities and sediment and erosion control measures are installed, maintained, and operating in accordance with the approved Stormwater Management Plan, and no other violations are observed.

§ 151.28 PROJECT TERMINATION

- A. Certification of As-Built Drawings.
- (1) After completion of construction of the project, but before final site inspection and acceptance, the applicant shall submit professionally prepared and certified “as-built” drawings in accordance with the Town’s requirements for digital and hard copy as-builts. The drawings shall indicate the “as-built” details of all site improvements relevant to the completed stormwater management system and management facilities, including the following:
- (a) Pipe size, length, material, and inverts
 - (b) Structure location, size, and material
 - (c) Casting type, size, and top of rim elevation
 - (d) Ditch/swale locations, flowline elevations, and cross sections
 - (e) BMP type, dimensions, boundaries/easements, and relevant elevations
 - (f) “As-planted” plans for BMPs, as applicable
 - (g) Post-construction survey, indicating detention/retention basin bottom elevation, normal pool elevation, and one hundred-year (100-yr.) (1% chance/year) elevation
 - (h) Emergency overflow spillway and flood routing path configuration, dimensions, flowline/invert elevations, and cross sections

- (i) Data and calculations showing “as-built” detention/retention basin storage volume and “as-built” BMP treatment capacity, signed and certified by a Professional Engineer or Land Surveyor licensed in the State of Indiana.
- (j) Any other “as-built” information required or requested by the Development Services Department.

B. Certification of Completion and Compliance.

- (1) A Certification of Completion and Compliance shall be completed that certifies the following:
 - (a) The designer is familiar with the stormwater management requirements applicable to such land alteration (as set forth in this chapter).
 - (b) The designer has personally inspected the completed work.
 - (c) All improvements were installed as shown on the “as-built” plans and in conformance with the approved Stormwater Management Plan. Statement shall be signed and certified by a Professional Engineer or Land Surveyor licensed in the State of Indiana.
- (2) Any exceptions or deletions to the project shall be clearly outlined.

C. Notice of Construction Termination.

- (1) The project site owner shall plan an orderly and timely termination of the construction activities, including the implementation of stormwater quality measures that are to remain on the project site.
- (2) The project site owner, or a representative thereof, shall submit an IDEM NOT form to the Town upon project termination once the following requirements are met:
 - (a) All land disturbing activities, including construction on all building lots, have been completed.
 - (b) Final stabilization of the entire site has been completed. Final stabilization is when:
 - 1. All land-disturbing activities have been completed and a uniform (evenly distributed, without large bare areas) perennial vegetative cover with a density of seventy percent (70%) has been established on all unpaved tillable areas, and areas not covered by permanent structures, or equivalent permanent stabilization measures have been employed. This requirement does not apply to:
 - a. Landscaping that is part of the final project plan is considered stable when the plan has been fully implemented and areas not being vegetated are stable with a non-erosive material and/or product.
 - b. Projects or specific stormwater measures that utilize native vegetation and/or special vegetative plantings that are either required by a water quality permit/authorization or part of the design and functionality of a stormwater measure provided the activity does not pose a threat that will result in off-site sedimentation.
 - c. Projects on land used for agricultural purposes when:
 - 1) Stabilization is completed as land-disturbance progresses. Land that is returned to agricultural production must be temporarily or permanently seeded upon completing land-disturbing activities. Stabilization requirements may be waived by the inspecting authority if the project site does not pose a threat of discharging sediment.
 - 2) Disturbed areas, not previously used for agricultural production, such as filter strips, must be returned to their pre land disturbance use.

- d. Specific projects, due to function and/or operation may necessitate that an area remain disturbed. Only the minimum operational area is allowed to remain disturbed. This option primarily applies to off-road recreational commercial operations but may apply to other land use types upon determination by the regulating entity.
- (c) All permanent BMPs and stormwater quality measures have been implemented and are operational. BMPs shall be cleaned, including the removal of accumulated solids, sediments, and debris, just prior to construction termination.
- (d) Temporary erosion and sediment control measures have been removed.
- (3) The NOT must be submitted to the Town within two (2) weeks of project termination and contain a statement(s) verifying that each of these conditions have been met.
- (4) The Town or a representative thereof may inspect the project site to confirm the information provided in the NOT. Once the applicant receives verification of acceptable construction termination and site stabilization from the Development Services Department, the applicant must forward a copy of the NOT to IDEM.
- (5) The applicant may apply for release of performance bonds in accordance with § 151.26 (A)(5).

