



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Office of Water Quality
Surface Water, Operations and Enforcement Branch
Wetlands and Storm Water Section

Guidance for Development of a Construction/Storm Water Pollution Prevention Plan

This document is an outline of items that are required to be contained in a construction plan that is submitted pursuant to 327 IAC 15-5. The items within this document have been divided into three distinct categories, including (1) Basic Plan Elements, (2) Construction Component, and (3) Post-construction Component. Each item is identified with a letter and number that can be directly related back to the review sheet that is utilized by staff reviewing a set of construction plans that have been submitted for 327 IAC 15-5. Each item also contains information that explains the expectation for each plan element and the level to which it should be described or represented within the plans.

Basic Plan Elements (Section A):

A1 Plan index showing locations of required items:

The plan index should include a list of the required items in the rule and where they occur in the plan. Plan preparers often have their plan index mirror items in the IDEM standard plan review checklist.

A2 11 X 17 inch plat showing building lot numbers/boundaries and road layout/names:

The reduced size plat of the project is intended to be a basic representation of the project layout. At a minimum it should include building lot boundaries, lot numbers, road layout, and road names. It is not intended to be a complete representation of the construction plan or the storm water pollution prevention plan. The purpose of the reduced plat is primarily to provide staff a simplified layout of the project that can be used as an aide when conducting an inspection of the project site.

The plat should be legible; therefore, based on the size of the project it is acceptable to have multiple sheets of 11 X 17 inch.

(This item is not required for single-family residential developments of four (4) lots or less and single-family residential strip developments.)

A3 Narrative describing project nature and purpose:

The plan should include information regarding the nature and purpose of the project. Typically this information would appear in a narrative; however, it is also acceptable for the narrative to include other plan requirements.

A4 Vicinity map showing project location:

The plan should include a map that depicts the site in relation to other areas in the city or county and should be sufficient for someone not familiar with the area to find the project site location. Acceptable map types include United States Geological Survey (USGS) topographic maps, county road maps, city street maps, custom drawn maps, etc. (as long as they adequately depict the site location).

A5 Legal description of the project site:

The legal description of the project site should be identified to the nearest quarter section and include township and range coordinates, and civil township name. While the longitude and latitude coordinates are not a requirement of the plan, the checklist does mention these items to encourage inclusion by the plan preparer.

A6 Location of all lots and proposed site improvements:

Lot boundaries and numbers are required to be shown on the plan. In addition, the plan should show all proposed site improvements, including but not limited to utilities, roads (names, if available), structures, and common areas.

Single lot projects should show the location of any proposed structures.

A7 Hydrologic unit code:

The hydrologic unit code should be identified to the 14-digit code. The code identified in the plan should represent the watershed(s) in which the project is located.

One resource to obtain this information is available at:

http://maps.indiana.edu/previewMaps/Hydrology/Watersheds_HUC14.html

A8 Notation of any state or federal water quality permits:

The plan should identify any permits required related to water quality, such as Construction in a Floodway from DNR, 401 Water Quality Certification from IDEM, 404 permits from the U.S. Army Corps of Engineers, etc.

It is not necessary for the project site owner to possess permits applicable to his/her project to receive approval of the plan pursuant to 327 IAC 15-5.

A9 Specific points where storm water discharge will leave the site:

The plan should clearly identify where storm water will exit the site. It is not necessary that the location be identified with a note on the plan, unless it is not clear from the topographic or storm drainage system information.

A10 Location and name of all wetlands, lakes, and watercourses on and adjacent to the site:

This information is important in evaluating the proposed storm water pollution prevention measures to insure that they are adequate and appropriate to reduce the impact to natural areas associated with the project site. Identification of nearby watercourses and lakes may place an additional importance on sediment control in a particular area of the project.

A11 Identify all receiving waters:

The plan should identify all named streams, or other water bodies that will potentially receive run-off from the project site. If the discharge is to a municipal storm sewer, the plan should identify the owner of the storm drain system as well as the ultimate receiving water for the storm drain system.

