

1. MCM 6. Construction Site Stormwater Runoff:

The City of Fort Worth and its Co-Permittees has an established Construction Site Stormwater Runoff programs designed to reduce the discharge of pollutants in to the MS4 from construction sites that are one or more acre(s) in size or that are part of a larger common plan of development or sale that is one or more acre(s) in size. Section 12.5-302(a) of the City Code prohibits discharges of pollutants into the MS4 from all sources, including construction sites. The City of Fort Worth EMD has an active TPDES construction site inspection program utilizing two (2) full-time inspectors. Enforcement of control measure requirements is through Section 12.5-334 of the City Code giving inspectors the ability to enforce NPDES/TPDES regulations.

A-CFW For activities operated by the City of Fort Worth or its contractors:

1. *Requirements to use and maintain BMPs to reduce pollutants discharged from Construction Sites.*

Activities operated by the City of Fort Worth and its contractors are governed by the same regulations, ordinance, and requirements that are required of any other project performed within the jurisdiction of the City. These requirements are detailed further in B.1. of this section. Additionally, City of Fort Worth Standard Construction Specifications (specifically Section 01 57 13) requires all activities operated by the City of Fort Worth and its contractors to reduce discharge of pollutants from construction sites via compliance with the TPDES Construction General Permit.

2. *Requirements for construction site operators to control site waste.*

In a July 2011 revision of the City of Fort Worth Standard Construction Specifications, Section 31 25 00 (Erosion and Sediment Control) was revised to require site operators to address the control of site wastes required by this MCM. Section 31 25 00, Part 3 - Execution, 3.4 - Installation, B. Control Measures, 2 states that measures shall be in place to "Control site waste such as discarded building materials, concrete truck washout water, chemicals, litter and sanitary waste at construction site."

3. *Requirements to inspect construction sites and enforce control measures.*

Construction activities operated by the City of Fort Worth or its contractors are inspected in the same manner that any construction site within the jurisdiction of the City of Fort Worth. These requirements are detailed further in B.1. of this section.

4. *Requirements to provide education and training measurers for construction site operators.*

Education and training activities are performed for City of Fort Worth staff and contractors that oversee and/or inspect construction projects for the city of Fort Worth. Staff are trained on the general requirements of the TPDES Construction General Permit and general stormwater management practices.

5. *Requirements to notify construction site operators of permitting responsibilities*

Notification to construction site operators performing work for the City of Fort Worth is provided through pre-development meetings and pre-construction conferences as well as

City of Fort Worth Standard Construction Specifications (specifically Section 01 57 13) contained within contract documents that requires all activities operated by the City of Fort Worth and its contractors to reduce discharge of pollutants from construction sites via compliance with the TPDES Construction General Permit.

A-TXDOT For activities operated by TxDOT or its contractors:

Based on permit requirements, TxDOT must implement a program to reduce the discharge of pollutants into the MS4 from construction sites. The program must include:

- Requirements for the use and maintenance of appropriate structural and nonstructural control measures to reduce pollutants discharged to the MS4 from construction sites;
- Within one(1) year from date of permit issuance, requirements for construction site operators to address the control of site waste such as discarded building materials, concrete truck washout water, chemicals, litter, and sanitary waste at a construction site;
- Inspection of construction sites and enforcement of control measure requirements;
- Appropriate education and training measures for construction site operators; and
- Notification, as appropriate, to construction site operators of their potential responsibilities under the NPDES/TPDES permitting program for construction site runoff.

If warranted, District-specific controls will be developed and implemented in accordance with TPDES Permit Citation Part III.B requirements as stated above, and are included in Appendix A of the attached TxDOT SWMP.

Structural and Non-structural Control Measures

The District requires that all TxDOT construction sites resulting in a land disturbance of greater than or equal to one acre, or that is part of a larger common plan of development or sale that will disturb one or more acres of land, will comply with TCEQ Construction General Permit (CGP) No. TXR150000. However, it is TxDOT's policy to implement activity-appropriate BMPs for any soil disturbing activity where a potential for stormwater discharges exists, regardless of the type of activity or acreage disturbed.

If required by the CGP, sites will incorporate a Stormwater Pollution Prevention Plan (SW3P) including adequate sediment and erosion controls. The SW3P will also contain measures to control discarded building materials, concrete truck washout water, chemicals, and litter and sanitary waste generated at each construction site. As a District policy, all TxDOT SW3Ps are reviewed and approved before construction activities commence.

