CITY OF TOPEKA
UTILITIES

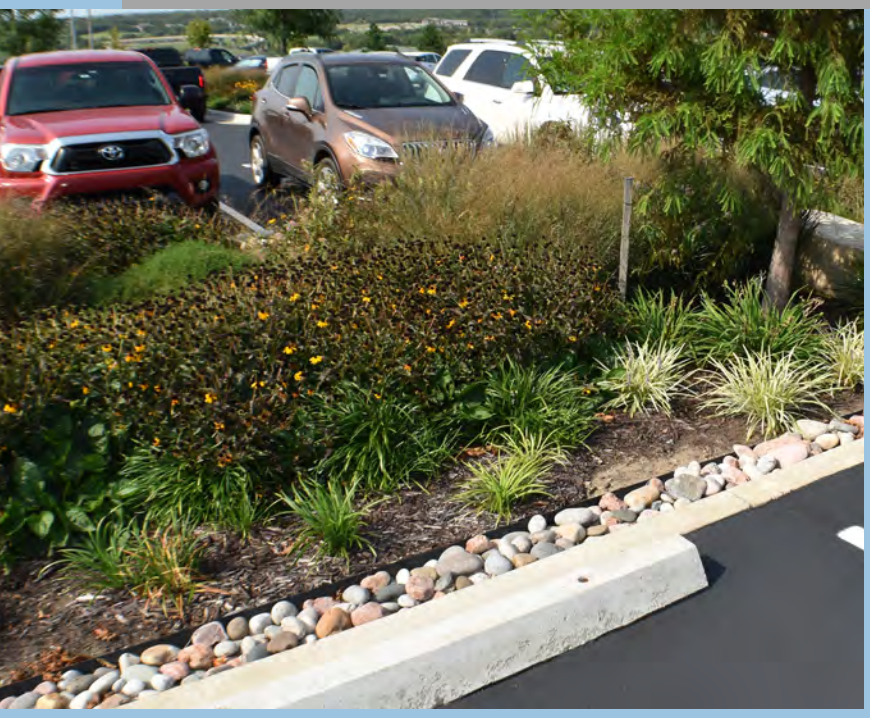
CITY OF TOPEKA

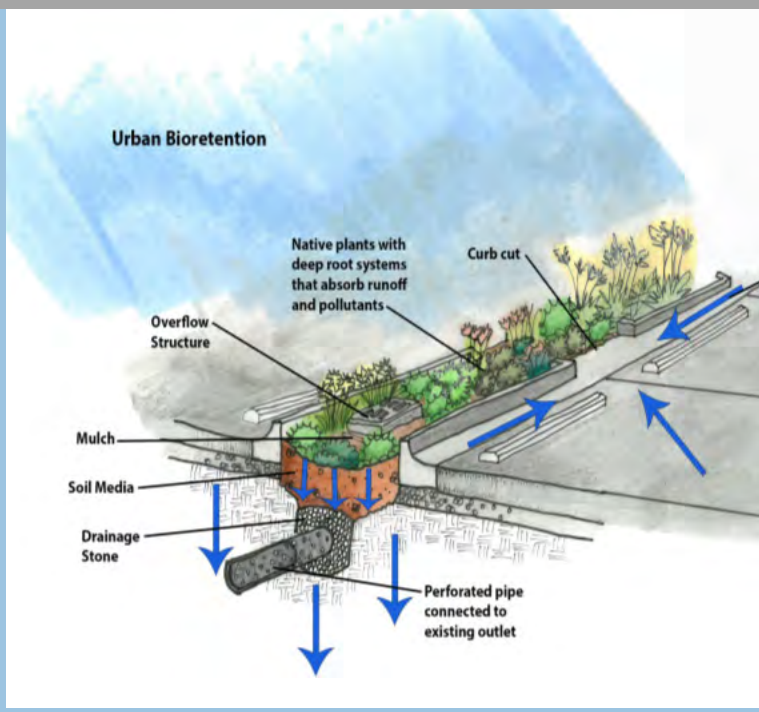
PROPERTY OWNER'S GUIDE TO STORMWATER BMP MAINTENANCE

Version | August 2020

Table of Contents

1.0 Best Management Practices (BMPs) = Regulated Stormwater Management Practices

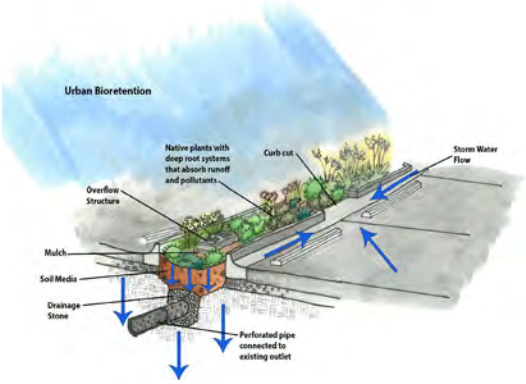




1.0 BMPs = Regulated Stormwater Management Practices

BMPs can look like typical landscaping...

...but they are working to manage stormwater.

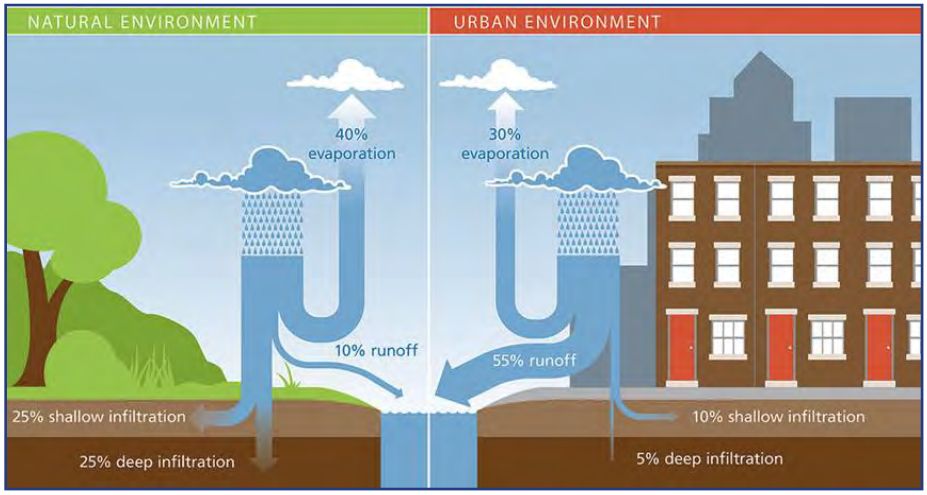


What is stormwater?

Stormwater (sometimes called stormwater runoff) is created when it rains, and the water does not soak into the soil. The amount of stormwater created depends on the amount of rain, how quickly or intensely it falls, how much water is already the soil. Land cover is a particularly important factor in the amount of stormwater created. **As land is developed and natural vegetation and soil are replaced with impervious surfaces (buildings, parking lots, and other hard surfaces), stormwater is generated much more quickly and in larger volumes.** As more development occurs, even more stormwater is produced due to increasing amounts of impervious surfaces. This is why many cities and towns experience more flooding and stream erosion as they grow.

More stormwater also leads to more water pollution. As stormwater runs off rooftops and travels over driveways, parking lots, yards, and roads, it washes away what is on the ground. **This includes dirt (sediment), litter, animal waste, pesticides and herbicides used on lawns and landscaping, oils and greases from cars and industries, dusts, and other substances.** Stormwater carries these pollutants wherever it flows.

Unfortunately, stormwater does not flow to water treatment plants for cleaning. **Instead, stormwater and the pollutants it carries flow along roadways and through ditches and pipes to local streams, rivers, and lakes**.



High levels of impervious surfaces in the urban environment increase both the volume of stormwater and pollutant load in local waterways.

The City of Topeka, like most other cities, has experienced growth and a significant increase in impervious surfaces over time. More impervious surfaces mean more stormwater. **These large quantities of stormwater can have negative effects, like flooding, erosion, and pollution.**

*Stormwater can cause **flooding.***	*Stormwater can cause **erosion.***	*Stormwater can cause **pollution.***

OWNER RESPONSIBILITIES

- **Protection of the BMP and related components from development, encroachment, and damage.**
- **Maintain and protect access routes so the BMP is accessible from a public roadway.**
- **Conduct and document inspections and maintenance.**
- **Follow guidelines in the BMP Inspection Forms found in Section 5 of this manual.**
- **Submit required information to the City.**

CITY RESPONSIBILITIES

- **Enforce the provisions for inspection and maintenance.**
- **Provide the Stormwater BMP Record Drawing**
- **We are here to help! The City of Topeka's Utilities Department can answer questions about your BMP!**

What are Stormwater BMPs?

Stormwater Best Management Practices (usually just called BMPs) are structural and non-structural practices designed to store stormwater permanently (retain) or temporarily (detain). Many BMPs are also designed to treat polluted stormwater. They retain, detain, and treat stormwater to reduce flooding, erosion, and pollution problems caused by the loss of natural landscape and the increase of roads and buildings that result from land development.

There are many types of BMPs. Some are designed to temporarily store (detain) stormwater to allow pollutants to settle, filter, or otherwise be removed before the stormwater is released. BMPs can often be designed to release stormwater very slowly and in small amounts over several days, rather than in a big rush during a storm. A special set of BMPs, called green infrastructure BMPs, use loose soil and plants to mimic a natural landscape. These BMPs allow stormwater to soak into the ground and replenish groundwater rather than run off. Plants can also absorb water and utilize some pollutants as food/fuel. This both reduces the amount of stormwater and prevents pollutants from being washed into to local streams, rivers, and lakes.

Why are BMPs important to me?

Stormwater BMPs control the stormwater that is generated by buildings and impervious surfaces. They are a necessary part of any developed property, whether publicly or privately owned, because they prevent or reduce the negative impacts of stormwater-related flooding, erosion, and pollution. As a result, BMPs are critically important to the quality of life of residents and visitors in Topeka and to the economic vitality of local businesses and industries.

Like any piece of infrastructure, they must be maintained so they operate properly whenever it rains. When BMPs are not maintained and begin to fail, they do not prevent stormwater problems and may even make them worse. The property owner, whether public or private, must ensure the BMPs on their property are maintained. It can be quite costly to repair a failing BMP. In contrast, when routinely inspected and maintained, BMPs can continue to function for many years with only minor cleaning and upkeep required.

What are my responsibilities for the BMPs on my property?

To ensure BMPs are installed and operated properly, they are regulated by City of Topeka. First, BMPs are designed and constructed according to approved conditions. Then, once constructed, the BMP becomes the responsibility of the property owner. If you have been told there are one or more BMPs on your property, you are required to ensure they are protected and maintained to remain fully functional as designed. You must also ensure the BMPs are inspected on a regular basis and provide the completed inspection checklist to the City. While these activities can be carried out by others, such as a tenant, property management company, or lawn/landscape contractor, you, as the property owner, are ultimately responsible for ensuring these activities occur as required by this manual. Failure to protect, inspect, and maintain a BMP is a violation of Topeka Municipal Code Chapter 13.40 and can result in enforcement actions such as requirements for corrective actions, penalties, and/or property liens.

How do I find the BMPs on my property?

BMPs are constructed in a wide variety of sizes, shapes, and looks. In some cases, BMPs can be easily spotted (e.g., a fenced detention pond or a sand filter). In other cases, they might be less recognizable because they are located underground or on a roof. Others might be mistaken for a part of the parking lot or the landscaping of a property. In fact, BMPs can serve multiple purposes. Beyond stormwater management, some types of BMPs can also provide aesthetic landscaping (e.g., bioretention areas or native vegetation swales), functional space (e.g., permeable pavement in a parking lot), or planned green space (e.g., stream buffers and areas of native tree reforestation). Additionally, a single property can have more than one BMP.

For properties developed or redeveloped after 2011, a stormwater easement was required for every BMP located on the property at the time the BMP was constructed. The easement is recorded on the property's plat or by instrument (example shown on next page) and will indicate the location of a stormwater BMP. A Stormwater BMP Operation & Maintenance Plan is also required for the property. This agreement includes a map of your property, showing the locations, boundaries, and proper names of all BMPs located on your property. From this information, you will be able to find your BMPs, match their names to the BMPs described in this guide, and do the required BMP inspections and maintenance.

FINDING YOUR BMPS

1. **Obtain a copy of the Stormwater BMP Record Drawing from the Shawnee County Register of Deeds.**
2. **Use these documents to locate each BMP on your property. You may have more than one.**
3. **Match the BMP names on the Stormwater BMP Record Drawing to the BMP names and descriptions provided in Section 5 of this manual.**
4. **Contact the City of Topeka Utilities Department if you think you have stormwater BMP(s) on your property but cannot locate or identify them.**

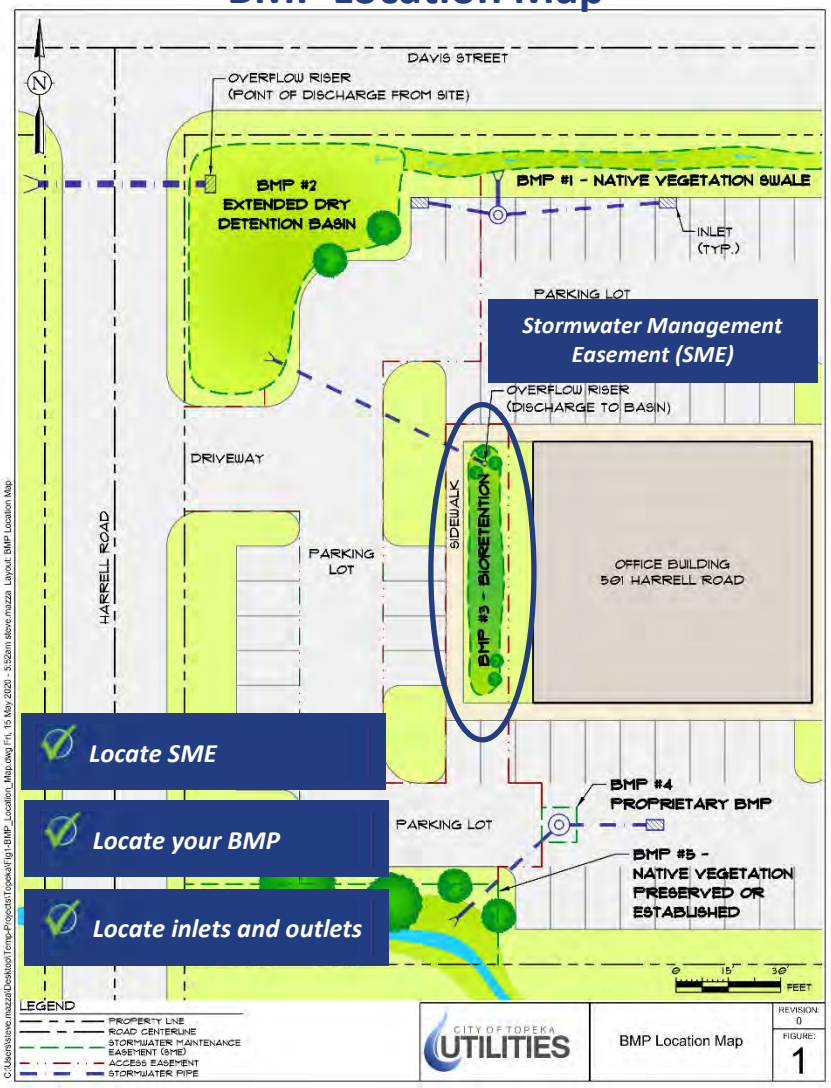
How do I carry out my responsibilities?

Most BMP owners will need help understanding their responsibilities pertaining to stormwater BMPs and how to carry them out. This manual was developed to help owners. Authorized and enforceable through Topeka Municipal Code Chapter 13.40, this manual establishes the City's requirements and procedures for BMP inspection and maintenance. It also provides guidance to help owners (and those helping them with BMP inspection and maintenance) meet the City's requirements.

You are encouraged to look beyond the information provided here for guidance on BMP maintenance. Numerous links with educational and "how to" guidance on BMP maintenance can be found on the internet free of cost. Plant nurseries and lawn/landscape companies can provide guidance on plant selection, and soil/plant management. For more significant repair issues, such as a damaged outlets and clogged drains, civil engineers and landscape architects may be needed to determine the appropriate fix. Finally, the City of Topeka Utilities Department can also be contacted to answer questions and evaluate problems, should they arise.

The City of Topeka regulates stormwater BMPs because they provide important stormwater management functions that benefit both public and private properties. Topeka Municipal Code Chapter 13.40 requires the property owner to protect, inspect, and maintain the stormwater BMPs on their property. Contact the City of Topeka Utilities Department at stormwater@topeka.org to learn more about your BMP ownership responsibilities.

BMP Location Map



Once you have the Stormwater BMP Record Drawing for your property, locate your specific BMPs on the BMP Location Map (shown above). They may be called by other names, such as:

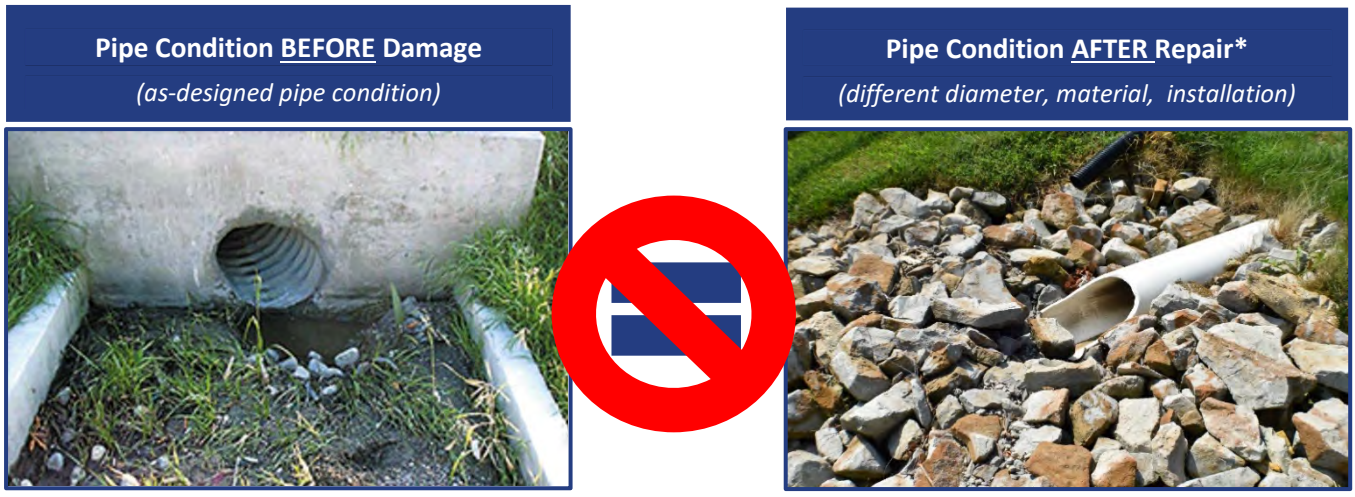
- Rain Garden
- Infiltration Basin
- Infiltration Trench
- Bioretention
- Permeable Pavement
- Extended Detention Wetland
- Sand Filter
- Extended Wet Detention
- Native Vegetation Swale
- Extended Dry Detention Basin
- Proprietary Media Filtration
- Hydro Dynamic Separation
- Catch Basin Insert
- Baffle Box
- Vegetated Filter Strip
- Green Roof
- Cistern
- Non-Structural BMPs

Can I make changes to the BMP on my property?

Yes and no. **You CAN make changes to the "look" of your BMP within the requirements and guidance provided in Section 5 of this manual.** For example, if you have a BMP that must have landscaped vegetation, such as a bioretention BMP with managed trees and shrubs or grasses, you can remove and replace plants to change its aesthetic look. However, your new plants must adhere to the requirements for plant types and BMP coverage provided in Section 5.

Outside of BMP appearance**, you CANNOT make any changes to your stormwater BMP that degrade its functionality** as a component of your property's stormwater infrastructure. The BMP was approved by the City as a regulated stormwater management practice. As such, it was designed and constructed to manage the stormwater generated on your (and possibly other's) property(s). The BMP is meant to prevent flooding, erosion, and/or pollution after the stormwater leaves your property. Therefore, changing this critical piece of infrastructure could result in negative impacts on your property, or on public or private properties located downstream of your BMP.

With this in mind, it is important to understand that **repairs made to your stormwater BMP, when needed, are done solely to return the functionality of the BMP to its "as-designed" condition. When making repairs, you cannot change the as-designed function without prior approval of the Utilities Director.** For example, consider an extended detention pond with an 8-inch diameter, corrugated metal pipe in its outlet structure. This is the "as-designed" condition. During a routine inspection, you notice a portion of the pipe is crushed, causing a blockage. The damaged pipe must be replaced with an 8-inch diameter, corrugated metal pipe or another type of pipe that is approved by the City of Topeka Replacing the damaged pipe with a larger or a smaller pipe will change the as-designed condition and the functionality of the BMP. This could cause flooding or erosion on your property or on a property downstream of the BMP. Alternately, using a different pipe material could change the structural integrity of the outlet structure, resulting in further damage or even failure, or could reduce the longevity of the BMP to function as designed.



**Note, for a repair of this nature and magnitude, it is best to consult a civil engineer before undertaking the repair.*
Picture source: Forester Network

Can I remove a BMP on my property?

No, you cannot remove or replace a stormwater BMP shown on your property's Stormwater BMP Record Drawing. BMP removal without the obtaining prior approval will result in enforcement actions by the City, which may include penalties, liens, costs associated with correcting any negative impacts resulting from removal of your BMP, and costs for designing and installing one or more replacement BMPs.

The City has laws and procedures in place to allow the Utilities Director to approve the removal or replacement of stormwater BMPs in certain circumstances. Largely, BMP removal can occur when a property is redeveloped. From a stormwater management standpoint, redevelopment is the addition, or removal and replacement of all, or a portion of, buildings and pavement. Redevelopment of a property cannot occur without various City permits and approvals. Therefore, the Utilities Director will be made aware of any requests for removal or changes to a BMP during this process. In a redevelopment situation, a BMP removal will not be approved unless the stormwater draining to it will be managed by one or more other BMPs after redevelopment is complete, as appropriate for the new configuration of buildings, pavement, and green spaces on the property.

The only other circumstance where the Utilities Director may allow BMP removal is if all of the buildings and pavement on the property are completely removed and the land returned to a natural vegetated condition. This situation is rare, but does occur, such as when the City purchases property to create a new park. Like redevelopment, the City has laws and procedures in place for demolition and removal of property improvements. So, the Utilities Director will be aware of these actions to allow him/her to consider allowing BMP removal on such properties.

Well-maintained neighborhood stormwater BMP in Lincoln, NE. Courtesy City of Lincoln, NE.

2.0 Keeping your Best Management Practice (BMP) Working Properly

City of Topeka | **Property Owner's Guide to BMP Maintenance**

2.0 Keeping Your BMP Working Properly

Why do I have to keep my BMPs working as designed?

Generally speaking, stormwater BMPs are used to reduce the negative impacts of the water that runs off of buildings, pavement, and other developed areas during and after rainfall or when snow melts. Negative impacts include property and street flooding, ditch and stream erosion, and pollution. BMPs must work as designed to prevent these negative impacts. When they do not function properly, homes, businesses, and other properties can be damaged, streets can become impassible, streams can erode and widen, aquatic life can be threatened, and, ultimately, human health and safety can be affected.

What makes a functional BMP?

To understand what makes a functional BMP, it is critical to first understand how BMPs function. There are many types of BMPs, some that address all the impacts and some that address only one or two impacts. The impacts addressed depend on the type and design of the BMP. The main categories of stormwater BMPs are listed and described below.

- **RETENTION BMPs.** This type of BMP (often called a retention pond or basin) prevents flooding, erosion, and pollution by capturing and storing stormwater *permanently*. The stormwater adds to the BMPs permanent pool or water and/or evaporates over time. Depending on the design, retention BMPs can be designed to have a permanent pool of water or be dry when not in use. Regardless, stormwater is retained on the property for most rainfalls and snow melts that occur over the course of a year. It should be recognized that even retention BMPs can be overtopped during very extreme storms or snow events, or when many large storms occur one right after the other.

- **DETENTION BMPs.** Detention BMPs (often called a detention pond or basin) prevent flooding and soil erosion by *temporarily* storing stormwater then releasing it slowly and safely during and after the rainfall. Some detention BMPs are designed to detain the water for 24 to 48 hours to allow pollutants to either settle to the bottom of the BMP, or filter through grass or other vegetation lining the bottom of the BMP before the water is released. Depending on the design, detention BMPs can have a permanent pool of water or can be dry when not in use. Detention ponds, extended wet detention, and extended dry detention basins are all examples of detention BMPs.

- **GREEN INFRASTRUCTURE BMPs.** Green infrastructure BMPs are a special type of BMP designed primarily to manage pollution in stormwater. These BMPs are designed to mimic how a natural landscape full of leafy vegetation and loose soil manages stormwater. Most green infrastructure BMPs allow water to soak into the ground and filter through special, loose soil to remove pollutants. Depending on the design and soil surrounding (outside of) the BMP, the filtered water is either dispersed into the soil surrounding the BMP or is collected in an underdrain located near the bottom of the BMP and carried off the property. Many green infrastructure BMPs can be hard to see because they tend to look like managed landscaped areas. Bioretention, rain gardens, and infiltration trenches are all examples of green infrastructure BMPs.

- **MANUFACTURED BMPs.** Manufactured BMPs are designed to remove pollutants from stormwater by filtering or mechanical means (e.g., baffling, centrifugal force) before the water is released. These BMPs are typically located underground, near or at a stormwater inlet, or under a manhole cover. In general, they require significantly more maintenance than other types of BMPs and are often out of sight.

What are common components of ALL BMPs?

There are several components common to all BMPs, shown in the examples to the right. Proper inspection and maintenance of these components will go a long way in making sure your BMP is operating and functioning the way it was designed. Each component must be working properly. Poor maintenance or damage to just one of these components could lead to failure of the BMP.

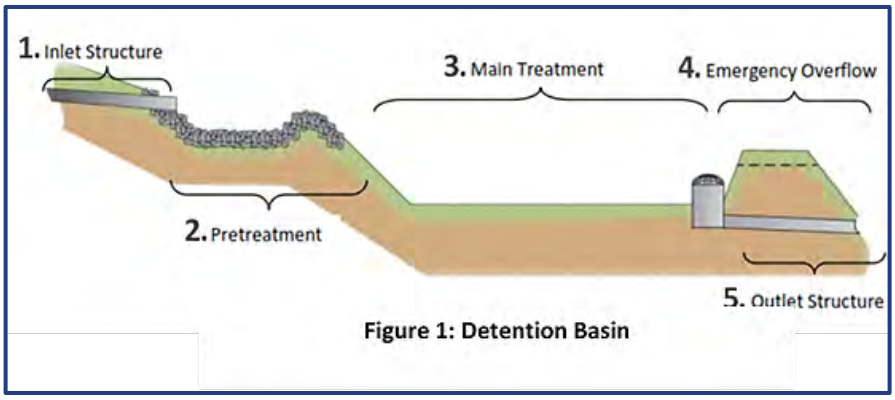


Figure 1: Detention Basin

Regardless of the type of BMP, nearly all BMPs have some variation of the following main components that work together to manage stormwater:

1. Inlet Structure
2. Pretreatment
3. Main Treatment
4. Outlet Structure
5. Emergency Overflow[1]

Figure 2: Bioretention

The main components are shown in Figures 1, 2 and 3, which are general depictions of an extended detention basin (a detention BMP), a bioretention area (a green infrastructure BMP), and a hydrodynamic separator (a Manufactured BMP that swirls water, thus using centrifugal force and deflection to separate out pollutants), respectively.

The next section (following the figures) provides descriptions of each common component, and pictures that generally demonstrate what a properly operating component should do/look like versus one that is failing.

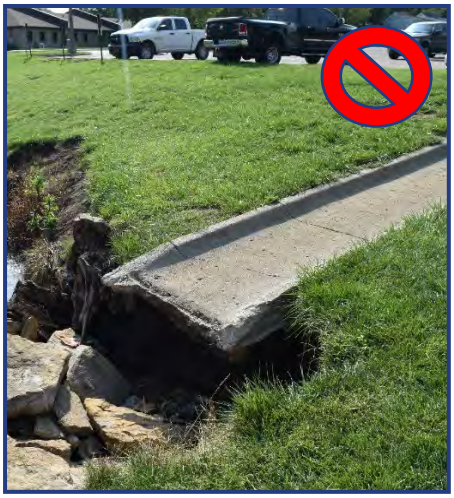
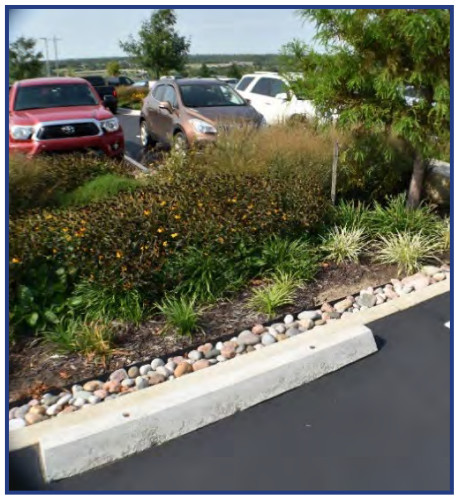
Figure 3: Hydrodynamic Separation

[1] The only exception is retention BMPs, which are designed to permanently store water and therefore may not have an outlet structure. Most retention BMPs are designed with an emergency spillway. Some may have an outlet structure to be used in case the BMP needs to be drained for repair or emergency storage.

What do the common components of BMPs look like?

Routine, informal inspections of the common components of a stormwater BMP are very important to keep it working properly. Frequent inspection will also help you catch and repair minor issues before they become major problems. Major problems can result in costly repairs, property damage, stream pollution, and legal issues with property owners impacted by failure of your BMP. For example, inspecting the inlet structure whenever landscape maintenance occurs allows you to notice and clear debris that can block or divert stormwater flow. If you didn't inspect routinely and maintain as needed, debris can build up over time, enough to bury an inlet and divert stormwater away from or around the BMP. In large storms, this diversion can flood or erode your property or others located downstream.

Descriptions of each of the main common components are provided below. The associated pictures provide examples of well-maintained, successful common components compared to failed components.

	WHAT DOES SUCCESS LOOK LIKE?	WHAT DOES FAILURE LOOK LIKE?
Inlet structures allow water into the BMP. They should be free of sediment, trash, and debris. During routine inspections, look for erosion, clogging, and damage. Clear clogs and repair erosion and inlet damage.		
Pretreatment protects the main treatment area by removing large debris and heavy sediment. This prevents or reduces clogging in the main treatment area. Usually, the pretreatment area can be cleaned more easily than the main treatment area. It should be free of sediment, trash, and debris. Look for signs of erosion, clogging, and damage during routine inspections and repair when noticed.		

	WHAT DOES SUCCESS LOOK LIKE?	WHAT DOES FAILURE LOOK LIKE?
Main treatment is where stormwater is stored temporarily or permanently to prevent pollution, stream erosion, and flooding. Treatment areas may be very large (see pictures) or quite small (e.g., a Manufactured BMP). The type/design of the BMP will determine if the main treatment will have standing water or will be vegetation. Look for areas of bare soil, trash, debris, sediment buildup, and overgrown vegetation. Fix these issues when noticed.		 Overgrown vegetation
Emergency overflow is designed to keep the area surrounding the BMP from flooding during or after a large storm or snow melt event. Spillways need to be kept clear of debris and be kept in good condition. Inspect the overflow for debris or sediment buildup, vegetation overgrowth, areas of erosion, and structural damage. Repair these issues as soon as they are noticed.		 Eroded emergency overflow
Outlet structures allow treated water to exit the BMP. If the outlet structure is clogged, flooding will occur within the BMP and potentially damage the BMP and surrounding property. Outlets should be free of sediment, trash, debris, and clogging. Erosion, scour, and damage should be evaluated and repaired when noticed.		 Sediment buildup

What are BMP success factors?

The City of Topeka regulates the design and construction of stormwater BMPs to reduce the risk of flooding, stream erosion, and pollution impacts that can result from unmanaged stormwater. This regulation takes the form of:

- City code requirements (Topeka Municipal Code Chapter 13.40)
- City design plan review services provided during the design of a property
- A Stormwater BMP Record Drawing is recorded as a covenant running with the land. As a recorded covenant, the Stormwater BMP Record Drawing is the legal documentation of the BMPs on the property.[2]

As the property owner, it is your responsibility to keep the stormwater BMPs on your property functioning as designed and constructed. This responsibility is highly dependent on your BMPs meeting certain success factors. There are four critical Success Factors that will apply to BMPs, which are described below. The icons associated with each factor will be found throughout this document and in the *Individual BMP Inspection Forms* in **Section 5**.

Success Factor 1: Vegetation

Vegetation*, if present, should be healthy and maintained. Areas of bare soil or erosion should not be present, nor should vegetation be overgrown or excessively weedy.

**includes trees, grasses, shrubs, plants as approved in the Stormwater BMP Record Drawing*

Success Factor 2: Two-Day Drain Time

Most BMPs (not including an extended wet detention basin) should completely drain stormwater within 48 hours (two days) after a storm. Longer drain times may occur during periods of prolonged or frequent rains. Regardless, frequent and repeated instances of standing water after this 2-day time period can indicate a clog or other problem in the BMP.

Success Factor 3: Protection

BMPs must be protected from damage. Pedestrians, vehicles, heavy equipment, and animals can damage BMPs not designed for such encroachments. BMPs cannot be used as play areas; for vehicle, equipment or waste storage; or for stockpiles of dirt, mulch, or other landscape materials.[3]

Success Factor 4: Cleanliness

The area around a BMP needs to be kept clean to reduce the chance that objectionable materials enter the BMP. There should not be sediment, litter, or stored pollutants in the BMP or its drainage area.

BMP owners will use the Success Factors as "performance goals" when they inspect their BMPs and to determine the maintenance needed to keep them functioning as designed. The factors that will guide the inspection of your BMP depends on the type and design of the BMP. Not every BMP will need to meet all four of the Success Factors. **Section 5** of this guide will help you determine which Success Factors apply to your BMP.

The following pages provide you with examples of how the Success Factors can influence a BMP's functionality and how they can be used to inspect a BMP. Examples are provided for three very different types of BMPs: A Detention BMP (an extended wet detention); a Green Infrastructure BMP (a bioretention area); and a Manufactured BMP (a filtration chamber).

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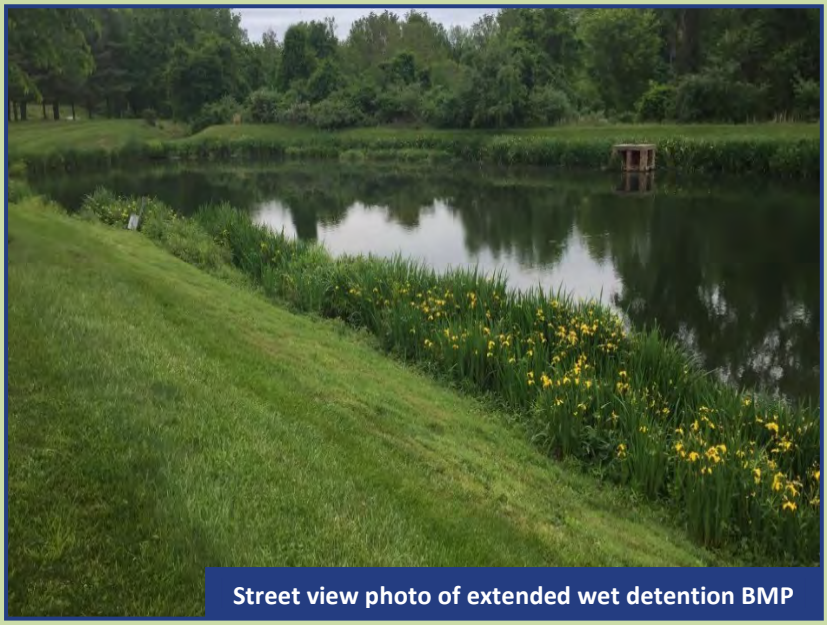
[2] As private property is transferred, the Stormwater BMP Record Drawing will also transfer to the new owner during a property's title closing. Owners can also access the covenant via the Shawnee County Register of Deeds.

[3] More information on the prohibited conditions for a stormwater BMP can be found in Topeka Municipal Code Chapter 13.40.

Example 1: Detention BMP Success Factors (extended wet detention, well-maintained)



Street view photo of extended wet detention BMP

Aerial view of extended wet detention BMP

Success Factor 1: Vegetation

Vegetation is healthy and free from weeds. No areas of bare soil or erosion are visible.

Success Factor 2: Two-Day Drain Time

The water level is appropriate for the season and with consideration of the last rainfall. Inlet and outlet structures are visible and clear of debris.

Success Factor 3: Protection

There are no signs of damage by vehicles, equipment, or people. The tall vegetation planted at the water's edge is preventing swimming, fishing, and other unwanted uses.

Success Factor 4: Cleanliness

No signs of litter, erosion, pollution, debris, or burrowing animals. The areas draining to the wet basin are also free of pollution and erosion.

Example 2: Detention BMP Success Factors (extended wet detention, poorly-maintained)

Street view photo of extended wet detention BMP

Aerial view of extended wet detention BMP

Success Factor 1: Vegetation

Vegetation in the main treatment area is not established. Bare soil can erode and cause pollution and BMP failure. Grass and other vegetation are needed immediately.

Success Factor 2: Two-Day Drain Time

The water level is lower than appropriate for the season. While the inlet and outlet structures are visible and clear of debris, the outlet structure or main treatment area may be leaking.

Success Factor 3: Protection

There are no signs of damage by vehicles, equipment, or people. The outlet structure is covered by a safety and trash gate. However, other protective measures are not employed.

Success Factor 4: Cleanliness

There are signs of erosion and sediment in all the common components. Requires sediment removal and clean up before vegetation is planted.

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Example 3: Detention BMP Success Factors (extended wet detention, maintenance needed)

Success Factor 1: Vegetation

Top Picture: No signs of erosion or bare soil. However, the overgrowth of cattails in the main treatment area could cause problems such as muskrat burrowing. Reduce or remove and control cattails to allow a large open water area.
Bottom Picture: There are signs of erosion and bare soil around the perimeter of the Detention BMP. This is also causing the inlet failure. Revegetation needs to occur.

Success Factor 2: Two-Day Drain Time

Top Picture: The water level is appropriate for the season and rainfall conditions. Inlet structures are visible and in good condition, but the outlet structure cannot be inspected due to cattails.
Bottom Picture: The water level is appropriate for the season.

Success Factor 3: Protection

Top and Bottom Picture: There are no signs of damage by vehicles, equipment, or people.

Success Factor 4: Cleanliness

Top Picture: Cattail overgrowth is a problem and can lead to clogging. Possible animal issues can lead to damage in the main treatment area.
Bottom Picture: There is evidence of algae in water, this should be further investigated.

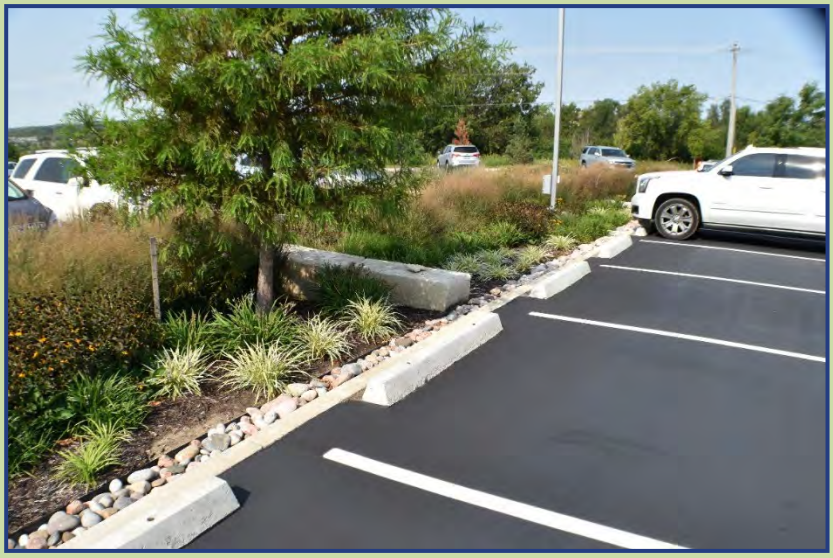
Example 4: Green Infrastructure BMP Success Factors (bioretention, well-maintained)

Success Factor 1: Vegetation

Top and Bottom Picture: Vegetation is healthy and largely free of weeds. No areas of bare soil or erosion.

Success Factor 2: Two-Day Drain Time

Top and Bottom Picture: There is never standing water two days after a storm.



Success Factor 3: Protection

Top and Bottom Picture: No signs of vehicle, equipment, or pedestrian damage.

Success Factor 4: Cleanliness

Top and Bottom Picture: No signs of litter, erosion, pollution, or debris.

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Example 5: Green Infrastructure BMP Success Factors (bioretention, poorly-maintained)

Success Factor 1: Vegetation

Top Picture: Vegetation is dead or unhealthy and does not cover enough of the BMP. Areas of exposed soil exist. Plants must be rehabilitated or replaced, and mulch is needed to cover the bare soil.
Bottom Picture: Vegetation is overgrown by weeds. The area needs to be weeded and replanted with appropriate vegetation.

Success Factor 2: Two-Day Drain Time

Top Picture: BMP is flooded more than 48 hours after an average rain event. Requires maintenance to unclog the outlet structure.
Bottom Picture: BMP is not flooded more than 48 hours after an average rain event.

Success Factor 3: Protection

Top and Bottom Picture: No signs of vehicle, equipment, or pedestrian damage.

Success Factor 4: Cleanliness

Top and Bottom Picture: No signs of litter, pollution, or debris. Any sediment accumulating at the inlet must be removed.

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Example 6: Green Infrastructure BMP Success Factors (bioretention, maintenance-needed)

Success Factor 1: Vegetation

Top Picture: Vegetation looks healthy and growing. Mulch covers unvegetated areas.
Bottom Picture: Vegetation is overgrown with weeds. Weeds need to be removed, and the BMP needs to be replanted with appropriate plants.

Success Factor 2: Two-Day Drain Time

Top Picture: Standing water is routinely seen more than two days after a storm. Check the outlet structure for blockage.
Bottom Picture: Standing water is not observed after 48 hours, however outlet structure is overgrown by weeds and needs to be maintained.

Success Factor 3: Protection

Top and Bottom Picture: No signs of vehicle, equipment, or pedestrian damage.

Success Factor 4: Cleanliness

Top Picture: No signs of litter, pollution, or debris.
Bottom Picture: Signs of litter around the perimeter of the BMP. Litter needs to be removed.

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Example 7: Manufactured BMP Success Factors (filtration chamber, well-maintained)

Success Factor 1: Vegetation

Does not apply.

Success Factor 2: Two-Day Drain Time

The BMP is drained within two days of a storm.

Success Factor 3: Protection

No signs of damage or forced entry. All components are present.

Success Factor 4: Cleanliness

No signs of litter, erosion, pollution, or debris in the main treatment area.
Top picture: Filter cartridges are clean and ready for use.
Bottom picture: Filter cartridges (different make of filtration BMP) were not replaced per manufacturers specifications and are overwhelmed with sediment. In this case, not only do the filter cartridges need to be replaced, but the entire BMP will need to be cleaned as well.

Example 8: Manufactured BMP Success Factors (filtration chamber, maintenance-needed)

Success Factor 1: Vegetation

Does not apply.

Success Factor 2: Two-Day Drain Time

Standing water is frequently noted around the BMP's inlet structure. Check the inlet and outlet structures and the main treatment area to determine the cause of the clog. Repair immediately.

Success Factor 3: Protection

No signs of forced entry. All components are present. Check for damage caused by clogging or flooding.

Success Factor 4: Cleanliness

Standing water and mud in the inlet structure indicates either significant amounts of sediment are draining to the BMP or the inlet, outlet, or main treatment area is clogged. Determine the cause of excessive sediment and mud and repair immediately. Clean the BMP.

