

REGULATORY AND PLANNING GUIDANCE

2.1 Introduction

The purpose of this chapter is to provide general information on the site planning process and relevant regulations and plans. This chapter contains general information with regards to the roles and requirements of the local jurisdiction and other agencies that have a role in the development process. The reader is referred to the local jurisdiction or agency of interest for detailed information on development process and procedures.

2.2 Applicable Regulations

2.2.1 Local Regulations

The policies, criteria and guidance provided in this manual are applicable only to stormwater quality management. This manual does not provide information with regards to land use planning, zoning, subdivision development, grading, erosion prevention and sediment control, stormwater drainage and detention (i.e., peak discharge) and infrastructure/building construction. Applicants submitting a stormwater management plan must also refer to, and comply with, the city's relevant ordinances, permits and regulatory mechanisms for regulations and policies that are not included in this manual. Such regulations may include, but are not limited to, zoning ordinances, minimum subdivision regulations, erosion prevention and sediment control ordinances, land disturbing permits and ordinances that regulate drainage and stormwater quantity.

This manual is not intended to repeal, abrogate, or impair any existing ordinances and regulations. However, where the policies in this manual and another regulation conflict or overlap, that provision which is more restrictive or imposes higher standards or requirements shall prevail.

2.2.2 Tennessee Construction General Permit

The State of Tennessee General NPDES Permit for Discharges of Stormwater Associated with Construction Activities is henceforth referred to as the "Construction General Permit" (TNCGP). Applicable to all areas of the State of Tennessee, the TNCGP is intended to regulate the pollution prevention and the control of wastes during construction activities, whereas the stormwater management plan is intended to regulate the control of pollution after construction is completed. Specific to site developments, the TNCGP emphasizes the application of best management practices for purposes of erosion prevention and sediment control and the control of other construction related materials and wastes. The TNCGP is administered by the Tennessee Department of Environment and Conservation (TDEC).

2.2.3 Aquatic Resource Alteration Permit

Persons who conduct any activity that involves construction within, and potentially the alteration of, waters of the State must obtain a State Aquatic Resource Alteration Permit (ARAP), and possibly a Federal Section 401 Certification. ARAPs and 401 Certifications are administered by TDEC. The Section 401 Certification is required for projects involving the discharge of dredged or fill material into waters of the United States (US), or wetlands. An ARAP is required for any alteration of State waters, including wetlands that do not require a federal permit.



2.2.4 Section 404 (Wetlands) Permit

Section 404 of the Clean Water Act establishes a program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. Activities in waters of the United States that are regulated under this program include fills for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and conversion of wetlands to uplands for farming and forestry. The US Army Corps of Engineers administers the 404 permit program. The program governs such activities on all surface waters, such as inland waters, lakes, rivers, streams and their tributaries; interstate waters and their tributaries; wetlands adjacent to the above (e.g., swamps, marshes, bogs, or other land areas); and isolated wetlands and lakes, intermittent streams, and other waters where degradation could affect interstate commerce. Section 404 permits (and possibly Section 10 permits) are required for stormwater activities that may impact natural wetlands.

2.2.5 26a Permits for Shoreline Construction

The Tennessee Valley Authority (TVA) administers a permit program that governs shoreline construction along, across, or in the Tennessee River or any of its tributaries. Thus, TVA's jurisdiction for the 26a permit extends to the limits of the Tennessee River watershed. In accordance with TVA requirements, the permit applied to construction in the 500-year floodplain or to the upper limits of TVA flowage rights, whichever is higher, for developments located along regulated rivers (tailwaters) and TVA reservoirs (e.g., Fort Loudoun Lake). Along off-reservoir, unregulated streams and rivers, jurisdiction is typically applied to the limits of the 100-year floodplain. More information on the TVA 26a permit can be found at <http://www.tva.gov>.

2.2.6 Section 9 and 10 Permits for Navigable Waters

Sections 9 and 10 of the Rivers and Harbors Act of 1899 address the construction of bridges and other potential modifications or alterations of navigable waters of the United States. A Section 9 permit is required for construction of a bridge or other structure spanning navigable waters of the United States, without fill or dredging. The United States Coast Guard, as a part of the Department of Homeland Security, administers Section 9 permits. Section 10 permits are issued for fill, dredging, and other alterations of navigable waters. Section 10 permits are administered by the United States Army Corps of Engineers.