A12 Identification of potential discharges to ground water:

The plan should include the location of all areas where storm water may be potentially discharged to ground water. These areas include sinkholes or uncapped abandoned wells, which may be located on the project site or downstream of the project site and could potentially be impacted by storm water discharge. It could also include storm water infiltration practices such as dry wells, which may be planned as part of the project. These areas need to be clearly located in the plan, with adequate protection measures to prevent contaminated run-off from entering the ground water. Abandoned wells should be properly capped.

A13 100 Year Floodplains, floodways, and floodway fringes:

This information is relevant to the project if a stream is located on or near the property. If applicable to the project site, the plan should at a minimum include a discussion of their existence and to further extent delineation on the plan. If this element is not applicable to the project, the plan preparer should make reference to this in the plan.

A14 Preconstruction and post-construction estimate of peak discharge:

This information is a required element of the plan and has been included to place emphasis on the impact projects can have related to run-off quantities and velocities.

There are several acceptable methods of calculating these figures, including the rational method, TR55, etc.

(This item is not required for single-family residential developments of four (4) lots or less and single-family residential strip developments.)

A15 Adjacent land use, including upstream watershed:

This information provides a basis to evaluate the overall project including potential downstream impacts, but also other contributing factors that are discharging onto the project site. It is important to have an understanding of the impact the project may have on surrounding properties and sensitive areas, but also have an understanding of the run-off and other potential pollutants that may be discharged from areas in the watershed above the project.

The intent of this element is to identify the types of land use, such as single-family residential, multifamily residential, commercial, agricultural, forested, etc.

A16 Locations and approximate boundaries of all disturbed areas:

The plan should identify the construction limits of the project. The extent of disturbance has a profound impact on what practices may be necessary to adequately control erosion and the resulting sediment. If disturbance boundaries are not identified inside of the property boundary, the plan reviewer will consider the entire site as being disturbed for the purposes of evaluating the proposed storm water quality measures.

A17 Identification of existing vegetative cover:

The plan should delineate the boundaries of major vegetative cover types, such as grass, brush, trees, etc. It is not necessary for the plan to identify individual vegetative species.

A18 Soil map including descriptions and limitations:

Each plan should provide a soil map for the project site. The map should be accompanied by descriptions of each soil type that occurs on the site. A legible copy of the appropriate soil map from the USDA soil survey for the county is sufficient. Boring logs and a geotechnical report or site mapping by a soil scientist should also be considered acceptable means of satisfying this requirement.

In addition to a soil map and a description of the soil types, the plan should include a discussion of the soil characteristics and limitations associated with the project site and the measures that will be integrated into the project to overcome any limitations. For example, if a sanitary sewer does not service the site and on-site septic systems will be used for waste disposal, the plan preparer should provide information concerning the suitability of the soil and the type of systems that will be required to overcome soil limitations.

A19 Locations, size and dimensions of proposed storm water systems:

All proposed storm water systems, including swales, channels, piping, culverts, etc., should be clearly shown in the plan. In addition to location, the plan should include the size and dimensions of the specific storm water systems.

This is a critical element, and the plan should be returned to the applicant for revision, if this item is not adequately depicted in the plan.

A20 Plan for any off-site construction activities associated with this project:

Any off-site services such as sanitary sewers, waterlines, other utilities, roads, etc., which are off of the proposed project site, but are necessary to provide service to the project, must be included in the plan submitted for the project, if the project site owner is responsible for paying for the off-site service.

If the utility or local government is paying for the construction of the off-site tie-in, then they do not need to be included as part of the project submittal, but should be submitted separately, if the disturbance will be one (1) acre or more.

It is important that the project site owner realize that all land disturbance associated with their project is subject to compliance with the rule. The same burden of compliance is necessary for these off-site areas as they are for the project site itself. If there are not off-site activities, or others are conducting the off-site activities, a simple note to that effect should be sufficient to satisfy this requirement.