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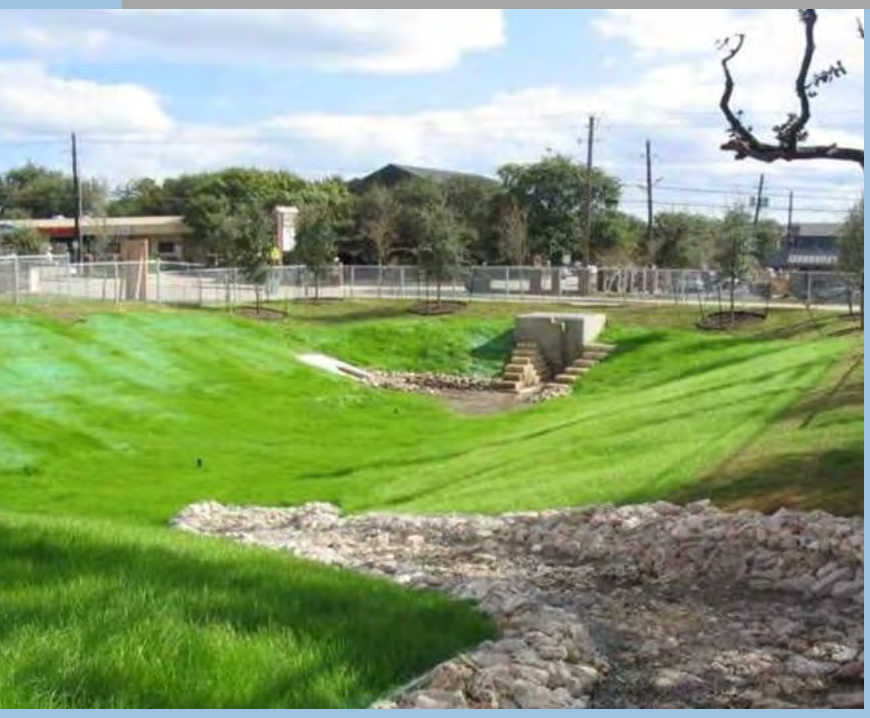
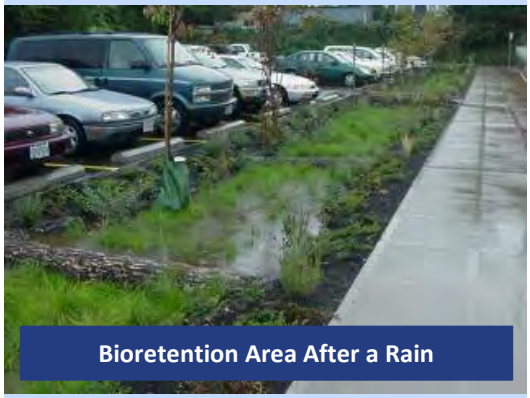
3.0 Inspection of Best Management Practices (BMPs)



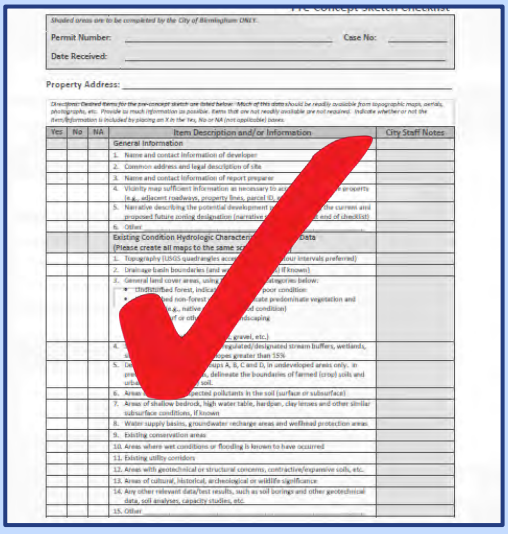
3.0 Inspection of Best Management Practices (BMPs)

Inspection keeps BMPs in good working order…



Bioretention Area After a Rain

… and keeps you in compliance.



Permit Number: Case No:

Date Received:

Property Address:

Yes	No	NA	Item Description and/or Information	City Staff Notes
			General Information	
			1. Name and contact information of developer	
			2. Common address and legal description of site	
			3. Name and contact information of report preparer	
			4. Vicinity map sufficient information as necessary to [illegible] properties (e.g., adjacent roadways, property lines, parcel ID,	
			5. Narrative describing the potential development [illegible] the current and proposed future zoning designation (narrative [illegible] end of checklist)	
			6. Other	
			Existing Condition Hydrologic Character [illegible] Data (Please create all maps to the same sc[illegible]	
			1. Topography (LIDAR quadrangles acce[illegible] our intervals preferred)	
			2. Drainage basin boundaries (land [illegible] if known);	
			3. General land cover areas, using [illegible] categories below: • Undisturbed forest, indica[illegible] poor condition • [illegible] non-forest [illegible] predominate vegetation and [illegible] native, [illegible] condition) [illegible] or old [illegible] landscaping	
			4. [illegible] gravel, etc.) [illegible] regulated/designated stream buffers, wetlands, [illegible] slopes greater than 15%	
			5. Delineate [illegible] maps A, B, C and D, in undeveloped areas only, in [illegible] delineate the boundaries of farmed (crop) soils and urban [illegible] soil;	
			6. Areas [illegible] pected pollutants in the soil (surface or subsurface);	
			7. Areas of shallow bedrock, high water table, hardpan, clay lenses and other similar subsurface conditions, if known	
			8. Water supply basins, groundwater recharge areas and wellhead protection areas	
			9. Existing conservation areas	
			10. Areas where wet conditions or flooding is known to have occurred	
			11. Existing utility corridors	
			12. Areas with geotechnical or structural concerns, contractive/expansive soils, etc.	
			13. Areas of cultural, historical, archeological or wildlife significance	
			14. Any other relevant data/test results, such as soil borings and other geotechnical data, soil analyses, capacity studies, etc.	
			15. Other	

The key to the long-term success of a BMP is routine inspection and maintenance.

Why inspect?

Stormwater BMPs are used to control stormwater from developed property. They prevent the flooding, erosion, and pollution that can result from the increased stormwater runoff that occurs after a property is developed. BMPs are used anytime there is a enough rain or snowmelt to cause runoff. So, they must always be kept ready for the next storm or snow. If not, they can cause more problems than they are intended to alleviate. BMPs that are clogged with sediment or trash, damaged by mowers or inappropriate uses, or lack enough healthy vegetation can result in flooding, erosion, and pollution.

In Topeka, property owners are responsible for the operation and maintenance of the BMPs located on their property.[1] This requirement pertains not only to the BMPs themselves but also to the related components and access routes to the BMPs from a public roadway.

Regular, informal stormwater BMP inspections are the first step in ensuring the BMPs on your property are in good working order. These inspections should be done as frequently as possible. **The City recommends looking at the condition and maintenance needs of the common components of BMPs whenever the lawn and landscape are managed and after storms and periods of snowmelt.** These regular inspections will allow you to determine and address routine maintenance needs and prevent future problems with the BMP.

The City requires a formal, documented inspection of each BMP every other year, using the guidance and inspection checklist/form provided in this manual. This inspection is also the responsibility of the property owner. Inspections must be performed between May 1 and September 30, every other year. Inspection forms must be submitted to the City no later than October 31. **Additionally, once every six years, the inspection needs to be conducted by either a professional engineer (PE) or landscape architect (PLA).** This section provides detailed inspection requirements and guidance to support property owners in meeting this requirement.

How do I inspect my BMPs?

In Section 2 of this manual, the different categories of stormwater BMPs were described. These BMP categories differ in how they address flooding, stream erosion, and pollution. Within each category, there are many specific types of BMPs. For example, the Green Infrastructure BMP category includes bioretention BMPs, infiltration trench BMPs, permeable pavement BMPs, and many others. Ultimately, there are many different types of BMPs that are accepted and used for stormwater management in Topeka.

[1] See Topeka Municipal Code Chapter 13.40

Different types of BMPs have different inspection needs. Some BMPs include vegetation, while others don't. Some BMPs retain and soak in stormwater, while others release it after cleaning. Some BMPs are underground, while others are readily visible. As a BMP owner, you don't need to know all the differences between different BMPs. Rather, you need to know what the common components of your BMPs look like and how to inspect and maintain them. This specific information is available in Section 5.

To inspect your BMPs, you also need to be familiar with their Success Factors and what success or failure within the common components might look like. This is illustrated in the following example, which generally shows, how to inspect the common components in terms of the Success Factors that apply to that particular BMP. It is important to keep in mind that these pictures do not apply to all the different types and variations of BMPs. Specific instructions on how to inspect and maintain each type of BMP commonly accepted in Topeka is provided in the Individual Stormwater BMP Guidance Sheets and Inspection Forms in Section 5 of this manual.

Example: Routine Inspection of a Bioretention BMP

A medical office park has a Bioretention BMP that manages stormwater that runs off from a portion of the parking lot. A landscape company working for the property owner does a visual inspection of the BMP when they come out to mow and tend to the landscape and performs routine maintenance when needed.

They use the Bioretention BMP Basics guidance sheet provided in Section 5.4 to guide their inspection, as follows:

- Page 1 shows that all five common components are found in a Bioretention BMP: Inlet structure; pretreatment; main treatment; emergency overflow; and outlet structure.
- Page 2 shows that all four Success Factors are relevant to a Bioretention BMP: 1. Inlet Structure; 2. Pretreatment; 3. Main Treatment; 4. Emergency Overflow; and 5. Outlet Structure. Page 2 also describes how each Success Factor is defined for a Bioretention BMP and what to look for when inspecting the BMP.

They can also use the Bioretention Inspection Form provided in Section 5.4 as an inspection guide. Since this is a routine, informal inspection, the property owner is not required to submit a BMP Inspection Form to the City. The landscape company can use it simply to guide their visual inspection of the BMP.

The *Inspecting the Common Components* graphic on the next page demonstrates the findings of the inspection of the Bioretention BMP. It shows each of the common components and the application of the Success Factors for those components.

Examples of routine inspection results for several different types of BMPs are presented after the example graphic (on pages 3-4, 3-5, and 3-6). Success Factors are indicated by their logos. Examples are provided for both well-maintained (i.e., successful) BMPs and poorly-maintained (i.e., unsuccessful) BMPs.

1. Inlet Structure: Check for trash, debris, and sediment build-up.

Success Factor:

- Cleanliness
- Two-Day Drain Time

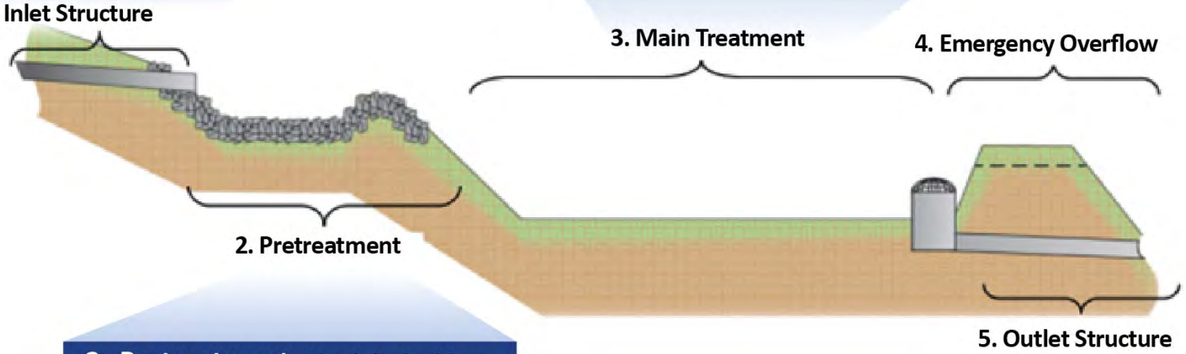
A lot of sediment build-up in the inlet. Remove to improve water flow. Determine the cause of sediment and correct the problem.

3. Main Treatment: Check for trash, debris, weeds, appropriate and healthy vegetation, mulch, erosion, and standing water.

Success Factor:

- Vegetation

Vegetation appears sparse. Determine cause. Ensure appropriate vegetation is planted to obtain 75% coverage.



4. Emergency Overflow
5. Outlet Structure

In some BMPs, the emergency overflow and outlet structure are the same thing. Check for debris and sediment buildup, drainage, and standing water.

Success Factor:

- Cleanliness
- Two-Day Drain Time

Trash needs to be removed from overflow structure. Determine if this is the cause of the standing water. Ensure BMP drains in two days.

2. Pretreatment: Check for build-up, trash and debris

Success Factor:

- Cleanliness

The pre treatment area needs to have the sediment removed.

Inspecting the Common Components of a Bioretention BMP

Example of a Successful Bioretention BMP

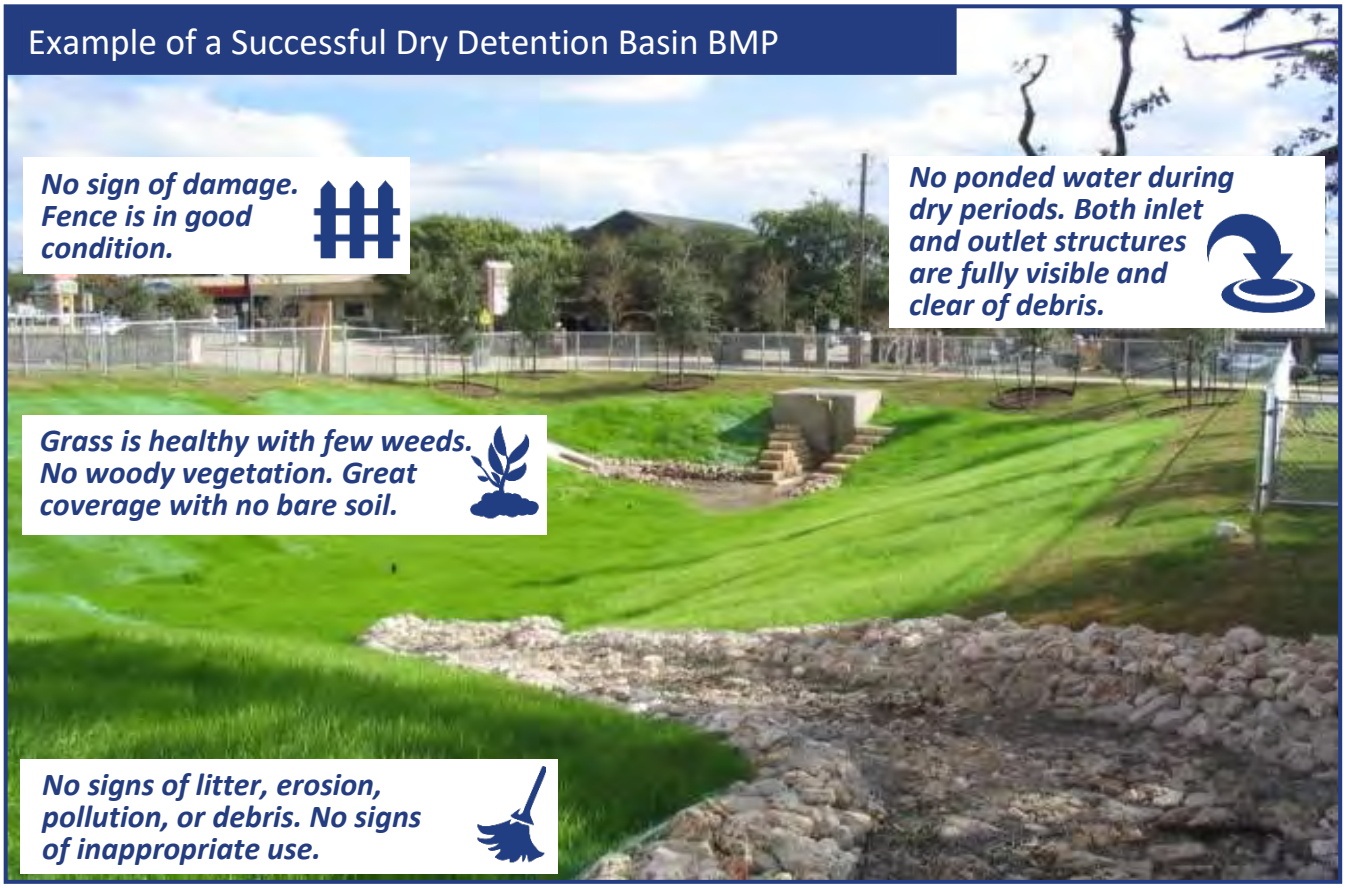
Well-maintained bioretention area in a pervious paver parking lot

Example of an Unsuccessful Bioretention BMP

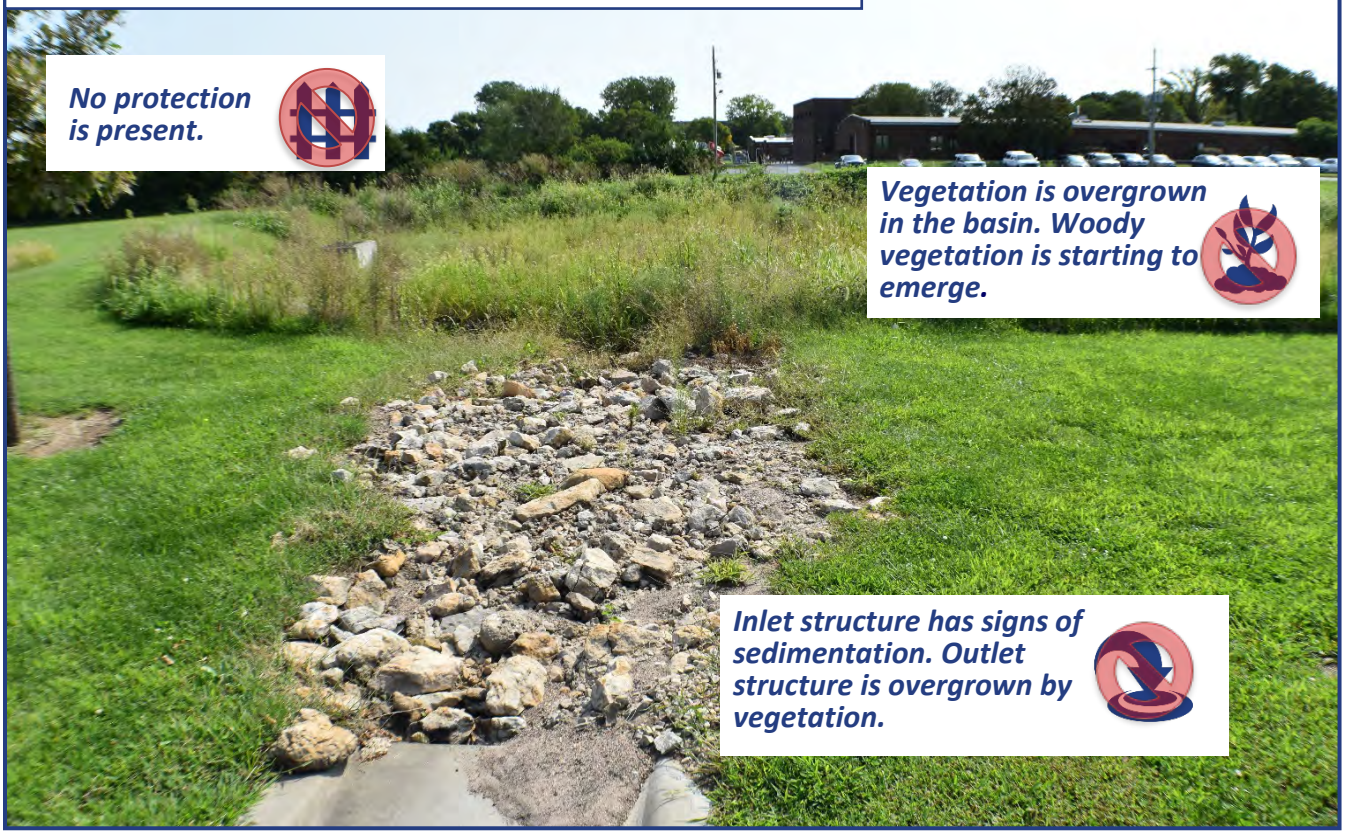
Poorly maintained bioretention area in an asphalt parking lot.

Plants are sparse and unhealthy. Weeds are growing in place of managed native or ornamental species.

Example of a Successful Dry Detention Basin BMP



Example of an Unsuccessful Dry Detention Basin BMP



Example of a Successful Permeable Pavement BMP

Examples of Unsuccessful Permeable Pavement BMPs

Top left photo credit: EPA Region V
All others: Bill Hunt, North Carolina State Universitv

INSPECTION STEPS

1. **Review your Stormwater BMP Record Drawing.**
2. **Know the locations and types of your BMPs and find the common components for each.**
3. **Inspect all the BMPs on your property. Use the information provided in Section 5 of this manual to guide you.**
4. **Address any maintenance needs identified during the inspection.**
5. **Maintain copies of your completed inspection forms for five years.**

How are inspections documented?

Regular inspection of stormwater BMPs is critical to their long-term function. While most of your BMP inspections will be done informally on a routine basis, a formal BMP inspection must be documented every other year and submitted to the City (via mail or email) by October 31st of each year. ***If you are performing your required inspection, complete the BMP Inspection Form for each BMP. Submittal instructions are provided on the City Utilities webpage (https://www.topeka.org/utilities/).*** Beyond that, you are encouraged to make a quick, routine inspection of your BMPs whenever the lawn and landscaping on your property is maintained and after every storm and snowmelt event. The Stormwater BMP Record Drawing includes the BMP location map to help you locate the BMP. However, you will need to use the BMP Inspection Forms found in Section 5 of this manual. Contact the City of Topeka Utilities Department if you need additional guidance.

See the table below for suggested inspection frequencies and documentation policies.

Inspection Type	Inspection Guidance	Documentation Procedures
Routine Operational Inspections	☑ Often, generally, when landscaping activities are being performed at the property and after storms and snowmelt events.	☑ None. Documentation of these inspections is not required. However, it is a good idea to document larger-scale maintenance activities to keep track of what has been done and the costs. Keep receipts if possible.
City-Required Formal Inspections	☑ At least every other year. ☑ Inspect between April 1 and September 30. ☑ Performed by the owner (or person designated by the owner) who is familiar with the purpose and basic function of the BMP. ☑ Once every six years, the inspection needs to be conducted by either a professional engineer (PE) or landscape architect (PLA).	☑ Must use the Individual BMP Guidance Sheets and Inspection Form associated with your type of BMP. These are located in Section 5 of this manual. ☑ The completed inspection checklist and indication of maintenance performed must be submitted to the City (via mail or email) no later than October 31 every other year. ☑ Completed inspection checklists must be kept by the owner(s) for a minimum of 6 years and made available to the City upon request.

Detailed guidance on inspections and inspection frequency for specific BMPs is included in Section 5. In general, all inspections should check for evidence of the following:

- Accumulation of sediment or debris in infiltration areas and at inlet and outlet structures
- Erosion, settlement, or slope failures
- BMP clogging, as evidenced by long standing water after rain events
- Lack of adequate protection as evidenced by signs of disturbance, encroachment, or soil compaction
- Vegetation damage, poor vegetative health, or inadequate vegetation coverage

What happens after the inspection?

If your inspection identified maintenance issues, you need to address them. This may involve cleaning up debris or sediment manually, or hiring someone to do a more extensive clean-out or repair. Refer to the next section of this document and your Stormwater BMP Record Drawing more guidance. After receiving your checklist, the City will track your BMP inspections. If you have questions, it is your responsibility to contact a professional or ask the City of Topeka Utilities Department for more information.

We are here to help! The City of Topeka's Utilities Department can answer questions about your BMP Inspections!

City of Topeka, Jackson Street Bioretention

4.0 Best Management Practice (BMP) Maintenance

City of Topeka | **Property Owner's Guide to BMP Maintenance**

4.0 Best Management Practice (BMP) Maintenance

The Stormwater BMP Record Drawing will indicate the locations and types of the BMPs on your property.

See Section 5 of this manual to determine the specific Success Factors, inspection, and maintenance requirements for your type of BMP.

Perform routine maintenance often. This will reduce or eliminate the need for more involved and costly repairs.

Call the City of Topeka Utilities

How do I get ready to maintain my BMP?

Regular inspection and maintenance of your BMP is critical to its success. Your property may only have one BMP, such as a detention pond, or you might have several BMPs on your property as depicated in the picture below. Inspection and maintenance guidance for most types of BMPs is provided in Section 5. From that information, you will see that most maintenance needs are fairly easy to determine if you are regularly inspecting your BMP and performing the most standard maintenance, like eliminating bare soil in the area draining to the BMP and removing sediment deposits, litter, and debris from the BMP itself. However, when typical maintenance does not correct a problem, it can be difficult to assess what is needed, especially if you are new to BMP maintenance. Cost, safety, and effectiveness are also key factors in determining what is needed and who will carry out maintenance activities.

If you have difficulty finding information about your property or BMP, or if you have questions about maintenance problems, contact The City of Topeka's Utilities Department at stormwater@topkea.org

Some properties have multiple BMPs, which all require maintenance. This building has cisterns, green roofs, porous pavers, and a small bioretention area.

All BMPs require maintenance, both routinely and in response to problems.

What is routine maintenance of a BMP?

If a BMP were an automobile, routine maintenance would equate to an oil change. **Routine maintenance refers to the typical cleaning and light repair activities that are performed on a repetitive and frequent basis to sustain the on-going proper operational performance of the BMP.** For some BMPs, like detention BMPs and bioretention BMPs, landscaping (lawn mowing or plant watering and care) is a standard part of BMP maintenance. For others, sweeping, blowing leaves, and clearing debris is typical. Consult Section 5 for specific and detailed maintenance information for your BMP.

While an inspection may identify the need for a particular routine maintenance activity, property owners should not always rely on inspections to identify maintenance needs. Instead, routine maintenance should be considered an ongoing activity that is done on a regular basis, ideally whenever general property and landscape maintenance occurs.

The activities performed may vary depending on the type of BMP, the season (e.g., leaf removal from BMP inlets may be a frequent activity in the fall), and the land use and condition of the area draining to the BMP (e.g., a fast food restaurant parking lot may require frequent trash removal).

Examples of routine maintenance include:

- Trash, debris, leaf litter, and minor sediment removal (sweeping, shoveling, vacuuming) within the BMP and in the area that drains to the BMP
- Inlet and outlet cleaning
- Mowing and pruning vegetation
- Removal and replacement of dead or unhealthy vegetation
- Erosion prevention and sediment control for bare soil or eroding surfaces
- Repair or replacement of BMP signage and other physical protection measures

Litter pickup is an example of routine maintenance.

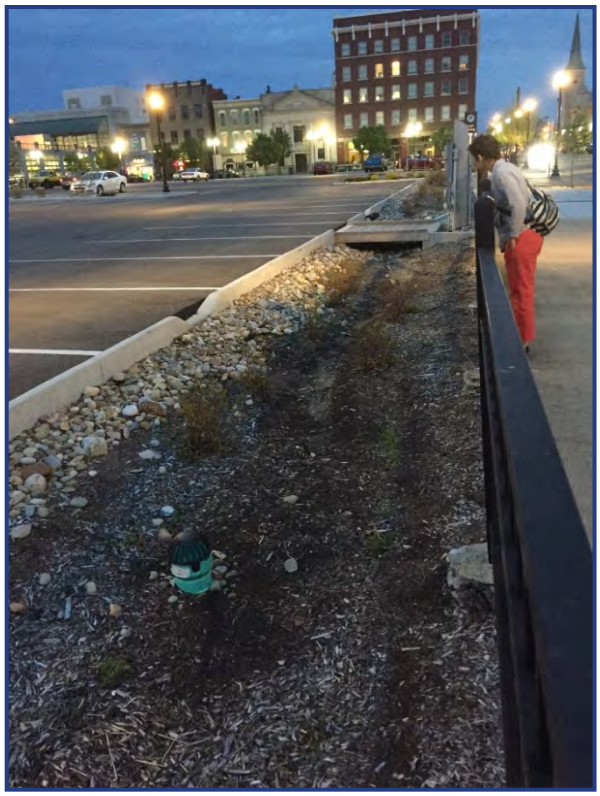
Routine maintenance can generally be done by the property owner, a tenant, a landscape company, or other person generally knowledgeable in landscape and property maintenance. Hiring a professional landscaping company or consulting plant nursery staff knowledgeable in BMP maintenance is encouraged for some of the more significant routine maintenance activities, such as selecting appropriate new plants, replacing or amending soil, repairing large areas of soil erosion, and installing large plants. To perform these activities properly and to avoid damaging the BMP, special equipment and knowledge may be required. Trained professionals can also identify problems early on that might save you from costly repairs later.

What do I do when my BMP needs more significant repair or rehabilitation?

Problems with your stormwater BMP or the need for a repair more significant than routine maintenance can occur, even in well-maintained BMPs. These issues usually occur after a heavy storm or large snowmelt, or as the result of an unexpected disturbance to the BMP. In any case, **problems noticed must be corrected as soon as possible to prevent damage to the BMP, your property, and the properties around yours.** Significant repairs may require the services of a licensed contractor, professional engineer, landscape architect, or soil scientist. Because it may be costly, creating a long-term fund for large maintenance items is highly recommended.

Examples of large maintenance tasks include:

- Repairs to structural components (e.g., curbing, outlets, underdrain, observation wells, etc.)
- Major sediment removal
- Addressing areas where soil has been compacted by heavy equipment
- Removal and replacement of BMP filters or filter media
- Large-scale removal and replacement of dead, damaged, or unhealthy vegetation



This bioretention area is being completely replanted as part of a large-scale maintenance effort.

How do I remove and dispose of soil media, sand, or accumulated sediment from my BMP?

Many BMPs clean sediment out of stormwater and will therefore accumulate sediment deposits over time. Sediment must be removed periodically so the BMP continues to work as designed. Some BMPs also use filters or a special media to remove pollutants from stormwater. Media must be periodically replaced so that fresh media can continue to remove pollutants.

The bioretention area in this parking lot island has accumulated sediment which requires removal.

In most cases, filters, media, sand, soil, and sediment removed from a BMP can be disposed of properly as trash and accumulated sediment can even be used elsewhere on your property as fill dirt. However, in some cases, the disposal of these materials can be a concern because pollutants may be present. For example, a BMP that receives discharges from a commercial trucking fueling/parking area may have significant amounts of petroleum substances (e.g., gasoline, oils and greases) or metals within sand or other filter media. If the BMP receives runoff from a commercial or industrial setting, the sediment may be hazardous and will need to be tested. Before disposing of potentially contaminated or hazardous sediment or materials, the Kansas Department of Health and Environment (KDHE) Bureau of Waste Management should be contacted for guidance associated with the requirements for waste determination and disposal procedures. For more information, please call KDHE at 785-296-1600 or visit http://www.kdheks.gov/waste/

What do I need to consider for vegetated BMPs?

Plants and soils are critical elements for proper function in many BMPs. BMPs like bioretention and rain gardens manage stormwater by using plants and soil to soak up or filter stormwater, sending it back into the atmosphere through plants' leaves, or replenishing groundwater through filtration. Soil has numerous open spaces that store and transmit water beneath the soil's surface and distribute the water downward. Strong and vigorous root growth from healthy plants is an important part of this process. For other BMPs, plants provide a stabilizing cover for soil, preventing it from washing away during a rainfall and creating pollution in the form of sediment.

The success of vegetated BMPs as effective stormwater management elements is highly dependent on the health and adequate coverage of the plants within the BMP. As a result, inspection and maintenance activities will incorporate vegetation and soil considerations. Strong, growing plants and their relationship to healthy, loose soils are essential components of vegetated BMPs. Properly planting and maintaining vegetation and protecting the soil are critical to ensuring that a vegetated BMP performs most effectively for many years.

Vegetated BMPs can look like mowed grass, such as this vegetated swale on the left, or like landscaping, such as this urban bioretention area on the right.

What do I need to consider for non-vegetated BMPs?

Some BMPs don't require any plants to operate. These non-vegetated BMPs can range from cisterns that capture and re-use rainwater to underground detention areas under parking lots. Non-vegetated BMPs generally do not have specific requirements for vegetation health and coverage. As a result, they will typically not have significant soil or vegetation aspects to inspection and maintenance. Regardless of the design, non-vegetated BMPs have specific inspection and maintenance requirements that need to be met to ensure that they function as originally designed.

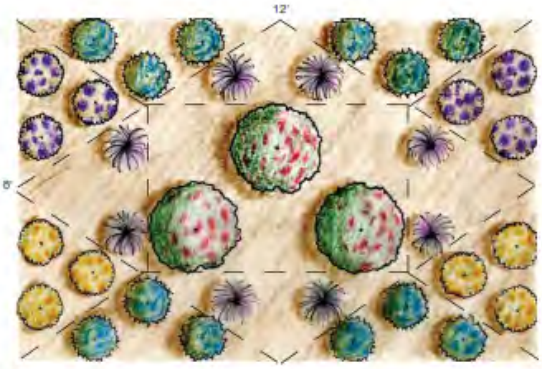
The pervious paver parking lot *(left)* and the cistern *(right)* are examples of non-vegetated BMPs.

How can I use the four Success Criteria to guide maintenance of my BMP?

Success Criteria 1: Vegetation

- Look for bare soil: this could indicate dead vegetation.
- Look for overgrown vegetation: This could indicate weeds and invasive species or necessitate mowing or pruning.
- Fertilizers and pesticides should be avoided within and near BMPs.
- Vegetation may need watering to establish new plants or if weather is very dry.

If you have questions about what vegetation should be present, the property's Stormwater BMP Record Drawing should show the planting plan, the type of plants, and the location of the plants.



Plant List

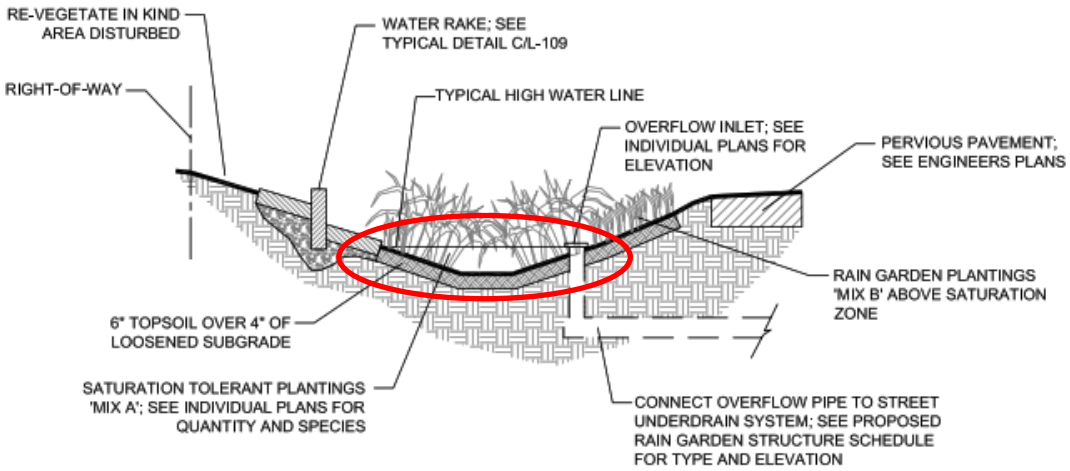
Plant Common Name	Spacing (ft)	Area (ft²)	ft²/plant	Quantity
crimsoneyed rose mallow	3	24	7.8	3
muhly grass	2	6	3.4	2
muhly grass	2	6	3.4	2
muhly grass	2	6	3.4	2
muhly grass	2	6	3.4	2
purple coneflower	1.5	6	2	3
purple coneflower	1.5	6	2	3
orange coneflower	1.5	6	2	3
orange coneflower	1.5	6	2	3
Stoke's aster	1.5	6	2	3
Stoke's aster	1.5	6	2	3
Stoke's aster	1.5	6	2	3
Stoke's aster	1.5	6	2	3

The BMP Planting Plan, found in your Stormwater BMP Record Drawing for your property, will tell you where plants should be, their species, and spacing. This is helpful information if you need to replace plants.

Success Criteria 2: Two-Day Drain Time

- Look for ponded water: After a rainfall, stormwater should generally recede within 48 hours, but could be longer depending on how wet the soil already is.
- Look for sediment and debris that may be causing clogging or high-water levels.
- Check observation wells and cleanouts if you suspect problems with drainage are beneath the ground surface.

If applicable to your BMP (like an extended wet retention), the Stormwater BMP Record Drawing should show the "normal pool", or water level, that is appropriate for the BMP.

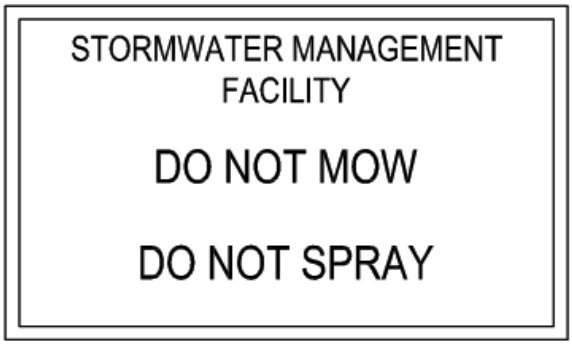


Your Stormwater BMP Record Drawing should show the typical high-water line or mark for some BMPs. This will help determine if there is too much water ponding, which can indicate a clog within the BMP or its outlet.

Success Criteria 3: Protection

- Look for signs of encroachment, such as compacted soil, pet waste or crushed vegetation.
- Look for damage to signage, berms, and other barriers.

The Stormwater BMP Record Drawing should show the types and locations of signs and barriers.



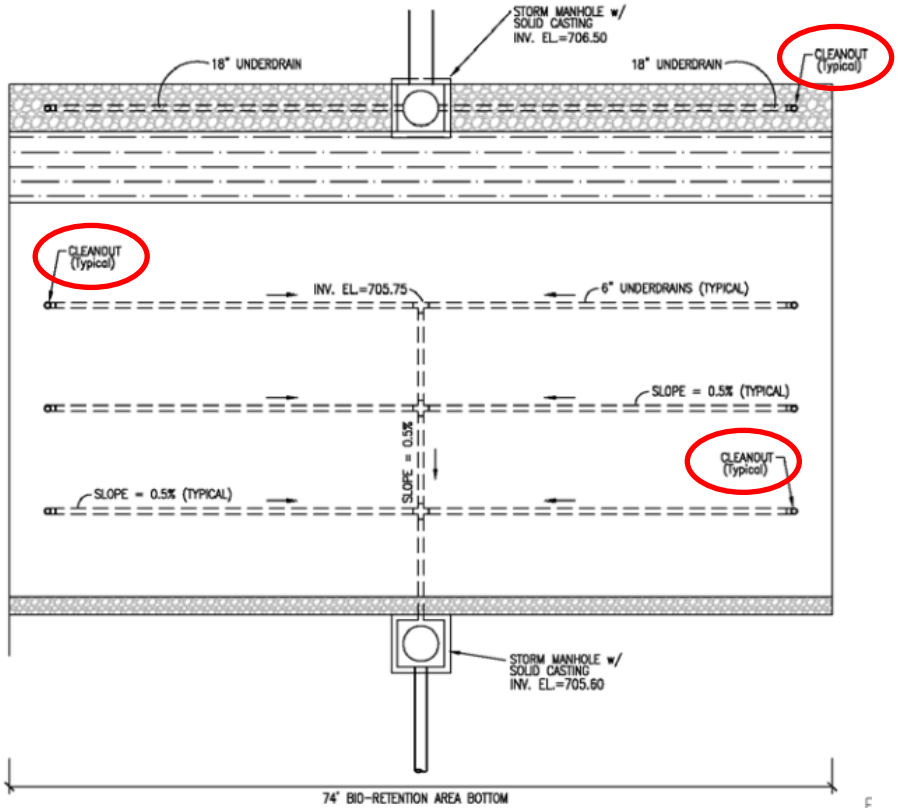
NOTES:
1. POST TO BE NUCOR 1.12 LB D–POST OR EQUIVALENT, PAINTED. (MINUMUM)
2. MINIMUM 6'–0" IN LENGTH.
3. POST TO BE DRIVEN A MINIMUM OF ⅓ THE LENGTH OF THE POST.

02 / C3.0 RAIN GARDEN SIGN DETAIL
NOT TO SCALE

Your Stormwater BMP Record Drawing should show the types and locations of signage. It's important to maintain signage to keep vehicles, equipment, people, and/or chemicals from damaging your BMP.

Success Criteria 4: Cleanliness

- Look for sediment, which needs to be removed periodically and can also indicate erosion nearby.
- Look for litter and leaf litter, which can cause clogging of structures and prevent proper draining times. It needs to be removed.
- Look for signs of pollutants, such as leaking vehicles/equipment or stockpiles of salt, soil, etc.
- Check for visibly dirty water and oil sheens.
- Check observation wells and cleanouts for signs of clogging.



Your Stormwater BMP Record Drawing should show the locations of cleanouts and observation wells. Make sure these are kept clear and monitor them for clogs and signs of pollution.

What are some examples of common maintenance tasks?

Common maintenance problems and solutions are shown on the following pages. For more information, refer to your Stormwater BMP Record Drawing or contact The City of Topeka's Utilities Department.

Grass has grown over this inlet and should be cut back to allow water to enter the inlet.

Debris and leaf litter are blocking this inlet. Remove this material to allow water to enter the inlet.

The erosion around this outlet has been stabilized with rock and erosion control blanket.

This outlet is clogged with sediment and overgrown vegetation. Sediment and vegetation should be removed to allow water to flow out of the inlet.

This pretreatment area has been mowed to an appropriate length, and litter has been removed to prevent clogging.

This pretreatment area is full of sediment that should be removed. The property should be checked for the source, like an eroded area. Larger jobs may require a contractor and/or special equipment.

Water on this pervious pavement is not draining, which can indicate clogging. Some sediment and debris can be removed manually. Fine sediment that causes clogs at the surface or in the media below requires maintenance with a vacuum truck.

This infiltration area is full of sediment. Sediment should be removed, and the property should be checked for the source of the sediment, such as a nearby soil pile. Larger jobs may require a contractor and/or special equipment.

Look down observation wells to investigate clogs in underdrains. If a clog is found, underdrains may require special equipment or excavation to clean or repair.

This bioretention area was not draining 48 hours after a rain. The outlet should be cleaned out and inspected for signs of damage.

Vegetation has grown over this outlet, which blocks the flow of water. The plants should be trimmed back to allow water drain from the BMP.

This bioretention area has bare soil and dead plants. It will need to be replanted. The planting plan from the Stormwater BMP Record Drawing should be checked for the types of plants needed.

Algae needs to be controlled so it doesn't take over storage areas and harm aquatic life. Check the function of fountains and aeration devices. Fertilizer use around the pond should be limited. Maintaining healthy native plants and limiting mowing around the pond can also help.

This detention pond is overgrown with cattails, which are invasive plants. Overgrown vegetation should be removed and replaced with the correct plantings. The planting plan will be shown on the Stormwater BMP Record Drawing. Larger jobs may require a contractor and/or special equipment.

Steep slopes need to be vegetated to prevent erosion of sediment. Hydroseeding sprays seed and a sticky mulch that adheres to soil. It can be an effective way to quickly prevent erosion and establish vegetation.

The slope around this detention pond has failed, allowing soil to enter the storage area and erosion to continue to occur. New vegetation needs to be established. Installation of additional soil, erosion control matting, or other measures is required.

Extensive erosion can be caused by spillways that are too steep. Check the Stormwater BMP Record Drawing for the correct slope. Regrading and slope protection with rock may be required.

Slope next to spillway has failed, causing erosion. New vegetation needs to be established. Installation of additional soil, rock outlet protection, or other measures is required.

Stockpiles of soil will send sediment to your BMP, causing problems with clogging. Move stockpiles away from inlets and protect them with barriers, such as silt fencing.

Tire tracks and signs of encroachment can indicate problems, such as bare soil and BMP damage. Ensure vehicles, equipment, and pedestrians stay out of your BMP by maintaining signage, fencing, and other barriers. Repair damage and vegetate bare areas.

Pollutants may be visible at inlets and outlets or within your BMP. If oil or other hazardous materials are present, a specialized clean-up crew may be required.

Litter around your property can travel to your BMP and clog it. Conduct regular litter pick up and make sure adequate trash collection is conducted.

5.0 Best Management Practice (BMP) Guidance and Inspection Checklist

City of Topeka | **Property Owner's Guide to BMP Maintenance**

Property Owner's Guide to BMP Maintenance

5.0 Best Management Practice (BMP) Guidance and Inspection Checklist

Stormwater Best Management Practices, or BMPs, are non-structural and structural practices designed to store stormwater permanently (retain) or temporarily (detain). While Section 1 of this manual focuses on the purpose and importance of incorporating BMPs in stormwater management plans, this Section details inspection requirements for the BMP owner to fulfill based on the BMP on their property. The table below gives a brief overview of each BMP that the City of Topeka has defined as appropriate, depending on the site conditions. The pages *following* the table provide Individual BMP Guidance Sheets and Inspection Forms.

Best Management Practices (BMPs)	Basic Definition	Photo
Vegetated BMPs		
Non-Structural BMP (5.18)	Non-structural solutions for stormwater management include BMPs that retain or restore and **conserve existing natural soil, vegetative and hydrologic conditions** to reduce stormwater runoff, filter contaminants and improve water quality. These BMPs differ from the below (structural BMPs) in that they are not engineered specifically to collect, convey, and/or store stormwater runoff but can be used in conjunction with the below BMPs.	
Bioretention (5.4)	**Bioretention areas** are built as shallow, sunken areas that utilize native plants and soil to catch stormwater from surrounding property. The water soaks into the soil of the bioretention area. **Bioretention areas** are typically larger than **rain gardens** and have engineered soil, overflow structure (drainpipe) and underdrain system.	
Rain Garden (5.1)	**Rain gardens** are small landscaped areas planted with a variety of native trees, shrubs, and plants. They clean pollution from stormwater by letting the water soak into the ground. The difference between **rain gardens** and **bioretention** areas is that rain gardens are typically smaller and don't have an engineered overflow structure (drainpipe).	

