

West Plains, Missouri



Erosion and Sediment

Control (ESC) Field Manual

West Plains
Engineering Department
P.O. Box 710
West Plains, MO 65775-0710
(417)256-7176

Introduction. If you are reading this *Erosion and Sediment Control Field Manual (ESC Field Manual)*, you are most likely near the start of a new project that falls under the West Plains ESC Permit process. This *ESC Field Manual* is designed to familiarize owners, ESC Managers, project managers, contractors, and other field personnel with an overview of

procedures and requirements for starting, conducting, and completing land development activities according to West Plains requirements. This ESC Field Manual is used by the permittee(s) to ensure they remain in compliance with the ESC Permit during construction. Prior to construction, when the ESC Plans were developed, a design engineer used another city manual on ESC called the *Stormwater Management Manual Volume I*; this manual presents city requirements and gives guidance during the development phase. That manual is not intended to be used by the contractor, instead use this manual. The *ESC Field Manual* shall be kept on-site for future reference on West Plains ESC requirements.



Information

This manual shall not be utilized as a criteria manual, but rather as a field guide to be utilized in conjunction with the accepted ESC drawings, and ESC Permit.

The ESC Permit Program. The goal of the ESC Permit process is to implement effective erosion and sediment control best management practices (BMPs) as a standard for all land-disturbance activities to reduce increases in erosion and sedimentation over pre-development conditions. During the relatively short period of time when undeveloped land is converted to urban uses, a significant amount of sediment can erode from a construction site and be transported to adjacent properties and receiving waters. Erosion caused by construction and downstream sedimentation can damage property and degrade the quality of streams and lakes. Sediment is a transport mechanism for many stormwater pollutants. Sediment can disturb riparian and aquatic habitat and, since eroded sediments often contain significant phosphorus, and other nutrients can lead to unwanted algae growth in lakes and reservoirs. West Plains is committed to protecting our water resources and

ensuring that future development continues in an environmentally-sound manner.

Sections of this Manual. This manual has five sections. Section one covers general construction practices that identify pollutants other than sediment that should be managed during construction operations. Section two covers enforcement methods used by the City to ensure the intent of the Federal Clean Water Act, State MS4 Stormwater Permit, and the City Land Disturbance Ordinance are met. The third section covers other permits that may be required in addition to the ESC Permit. The fourth section of the manual lays out the sequential process of meeting the ESC Permit during construction. The fifth and final section includes required forms during construction.

Contact information.

For City requirements, use this manual and contact the West Plains Engineering Department:

Stormwater Coordinator or Stormwater inspectors
City Hall
P.O. Box 710
West Plains, MO 65775-0710
Phone: (417) 256-7176

For State requirements, contact:
Missouri Department of Natural Resources
Howell County Satellite Office
906 Springfield Road
Willow Springs, MO 65793
Phone and Fax: (417) 469-0025

Missouri Department of Natural Resources
Southeast Regional Office
2155 N. Westwood Blvd.
Poplar Bluff, MO 63901
Phone: (573) 840-9750
Fax: (573) 840-9754

Missouri Department of Natural Resources
Spill Response
Phone: (573) 634-2436

For Federal requirement for working in or near streams or wetlands, contact:
U.S. Army Corps of Engineers-Little Rock District
CESWL-RO
P.O. BOX 867
Little Rock, AR
72203-0867
Phone: (501) 324-5295
Fax: (501) 324-6013

Acknowledgements

West Plains wishes to acknowledge those who contributed to the preparation of the *Erosion and Sediment Control (ESC) Manual*.

West Plains, Missouri

Royce Fugate, PE
Wes Parks
Trent Courtney

City Administrator/City Engineer
Director of Engineering Department
Stormwater Coordinator

Morris & Munger Engineers LLC

Charles Morris, PE
Paul Munger, PE
Chad Morris, PE
Todd Dablemont, EI
Tom Buerk

Director-Engineering
Director-Project Development
Project Engineer
Project Engineer Intern
Graduate Civil Engineer

The City would like to acknowledge the following contributors to the *ESC Manual*:

Douglas County, Colorado

Erik Nelson

Jefferson County, Missouri

Bill Aho

Missouri Department of Natural Resources

Ruth Wallace
Tony Curly

In addition, the City would like to thank all those who provided a review of the draft *ESC Manual* and Douglas County, Colorado for the electronic copy of their manual that was used to develop this manual.