At each permitted TxDOT construction site, an appropriate Construction General Site Notice (CSN) is posted, and for projects greater than five acres, a notice of intent (NOI) is posted. These notices are posted in a location accessible to the public and contain a phone number for the public to submit information regarding the site. Comments

received from the public will be considered as deemed appropriate by the District Engineer or responsible TxDOT representative.

Additional requirements for the use and maintenance of appropriate structural and nonstructural control measures to reduce pollutants discharged to the MS4 from construction sites include:

- Plan the highway project to fit the particular topography, soils, drainage patterns and natural vegetation as much as practicable. In general, areas with steep slopes, erodible soils and soils with severe limitations should be avoided when possible.
- Construction sequencing: A sequence of construction should be developed that minimizes the potential erosion and sedimentation impacts. The sequence should consider specific measures dealing with allowable disturbed areas, construction vehicle maintenance procedures, and material stockpiling methods. The sequence of work should be anticipated, and should reflect measures to be used throughout the project. Layouts for erosion control features should be included in the construction plans.
- Minimize the extent and the duration of exposure. Plan the phases or stages of construction to minimize exposure. Permanent vegetation should be achieved as soon as practicable as the work progresses.
- Apply erosion control practices to prevent discharge of sediments offsite. This principle relates to using practices that control erosion on a site to prevent excessive sediment from being produced. Efforts should be made to keep soil covered as much as possible with temporary or permanent vegetation, erosion control blankets or with various mulch materials. Other practices include diversion structures to channel surface runoff from exposed soils and using slope drains where grades may be prone to erosion.
- Apply perimeter control practices to protect the disturbed area from off-site runoff and to prevent sedimentation damage to areas down-gradient of the construction site. This principle relates to using practices that effectively isolate the construction site from surrounding properties, and especially to controlling sediment once it is produced and preventing its transport from the site. Diversion structures, swales, dikes, sediment traps, and vegetative and structural sediment control measures can be classified as either temporary or permanent depending on whether or not they will remain in use after construction is complete.
- Limit the types of construction operations, including access and hauling, allowed in certain areas of the project that may be more susceptible to erosion.

- Minimize the disturbance of and access to existing waterways. Provide planned and protected stream crossings during construction activities.
- When constructing cross drainage structures in existing waterways, provide a controlled diversion through the disturbed area as opposed to allowing uncontrolled flow through the construction area. This could be done by temporarily diverting the existing stream through a channel made from sandbag with plastic sheathing. Divert the stream until the permanent structure is completed or even just protected or partially completed (e.g. completing one barrel or a multi-barrel culvert installation and allowing the flow to cross through the partially completed portion).
- Maximize the storage volume afforded in ditches, etc., for use as temporary sediment traps or ponds to contain sediment-laden runoff on the site.
- Give priority to completing and stabilizing slopes and ditches to reduce erosion potential.
- Keep runoff velocities low and retain runoff on the site. The removal of existing vegetative cover and the increase in impermeable surface area during construction will increase both the volume and velocity of runoff. These increases should be taken into account when providing for erosion control. Keeping slope lengths short and gradients low, and preserving natural vegetative cover can keep stormwater velocities low and limit erosion hazards. Runoff from the development should be safely conveyed to a stable outlet using storm drains, diversion structures, stable waterways or similar measures. Conveyance systems should be designed to withstand the velocities of projected peak discharges. These facilities should be operational as soon as possible.
- Stabilize disturbed areas immediately after final grade has been attained. Permanent structures, temporary or permanent vegetation, mulch, stabilizing emulsions, or a combination of these measures, should be employed as quickly as possible after the land is disturbed. Temporary seeding, mulches and other control materials can be most effective where or when it is not practical to establish permanent vegetation or until the vegetation is established. Such temporary measures should be employed immediately after rough grading is completed if a delay is anticipated in obtaining finished grade. The finished slope of a cut or fill should be stable and ease of maintenance should be considered in the design.
- Implement a thorough inspection, maintenance and follow-up program. This last principle is vital to the success of the management of runoff from construction activities. A site cannot be effectively controlled without thorough, periodic checks of the erosion and sediment control practices.

- The standard TxDOT specification for “Erosion, Sedimentation and Water Pollution Prevention and Control,” will be included in all construction project plans and specifications.
- TxDOT will follow Notice of Termination procedures, as required, by the TPDES CGP.

