MCM #5

POST-CONSTRUCTION STORMWATER MANAGEMENT PROGRAM

Stormwater Management Plan

For The City of Kearney

V.1 June 2017
V.2 January 2020
V.3 December 2025

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1. Introduction

MCM 5: Post Construction Stormwater Management in New Development and Redevelopment

The City of Kearney will evaluate the Post Construction Stormwater Management ordinance for needed revisions that may be used to reduce pollutants in stormwater runoff from new development and redevelopment.

There are five content areas in the Post Construction Storm Water Management Plan (PCSMP):

1) Minimum Site Performance Standards
2) Platting and Site Plan Review
3) Maintenance of Controls
4) Tracking Controls
5) Inspection and Enforcement

A Post Construction Stormwater Management Plan Submittal Checklist will be needed to be submitted with design plans and be recorded by the City of Kearney. That PCSMP Checklist is attached as **Appendix A**.

A list of all city owned post construction stormwater treatment facilities (STF's) and an inspection of the STF's will be completed as part of the program. The functional longevity and low costs of maintenance for the long term will be primary considerations during the review process.

Educational materials will continue to be distributed to members of the development community. Providing technical guidance for the design and maintenance requirements for structural and non-structural controls will be some of the focus.

2. Minimum Site Performance Standards

The City of Kearney will require new and redevelopment projects to satisfy minimum site performance standards that address water quality. The process for calculating the minimum water quality control volume is "WQCV" and the process for finding the water quality volume discharge rate is "Q_{wq}." The methodology is based on average daily rainfall data gathered regionally and applied to three zones across the state. From that data the runoff amount is calculated and applied to the treatment drainage area to get the WQCV or Q_{wq}. If the following parameters are met then the Post-Construction regulations will apply:

- Construction Activity (not project footprint) disturbs greater than an acre of land.
- The lot has been preliminarily platted OR re-platted after August 31, 2017.
- The project is within the City Limits OR immediately adjacent.

New Development

New development requirements apply to those areas which are being platted for development or have been platted but not built and are within Kearney's City Limits, or immediately adjacent.

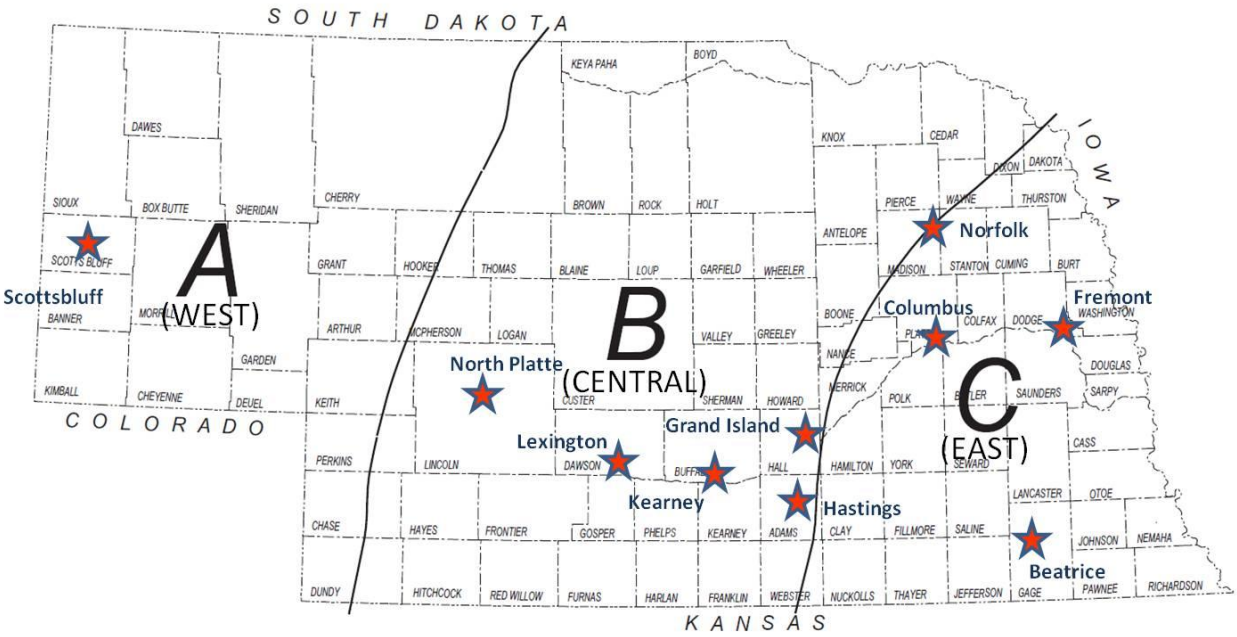
> *Example 1) A parcel that had not been platted or zoned for development (i.e. agricultural land) is being platted as a subdivision for single family residential and is greater than 1 acre. The subdivision would be required to meet the minimum standard set forth herein for new development.*
>
> *Example 2) Several parcels are being replatted for development and the total area being replatted is greater than 1 acre. The replatted parcels would be required to follow new development standards.*