Section I

General Construction Practices

Construction Site Chemical Control. Many potential pollutants other than sediment are associated with construction site activities. These pollutants include pesticides (insecticides, fungicides, herbicides, and rodenticides); fertilizers used for vegetative stabilization; petrochemicals (oils, gasoline, and asphalt degreasers); construction chemicals, such as concrete products, sealers, and paints; wash water associated with these products; paper; wood; garbage; and sanitary wastes. The permittee(s) shall comply with the following construction site management practices for proper chemical control:

Potential Pollutants on a Construction Site:

Pesticides. Insecticides, rodenticides, and herbicides are used on construction sites to provide safe and healthy conditions, and reduce maintenance and fire hazards. Rodenticides are also used to control rodents attracted to construction sites. Common insecticides employed include synthetic, relatively water-insoluble chlorinated hydrocarbons, organophosphates, carbamates, and pyrethrins.

Petroleum Products. Petroleum products used during construction activities include fuels and lubricants for vehicles, power tools, and general equipment maintenance. Specific petroleum pollutants include gasoline, diesel oil, kerosene, lubricating oils, and grease. Asphalt paving can also be particularly harmful since it releases various oils for a considerable amount of time after application.

Nutrients. Fertilizers are used on construction sites when revegetating graded or disturbed areas. Fertilizers contain nitrogen and phosphorus, which in large doses can adversely affect surface waters causing eutrophication.

Solid Wastes. Solid wastes on construction sites are generated during land clearing and structure installation. Other wastes include wood and paper from packaging and building materials, scrap metals, sanitary wastes, rubber, plastic, glass, and masonry and asphalt products. Food containers, cigarette packages, leftover food, and aluminum foil also contribute solid wastes to the construction site.

Construction Chemicals. Chemical pollutants such as paints, acids for cleaning masonry surfaces, cleaning solvents, asphalt products, soil additives used for stabilization, and concrete-curing compounds, may also be used on construction sites and carried in runoff.

Properly Store, Handle, Apply, and Dispose of Pesticides. Pesticide storage areas on construction sites should be protected from the elements. Warning signs should be placed in areas recently sprayed or treated. Persons mixing and applying these chemicals should wear suitable protective clothing in accordance with the law.

Application rates shall conform to registered label directions. Disposal of excess pesticides and pesticide-related wastes shall conform to registered label directions for the proper disposal and storage of pesticides and pesticide containers set forth in applicable federal, state, and local regulations that govern their usage, handling, storage, and disposal. Pesticides and herbicides shall be used only in conjunction with Integrated Pest Management Plans. Pesticides should be the tool of last resort; methods that are the least disruptive to the environment and human health should be used first.

Pesticides shall be disposed of through either a licensed waste management firm or a permitted treatment, storage, and disposal (TSD) facility. Containers should be triple-rinsed before disposal, and rinse waters should be reused as product.

Other practices include setting aside a properly labeled and locked storage area, tightly closing lids, storing in a cool, dry place, checking containers periodically for leaks or deterioration, maintaining a list of products in storage, using plastic sheeting to line the storage area, and notifying neighboring property owners prior to spraying.

Properly Store, Handle, Use, and Dispose of Petroleum Products.

When storing petroleum products, follow these guidelines:

- Create a shelter around the area with cover and wind protection;
- Line the storage area with a double layer of plastic sheeting or similar material;
- Create an impervious berm around the perimeter with a capacity of 110 percent of the capacity of the largest container;
- Clearly label all products;

- Keep tanks off the ground; and
- Keep lids securely fastened.

Oil and oily wastes, such as crankcase oil, cans, rags, and paper dropped into oils and lubricants, should be disposed of in proper receptacles or recycled. Used oil for recycling shall not be mixed with degreasers, solvents, antifreeze, or brake fluid. Fueling and vehicle maintenance operations shall take place in the stabilized staging areas (SSA).