A21 Locations of proposed soil stockpiles, borrow and/or disposal areas:

Similar to item A20, this information needs to be submitted as part of the plan. Often times borrow and disposal areas occur off of the project site. Unless these areas are commercially operated facilities, they need to be included as part of the plan submittal. These areas must also be included when they occur on site. If there are no stockpile, borrow or disposal areas planned, a simple note to that effect should be sufficient to satisfy this requirement.

A22 Existing site topography at an interval appropriate to show detailed drainage patterns:

This information is critical to properly evaluate the adequacy of the proposed storm water pollution prevention measures. Site topography may be depicted in multiple ways such as continuous contour lines and spot elevations (as long as there are a sufficient number of locations to be able to visualize the site topography). A graphical profile of the project may also be acceptable for highway, road, utility and other lineal projects.

A23 Proposed final topography at an interval appropriate to show detailed drainage patterns:

This information is critical to properly evaluate the adequacy of the proposed storm water pollution prevention measures. Site topography may be depicted in multiple ways such as continuous contour lines and spot elevations (as long as there are a sufficient number of locations to be able to visualize the site topography). A graphical profile of the project may also be acceptable for highway, road, utility and other lineal projects.

Storm Water Pollution Prevention, Construction Component (Section B):

B1 Description of potential pollutant sources associated with the construction activities:

This item is included in the rule to place an emphasis on identification of pollutants that are associated with construction activity. In the past, the emphasis has been on sediment reduction; however, the rule requires the plan preparer to identify other potential pollutants and their sources. Potential pollutant sources include material and fuel storage areas, fueling locations, exposed soils, leaking vehicles and equipment, etc.

To satisfy this item, the plan needs to contain a written description of the expected pollutants that could enter storm water during the construction operation, and where those potential pollutants might be generated. In addition, the plan preparer should include a discussion of measures or operational activities that will be initiated to minimize the danger of pollutants entering storm water.

(This item is not required for single-family residential developments of four (4) lots or less and single-family residential strip developments.)

B2 Sequence describing storm water quality measure implementation relative to land disturbing activities:

Each plan should contain multiple storm water pollution prevention measures. All measures will not be installed at the same time. Various measures will be installed at different times throughout the construction process. Some will be installed prior to any land disturbance, such as the construction entrance and some initial perimeter sediment control measures. Others may not be necessary until work at the site progresses to an area where they are necessary. Each proposed measure should be identified in the sequence as to when it is to be installed in relation to land disturbing activities. Specific dates of installation are not necessary or the intent of this requirement.

B3 Stable construction entrance locations and specifications:

All projects with the exception of some lineal projects and residential strip developments should have a stable construction entrance. All access points to a project must have a stabilized entrance. The plan should clearly show the location of all proposed stable entrance locations, as well as specifications and construction details regarding how the stable entrance is to be constructed and maintained.

B4 Sediment control measures for sheet flow areas:

This item is intended to evaluate the areas of the site where run-off will be primarily in a sheet flow condition. The reviewer should evaluate these areas and the proposed sediment control measures to insure that the proposed measures are adequate for the situation. Each proposed measure must be accompanied by construction details and specifications.

B5 Sediment control measures for concentrated flow areas:

This item is intended to evaluate the areas of the site where run-off will be primarily in a concentrated flow condition. The reviewer should evaluate these areas and the proposed sediment control measures to insure that the proposed measures are adequate for the situation. Each proposed measure must be accompanied by construction details and specifications.

In addition to the typical sediment control measures used to minimize sedimentation associated with surface water run-off, provisions should be made to address any dewatering and/or directional boring operations.

B6 Storm sewer inlet protection measure locations and specifications:

If surface inlets, including curb inlets, are present, the plan should include protection measures to prevent sediment from entering the storm drain system. The proposed practices should be appropriate for the type of inlet it is proposed to protect. Alternate measures, such as seeding and curbside protection may be considered as adequate protection, if sufficient to prevent sediments from entering the street and curb inlets. Each proposed measure must be accompanied by construction details and specifications.