2.2.7 Endangered Species Act

The Federal Endangered Species Act (ESA) of 1973 protects plants and animals that are listed by the government as "endangered" or "threatened". The ESA makes it unlawful for any landowner to harm an endangered animal, or to significantly modify an endangered animal's habitat. This applies to both public and private lands. Stormwater management plan requirements that relate to endangered species are contained later in this chapter. More information on the Endangered Species Act can be gathered from the Tennessee Wildlife Resources Agency (<http://www.state.tn.us/twra>), or the United States Fish and Wildlife Service (www.fws.gov).

2.2.8 State/Federal Water Quality Regulations

There are two major, State-administered, regulatory programs that provide the basis for local jurisdictional stormwater quality regulations: the General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s), henceforth called the MS4 Permit; and the Total Maximum Daily Load (TMDL). Both regulations are administered by TDEC. Local jurisdictions are responsible for the community's compliance with the MS4 Permit and TMDL, and therefore have imposed stormwater management regulations on new developments and redevelopments. Both State-administered regulations are discussed briefly below.



2.2.8.1 NPDES MS4 (Phase II) Permit

The MS4 Permit falls under the National Pollutant Discharge Elimination System (NPDES) program, and establishes guidelines for municipalities to minimize pollutants in stormwater runoff to the “maximum extent practicable.” The MS4 permit is directly applicable to the local jurisdiction, which has the responsibility for maintaining local government compliance with the permit requirements. As a result, each local jurisdiction that must comply with the MS4 Permit has in turn imposed a similar set of regulations on developments and redevelopments, pertaining to non-stormwater (i.e., illicit) discharges and dumping, erosion prevention and sediment control (EPSC), and, most relevant to this manual, stormwater management. While a site developer or property owner has no direct responsibility with regards to compliance with the MS4 permit, it is important to understand that the conditions of the MS4 Permit do affect local stormwater management requirements during and after construction.

2.2.8.2 Total Maximum Daily Load Program

Under Section 303(d) of the Clean Water Act, the State of Tennessee is required to develop a list of impaired waters that do not meet water quality standards (i.e., the 303(d) list). TDEC must then establish priority rankings for waters on the list and develop TMDLs for listed waters. The TMDL specifies the maximum amount of a specific pollutant of concern that a designated segment of a water body can receive and still meet water quality standards. The TMDL also allocates pollutant loadings among point and non-point pollutant sources, including stormwater runoff. TMDLs have been issued for water bodies in northeast Tennessee, and more are anticipated.

The TMDL program has the potential for broad impact on the local stormwater management program and property development regulations because it requires that non-point sources of pollutants must be addressed at the local level. The program requires the development of a plan that may impose requirements or restrictions for specific local regulations or programs, and therefore it is important for persons that are planning new developments or redevelopments to be aware of TMDLs and where they are applicable. Adopted TMDL plans are available from TDEC or at TDEC’s website (<http://www.state.tn.us/environment>). As well, local jurisdictions can provide information on any local stormwater management requirements that may result from a State-imposed TMDL.

2.3 Stormwater Management Plans

The stormwater management plan (also referred to as “the plan”) is defined as the engineering plan for the design of stormwater management facilities and best management practices within a proposed development or redevelopment. This section includes specific requirements and information on plan contents and approval requirements, and provides general guidance on the approval process.

2.3.1 General Policies

The reader is referred to the city’s stormwater management ordinance for provisions pertaining to stormwater management plans. Beyond those provisions, the policies that shall apply to stormwater management plans are listed below.

- The stormwater management plan must be submitted as part of, and at the same time as, the larger subdivision or site plan for the development or redevelopment, along with any required plan review fees. The plan will be reviewed for compliance with local stormwater management regulations, this manual, and any other applicable local requirements. Only complete plans will be accepted for review.
- Issuance of a land disturbing permit may be contingent on approval of the stormwater management plan. The reader is referred to other applicable regulations or policies for information on the city’s subdivision or site plan submittal/review/approval process.



- If applicable to the proposed new development or redevelopment, an Endangered Species Act (ESA) review shall be completed prior to submittal of a stormwater management plan. The results of the ESA review must be submitted as part of the plan. The plan cannot be reviewed or approved if the ESA review has not been performed. ESA review applicability is addressed in section 2.3.2 of this chapter.
- A stormwater management plan checklist that provides a complete inventory of the required contents of the plan is presented in Appendix D of this manual. Use of this checklist is required, to ensure submittal of a complete plan and expedite the plan review process. The plan shall include, at a minimum, the elements listed in the checklist, unless the element is not applicable to the project. These requirements should be checked as “not applicable.” Omission of any required items shall render the plans incomplete, and they will be returned to the applicant, or their engineer, so that they may be completed. When the stormwater management plan is submitted, the applicant must attach a signed copy of the checklist to certify that a complete package is being submitted.
- If applicable to the proposed new development or redevelopment, a special pollution abatement plan shall be required for submittal as part of the stormwater management plan. The special pollution abatement plan applicability is addressed in section 2.3.3 of this chapter.
- The applicant may also be required to meet State and Federal regulations for construction activities that will have an impact on Waters of the State, wetlands, sinkholes and threatened or endangered species. It is the responsibility of the applicant to thoroughly review, understand and adhere to all applicable local, state and federal laws and regulations with regard to site development and property regulations when submitting the stormwater management plan. Copies of all applicable State and Federal permits must be provided to the local plan review agency as part of the stormwater management plan.