Redevelopment

Redevelopment requirements apply to those areas which have been platted and built within Kearney's City Limits, or immediately adjacent.

> *Example 1) A parcel that included a structure that was purchased and demolished by the City or other entity, and was sold or deeded over to a new property owner for constructing his or her own building. Site disturbance is greater than 1 acre. This site would be required to meet the minimum standard set forth herein for redevelopment.*

Example 2) A parcel with a building has been sold and is being converted into a new use with expanded parking. Site disturbance is greater than 1 acre. This parcel would be subject to requirements for redevelopment.



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Adapted from NDOR Drainage and Erosion Control Manual Ch. 1

Rainfall amounts by region for new and redevelopment are provided in Table 1. These values will be used to calculate runoff and water quality control volume (WQCV).

Table 1.

Applicable Region	Rainfall, P	
	80th Percentile Event	70th Percentile Event
A (West)	0.61”	0.44”
B (Central)	0.72”	0.53”
C (East)	0.83”	0.62”

Minimum Design Criteria

STF’s must be sized to handle the appropriate WQCV or equivalent water quality discharge rate to properly treat stormwater. Best Management Practices include retention-based stormwater treatment facilities that typically require or encourage using infiltration, evapotranspiration, or harvest practices to control a specified volume of stormwater within each development site.

The regulatory logic of controlling volume is that the stormwater pollutants contained in the volume of runoff captured are prevented from reaching the receiving water, and the remaining volume that does reach the receiving water is less polluted and erosive to the receiving waterbody.

The regulatory logic of controlling discharge rate is that the stormwater pollutants contained in stormwater runoff can be reasonably treated and the volume that does reach the receiving water is less polluted and erosive to the receiving waterbody.

The City of Kearney permits a variety of STF's to be developed for Post-Construction Stormwater Treatment. These can be applied in a dry environment or a wet environment, to a variety of sized projects. A list of these can be found in Appendix C and includes:

STF Suitability

STF	Residential	Commercial	Block	Neighborhood
Bioretention Area		x	x	x
Bioswale	x	x	x	x
Dry Retention		x	x	x
Filter Strip	x	x	x	x
Grassed Swale	x	x	x	x
Infiltration Trench	x	x	x	
Rain Garden	x	x	x	
Underground Storage		x		
Wet Detention		x	x	x
Roof Drain Filters		x		

*The City of Kearney may be amenable to other forms of STF's if properly presented

STF's must be designed in concordance with an approved design manual that provides minimum design criteria and considerations. Here is a list of design guides manuals from around Nebraska that are acceptable to use in the general use of STF's:

- City of Omaha, *" Omaha Regional Stormwater Design Manual- Chapter 8: Stormwater Best Management Practices"* http://omahastormwater.org/orsdm/
- City of Lincoln, *"Drainage Criteria Manual- Chapter 8: Stormwater Best Management Practices"* http://lincoln.ne.gov/city/pworks/watershed/dcm/
- NDOR, *"Drainage and Erosion Control Manual- Chapter 3: Stormwater Treatment within MS4 Communities"* http://dot.nebraska.gov/media/3920/chapter-3-stormwater-treatement.pdf
- Urban Drainage and Flood Control District (UDFCD), *"Urban Storm Drainage Criteria Manual, Volume 3: Stormwater Quality"* http://udfcd.org/volume-three

Keeping in mind with these Design Manuals, the City of Kearney provides the following requirements:

Infiltration Rates

Minimum infiltration rate shall be 0.5 in/hr

Maximum infiltration rate shall be 12 in/hr

Infiltration Cells

Infiltration cells should incorporate conditioned soils to reduce the quantity of select material needed to provide treatment in a bioretention garden/basin. This method is described in the Omaha Regional Stormwater Design Manual and NDOR Drainage and Erosion Control Manual.

Drain Time and Control Valves

A design drain time of **24 hours** will be used for all STF's that use a water quality control volume to provide treatment and control of runoff. Control valves shall be placed in underdrains to allow for adjustments to the drain time as needed.

Cleanouts

Cleanouts shall be provided on all underdrains to assist with providing needed maintenance.

Pretreatment

Measures shall be incorporated that prevent sediment from depositing in STF's during and after construction. Pretreatment of stormwater runoff through barriers, grass buffers or forebays is **recommended** on all STF's.

Landscaping

The following resources have been provided to assist in the design of landscaping for a project. It is strongly suggested that a landscape architect or designer assist with plant selection and landscape design.

- UNL Extension, "Stormwater Management: Plant Selection for Rain Gardens in Nebraska" http://www.ianrpubs.unl.edu/epublic/live/g1759/build/g1759.pdf
- UNL Extension, "Nebraska Bioretention and Rain Garden Plants Guide" http://marketplace.unl.edu/extension/ec1261.html
- NDOR, "Plan for the Roadside Environment" http://www.transportation.nebraska.gov/environment/docs/road-env-plan-total.pdf
- NDOR, "Roadside Flowers and Grasses" http://www.transportation.nebraska.gov/environment/flowers.html
- NDOR, "Roadside Vegetation Establishment and Maintenance" http://www.transportation.nebraska.gov/environment/docs/veg-manual_2014.pdf

- "The Seed", A Publication of the Nebraska Statewide Arboretum, Fall 2008 http://arboretum.unl.edu/documents/The%20Seed%20Water%20in%20Landscape.pdf

Water Quality Volume

Design criteria to meet minimum site performance standards for new and redevelopment are expressed as the runoff from a specified percentile rainfall event applied across the treatment drainage area. The minimum WQCV for new and redevelopment can be calculated as follows:

WQCV = P x (0.05 + 0.009 x %Imp) x A x 1/12 x 43,560

Where, P = rainfall depth, in (from Table 1)

A = treatment drainage area, ac

%Imp = maximum percent imperviousness (expressed as a whole number not as a decimal) for proposed zoning type (varies by community

The following example illustrates use of the WQCV equation:

Example 1) A 4.2 acre parcel in Kearney was purchased to construct a storage facility. The parcel is one of 4 in a new development that was zoned limited industrial district (M-1) . Light industrial zoning in Kearney has a maximum impervious percentage of 90%. On that parcel, 2.4 acres will be disturbed to construct the facility. An additional 0.4 acres, also zoned M-1, drain directly onto the site from adjacent property. The WQCV for the site Is calculated as follows:

WQCV = 0.72" x (0.05 + 0.009 x 90) x (2.4 ac) x 1/12 x 43,560 = 5,395 cubic feet

Maximum Impervious Percentage

City Code Chapter	Zoning Use Class	%
15	AG Agricultural District	NA
16	RR-1 Rural Residential	NA
17	RR-2 Rural Residential	30%
18	R-1 Urban Residental	45%
19	R-1D Residential	55-65%
20	R-2 Urban Residential Mixed Density	55%
21	R-3 Urban Residential Multi-Family (Med)	55%
22	R-4 Urban Residential Multi-Family (High)	55%
23	RM Mobile Home Residential	60%
24	UC Mixed Use Urban	70%
25	C-O Office District	80%
26	C-1 Limited Commercial	80%
27	C-2 Community Commercial	80%
28	CBD Center Mixed Use District	100%
29	C-3 General Commercial	90%
30	BP Business Park	80%
31	M-1 Limited Industrial	90%
32	M-2 General Industrial	90%
36	MU Mixed Use	*
38	PD Planned Development Overlay	*
39	TND Traditional Neighborhood Dev.	*
40	RC Rural Conservation	*
41	ND Neighborhood Conservation	*
42	ND-1 Pioneer Park Conservation	70%
43	FP/FW Flood Plain	*
44	AV Aviation	*
45	W Welhead	*

* uses permitted by underlying zoning base district

Water Quality Discharge Rate (Q_{wq})

STFs that are sized based on a flow rate (i.e. swales, filter strips, manufactured systems, etc.) shall use the water quality volume discharge rate (Q_{WQ}). The Q_{WQ} is the peak runoff from the design water quality volume rainfall event. This peak runoff equivalent shall be calculated using the Natural Resources Conservation Service (NRCS) Curve Number (CN) procedure. The calculation is based on the 80^{th} percentile rainfall event depth by region, a 24 hour duration storm event, and a time of concentration of 5 minutes. The area used is the impervious surface only within the treatment drainage area.

Table 2

Table 2 has been prepared to provide the Q_{WQ} in each Region for sites with up to 6 acres of impervious area. These values shall be used to size STFs for the area of impervious surface within a given treatment drainage area. For sites greater than 6 acres, the designer shall use the Table 2 has been prepared to provide the Q_{WQ} in each Region for sites with up to 6 acres of impervious area.

Impervious Area (Acres)	Q_{WQ} (cfs) West | Central | East	Impervious Area (Acres)	Q_{WQ} (cfs) West | Central | East	Impervious Area (Acres)	Q_{WQ} (cfs) West | Central | East
0.2	0.1 | 0.2 | 0.2	2.2	1.5 | 1.9 | 2.2	4.2	2.9 | 3.6 | 4.2
0.4	0.3 | 0.3 | 0.4	2.4	1.6 | 2.0 | 2.4	4.4	3.0 | 3.7 | 4.4
0.6	0.4 | 0.5 | 0.6	2.6	1.8 | 2.2 | 2.6	4.6	3.2 | 3.9 | 4.6
0.8	0.5 | 0.7 | 0.8	2.8	1.9 | 2.4 | 2.8	4.8	3.3 | 4.1 | 4.8
1.0	0.7 | 0.8 | 1.0	3.0	2.1 | 2.5 | 3.0	5.0	3.4 | 4.2 | 5.0
1.2	0.8 | 1.0 | 1.2	3.2	2.2 | 2.7 | 3.2	5.2	3.6 | 4.4 | 5.2
1.4	1.0 | 1.2 | 1.4	3.4	2.3 | 2.9 | 3.4	5.4	3.7 | 4.6 | 5.4
1.6	1.1 | 1.4 | 1.6	3.6	2.5 | 3.0 | 3.6	5.6	3.8 | 4.7 | 5.6
1.8	1.2 | 1.5 | 1.8	3.8	2.6 | 3.2 | 3.8	5.8	4.0 | 4.9 | 5.8
2.0	1.4 | 1.7 | 2.0	4.0	2.7 | 3.4 | 4.0	6.0	4.1 | 5.1 | 6.0

3. Platting and Site Plan Review

STF's must be accounted for in ANY platting or building permit for land development after August 31st, 2017 within its MS4 boundary. The City of Kearney began a public involvement process with local leaders, engineers, the development community and the general public on January 1, 2016 that will lead to the adoption of the "Post Construction Stormwater Management Program (PCSMP)" no later than August 31st, 2017. The City of Kearney will implement requirements for the post construction stormwater management program that have been set in place prior to this date and have been accepted by the EPA.