§ 151.29 STORMWATER MANAGEMENT FACILITIES POST-CONSTRUCTION MAINTENANCE AND INSPECTION

A. O&M Manual Requirements.

- (1) Stormwater management facilities including pipes, structures, ponds, detention/retention facilities, swales, open channels, subsurface drains, water quality BMPs, and low impact development practices shall have an O&M manual. The O&M manual shall be submitted with the Site Development Plan as required in § 151.20 (B)(2)(g).
- (2) O&M manual should include maintenance of all ponds, stormwater components, and low-impact development facilities/BMPs. Owners of ponds will be responsible for all maintenance of pond banks, erosion control measures, riprap, and outfall protection and all periodic dredging. It is the designer's responsibility to determine which additional operation and maintenance measures are necessary to prolong the optimal function of the facility.
- (3) The approved O&M manual shall be signed by the owner and notarized. A copy of the approved O&M manual shall be provided to the owner and the Development Services Department. The signed and notarized O&M manual shall be recorded with the property by the County Recorder's office. A copy of the O&M manual shall be provided to each new owner before the transfer of ownership. The O&M manual shall be signed by the new owner, notarized, and submitted to the Development Services Department to be kept on record.
- (4) All O&M manuals shall include the following information, at a minimum:
 - (a) Owner Information. The first section of the manual shall contain information about all people involved with the operations and maintenance of the facility. This section shall list the names and contact information of all responsible parties, including property owner(s), maintenance staff, and person(s) responsible for performing inspections. The responsibilities of each individual shall be clearly defined. Contact information shall include business or mobile phone number, address for giving notice, and email address (if available).
 - (b) Site Map. The O&M manual shall include a site map and exhibits drawn to a legible scale on 8.5"x11" or 11"x17" sized paper that clearly indicates the following:

1. The physical street address of the property and location map.
 2. The location of the stormwater management facilities and BMPs.
 3. Plan and cross-section details showing applicable features.
 4. The flow of stormwater through the site, including an overview of the stormwater's path through the onsite stormwater facilities and BMPs.
 5. Dimensions, easements, outlets/discharge points and outfall locations, drainage patterns, stormwater runoff flow directions, the extent and depth (elevation) of high-water levels, flood routing path, signage, connecting structures, weirs, invert elevations, structural controls used to control stormwater flows, and other relevant features.
- (c) O&M Practices. Each stormwater management facility and BMP shall require specific inspection and maintenance procedures.
1. Guidance shall be written in simple, layperson's terms, including:
 - a. Guidance on owner-required periodic inspections.
 - b. Guidance on routine maintenance including mowing, litter removal, woody growth removal, etc. to be performed by the owner.
 - c. Guidance on remedial maintenance such as inlet replacement, outlet work, etc. to be performed by the owner.
 - d. Guidance on sediment removal, both narrative and graphical, describing when sediment removal shall occur to ensure that the stormwater management facility or BMP remains effective as a stormwater management device. Guidance shall include instructions as to how the depth of sediment shall be measured and at what measurement removal will be required.
 - e. Methods to measure depth of sediment accumulation in ponds and instructions for performing pond dredging.
 - f. Instructions on inspection and clean-out of BMPs, sumps, trash screens, settling pits, and oil/grease collection chambers.
 - g. Instructions on proper disposal of removed sediments, trash, debris, and other substances.
 - h. Guidance and methods for preventing water stagnation and all recommended maintenance.
 2. The minimum requirements below shall also be incorporated into the inspection and maintenance regimen and clearly documented in the O&M manual.
 - a. Operation and maintenance procedures and practices shall be reviewed and assessed annually.
 - b. Access routes, including roadways and sidewalks, shall be inspected annually and maintained as needed.
 - c. Drainage structures and flow restrictors shall be inspected and cleaned semi-annually or per the manufacturer's recommendations, whichever is more stringent.
 - d. Volume control facilities and BMPs shall be inspected semi-annually and after significant rainfall events exceeding one and one-half (1.5) inches, or per the manufacturer's recommendations, whichever is more stringent.
 - e. The owner shall keep an updated logbook or inspection worksheets documenting the performance of the required operation and maintenance activities for perpetuity. Note inspection dates, facility components inspected, facility condition, and any maintenance performed or repairs made. Documentation