2.3.2 Endangered Species Act Review

The MS4 Permit (discussed previously in this chapter) requires the local jurisdiction to consider the potential impacts of stormwater discharges on species that are listed as endangered or threatened under the ESA and on habitat that is designated as “critical” under the ESA. **Because of these requirements, any proposed development that is located within, or discharges stormwater runoff to, an area designated as containing threatened species, endangered species, or critical habitat (as defined by the ESA) shall be reviewed by the United States Fish and Wildlife Service (USFWS) prior to submittal of a stormwater management plan.** If USFWS determines that the proposed development may, or will, impact an endangered or threatened species, or critical habitat, an informal consultation may be required by USFWS to determine the BMPs that will mitigate the potential ESA-related impacts. Often, such impacts will be construction related, and therefore will impact the design of erosion prevention and sediment control measures. **It is the responsibility of the property owner to work with USFWS to ensure compliance with the ESA.**

The city is not the regulatory agencies tasked with enforcing the ESA, and therefore cannot advise the property owner on ESA compliance practices and options. However, BMPs that are utilized to mitigate ESA-related impacts must be:

- approved by USFWS (or other agency as designated by USFWS); and,
- included in the stormwater management plan, or other plan as appropriate, and must be identified on such plan(s) as “USFWS-accepted BMPs”;

Once plan approval is received by the local jurisdiction, USFWS-accepted BMPs that are shown on plans will be enforced by the local jurisdiction as a matter of compliance with approved plans. Variations from USFWS-accepted BMPs shown on approved plans will not be allowed by the local



jurisdiction without a copy of written acceptance of such variations by USFWS.

The city does not have the authority to expedite USFWS reviews and informal consultations. Therefore, person(s) responsible for proposed developments should consider the additional time required to coordinate with USFWS when preparing development schedules and costs. Questions regarding a USFWS consultation for any particular site should be forwarded to the USFWS office in Cookeville, Tennessee. Contact information for USFWS is presented in Appendix C.

In order to facilitate an understanding of when ESA reviews are needed, each local jurisdiction has a Threatened and Endangered Species buffer map. This map shall be used to determine which proposed developments will require review by USFWS. This map is prepared and maintained by the USFWS, and is available from the local jurisdiction for use by the general public. The map will be updated by the city as needed to remain current.

Proposed developments that are located within an area identified on the Threatened and Endangered Species buffer map, or are located in a watershed that discharges to a buffered stream shown on the map, must submit for a review by USFWS. A copy of the results of the USFWS determination must be provided, in writing, with all grading and development plans submitted to the city. Further, proposed developments that undergo informal consultation by USFWS must also present, in detail, the BMPs that have been accepted by USFWS to mitigate ESA-related impacts. A copy of the BMP acceptance by USFWS must also be provided. Stormwater management plans that do not comply with these requirements will not be accepted for review.

2.3.3 Special Pollution Abatement Plans

A Special Pollution Abatement Plan (SPAP) may be required for new developments and redevelopments on the basis of: 1) land use or type of business; 2) a history of air or water pollution at a site; 3) a history of air or water pollution by an owner/operator at other sites; 4) the potential to impact environmentally sensitive areas, such as wetlands; or 5) at the discretion of the city upon sound engineering judgment. The city's stormwater management regulation(s) will provide information on the applicability of a SPAP. A SPAP template is provided in Appendix D of this manual (City of Knoxville, 2006).

To obtain coverage under a SPAP, the property or business owner must submit a SPAP (see Appendix D) and any application fee, if appropriate, with the stormwater management plan. The SPAP requires supporting documentation for the BMP(s) proposed to reduce or mitigate special pollutants, including BMP specifications and maintenance information. SPAP-related BMPs must be included in the record drawings for the site.

Like any stormwater management BMPs, SPAP-related BMPs must be maintained in proper operating condition throughout the life of the land use or business, or otherwise as appropriate for the conditions of the site. It is the responsibility of the property owner to inspect and maintain SPAP-related BMPs, and to document such inspections and maintenance activities. Such documentation must be maintained by the property owner and provided to the city upon request. Further, the city shall have the authority to inspect SPAP-related BMPs for long-term operation and performance, and to order corrective actions if necessary.