B7 Run-off control measures:

This item refers to measures such as diversions, rock check dams, slope drains, etc. These types of measures may not be necessary on every project. However, if the plan reviewer feels that they are necessary, the plan should be evaluated as to whether the issue was adequately addressed in the plan. Each proposed measure must be accompanied by construction details and specifications.

B8 Storm water outlet protection specifications:

All storm water discharge locations need to be adequately protected to prevent scour erosion. The plan should specify protection measures appropriate for the situation. Each proposed measure must be accompanied by construction details and specifications.

B9 Grade stabilization structure locations and specifications:

This item refers to measures such as rock chutes, toe wall and drop structures, etc. These types of measures may not be necessary on every project. However, if the plan reviewer feels that they are necessary, the plan should be evaluated as to whether the issue was adequately addressed in the plan. Each proposed measure must be accompanied by construction details and specifications.

B10 Location, dimensions, specifications and construction details of each storm water quality measure:

Each proposed measure should be clearly located in the plan. Some plans may not provide the location in a pictorial format on the plan drawings, but may provide clear text or a table to depict where various practices should be located. This should be adequate to satisfy the requirement as long as the reviewer can determine the location in the plan. Each proposed measure must also be accompanied by construction details and specifications.

Temporary or permanent surface stabilization is required on any bare or thinly vegetated area that is scheduled or likely to remain inactive for a period of 15 days or more.

B11 Temporary surface stabilization methods appropriate for each season:

The plan should provide detailed specifications, including sequencing information, regarding which stabilization methods are to be employed. There should be multiple methods, as the various seasons need to be considered. Even if the project is expected to be short lived, these seasonal options must be supplied. Delays are common in the construction industry and projects take longer than expected. The plan needs to cover these contingencies.

The plan preparer should provide application rates for soil amendments and seed mixtures, and the type and application rate for anchored mulch.

B12 Permanent surface stabilization specifications:

The permanent stabilization methods should be clearly specified, including sequencing information, in the plan.

The plan preparer should provide application rates for soil amendments and seed mixtures, and the type and application rate for anchored mulch.

B13 Material handling and spill prevention plan:

The plan should include a list of expected materials that may be present on the site during construction operations. A written description of how these materials will be handled to minimize the potential the materials will enter storm water run-off should accompany the list of materials. There should also be procedures directing the contractor on the required response to any spills that may occur during construction operations.

(This item is not required for single-family residential developments of four (4) lots or less and single-family residential strip developments.)

B14 Monitoring and maintenance guidelines for each proposed measure:

Each proposed measure must be accompanied by instructions for evaluating the practice for maintenance needs once installed.

The maintenance guidelines for the project should also include instructions on how the monitoring and maintenance procedures are to be carried out. The Phase II version of the rule requires that the project site owner or their representative, knowledgeable in erosion and sediment control, inspect the site for storm water pollution prevention deficiencies at least weekly and again within 24 hours of every ½ inch or more rain event. The plan should clearly describe these required maintenance procedures.

B15 Erosion and sediment control specifications for individual building lots:

If the project has multiple lots where independent activities are likely to occur, the plan should provide clear guidance as to the required minimum standards for erosion and sediment control during construction operations on the individual lots.

The Rule places specific requirements on activities conducted on individual building lots. The minimum standards in the plan should meet the minimum lot requirements established in Section 7.5 of the Rule, and should follow the standards set forth in the *Indiana Storm Water Quality Manual* or similar guidance documents.

The plan designer must also select measures that take into consideration the relative size of the lots and steepness of the lots when determining whether provisions in the plan appear to be adequate. It may be acceptable to develop a standardized lot plan for all lots within the development providing all are of a similar size and slope. However if specific lots have unique characteristics, such as steep slopes, those specific lots may require a plan designed specifically for the limitation.

Storm Water Pollution Prevention, Post-construction Component (Section C):

The Rule contains provisions for the plan designer to consider potential pollutants that will be generated from the completed project. Every land use has specific pollutants that will be generated based on the type of industry and the activities that will occur on the property once construction is complete.