must be produced upon the request of the Town personnel, within forty-eight (48) hours of the request.

- f.** Vegetation shall be maintained on a regular basis per design specifications.
 - g.** Pest control measures shall be implemented to address insects, rodents, and other pests. Natural pest control is preferred over chemical treatments.
 - h.** Mechanical measures shall be maintained on a regular basis per the manufacturer's recommendations.
 - i.** Signage and fencing shall be installed and maintained in accordance with the *Town of Brownsburg Construction Standards* and where necessary to protect property and the public.
 - j.** Underground vaults and structures shall include design measures to facilitate regular cleaning and maintenance. Confined space entry procedures shall be followed.
- (d)** Right-of-Entry Statement. The O&M manual shall include a statement that the Town of Brownsburg has the right to enter the property to inspect the stormwater management facility or BMP. The statement shall be signed and notarized.
- (e)** Implementation Schedule. An inspection and maintenance schedule shall be prepared in a tabular format and included in the O&M manual. This schedule shall provide for routine examination of all stormwater management facilities and BMPs on the property and incorporate the varying maintenance needs of each.
- (f)** Employee Training. Specific individuals shall be assigned responsibility for operation, maintenance, and inspection of all onsite stormwater management facilities and BMPs. Employee training shall be conducted so that these individuals are aware of proper procedures and practices. The training program and schedule shall be incorporated into the O&M manual. All personnel should be familiar with the components of the O&M manual and their personal level of responsibility. The Town may request training documentation.
- (g)** Drainage Easement(s) Documentation. The O&M manual shall include documentation of drainage easement(s) around the stormwater management facilities and BMPs. The documentation shall be in graphic format.

B. Stormwater Management Facility and BMP Maintenance.

- (1)** Stormwater management facilities and BMPs shall be maintained in a properly functioning condition so that their effectiveness in managing and treating stormwater runoff is not diminished, in accordance with the operation and maintenance procedures and schedules recommended by the manufacturer of the BMP or listed in the *Indiana Stormwater Quality Manual*, the *Hendricks County Stormwater Technical Standards Manual Appendix D*, the approved O&M manual, and the terms and conditions of the approved Stormwater Management Plan. The stormwater management facility or BMP owner is considered in violation of this chapter if the facility or BMP is not maintained properly.
- (2)** Following construction completion and the issuance of an NOT, inspection and maintenance of stormwater management facilities and BMPs shall be the long-term responsibility of the owner of those facilities (including homeowners associations or any other entity as specified in restrictive covenants).

C. Records of Inspection and Maintenance Activities.

- (1)** The stormwater management facility or BMP owner must conduct necessary inspections at least once per year. The inspections shall follow the operation and maintenance procedures

listed in the *Indiana Stormwater Quality Manual*, the *Hendricks County Stormwater Technical Standards Manual Appendix D*, the approved O&M manual, and the terms and conditions of the approved Stormwater Management Plan for each facility or BMP. The inspection shall cover physical conditions, available water quality storage capacity, and the operational condition of key facility elements. Completed inspection forms must be maintained by the owner and produced upon request by Town personnel within forty-eight (48) hours of the request.