Provision of stormwater management education is an ongoing requirement for the City of Kearney and will continue as long as the program is in place. Initial goals for education will be developing an awareness of the purpose for permanent stormwater treatment and the requirements proposed by the City. Over time, education goals will transition to educating stakeholders about project specific requirements for individual applications and sharing information about best practices with the engineering community and public.

Development and redevelopment projects follow a review and approval process with the City and the City must stand behind the minimum standards in place at the time development plans were submitted. Projects that have already been platted and begun the development review process and have achieved acceptance according to minimum development standards by September 1st, 2017 will have the option, but not the requirement, to include permanent stormwater treatment facilities. All new development projects without a Preliminary Plat or building permit approved will be required to meet the 80% design storm event standard after August 31st, 2017. All redevelopment projects, as defined in this document, will be required to meet the 70% design storm event standard after August 31st, 2017. Stormwater treatment practices submitted to the City for approval after this date must meet all design requirements, application submittals, and plan review listed in this program document.

After 8/31/2017:

Proposed Redevelopment: (Applies to lands which have been platted and previously built upon) Stormwater Treatment Facilities must be accounted for on any proposed redevelopment project if it has **not** already submitted a complete preliminary plat or building permit for approval. Proposed redevelopment projects that are exempt from treatment are those that have already submitted a complete plat, preliminary plat or building permit for approval. Any non-exempt projects must account for a 70th Percentile Rain Event.

Proposed New Development: (Applies to lands which are being platted for development or have been platted but have not previously been built upon) Stormwater Treatment Facilities must be accounted for on any proposed new development project that has **not** already submitted a complete preliminary plat or building permit for approval. Proposed new development projects that are exempt from treatment

are those that have already submitted a complete final plat, preliminary plat or building permit for approval. Any non-exempt projects must account for an 80th Percentile Rain Event.

After 8/31/2017: Must treat if:	80% Rainfall Event	70% Rainfall Event	Exempt from Treatment
Proposed Redevelopment: (*Applies to* lands which have been platted and previously built upon)	*Redevelopment does not apply the 80% rainfall event standard.*	Any proposed redevelopment project **has not already submitted** a complete preliminary plat or building permit for approval.	Any proposed redevelopment **has already submitted** a complete plat, preliminary plat or building permit for approval.
Proposed New Development: (*Applies to lands which are being platted for development or have been platted but have not previously been built upon*)	Any proposed new development project **has not already submitted** a complete preliminary plat or building permit for approval.	*New development does not apply the 70% rainfall event standard.*	Any proposed new development project **has already submitted** a complete final plat, preliminary plat or building permit for approval.

Procedures

Platting

For major subdivision applications drainage and post-construction shall be discussed at the pre-application conference. This would be followed by an initial review of the general design at the preliminary platting stage and detailed design carrying over into final design review.

The plat applicant shall identify, through the Subdivision Agreement or other City-approved means, whether post-construction stormwater management facilities will be (1) constructed by each lot owner on their own lot (Lot Level STFs); (2) constructed for the subdivision by the developer with reimbursement sought from individual lot builders (Neighborhood STFs); (3) mitigated off-site at regional facilities (Regional STFs), or (4) addressed by other means approved by the City. Any other conditions agreed to between the two parties, including inspections, maintenance, and funding of maintenance shall be included in that agreement.

Building Permits

When seeking a building permit, the City will need to investigate how drainage and post-construction stormwater management is being handled. If Lot Level STFs are required per the Subdivision Agreement or other agreement, then the lot builder will need to develop and have approved a drainage study, post-construction stormwater management plan, and maintenance agreement. A maintenance agreement for an individual lot shall include provisions for maintenance that shall be binding on all subsequent owners.