Sanitary Facilities. Sanitary facilities shall be provided for construction workers. Sanitary facilities shall be located in the stabilized staging area (SSA) away from drainageways. Sanitary facilities shall never be placed near storm sewer inlets.

Other Construction Site Pollutants. Store, cover, and isolate construction materials, including topsoil and chemicals, to prevent runoff of pollutants and contamination of ground water.

Develop and implement a spill prevention and control plan. Agencies, contractors, and other commercial entities that store, handle, or transport fuel, oil, or hazardous materials should develop a spill response plan.

Post spill response procedure information in a conspicuous place, and have persons trained in spill handling on-site and/or on-call at all times. Materials for cleaning up spills should be kept on-site and made easily available. Spills should be cleaned up immediately and the contaminated material properly disposed. Spill control plan components should include:

- Identify and stop the source of the spill.
- Contain any liquid.
- Cover the spill with absorbent material such as kitty litter or sawdust, but do not use straw. Dispose of the used absorbent properly.

Washing of equipment and machinery shall not be allowed on-site. Adequate disposal facilities shall be utilized for solid waste, including excess asphalt, concrete, wood, rebar and other construction wastes produced during construction.

Spills Response. All hazardous wastes that are transported, stored, or used for maintenance, cleaning, or repair shall be managed according to the provisions of the Missouri Hazardous Waste Laws and Regulations. It is required by state law that spills of a petroleum product in excess of 50 gallons be reported to the Missouri Department of Natural Resources (MDNR) at (573) 634-2436. Federal law requires the responsible party to report any release of oil if it reaches or threatens a sewer, lake, creek, stream, river, groundwater, wetland, or area like a road ditch that drains into one of the above. Failure to report and clean up any spill shall result in issuance of a Stop Work Order. Spills released onto soil should be dug up and properly disposed of, while spills on pavement should be absorbed with sawdust, kitty litter, or another product designed for that purpose.

Section II

Violations

Penalties and Enforcement. Failure to comply with any term, condition, limit, deadline, or other provision of the ESC Permit or failure to obtain an ESC Permit, constitutes a violation of the West Plains Land Disturbance Ordinance and may constitute a violation of state and federal laws as well.

Important! *Violations to the Clean Water Act shall be subject to civil penalties of up to \$32,500 per day.*

In addition to any other legal or equitable remedies that the City may have for ESC Permit violations, the City may cease issuances of all building permit approvals and other permissions until such violation is corrected and the permittee(s) takes additional steps to ensure compliance with the ESC Permit.

Levels of Violations. West Plains classifies violations into three categories, depending on the severity of the violation. Enforcement action varies for each category. Level I Violations have the most severe impact on people and the environment, and Level III Violations have the least severe impact. It is important to note that if a Level II or Level III Violation is not resolved in the time required by the City, it may become a Level I or Level II Violation.

Level I Violations are viewed by West Plains to pose an immediate serious risk to the health, safety, or welfare of people and/or the environment. Level I Violations result in an immediate issuance of a Stop Work Order. Example Level I Violations include the following:

- *Clearing, grubbing, or grading without a West Plains ESC Permit.*
- *Failure to schedule a preconstruction meeting.*
- *Failure to be able to contact the ESC Manager or alternate ESC Manager during any level of violation.*
- *Failure to restrict operations to approved limits of construction.*
- *Failure to clean up the tracking of material onto roadways and adjacent paved areas.*
- *Exporting material to or importing material from a non-permitted site.*
- *Exporting/importing soil material without a variance.*
- *Failure to follow an approved phasing plan.*
- *Failure to correct Level II Violations per the directives of the ESC Inspector.*

Level II Violations are viewed by West Plains to pose a moderate immediate risk to the health, safety, or welfare of people and/or the environment; however, if not immediately corrected, will pose a serious risk. Remediation for Level II Violations shall commence immediately after the permittee(s) is notified of the violation(s). Example Level II Violations include the following:

- *Tracking of material onto roadways and adjacent paved areas.*
- *Failure to make required plan revisions.*
- *Failure to perform BMP maintenance as directed by the West Plains ESC Inspector.*
- *Failure to correct Level III Violations per the directives of the ESC Inspector*

Level III Violations are viewed by West Plains to pose a low immediate risk to the health, safety, or welfare of people and/or the environment; however, if not corrected quickly, will pose a more serious risk. Level III Violations shall be corrected within 48 hours of inspection unless otherwise specified in writing by the ESC Inspector. Example Level III Violations include the following:

- *Failure to provide routine maintenance for erosion and sediment controls.*
- *Installation of non-West Plains-accepted erosion and sediment control BMPs.*
- *Failure to provide temporary inlet protection within 48 hours of pouring of inlet.*
- *Failure to provide inlet protection within 48 hours of placement of asphalt or concrete pavement.*
- *Staging of equipment outside of the stabilized staging area.*
- *Failure to have accepted ESC Permit, ESC drawings, and completed inspection forms on-site.*
- *Failure to follow schedule of installation of BMPs in ESC drawings for interim and final BMPs*

Stop Work Orders. The Stormwater Coordinator, or his/her designated representative, is authorized to order work to be stopped on any project that disturbs the land and is not in compliance with the requirements of the ESC Permit. **When a Stop Work Order is issued, the ESC Permit for that project is revoked.** In addition, the MDNR may be notified.

If the permittee(s) works without an ESC Permit, a fee of three times the permit fee will be assessed. This fee shall apply each time the project is found to be working without, or prior to issuance of an ESC Permit.

If a project is issued a Stop Work Order, all work on-site shall be stopped. Safety-related items (e.g., backfilling of holes and trenches) as well as corrective actions may be completed; however, the permittee(s) shall inform the ESC Inspector of such activities. The permittee(s) shall do the following to reinstate an ESC Permit and resume work on the site:

1. Correct the deficient practices that precipitated the Stop Work Order.
2. Reapply for an ESC Permit and pay the permit fee at the West Plains Engineering Department.
3. Call the Engineering Department to schedule a site inspection.
4. Obtain a new ESC Permit after approval of the corrected work from an ESC Inspector.

A posted Stop Work Order shall not be removed from the site, except by the City. A West Plains Inspector is the only authorized agent to remove a posted Stop Work Order.

5.8.4 Re-inspection Fees. To offset the cost of additional inspections on non-compliant sites, West Plains requires that re-inspection fees be paid in person at the West Plains utility office prior to receiving subsequent inspections and approval of work. Re-inspection fees shall be charged for all projects that are deficient due to the following:

- *Permittee(s) fails to properly install all initial BMPs prior to the scheduled preconstruction meeting.*
- *The required attendees fail to attend the scheduled preconstruction meeting.*
- *Permittee(s) fails to have the ESC drawings on-site during the preconstruction meeting.*
- *Permittee(s) receives a Stop Work Order (fee consists of new permit fee in this case).*
- *Permittee(s) fails to obtain vegetation acceptance from the City prior to requesting a final release of fiscal security.*
- *Permittee(s) removes any BMPs prior to receiving authorization by West Plains.*
- *ESC Inspector finds violations of ESC Permit requirements during routine inspections.*



*Before 3:30 p.m. the
business day prior*

Section III

Other Permitting

Some Other City Permits and Plans. The ESC Plan must be complied with concurrently with, or included within, all construction plans required for a building permit, stormwater permit, sinkhole permit, or stream buffer permit. The property owner and/or design engineer will be knowledgeable on what other city permits must be complied with.

Building Permit. If the proposed development includes the building of a structure, a building permit is generally required. This building permit may have its own construction drawings or may be attached or included with other City required drawings. Any questions regarding the building permits may be directed to the Building Official.

Stormwater Permit. Proposed development with 0.5 acre or more of impervious area requires a stormwater permit. This permit requires construction drawings for permanent stormwater facilities. This may be a separate set of drawings or may be attached or included in other City required drawings.