Best Management Practices (BMPs)	Basic Definition	Photo
Extended Detention Wetland (5.6)	**Extended detention wetlands (EDW)** catch stormwater runoff and let it go over about 40 hours. Plants in the **EDW** remove pollution from runoff by filtering the water through their roots. EDWs are 18-inches deep and hold water. An **EDW** differs from an extended **wet detention *basin*** because it isn't as deep and requires native plants.	
Vegetated Filter Strip (5.15)	**Vegetated filter strips** slow down stormwater and filter out pollutants. They have grass that lets runoff soak into the ground, acting as a natural filter for pollutants. **Vegetated filter strips** are different than **native vegetation swales** because they do not utilize native grasses and they typically are used for pretreatment into other BMPs.	
Native Vegetation Swale (5.9)	**Native vegetation swales** clean pollutants from stormwater by letting the water soak into the ground. They are broad and shallow with thick, native grass. The bottom acts as a natural pipe that guides water from a road, parking lot, or other properties. **Native vegetation swales** are different from **vegetated filter strip**s because they utilize native plants and are used as the primary BMP.	

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Best Management Practices (BMPs)	Basic Definition	Photo
Impervious Area Reduction BMPs		
Green Roof (5.16)	**Green roofs** reduce runoff by collecting rainwater on the roof through the use of vegetation. The water is used to support low-growing plants, like succulents and short grasses. The roofs are designed so that water soaks down into the media and flows horizontally along a waterproofing layer, towards the outlet of the roof.	
Permeable Pavement (5.5)	**Permeable pavement** lets stormwater flow into the holes in the pavement surface. From there, the water soaks into the soil below. Permeable pavement can have modular pavers, concrete grids, pervious concrete, porous asphalt, and cellular confinement systems.	
Cistern/Rainwater Harvesting (5.17)	**Cisterns** (and other tanks with similar functions such as rain barrels, stormwater reservoirs, and rainwater harvesting systems) are designed to directly intercept and store runoff from impervious areas such as rooftops. Cisterns are best utilized where runoff can be recycled for identified non-potable uses, such as irrigation into **bioretention** or other native planting areas.	

Best Management Practices (BMPs)	Basic Definition	Photo
Infiltration BMPs		
Infiltration Basin (5.2)	**Infiltration basins** catch and hold stormwater runoff in a structure made of rock, stone, or clay. There, the stormwater soaks into the ground over a couple of days. **Infiltration basins** are configured or shaped differently than **infiltration trenches**.	
Infiltration Trench (5.3)	**Infiltration trenches** capture stormwater and let it soak into the soil. These trenches are excavated and filled with stone. The stormwater gathers in the trench, flows through the stone, and pollutants are filtered out. **Infiltration trenches** are configured or shaped differently than **infiltration basins**.	

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Best Management Practices (BMPs)	Basic Definition	Photo
Detention BMPs		
Extended Wet Detention (5.8)	**Extended wet detention** removes pollutants from stormwater by storing it in a basin for a short amount of time. The basin lets the sediment (dirt) settle out of the water before it is released. Plants in an extended wet detention remove pollutants through their roots and leaves.	
Extended Dry Detention (5.10)	**Extended dry detention** basins collect and store stormwater. The basins remove pollution and control flooding. An extended dry detention basin will manage about 1-inch of stormwater and drain completely about 40 hours after a storm.	

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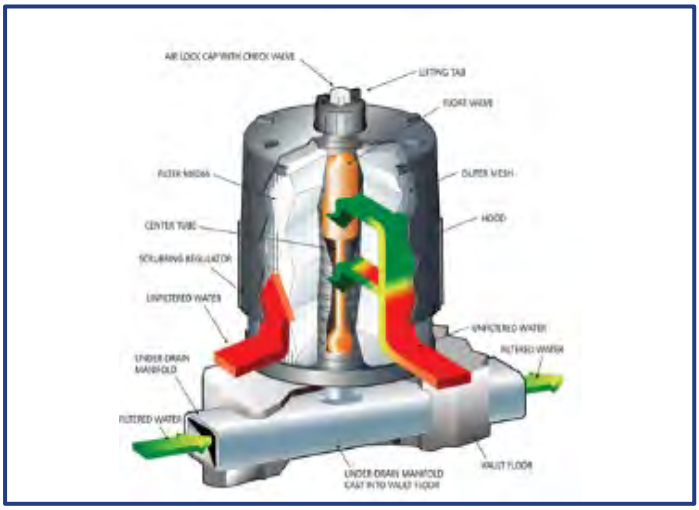
Best Management Practices (BMPs)	Basic Definition	Photo
Media Filtration BMPs		
Sand Filter (5.7)	**Sand filters** clean stormwater by filtering it through a sand bed. The stormwater is collected, filtered through the sand where it is cleaned, and released to a stormwater system. There are three types of sand filters. **1) Underground sand filters** that use several chambers **2) Sand filters** installed on the edge of an impervious surface, like a parking lot **3) Pocket sand filters** used specifically for small site projects	
Other Systems		
Proprietary Media Filtration (5.11)	**Proprietary media filtration** (or "media filter") removes pollutants from stormwater by guiding the runoff through a bed of media like sand, compost, or organic material. These BMPs are "proprietary" because they can be designed to remove *specific* pollutant(s). The media can target suspended solids and particles, or they can aim to remove dissolved pollutants. The details of your media filter should be provided by the manufacturer.	
Hydrodynamic Separator (5.12)	**Hydrodynamic separators** remove pollutants from stormwater by swirling runoff. This separates litter and sediment from water. These BMPs are sometimes called "swirl concentrators" or "vortex separators." The details of your hydrodynamic separator should be provided by the manufacturer.	

Best Management Practices (BMPs)	Basic Definition	Photo
Baffle Box (5.14)	**Baffle boxes**, also called oil-grit separators, target coarse solids and large oil droplets. Most systems have several chambers where solids are removed, specifically during the "first flush." Oil and grease are captured at the surface of the water.	
Catch Basin Insert (5.13)	**Catch basin inserts** remove trash, debris, and sediment from runoff directly at the storm drain. Some inserts can be built to absorb oils. Inserts are installed underneath a storm drain grate by attaching to the wall of the drain or hanging from the lip of the inlet.	

Remainder of page intentionally left blank.

Property Owner's Guide to Stormwater BMP Maintenance

5.1 Rain Garden Basics

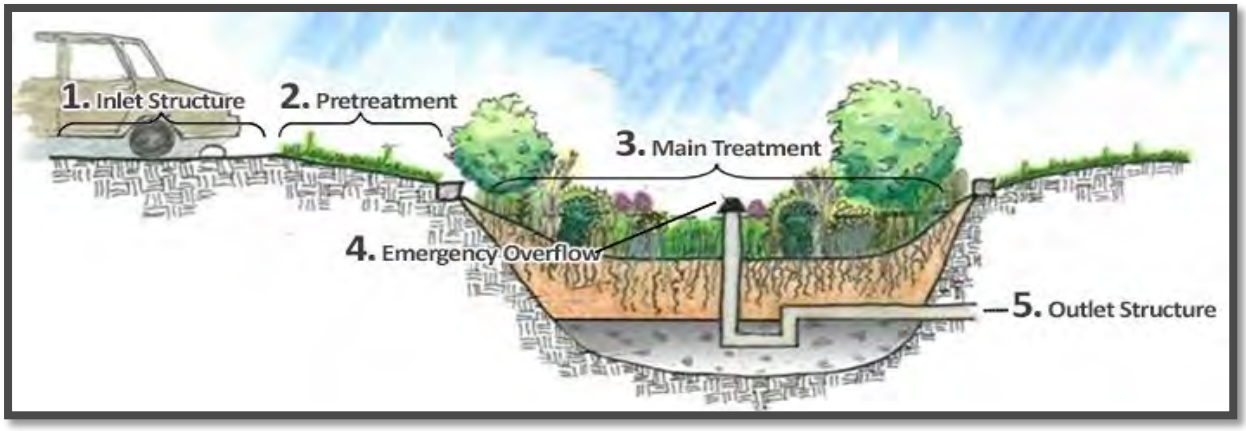
Rain gardens are Best Management Practices (BMPs) that clean pollution from stormwater by letting the water soak into the ground. They are small areas planted with a variety of native trees, shrubs, and plants. Rain gardens collect stormwater and let it soak into the soil, where the plants filter the water. This helps to prevent polluted water from getting into the storm drain. They also reduce the amount of water flowing into the stormwater sewer. Rain gardens will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Rain Gardens:

- **Remove pollutants from stormwater**
- **May control runoff from separate lots**
- **May decrease flooding**
- **Provide habitat for butterflies & birds**
- **Create an interesting landscape**

In the City of Topeka, most rain gardens will have five basic parts (see the figure below):

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps prevents clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

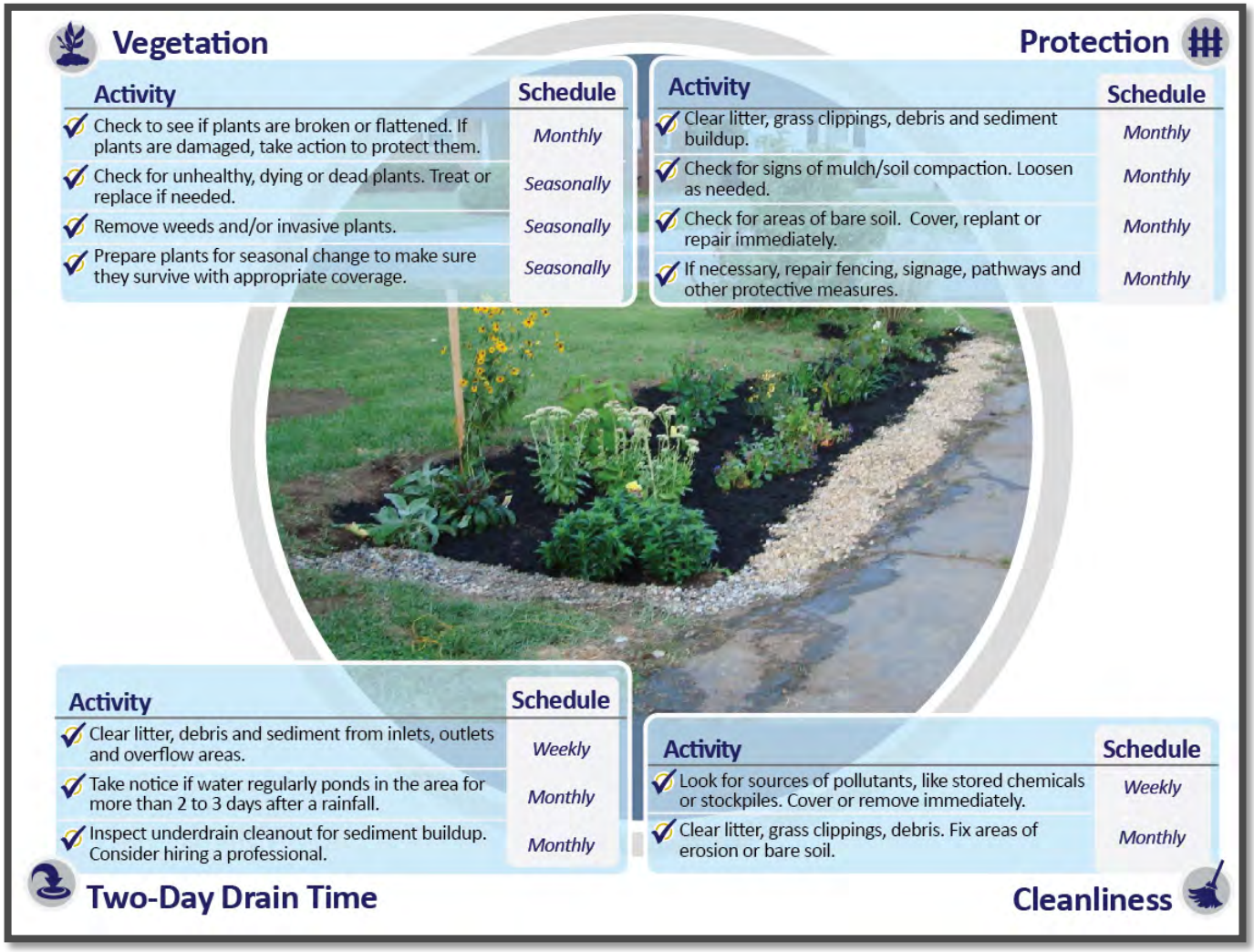


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your rain garden will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working rain garden. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Rain Garden Inspection Form included with this guidance sheet.



Do

✓ Check your property often for bare soil, trash, plant health, and soil compaction.

✓ Get rid of weeds and invasive plants. Restock with healthy plants and make sure basic needs for plant health are met.

✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.

Don't

X Don't use too much salt and sand around the rain garden in the winter.

X Don't use too much fertilizer, herbicides, or pesticides. Contact a local nursery or landscape company if your plants aren't doing well.

X Don't let heavy equipment in the rain garden or use it as storage, even for landscape items (leaves, snow, soil mulch, etc.)

Rain Garden Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance. **The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).**

BMP Name(s)				Today's Date:
	Note: The rain garden name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Rain Garden 1" or "Rain Garden A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Rain Garden?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #:	Email:	*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Rain Garden?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Has the City Entered and Approved this Inspection? Yes No

Name of Staff Approving This Inspection Report:

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes No

Reason for Follow Up?

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Rain Garden Inspection Form

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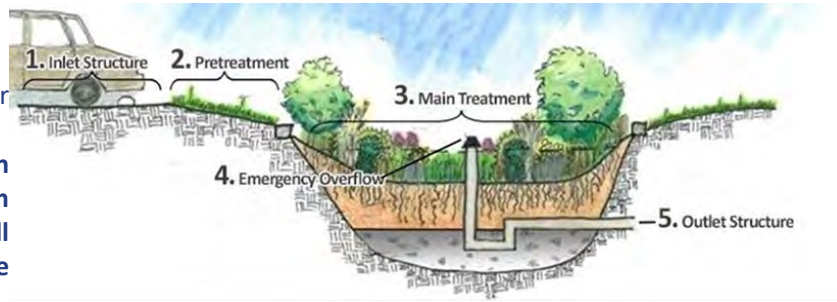


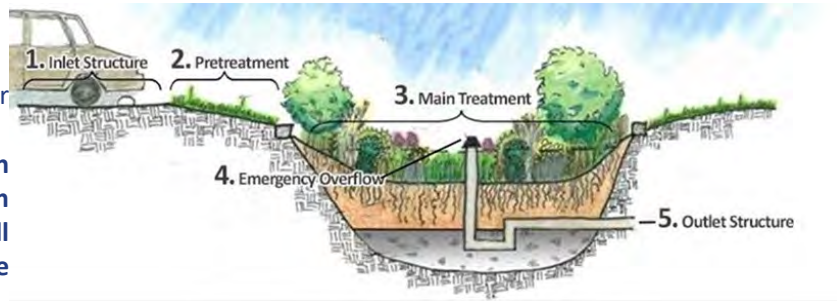
Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet, Pretreatment, & Outlet Structures (Components 1, 2, and 5)				**Success Factors: Vegetation, Protection, Two-Day Drain Time and Cleanliness**
1. Are trash, sediment, debris, leaves, grass clippings, or other similar materials in the inlet or pretreatment structures?				
Guidance: Remove unwanted materials and correct any other problems that clog the mulch and soil or block the water flow into or out of the BMP. **Schedule:** Weekly				
2. Have curbs, gutters, grates, area inlets or other similar components been damaged or altered in any way that disrupts the flow of stormwater into or out of the BMP?				
Guidance: Repair damage or alterations before the next storm, if possible. If components have been intentionally altered to resolve a drainage or flooding issue, consult the City of Topeka for further guidance. Rain garden components cannot be altered without approval. **Schedule:** Weekly				
3. Are there shrubs and/or trees (not called out in the BMP O&M plan), unhealthy vegetation, exposed soil, or evidence of soil erosion in the pretreatment structure?				
Guidance: Healthy vegetation should cover pretreatment structures with no signs of erosion or bare soil. Replace any dead or unhealthy vegetation. Repair areas of erosion and reseed or resod. Native species are preferred. **Schedule**: Weekly for vegetation and exposed soil. Monthly for evidence of soil erosion.				
4. Are trees, shrubs, or other woody vegetation present in the pre-treatment structure?				
Guidance: Trees/shrubs can block water flow. If needed, remove woody vegetation and stabilize exposed soil with appropriate, non-woody vegetation. Native species are preferred. **Schedule:** Monthly				
5. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Rain Garden Inspection Form



All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Main Treatment Area (Component 3)				**Success Factors: Vegetation, Protection, Two-Day Drain Time and Cleanliness**
6. Are trash, sediment, debris, leaves, grass clippings, or other similar materials present in the main treatment area?				
Guidance: Remove unwanted materials and correct any other problems that can cause clogging or otherwise prevent percolation of stormwater into the soil. **Schedule:** Weekly				
7. Are there signs of human encroachment in the main treatment area unrelated to maintenance, such as compacted or displaced mulch, damaged plants, tire tracks, or other?				
Guidance: Repair or replace protection measures if damaged (e.g., fences, hedges, signs, etc.). Increase protection measures if this is a frequent problem. Rake and refresh mulch and soil layers to loosen compacted areas. If standing water has become a problem, see #9 below. **Schedule:** Monthly				
8. Is there evidence of soil erosion or are there patches of exposed soil?				
Guidance: Repair the erosion or bare soil areas with vegetation and/or mulch. Identify the cause of erosion and take steps to prevent future occurrences. **Schedule:** Monthly				
9. Are there signs of soil clogging or underdrain blockage? Signs include frequent standing water, hard-packed planting layer, etc.				
Guidance: If the underdrain is clogged, contact the City of Topeka. If the soil is compacted, the entire planting layer may need repair to restore percolation. **Schedule:** Monthly				
10. Notice another problem? Describe in comments.	**Your Comments:**			

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Rain Garden Inspection Form

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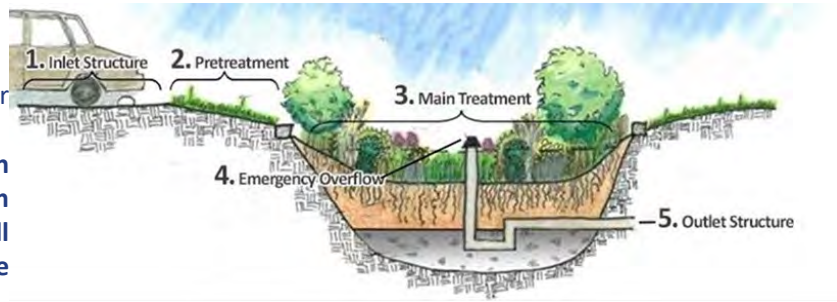

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Main Treatment Area Vegetation *(Trees, Shrubs, Grasses; Component 3)*				Success Factors: Vegetation, Protection, Two-Day Drain Time and Cleanliness
11. Is vegetation overgrown or in need of weeding, pruning, or clipping?				
Guidance: Remove overgrown vegetation. Do not dispose of clippings and other waste in the rain garden. **Schedule:** Seasonally				
12. Do plantings (not including weeds) cover less than 75% of the planting area?				
Guidance: Supplement vegetation as needed to achieve at least 75% planting area coverage. Native species are preferred. **Schedule:** Seasonally				
13. Are diseased, dying, or dead plants present? Of the plants called out in the BMP O&M plan, at least 85% of shrubs & grasses and 100% of trees must be healthy and growing.				
Guidance: Remove and replace unhealthy or dead vegetation. Native species are preferred. Determine and correct the cause of vegetation health problems. **Schedule:** Seasonally				
14. Notice another problem? Describe in comments.	**Your Comments:**			

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Rain Garden Inspection Form

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The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Rain garden				**Success Factors: Vegetation, Protection, Two-Day Drain Time and Cleanliness**
15. Are litter, trash, debris, sediment, grass clippings, or other materials present in the area?				
Guidance: Trash and other materials can wash into the rain garden during a storm, potentially clogging the inflow or outflow areas, the planting area, and the underdrain. Remove these materials and keep the property clean. **Schedule:** Weekly				
16. Are there stockpiles of soil, chemicals, equipment, or other materials that could be a source of pollutants washing into the rain garden during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful to plants or that can otherwise be hazardous. Remove or cover these materials, fully preventing their exposure to rainfall or stormwater runoff. **Schedule:** Weekly				
17. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the rain garden during a storm?				
Guidance: Too much sediment washing into a rain garden can clog the planting area. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for those areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent sediment build up. **Schedule:** Weekly				
18. Do activities occur nearby that may cause unusual or substantial amounts of pollutants to be discharged to the rain garden? Activities include car or equipment washing, pet walking, construction vehicle traffic, etc.				
Guidance: Prevent these activities from occurring or take steps to prevent the pollutants from reaching the rain garden, such as washing cars in areas that drain to the wastewater system, conducting street or parking lot sweeping, installation of pet waste pickup stations, etc. **Schedule:** Weekly				
19. Notice another problem? Describe in comments.				**Your Comments:**

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Rain Garden Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Rain Garden Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Property Owner's Guide to Stormwater BMP Maintenance

5.2 Infiltration Basin Basics

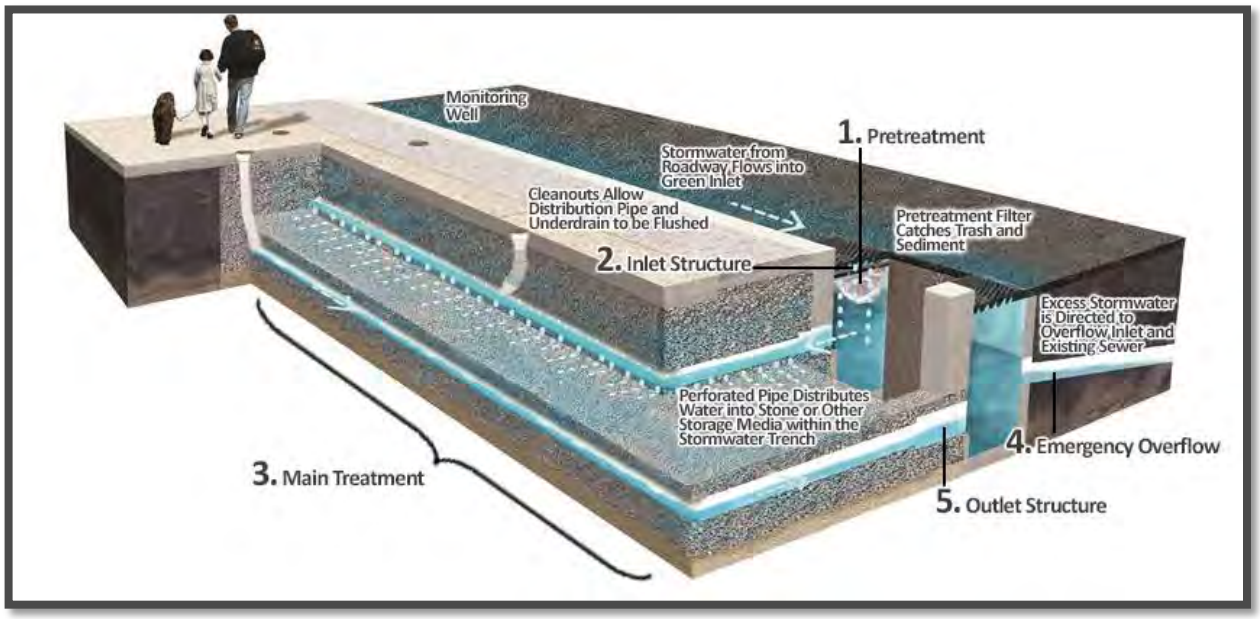
Infiltration basins are Best Management Practices (BMPs) that catch and hold stormwater runoff in a structure made of rock, stone, or clay. There, the stormwater soaks into the ground over a couple of days. Infiltration basins will manage about 1-inch of stormwater and should drain completely about 24 to 48 hours after a storm. Infiltration basins will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

In the City of Topeka, most infiltration basins will have five basic parts.

Benefits of Infiltration Basins:

- **Reduces amount of stormwater runoff**
- **Removes dirt, trace metals, nutrients, bacteria & organic matter from water**
- **Allows infiltration upstream which may lower downstream stormwater control costs**
- **Recharges groundwater supply**
- **May decrease flooding**

1. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps prevents clogging of the main treatment area.
2. **Inlet structures** let water flow into the BMP.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

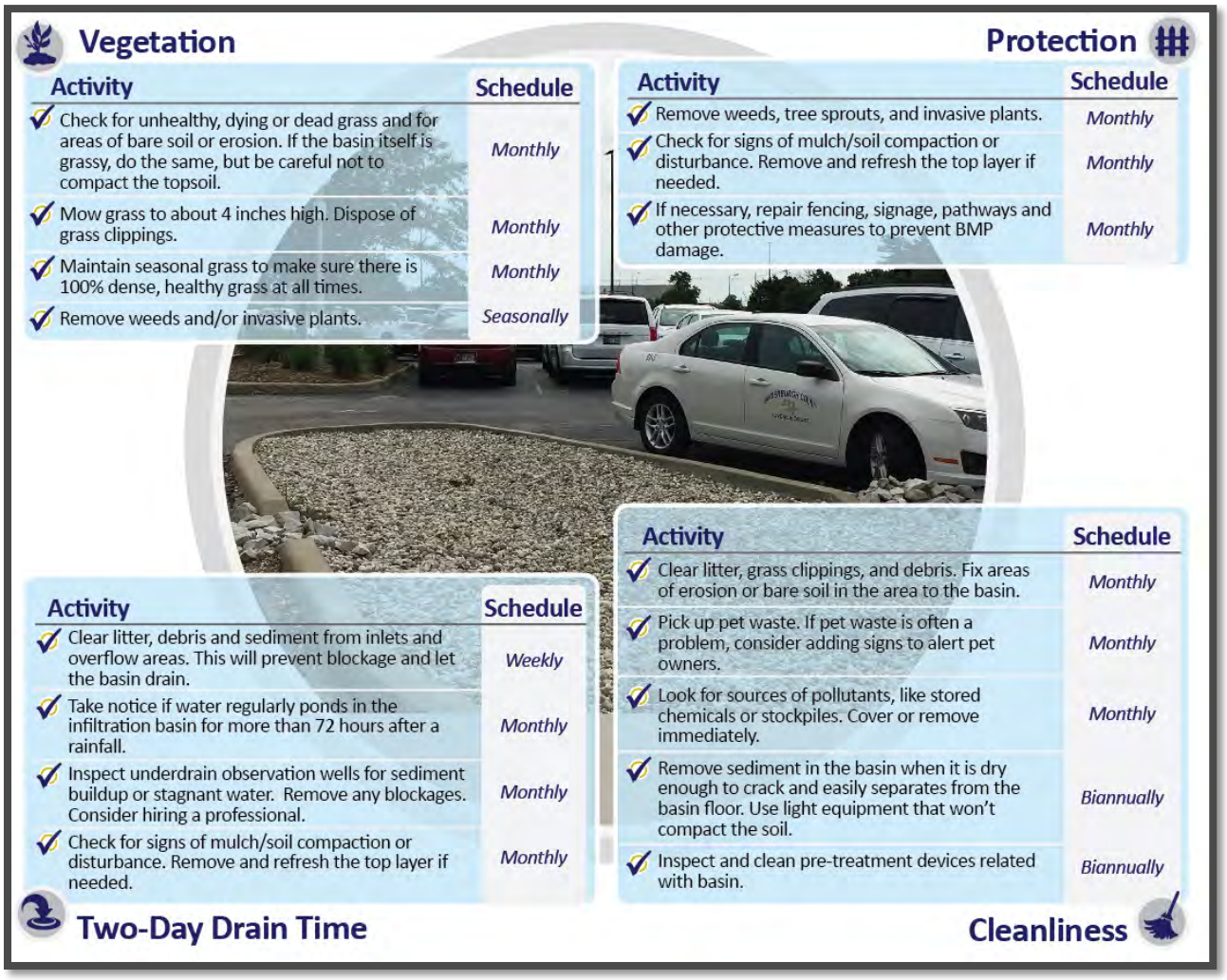


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your infiltration basin will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working infiltration basin. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Infiltration Basin Inspection Form included with this guidance sheet.



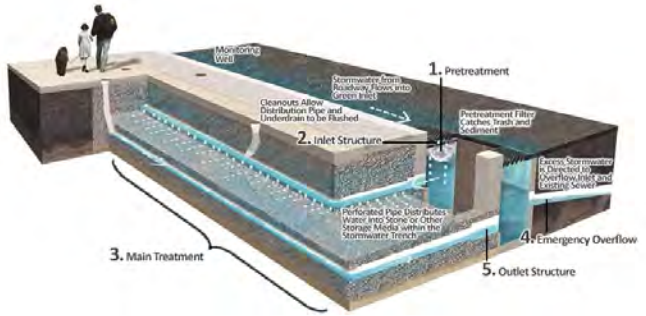
Do

- ✓ Pick up trash, debris, and leaves around your basin. Keep it clean.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.

Don't

- X Don't store uncovered mulch, sand, salt, soil or yard waste on your property. It could drain into the basin.
- X Don't neglect the maintenance needs of your basin. Hire a professional, if needed.
- X Don't allow weeds, trees or shrubs to grow on the top layer of the basin.
- X Don't allow dirt to gather on the top layer of the basin.

Infiltration Basin Inspection Form



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The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

BMP Name(s)				Today's Date:
	Note: The infiltration basin name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Infiltration Basin 1" or "Infiltration Basin A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Infiltration Basin?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Infiltration Basin?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Name of Staff Approving This Inspection Report:

Has the City Entered and Approved this Inspection? Yes / No

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes / No

Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Infiltration Basin Inspection Form

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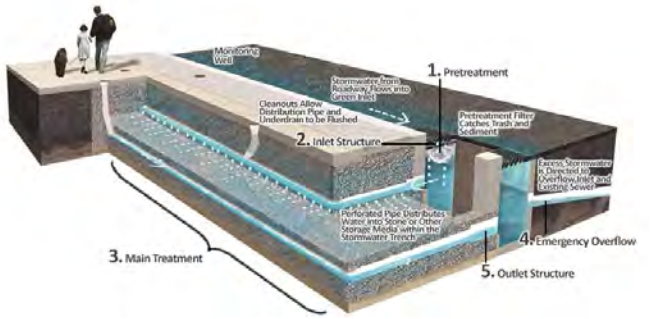

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet, Pretreatment, & Outlet Structures (Components 1, 2, and 5)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Have the inlet structures been damaged or altered in any way that disrupts the flow of stormwater into the infiltration basin?				
Guidance: Repair damage or alterations before the next rainfall if possible. If components have been intentionally altered to resolve a drainage or flooding issue, consult the City of Topeka for further guidance. BMP components cannot be altered without approval. **Schedule**: Monthly				
2. Has sediment accumulated in the infiltration basin?				
Guidance: Remove sediment when it is dry enough to crack and easily separates from the basin floor. To remove, use light equipment that will not compact the underlying soil. **Schedule**: Biannually				
3. Is there visual evidence of pollutants in the infiltration basin (e.g. oil sheen, odd discoloration, stains, odors, etc.)?				
Guidance: If signs of pollution are present, attempt to determine the cause and eliminate it. If a persistent or frequent pollution issue occurs, contact the City of Topeka. This could be a sign that pollutants are routinely being introduced into the basin. **Schedule**: Monthly				
4. Is the underdrain clogged or blocked?				
Guidance: Water should not be present in the underdrain observation well(s) after 3 days of dry weather. If the seasonal conditions have been overly wet, check the observation well again each day for several more days and document whether water is present or not. Use the same method to check again after several more rain events. The underdrain must not be blocked or clogged for the infiltration basin to function properly. If the problem cannot be resolved by accessing the blockage through the underdrain pipe, then both the surface layer and subbase may need to be removed to fix the underdrain. In this case, consult a professional civil engineer or landscape architect to ensure that the repairs and restoration are in keeping with City of Topeka requirements. **Schedule**: Monthly (dependent on weather)				
5. Notice another problem? Describe in comments.	**Your Comments:**			

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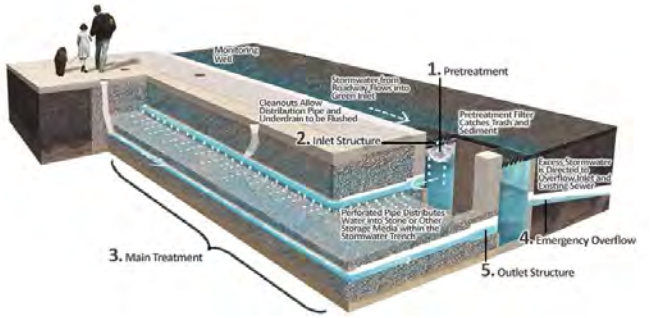
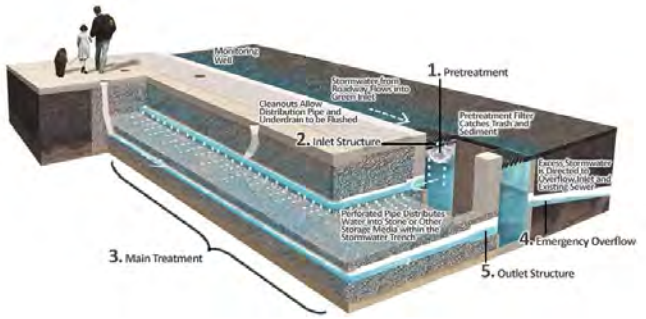


Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Main Treatment Area (Component 3)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
6. Do grassed areas (the basin surface, if grassed) have areas of bare soil or erosion? Is the grass thin, stressed, diseased or dead?				
Guidance: The infiltration basin (if grassed) must be 100% vegetated with a dense stand of healthy grass. Areas of bare soil and erosion are prohibited. Repair erosion and revegetate bare soil as soon as they are noticed. Determine the cause for thinning, unhealthy or dead grass, correct and re-sod or over-seed. **Schedule:** Monthly				
7. Is the grass in need of maintenance?				
Guidance: Watering and mowing are essential to maintain a healthy stand of grass. Provide water during prolonged dry periods and mow grass periodically to a height of 4 inches. If the top layer of the basin is pea gravel, REMOVE GRASS CLIPPINGS AS THESE CAN CLOG THE BASIN. Aerate and over seed as needed. Avoid the use of herbicides to control weeds and use fertilizer sparingly and only when intense rains will not wash fertilizers into the basin before they can soak into the soil. **Schedule:** Monthly				
8. Are trash, sediment, debris, grass clippings or other materials that can obstruct stormwater flow into, or clog, the infiltration basin present?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow and infiltration in the basin. Replace top layer when clogged. **Schedule:** Monthly				
9. Is the infiltration basin difficult to access for inspection and maintenance?				
Guidance: Any obstacles blocking access to or maintenance of the infiltration basin should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. **Schedule**: Monthly				

Infiltration Basin Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
10. Are there signs of human or pet encroachment in the infiltration basin, such as compacted or displaced rocks, tire tracks, pet waste, etc.?				
Guidance: Repair or replace protection measures if damaged (e.g., fences, hedges, signs, etc.). Increase protection measures if this is a frequent problem. Repair damage to the infiltration basin by replacing pea gravel or topsoil /grass and filter fabric (when clogged). A sign specifically addressing pet waste can reduce dog waste. Also consider installation of a pet waste station (sign, pet waste bag dispenser and trash can) if the infiltration basin is in an area where dog walking is popular. **Schedule:** Monthly				
11. Is there any visual evidence of long-term ponding or standing water (stains, odors, etc.)?				
Guidance: Ponded water inside the basin (as visible from the observation well or on the surface) longer than 72 hours after a storm indicates the infiltration capacity may have been overestimated. Repair factors responsible for clogging (such as upland sediment erosion and excessive compaction of soils) immediately. **Schedule:** Monthly				
12. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Infiltration Basin Inspection Form

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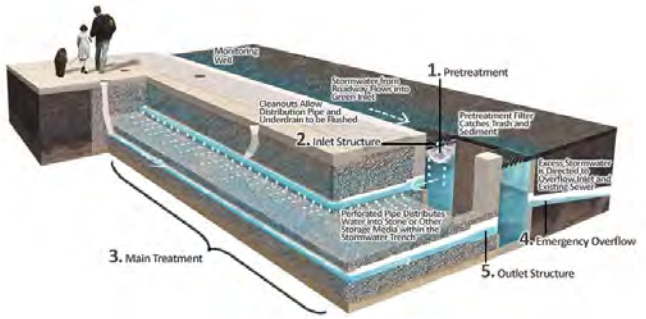

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Infiltration Basin				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
13. Are litter, trash, debris, sediment, grass clippings, or other materials present in the area?				
Guidance: Trash and other materials can be carried into, and potentially clog, the infiltration basin. Remove undesirable materials and keep the property clean. **Schedule**: Monthly				
14. Are there stockpiles of soil, chemicals, equipment or other materials that could be a source of pollutants entering the infiltration basin during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful or that can be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule**: Monthly				
15. Are there areas of erosion or exposed soil/bare earth that could be a source of soil washing into the infiltration basin during a rainfall?				
Guidance: Too much sediment washing into an infiltration basin can clog the pea gravel/top soil layer and the filter fabric. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent erosion. Repair sediment damage to the infiltration basin by replacing pea gravel or topsoil and top surface filter fabric (when clogged). **Schedule**: Monthly				
16. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the infiltration basin?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the infiltration basin, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule**: Monthly				
17. Notice another problem? Describe in comments.	**Your Comments:**			

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215 SE 7th St ● Topeka, Kansas 66603

Infiltration Basin Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Infiltration Basin Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Property Owner's Guide to Stormwater BMP Maintenance

5.3 Infiltration Trench Basics

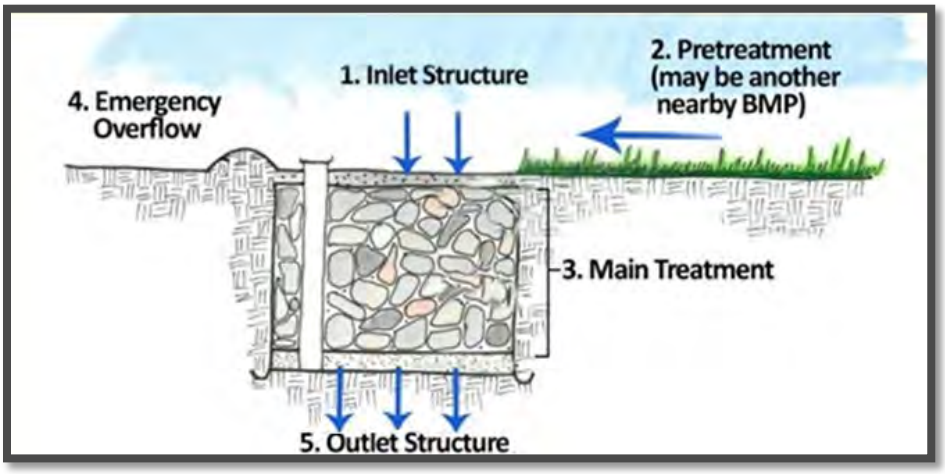
Infiltration trenches are Best Management Practices (BMP) that capture stormwater and let it soak into the soil. These trenches are excavated and filled with stone. The stormwater gathers in the trench, flows through the stone, and pollutants are filtered out. Once filtered, the water goes back into the local stream or into the stormwater system. Some infiltration trenches are covered with topsoil and planted with grass. Infiltration trenches will manage about 1-inch of stormwater. They should drain completely about 6 to 72 hours after a storm. Infiltration trenches will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Infiltration Trenches:

- **Reduce stormwater runoff**
- **Remove dirt, trace metals, nutrients, bacteria & organic matter from water**
- **Allow infiltration upstream which may lower downstream stormwater control costs**
- **Recharge groundwater**
- **Reduce flooding**
- **They don't use too much space**

In the City of Topeka, most infiltration trenches will have five basic parts (see the figure below):

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

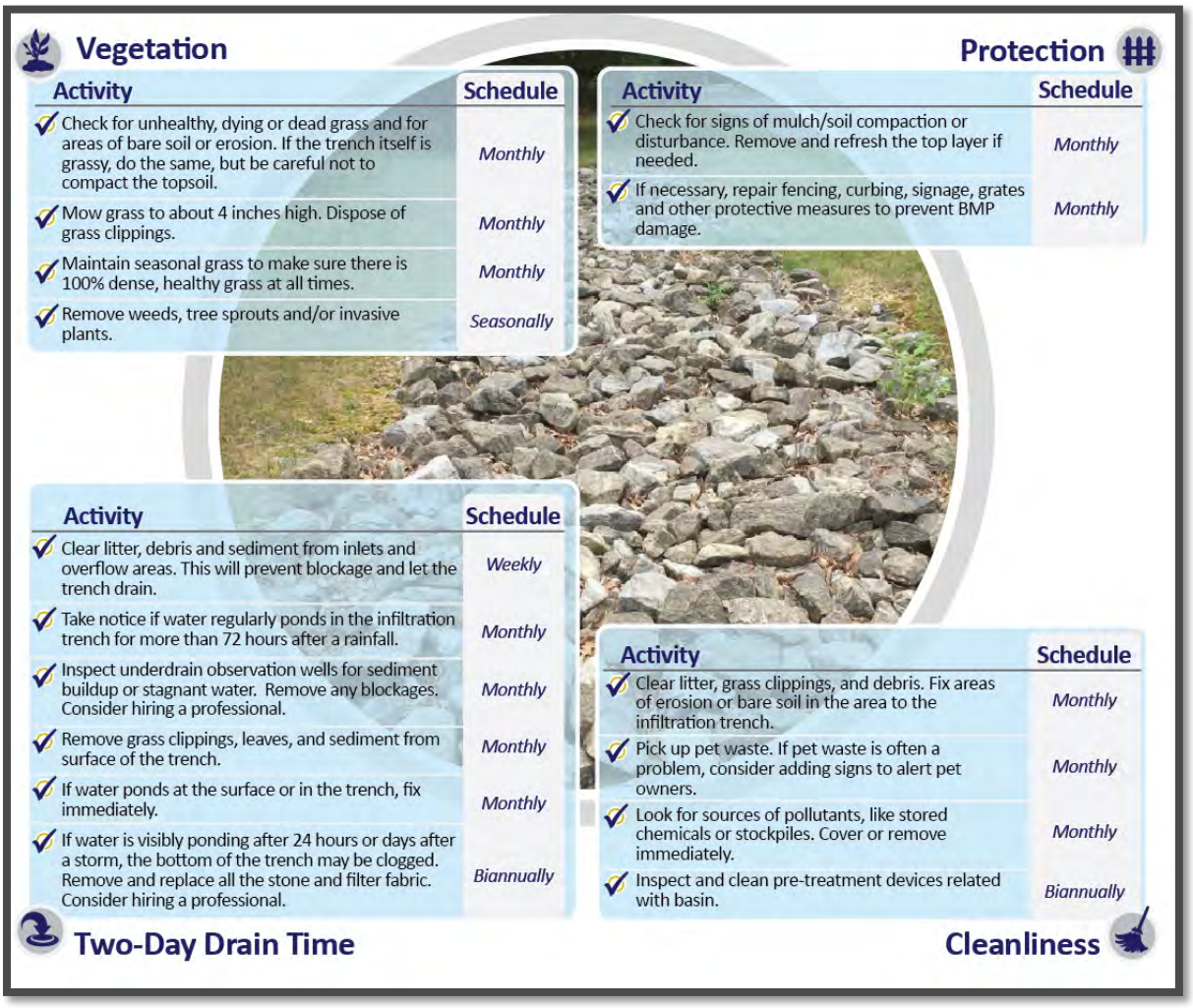


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your infiltration trench will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working infiltration trench. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Infiltration Trench Inspection Form included with this guidance sheet.



Do

- ✓ Pick up trash, debris, and leaves around your trench. Keep it clean.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ Keep an eye out for ponded water in the trench. If the trench isn't draining after several days, the bottom of the trench is clogged.

Don't

- X Don't store uncovered mulch, sand, salt, soil or yard waste on your property. It could drain into the trench.
- X Don't neglect the maintenance needs of your trench. Hire a professional, if necessary.
- X Don't allow weeds, trees or shrubs to grow on the top layer of the trench.
- X Don't allow dirt to gather on the top layer of the trench.