- (2) Annual inspection reports shall be due to the Development Services Department, beginning one year after construction is completed. Subsequent reports shall be due each year within the same month of the initial report. All deficiencies found during the inspection shall be addressed. If the annual inspection report is not received within the month it is due, if there are deficiencies which exist but were not included in the report, or if any deficiencies included in the report are not addressed in a timely manner, the Town may take enforcement action in accordance with this chapter.
- (3) The Development Services Department must be notified of any changes in ownership, major repairs, or failure in writing within thirty (30) days.
- (4) If Town personnel find a stormwater management facility in need of maintenance or repair, the Development Services Department will notify the owner on record of the necessary maintenance or repairs and give the owner a time for completing the work. If the maintenance or repairs are not completed within the designated time, the Town may perform the work and bill the owner for the actual costs of the work.
- (5) The Town also has the authority to perform long-term inspection of all public or privately-owned stormwater management facilities. Such inspections will be in addition to the regular inspections required to be performed by the facility owner. The inspections will follow the operation and maintenance procedures listed in the approved Stormwater Management Plan for each facility or BMP. Noted deficiencies and recommended corrective action will be included in an inspection report.

ENFORCEMENT

§ 151.90 COMPLIANCE

A. Failure to Comply or Complete.

- (1) Compliance with this ordinance, all applicable Town ordinances, as well as all state and federal statutes and regulations is required. Unless otherwise stated, all references, specifications, statues, and regulations referred to in this chapter shall be the most recent edition available.
- (2) The Development Services Department or their designee may delay issuance of a Building Permit or revoke Stormwater Management Plan approval where the application, plan or other supporting documents reflect:
 - (a) A false statement or misrepresentation as to material fact.
 - (b) Failure to or lack of compliance with the requirements of this chapter.
 - (c) Failure to bond, execute covenants, dedicate easements, or perform other requirements pursuant to this chapter.
- (3) This revocation of approval shall in no way limit the operation of penalties provided elsewhere in this chapter.

B. Notice of Violation.

- (1)** Whenever the Town or their designee finds that a person has violated a prohibition or failed to meet a requirement of this chapter, the Town may order compliance by written Notice of Violation to the responsible person. Such notice may require without limitation:
 - (a)** The performance of monitoring, analyses, and reporting;
 - (b)** The elimination of illicit connections or discharges;
 - (c)** That violating discharges, practices, or operations shall cease and desist;
 - (d)** The abatement or remediation of stormwater pollution or contamination hazards and the restoration of any affected property;
 - (e)** Payment of a fine to cover administrative and remediation costs, including but not limited to remediation costs, legal fees, consultant fees, monitoring costs, construction costs, collection fees and any other costs borne by the Town related to the violation;
 - (f)** The implementation of source control or treatment BMPs;
 - (g)** The issuance of a Stop Work Order; and/or
 - (h)** Revocation or suspension of Stormwater Management Plan approval.
- (2)** The Notice of Violation shall be in writing, include a description of the property for identification and include a statement of the violation(s) and why the notice is being issued. The Notice of Violation shall provide at least ten (10) days to bring the property into compliance.
- (3)** If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such remediation or restoration must be completed. Said notice shall further advise that, should the violator fail to remediate or restore within the established deadline, the work will be done by the Town and the expense thereof shall be charged to the violator.
- (4)** Reinspection of remedied violations will be assessed a reinspection fee in accordance with the fee schedule established by the Town of Brownsburg.

C. Appeal of Notice of Violation.

- (1)** Any person receiving a notice of violation may appeal the determination to the effect that a Notice of Violation or Stop Work Order served in accordance with this chapter is in error or should, due to hardship, be modified or entitled to a variance from the enforcement.
- (2)** Any person receiving a Notice of Violation may appeal the determination to the effect that a reasonable extension of time for the compliance should be granted on the grounds of a demonstrated case of hardship and evidence of an actual undertaking to correct the violation, together with a legitimate intent to comply within a reasonable period.
- (3)** The notice of appeal must be filed with the Town within ten (10) days from the date of the notice. Hearing on the appeal before the Town Council shall take place within forty-five (45) days from the date of its receipt of the notice of appeal. The decision of the Town Council shall be final.
- (4)** Appeals of notices or orders (other than imminent danger notices) shall stay the enforcement of the notice or order until the Town Council rules on the appeal.