Some routine maintenance activities do not require authorization under the CGP including activities performed to maintain the original line and grade; hydraulic capacity and original purpose of a ditch, channel, or other similar stormwater conveyance; the routine grading of existing dirt roads; and asphalt overlays of existing roads. TxDOT’s interpretation of this exclusion exempts shoulder blading to restore the shoulder to its original condition and pavement “reworking” operations if they stay within the limits of the original pavement and do not expose the base or sub-grade. Note that if the base or sub-grade is exposed or if previously undisturbed land is disturbed (e.g. clearing for staging areas or temporary haul roads), coverage under the CGP could be required.

Utility contractors that are working within the ROW must first provide a Utility Installation Request form, and obtain approval prior to commencing those construction activities. The approval form requires the contractor to comply with the Federal Clean Water Act (obtain TPDES general permit TXR150000, for example), to develop BMPs to minimize erosion, and to re-vegetate the project area.

Inspection and Enforcement

The statutes of the State of Texas give TxDOT the power to control virtually all of the activities occurring within the ROW, but there is little, if any, authority to regulate discharges occurring off the ROW and flowing into State maintained drainage systems. Texas Administrative Code gives TxDOT the power to construct, maintain and operate a drainage system for State Highways to accommodate the stormwater which originates within, and reaches highway ROW. TxDOT contracts with others for the construction, and sometimes for the maintenance, of these systems. As such, contracting is the primary control for enforcement.

As construction commences, TxDOT inspectors will evaluate the stormwater control measures as specified in Appendix A. TxDOT has created a “Storm Water Field Inspector’s Guide,” to assist TxDOT inspectors with identifying any device deficiencies. The guide provides design criteria for each device as well as repair and when devices maintenance is needed. Sediment will be removed from devices and damaged devices repaired as soon as practical. The Contractor will remove silt accumulations and deposit the spoils in an area designated by the Engineer.

Site Operator Education and Training

Prior to initiation of construction, the contractor will meet with the TxDOT Area Engineer in a Pre-Construction meeting to discuss stormwater issues for the construction site. TxDOT will ensure contractors are aware of practices and policies identified in this section, as well as emphasizing the expectation of compliance.

Site Operators Permitting Responsibility Notification

At the Pre-Construction meeting, TxDOT will notify the site operator of their TPDES permitting responsibilities associated with construction activity, as appropriate.

A-TRWD For activities operated by TRWD or its contractors:

Construction activities in the TRWD floodway are required to have TRWD permits that address stormwater controls for the construction site. TRWD has also developed additional criteria specific to construction on the floodway. Included in these criteria are guidelines for post-construction grass establishment and erosion protection utilizing cabled articulating revetment systems. All construction plans will be reviewed for concrete washing practices, sanitary waste collection and disposal and trash control measures. Permitted construction sites are inspected and monitored by TRWD staff according to the U.S. Army Corps of Engineers and the City's regulations and ordinances. These inspectors have been trained through the NCTCOG Development Management Subcommittee Regional Urban Stormwater Management Task Force. Any violations that do not comply with TRWD requirements are forwarded to appropriate authorities such as the City or EPA.

B. For all other construction activities that may impact the City of Fort Worth MS4:

1. Requirements to inspect construction sites and enforce violations

Throughout the first five (5) year term under the TPDES permit (2006-2011), there have been, on average, approximately three hundred and seventy five (375) active construction operations in Fort Worth at any given time. The EMD has two (2) full time inspectors to perform inspections at these sites. The inspectors visit each site, on average, once per month for routine inspections of BMPs and compliance with the TPDES Construction General Permit and will inspect sites more often as needed when corrective actions are required. The inspectors maintain records on site conditions observed during the inspections and keep files for all violations noted. Through ordinances adopted by the City of Fort Worth, construction sites in the city are required to perform construction activities in accordance with applicable TPDES permits. Requirements regarding the use and maintenance of control measures during construction are clearly addressed in the TPDES Construction General Permit. In addition, through adopted ordinance, it is an enforceable offense to introduce any discharge to the MS4 that is not composed entirely of stormwater. This applies to all construction sites whether or not regulated by a TPDES discharge permit. As the City Code makes it clear that discharges such as silt and sediments from construction sites are not allowed to enter the storm drain system, the City feels that it is unnecessary to state specific requirements for BMPs (both structural and nonstructural). As each construction site is unique, and areas within each site are unique, we feel that the site's engineers are in a much better position to decide what BMPs to use. When illicit discharges occur, City inspectors take appropriate enforcement actions specifying the amount of time for the site to make corrections.