Infiltration Trench Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

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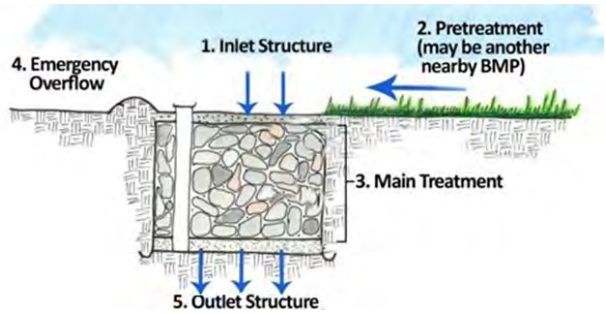

BMP Name(s)				Today's Date:
	Note: The infiltration trench name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Infiltration Trench 1" or "Infiltration Trench A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Infiltration Trench?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #:	Email:	*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Infiltration Trench?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Has the City Entered and Approved this Inspection? Yes No

Name of Staff Approving This Inspection Report:

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes No

Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Infiltration Trench Inspection Form

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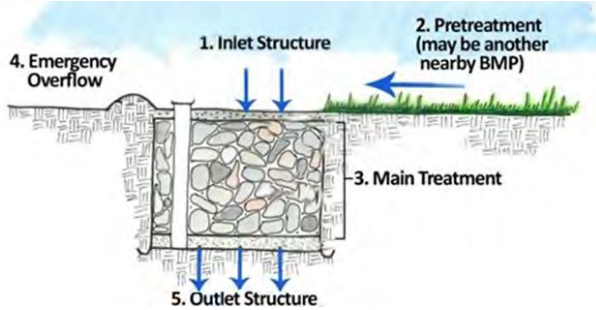

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet, Pretreatment, & Outlet Structures (Components 1, 2, and 5)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Have the inlet structures been damaged or altered in any way that disrupts the flow of stormwater into the infiltration trench?				
Guidance: Repair damage or alterations before the next rainfall if possible. If components have been intentionally altered to resolve a drainage or flooding issue, consult the City of Topeka for further guidance. BMP components cannot be altered without approval. **Schedule**: Monthly				
2. Is there visual evidence of pollutants in the infiltration trench (e.g. oil sheen, odd discoloration, stains, odors, etc.)?				
Guidance: If signs of pollution are present, attempt to determine the cause and eliminate it. If a persistent or frequent pollution issue occurs, contact the City of Topeka. This could be a sign that pollutants are routinely being introduced into the trench. **Schedule**: Monthly				
3. Is the underdrain clogged or blocked?				
Guidance: The underdrain can be checked by looking into the observation well(s) following 3 days of dry weather. If water is present, then the underdrain could be clogged. If the seasonal conditions have been overly wet, check again each day for several more days and document the result. Use the same method to check again after several more rain events. The underdrain must not be blocked or clogged for the infiltration trench to function properly. If the problem cannot be resolved by accessing the blockage through the underdrain pipe, then both the trench's surface layer and subbase may need to be removed to fix the underdrain, and then restored. In this case, consult a professional civil engineer or landscape architect to ensure that the underdrain and trench are restored in keeping with City of Topeka requirements. **Schedule:** Monthly (dependent on dry weather events)				
4. Notice another problem? Describe in comments.	**Your Comments:**			

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Mail - Stormwater Management Section ● City of Topeka Utilities Department
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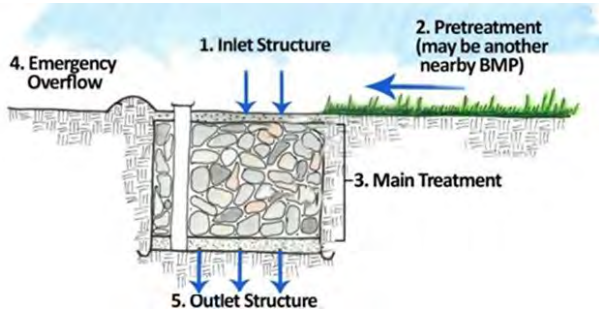
Infiltration Trench Inspection Form



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Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
Main Treatment Area (Component 3)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
5. Do grassed areas (the trench surface, if grassed, and filter strip) have areas of bare soil or erosion? Is the grass thin, stressed, diseased or dead?				
Guidance: The filter strip and trench (if grassed) must be 100% vegetated with a dense stand of healthy grass. Areas of bare soil and erosion are prohibited. Repair erosion and revegetate bare soil as soon as they are noticed. Determine the cause for thinning, unhealthy or dead grass, correct and re-sod or over-seed. **Schedule:** Monthly				
6. Is the grass in need of maintenance?				
Guidance: Watering and mowing are essential to maintain a healthy stand of grass. Provide water during prolonged dry periods and mow grass periodically to a height of 4 inches. If the top layer of the trench is pea gravel, REMOVE GRASS CLIPPINGS AS THESE CAN CLOG THE TRENCH. Aerate and over seed as needed. Avoid the use of herbicides to control weeds and use fertilizer sparingly and only when intense rains will not wash fertilizers into the trench before they can soak into the soil. **Schedule:** Monthly				
7. Are trash, sediment, debris, grass clippings or other materials that can obstruct stormwater flow into, or clog, the infiltration trench present?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow and infiltration in the trench. Replace top layer (pea gravel or grass) and top surface filter fabric when clogged. **Schedule:** Weekly				
8. Is the infiltration trench difficult to access for inspection and maintenance?				
Guidance: Any obstacles blocking access to or maintenance of the infiltration trench should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. **Schedule**: Monthly				

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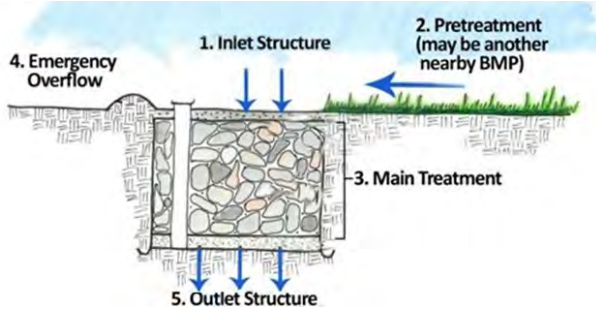
Infiltration Trench Inspection Form



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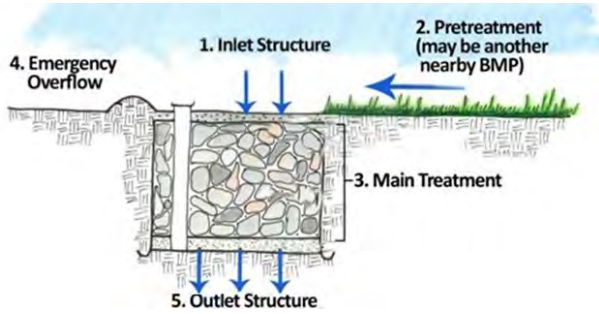
Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
9. Are there signs of human or pet encroachment in the filter strip or the trench, such as compacted or displaced rocks, tire tracks, pet waste, etc.?				
Guidance: Repair or replace protection measures if damaged (e.g., fences, hedges, signs, etc.). Increase protection measures if this is a frequent problem. Repair damage to the filter strip by reestablishing grass. Repair damage to the trench by replacing pea gravel or topsoil /grass and filter fabric (when clogged). A sign specifically addressing pet waste can reduce dog waste. Also consider installation of a pet waste station (sign, pet waste bag dispenser and trash can) if the infiltration trench is in an area where dog walking is popular. **Schedule:** Monthly				
10. Is there any visual evidence of long-term ponding or standing water (stains, odors, etc.)?				
Guidance: Ponded water inside the trench (as visible from the observation well or on the surface) longer than 24 hours or several days after a storm event is an indication that the trench is clogged. Remove and replace all of the stone aggregate and filter fabric or media. **Schedule:** Monthly				
11. Notice another problem? Describe in comments.	**Your Comments:**			

Infiltration Trench Inspection Form



All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Infiltration Trench				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
12. Are litter, trash, debris, sediment, grass clippings, or other materials present in the area?				
Guidance: Trash and other materials can be carried into, and potentially clog, the infiltration trench. Remove undesirable materials and keep the property clean. **Schedule**: Monthly				
13. Are there stockpiles of soil, chemicals, equipment or other materials that could be a source of pollutants entering the infiltration trench during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful or that can be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule**: Monthly				
14. Are there areas of erosion or exposed soil/bare earth that could be a source of soil washing into the infiltration trench during a rainfall?				
Guidance: Too much sediment washing into an infiltration trench can clog the pea gravel/top soil layer and the filter fabric. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent erosion. Repair sediment damage to the infiltration trench by replacing pea gravel or topsoil and top surface filter fabric (when clogged). **Schedule**: Monthly				
15. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the infiltration trench?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the infiltration trench, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule**: Monthly				
16. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Infiltration Trench Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Infiltration Trench Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

5.4 Bioretention Basics

Bioretention is a Best Management Practice (BMP) that cleans pollution from stormwater. Bioretention areas are built as shallow, sunken areas that catch stormwater from surrounding property. The water soaks into the soil of the bioretention area. A common bioretention area will easily handle rainfall from small storms, and should drain completely 24-48 hours after a storm. Bioretention is a great BMP to be used in median strips, parking lot islands, and landscaped swales. Bioretention areas will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Bioretention:

- **Removes pollutants from stormwater**
- **May reduce erosion in nearby streams**
- **May decrease flooding**
- **Provides habitat for butterflies & birds**
- **Creates an interesting landscape**

In the City of Topeka, most bioretention areas will have five basic parts (see the figure below):

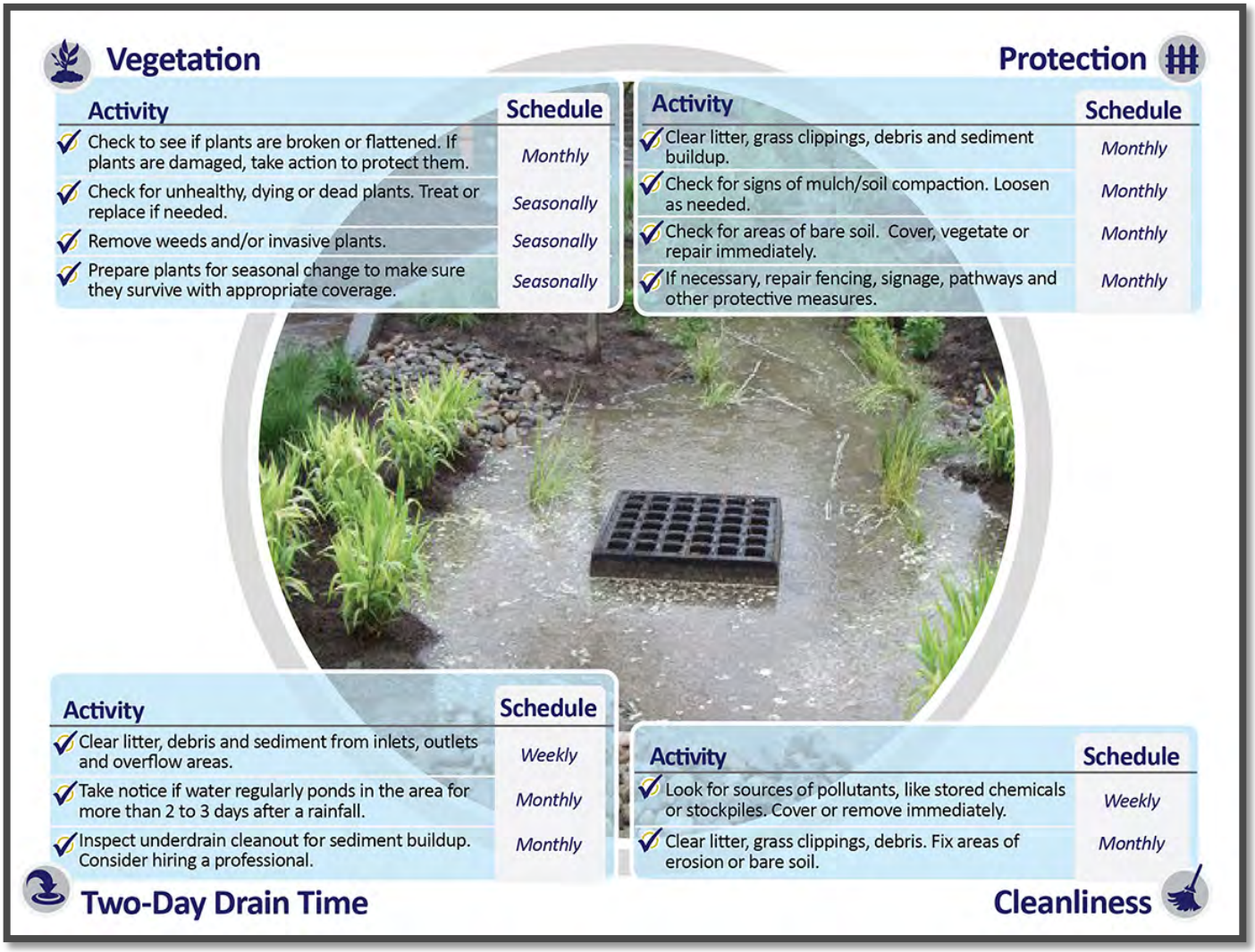
1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your bioretention area will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working bioretention area. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Bioretention Area Inspection Form included with this guidance sheet.



Do

✓ Check your property often for bare soil, trash, plant health, and soil compaction.

✓ Get rid of weeds and invasive plants.
Restock with healthy plants and make sure that basic needs for plant health are met.

✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.

Don't

X Don't use too much salt and sand around the bioretention area in the winter.

X Don't use too much fertilizer, herbicides, or pesticides. Contact a local nursery or landscape company if your plants aren't doing well.

X Don't let heavy equipment in the bioretention areas or use it as storage, even for landscape items (leaves, snow, soil mulch, etc.)

Bioretention Area Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance. **The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).**

BMP Name(s)				Today's Date:
	Note: The bioretention area name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Bioretention Area 1" or "Bioretention Area A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Bioretention?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #:	Email:	*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Bioretention?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Has the City Entered and Approved this Inspection? Yes No

Name of Staff Approving This Inspection Report:

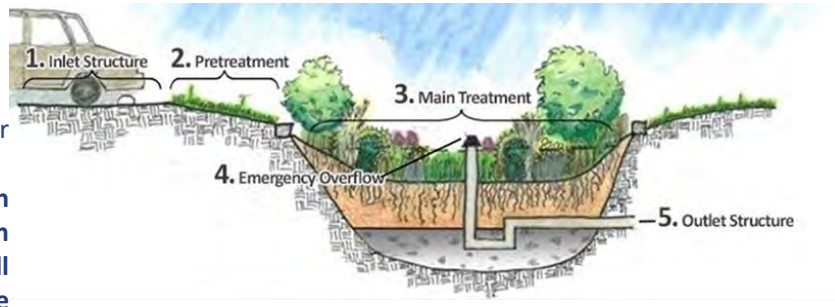
Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes No

Reason for Follow Up?

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Bioretention Area Inspection Form



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The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet, Pretreatment, & Outlet Structures (Components 1, 2, and 5)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Are trash, sediment, debris, leaves, grass clippings, or other similar materials in the inlet or pretreatment structures?				
Guidance: Remove unwanted materials and correct any other problems that clog the mulch and soil or block the water flow into or out of the BMP. **Schedule:** Weekly				
2. Have curbs, gutters, grates, area inlets or other similar components been damaged or altered in any way that disrupts the flow of stormwater into or out of the BMP?				
Guidance: Repair damage or alterations before the next storm, if possible. If components have been intentionally altered to resolve a drainage or flooding issue, consult the City of Topeka for further guidance. Bioretention components cannot be altered without approval. **Schedule:** Weekly				
3. Are there shrubs and/or trees (not called out in the BMP O&M plan), unhealthy vegetation, exposed soil, or evidence of soil erosion in the pretreatment structure?				
Guidance: Trees/shrubs can block water flow. Healthy vegetation should cover pretreatment structures with no signs of erosion or bare soil. Remove woody vegetation and stabilize exposed soil with appropriate, non-woody vegetation. Replace any dead or unhealthy vegetation. Repair areas of erosion and reseed or re-sod. Native species are preferred. **Schedule**: Weekly for bare soil. Monthly for vegetation concerns.				
4. Notice another problem? Describe in comments.	**Your Comments:**			

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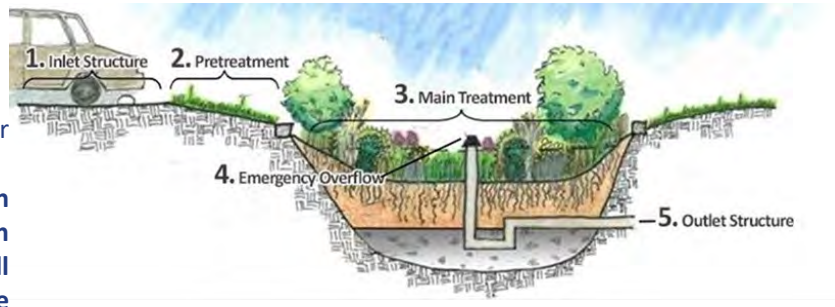
Bioretention Area Inspection Form



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Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Main Treatment Area (Component 3)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
5. Are there materials in the main treatment area (e.g. trash, sediment, debris, leaves, grass clippings, etc.) that may cause clogging or underdrain blockage? Signs include frequent standing water, hard-packed planting layer, etc.				
Guidance: Remove unwanted materials and correct any other problems that can cause clogging or otherwise prevent percolation of stormwater into the soil. If the underdrain is clogged, contact the City of Topeka. If the soil is compacted, the entire planting layer may need repair to restore percolation. **Schedule:** Weekly				
6. Are there signs of human encroachment in the main treatment area unrelated to maintenance, such as compacted or displaced mulch, damaged plants, tire tracks, etc.?				
Guidance: Repair or replace protection measures if damaged (e.g., fences, hedges, signs, etc.). Increase protection measures if this is a frequent problem. Rake and refresh mulch and soil layers to loosen compacted areas. If standing water has become a problem, see **#5 above**. **Schedule:** Monthly				
7. Is there evidence of soil erosion or are there patches of exposed soil?				
Guidance: Repair the erosion or bare soil areas with vegetation and/or mulch. Identify the cause of erosion and take steps to prevent future occurrences. **Schedule:** Monthly				
8. Notice another problem? Describe in comments.	**Your Comments:**			

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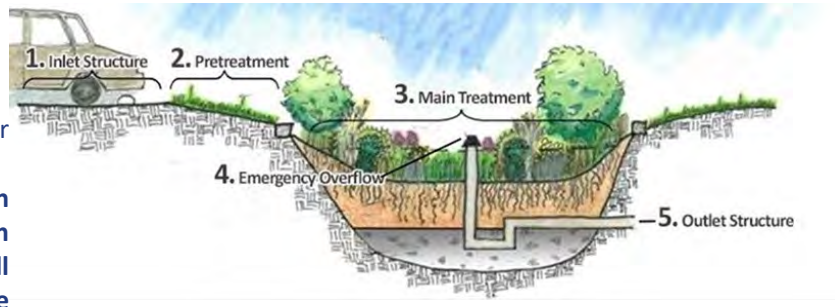
Bioretention Area Inspection Form



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The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Main Treatment Area (Vegetation Item 3)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
9. Is vegetation overgrown or in need of weeding, pruning, or clipping?				
Guidance: Remove overgrown vegetation, complete any weeding/pruning/clipping. Stabilize soils following weeding. Do not dispose of clippings and other waste in the bioretention area. **Schedule:** Seasonally				
10. Do plantings (not including weeds) cover less than 75% of the planting area?				
Guidance: Supplement vegetation as needed to achieve at least 75% planting area coverage requirement. **Schedule:** Seasonally				
11. Are diseased, dying, or dead plants present? Of the plants called out in the BMP O&M plan, at least 85% of shrubs & grasses and 100% of trees must be healthy and growing.				
Guidance: Remove and replace unhealthy or dead vegetation. Native species are preferred. Determine and correct the cause of vegetation health problems. **Schedule:** Seasonally				
12. Notice another problem? Describe in comments.	**Your Comments:**			

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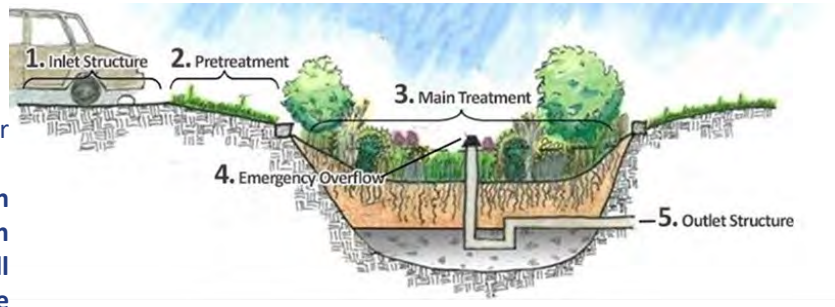

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Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Bioretention Area				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
13. Are litter, trash, debris, sediment, grass clippings, or other materials present in the area?				
Guidance: Trash and other materials can wash into the bioretention area during a storm, potentially clogging the inflow or outflow areas, the planting area, and the underdrain. Remove these materials and keep the property clean. **Schedule:** Weekly				
14. Are there stockpiles of soil, chemicals, equipment, or other materials that could be a source of pollutants washing into the bioretention area during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful to plants or that can otherwise be hazardous. Remove or cover these materials, fully preventing their exposure to rainfall or stormwater runoff. **Schedule:** Weekly				
15. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the bioretention area during a storm?				
Guidance: Too much sediment washing into a bioretention area can clog the planting area. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for those areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent erosion and sediment build up. **Schedule:** Weekly				
16. Do activities occur nearby that may cause unusual or substantial amounts of pollutants to be discharged to the bioretention area?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the bioretention area, such as washing cars in areas that drain to the wastewater system, conducting street or parking lot sweeping, installation of pet waste pickup stations, etc. **Schedule:** Weekly				
17. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:

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215 SE 7th St ● Topeka, Kansas 66603

Bioretention Area Inspection Form

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215 SE 7th St ● Topeka, Kansas 66603

Bioretention Area Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
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215 SE 7th St ● Topeka, Kansas 66603

Property Owner's Guide to Stormwater BMP Maintenance

5.5 Permeable Pavement Basics

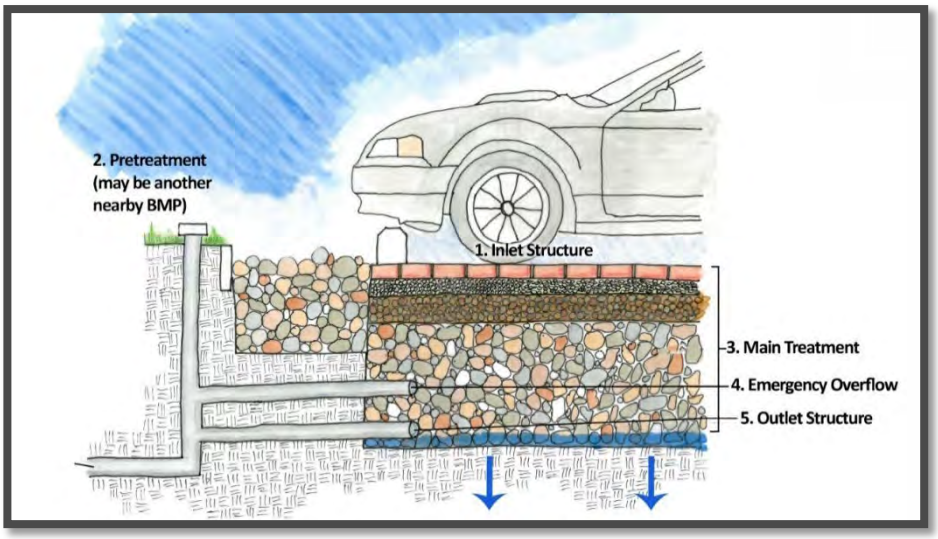
Permeable pavement is a Best Management Practice (BMP) that lets stormwater flow into the holes in the pavement surface. From there, the water soaks into the soil below. Permeable pavement can have modular pavers, concrete grids, pervious concrete, porous asphalt, and cellular confinement systems. Permeable pavement usually manages about 1-inch of stormwater. The pavement surface should be dry about 2 hours after a storm. Permeable pavement areas will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

In the City of Topeka, most permeable pavement will have five basic parts (see below):

Benefits of Permeable Pavement:

- **Reduces and cleans stormwater runoff**
- **Recharges groundwater**
- **Can use in cold climates, even below freezing, which can reduce black ice**
- **Lasts longer than traditional pavement by reducing effects of freeze-thaw cycles**
- **Better traction when wet**
- **Reduces spray from moving vehicles and roadway noise**

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

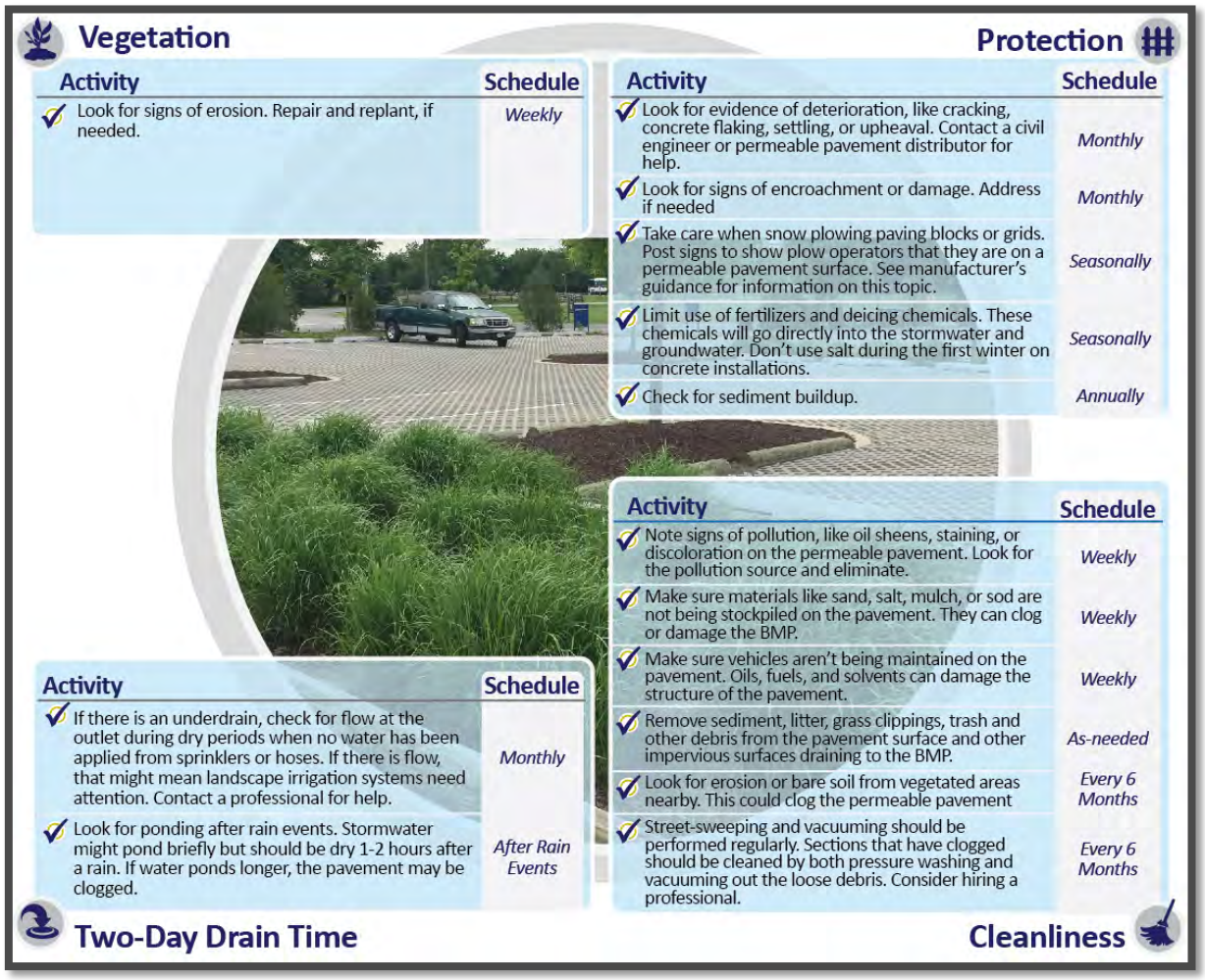


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your permeable pavement will last longer and you'll save money if you keep your property clean, free of erosion, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have attractive, working permeable pavement. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Permeable Pavement Inspection Form included with this guidance sheet.



***Always follow the specific manufacturer's guidelines for inspection & maintenance**

Do

- ✓ Check the BMP after a storm to make sure it is draining right.
- ✓ Remove dirt/debris that could wash into the BMP. Use a leaf blower for gravel or grass areas. Use a vacuum sweeper for concrete or asphalt areas.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.

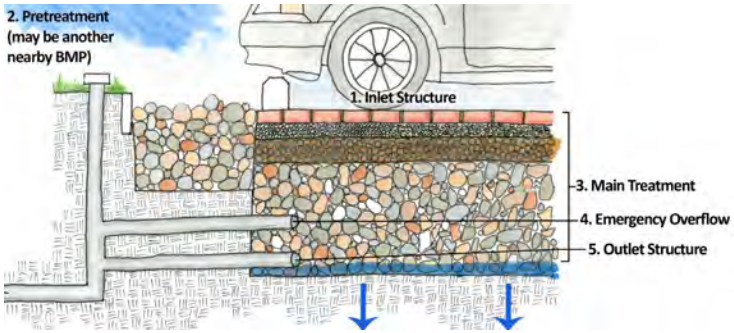
Don't

- X Don't store mulch, sand, salt, soil or yard waste on the pavement.
- X Don't neglect the maintenance needs of your pavement. Hire a professional, if needed.
- X Don't use sand or salt for snow removal on your pavement. Don't pile snow that has sand or salt on your pavement.
- X Don't put sealants on permeable pavement or repave the area with materials that do not let water drain through.

Permeable Pavement Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



BMP Name(s)				Today's Date:
	Note: The permeable pavement name will be shown on the BMP location map included with the Stormwater BMP Drawing for this property. A typical name would be "Permeable Pavement 1" or "Permeable Pavement A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Permeable Pavement?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Permeable Pavement?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Has the City Entered and Approved this Inspection? Yes / No

Name of Staff Approving This Inspection Report:

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes / No

Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Permeable Pavement Inspection Form

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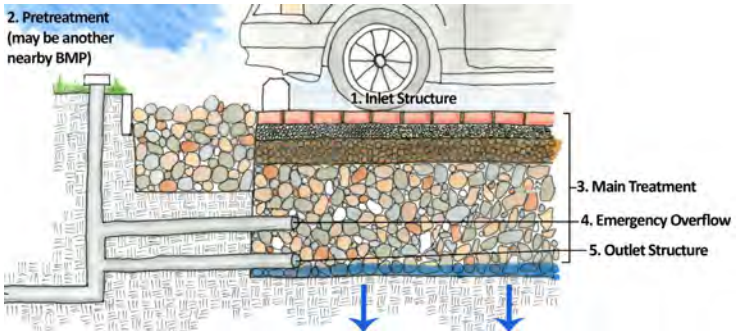

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Main Treatment Area (Component 3)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Is the BMP difficult to access for inspection and maintenance?				
Guidance: Any obstacles blocking access to or maintenance of the permeable pavement should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. **Schedule:** Monthly				
2. Are trash, sediment, debris, grass clippings, or other materials that can obstruct stormwater flow on or adjacent to the pavement surface?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow. **Schedule:** Monthly				
3. Do activities occur in the area that may cause unusual or substantial amounts of pollutants (especially oil and grease, fertilizers, and deicing chemicals) to be discharged through the pavement?				
Guidance: Activities in the drainage area should minimize oil, grease, sediment, and chemicals from reaching the draining surface. Remove or contain these materials to the extent possible. Note that salt should not be used on pervious concrete during the first winter. **Schedule:** Weekly				
4. Is there evidence of deterioration or cracking of the pavement? Is there any damage or erosion to the inlets or outlets?				
Guidance: There should be no signs of cracking or erosion. If these are found, repair or replace any damaged material. **Schedule**: Monthly				
5. Is stormwater bypassing the permeable surface?				
Guidance: Stormwater should be drained 1-2 hours after a storm and should not be flowing off the surface into adjacent areas. If stormwater is bypassing the permeable pavement, perform maintenance to improve infiltration. Sections that have become plugged should be cleaned by a combination of pressure washing and vacuuming the compacted debris. **Schedule:** Monthly				

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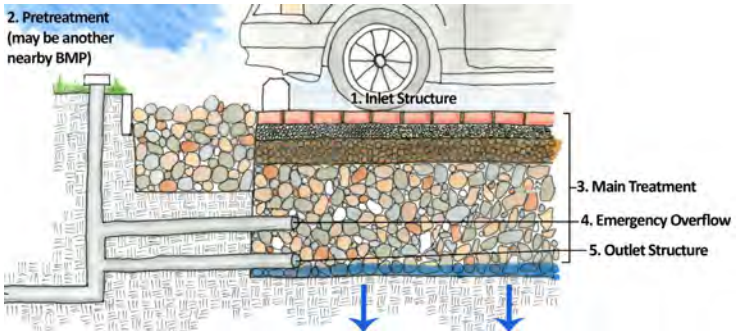


Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
6. Is there any visual evidence of long-term ponding or standing water (e.g., stains, odors, etc.)?				
Guidance: Remove unwanted materials and correct any other problems that can cause clogging or otherwise prevent percolation of stormwater into the permeable pavement. **Schedule:** Monthly				
7. Does the area surrounding the permeable pavement contain exposed soil or bare earth?				
Guidance: The area surrounding the permeable pavement should be maintained regularly. Conduct maintenance activities regularly (e.g., mowing grass, replacing aggregates or materials in areas near the draining surface, etc.) and replace vegetation and/or materials as needed so that no exposed soils are present. **Schedule:** Semi-annually				
8. Are any cleanout caps missing?				
Guidance: Visually inspect for missing or damaged components in the permeable pavement area and repair or replace as needed. **Schedule:** Monthly				
9. Has the underdrain system been flushed properly, displaying no clogging?				
Guidance: The draining system should be flushed annually (or sooner if needed) and no clogs should be present in the draining system. **Schedule:** Annually				
10. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Permeable Pavement Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Permeable Pavement Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Property Owner's Guide to Stormwater BMP Maintenance

5.6 Extended Detention Wetland Basics

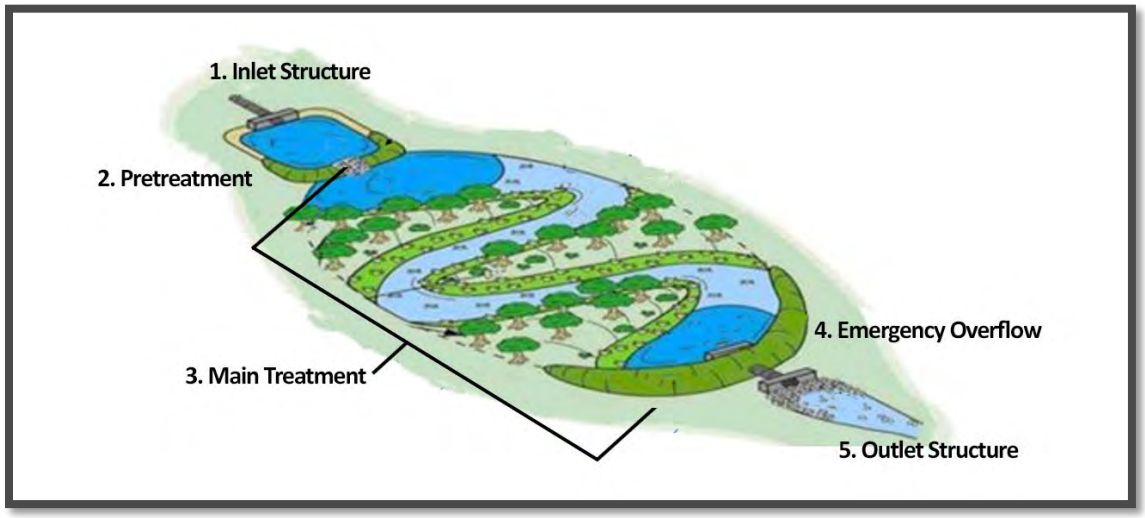
Extended detention wetlands (EDW) are Best Management Practices (BMPs) that catch stormwater runoff and let it go over about 40 hours. EDWs are 18-inches deep and hold water. An EDW differs from an extended detention *basin* because it isn't as deep. Plants in the EDW remove pollution from runoff by filtering the water through their roots. EDWs let the stormwater settle, along with any pollution. This means that polluted water doesn't make it to the storm drain or stream. EDWs will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Extended Detention Wetlands:

- **Remove pollutants from stormwater**
- **Control erosion**
- **Recharge groundwater**
- **Protect water downstream**
- **Provide habitat for butterflies & birds**
- **Create an interesting landscape**

In the City of Topeka, most EDWs will have five basic parts (see the figure below):

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

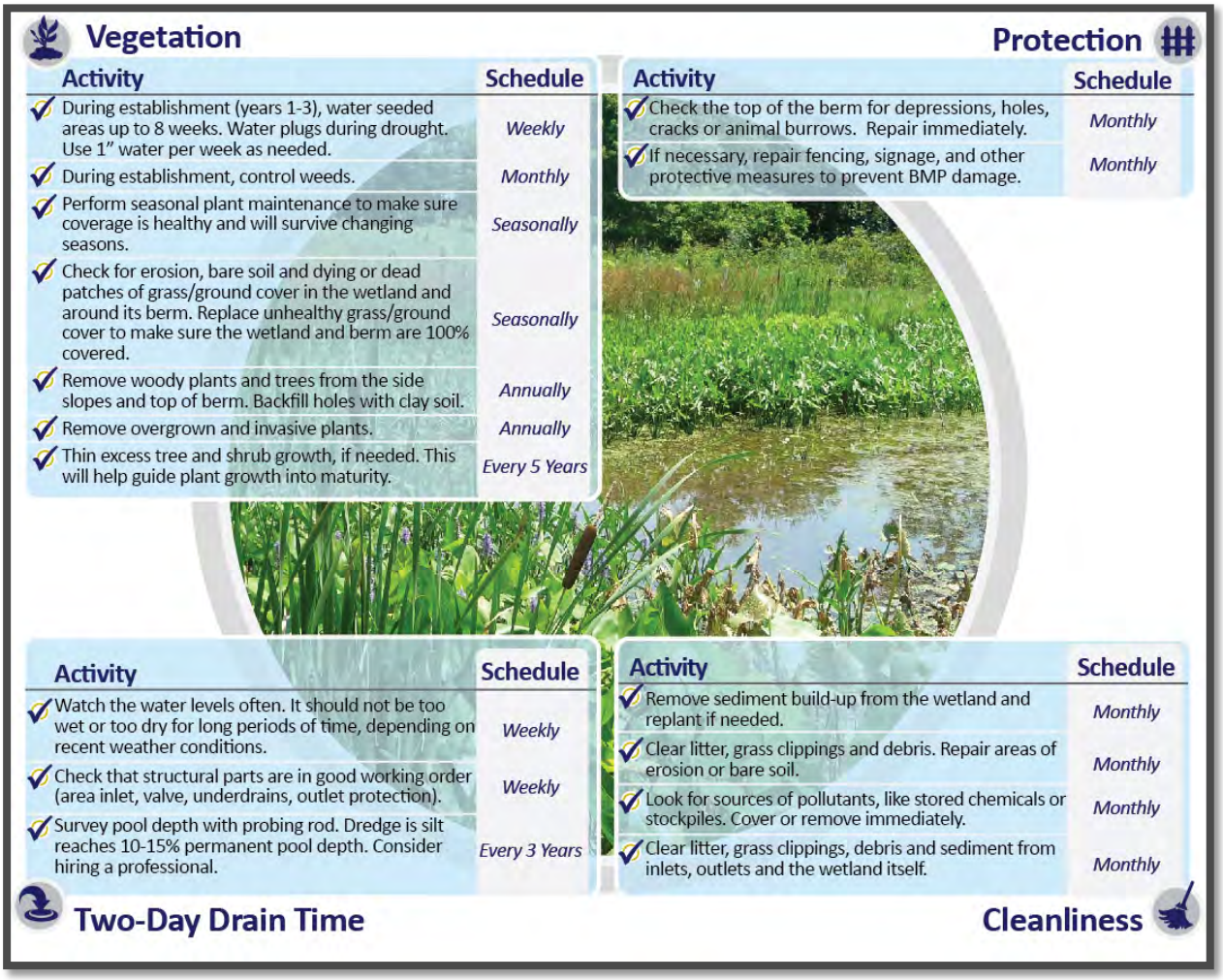


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your EDW will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working EDW. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Extended Detention Wetland Inspection Form included with this guidance sheet.



Do

- ✓ Remove trash, debris, and dirt that is left in the EDW to make sure stormwater will slow down and spread out before flowing to the grass.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems

Don't

- X Don't use too much salt and sand around the wetland in the winter.
- X Don't use too much fertilizer, herbicides, or pesticides. Contact a local nursery or landscape company if your plants aren't doing well.
- X Don't let heavy equipment in the wetland or use it as storage, even for landscape items (leaves, snow, soil mulch, etc.)