Submittals

Post Construction Stormwater Management Plan (PCSMP) Submittal

The PCSMP submittal will include the following components:

Plans

Plans showing topographic survey information along with proposed grading, stormwater infrastructure (including STFs), pavement, and structures shall accompany any PCSMP submittal. Specifically, plans shall include the following information:

- Site topography including existing contours, property lines and easements, utilities, and site features such as existing water bodies, trees and shrubs, pavement and other structures
- Proposed contours
- Proposed inlets, storm sewer, culverts, and drainageways
- Proposed STFs and/or detention facilities

- Proposed roadways, parking, building footprints, and other structures

  A table shall be provided in construction drawings that include, for each STF; (1) a location identifier, (2) the type of STF, (3) the location for each STF in latitude/longitude format, (4) the drainage area, and (5) the water quality volume/water quality volume discharge rate. The designer shall differentiate between the amount required by design and the amount that will be provided.

  Any discrepancies should be discussed with and approved by the City. The information shall be provided on drawings in a format that is consistent with the following:

STF Identification Number	STF Type	STF Location (Lat/Long)	Drainage Area (Acres)	Design WQCV (cf) or Q_{WQ} (cfs)	WQCV (cf) or Q_{WQ} (cfs) Provided

Preliminary submittals required by the City will include preliminary information. Final plans shall be representative of the intended construction bid package.

Calculations

All calculations for water quality volume and water quality volume discharge rate shall be submitted to the City as part of the site development drainage study. Calculations shall be completed as described herein for the appropriate STFs. Design criteria specific to the various STFs shall also be shown in the drainage study (i.e. calculations for drain down and infiltration).

When combining stormwater detention with STFs, the designer shall provide calculations that address both water quality volume and stormwater detention requirements using methodology approved by the community.

STFs shall be clearly shown on the drainage map along with other stormwater infrastructure and drainage basin boundaries.

Certification of Permanent STFs

Prior to construction of STF's there will be required an inspection of the property for validation of proper placement of planned STF's. To ensure the correct construction and implementation

process of the STF, an inspection will be needed for verification. These inspections will be completed by someone of the Director of Public Work's choosing.

Upon completion of a project the City shall be provided a written certification, by qualified personnel, stating that the completed project is in compliance with the approved Final Drainage Plan. Qualified personnel shall be a professional civil engineer licensed in the State of Nebraska or person(s) under the direct supervision of a professional engineer licensed in the State of Nebraska.

For commercial and industrial construction, certification will be required before a Certificate of Occupancy is granted (unless authorized by the community). All applicants shall submit "as built" plans certified by a professional engineer licensed in the State of Nebraska once final construction is completed. A final inspection by the City of all post-construction STFs shall be required before a Certificate of Occupancy will be issued or any public infrastructure is accepted.

4. Maintenance of Controls

Stormwater Treatment Facilities (STF's) or permanent Best Management Practices (BMP's) located on private property shall be owned and operated by the owner(s) of the property on which the STF is located; unless the City of Kearney agrees in writing that a person or entity other than the owner shall own or operate such STF. This is stated as such in the City Code as 9-1626 "Post-Construction Requirement of Permanent BMP's."

As a condition of approval of the STF, the owner shall also maintain the STF in perpetuity to its design capacity unless or until the City shall relieve the property owner of that responsibility in writing. The obligation to maintain the STF shall have been memorialized on a subdivision plat, annexation plat, development agreement, infrastructure agreement, subdivision agreement or other form acceptable to the City and recorded by the City with the project records.

The City shall continue to maintain public storm sewer infrastructure including public STFs. Each homeowners association of a subdivision or individual lot owner shall maintain post-construction STFs. When public infrastructure improvements are constructed by the City, such as with the widening of a major arterial or other public improvement, the City shall take responsibility for maintenance of the STF unless otherwise specified in a maintenance agreement.

Multiple 'Maintenance Agreement' forms are available in **Appendix B**. These forms outline the legal agreement the City of Kearney has with the original owner of the STF's in discussion. There are two agreements; 1) the form can either acknowledge responsibility is in the hands of a home-owners (or developers) association/partnership/corporation, or 2) the responsibility of maintenance lies with the City of Kearney.