The following minimum standards shall be addressed in the SPAP:

- **Employees and/or staff of the business or land use type shall be trained annually on the requirements of the SPAP**, specifically addressing pollution source controls such as spill control and cleanup, proper waste management, chemical storage, and fluids management with vehicle servicing. The type of training shall be tailored to and appropriate for the land use or business. Documentation of the training shall be maintained with the SPAP and made available to the city upon request.



- **Parking lots shall be swept monthly to remove gross solids.** Waste gathered during sweeping activities shall be disposed of properly.
- **Animal waste shall be prevented from entering streams, sinkholes, wetlands, ponds or any other component of the storm drain system.** Controls shall be instituted to collect the animal waste and properly treat or dispose of it.
- **Structural BMPs that have been designed to specifically address the target pollutants associated with the land use shall be utilized where appropriate to reduce pollutant loadings.** This requirement does not alleviate new developments and redevelopments from stormwater management design criteria for total suspended solids (TSS), as discussed in Chapter 3. BMPs that are implemented to comply with SPAP minimum standards can factor into the % TSS calculation, provided that they have TSS removal capabilities. Percent TSS removal values and policies for stormwater treatment BMPs are presented in Chapter 3 of this manual. Table 2-1 presents target pollutants for the land uses for which a SPAP is required.
- **Structural BMPs shall be inspected and maintained by the owner/permittee.** Inspections must be conducted at least annually. Maintenance shall be conducted as needed and as required by the manufacturer of the structural BMP or by the city. Documentation of such inspections shall be maintained by the owner and made available to the city upon request.

Table 2-1. Target Pollutants for SPAP Land Uses

Land use	Target Pollutant
Vehicle, truck or equipment maintenance, fueling, washing or storage areas including but not limited to: automotive dealerships, automotive repair shops, and car wash facilities	Oil, grease, detergents, solids, metals
Recycling and/or salvage yard facilities	Oil, grease, metals
Restaurants, grocery stores, and other food service facilities	Oil, grease, trash
Commercial facilities with outside animal housing areas including animal shelters, fish hatcheries, kennels, livestock stables, veterinary clinics, or zoos	Bacteria, nutrients
Other producers of pollutants identified by the local jurisdiction by information provided to or collected by him/her or his/her representatives, or reasonably deduced or estimated by him/her or his/her representatives from engineering or scientific study	As identified by the local jurisdiction

2.3.4 Pre-Design Conference

This stormwater management manual contains many different BMPs and “better site design” alternatives that can be applied on a new development or redevelopment site. As a result of this, there is a large degree of flexibility in the design of a site that is offered to local developers and site design engineers. Prior to submittal of site design plans, the city strongly encourages the use of a pre-design conference with the developer and site designer to discuss potential site layout, design, and construction sequence.

A pre-design conference is not mandatory. The developer is encouraged to invite representatives of other regulatory or permitting agencies to the pre-design conference. The objectives of this meeting would be to:

- Review the site topography, existing vegetative condition, and preliminary site development lay-out (if already determined);
- identify the natural drainage conditions (for new development) and existing drainage conditions



(for redevelopments);

- identify any environmentally-sensitive features, such as streams, wetlands, sinkholes, and steep slopes, that should be avoided by the development or redevelopment;
- discuss preliminary strategies for site clearing, grading and construction;
- discuss preliminary design strategies for erosion and sediment control, road geometry and layout, stormwater treatment practices, water quality buffers, and encourage the use of better site design practices and water quality volume (WQv) credits; and,
- determine how the technical guidelines and criteria presented in this manual should be applied to the site.

The city is not responsible for development of a design plan for the site as a result of the pre-design conference. Further, the pre-design conference should not be considered as an endorsement or pre-approval of any design plans that will be submitted to the city later in the development process. The developer is responsible for requesting and scheduling the pre-design conference, and for inviting others as appropriate for his/her needs (e.g., the site design engineer, representatives of other agencies).

2.4 Bonds

A performance bond may be required by the city for land disturbing activities, and/or the construction of new developments and redevelopments when:

- 1) there is a potential for runoff to adversely impact local rights-of-way, other property, and/or streams, wetlands, ponds or lakes; or,
- 2) an erosion prevention and sediment control plan is required; or,
- 3) a stormwater management plan is required; or,
- 4) there is construction of a joint permanent easement or public road; or
- 5) the area of grading or development drains to one or more sinkholes; or,
- 6) the site is used for a borrow pit.