Extended Detention Wetland (EDW) Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

BMP Name(s)				Today's Date:
	Note: The extended detention wetland name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Extended Detention Wetland 1" or "Extended Detention Wetland A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Extended Detention Wetland?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Extended Detention Wetland?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Has the City Entered and Approved this Inspection? Yes No

Name of Staff Approving This Inspection Report:

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes No

Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Extended Detention Wetland (EDW) Inspection Form

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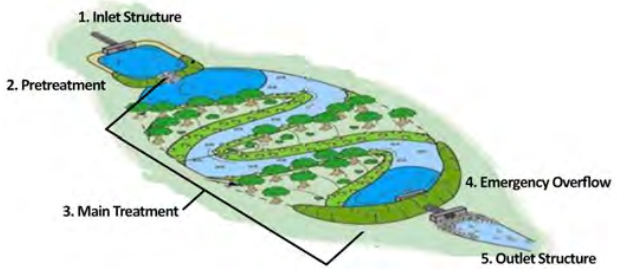

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet Structure, Emergency Overflow, & Outlet ***(Components 1, 4 & 5)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Are the inlets, outlets, treatment cells, valves, and other mechanical/structural components difficult to access for operation, inspection, and maintenance?				
Guidance: Any obstacles blocking access to, or maintenance of, these components should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. **Schedule:** Monthly				
2. Are trash, sediment, debris, grass clippings, or other materials that can obstruct stormwater flow present in the inlet or outlet areas?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow into or out of the EDW. **Schedule:** Monthly				
3. Is water flowing from the outlet when it is not expected?				
Guidance: EDWs are designed to hold water, but when it rains, some water will flow through the BMP and out the outlet. If water is still noted flowing from the outlet 24 hours after a rainfall, note that in the inspection report and look for the cause. During dry periods, an outlet that is discharging water or water that is backed up at the inlet may be an indication of a clog or blockage, or even cracked or damaged structural components, like pipes or concrete components. Determine the cause and correct it. If the cause cannot be determined, you might require the services of a civil engineer. **Schedule**: Weekly				
4. Is there bare soil or evidence of erosion or scour at the inlet or outlet?				
Guidance: Outlets and the areas below them should be covered with enough vegetation, pavement or other material (e.g. rock lining, concrete, asphalt, pavers or even dense vegetation) to slow the water and prevent erosion. If signs of erosion are visible at the outlet, install a rock lining that extends at least 10 feet beyond the area of erosion. Consult an experienced professional if you have questions on the size and type of rock. **Schedule:** Seasonally				

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Extended Detention Wetland (EDW) Inspection Form

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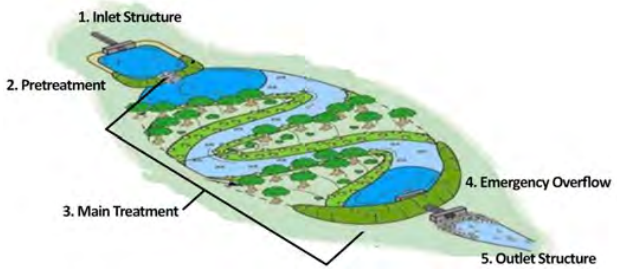

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
5. Is there evidence of erosion, bare soil, broken pipes, or broken concrete at the inlets?				
Guidance: Inlet areas collecting stormwater from pervious or impervious surfaces should have dense healthy vegetation or a material (e.g. rock, concrete, asphalt, or paver lining) to prevent erosion. Repair eroded areas and cover bare soil immediately with the appropriate vegetation or material cover. **Schedule:** Monthly				
6. Is there visual evidence of pollutants at the inlets, outlets, or on the surface of the BMP (sheens, oil, odd discoloration, stains, etc.)?				
Guidance: Inspect areas draining to the EDW and remove potential pollutant sources. Many pollutants can negatively impact the vegetation growing in the treatment cell(s). **Schedule:** Monthly				
7. Notice another problem? Describe in comments.	**Your Comments:**			

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Extended Detention Wetland (EDW) Inspection Form

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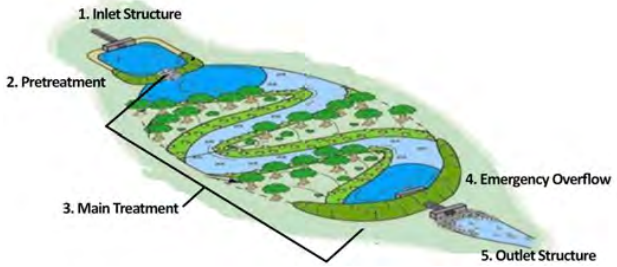

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
***Main Treatment** (Component 3)*				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
8. Is the EDW draining slowly or not at all? Is it clogged?				
Guidance: Water should be present but should not permanently inundate the vegetation. Check for signs of debris, soil, sludge and other materials that can cause clogs or cause odors. If the EDW is clogged and not draining, contact an experienced professional. Replant any unhealthy or dying vegetation. **Schedule:** Weekly				
9. Does the wetland vegetation appear yellow, diseased, or dead? Does vegetation (not including weeds) cover less than 75% of the planting area?				
Guidance: Healthy wetland vegetation must cover at least 75% of the treatment cell(s). Unhealthy vegetation should be removed and replaced to maintain a density of 75%. Do not apply fertilizer or pesticides to the vegetation, as these materials could cause an imbalance in the wetland water. During establishment (years 1 through 3), watering may be necessary. **Schedule:** Annually, as needed				
10. Is the wetland vegetation overgrown in the treatment cells? Is non-wetland vegetation (e.g. woody plants) present in the treatment cells?				
Guidance: Under the right conditions, wetland vegetation can quickly become overgrown. If the treatment cell has 100% coverage with wetland vegetation, remove the overgrowth so that the surface coverage density is 75%. During establishment (years 1 through 3) weed control (flail mow, string trim, and/or selective/preemergent herbicides) may be necessary. No trees or deep-rooted woody vegetation should be growing in the treatment cells, as deep-rooted plants can harm the liner. Any plant material pruned or cut should be removed from the wetland and disposed of offsite. **Schedule:** Annually				
11. Is there excessive silt building up in the main treatment area? Survey the pool depth with a probing rod. Does silt reach 10-15% of permanent pool depth?				
Guidance: Dredging is required if silt reaches 10-15% of permanent pool depth. **Schedule:** Every 3 years				
12. Notice another problem? Describe in comments.	**Your Comments:**			

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Extended Detention Wetland (EDW) Inspection Form

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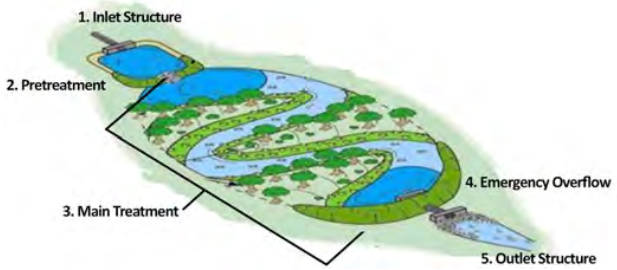

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to EDW				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
13. Are there animal burrows, trees, or woody vegetation growing immediately adjacent to the EDW? Are there pavement or soil cracks, holes, or depressions immediately adjacent to the BMP?				
Guidance: The area around the EDW should be paved, vegetated (with grass or other non-woody vegetation), or both. Cracks, depressions, and holes in or adjacent to the BMP can indicate a subsurface issue with the treatment cell or piping system. Measure and log the length, width, and depth of each of these problem on the inspection form and note the location of each issue. Check the treatment cell(s) and piping system for signs of structural damage if you can do so safely. Call a civil engineer for assistance if these problems appear to be getting worse. **Schedule:** Monthly				
14. Are litter, trash, debris, sediment, grass clippings, or other materials present in the area?				
Guidance: Trash and other materials can be carried into the BMP and block the inlets, outlets, or treatment cells. Remove undesirable materials and keep the property clean. **Schedule:** Monthly				
15. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the BMP during a storm?				
Guidance: Too much sediment washing into the treatment cells can clog the EDW. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent sediment erosion. **Schedule:** Seasonally				
16. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the EDW?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the BMP, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule:** Monthly				
17. Notice another problem? Describe in comments.	**Your Comments:**			

Extended Detention Wetland (EDW) Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

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Extended Detention Wetland (EDW) Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
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Property Owner's Guide to Stormwater BMP Maintenance

5.7 Sand Filter Basics

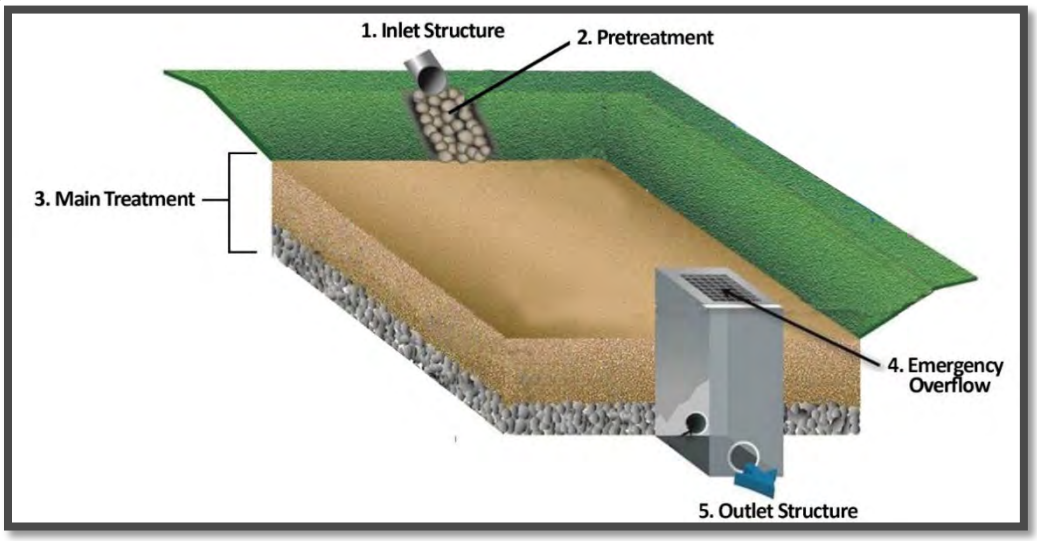
Benefits of Sand Filters:

- **Reduce pollution in stormwater runoff**
- **Let some stormwater soak into the ground**
- **Reduce stormwater runoff**
- **A good option for steep slopes**

Sand filters are Best Management Practices (BMPs) that clean stormwater by filtering it through a sand bed. Runoff is guided into a bed of sand where it is collected and cleaned. The water is collected, filtered through the sand where it is cleaned, and released to a stream or stormwater system. There are three types of sand filters; 1) Underground sand filters that use several chambers, 2) sand filters installed on the edge of an impervious surface, like a parking lot, and 3) pocket sand filters used specifically for small site projects (for these, stormwater is pretreated by a sediment basin or filter strip before entering a pocket sand filter). Sand filters will manage about 1-inch of stormwater and drain 1 to 2 days after a storm. Sand filters will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

In the City of Topeka, most sand filters will have five basic parts (see the figure below):

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.



What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your sand filter will last longer and you'll save money if you keep your property clean, free of erosion, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working sand filter. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Sand Filter Inspection Form included with this guidance sheet

***Always follow the specific manufacturer's guidelines for inspection & maintenance**

Do

- ✓ Check the filter after a storm to make sure it is draining correctly. Remove leaves and debris from surfaces.
- ✓ Look for signs of clogging, which can mean the filter or liner below needs to be replaced.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.

Don't

- X Don't store mulch, sand, salt, soil or yard waste near or on the sand filter.
- X Don't neglect the maintenance needs of your sand filter. Hire a professional, if needed.
- X Don't pile snow that has salt in an area that drains to your sand filter.
- X Don't wash your car or change fluids in an area that drains to your sand filter.

Sand Filter Inspection Form

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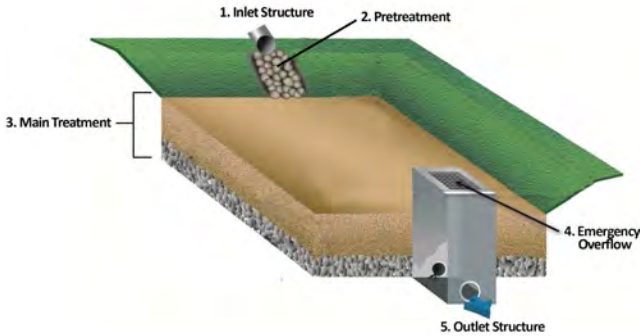

BMP Name(s)				Today's Date:
	Note: The sand filter name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Sand Filter 1" or "Sand Filter A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Sand Filter?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Sand Filter?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Name of Staff Approving This Inspection Report:

Has the City Entered and Approved this Inspection? Yes / No

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes / No

Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
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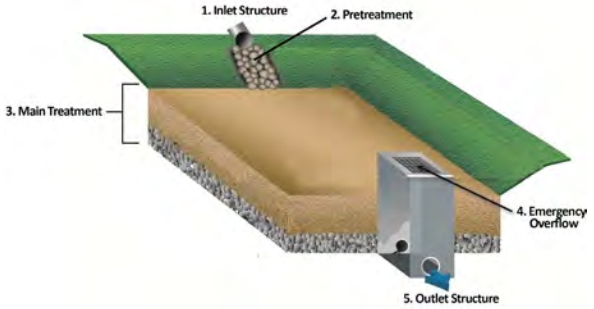

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet Structure, Emergency Overflows, & Outlet Structure ***(Components 1, 4, and 5)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Are the inlets, outlets, grates, chambers, overflow systems, or mechanical components difficult to access?				
Guidance: Any obstacles blocking access to, or maintenance of, these components should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. **Schedule:** Monthly				
2. Are trash, sediment, debris, grass clippings, or other materials that can obstruct stormwater flow present in the inlet or outlet areas?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow into or out of the sand filter. See **#8** for situations where the sand filter has become clogged. **Schedule:** Monthly				
3. Is water flowing from the outlet when it is not expected?				
Guidance: While surface and perimeter sand filters have chambers that hold water permanently, other chambers and the surface sand filter are designed to drain within 1 to 2 days after a rainfall. This may take longer during especially wet periods. During dry periods, an outlet that is discharging water or water backed into the sand filter inlet may indicate a clog or blockage, or even a cracked vault or pipe that is allowing landscape water or ground water to enter the vault. Determine the cause and correct it. If the cause cannot be determined, call a civil engineer or the vendor of the sand filter system for assistance. **Schedule**: Monthly				
4. Is there bare soil or evidence of erosion or scour at the outlet structure?				
Guidance: Outlets and the areas nearby should not have any signs of erosion, and should be covered with sufficient vegetation, pavement, or other material to slow the water and prevent erosion. Typically, this is a rock lining, but can be concrete, asphalt, pavers, or even dense vegetation. If signs of erosion are present, install a rock lining that extends at least 10 feet beyond the area of erosion. **Schedule:** Monthly				

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Sand Filter Inspection Form

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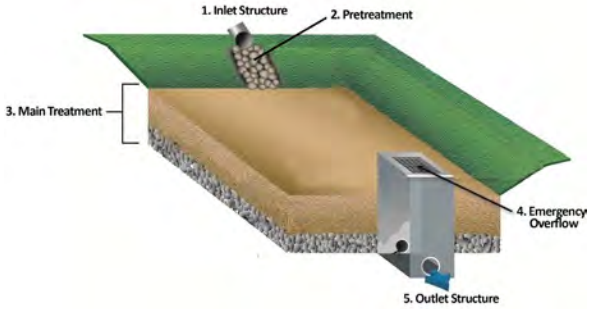

Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
5. Is there evidence of erosion, bare soil, broken pipes or broken concrete at the inlets?				
Guidance: Most sand filters are directly connected to the stormwater system through stormwater pipes. Where inlet areas collect stormwater from pervious or impervious surfaces, these areas should have dense healthy vegetation or a rock, concrete, asphalt, or paver lining to prevent erosion. Bare soil or signs of erosion should NOT be present. Repair eroded areas and cover bare soil immediately with the appropriate vegetation or material cover. **Schedule:** Monthly				
6. Is there visual evidence of pollutants at the inlets, outlets, or on the surface of the sand filter media (oil sheen, odd discoloration, stains, etc.)?				
Guidance: Stockpiled materials can contain pollutants that are harmful or that can be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
7. Notice another problem? Describe in comments.	**Your Comments:**			

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Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

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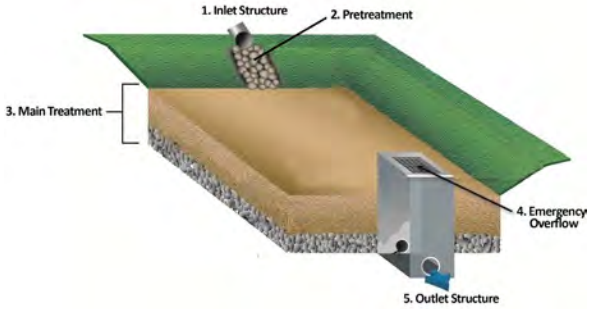

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Pretreatment & Main Treatment *(Components 2 & 3)*				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
8. Is the sand filter media draining slowly or not at all? Is it clogged or "crusted over"?				
Guidance: Visually check the filter for standing water, debris, sludge or other material on the surface of the sand filter media. This material can cause the sand filter to not function properly. Rake the sand filter and remove the debris and the top 2-4 inches of sand media. Replace the sand media with the type of sand recommended by the manufacturer. If the sand filter media still does not drain properly, contact a professional engineer or the sand filter manufacturer. **Schedule:** Monthly				
9. Are there animal burrows, or woody vegetation on top of the vault or pipe system or in the filter media? Are there pavement or soil cracks, holes or depressions in or around the vault?				
Guidance: The area around sand filters should be paved, vegetated, or both. Vegetation on top of the surface sand filter(s) should be removed. Cracks, depressions, and holes in or adjacent to sand filters can indicate structural problems. Measure and log the length, width and depth of each of these problems on the inspection form and note the location of each issue. Check the vault and piping system for signs of structural damage if you can do so safely. Call a civil engineer or the vendor for assistance if these problems appear to be getting worse. **Schedule:** Seasonally				
10. Notice another problem? Describe in comments.	**Your Comments:**			

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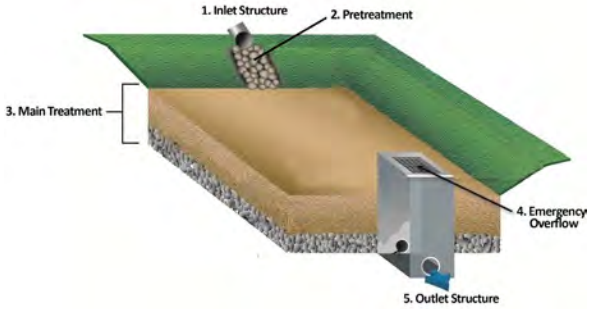

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Sand Filter				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
11. Are litter, trash, debris, sediment, grass clippings, or other materials present in the area?				
Guidance: Trash and other materials can be carried into the sand filter and block the inlets, outlets or sand filter media, and fill up the chambers. Remove undesirable materials and keep the property clean. See **#8** for situations where the sand filter has become clogged. **Schedule:** Weekly				
12. Are there stockpiles of soil, chemicals, equipment or other materials that could be a source of pollutants washing into the BMP during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful to plants or that can otherwise be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
13. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the sand filter during a storm?				
Guidance: Too much sediment washing into a sand filter can clog the sand filter media very quickly or fill in the settling chamber. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement or another hard surface to prevent sediment erosion. **Schedule:** Monthly				
14. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the sand filter?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the sand filter, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule:** Monthly				
15. Is upstream vegetation being maintained?				
Guidance: Maintain vegetation in the surrounding area and check the inlet and outlet for areas of erosion and/or bare soil. Replant grass at the inlet/outlet or protect with other materials, such as rock. Vegetation should be kept to less than 18 inches with frequent mowing. **Schedule:** Monthly				
16. Notice another problem? Describe in comments.	**Your Comments:**			

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Sand Filter Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

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Sand Filter Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

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Property Owner's Guide to Stormwater BMP Maintenance

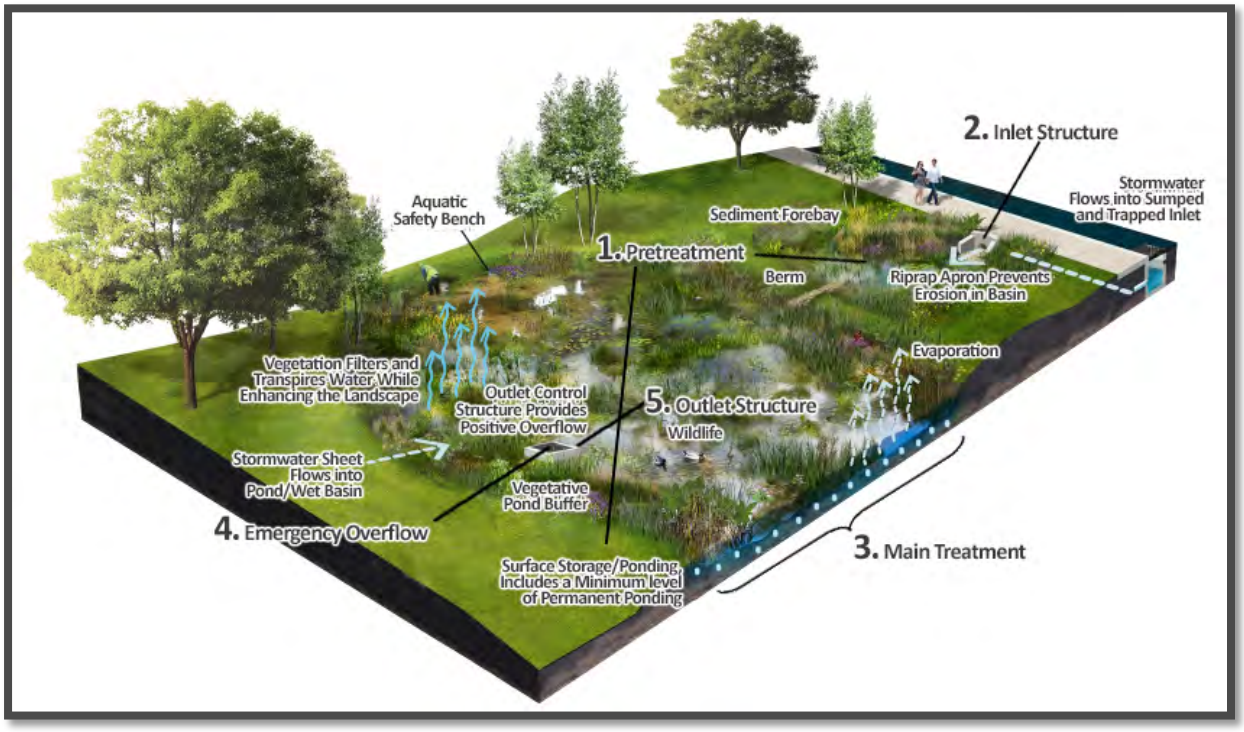
5.8 Extended Wet Detention Basics

Benefits of Extended Wet Detention:
- **Clean pollutants from stormwater**
- **Reduce erosion**
- **Provide habitat for butterflies & birds**
- **Create an interesting landscape**
- **Good for large stream areas**

Extended wet detention is a Best Management Practice (BMP) that removes pollutants from stormwater by storing it in a basin for a short amount of time. The basin lets the sediment (dirt) settle out of the water before it is released. Plants in an extended wet detention BMP remove pollutants through their roots and leaves. This BMP is also good for flood control. Extended wet detention will have a permanent pool of water. During a storm, it will have a *temporary* pool for water quality control. Extended wet detention BMPs will manage about 1-inch of stormwater and store water for up to 48 hours. Extended wet detention areas will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

In the City of Topeka, most extended wet detention basin will have five basic parts (see the figure below):

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

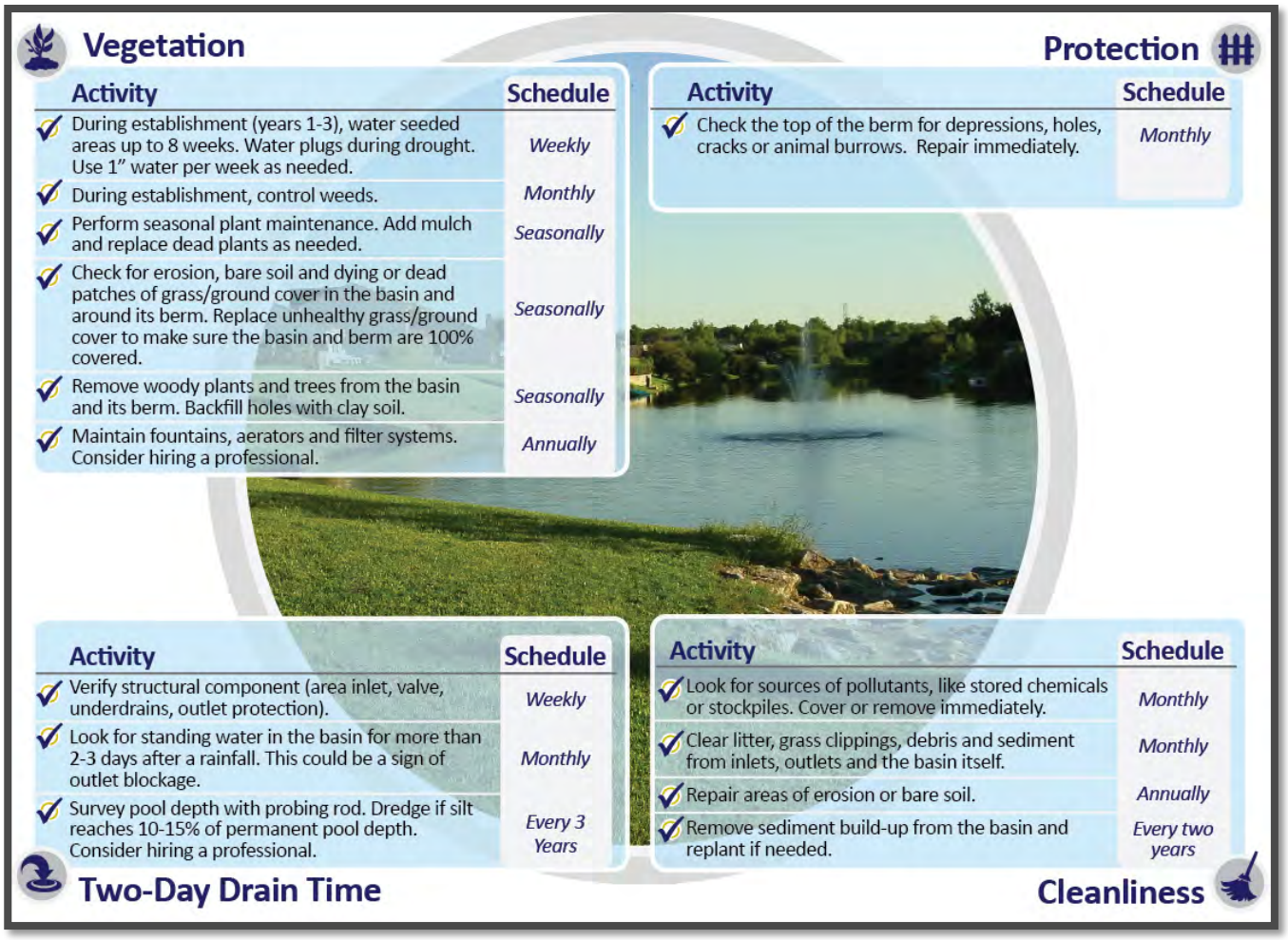


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your extended wet detention basin will last longer and you'll save money if you keep your property clean, free of erosion, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working basin. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Extended Wet Detention Inspection Form included with this guidance sheet.



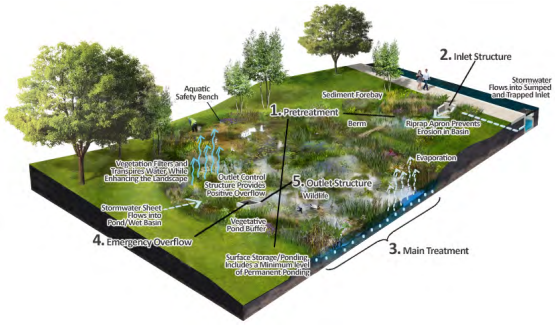
Do

- ✓ Mow grass 3-4 inches high and remove trash and debris regularly.
- ✓ Keep your property clean.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.

Don't

- X Don't use too much salt or sand around the basin in the winter.
- X Don't use too much fertilizer, herbicides, or pesticides. Contact a local nursery or landscape company if your plants aren't doing well.
- X Don't let heavy equipment in the detention basin or use it as storage, even for landscape items (leaves, snow, soil mulch, etc.).
- X Don't let pollutants (trash, pet waste, pesticides, oils, etc.) wash into the basin.

Extended Wet Detention Inspection Form



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BMP Name(s)				Today's Date:
	Note: The extended wet detention name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Extended Wet Detention 1" or "Extended Wet Detention A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Extended Wet Detention?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Extended Wet Detention?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Name of Staff Approving This Inspection Report:

Has the City Entered and Approved this Inspection? Yes / No

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes / No

Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Extended Wet Detention Inspection Form

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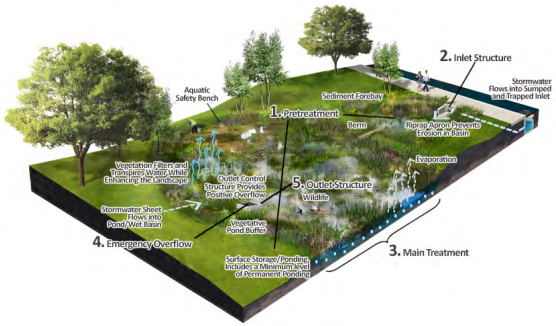

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Main Treatment Area (Component 3)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Is it difficult to access the extended wet detention for inspection and maintenance?				
Guidance: Any obstacles blocking access and/or maintenance should be removed. If access is blocked by a permanent fixture (i.e. fence), contact the City of Topeka. **Schedule:** Monthly				
2. Is the top of the earthen berm unlevel or uneven? Are there cracks or animal burrows in the berm?				
Guidance: Potholes, depressions, animal burrows and significant cracks on the top or sides of the berm can be a sign that the berm has structural or seepage problems, especially if worsen over time. Keep a log of these issues during each inspection by noting the location of each issue on the inspection figure and recording the length, width and depth of the problem on the inspection form. For animal burrows, call animal control for removal and fill the holes with clay soil. Call the City of Topeka if these problems appear to be getting worse. **Schedule:** Monthly				
3. Is vegetation on the berm dying, diseased, or unhealthy?				
Guidance: The berm should have a healthy, thick stand of non-woody vegetation on all sides of the berm. Patches of bare soil should not be present. Ground cover vegetation should compose of native plants that maintain the structural integrity of the berm, discourage animal burrowing, allow for adequate inspection of the berm and requires only intermittent mowing. If vegetation appears unhealthy or thin, determine the cause of the issue take corrective action. More frequent watering, fertilizer, plant species replacement, or additional seed or sod may be needed to establish fuller, healthier coverage. **Schedule**: Seasonally.				
4. Are trees present on the berm of the basin?				
Guidance: Woody vegetation should be removed right away as they can reduce the structural integrity of the berm. Trees and woody vegetation can also interfere with the ability to fully inspect the berm surfaces. Remove woody vegetation and stumps from the berm, backfill the stump areas with clay soil, and cover with suitable native vegetation. **Schedule:** Seasonally				
5. Is the water level in the extended wet detention high during dry weather?				
Guidance: The extended wet detention should generally follow what would be expected under the seasonal or current climatic conditions (slower to drain during wet weather and very dry during a drought). Water should drain out and the extended wet detention should be at its normal water elevation 24-48 hours after most rain events. If the water level rises and doesn't lower in this time period, the outlet structure may be blocked. If there is no water after a large rainfall, the water could be leaking through the berm. Contact an experienced professional if the water level is frequently too low or too high. **Schedule:** Monthly				

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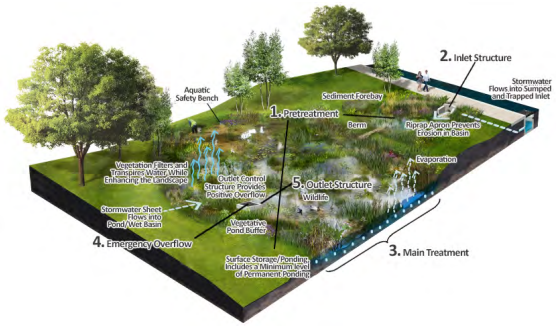

Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
6. Are there visible areas of bare soil or deposits of soil in or around the extended wet detention?				
Guidance: Bare or eroding areas should be vegetated or lined with rock or other material. Visible deposits of soil should be removed, as these deposits can decrease the amount of water storage provided by the extended wet detention. **Schedule:** Annually				
7. Are cattails or other invasive plants growing in the extended wet detention?				
Guidance: The depth of the water in the extended wet detention should be too deep for cattails and other invasive plants to grow. Growth of invasives around the edge of the pond may be normal, but should be removed. However, if they extend beyond the edge, it can mean that the correct water depth is not being maintained. The extended wet detention should be checked for dirt buildup and may need to be dredged (**see #10**). Also check the outflow for flow when there has been no rain, which could indicate a leak in the outflow system. **Schedule:** Seasonally				
8. Is the extended wet detention water discolored? Does it have a foul smell or bubbles? Are there signs of a fish kill?				
Guidance: The extended wet detention water can naturally be tea colored or can have a reddish tint or blue-green tint. However, other discoloration, a lot of foam or bubbles, fish kills, or a foul odor could mean that pollutants have been introduced into the extended wet detention. Visually check the area surrounding the extended wet detention to see if there are indicators of spills or pollutants, such as stains on grass or paved surfaces, burnt-looking or dead vegetation, and dead aquatic life. If found, eliminate the cause of the problem. Call the City of Topeka if the problem cannot be eliminated or is persistent and the source of the problem cannot be determined. **Schedule:** Monthly				
9. Are aerators, filters, and bubblers functioning properly?				
Guidance: Aeration and turbidity in the water column needs to be sustained through maintenance of fountains, cascades, or bubbler systems. Air tubes, electrical conduit, pumps, and other components need to be serviced early in spring and inspected throughout the growing season to prevent late summer algae blooms. **Schedule:** Annually (early spring)				
10. Is there excessive silt building up in the main treatment area? Survey the pool depth with a probing rod. Does silt reach 10-15% of permanent pool depth.				
Guidance: Dredging is required if silt reaches 10-15% of permanent pool depth. **Schedule:** Every 3 years				
11. Notice another problem? Describe in comments.	**Your Comments:**			

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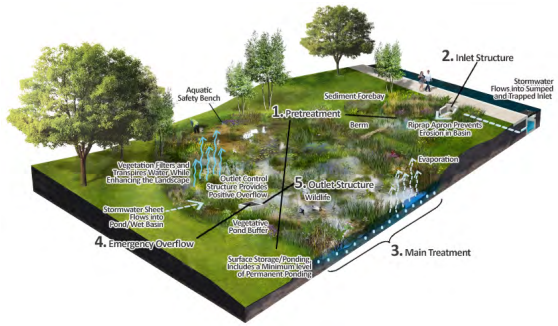

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet, Pretreatment, & Outlet Structures ***(Components 1, 2, & 5)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
12. Do the areas where stormwater enters the extended wet detention have unhealthy vegetation, sparse rock, broken concrete, or other damaged materials?				
Guidance: Inlet structures should have dense, healthy vegetation or a rock, concrete, asphalt, or paver lining to prevent erosion. Bare soil or signs of erosion should NOT be present. Repair eroded areas and cover bare soil immediately with the appropriate vegetation or material cover. **Schedule:** Monthly				
13. Are trash, sediment, debris, grass clippings, or other materials that can obstruct stormwater flow present in the inlet or outlet structures or in their vicinity?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow in or out of the extended wet detention. Remove sediment 18" from outlet and when pretreatment structures are 50% full. **Schedule:** Monthly. Annually for sediment removal from outlet and pretreatment structure(s).				
14. Is there bare soil or evidence of erosion or scour at the outlet structure?				
Guidance: Outlets and the areas below them should not have any signs of erosion and should be covered with sufficient vegetation, pavement or other material (e.g. rock lining, concrete, asphalt, pavers or even dense vegetation) to slow the water and prevent erosion. Typically, this is a rock lining, but can be concrete, asphalt, pavers or even dense vegetation. If signs of erosion are visible at the outlet, install a rock lining that extends at least 10' beyond the area of erosion. Consult an experienced professional if you have questions on the size and type of rock. **Schedule:** Seasonally				
15. Is there visual evidence of pollutants at the outlet structure (oil, odd colorations, stains, etc.)?				
Guidance: Visually check the outlet structure location(s) and look for discolored or stained grass or rocks or significant stands of unhealthy vegetation. This could be a sign that the extended wet detention is not operating properly or that pollutants have been introduced. If you suspect a pollutant source, contact the City of Topeka. **Schedule:** Monthly				
16. Notice another problem? Describe in comments.				**Your Comments:**

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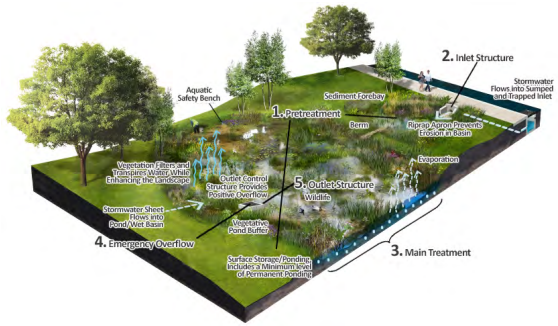

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Extended Wet Detention				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
17. Are litter, trash, debris, sediment, grass clippings, or other materials present in the area?				
Guidance: Trash and other materials can wash into the extended wet detention during a storm and block the inlet and outlet structures as well as fill up the main treatment area. Remove undesirable materials and keep the property clean. **Schedule:** Monthly				
18. Are there stockpiles of soil, chemicals, equipment, or other materials that could be a source of pollutants washing into the extended wet detention during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful to plants or that can otherwise be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater runoff. **Schedule:** Monthly				
19. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing extended wet detention during a storm?				
Guidance: Too much sediment washing into an extended wet detention can reduce the extended wet detention storage and water depth. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for those areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent sediment erosion. **Schedule:** Monthly				
20. Do activities occur nearby that may cause unusual or substantial amounts of pollutants to be discharged to the extended wet detention?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the extended wet detention, such as washing cars in areas that drain to the wastewater system, conducting street or parking lot sweeping, installation of pet waste pickup stations, etc. **Schedule:** Weekly				
21. Notice another problem? Describe in comments.				**Your Comments:**

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Photograph Description:	**Photograph Description:**
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Property Owner's Guide to Stormwater BMP Maintenance

5.9 Native Vegetation Swale Basics

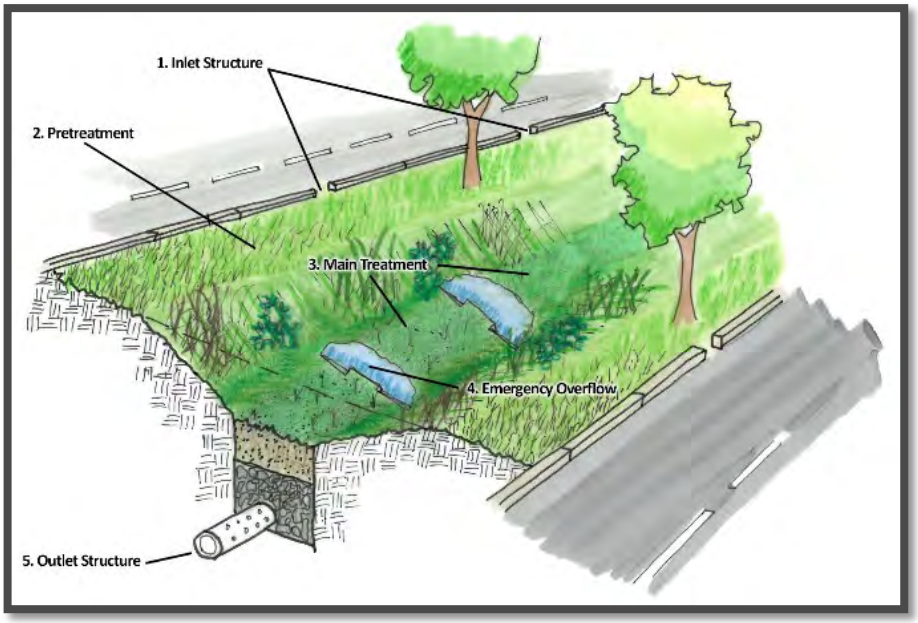
Benefits of Native Vegetation Swales:

- **Easier to maintain than underground pipes**
- **Water is cleaned by soaking into the ground**
- **Reduce runoff**
- **Slow water down, reducing erosion**
- **Create an interesting landscape**

Native vegetation swales are Best Management Practices (BMPs) that clean pollutants from stormwater by letting the water soak into the ground. These BMPs are broad and shallow with thick, native grass. The bottom acts as a natural pipe that guides water from a road, parking lot, or other properties. When the water is in the swale, it can soak into the ground and pollutants can filter out. A native vegetation swale will manage about 1-inch of stormwater and should drain completely about 24 hours after a storm. Native vegetation swales will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

In the City of Topeka, most native vegetation swales will have five basic parts (see the figure below):

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

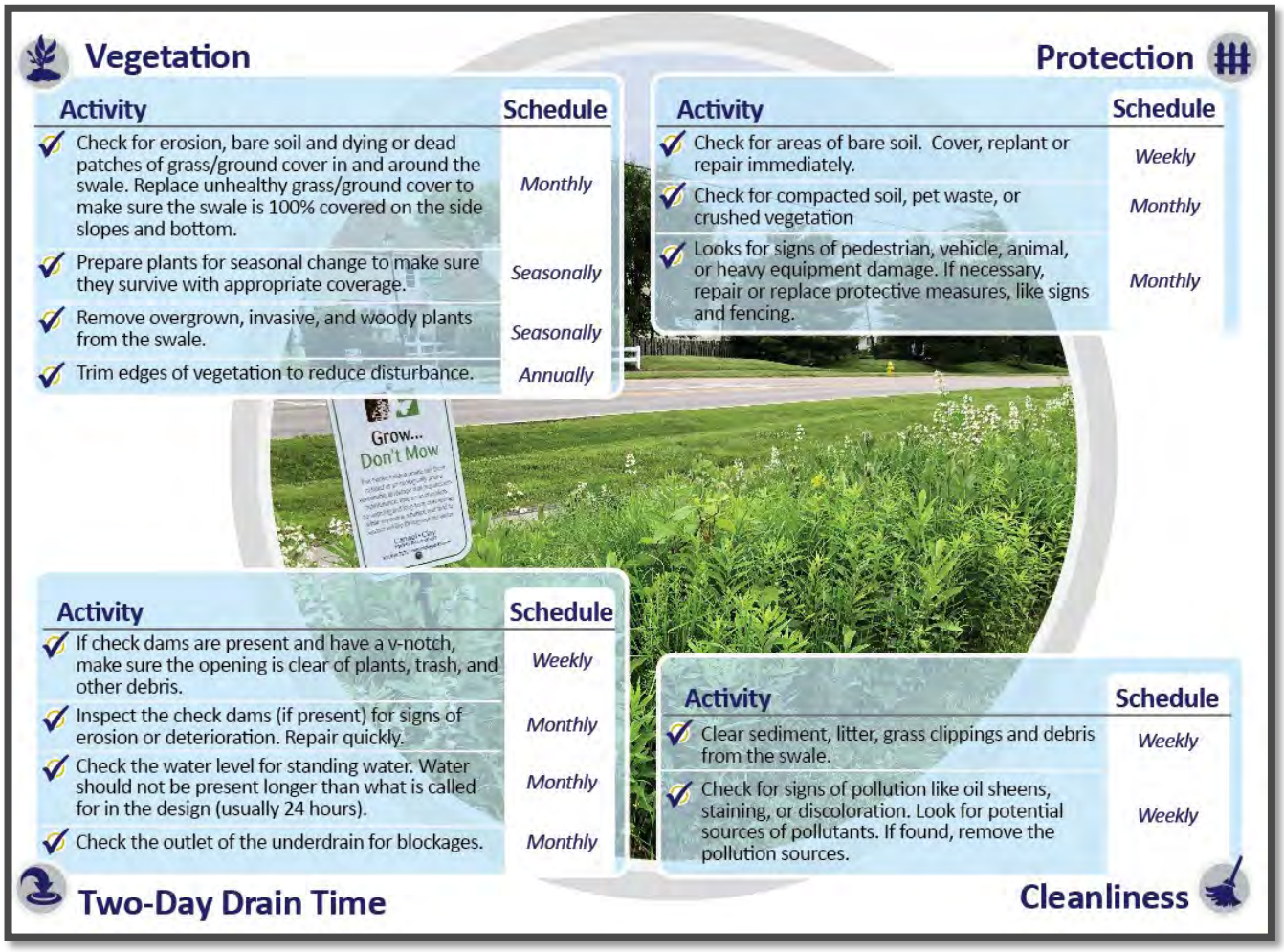


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your native vegetation swale will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working vegetation swale. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Native Vegetation Swale Inspection Form included with this guidance sheet.



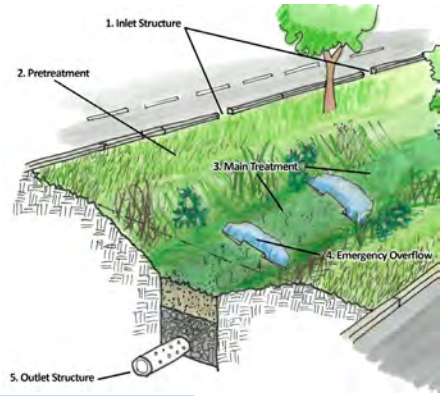
Do

- ✓ Check the property often for bare soil, litter, plant health, and soil compaction.
- ✓ Get rid of weeds and invasive plants. Restock with healthy plants and make sure that basic needs for plant health are met.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.

Don't

- X Don't use too much salt and sand around the vegetation swale in the winter.
- X Don't use too much fertilizer, herbicides, or pesticides in the swale. Contact a local nursery or landscape company if your plants aren't doing well.
- X Don't let heavy equipment in the swale or use it for storage, even for landscape items (leaves, snow, soil mulch, etc.)

Native Vegetation Swale Inspection Form



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BMP Name(s)				Today's Date:
	Note: The native vegetation swale name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Native Vegetation Swale 1" or "Native Vegetation Swale A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Native Vegetation Swale?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Native Vegetation Swale?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Name of Staff Approving This Inspection Report:

Is a Follow Up Inspection by Staff Required? Circle One: Yes No

Reason for Follow Up?