D. Enforcement Measures after Appeal.

If the violation has not been corrected pursuant to the requirements set forth in the Notice of Violation, or, in the event of an appeal, within ten (10) days of the decision of the municipal authority upholding the decision of the authorized enforcement agency, then representatives of the authorized enforcement agency shall enter upon the subject private property and are authorized to take any and all measures necessary to abate the violation and/or restore the property. It shall be unlawful for any person, owner, agent, or person in possession of any

premises to refuse to allow the government agency or designated contractor to enter upon the premises for the purposes set forth above.

E. Stop Work Order.

- (1) Whenever the Town or their designee discovers the existence of any of the circumstances listed below, a Stop Work Order may be issued requiring the suspension of the land alteration. A Stop Work Order may be issued on any person engaged in land alteration if:
 - (a) There is a public health or safety hazard. Land alteration is occurring in violation of a stormwater management requirement and in such manner that if land alteration is allowed to proceed, that it will be difficult to correct the violation; and seventy-two (72) hours have elapsed since written Notice of Violation was issued.
 - (b) Land alteration has been accomplished in violation of a stormwater management requirement and seventy-two (72) hours have elapsed since written Notice of Violation was issued, without the violation being corrected; or
 - (c) Land alteration for which Stormwater Management Plan approval is required is proceeding without the appropriate approval. In such an instance, the Stop Work Order shall indicate that the effect of the order terminates when the required approval is obtained.
- (2) The Stop Work Order shall be in writing and shall state to what land alteration it is applicable and the reason for its issuance. One copy shall be posted on the property in a conspicuous place, and one copy shall be delivered to the applicant, the owner of the property, or his agent.
- (3) The Stop Work Order shall state the conditions under which land alteration may be resumed.

F. Injunctive Relief.

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this chapter. If a person has violated or continues to violate the provisions of this chapter, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation.

G. Violations Deemed a Public Nuisance.

In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this chapter is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

§ 151.91 PENALTY

A. Fining Procedure.

- (1) Any person who violates any of the provisions of this chapter may be fined.
- (2) The fines described in the notice of violation may include a civil infraction and is subject to a minimum fine for investigation, inspection and administrative costs and a maximum fine of two thousand five hundred dollars (\$2,500) for a first offense. A maximum of seven thousand five hundred dollars (\$7,500) may be assessed for a subsequent offense. Each day such a violation occurs or continues shall be deemed a separate offense and shall make the violator liable for the imposition of a fine for each day.

(3) If the amount due is not paid within a timely manner as determined by the decision of the municipal authority or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment.

B. Cost of Abatement of the Violation.

After abatement of the violation, the owner of the property will be notified of the cost of abatement, including administrative costs. The property owner may file a written protest objecting to the amount of the assessment within ten (10) days. If the amount due is not paid within a timely manner as determined by the decision of the municipal authority or by the expiration of the time in which to file an appeal, the charges shall become a special assessment against the property and shall constitute a lien on the property for the amount of the assessment. Any person violating any of the provisions of this chapter shall become liable to the Town by reason of such violation. The liability shall be paid in not more than twelve (12) equal payments. Interest at the rate of eight percent (8%) per annum shall be assessed on the balance beginning on the first day following discovery of the violation. If such amount is not timely paid, then the Town may authorize the amount due and unpaid to the Treasurer of Hendricks County to be collected in the same manner as delinquent property taxes.

C. Expenses.

The Town may recover all remediation costs, legal fees, consultant fees, monitoring costs, construction costs, collection fees and any other costs borne by the Town related to the violation.

D. Remedies Not Exclusive.

The remedies listed in this chapter are not exclusive of any other remedies available under any applicable federal, state, or local law and it is within the discretion of the Town to seek cumulative remedies.

E. Transfer of Ownership.

No owner of any lands upon which a penalty or cost of abatement has been assessed shall sell, transfer, mortgage, lease, or otherwise dispose of to another until the amount has been paid, or until such owner first furnishes to the Town a signed and notarized statement from the grantee, transferee, mortgagee, or lessee, acknowledging and fully accepting the responsibility of payment.