Due to the variety of STF's that are available, there will be different forms and frequencies of maintenance for each. **Appendix C** will provide a description of the routine and non-routine forms of maintenance.

Routine and Non-Routine Maintenance

All STF's require periodic inspection to determine when routine and non-routine maintenance shall be performed. A list of routine and non-routine maintenance can be found for each STF in Appendix C. Routine maintenance may include actions such as removing accumulated sediment from the SFT, removing debris blocking inlets or outlet pipes within the STF, pruning or replacing plants or mowing designated grassy areas of the STF. Non-routine maintenance may include fixing or replacement of key components of the STF such as specialized soil mixes, damaged inlets, outlets or drain pipes or removal of significant amounts of accumulated sediment and debris that are clogging the STF and compromising the STF's functionality. Listed below are common issues that, if observed within the STF, may indicate the need for STF maintenance. A

brief description of each common issue is also listed along with the particular STF's that can be affected by the issue.

- Sediment Accumulation & Clogging
- Distressed Vegetation
- Erosion, Bank Failure & Channel Formation within the STF
- Ponding Water Beyond Design Criteria of STF
- Pests
- Pollution You Can See and Smell

Sediment Accumulation & Clogging

Sediment can clog special soil media designed to infiltrate stormwater runoff. Sediment, along with debris and trash can clog outlets, inlets, and underdrains. STF's affected by excessive sediment accumulation and clogging are: Bioretention Areas, Vegetated Infiltration Swales, Permeable Pavements, Rain Gardens, Sand Filters, Dry Ponds, Wet Ponds, Underground Detention, Rain Barrels and Cisterns.

Distressed Vegetation

Dying or diseased plant material reduces the pollutant removal function of STF's that incorporate plants into their design. Loss of plant material also enables erosion of special soil media to occur. STF's affected by distressed vegetation are: Bioretention Areas, Vegetated Infiltration Swales, Rain Gardens and Green Roofs.

Erosion, Bank Failure & Channel Formation within STF

Erosion of dams, embankments, side slopes or the formation of channels by erosion within the STF may cause failure to STF's containing these features. STF's affected by erosion, bank failure and channel formation are: Dry Ponds, Wet Ponds, Bioretention Areas, Vegetated Infiltration Swales and Rain Gardens.

Ponding Water Beyond Design Criteria of STF

Stormwater runoff that remains ponded beyond the design specifications of the STF may indicate blockage or clogging of outlets, underdrains or special soil media by sediment, debris and trash. STF's affected by unintended standing water or prolonged ponding are: Dry Ponds, Bioretention Areas, Bio Swales, Rain Gardens, Grass Swales, and Underground Detention.

Pests

Pests such as insect infestations, burrowing animals, beavers, excessive geese, harmful algae blooms and noxious weeds can be a detriment to STF function, stability and water quality treatment. STF's most affected by pests include: Bioretention Areas, Bio Swales, Rain Gardens, Dry Ponds, Wet Ponds, and Non-Structural STF's such as Riparian & Wetland Setbacks and Conservation areas.

Pollution You Can See and Smell

Foul Odors, high oil sheens on the water surface and discoloration of the stormwater may be indicators of STF failure or excessive pollutants entering or captured by the STF. Any STF can be impacted by excessive pollutant loading and should be inspected with the presence of a qualified stormwater management professional. Proper actions to take are to investigate and identify the source of excessive pollutant loads.