Has the City Entered and Approved this Inspection? Yes No

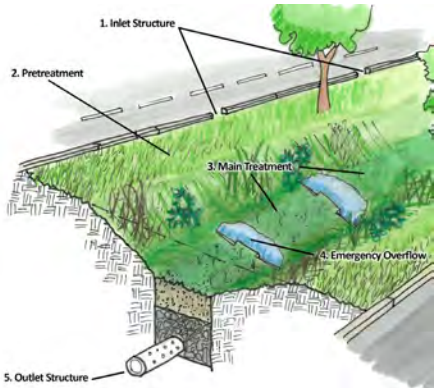
Date of Inspection Approval:

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Native Vegetation Swale Inspection Form



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Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
***Pretreatment & Main Treatment** (Components 2 & 3)*				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Is the swale hard to access for inspection and maintenance?				
Guidance: Any obstacles blocking access and/or maintenance should be removed. If access is blocked by a permanent fixture (e.g. fence), note this on inspection form. **Schedule:** Monthly				
2. Is the swale holding water for longer than it was designed for (typically 24 hours after a storm)?				
Guidance: Water should drain out of the swale per its design, which is usually about 24 hours after any rain event. If it stays in the swale longer, native vegetation could be killed, or wetland plants could begin to grow. Check for and remove any blockages from the swale. If no blockages are found and standing water is common during dry periods, more extensive maintenance, such as regrading or repair of the underdrain, may be required. **Schedule:** Monthly				
3. Is there sediment, bare soil, eroding areas in the swale or pretreatment area?				
Guidance: The swale and pretreatment area should have a thick stand of grass and/or native vegetation. Eroded and bare areas should be repaired and covered with sufficient vegetation. If high water velocity is the cause of the erosion issues, check dams may be needed to slow the water. Sediment should be removed from the pretreatment structure(s) and any forebay or check dams each year. **Schedule**: Monthly. Annual sediment removal.				
4. Notice another problem? Describe in comments.	**Your Comments:**			

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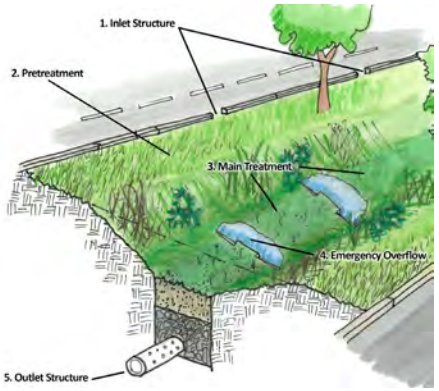
Native Vegetation Swale Inspection Form



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Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet Structure & Emergency Overflow ***(Components 1 & 4)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
5. Do the inlets or emergency overflow components of the swale show evidence of erosion, bare spots, or scour?				
Guidance: Inlet structures should have stable soils covered by dense, healthy vegetation and/or a stabilizing material (e.g. rock, concrete, asphalt, or paver lining) to prevent erosion. Bare soil or signs of erosion should NOT be present. Repair eroded areas and stabilize bare soil immediately with the appropriate vegetation or material cover. At the emergency overflow location, install a rock lining that extends at least 5 feet beyond the area of erosion. Consult an experienced professional if you have questions on the size and type of rock. **Schedule:** Monthly				
6. Do the inlet or emergency overflow contain trash, sediment, debris, grass clippings or other materials that can obstruct stormwater flow?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow into or out of the swale or damage the vegetation. **Schedule:** Monthly				
7. Is there visual evidence of pollutants in the swale (e.g. oil sheen odd discoloration, stains, etc.)?				
Guidance: Visually check the swale for discolored or stained grass or significant stands of unhealthy vegetation. Examine surrounding areas for a potential source and contact the City of Topeka for assistance if needed. **Schedule:** Monthly				
8. Notice another problem? Describe in comments.	**Your Comments:**			

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Native Vegetation Swale Inspection Form

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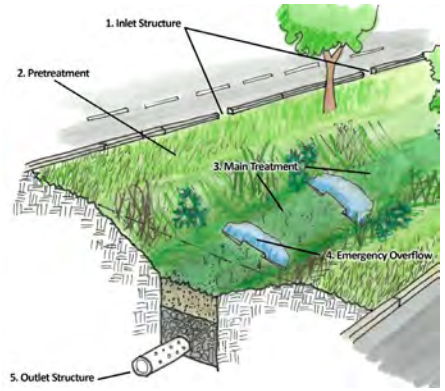

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
***Main Treatment* (Component 3)**				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
9. Is the vegetation overgrown or in need of cutting? Is there woody vegetation that requires removal?				
Guidance: String trim native vegetation annually, or as needed, to minimize disturbance. Remove woody and invasive vegetation. Do not dispose of clippings or other waste in the swale. **Schedule:** Annually				
10. Is the vegetation healthy, and does it cover 100% of the native vegetation swale as per the BMP O&M plan?				
Guidance: The native vegetation swale should have a healthy, thick cover of native vegetation on the sides and in the bottom of the swale. If vegetative cover needs to be added, consider aerating and over-seeding in the fall, or planting new vegetation in the spring. **Schedule:** Seasonally				
11. Are there signs of blockage in the swale? Signs include frequent standing water, hard-packed soil, etc.				
Guidance: If the swale is clogged, contact the City of Topeka. If the soil is compacted, the entire planting layer may need repair to restore percolation. **Schedule:** Monthly				
12. Are there signs of pedestrian, vehicle, animal, or heavy equipment damage? Is fencing or signage damaged?				
Guidance: Erect appropriate barriers and/or signage to reduce entry of vehicle and pedestrian traffic into the native vegetation swale. Repair damaged areas, backfill with appropriate soil, and replace vegetation as needed. **Schedule:** Annually				
13. Notice another problem? Describe in comments.	**Your Comments:**			

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Native Vegetation Swale Inspection Form

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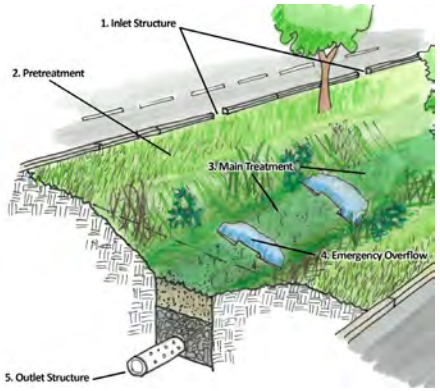

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Swale				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
14. Is there litter, grass clippings, trash, debris, or other materials that could enter the native vegetation swale via stormwater or wind?				
Guidance: Trash and other materials can be carried into the swale, causing blockages. Remove undesirable materials and keep the property clean. **Schedule:** Monthly				
15. Are there stockpiles of soil, chemicals, equipment or other materials that could be a source of pollutants washing into the native vegetation swale during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful or that can be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
16. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the swale during a storm?				
Guidance: Too much sediment washing into a swale can reduce the water storage and conveyance in the swale. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement or another hard surface to prevent sediment erosion. If soils are present on pavement surfaces nearby, sweeping parking lots or impervious surfaces to remove sand and silt may be necessary. **Schedule:** Weekly				
17. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the swale?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Implement policies to prevent these activities from occurring or take steps to prevent the pollutants from reaching the swale, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule:** Monthly				
18. Notice another problem? Describe in comments.	**Your Comments:**			

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Native Vegetation Swale Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

Submit completed forms to:
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Native Vegetation Swale Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Property Owner's Guide to Stormwater BMP Maintenance

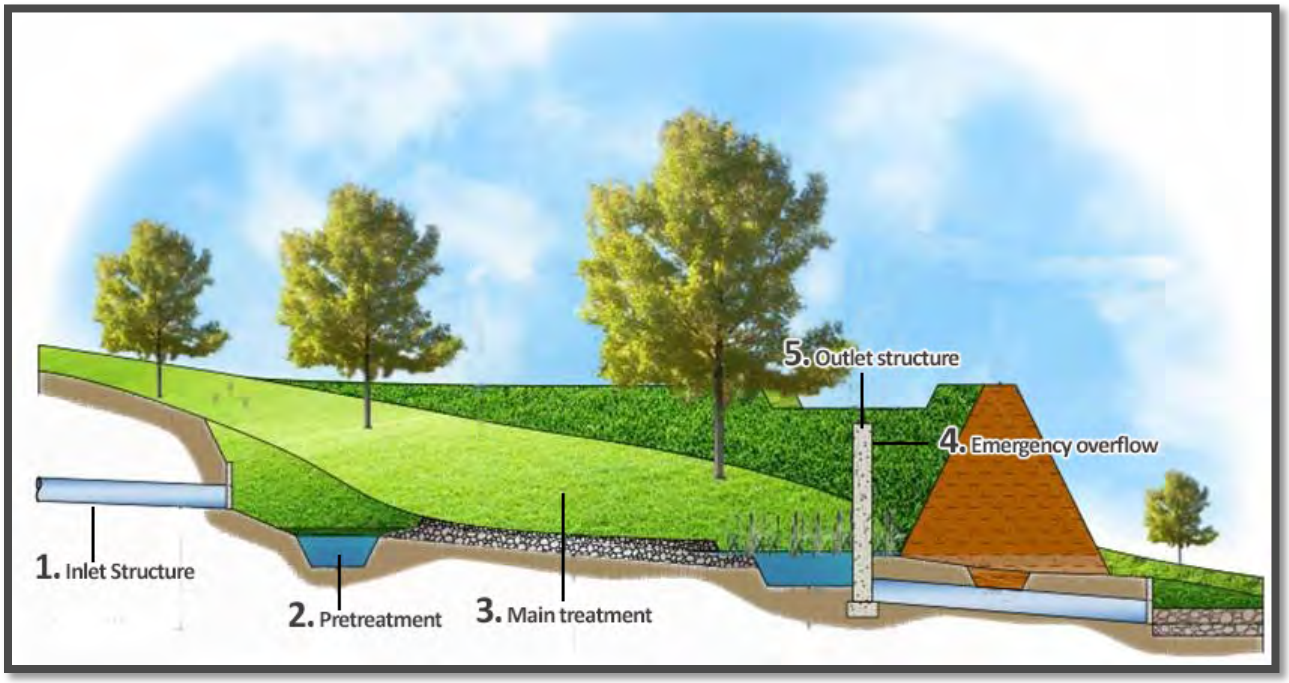
5.10 Extended Dry Detention Basics

Extended dry detention basins are Best Management Practices (BMPs) that collect and store stormwater. The basins remove pollution and control flooding. An extended dry detention basin will manage about 1-inch of stormwater and drain completely about 40 hours after a storm. Extended dry detention basins will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing. basic parts (see the figure below):

Benefits of Extended Dry Detention:

- **Easy and inexpensive to use**
- **Great at capturing pollutants**
- **Reduce erosion**
- **Can be used as an area for recreation or open space**

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.



What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your detention basin will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working detention basin. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Extended Dry Detention Basin Inspection Form included with this guidance sheet.

Do

- ✓ Mow grass 3-4 inches high and remove trash and debris regularly.
- ✓ Keep your property clean.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.

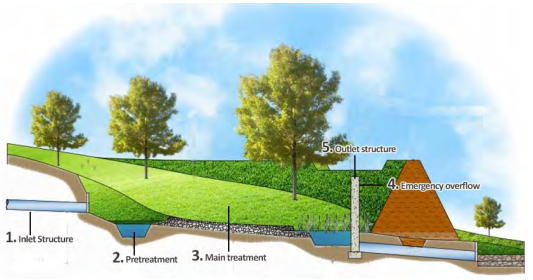
Don't

- X Don't use too much salt and sand around the detention basin in the winter.
- X Don't use too much fertilizer, herbicides, or pesticides. Contact a local nursery or landscape company if your plants aren't doing well.
- X Don't let heavy equipment in the detention basin or use it as storage, even for landscape items (leaves, snow, soil mulch, etc.)
- X Don't let pollutants (trash, pet waste, pesticides, oils, etc.) wash into the basin.

Extended Dry Detention Basin Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



BMP Name(s)				Today's Date:
	Note: The extended dry detention basin name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Extended Dry Detention Basin 1" or "Extended Dry Detention Basin A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Extended Dry Detention Basin?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Extended Dry Detention Basin?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Has the City Entered and Approved this Inspection? Yes No

Name of Staff Approving This Inspection Report:

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes No

Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Extended Dry Detention Basin Inspection Form

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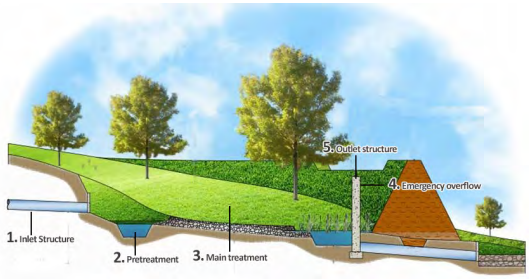

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
***Main Treatment** (Component 3)*				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Is it difficult to access the basin for inspection and maintenance?				
Guidance: Any obstacles blocking access and/or maintenance to the basin should be removed. If access is blocked by a permanent fixture (i.e. fence), contact the City of Topeka. **Schedule:** Monthly				
2. Is the top of the earthen berm unlevel or uneven? Are there cracks or animal burrows in the berm?				
Guidance: Potholes, depressions, animal burrows and significant cracks on the top or sides of the berm can be a sign that the berm has structural or seepage problems, these worsen over time. Keep a log of these issues during each inspection by noting the location of each issue on the inspection figure and recording and recording the length, width, and depth of the problem on the inspection form. For animal burrows, call animal control for removal and fill the holes with clay. Call the City of Topeka if these problems appear to be getting worse. **Schedule:** Monthly				
3. Is vegetation on the berm dying, diseased, or unhealthy on the front, back, or top of the berm?				
Guidance: The berm should have a healthy, thick stand of non-woody vegetation on all sides of the berm. Patches of bare soil should not be present. Ground cover vegetation should be composed of native plants that that maintain the structural integrity of the berm, discourage animal burrowing, allow for adequate inspection of the berm, and require only intermittent mowing to maintain its health. If vegetation appears unhealthy or thin, determine the cause of the issue take corrective action. More frequent watering, or fertilizer, plant species replacement, or additional seed or sod may be needed to establish fuller, healthier coverage. **Schedule**: Seasonally.				
4. Are trees present on the berm of the basin?				
Guidance: Woody vegetation should be removed right away as they can reduce the structural integrity of the berm. Trees and woody vegetation can also interfere with the ability to fully inspect the berm surfaces. Remove woody vegetation and stumps from the berm, backfill the stump areas with clay soil, and cover with suitable native vegetation. **Schedule:** Seasonally				

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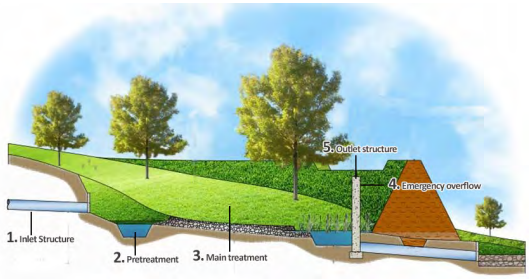

Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
5. Is the basin holding water during dry weather?				
Guidance: The extended dry detention basin should follow what would be expected under the seasonal or current climatic conditions (slower to drain during wet weather and very dry during a drought). Ninety percent of the water should drain out of the extended dry detention basin 40 hours after rain events. If the water level rises and doesn't lower in this time period, the outlet structure may be blocked. If there is no water after a large rainfall, the water could be leaking through the berm. Contact an experienced professional if the water level is frequently too low or too high. **Schedule:** Monthly				
6. Are there visible areas of bare soil in the basin, water flow paths, or on the basin slopes?				
Guidance: Bare or eroding areas should be vegetated or lined with rock or other material. Visible deposits of soil should be removed, as these deposits can decrease the amount of water storage provided by the extended dry detention basin. **Schedule:** Annually				
7. Are cattails or other invasive plants growing in the basin?				
Guidance: Cattails and other invasive plants have the potential to completely take over the basin area. The basin area should be checked for sediment buildup and may need to be cleaned out. Invasive plants shall be removed. Also evaluate any issues of standing water in the basin 40 hours after a rain event and correct as discussed in #5. **Schedule:** Seasonally				
8. Are check dams, weirs, and other components of the basin in good repair?				
Guidance: Structural components should be checked for proper operation and repaired as needed. **Schedule:** Annually				
9. Notice another problem? Describe in comments.	**Your Comments:**			

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Extended Dry Detention Basin Inspection Form

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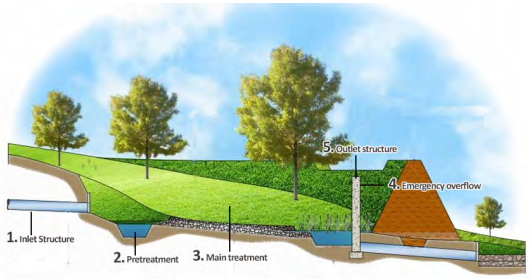


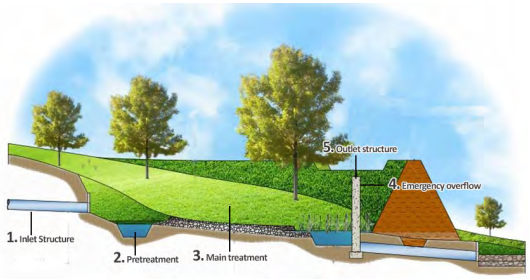
Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet, Pretreatment, & Outlet Structures ***(Components 1, 2, & 5)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
10. Do the inlets where stormwater enters the basin have unhealthy vegetation, sparse rock, broken concrete, or other damaged materials?				
Guidance: Inlet structures should have dense, healthy vegetation or a rock, concrete, asphalt, or paver lining to prevent erosion. Bare soil or signs of erosion should NOT be present. Repair eroded areas and cover bare soil immediately with the appropriate vegetation or material cover. **Schedule:** Monthly				
11. Are trash, sediment, debris, grass clippings, or other materials that can obstruct stormwater flow present in the inlet, forebay, or outlet structures or in their vicinity?				
Guidance: A sediment forebay shall be incorporated into the basin design to trap sediment and trash at all basin inlets, where the sediment and trash can be more easily removed than from the permanent pool. Remove unwanted materials and correct any other problems that block the water flow in or out of the basin. **Schedule:** Monthly				
12. Is there bare soil or evidence of erosion or scour at the outlet structure? Is the outlet structure in good repair?				
Guidance: Outlet structures should not have any signs of erosion and should be covered with enough vegetation or material to slow the water and prevent erosion. Typically, this is a rock lining, but can be concrete, asphalt, pavers or even dense vegetation. If signs of erosion are visible at the outlet, install a rock lining that extends at least 10' beyond the area of erosion. Contact a qualified professional if you have questions on the size and type of rock. **Schedule:** Seasonally				
13. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Extended Dry Detention Basin Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Extended Dry Detention Basin				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
14. Are litter, trash, debris, sediment, grass clippings, or other materials present in the area?				
Guidance: Trash and other materials can wash into the basin during a storm and can block the inlet, forebay, and outlet structures and fill up the basin storage area. Remove undesirable materials and keep the property clean. **Schedule:** Monthly				
15. Are there stockpiles of soil, chemicals, equipment, or other materials that could be a source of pollutants washing into the basin during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful to plants or that can otherwise be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater runoff. **Schedule:** Monthly				
16. Are there areas of erosion or exposed soil or bare earth that could be a source of sediment washing into the basin during a storm?				
Guidance: Too much sediment washing into an extended dry detention basin can reduce the basin storage. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for those areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent sediment erosion. **Schedule:** Monthly				
17. Do activities occur nearby that may cause unusual or substantial amounts of pollutants to be discharged to the extended dry detention basin?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the basin, such as washing cars in areas that drain to the wastewater system, conducting street or parking lot sweeping, installation of pet waste pickup stations, etc. **Schedule:** Weekly				
18. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Extended Dry Detention Basin Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Extended Dry Detention Basin Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Property Owner's Guide to Stormwater BMP Maintenance

5.11 Proprietary Media Filtration Basics

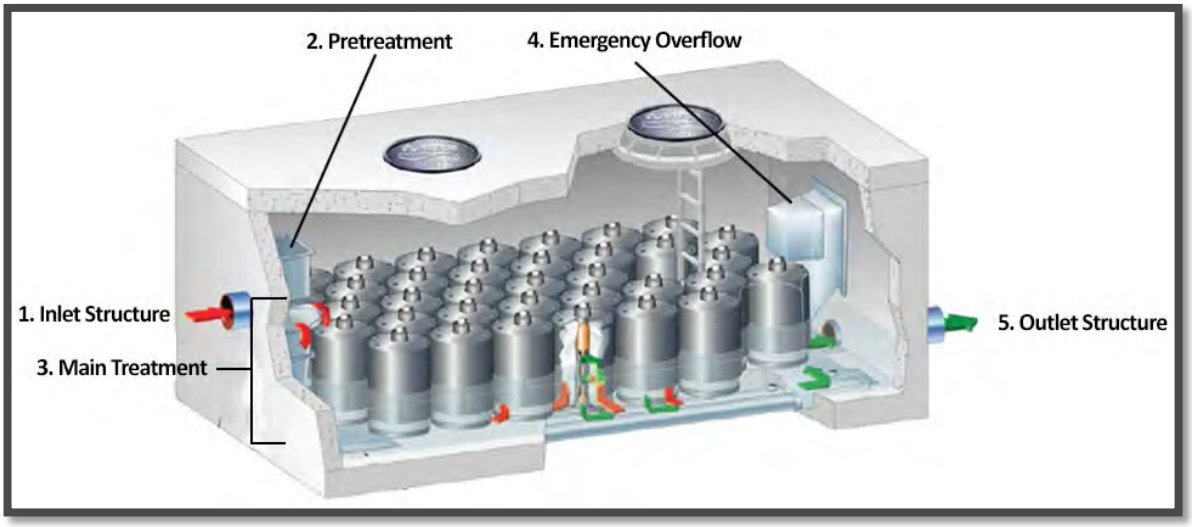
Proprietary media filtration (or "media filter") is a Best Management Practice (BMP) that removes pollutants from stormwater by guiding the runoff through a bed of media like sand, compost, or organic material. These BMPs are "proprietary" because they can be designed to remove *specific* pollutant(s). The media can target suspended solids and particles, or they can aim to remove dissolved pollutants. The details of your media filter should be provided by the manufacturer. Media filters will manage about 1-inch of stormwater and drain quickly after a storm. Media filter systems will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Proprietary Media Filtration:

- **Removes specific pollutants**
- **Takes up less space than some other BMPs**
- **Can fit into underground vaults**
- **Can be added to other BMPs**

In the City of Topeka, most media filter systems will have five basic parts (see the figure below). Most of these parts will be underground or contained within a vault. This requires access through a manhole, observation well, or inlet/outlet structure. Because there are different types of media filters, inspection and maintenance will require the use of an owner's manual and specific information from the manufacturer.

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

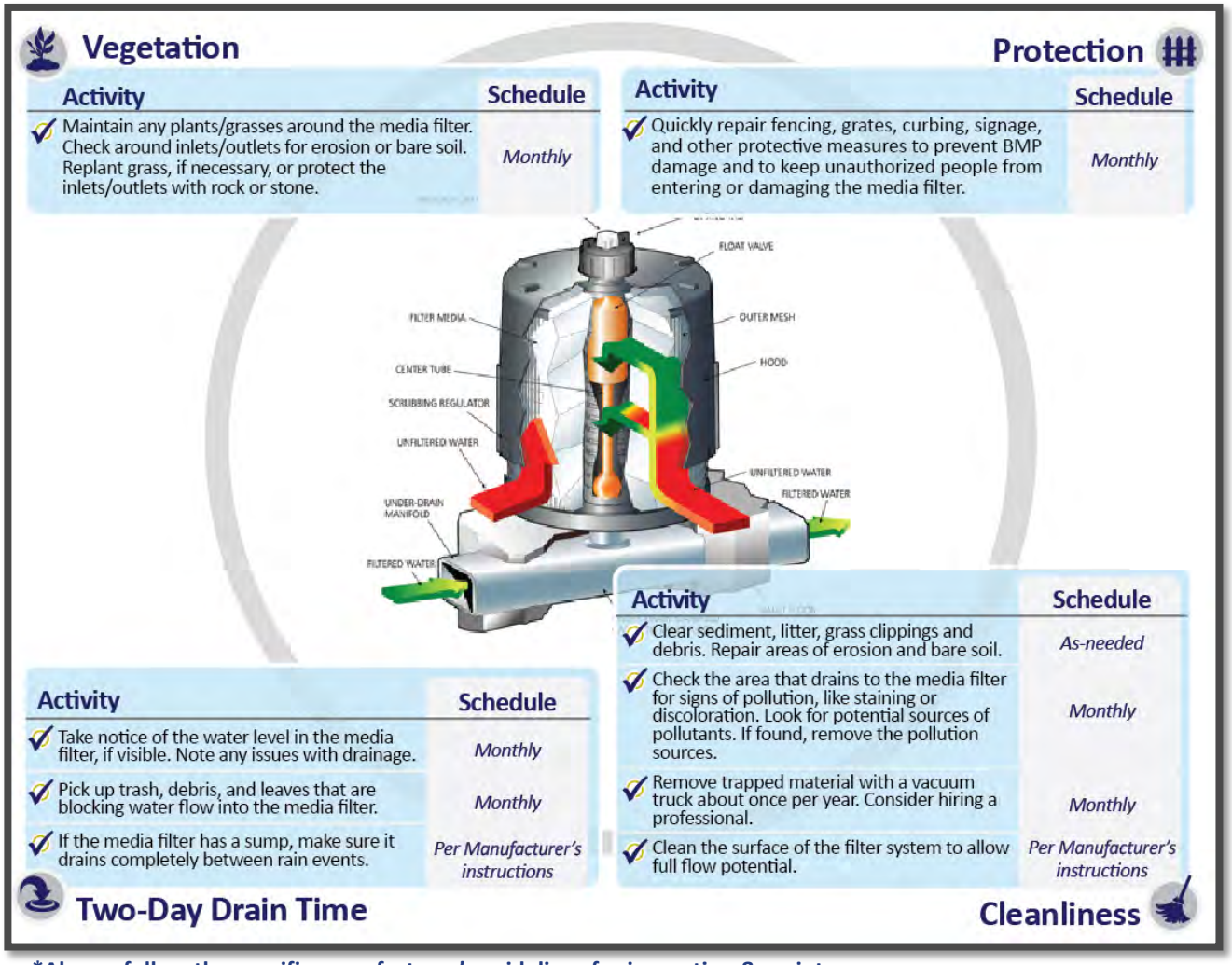


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your media filter will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have a working media filter. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Proprietary Media Filtration Inspection Form included with this guidance sheet.



***Always follow the specific manufacturer's guidelines for inspection & maintenance**

Do

- ✓ Check the media filter after storms to make sure it is draining properly. Remove leaves and debris from surfaces.
- ✓ Mark the inlets and outlets of the media filter. This could help prevent damage from heavy equipment or vehicles.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.

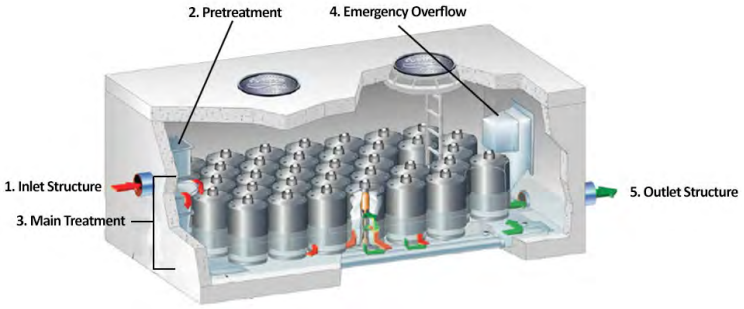
Don't

- X Don't store mulch, sand, salt, soil or yard waste in the area draining to the media filter.
  Don't pile snow that contains sand or salt in the area draining to your media filter.
- X Don't neglect the maintenance needs of your media filter. Hire a professional, if needed.
- X Don't wash your car or change fluids in an area that drains to your media filter.
- X Don't enter the media filter for inspection or maintenance unless you are a professional with confined entry certifications.

Proprietary Media Filtration Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



BMP Name(s)				Today's Date:
	Note: The proprietary media filtration name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Proprietary Media Filtration 1" or "Proprietary Media Filtration A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the System?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the System?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Has the City Entered and Approved this Inspection? Yes / No

Name of Staff Approving This Inspection Report:

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes / No

Reason for Follow Up?

Submit completed forms to:

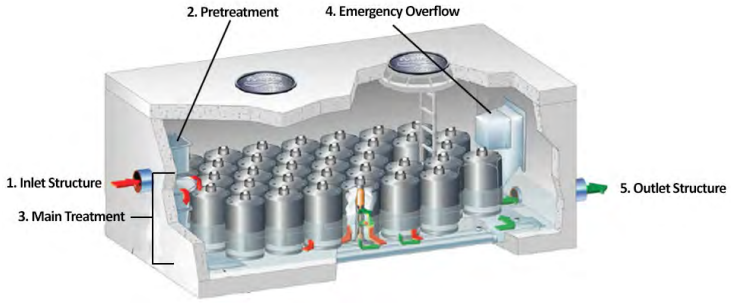
Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Proprietary Media Filtration Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet Structure, Emergency Overflows, & Outlet Structure ***(Components 1, 4, and 5)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Are the inlets, outlets, grates, chambers, or mechanical components of the system difficult to access?				
Guidance: Any obstacles blocking access to, or maintenance of, these components should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. Don't enter the system for inspection or maintenance unless you are a professional with confined entry certifications. **Schedule:** Monthly				
2. Are trash, sediment, debris, grass clippings, or other materials that can obstruct stormwater flow in the inlet or outlet areas?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow into or out of the system. **Schedule:** Monthly				
3. Is water flowing from the outlet when it is not expected?				
Guidance: Proprietary media filtration systems are designed to drain quickly after a rainfall. This may take longer during especially wet periods. During dry periods, an outlet that is discharging water or water backed into the system's inlet may indicate a clog or blockage, or even a cracked vault or pipe that is allowing landscape water or ground water to enter the vault. Determine the cause and correct it. If the cause cannot be determined, call a civil engineer or the vendor of the system for assistance. **Schedule**: Monthly				
4. Is there bare soil or evidence of erosion or scour at the outlets?				
Guidance: Outlets and the areas surrounding them should be covered with sufficient vegetation, pavement, or other stabilizing material to slow the water and prevent erosion. Typically, this is a rock lining, but can be concrete, asphalt, pavers, or even dense vegetation. If signs of erosion are visible at the outlet, install a rock lining that extends at least 10 feet beyond the area of erosion. **Schedule:** Monthly				

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Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Proprietary Media Filtration Inspection Form

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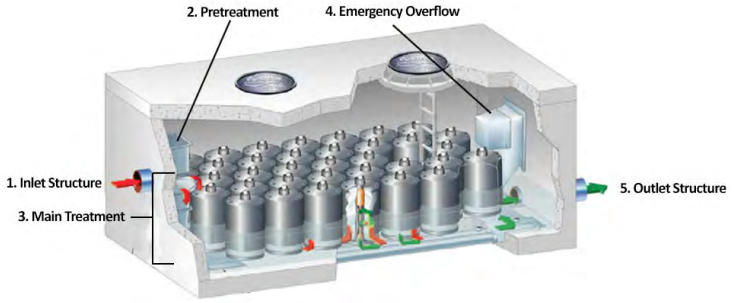

Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
5. Is there evidence of erosion, bare soil, broken pipes, or broken concrete at the inlet(s) to the system?				
Guidance: Most proprietary media filtration systems are directly connected to the stormwater system through stormwater pipes. Where inlet areas collect stormwater from pervious or impervious surfaces, these areas should have dense healthy vegetation or a rock, concrete, asphalt, or paver lining to prevent erosion. Bare soil or signs of erosion should NOT be present. Repair eroded areas and cover bare soil immediately with the appropriate vegetation or material cover. **Schedule:** Monthly				
6. Is there visual evidence of pollutants at the inlet(s), outlet(s), or on the surface of the media (e.g. oil sheen, odd discoloration, stains, etc.)?				
Guidance: Inspect the area for stockpiled materials or other sources of pollutants, as these may contain pollutants that are harmful or that can be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
7. Notice another problem? Describe in comments.	**Your Comments:**			

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215 SE 7th St ● Topeka, Kansas 66603

Proprietary Media Filtration Inspection Form

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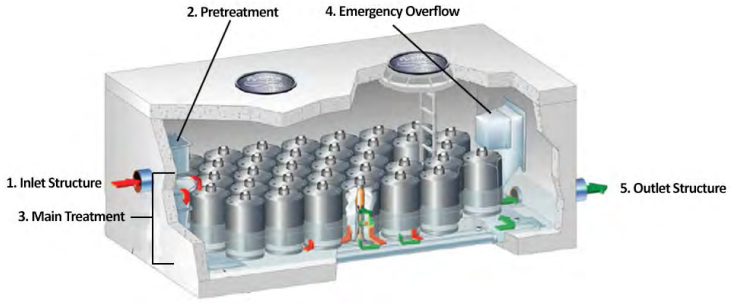
The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
***Pretreatment & Main Treatment** (Components 2 & 3)*				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
8. Is the filter media draining slowly or not at all? Is there a clogged filter or other component? If the system has as sump, is it failing to drain completely between storms?				
Guidance: Visually check any filters and other components for clogs. Debris, sludge, or other material can cause the system to not function properly. Follow the manufacturer's recommendations for cleaning and replacing filters or other components. If the system still does not drain properly, contact the manufacturer or another qualified professional. **Schedule:** Monthly				
9. Notice another problem? Describe in comments.	Your Comments:			

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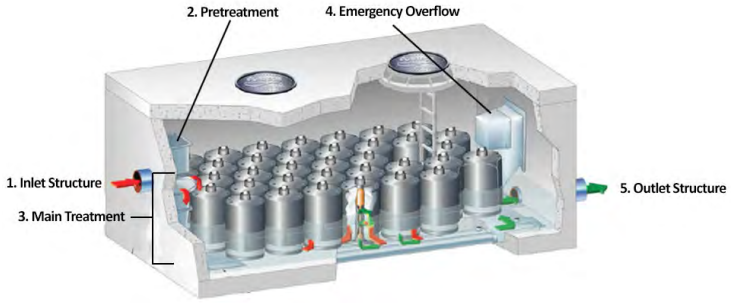
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Proprietary Media Filtration Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to System				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
10. Are there litter, grass clippings, trash, debris, or other materials that could enter the system?				
Guidance: Trash and other materials can be carried into the BMP and block the inlets, outlets, or media, and fill up the chambers in the system. Remove undesirable materials and keep the property clean. **Schedule:** Weekly				
11. Are there stockpiles of soil, chemicals, equipment, or other materials that could be a source of pollutants washing into the system during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful to plants or that can otherwise be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
12. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the system during a storm?				
Guidance: Too much sediment washing into a system can clog the filter media very quickly or fill in the settling chamber. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent sediment erosion. **Schedule:** Monthly				
13. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the proprietary media filtration system?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the BMP, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule:** Monthly				
14. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Proprietary Media Filtration Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Proprietary Media Filtration Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Property Owner's Guide to Stormwater BMP Maintenance

5.12 Hydrodynamic Separator Basics

Hydrodynamic separators are Best Management Practices (BMPs) that remove pollutants from stormwater by swirling runoff. This separates litter and sediment from water. These BMPs are sometimes called "swirl concentrators" or "vortex separators." The details of your hydrodynamic separator should be provided by the manufacturer.
Hydrodynamic separators will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Hydrodynamic Separators:

- **Remove pollutants in less space and at less cost than wet or dry detention basins**
- **Useful in a variety of water flow conditions**
- **Only needs a small footprint for installation**
- **Lower maintenance costs than traditional basins**
- **Help lower the cost of maintenance for downstream BMPs**

In the City of Topeka, most hydrodynamic separators will have five basic parts (see the figure below). Most of these parts will be underground or contained within a vault. This requires access through a manhole, observation well, or inlet/outlet structure. Because there are different types of hydrodynamic separators, inspection and maintenance will require the use of an owner's manual and specific information from the manufacturer.

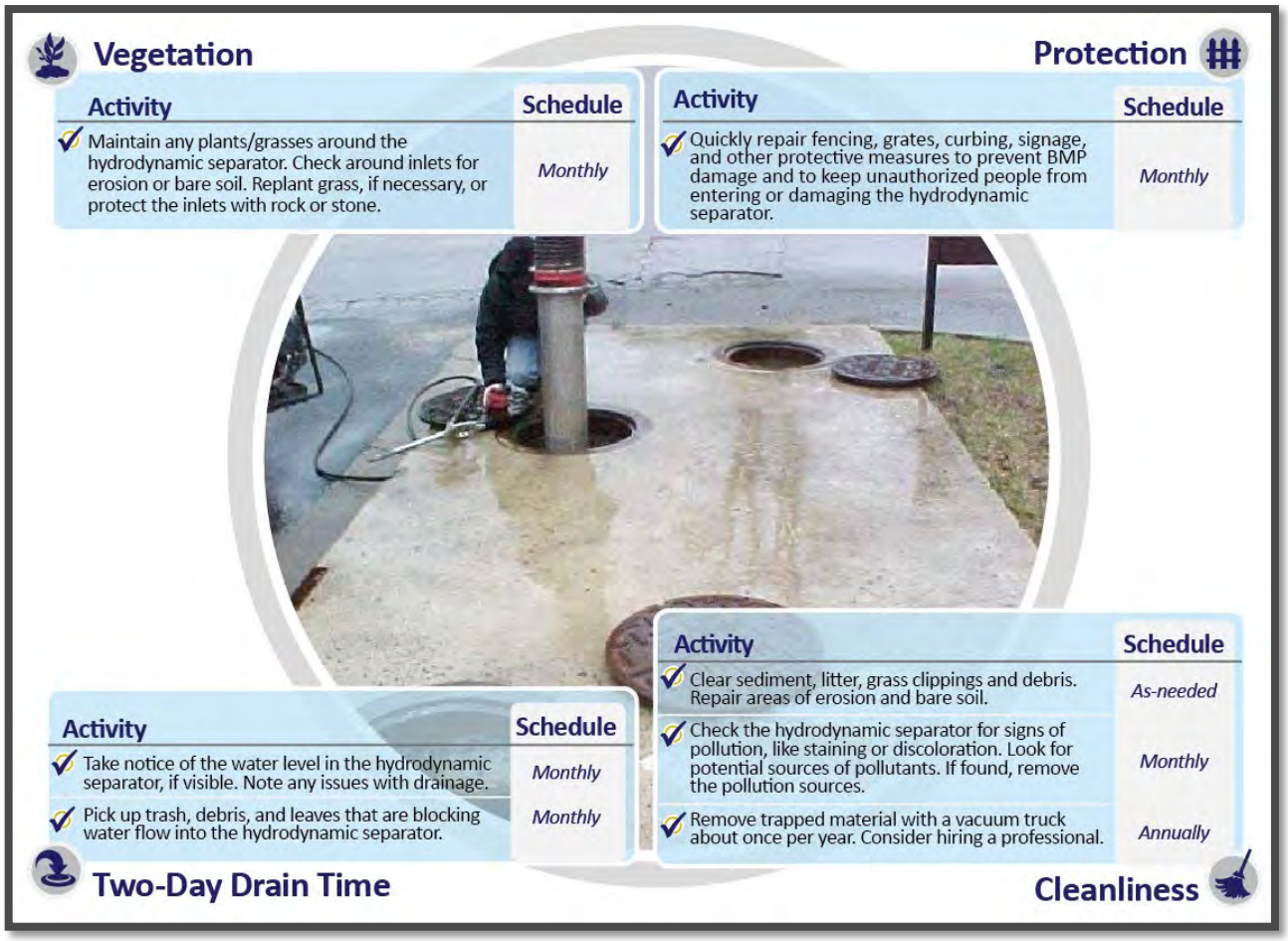
1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your hydrodynamic separator will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working BMP. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Hydrodynamic Separator Inspection Form included with this guidance sheet.



***Always follow the specific manufacturer's guidelines for inspection & maintenance**

Do

- ✓ Check the separator after storms to make sure it is draining properly. Remove leaves and debris from surfaces.
- ✓ Mark the inlets and outlets of the separator. This could help prevent damage from heavy equipment or vehicles.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.
- ✓ Follow manufacturer's directions and schedule for maintenance, which may include annual removal of trapped material with a vacuum truck.

Don't

- X Don't store mulch, sand, salt, soil or yard waste in the area draining to the separator. Don't pile snow that contains sand or salt in the area draining to your separator.
- X Don't neglect the maintenance needs of your separator. Hire a professional, if needed.
- X Don't wash your car or change fluids in an area that drains to your separator.
- X Don't enter the hydrodynamic separator for inspection or maintenance unless you are a professional with confined entry certifications.

Hydrodynamic Separator Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

BMP Name(s)				Today's Date:
	Note: The hydrodynamic separator name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Hydrodynamic Separator 1" or "Hydrodynamic Separator A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the System?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the System?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number	Has the City Entered and Approved this Inspection? Yes / No	Is a Follow Up Inspection by Staff Required? Circle One: Yes / No
Name of Staff Approving This Inspection Report:	Date of Inspection Approval:	Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Hydrodynamic Separator Inspection Form

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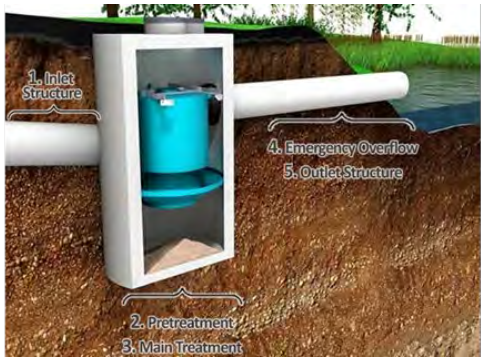
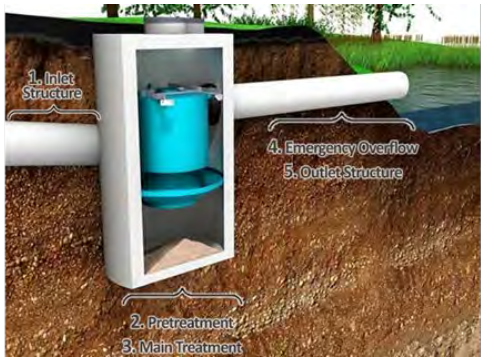


Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet Structure, Emergency Overflows, & Outlet Structure ***(Components 1, 4, and 5)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Are the inlets, outlets, grates, chambers, or mechanical components difficult to access?				
Guidance: Any obstacles blocking access to, or maintenance of, these components should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. Don't enter the hydrodynamic separator for inspection or maintenance unless you are a professional with confined entry certifications. **Schedule:** Monthly				
2. Are trash, sediment, debris, grass clippings, or other materials that can obstruct stormwater flow present in the inlet or outlet areas?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow into or out of the hydrodynamic separator. **Schedule:** Monthly				
3. Is water flowing from the outlet when it is not expected?				
Guidance: While surface and perimeter hydrodynamic separators have chambers that hold water permanently, other chambers and the surface hydrodynamic separator are designed to drain within 1 to 2 days after a rainfall. This may take longer during especially wet periods. During dry periods, an outlet that is discharging water or water backed into the hydrodynamic separator inlet may indicate a clog or blockage, or even a cracked vault or pipe that is allowing landscape water or ground water to enter the vault. Determine the cause and correct it. If the cause cannot be determined, call a civil engineer or the vendor of the hydrodynamic separator system for assistance. **Schedule**: Monthly				
4. Is there bare soil or evidence of erosion or scour at the outlets?				
Guidance: Outlets and the areas near them should not have any signs of erosion, and should be covered with sufficient vegetation, pavement, or other material to slow the water and prevent erosion. Typically, this is a rock lining, but can be concrete, asphalt, pavers, or even dense vegetation. If signs of erosion are visible at the outlet, install a rock lining that extends at least 10 feet beyond the area of erosion. **Schedule:** Monthly				

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Hydrodynamic Separator Inspection Form



All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
5. Is there evidence of erosion, bare soil, broken pipes or broken concrete at the inlets?				
Guidance: Most hydrodynamic separators are directly connected to the stormwater system through stormwater pipes. Where inlet areas collect stormwater from pervious or impervious surfaces, these areas should have dense healthy vegetation or another material (e.g., rock, concrete, asphalt, or paver lining) that prevents erosion. Bare soil or signs of erosion should NOT be present. Repair eroded areas and cover bare soil immediately with the appropriate vegetation or material cover. **Schedule:** Monthly				
6. Is there visual evidence of pollutants at the inlets, outlets, or in the hydrodynamic separator (e.g. oil sheen, odd discoloration, stains, etc.)?				
Guidance: Stockpiled materials can contain pollutants that are harmful or that can be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
7. Notice another problem? Describe in comments.	**Your Comments:**			

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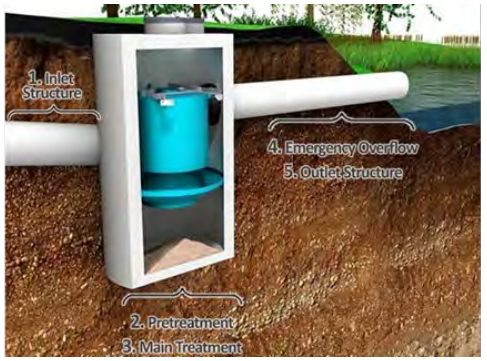

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Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Pretreatment & Main Treatment ***(Components 2 & 3)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
8. Is the hydrodynamic separator draining slowly or not at all? Is there a clogged component?				
Guidance: Visually inspect any filters and other components to check if they are clogged with debris, sludge, or other material. This material can cause the hydrodynamic separator to not function properly. Follow the manufacturer's recommendations for cleaning and replacing filters or other components. If the hydrodynamic separator still does not drain properly, contact the manufacturer or another qualified professional. Hydrodynamic separators typically require removal of trapped material with a vacuum truck once per year. **Schedule:** Monthly. Cleaning usually annually, but check with manufacturer.				
9. Notice another problem? Describe in comments.				**Your Comments:**

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Hydrodynamic Separator Inspection Form

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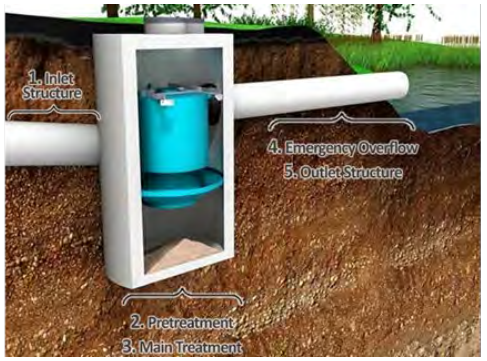

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to System				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
10. Are there litter, grass clippings, trash, debris, or other materials that could enter the hydrodynamic separator system?				
Guidance: Trash and other materials can be carried into the BMP and block the inlets or outlets and fill up the chambers. Remove undesirable materials and keep the property clean. **Schedule:** Weekly				
11. Are there stockpiles of soil, chemicals, equipment, or other materials that could be a source of pollutants washing into the system during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful to plants or that can otherwise be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
12. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the system during a storm?				
Guidance: Too much sediment washing into a hydrodynamic separator can clog the system very quickly or fill in the settling chamber. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent sediment erosion. **Schedule:** Monthly				
13. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the hydrodynamic separator?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the BMP, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule:** Monthly				
14. Notice another problem? Describe in comments.	**Your Comments:**			

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Hydrodynamic Separator Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

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215 SE 7th St ● Topeka, Kansas 66603

Hydrodynamic Separator Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
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Mail - Stormwater Management Section ● City of Topeka Utilities Department
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Property Owner's Guide to Stormwater BMP Maintenance

5.13 Catch Basin Insert Basics

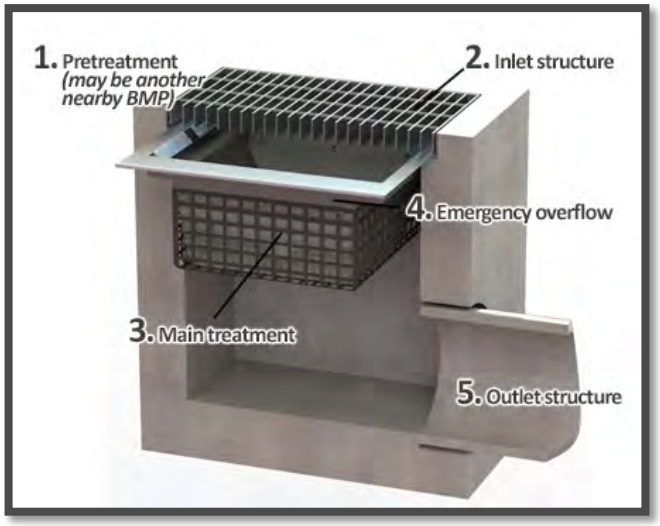
Catch basin inserts are Best Management Practices (BMPs) that remove trash, debris, and sediment from runoff directly at the storm drain. Some inserts can be built to absorb oils. Inserts are installed underneath a storm drain grate by attaching to the wall of the drain or hanging from the lip of the inlet. They are best used in combination with other BMPs because they can reduce pollution before runoff gets downstream. Basic catch basin inserts consist of a polypropylene sock meant for vertical drains. Other types are made of a plastic or wire mesh boxes and act as a frame to hold fabrics that filter out pollution. Some catch basin inserts are designed to remove specific pollutants, like activated carbon, porous polymer, or treated cellulose. The details of your insert should be provided by the manufacturer. Catch basin inserts will manage about 1-inch of stormwater and drain quickly after a storm. Catch basin inserts will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Catch Basin Inserts:

- **Low cost**
- **No additional space required - goes directly in existing storm drain**
- **Easy to inspect and maintain**
- **Prevent organic and plant debris from entering the storm drain system**

In the City of Topeka, most catch basin inserts will have five basic parts (see the figure below). Most of these parts will be underground or contained within a vault. This requires access through a manhole, observation well, or inlet/outlet structure. Because there are different types of catch basin inserts, inspection and maintenance will require the use of an owner's manual and specific information from the manufacturer.