The purpose of the performance bond is to ensure that the person(s) responsible for completing the land disturbing activities and/or construction work that has the potential to impact the public interest if performed improperly completes the work in an appropriate manner. The performance bond provides assurance to the city that it will be reimbursed when it must assume the costs of corrective measures and/or work not completed by the responsible person(s) according to the required specifications and approved plans. A performance bond can be used to cover the city's costs for the remediation or demolition of roadways, stormwater management facilities and related appurtenances, the installation and maintenance of EPSC measures and EPSC corrective actions, final soil stabilization of a site, and the establishment, protection, and maintenance of water quality buffers.

Performance bonds are administered by the city. The dollar amount of the performance bond will be determined, based on the information presented in the approved EPSC and/or stormwater management plan.

General policies regarding release of a performance bond are as follows.

- 1) An accurate as-built must be completed for the property.



- 2) Portions of the property that will be used for the stormwater management system must be recorded as a permanent drainage, water quality, preservation, and/or access easement, as appropriate for each system component.
- 3) If found within the boundaries of the development, any one of the following items could keep areas or activities from being released from the performance bond:
 - areas of erosion or unstabilized areas;
 - potential for discharges of sediment, or construction-related and other wastes;
 - engineering or structural deficiencies or maintenance issues associated with constructed roadways, the stormwater system, or stormwater management best management practices;
 - unsafe conditions;
 - unhealthy, damaged or poorly growing vegetation in a vegetated buffer that has been impacted by construction.

2.5 As-Builts

Policies pertaining to as-builts are as follows.

- Prior to obtaining a Certificate of Occupancy, two (2) complete copies of as-built drawings with the appropriate professional certifications must be provided to the city for approval. The drawings will be compared to the approved site or subdivision plan for any irregularities or non-conformance with the approved plans.
- The as-builts shall reflect the “as-constructed” condition of the development, and shall include sufficient information to demonstrate conformance with the approved plan(s). Significant deviations from the approved plan(s) shall be considered violations of local ordinances and are grounds for the invocation of the injunctions and penalties defined therein, and/or withholding the release of a bond pending the completion of corrective action(s), and/or requiring a submittal of a revised stormwater management plan. In the event that submittal of a revised plan is required, the revision shall include a description of the discrepancies between the site conditions and the prior approved stormwater management plan, along with design calculations that demonstrate that the as-built conditions comply with local stormwater control requirements.
- Should the as-built conditions be shown to have a negative impact with regards to flooding, maintenance, erosion or water quality, other mitigation measures and proposed design plans to mitigate any potential impacts from the development may be required.
- Only complete as-builts will be accepted. The as-built checklist presented in Appendix E shall be included to indicate that a complete plan is being submitted. As-builts shall contain the information and certification(s) listed, as applicable to the development. Some requirements of the checklist in Appendix E will not be applicable to all projects. These requirements should be checked as “not applicable”. Additional information may be requested as necessary to allow a thorough review of the as-constructed conditions. Omission of any required items shall render the as-builts incomplete, and they will be returned to the applicant, or their engineer, so that they may be completed.
- Plats, easements and BMP locations shown must be field checked by the property owner or developer prior to submitting the as-built to ensure that the field locations are approximately correct. Prior to submittal of the as-builts, all easements and survey plats must be recorded with the Register of Deeds, and any protective covenants pertaining to stormwater management shall be executed. Copies of the recorded documents or other verification of the



recording shall be included with the as-builts.

- As-builts must be prepared and stamped by the appropriate design professional as required to stamp the original stormwater management plan, and/or a registered land surveyor licensed to practice in the State of Tennessee. Land surveyors providing as-builts must provide the following certification, in addition to the surveyor's seal and an original signature and date across the seal.

I hereby certify that I have surveyed the land boundaries and easements shown hereon in accordance with the accuracy requirements for a Category I survey and that the ratio for precision of the unadjusted survey is not less than 1:10,000.

I further certify that I have located all natural and manmade features shown hereon in accordance with the current Standards of Practice as adopted by the Tennessee State Board of Examiners for Land Surveyors. I certify the location, elevation and description of these features.

Printed name *Date* *RLS Number*

The reviewing engineer shall provide the following certification, in addition to the engineer's seal and an original signature and date across the seal.

Based upon site observations and/or information provided by a registered land surveyor, I hereby certify that all grading, drainage, structures and/or systems, erosion and sediment control practices including facilities and vegetative measures, have been completed in substantial conformance with the approved plans and specifications.

Printed name *Date* *PE Number*



2.6 References

City of Knoxville. *Land Development Manual*. City of Knoxville Engineering Department, Stormwater Division, June 2006.