2. Review site plans for water quality impacts.

Site plans are reviewed through the development process for conformance with the 2006 version of the NCTCOG iSWM Manual. Stormwater Pollution Prevention Plans are evaluated by City of Fort Worth construction stormwater inspectors during the inspection process discussed in this MCM. Additionally, The City of Fort Worth is in the process of developing a grading ordinance that will adopt and require conformance with the 2010 version of the NCTCOG iSWM manuals including the Construction Controls Technical Manual which details BMPs to be required during construction. The development of a process for further evaluating water quality impacts is being addressed in MCM 2.

3. *Requirements for responding to public concerns regarding construction sites*

The City of Fort Worth has established a number of avenues to receive information submitted by the public including concerns related to construction sites. These processes are detailed in MCM 7 section A. 2. A. When a call is received, an inspector will be notified and will evaluate the concern within one business day. If requested, the inspector will follow-up with the caller to relay the findings and next steps (if any are necessary).

4. *Requirement to provide education and training measurers for construction site operators*

The City of Fort Worth participated with the cities of Dallas, Arlington, Irving, Garland, Mesquite and Plano in assisting the NCTCOG in designing an NPDES Construction Inspection Training Program. The final program consists of a one (1) day workshop. All aspects of the TPDES program are stressed including SWPPP development, BMP selection, site inspections and NOI/NOT filing. This course is designed for use by municipal inspectors, site owner/operators and general construction site personnel. It is offered by the NCTCOG. All City of Fort Worth EMD construction site inspectors are required to take this course. In addition, the City has held similar workshops for City employees from all departments associated with construction activities. The City's TPDES construction inspectors give educational programs to organizations as requested. These programs are designed to familiarize the site operators with NPDES/TPDES and local regulations. We will continue to give these programs and seminars when requested. EMD has designed a simple brochure that explains the basic requirements and illustrates a few example BMPs. These brochures are typically given out at these seminars in addition to other literature as we have available. Additional educational information on construction stormwater management is also available through the City of Fort Worth's website.

5. *Requirement to notify construction site operators of permitting responsibilities*

The EMD inspectors are a part of the City's plan review process and are made aware of all projects that qualify under TPDES requirements. Inspectors then visit these sites when construction activities commence to assure that the TPDES/NPDES regulations are being followed. Inspectors often have the opportunity to visit with the site operators before construction activities at pre-development conferences. These conferences are held for most major projects so the owners/operators can be made aware of all local, state and federal building requirements. The inspectors hand out a variety of written materials that range from a one-page document meant to familiarize the operator with the TPDES

process to large manuals that detail a multitude of BMP options. Examples of these written materials are on file at EMD and available for review at the department's offices on the 7th floor of the City Hall Annex, located at 908 Monroe Street.

C. List of Sites

The City of Fort Worth maintains a database containing a list of operators and construction sites that are located within the city limits of the City of Fort Worth. This database contains the name, location and permit number issued by the TCEQ that authorizes stormwater discharges from construction activities.

D. The following elements are included in this SWMP and will be implemented by the City of Fort Worth within 1 year of permit issuance.

1a. The permittees shall require construction site contractors to, at a minimum, implement appropriate erosion and sediment control BMPs.

This task has been included in the SWMP and has been preformed by City of Fort Worth staff since the programs inception. This has been accomplished via ordinance that requires operators of construction sites to have a NPDES or TPDES permit to discharge stormwater. Additionally, ordinance requires these facilities to operate in strict compliance with the requirements of its NPDES or TPDES permit. These permits require operators to have appropriate erosion and sediment control BMPs.

1b. The permittee shall require construction site contractors to, at a minimum, control waste such as discarded building materials, concrete truck washout water, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.

This requirement is accomplished through the control requirements contained within the TPDES construction general permit and City of Fort Worth ordinance Part II, Appendix B, Article II, Division 3, Subdivision A Section 11A-27 & 28.

2. Procedure Development

2.1 Site Plan Review that incorporates consideration for potential water quality impacts

Please see section B.2. above for details regarding this requirement.

2.2 Receipt and consideration of information submitted by the public

Please see section B. 3 above for details regarding this requirement.

2.3 Site inspection and enforcement of control measure to the extent allowable.

Please see section B. 1 above for details regarding this requirement.