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps prevents clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

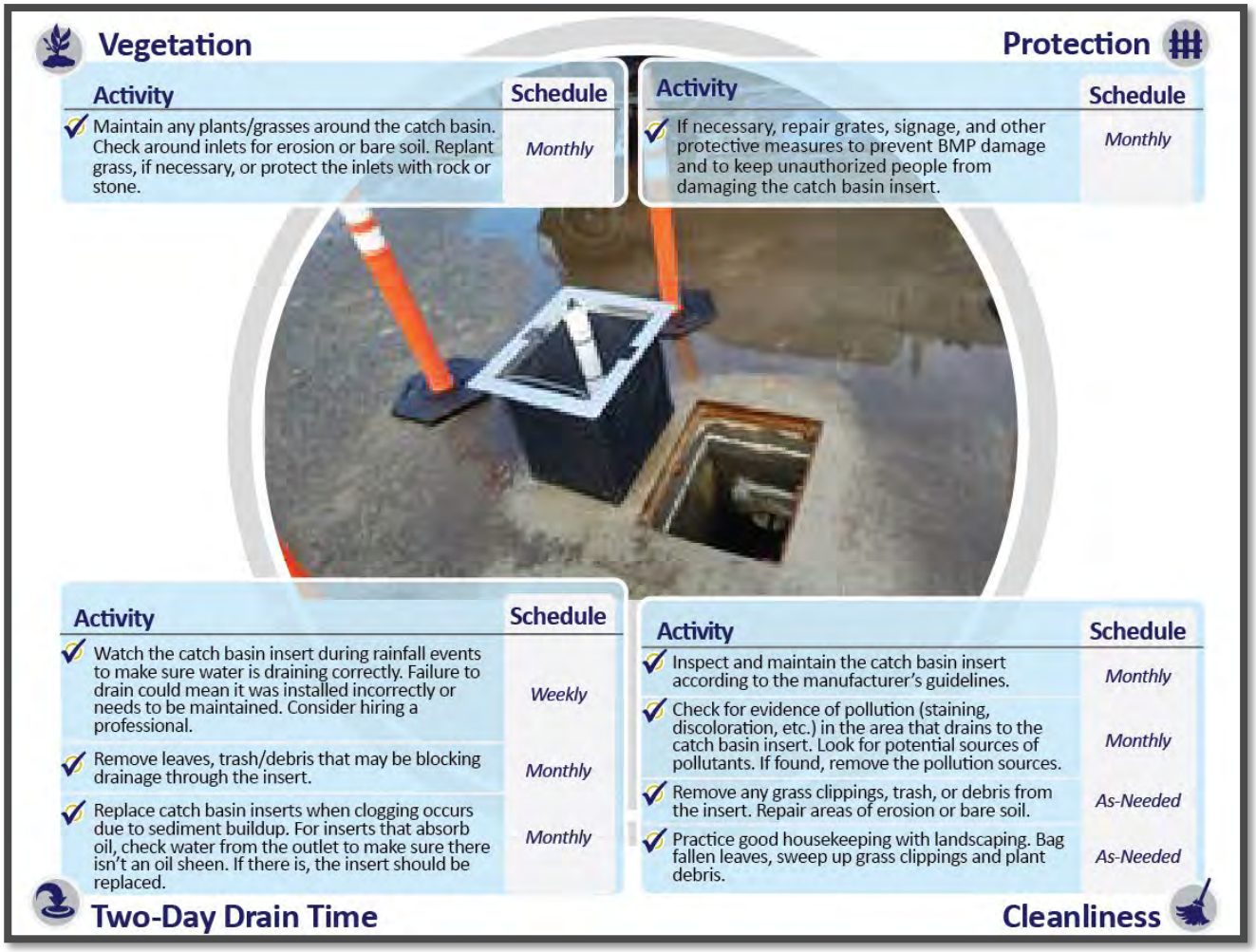


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your catch basin insert will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have a working catch basin insert. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Catch Basin Insert Inspection Form included with this guidance sheet.



***Always follow the specific manufacturer's guidelines for inspection & maintenance**

Do

- ✓ Check the insert after storms to make sure it is draining properly. Remove leaves and debris from surfaces.
- ✓ Mark the inlets of the catch basin insert. This could help prevent damage from heavy equipment or vehicles.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.

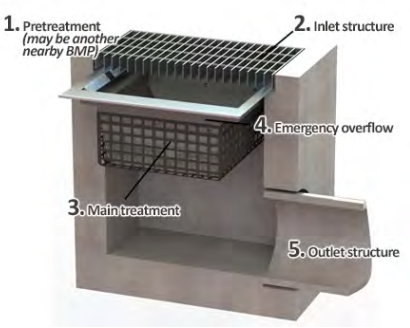
Don't

- X Don't store mulch, sand, salt, soil or yard waste in the area draining to the catch basin insert. Don't pile snow that contains sand or salt in the area draining to your catch basin insert.
- X Don't neglect the maintenance needs of your catch basin insert. Hire a professional, if needed.
- X Don't wash your car or change fluids in an area that drains to your catch basin insert.
- X Don't enter the catch basin insert for inspection or maintenance unless you are a professional with confined entry certifications.

Catch Basin Insert Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



BMP Name(s)				Today's Date:
	Note: The catch basin insert name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Catch Basin Insert 1" or "Catch Basin Insert A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Catch Basin Insert?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Catch Basin Insert?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Has the City Entered and Approved this Inspection? Yes / No

Name of Staff Approving This Inspection Report:

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes / No

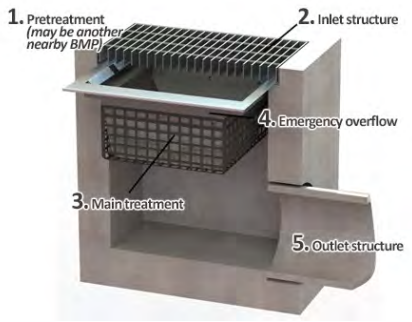
Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Catch Basin Insert Inspection Form



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Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet Structure, Emergency Overflows, & Outlet Structure ***(Components 1, 4, and 5)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Are the inlets, outlets, grates, chambers, or mechanical components difficult to access?				
Guidance: Any obstacles blocking access to, or maintenance of, these components should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. **Schedule:** Monthly				
2. Are trash, sediment, debris, leaves, grass clippings, or other materials that can obstruct storm water flow present in the inlet or outlet areas?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow into or out of the catch basin insert. **Schedule:** Monthly				
3. Is the catch basin holding water or is water flowing from the outlet when it is not expected?				
Guidance: In general, catch basin inserts are designed to drain quickly after a rainfall. This may take longer during especially wet periods. During dry periods, an outlet that is discharging water or water backed into the catch basin insert inlet may indicate a clog or blockage. Determine the cause and correct it. If the cause cannot be determined, call a civil engineer or the vendor of the catch basin insert for assistance. **Schedule**: Weekly				
4. Is there bare soil or evidence of erosion or scour at the overflow or outlet?				
Guidance: Outlets, overflows, and the areas around them should not have any signs of erosion, and should be covered with sufficient vegetation, pavement, or other material to slow the water and prevent erosion. Typically, this is a rock lining, but can be concrete, asphalt, pavers, or even dense vegetation. If signs of erosion are visible, install a rock lining that extends at least 10 feet beyond the area of erosion. **Schedule:** Monthly				

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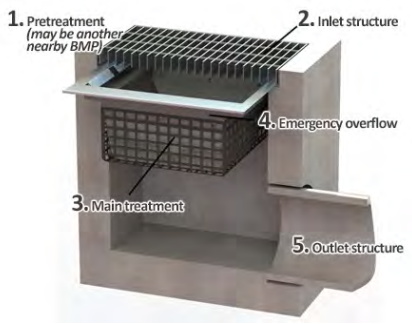
Catch Basin Insert Inspection Form



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Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
5. Is there evidence of erosion, bare soil, or broken components at the inlets?				
Guidance: Most catch basin inserts are directly connected to the storm water system. In cases where inlet areas collect stormwater from surfaces, pervious areas should be stabilized by dense vegetation, rock, or similar coverings, and impervious surfaces should be covered by concrete, asphalt, or paver lining to prevent erosion. Bare soil or signs of erosion should NOT be present. Repair eroded areas and cover bare soil immediately with the appropriate cover. **Schedule:** Monthly				
6. Is there visual evidence of pollutants at the inlets, outlets, or on the surface of the catch basin insert media (e.g. oil sheen, odd discoloration, stains, etc.)?				
Guidance: Catch basin inserts need to be cleaned and/or replaced when sediment loading causes clogging of the system. For catch basin inserts intended to absorb oil, inspect treated water for sheen or other signs that the unit's absorption capacity has been exceeded. Clean and/or replace the insert as needed (**see # 8**). **Schedule:** Monthly				
7. Notice another problem? Describe in comments.	**Your Comments:**			

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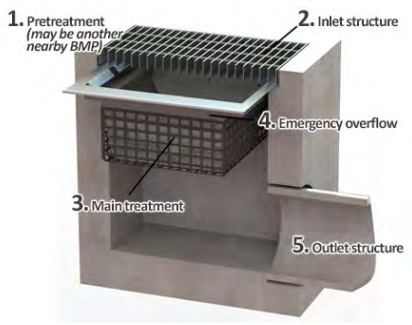

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Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
***Pretreatment & Main Treatment** (Components 2 & 3)*				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
8. Is the catch basin insert media draining slowly or not at all? Is there a clogged filter or other component?				
Guidance: Visually check any filters and other components for clogging. Debris, sludge or other material can cause the catch basin insert to not function properly. Follow the manufacturer's recommendations for cleaning and replacing inserts or other components. If the catch basin insert still does not drain properly, contact the manufacturer or another qualified professional. **Schedule:** Monthly				
9. Notice another problem? Describe in comments.				**Your Comments:**

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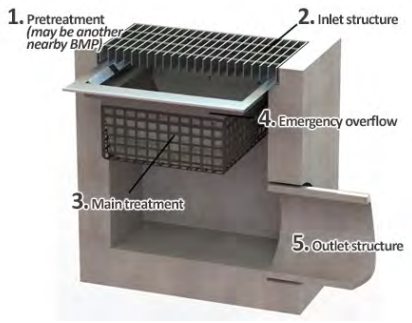

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Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Catch Basin Insert				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
10. Are there litter, grass clippings, trash, debris, or other materials that could enter the catch basin insert?				
Guidance: Trash and other materials can be carried into the catch basin insert and cause blockages. Remove undesirable materials and keep the property clean. **Schedule:** Weekly				
11. Are there stockpiles of soil, chemicals, equipment, or other materials that could be a source of pollutants washing into the BMP during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful and hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or storm water. **Schedule:** Monthly				
12. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the BMP during a storm?				
Guidance: Too much sediment washing into a catch basin insert can cause clogging very quickly. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement, or another hard surface to prevent sediment erosion. Refer to **#8** if maintenance of the catch basin insert is needed. **Schedule:** Monthly				
13. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the catch basin insert?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the BMP, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule:** Monthly				
14. Notice another problem? Describe in comments.	**Your Comments:**			

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Catch Basin Insert Inspection Form

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Catch Basin Insert Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

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Property Owner's Guide to Stormwater BMP Maintenance

5.14 Baffle Box Basics

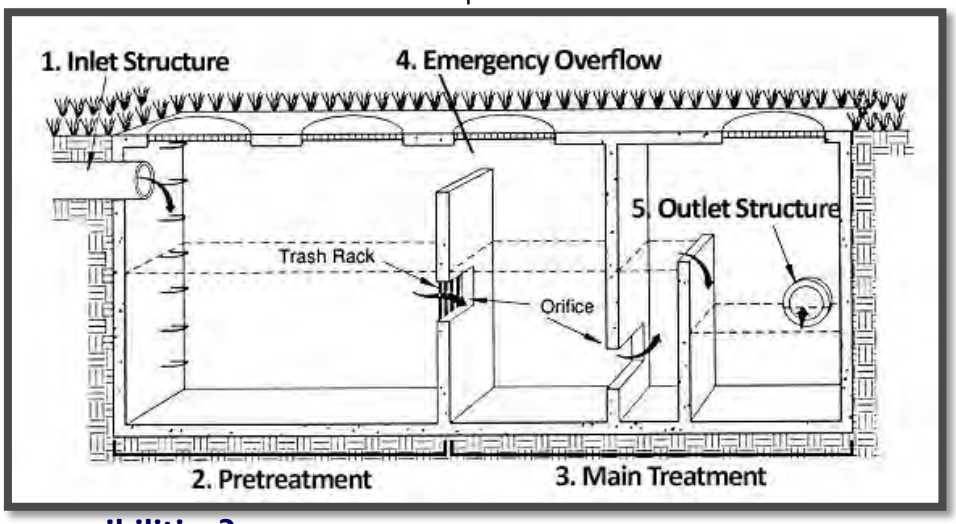
Baffle boxes, also called oil-grit separators, are Best Management Practices (BMPs) that target coarse solids and large oil droplets. Most systems have several chambers where solids are removed, specifically during the "first flush." Oil and grease are captured at the surface of the water. If there is an especially large storm, flow will go around the system and drain into the existing stormwater system. Baffle boxes will manage about 1-inch of stormwater and drain quickly after a storm. Baffle boxes will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Baffle Boxes:

- **Remove particles as small as 100 microns**
- **Remove hydrocarbons and floatables**
- **Use less space and costs less than traditional basins**
- **Can be added to other BMPs, which means less maintenance for downstream BMPs**
- **Lower maintenance costs than traditional basins**

In the City of Topeka, most baffle boxes will have five basic parts (see the figure below). Most of these parts will be underground or contained within a vault. This requires access through a manhole, observation well, or inlet/outlet structure. Because there are different types of baffle boxes, inspection and maintenance will require the use of an owner's manual and specific information from the manufacturer.

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

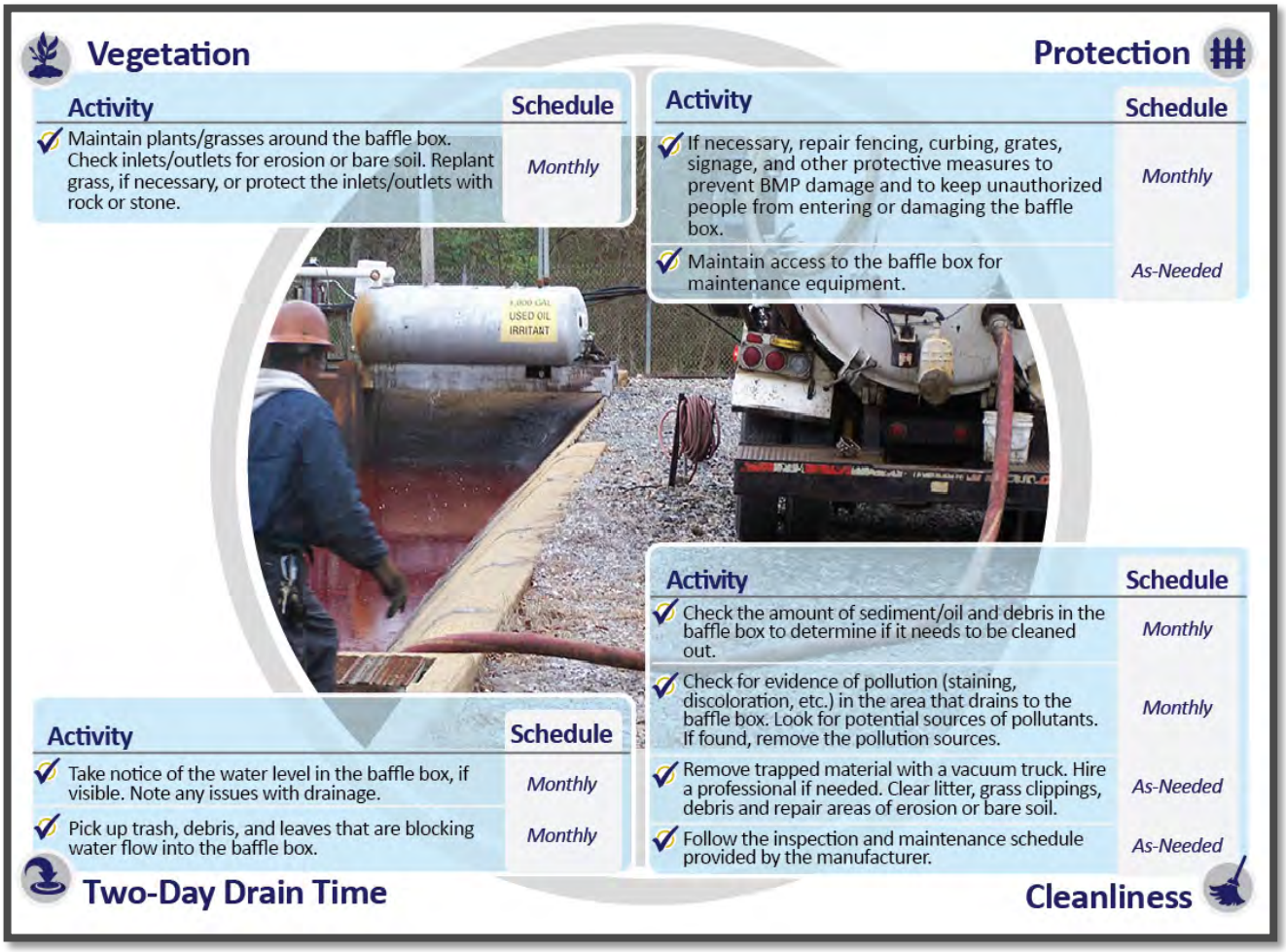


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your baffle box will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working baffle box. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Baffle Box Inspection Form included with this guidance sheet.



***Always follow the specific manufacturer's guidelines for inspection & maintenance**

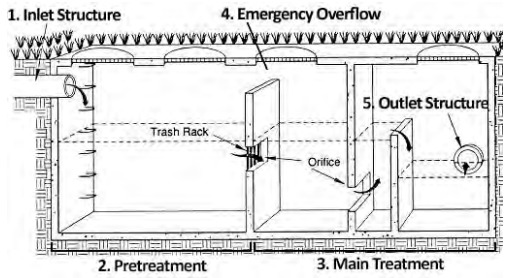
Do

- ✓ Check the baffle box after storms to make sure it is draining properly. Remove leaves and debris from surfaces.
- ✓ Mark the inlets and outlets of the baffle box. This could help prevent damage from heavy equipment or vehicles.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.

Don't

- X Don't store mulch, sand, salt, soil or yard waste in the area draining to the baffle box. Don't pile snow that contains sand or salt in the area draining to your baffle box.
- X Don't neglect the maintenance needs of your baffle box. Hire a professional, if needed.
- X Don't wash your car or change fluids in an area that drains to your baffle box.
- X Don't enter the baffle box for inspection or maintenance unless you are a professional with confined entry certifications.

Baffle Box Inspection Form



All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

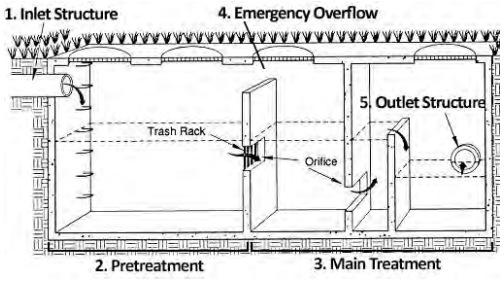
BMP Name(s)				Today's Date:
	Note: The baffle box name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Baffle Box 1" or "Baffle Box A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Baffle Box?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Baffle Box?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number	Name of Staff Approving This Inspection Report:	Is a Follow Up Inspection by Staff Required? Circle One: Yes No	Reason for Follow Up?
Has the City Entered and Approved this Inspection? Yes No	Date of Inspection Approval:		

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Baffle Box Inspection Form



All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet Structure, Emergency Overflows, & Outlet Structure ***(Components 1, 4, and 5)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Are the inlets, outlets, grates, chambers, or mechanical components difficult to access?				
Guidance: Any obstacles blocking access to, or maintenance of, these components should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. Do not enter the baffle box for inspection or maintenance unless you are a professional with confined entry certifications. **Schedule:** Monthly				
2. Are trash, sediment, debris, grass clippings, or other materials that can obstruct stormwater flow present in the inlet or outlet areas?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow into or out of the baffle box. **Schedule:** Monthly				
3. Is water flowing from the outlet when it is not expected?				
Guidance: While baffle boxes have chambers that hold water permanently, other chambers are designed to drain quickly after a rainfall. This may take longer during especially wet periods. During dry periods, an outlet that is discharging water or water backed into the baffle box inlet may indicate a clog or blockage, or even a cracked vault or pipe that is allowing landscape water or ground water to enter the vault. Determine the cause and correct it. If the cause cannot be determined, call a civil engineer or the vendor of the baffle box system for assistance. **Schedule**: Monthly				
4. Is there bare soil or evidence of erosion or scour at the outlets?				
Guidance: Outlets and the areas around them should not have any signs of erosion, and should be covered with enough vegetation, pavement, or other material to slow the water and prevent erosion. Typically, this is a rock lining, but can be concrete, asphalt, pavers, or even dense vegetation. If signs of erosion are visible at the outlet, install a rock lining that extends at least 10 feet beyond the area of erosion. **Schedule:** Monthly				

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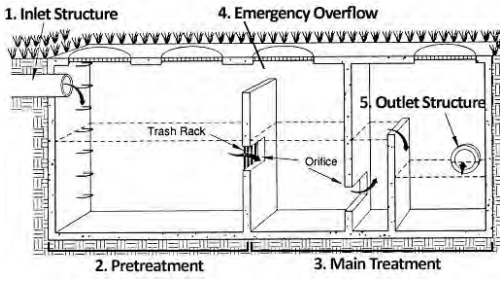

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Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
5. Is there evidence of erosion, bare soil, broken pipes, or broken concrete at the inlets?				
Guidance: Most baffle boxes are directly connected to the stormwater system through stormwater pipes. Where inlet areas collect stormwater from pervious or impervious surfaces, these areas should have dense healthy vegetation or a rock, concrete, asphalt, or paver lining to prevent erosion. Bare soil or signs of erosion should NOT be present. Repair eroded areas and cover bare soil immediately with the appropriate vegetation or material cover. **Schedule:** Monthly				
6. Is there visual evidence of pollutants at the inlets, outlets, or on the surface of the baffle box (e.g. oil sheen, odd discoloration, stains, etc.)?				
Guidance: Stockpiled materials can contain pollutants that are harmful or that can be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
7. Notice another problem? Describe in comments.	**Your Comments:**			

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Baffle Box Inspection Form

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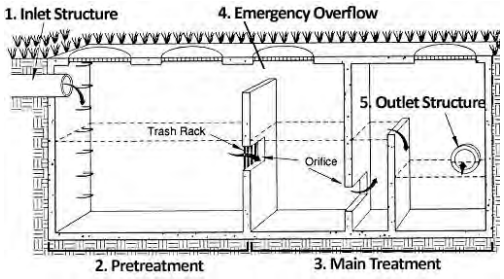
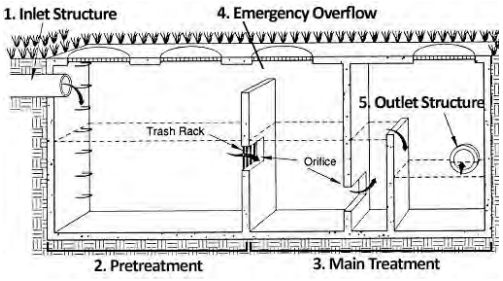


Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
***Pretreatment & Main Treatment** (Components 2 & 3)*				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
8. Is the baffle box draining slowly or not at all? Is there a clogged component?				
Guidance: Visually check any components to see if they are clogged with debris, sludge, or other material can cause the baffle box to not function properly. Follow the manufacturer's recommendations for cleaning and replacing components. If the baffle box still does not drain property, contact the manufacturer or another qualified professional. **Schedule:** Monthly				
9. Is the maintenance schedule provided by the manufacturer being followed?				
Guidance: Trapped material inside baffle boxes will require regular removal with a vacuum truck depending on manufacturer's recommendations, usually on an annual basis. If the baffle box is not functioning properly, contact the manufacturer or another qualified professional. **Schedule:** Per manufacturer's schedule				
10. Notice another problem? Describe in comments.	**Your Comments:**			

Baffle Box Inspection Form



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Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Baffle Box				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
11. Are there litter, grass clippings, trash, debris, or other materials that could enter the baffle box?				
Guidance: Trash and other materials can be carried into the BMP and block the inlets, outlets, or overflow, and fill up the chambers. Remove undesirable materials and keep the property clean. If baffle box requires cleaning due to overload of sediment, see **#8**. **Schedule:** Weekly				
12. Are there stockpiles of soil, chemicals, equipment, or other materials that could be a source of pollutants washing into the BMP during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful or hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
13. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the BMP during a storm?				
Guidance: Too much sediment washing into a baffle box can quickly fill in the settling chamber. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement or another hard surface to prevent sediment erosion. If baffle box requires cleaning due to overload of sediment, see **#8**. **Schedule:** Monthly				
14. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the baffle box?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Prevent these activities from occurring or take steps to prevent the pollutants from reaching the BMP, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule:** Monthly				
15. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Baffle Box Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

Submit completed forms to:
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Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Baffle Box Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
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Property Owner's Guide to Stormwater BMP Maintenance

5.15 Vegetated Filter Strip Basics

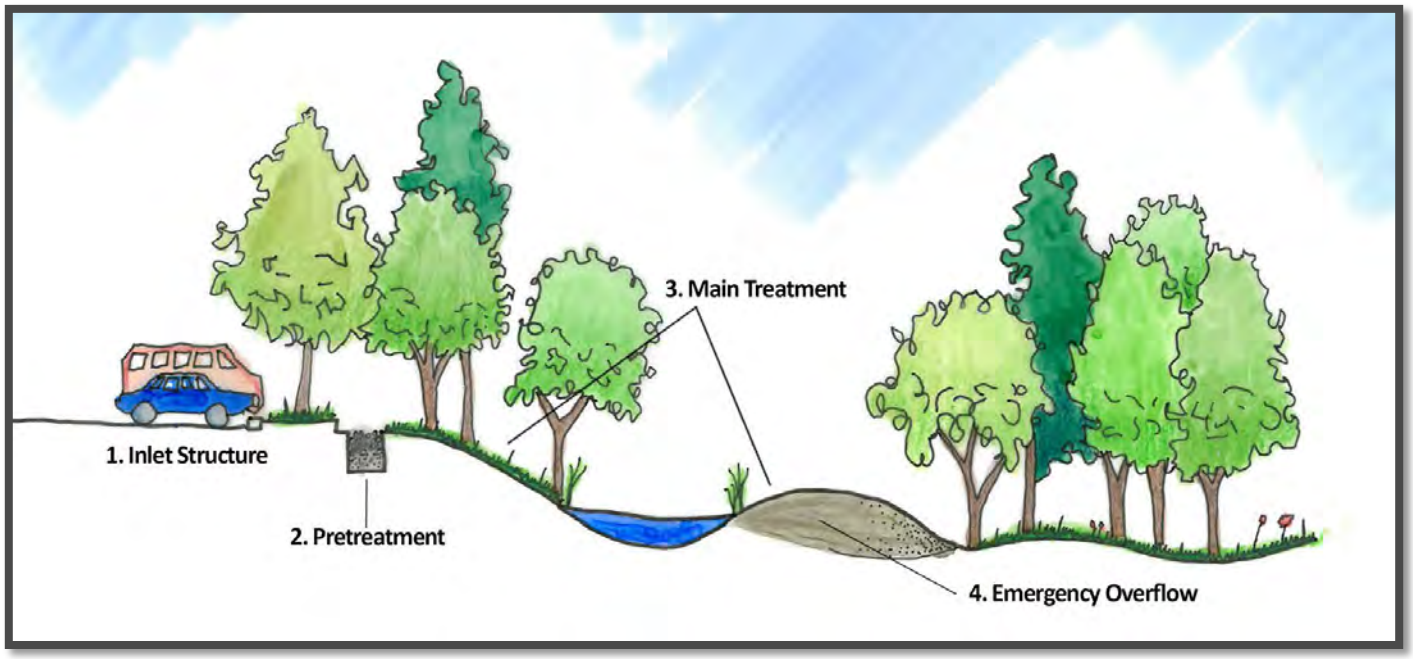
Vegetated filter strips are Best Management Practices (BMPs) that slow down stormwater and filter out pollutants. They are usually installed as pretreatment for another BMP. Vegetated filter strips have grass that lets runoff soak into the ground, acting as a natural filter for pollutants. Vegetated filter strips have a slight slope and provide a smooth transition for flow. Vegetated filter strips will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Vegetated Filter Strips:

- **Reduce runoff flow speeds**
- **Can use as pretreatment for another BMP or for a stream buffer "outer zone"**
- **Filter out sediment and other pollutants**

In the City of Topeka, most vegetated filter strips BMPs will have five basic parts (see the figure below):

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

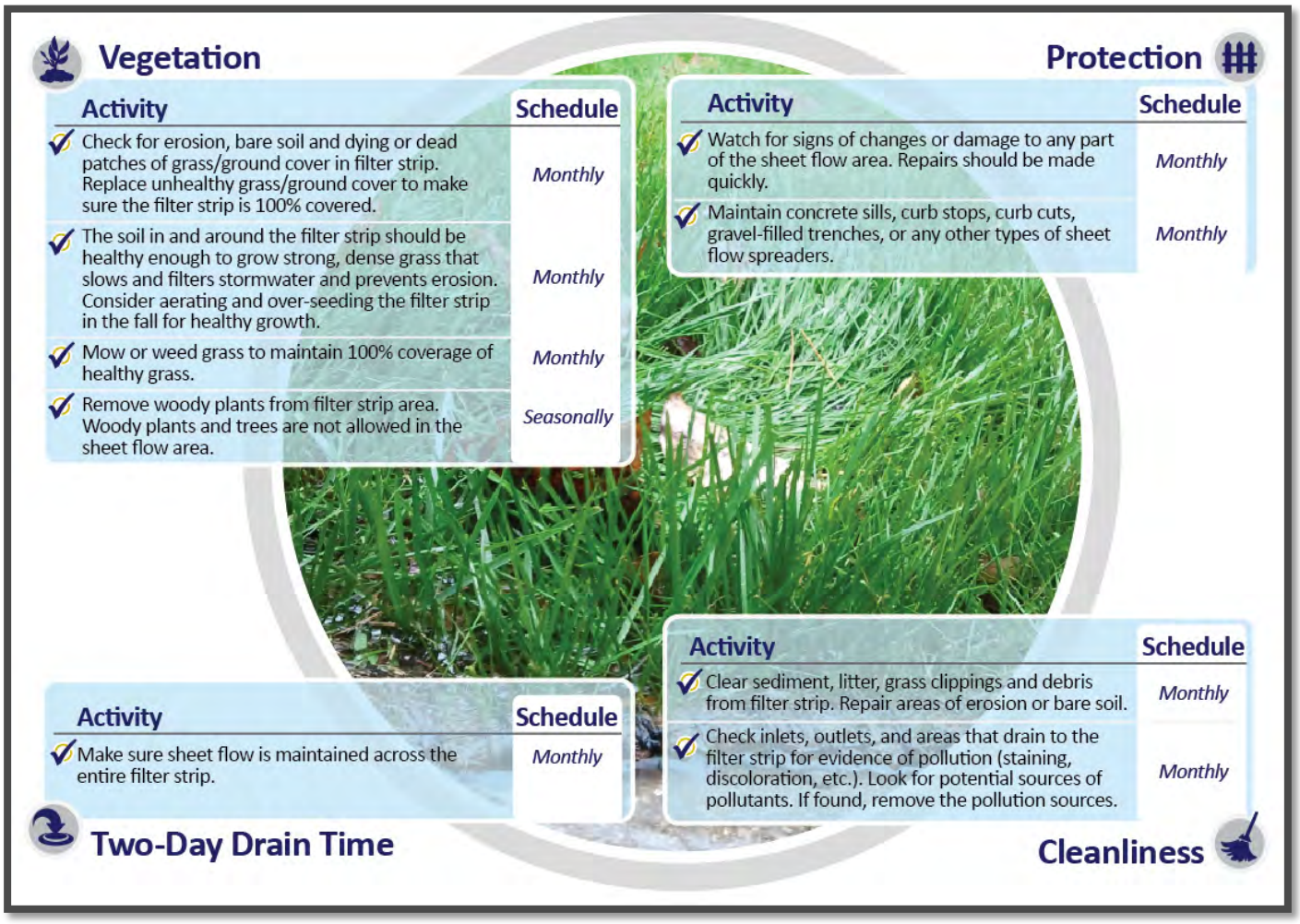


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your vegetated filter strip will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working vegetated filter strip. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Vegetated Filter Strip Inspection Form included with this guidance sheet.



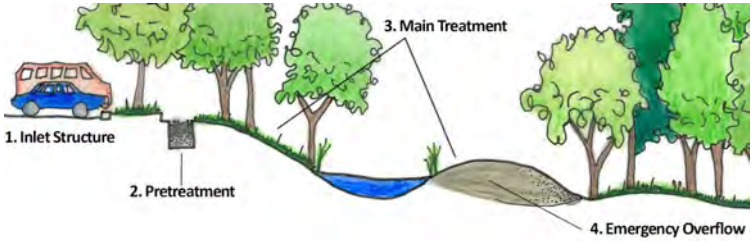
Do

- ✓ Check the filter strip to make sure that water is draining and there is no erosion.
- ✓ If there is bare soil, reseed the area. Water grass, especially during the first year.
- ✓ Maintain vegetation at a minimum height of 12 inches.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.

Don't

- X Don't use too much salt and sand around the filter strip in the winter.
- X Don't use too much fertilizer, herbicides, or pesticides in the filter strip. Contact a local nursery or landscape company if your plants aren't doing well.
- X Don't let heavy equipment in the filter strip or use it for storage, even for landscape items (leaves, snow, soil mulch, etc.)
- X Don't mow grass immediately after it rains. This could damage the filter strip.

Vegetated Filter Strip Inspection Form



All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

BMP Name(s)				Today's Date:
	Note: The vegetated filter strip name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Vegetated Filter Strip 1" or "Vegetated Filter Strip A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Vegetated Filter Strip?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Vegetated Filter Strip?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number	
Has the City Entered and Approved this Inspection?	Yes / No
Name of Staff Approving This Inspection Report:	
Date of Inspection Approval:	
Is a Follow Up Inspection by Staff Required? Circle One:	Yes / No
Reason for Follow Up?	

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Vegetated Filter Strip Inspection Form

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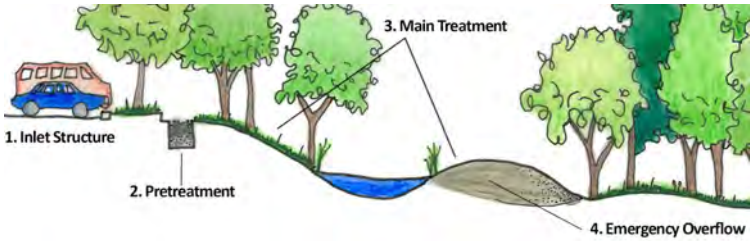

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Pretreatment & Main Treatment ***(Components 2 & 3)***				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Is the vegetated filter strip area hard to access for inspection and maintenance?				
Guidance: Any obstacles blocking access and/or maintenance should be removed. If access is blocked by a permanent fixture (e.g. fence), note this on inspection form. **Schedule:** Monthly				
2. Is the vegetated filter strip area holding water for long periods after a storm?				
Guidance: Water should drain out of the vegetated filter strip area within a few days of any rain event. If it stays in the vegetated filter strip area longer, grass could be killed, or wetland plants could begin to grow. Check for and remove any blockages from the vegetated filter strip area. If no blockages are found and standing water is a prevalent occurrence in the vegetated filter strip area during otherwise dry periods, more extensive maintenance, such as regrading, may be required. **Schedule:** Monthly				
3. Are there bare or eroding areas in the vegetated filter strip area or pretreatment area?				
Guidance: The vegetated filter strip area and pretreatment area should have a thick stand of grass at least 12 inches tall. Bare areas and areas of erosion should be repaired and covered with sufficient vegetation or material to slow the water and prevent erosion. **Schedule**: Monthly				
4. Does the level spreader have evidence of erosion, scour, or damage?				
Guidance: Repair eroded areas and damaged components as soon as possible. A qualified professional may be needed for some repairs. **Schedule:** Annually				
5. Is the vegetation overgrown or in need of cutting? Is the vegetation healthy, and does it cover 100% of the vegetated filter strip area?				
Guidance: Mow grass to 12 inches in height and remove the clippings. Do not dispose of clippings or other waste in the grass vegetated filter strip area. The grass vegetated filter strip area should have a healthy, thick cover of grass on the sides and in the bottom of the vegetated filter strip area. Consider aerating and over-seeding in the fall to ensure vegetation health. Woody vegetation is not allowed in the vegetated filter strip area and should be removed. **Schedule:** Monthly mowing. Seasonal vegetation maintenance.				
6. Notice another problem? Describe in comments.				**Your Comments:**

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Vegetated Filter Strip Inspection Form

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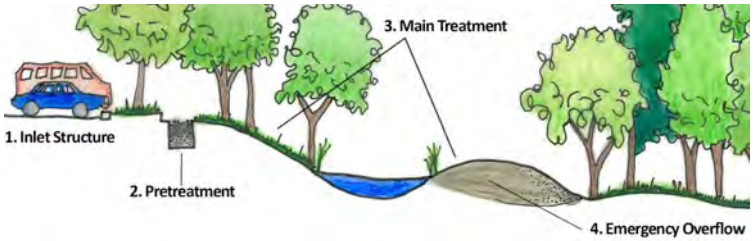

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Property Draining to Vegetated Filter Strip				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
7. Is there litter, grass clippings, trash, debris, or other material that could enter the vegetated filter strip area via stormwater or wind?				
Guidance: Trash and other materials can be carried into the vegetated filter strip area, causing blockages. Remove undesirable materials and keep the property clean. **Schedule:** Monthly				
8. Are there stockpiles of soil, chemicals, equipment or other materials that could be a source of pollutants washing into the vegetated filter strip area during a storm?				
Guidance: Stockpiled materials can contain pollutants that are harmful or that can be hazardous. Remove or cover undesirable materials, fully preventing their exposure to rainfall or stormwater. **Schedule:** Monthly				
9. Are there areas of erosion or exposed soil/bare earth that could be a source of sediment washing into the vegetated filter strip area during a storm?				
Guidance: Too much sediment washing into a vegetated filter strip area can reduce the water storage and conveyance in the area. Repair and revegetate all areas of erosion or exposed soil. If vegetation is not intended for these areas, cover them with mulch, wood chips, pavement or another hard surface to prevent sediment erosion. **Schedule:** Monthly				
10. Do activities occur in the area that may cause unusual or substantial amounts of pollutants to be discharged to the vegetated filter strip?				
Guidance: Activities include car or equipment washing, pet walking, construction vehicle traffic, etc. Implement policies to prevent these activities from occurring or take steps to prevent the pollutants from reaching the vegetated filter strip, such as washing cars in areas that drain to the wastewater system, street or parking lot sweeping, pet waste pickup stations, etc. **Schedule:** Monthly				
11. Notice another problem? Describe in comments.				**Your Comments:**

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Vegetated Filter Strip Inspection Form

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Vegetated Filter Strip Inspection Form

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Photograph Description:	**Photograph Description:**
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Property Owner's Guide to Stormwater BMP Maintenance

5.16 Green Roof Basics

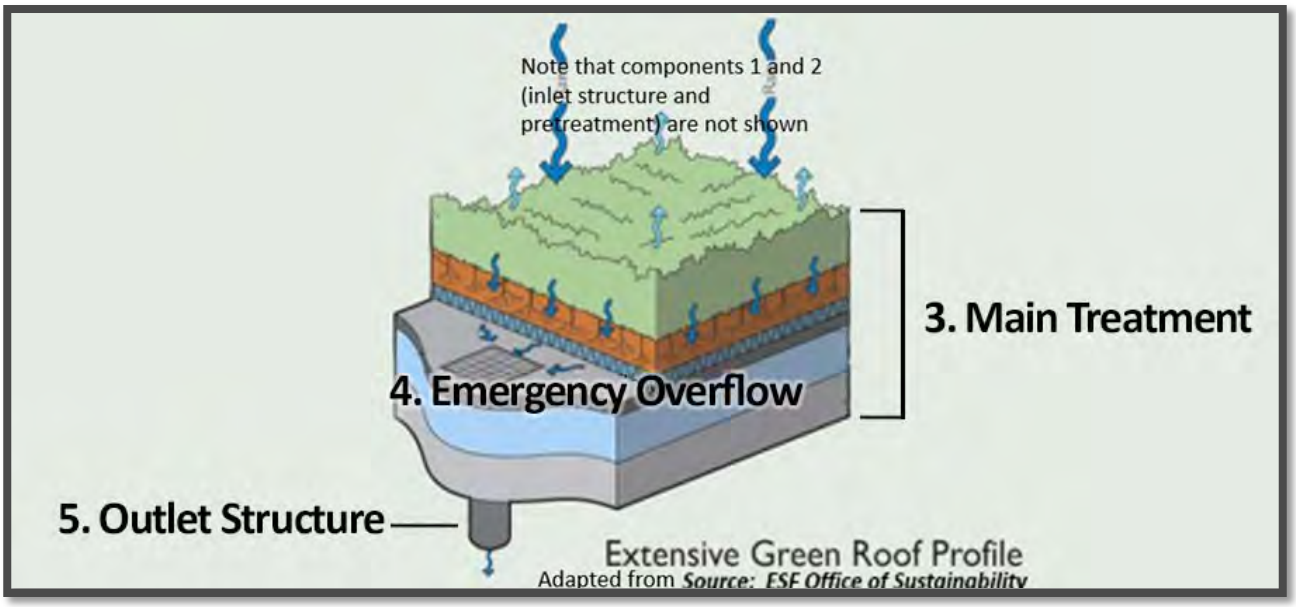
Benefits of Green Roofs:

- **Reduce the amount of water that runs off a roof**
- **Increased roof insulation = lower energy bills**
- **Create an attractive view**

Green roofs are Best Management Practices (BMPs) that reduce runoff by collecting rainwater on the roof. The water is used to support low-growing plants, like succulents and short grasses. Because the plants use the water, it does not damage the roof deck. The roofs are designed so that water soaks down into the media and flows horizontally along a waterproofing layer, towards the outlet. Green roofs can be complicated or simple. More complicated green roofs have thicker growing media with a wide variety of plants, but are heavier and require more maintenance. Simpler green roofs are lighter in weight and are covered in a light layer of plants. A green roof will manage about 1-inch of stormwater and drain completely 2 to 3 days after a storm. Green roofs will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

In the City of Topeka, most green roofs will have three basic parts (see the figure below). Unlike most BMPs, green roofs will receive stormwater directly from the sky. This means they usually don't have inlets or pretreatment areas.