The intent of the Clean Water Act established by the U.S. Environmental Protection Agency is to minimize pollutants generated from new construction projects, including the post-construction pollutants that will be generated by the proposed land use change. 327 IAC 15-5 incorporates requirements to address these issues.

The post-construction storm water pollution prevention plan must include the implementation of storm water quality measures to address pollutants that will be associated with the final land use of the project. Post-construction storm water quality measures should be functional upon completion of the project. Long-term functionality of the measures is critical to their performance and should be monitored and maintained.

Project design should emphasize measures that will minimize the generation of pollutants and effectively manage storm water run-off (i.e., green infrastructure). Once design considerations are incorporated into the plan, then additional practices may need to be added to the project to treat the run-off and trap the pollutants that are not addressed in the project layout and design.

(This section of items is not required for single-family residential developments of four (4) lots or less and single-family residential strip developments.)

C1 Description of pollutants and their sources associated with the proposed land use:

The plan should include a narrative description that discusses the proposed project and the expected pollutants that typically are generated by the type of land use. The description should also discuss the sources of these pollutants for the completed project site. Examples of potential pollutants include, but are not limited to oil, grease, antifreeze, brake fluid, brake dust, rubber fragments, gasoline, diesel fuel and other hydrocarbons, metals from vehicular and other sources, grit (sediment) from wearing of the road surface and falling or washing off of vehicles, trash (including bacteria and other biological agents contained in the trash) from littering and other types of improper disposal or storage, and elevated receiving water temperatures from storm water run-off contact with impervious surfaces.

C2 Sequence describing storm water quality measure implementation:

The plan should provide a sequence of when the proposed post-construction storm water quality measures will be installed. The designer must take into consideration the types of measures that are selected and if those measures could be utilized during construction for sediment control. If the measures will be used during construction, they should not be installed late in the project simply to reduce the burden of removing sediment. In addition, specific post-construction storm water quality measures, especially those that are designed to infiltrate storm water run-off are better suited to installation near the end of construction to prevent clogging and failure of the system.

C3 Description of proposed post-construction storm water quality measures:

The requirement for selection of measures as referenced in the Rule:

- 327 IAC 15-5-6.5(a)(8)(C)
A description of measures that will be installed to control pollutants in storm water discharges that will occur after construction activities have been completed. Such practices include infiltration of run-off, flow reduction by use of open vegetated swales and natural depressions, buffer strip and riparian zone preservation, filter strip creation, minimization of land disturbance and surface imperviousness, maximization of open space, and storm water retention and detention ponds.
- 327 IAC 15-5-6.5(a)(8)(E)
Storm water quality measures that will remove or minimize pollutants from storm water run-off.
- 327 IAC 15-5-6.5(a)(8)(F)
Storm water quality measures that will be implemented to prevent or minimize adverse impacts to stream and riparian habitat.

The plan should include a narrative description that discusses how the project was designed to minimize the generation of post-construction pollutants, and how the proposed post-construction storm water quality measures will improve the quality of the storm water discharge from the completed project. Many times, it will be possible for a project to comply without installing elaborate and expensive treatment systems. Reducing impervious surfaces and increasing vegetative surfaces to trap pollutants may be sufficient. For projects that will be under the operational control of one entity, management practices, such as more frequent street sweeping or reduced fertilizer and pesticide applications, may have a significant positive impact on storm water quality.

C4 Location, dimensions, specifications and construction details of each storm water quality measure:

All proposed post-construction storm water quality measures should be clearly shown on the plan, and should include specifications and construction details.

C5 Description of maintenance guidelines for proposed post-construction water quality measures:

All proposed measures must be accompanied by guidelines for monitoring and maintenance. If manufactured products are selected, the manufacturer often provides detailed information about monitoring and maintenance procedures and frequencies.

The plan should also identify the parties or individuals that will be responsible for the future long-term maintenance. This identification does not need to be a name of an individual, as this information may not be known at the time of plan development. A description of the entity (e.g., homeowner's association, name of the government department, if the measures will be turned over to the local government, etc.) is sufficient.