*TIPS TO LESSEN MAINTENANCE COSTS

- Don't neglect needed maintenance. If properly cared for, a stormwater control measure (SCM) can perform effectively during storm events and protect properties from flooding, erosion and improve water quality. Neglected SCMs will fail and may become financially burdensome to maintain or repair at a later date.
- Property owners, homeowner associations and businesses can reduce maintenance costs and the potential liability of those legally responsible for the SCM by implementing the following best management practices in and around the areas draining to the SCM.
    - Manage grass clippings, leaves, soil or trash so that none of these can get into the SCM or stormwater inlets draining to the SCM. These will clog integral components (i.e. pipe inlets/outlets, specialized soils and drains) of the SCM or conveyance system (i.e. storm sewer pipes, inlets, swales) delivering stormwater runoff to the control measure.
    - Do not leave bare areas unvegetated. Bare soils and erosion produce fine sediments that can quickly clog a SCM.
    - Do not over fertilize lawn and landscaping areas. Excess fertilizers can wash off the landscape and over hard surfaces during storm events and drain to SCMs stimulating plant or algae growth near or within inlets, outlets or pipe of the SCM.
    - Manage pet wastes properly. Animal wastes not properly disposed of in appropriate trash receptacles can contribute disease causing bacteria and pathogens to stormwater runoff and decrease the longevity of treatment components (i.e. filters, specialized soils) within SCMs.
    - Keep contributing drainage areas to the SCM (i.e. streets, gutters and parking lots) free of trash, debris and yard wastes to prevent clogging of integral SCM components.
    - Manage salt and other deicers carefully. Sweep up and properly dispose of salt and other deicing agents to protect grass and plant materials from damage during winter and spring months.
    - Maintain vigorous plant growth in vegetated areas. Plant native trees, shrubs and perennials in existing turf areas to help stormwater soak into the ground. Select species that require little or no fertilizer or pest control and that are adapted to an acceptable range of site conditions.

* "Maintaining Stormwater Control Measures:" Last modified December 2016; Page 43, "Tips to Lessen Maintenance Costs."
https://epa.ohio.gov/Portals/35/documents/SCM_OM_Manual_Final_7-30-15.pdf

5. Tracking Controls

The City of Kearney will maintain a current inventory of all post-construction structural stormwater control measures installed and implemented at newly developmed and redeveloped sites, including both public and private sector sites located within the permit area. In the "Post Construction Stormwater Management Plan (PCSMP) Submittal Checklist" there is a chart that the developer is required to fill out. This chart shall provide information on each Stormwater Treatment Facility (STF). An 'STF Identification Number;' The Type of STF; The specific Lat/Long of each STF; Drainage Area (Acres); Design Water Quality Volume (cf) or Water Quality Volume Discharge Rate; Finally- the Water Quality Volume or Water Quality Volume Discharge Rate Provided.

This chart will be handed in to the City of Kearney Public Works Department upon acceptance of STF's in developed site. It is also part of the PCSMP Submittal Checklist, Appendix A.

STF Identification Number	STF Type	STF Location (Lat/Long)	Drainage Area (Acres)	Design WQCV (cf) or Q_{WQ} (cfs)	WQCV (cf) or Q_{WQ} (cfs) Provided

6. Inspection and Enforcement

Inspection

The City of Kearney will have an ordinance written its City Code that addresses the 'Inspection of STF's' on new development or redevelopment. Prior to construction of STF's there will be required an inspection of the property for validation of proper placement of planned STF's. To ensure that the correct construction and implementation process are being used for the STF, an inspection will be needed for verification. These inspections will be completed by someone of the Director of Public Work's choosing or a civil engineer licensed in the State of Nebraska.

Self- inspections, performed by the STF/property owner, are submitted by owner of project within 90-days following municipal approval of completed project and shall consist of identifying each STF and reporting if maintenance is needed or has been done. The frequency of self-inspections should be no longer than three years following the previous self-inspection. There are different STF Inspection forms found in Appendix D.

For Municipal/Capital Improvement projects, inspections will completed by the City for each completed project within 90-days following municipal approval of each completed project. Also, if a request is submitted by the public and/or there has been a failure of the owner to submit a routine self-inspection, the City will perform an inspection within fourteen (14) days of the request.

Enforcement

The City of Kearney has an ordinance enacted as it relates to the enforcement of STF responsibility of maintenance and of proper penalties for any violations of said ordinance. Chapter 9, Article 16, Division V (Enforcement) addresses the process regarding the violations, enforcement and penalties as it pertains to complying with any of the requirements of this Article. The City Code for Post-Construction Stormwater Management can be found in this document as Appendix E.