1. **Inlet structures** (not shown) let water flow into the BMP.
2. **Pretreatment** (not shown) areas remove trash, debris, and dirt from stormwater flowing in. This helps to prevent clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

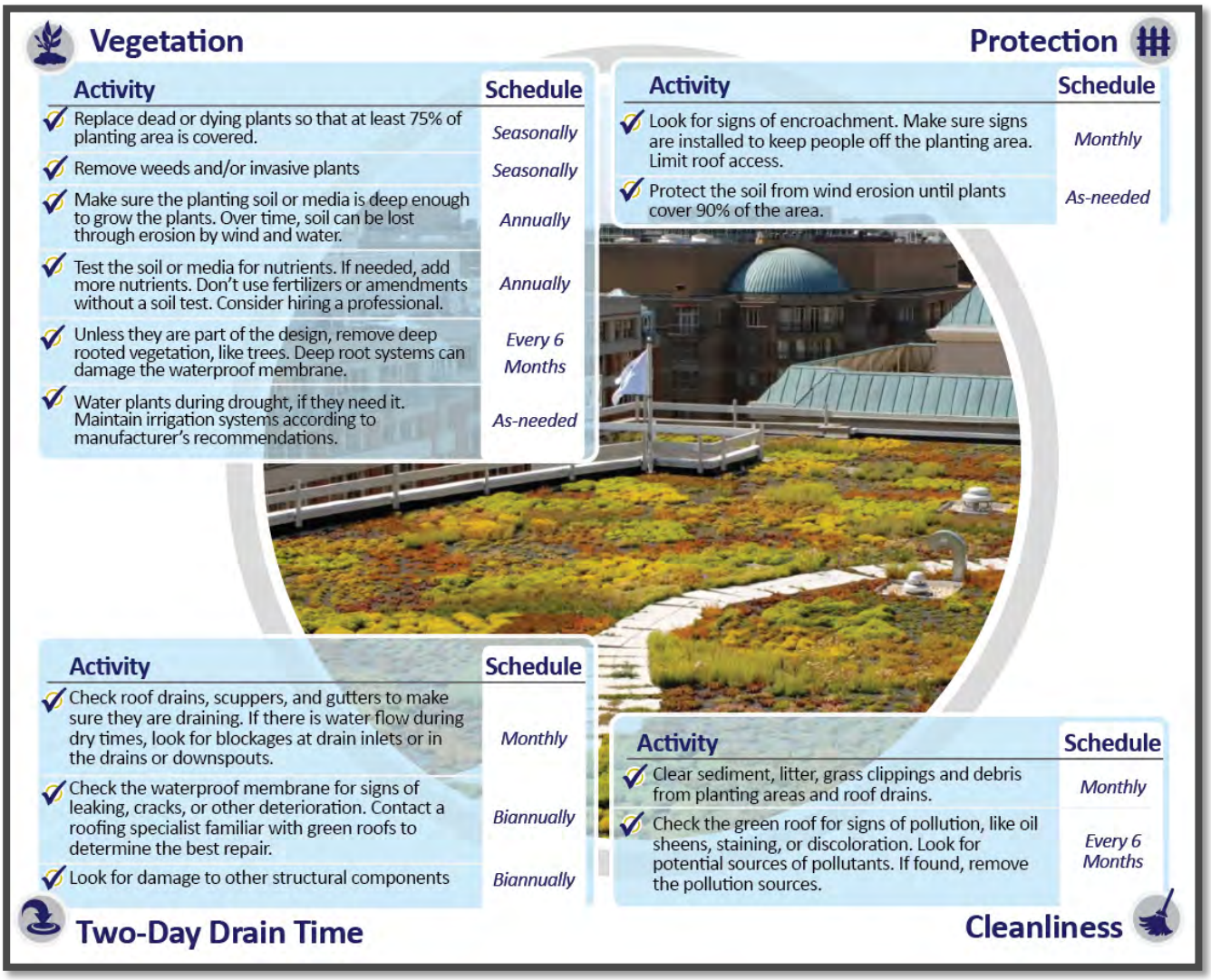


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your green roof will last longer and you'll save money if you protect the plants and soil, keep your property clean, and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working green roof. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Green Roof Inspection Form included with this guidance sheet.



***Always follow the specific manufacturer's guidelines for inspection & maintenance**

Do

- ✓ Get rid of weeds and invasive plants. Restock with healthy plants and make sure that basic needs for plant health are met.
- ✓ Check the waterproof membrane for leaks or deterioration.
- ✓ Do regular inspections and maintenance, often. Make repairs as soon as you notice problems.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.
- ✓ During the first year, plants will need watering, weeding, and wind protection as they get established.

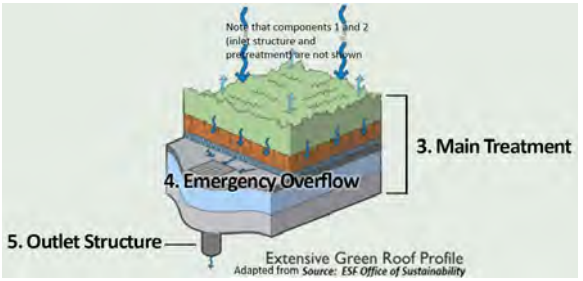
Don't

- X Don't use regular garden soil to replace the engineered soil or media. It is too heavy and could damage the BMP and your roof.
- X Don't neglect the maintenance needs of your green roof. Hire a professional, if necessary.
- X Don't use herbicides or weed killer without asking a horticulturist that has experience with green roofs.

Green Roof Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).



BMP Name(s)				Today's Date:
	Note: The green roof name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Green Roof 1" or "Green Roof A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Green Roof?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Green Roof?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number	Has the City Entered and Approved this Inspection? Yes / No	Name of Staff Approving This Inspection Report:	Date of Inspection Approval:	Is a Follow Up Inspection by Staff Required? Circle One: Yes / No	Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Green Roof Inspection Form

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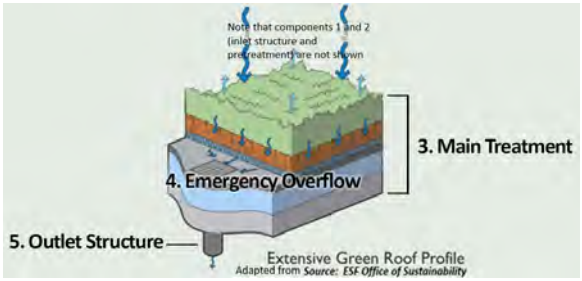

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Emergency Overflows & Outlet Structures (Components 4 & 5)				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Are trash, sediment, debris, grass clippings or other materials that can obstruct stormwater flow present near inlet structures outlet structures or emergency overflows?				
Guidance: Remove unwanted materials and correct any other problems that block the water flow. Standing water should not be observed in the planting area for more than 2 days. **Schedule:** Monthly				
2. Is water flowing from the outlet when it is not expected?				
Guidance: The green roof is designed to drain within 2 days after a rainfall. This may take longer during especially wet periods. In addition, if the irrigation system does not adjust to overly wet conditions, ponding may be exacerbated. During dry periods, an outlet that is discharging water or water ponding in the planting area may indicate a leak, blockage, or other issue. Determine the cause and correct it. If the cause cannot be determined, call a civil engineer or irrigation specialist for assistance. **Schedule**: Weekly				
3. Notice another problem? Describe in comments.				**Your Comments:**

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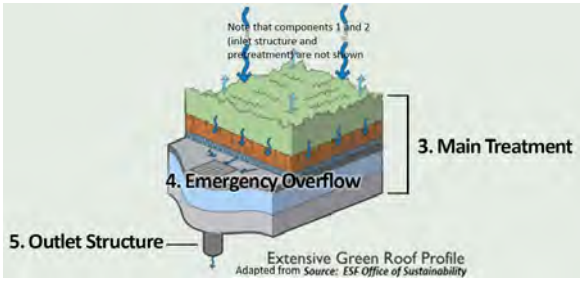

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
***Main Treatment** (Component 3)*				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
4. Is the soil media compacted or does the soil media have less than the proper depth?				
Guidance: Visually check the condition and depth of the soil media. Replace with the appropriate soil media to maintain the depth required by the design. Typical depths for soil media vary by design but should be at least 2.5 inches. Soil loss is expected over time, through wind and water erosion. Foot traffic in the planting area can cause compaction of the soil. Loosen soils when replanting and put protection measures in place to prevent future foot traffic impacts. **Schedule**: Twice per year				
5. Are main components such as irrigation system, downspouts and inlets, gutters, scuppers, and their associated mechanical components hard to access for operation, inspection and maintenance?				
Guidance: Any obstacles blocking access to, or maintenance of, these components should be removed. Put a note in this form if access is blocked by a permanent fixture (e.g. fence) that is not easily removed. **Schedule:** Monthly				
6. Is the vegetation unhealthy and/or and covering less than 90% of the planting area?				
Guidance: Soil and plants work together to take up water and nutrients. Healthy plants have the proper coloring in leaves and often have vigorous growth. Yellowing leaves, spots on leaves, and wilted or stunted vegetation is often a sign of a problem. Obvious issues include a lack of water or planting the wrong plant for the location (soil moisture, sun exposure, temperature). If vegetation does not look healthy and water management is not the issue, take a soil test and amend the soils based upon the recommendations of the soil test. Do not apply nutrients without first doing a soil test, as over-fertilizing can cause stormwater pollution. Address the issue or replace the plant – with feedback from a nursery – so that the plants cover at least 90% of the planting area. **Schedule:** Monthly				
7. Are there weeds growing in the planting area?				
Guidance: Remove any weeds found in the green roof area and dispose of them. Weeds can out-compete other desirable plants by competing for water, nutrients, and sun. Remove weeds before they go to seed to prevent additional spreading. **Schedule:** Monthly				

Green Roof Inspection Form

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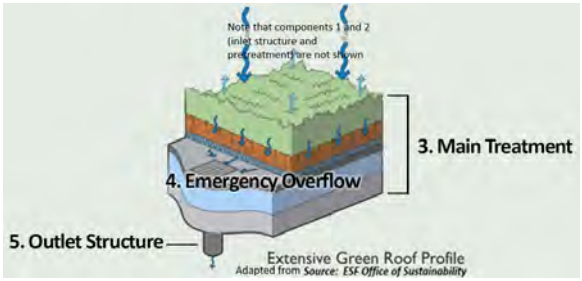

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
8. Are there dead or dying plants in the planting area?				
Guidance: Remove dead, diseased or dying plants and replace them with appropriate plants. Consult a green roof specialist to find the best plants for the soil moisture, sun exposure, and heat expected on the roof. **Schedule:** Monthly				
9. Is there evidence of water leaks under or around the structure of the green roof?				
Guidance: Under the plants and soil is a waterproof membrane designed to keep water from seeping into other components of the roof structure. If this happens, water damage to the roofing structure can occur. Look for water spots, wetness on structural components outside of or under the green roof, and overly dry soils under normal rainfall conditions. If a leak is suspected, contact a qualified roofing company to perform an assessment. It may be that the waterproof membrane has been damaged and must be replaced. **Schedule:** Twice per year				
10. Notice another problem? Describe in comments.	**Your Comments:**			

Submit completed forms to:
Email - stormwater@topeka.org
Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Green Roof Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

Submit completed forms to:
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Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Green Roof Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
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Property Owner's Guide to Stormwater BMP Maintenance

5.17 Cistern Basics

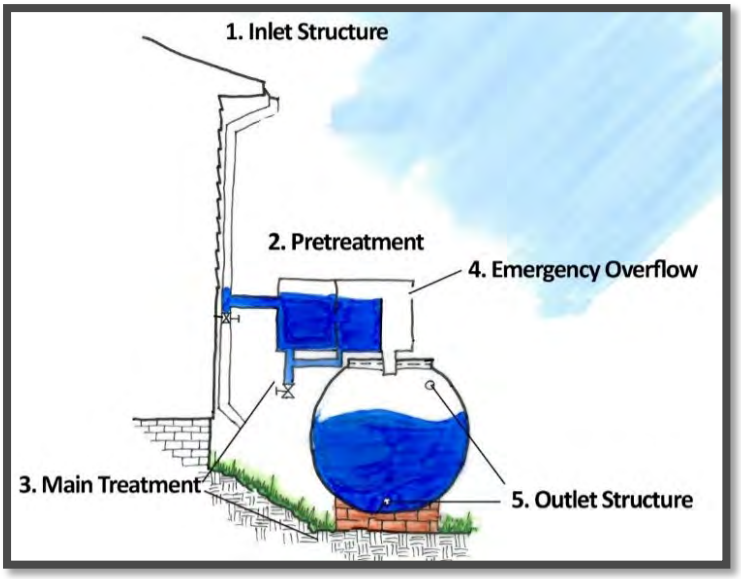
Cisterns are Best Management Practices (BMPs) that catch and temporarily store rain that falls onto rooftops. It is collected in a tank located above or below the ground. The water can be recycled for non-potable uses like irrigation, toilet flushing, exterior washing, cooling water towers, and for laundry. Cisterns are commonly paired with vegetated BMPs like bioretention areas, pervious pavement, grass channels, and swales. Depending on the size of the cistern, it will manage about 1-inch of storm water, or more, before filling. Once filled, the water in the cistern should be used or drained; otherwise it is designed to overflow. Cisterns will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

Benefits of Cisterns:

- **Allow reuse of rainwater, reducing stormwater runoff**
- **Provide a water source for non-potable uses**
- **Easy to install and maintain**

In the City of Topeka, most cisterns will have five basic parts (see the figure below):

1. **Inlet structures** let water flow into the BMP.
2. **Pretreatment** areas remove trash, debris, and dirt from stormwater flowing in. This helps prevents clogging of the main treatment area.
3. The **main treatment** area is where stormwater is collected, so the water can be cleaned and drain at a controlled speed.
4. **Emergency overflows** let water escape and flow *around* the BMP during intense or long storms, without flooding the surrounding area.
5. The **outlet structure** lets the cleaner water exit the BMP.

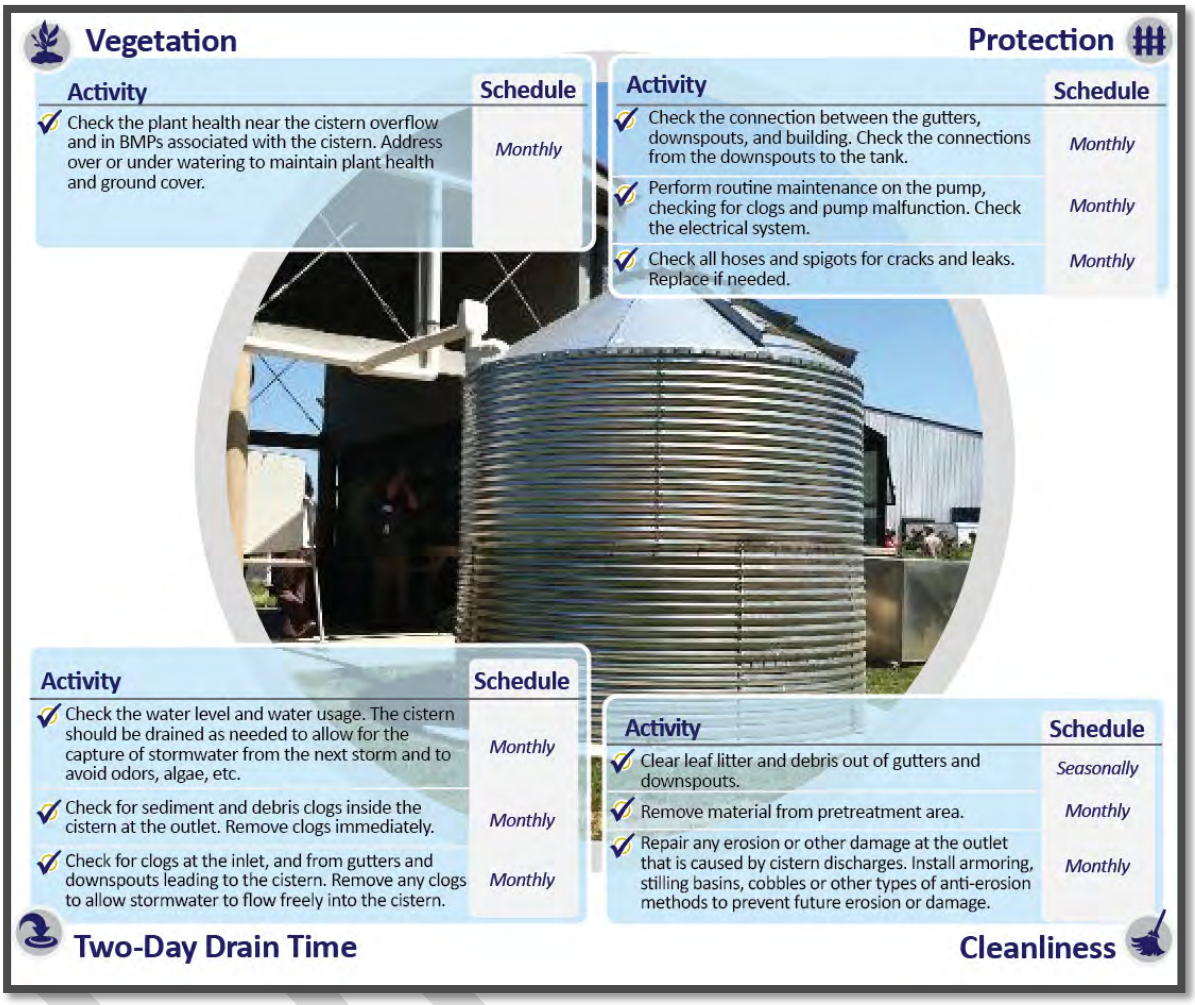


What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your cistern will last longer and you'll save money if you keep your property clean and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working cistern. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Cistern Inspection Form included with this guidance sheet.



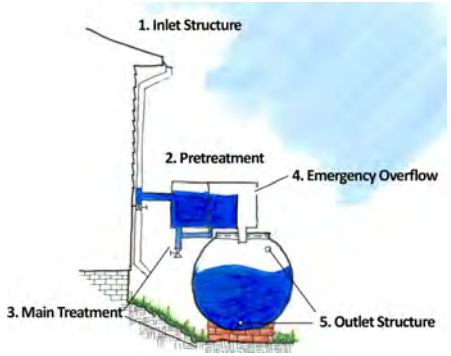
Do

- ✓ Check the tank and all connections between gutters, downspouts, and cistern for structural integrity and sealing. Repair any cracks or leaks.
- ✓ To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.
- ✓ Perform informal inspections and routine maintenance on a regular basis. Make repairs as soon as problems are noticed.

Don't

- X Don't let the water in the cistern be used for drinking or grooming of humans or pets.
- X Don't leave your cistern full of water. Use and/or drain the water during dry weather so that stormwater can be captured in the cistern.
- X Don't store chemicals, metal, or other materials on the roof. They can pollute the water that enters the cistern.
- X Don't climb into the cistern unless you are properly trained to do so. Contact a professional that has training for confined space entry.

Cistern Inspection Form



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The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

BMP Name(s)				Today's Date:
	Note: The cistern name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Cistern 1" or "Cistern A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Cistern?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Cistern?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Name of Staff Approving This Inspection Report:

Has the City Entered and Approved this Inspection? Yes No

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes No

Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Cistern Inspection Form

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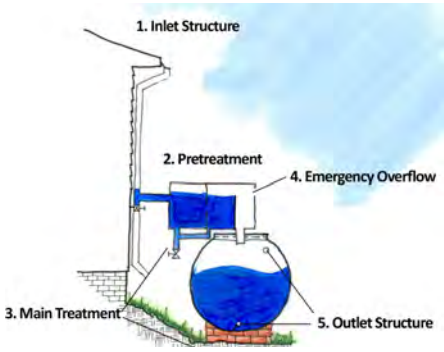

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
Inlet Structure, Emergency Overflows, Outlet Structure ***(Components 1, 4, and 5)***				**Success Factors: Protection, Two-Day Drain Time, and Cleanliness**
1. Are the downspouts and gutter free of leaves, sediment, and other obstructions?				
Guidance: Check and clean gutters, downspouts, and the inlet regularly when significant leaf litter and debris is expected (spring, fall, and winter) **Schedule:** Seasonally				
2. Are the downspouts and gutters correctly attached to the building and the tank? Are they watertight and operating properly?				
Guidance: The gutters must be positioned to capture roof drainage, and must be securely attached to downspouts, which in turn must be securely attached to the tank. Replace or repair damaged components. **Schedule:** Seasonally				
3. Is water flowing out of the overflow pipe in small storms when the previous rain event was 4 or more days before?				
Guidance: Check the entire system for clogging and damage. Make sure the pump is working properly and is pumping water at the right rate and right time. **Schedule**: Monthly				
4. Notice another problem? Describe in comments.	**Your Comments:**			

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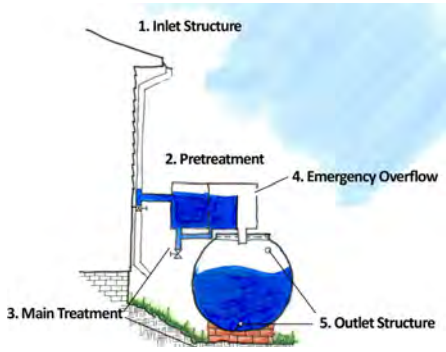

Inspection Question	Answer Y	Answer N	Answer NA	Describe Problem(s) and Solution(s)
***Pretreatment & Main Treatment** (Components 2 & 3)*				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
5. Does the pretreatment device need to be cleaned?				
Guidance: If the pretreatment device (such as a screen) gets clogged, stormwater may bypass the cistern. Proper function of the cistern requires frequent inspection and cleaning of the pretreatment device. Also, a functioning pretreatment device keeps the debris and sediment from entering the tank and reduces the need for tank maintenance. **Schedule:** Seasonally				
6. Does the pretreatment device appear to be working properly?				
Guidance: Look for evidence of bypassing, erosion, leaks, or cracks. Repair or replace the pretreatment device to allow stormwater to filter through pretreatment before discharging into the tank. **Schedule:** Monthly				
7. Are there visible sediment deposits or other debris in the tank, taking up 5% or more of the storage space?				
Guidance: Sediment will likely enter the tank, even with a properly functioning pretreatment device. Remove sediment and debris from the tank when deposits take up 5% or more of the tank volume. **Schedule:** Seasonally				
8. Does the tank show signs of breakdown such as cracks, leaks, warps, or other damage?				
Guidance: Some damage can be repaired before the tank is no longer usable. Catch small repairs early. Patch holes and/or paint the tank with appropriate paint to keep sunlight from breaking the tank down. Protect the tank from access by people or animals. **Schedule:** Seasonally				

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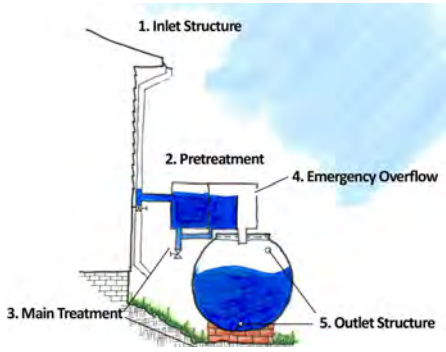

Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
9. Are there nuisance issues such as odors, algae, or mosquitoes in the tank?				
Guidance: Add bleach at ¼ cup per 1000 gallons of water. Then be sure the tank fully fills back up before using the water for irrigation or other non-potable uses. Otherwise, the bleach could damage vegetation, decking or other materials. Adjust draw down times to reduce the number of days water sits in the tank if algae and odors are problematic. **Schedule:** Seasonally				
10. Are pipes, hoses, valves, spigots, and pumps working properly?				
Guidance: Check all fittings and the pump to ensure they are working. Be sure all fittings are connected well. Replace cracked or broken pipes and malfunctioning spigots. Pull the pump at least once a year for maintenance, such as checking the motor, flushing the pump, checking the fittings and housing, etc. **Schedule:** Seasonally				
11. Are tank operation personnel properly trained in manual tank operation?				
Guidance: Make sure that all persons who are responsible for operation of the cistern understand its function, its dewatering schedule, and how to drain the tank manually. Persons who are new to the operation of the cistern should be trained before they are expected to operate the cistern. **Schedule:** Annually				
12. Notice another problem? Describe in comments.	**Your Comments:**			

Cistern Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

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Cistern Inspection Form

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Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

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Property Owner's Guide to Stormwater BMP Maintenance

5.18 Non-Structural BMP Basics

Non-structural BMPs use native soils, existing vegetation, or restored/established native landscaping as a tool to control stormwater runoff naturally. They are different from structural BMPs because they are not designed specifically to collect, guide, and/or hold stormwater runoff. Structural and non-structural BMPs can be used together to control stormwater runoff. There are five main categories within non-structural BMPs:

Benefits of Non-Structural BMPs:

- **Reduce the need for erosion control measures**
- **Less stormwater runoff = less need for structural BMPs**
- **Reduce the need to import topsoil for landscaping**
- **Less long-term maintenance**
- **Provide habitat for butterflies & birds**
- **Promote infiltration**
- **Decrease flooding downstream**
- **Relatively inexpensive compared to structural BMPs**

- **Preservation or restoration of native soils** gives the benefits of a naturally occurring soil profile. A healthy soil profile will encourage better water-holding capacity and infiltration.
- **Restoration of native vegetation** reduces stormwater runoff by catching rainfall in its canopy and slowing the speed of water flow. It also improves soil quality, leading to better water infiltration.
- **Uplands** act as the first point of stormwater management. Rainfall infiltrates the soil, which provides drainage and recharges groundwater. This also reduces flooding in low-lying areas. Native vegetation in an upland area can catch rainfall. The water will evaporate, which reduces the amount of water that hits the ground. The plants filter pollutants out of water through their roots.
- **Bottomlands and Floodplains** are low-lying areas along a body of water that flood often. Preserving these areas during development helps keep a natural buffer. A buffer will help filter out pollution before entering a stream or lake. These areas also prevent flooding in unwanted areas, like buildings or streets.
- **Stream Buffers** are areas with many flowering and woody plants. They reduce the impact of runoff by catching sediment before it enters a stream. Buffers also encourage infiltration and slow the flow of stormwater. Buffers protect stream banks from eroding away, which preserves habitat and decreases pollution.

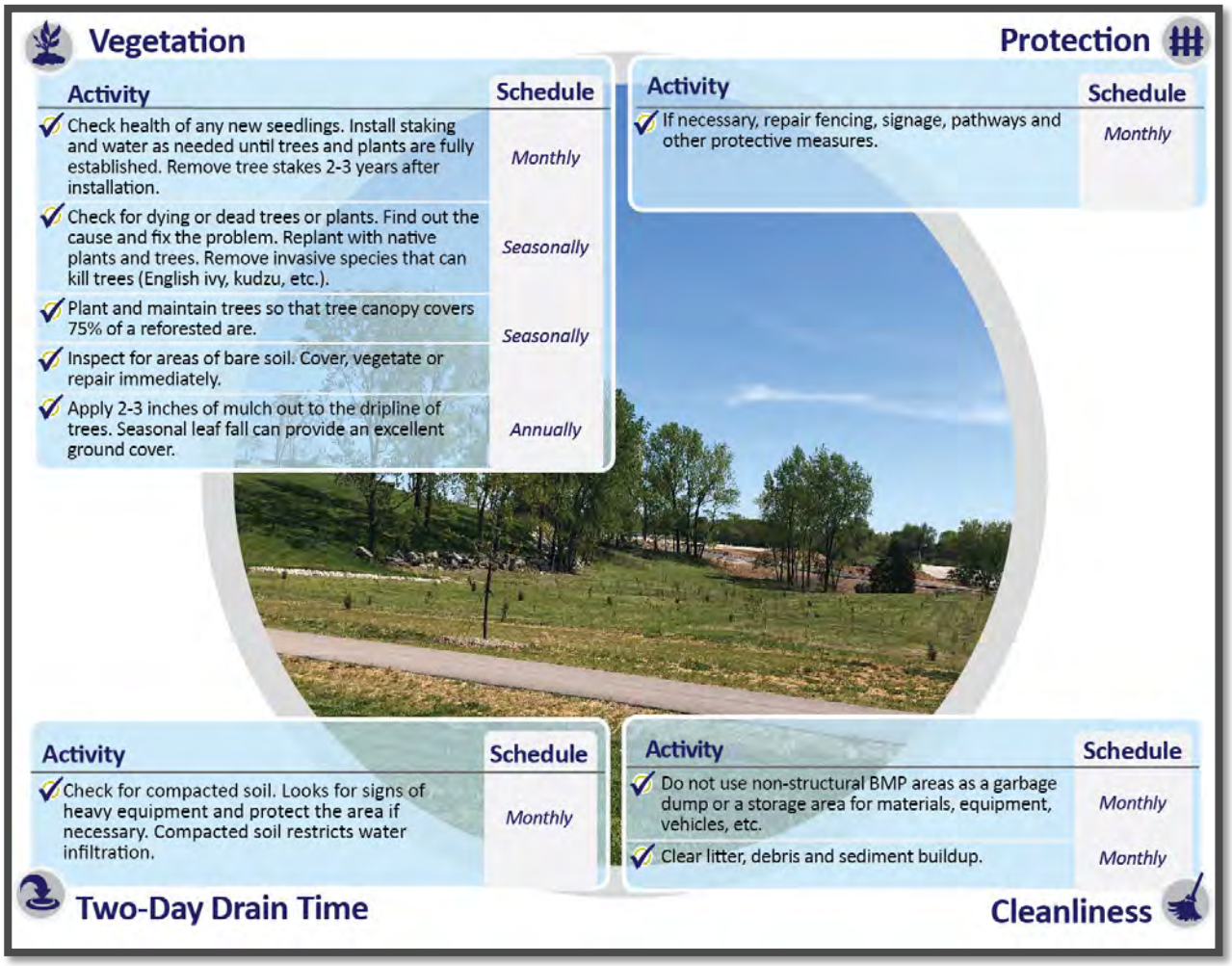
Non-structural BMPs will be located in stormwater management easements (SMEs), and will be easy to find on your property's Stormwater BMP Record Drawing.

What are my responsibilities?

Ongoing protection, inspection, and maintenance is important to the function of your BMP, even if they occur in the natural landscape. Here are a few things to keep in mind:

- BMPs found on your Stormwater BMP Record Drawing must be inspected and cared for by *you*, the property owner. The requirements for inspection and maintenance presented in this document are supported by the Topeka Municipal Code 13.40.
- You can choose to hire others (like a landscape company) to perform inspection and maintenance activities, but you are ultimately responsible for inspection and maintenance.
- The City of Topeka keeps track of your inspection and maintenance reports and may perform City-led inspections when they see fit. If you don't inspect and maintain your BMP, this violates the City's Stormwater Ordinance and can result in fines or penalties, and requirements to fix your BMP.

Your non-structural BMPs will last longer and you'll save money if you keep your property clean and do regular inspections and maintenance. The image below shows the four Success Factors needed to make sure you have an attractive, working non-structural BMP. Remember that a **DOCUMENTED INSPECTION MUST BE DONE EVERY OTHER YEAR, NO LATER THAN 10/31**, using the Non-Structural BMP Inspection Form included with this guidance sheet.



✓	Check that any native vegetation areas are protected, undisturbed, and natural.	**Do**	X	Don't use exotic plants or grasses that would require more chemical and water to grow.	**Don't**
✓	To prevent damage, tell landscapers and contractors working on the property about the location and purpose of the BMP.		X	Don't use too much salt or sand around the BMP areas in the winter.	
✓	Remove trash and debris in and around the BMP area.		X	Don't store or stockpile landscaping or construction materials or chemicals in or near the non-structural BMP.	
	Perform informal inspections and maintenance regularly. Make repairs as soon as problems are noticed.		X	Don't use excessive fertilizers, herbicides, or pesticides.	

Non-Structural BMP Inspection Form

All items listed must be inspected unless Not Applicable (NA). Answering "Yes" indicates a need for maintenance. Please include an approximate repair date for items that require maintenance.

The maintenance and inspection frequency shall be done in accordance with this BMP Operation & Maintenance Plan. This checklist details these frequency periods, and submittal of the form (every other year) is a certification that you have met these requirements. This inspection shall be done once in every six-year period by a professional engineer (PE) or a professional landscape architect (PLA).

BMP Name(s)				Today's Date:
	Note: The non-structural BMP name will be shown on the BMP location map included with the Stormwater BMP Record Drawing for this property. A typical name would be "Non-Structural BMP 1" or "Non-Structural BMP A". If this inspection form is being submitted for multiple BMPs of the same type, please list all applicable names.			Date of Last Inspection:
Property Info	Street Address:	City:	State:	Zip:
Who is Inspecting the Non-Structural BMP?	Name (Owner, Tenant, Property Manager or Landscape Company):			Contact Name (If Different):
	Street Address (If conducted by a company, use company address):	City:	State:	Zip:
	Phone #: / Email:		*Check one:* ☐ PE ☐ PLA ☐ No License #:	
Who Owns the Non-Structural BMP?	Name (Person(s) or Company):	Contact Name (If Different):		
	Street Address:	City:	State:	Zip:
	Phone #:	Email:		

This Section is for City of Topeka Use Only

Identification Number

Has the City Entered and Approved this Inspection? Yes / No

Name of Staff Approving This Inspection Report:

Date of Inspection Approval:

Is a Follow Up Inspection by Staff Required? Circle One: Yes / No

Reason for Follow Up?

Submit completed forms to:

Email - stormwater@topeka.org

Mail - Stormwater Management Section ● City of Topeka Utilities Department
215 SE 7th St ● Topeka, Kansas 66603

Non-Structural BMP Inspection Form

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Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
Soil Management – Preservation and/or Restoration				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
1. Is the area hard to access for inspection and maintenance?				
Guidance: Any obstacles blocking access and/or maintenance should be removed. If access is blocked by a permanent fixture (e.g. fence), note this on the inspection form **Schedule:** Monthly				
2. Are there areas of bare or compacted soil?				
Guidance: Install protective measures as needed. Replace dead trees, shrubs and herbaceous vegetation. Periodically plant a mixture of appropriate native species. **Schedule:** Monthly				
3. Is there litter, trash, debris or other materials that could enter the BMP area via stormwater or wind?				
Guidance: Trash and other materials can be carried into the BMP area, reducing the stormwater benefits. Remove undesirable materials and keep the property clean. **Schedule**: Monthly				
4. Notice another problem? Describe in comments.	**Your Comments:**			

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Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
Restoration of Native Vegetation				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
5. Does the current maintenance plan address all maintenance needs?				
Guidance: Vegetation management plans require adaptive management with feedback on program effectiveness. This can be an ongoing process. **Schedule:** Ongoing				
6. Are there dead or dying plants?				
Guidance: Look for evidence of unhealthy plants and correct as needed. Replant native species. **Schedule:** Monthly				
7. Is the native vegetation protected from excessive pedestrian traffic, pest infestation, and other potential damage caused by wildlife, storm event, and humans?				
Guidance: Provide necessary protection from damage, like signage or fencing. **Schedule:** Monthly				
8. Is there a need for specialized restoration or management by a licensed or certified technician?				
Guidance: Some areas may require prescribed burning, herbicide use, and monitoring. Guidance and oversight may be needed. **Schedule:** Seasonally				
9. Notice another problem? Describe in comments.	**Your Comments:**			

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Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
Uplands				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
10. Are there invasive plants like English ivy or kudzu present?				
Guidance: Remove invasive plants to promote growth of native vegetation and trees. A qualified professional may be needed for large scale removal. **Schedule:** Seasonally				
11. Are there areas of bare soil?				
Guidance: Native species should provide sufficient ground cover. **Schedule:** Monthly				
12. Notice another problem? Describe in comments.	**Your Comments:**			

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Inspection Question	Answer			Describe Problem(s) and Solution(s)
	Y	N	NA	
Bottomlands, Floodplains & Stream Buffers				**Success Factors: Vegetation, Protection, Two-Day Drain Time, and Cleanliness**
10. Are there dead, dying, or invasive plants and/or trees?				
Guidance: General maintenance may require replacement of dead or undesirable trees and shrubs to prevent overpopulation of undesirable species. Mechanical means or prescribed burning may be necessary. Consult a professional. **Schedule**: Monthly				
11. Are the plants healthy, specifically in frequently inundated areas?				
Guidance: Protect these areas from excessive sedimentation, pest infestations, and other potential damage caused by storms, wildlife, and humans. **Schedule**: Monthly				
12. Is there excessive buildup of sediment, storm debris or trash?				
Guidance: Sediment, debris or trash can reduce the efficiency of these BMPs, leading to polluted waterbodies. **Schedule:** Monthly				
12. Notice another problem? Describe in comments.	**Your Comments:**			

Non-Structural BMP Inspection Form

Use this page for any notes, comments, or questions generated by your inspection. If you are using this page to continue your notes from a previous section, please include the section name and section number. You may also use this page to address issues not covered on the inspection form.

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Non-Structural BMP Inspection Form

Provide a photograph(s) of your BMP to document the compliance inspection to be submitted every other year.

Photograph Description:	**Photograph Description:**
Date Photograph Taken:	**Date Photograph Taken:**

Submit completed forms to:
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6.0 Additional Resources

6.0 Additional Resources

NEED HELP WITH YOUR BMP?

- **More technical questions may require the assistance of a professional engineer or landscape architect.**
- **Landscape firms can help you maintain your BMP's soil and vegetation.**
- **Master Gardeners are volunteers with valuable plant knowledge.**
- **Native plant nurseries can provide plants and information on keeping them healthy.**
- **Additional, online resources are also included in this section.**

The City of Topeka's Utilities Department can answer administrative questions about your BMP or refer you to additional resources. They can be reached at stormwater@topeka.org.

Getting Additional Help with BMPs

Whether you are an individual residential property owner, a homeowners' association representative, a non-residential property owner, a property manager, or part of a landscape or property maintenance staff, this manual is intended to provide guidance for the protection, inspection, maintenance, and planning needed to keep your BMP functioning properly.

Sometimes, BMPs will require maintenance that requires more technical or specialized expertise. This section is designed to guide you to additional resources.

Engineers and Landscape Architects

BMPs are used to meet flooding, erosion, and pollution control requirements. Engineers and landscape architects are specially trained to conduct the calculations required to meet these requirements and design BMPs accordingly. If your BMP is experiencing problems despite regular maintenance and upkeep, or if it is damaged and its components need repairs, then it may be time to obtain the services of a technical specialist. In the City of Topeka, the Mid-America Regional Council Manual of Best Management Practices for Stormwater Quality (MARC Manual) is used and includes all the requirements for designing and installing a BMP. It can be downloaded at:

https://www.marc.org/Environment/Water-Resources/Local-Government-Resources/Stormwater-Best-Management-Practices

The following websites may provide additional information on finding an engineer or landscape architect:

- Prairie Gateway Chapter of the American Society of Landscape Architects: http://www.pgasla.org/
- Kansas Society of Professional Engineers: https://www.kansasengineer.org/

Landscape Firms

Vegetated areas may require the use of a professional landscape firm to maintain healthy vegetation, manage weeds, replant problem areas, and maintain optimal soil and drainage conditions. Before hiring a landscape firm or having one work on your property, make sure they will be working with a BMP designed to manage stormwater runoff, and provide them the BMP plan for your property. They need to be aware that maintenance of your BMP is required by Topeka Municipal Code and that special care will be needed to protect the BMP components. Communicate the following to any landscape firms working on your property:

- Higher mowing heights and less frequent mowing may be required than conventional landscaping.
- Use of fertilizers, herbicides, and pesticides may be more limited than conventional landscaping.
- Heavy equipment should be avoided in vegetated areas and areas where infiltration occurs.
- The BMP area should be kept clear of grass clippings, leaf piles, and other plant trimmings.
- Any other requirements of your maintenance agreement or planting plan.

Master Gardeners

Master Gardeners are gardeners that have been specially trained and sponsored by the Kansas State Cooperative Extension System. Master Gardeners volunteer their expertise and services to the community, providing reliable, gardening information and education opportunities. Kansas State University and Shawnee County have related Master Gardener groups that may have resources and gardeners available to answer questions and help with the vegetation, soil, and media in your BMP. They can be reached through the following websites:

Shawnee County Master Gardeners: https://www.shawnee.k-state.edu/

Kansas Master Gardeners Association: https://hnr.k-state.edu/extension/master-gardeners/

Native Plant Nurseries

Even with careful management, vegetated BMPs will need additional planting to replace dead or unhealthy plants. Plants in a BMP serve very specific purposes, and the BMP may not function well if the wrong plants are used. If you are not sure what plants were planted in your BMP, your record drawings/civil plans should have the original planting plan. Due to their deep roots and ability to withstand local conditions, native plants are most often used in BMPs. Commercial nurseries may not have the specific plants you need. Native plant nurseries will have the inventory and the expertise you need to maintain your vegetation. If you choose to contact a nursery, make sure they are familiar with your type of BMP by sharing the pertinent section of this manual and your BMP plan.

City of Topeka Resources

The City of Topeka can provide additional guidance on how to locate, inspect, and maintain stormwater BMPs, and can answer questions on a variety of other stormwater related topics. Contact information for City staff are listed below.

Stormwater BMP Location, Inspection & Maintenance	Obtaining the Stormwater BMP Record Drawing	General Stormwater Management	Erosion Prevention & Sediment Control for Grading, Excavating, and Construction	Flood Control Levees	Land Development and Redevelopment Planning
Aaron Grams Stormwater Permit Coordinator **Phone:** (785) 368-3615 **Email:** agrams@topeka.org **Address:** Oakland Wastewater Treatment Plant 1115 NE Poplar St Topeka, KS 66616	Shawnee County Register of Deeds **Phone:** (785) 251-4020 **Address:** Register of Deeds Office 200 SE 7th St Rm 108 Topeka, KS 66616	Aaron Grams Stormwater Permit Coordinator **Phone:** (785) 368-3615 **Email:** agrams@topeka.org **Address:** Oakland Wastewater Treatment Plant 1115 NE Poplar St Topeka, KS 66616	Melissa Tofte Erosion Control Inspector II **Phone:** (785) 368-2420 **Email:** mtofte@topeka.org **Address:** Holliday Building 620 SE Madison St Topeka, KS 66607	Kelly Ryan Levee Engineer **Phone:** (785) 368-3980 **Email:** kryan@topeka.org **Address:** Oakland Wastewater Treatment Plant 1115 NE Poplar St Topeka, KS 66616	Topeka Planning Department **Phone:** (785) 368-3728 **Address:** Holliday Building 620 SE Madison St Topeka, KS 66607

Additional Online Resources

All across the country, cities and private landowners are working to reduce negative impacts of stormwater through the use of BMPs. Below are some recommended websites that may be able to provide additional information on BMPs. As you conduct your own research, keep in mind that some BMPs and recommendations you find may not be applicable to local conditions or your specific BMP.

Kansas Department of Health and Environment Municipal Stormwater Program Web Site
http://www.kdheks.gov/muni/ms4.htm

Kansas Stormwater Consortium Educational Web Site
http://www.ksstormwater.com/

Friends of the KAW Conservation and Educational Information
http://kansasriver.org/

Shawnee County Conservation District
http://www.sccdistrict.com/

Kansas Native Plant Society
http://www.kansasnativeplantsociety.org/

Environmental Protection Agency Stormwater Pollution Website
https://www.epa.gov/npdes/npdes-stormwater-program