Stream Buffer Permit. Certain activities within a City stream buffer require a stream buffer permit. Activities can be performed in this area, but they will be regulated and restricted. ESC drawings will delineate the stream buffer area if it is near any proposed land disturbance. Additional requirements for ESC maybe be required if land disturbance occurs within a stream buffer area. The contractor should avoid this area unless a stream buffer permit is obtained.

Sinkhole Permit. Land disturbance or development within the drainage area of a sinkhole requires a sinkhole permit. This area would be shown on the ESC drawing if it was near the proposed land disturbance. Activities can be performed in this drainage area, but they will be regulated and restricted. The contractor should avoid this area unless a sinkhole permit is obtained.

State Permits. In addition to the permitting requirements of West Plains, the State of Missouri requires permits for land-clearing and earthmoving activities and other activities. The owner and/or design engineer shall be knowledgeable on state permit requirements. Contact the MDNR for specific state permitting requirements.

State Land Disturbance Permit. Currently the state requires persons performing land-disturbance activities equal to or greater than 1.0 acre obtain both a City (ESC Permit) and State Permit. After the City has fully developed their own program, the state may only require a City permit. The application forms for a state land disturbance permit are shown below.

Form O. Application for land disturbance permit for disturbance areas less than 5.0 acres.

Form E. Application for general permit for disturbance areas greater than 5.0 acres. It should accompany Form G.

Form G. Application for stormwater permit for disturbance areas greater than 5.0 acres. It should accompany Form E.

After completing the application for the state land disturbance permit and then receiving the permit, the City requirements fall inline with state requirements. The state requires a stormwater pollution prevention plan (SWPPP), which is fulfilled by the development of the City ESC drawings, requirements for updating ESC drawings, performing site inspections, and keeping inspection reports.

Open Burning Permit. Open burning of tree trunks, tree limbs and vegetation from land-clearing operations may require a permit; consult with the City Fire Department to determine if a permit is required. Materials such as tires or used oil may not be used to start the fires or be burned in the fires. Some conditions may require the use of an air curtain destructor to increase burning efficiency and reduce air contaminant emissions.

State 401 Water Quality Certification. Excavation activity associated with a dredge and fill project in “waters of the United States” that require a Federal 404 Permit from the U.S. Army Corps of Engineers may also require this state certification to ensure water quality is not degraded. During the process of obtaining a 404 permit, it will be determined if this certification is required.

Applicants are also responsible for complying with all applicable federal permitting requirements. This may include, but is not limited to, the FEMA map revision process and the U.S. Army Corps of Engineers Section 404 Permit. The owner and/or design engineer shall be knowledgeable on federal permit requirements.

Federal FEMA Map Revisions. Projects that impact the regulatory floodplain may need to obtain an elevation certificate or a no-rise certificate. Any questions regarding the floodplains may be directed to the Building Official, who acts as the City Floodplain Administrator.

Federal Section 404 Permitting. Excavation activity associated with a dredge and fill project in “waters of the United States” (including streams, open water lakes, ponds, wetlands, etc.) may require a Section 404 Permit. The level of permitting is dependent on the extent of disturbance along the water body of interest. It should be reviewed with the U.S. Army Corps of Engineers as to whether a Nationwide Permit or an Individual Permit is required. Individual Permits will require more detailed information about the project and preparation of exhibits specific to the project site. The U.S. Army Corps of Engineers-Little Rock District should be contacted by the applicant for additional information on the requirements.

Section IV

***ESC Permit Process During
Construction***

Getting Started. At this point, the City has accepted your ESC Plan and the process of implementing the ESC Plan in the field begins. The first steps in starting the field portion of a new project in West Plains shall entail selecting an ESC Manager, reviewing the *ESC Field Manual* and ensuring that the permittee(s) and their representatives, including field personnel, understand all of the ESC Permit requirements.

Selection of the ESC Manager. As the permittee(s)' focus shifts from applying for the ESC Permit to constructing the project, one of the first tasks is to select an ESC Manager. The ESC Manager is the permittee(s)' contact person with the City for all matters pertaining to the ESC Plan and Permit. The ESC Manager may be an employee of the owner or contractor, but shall have the authority to act on behalf of the permittee(s) to ensure that the site remains in compliance with the ESC Plan and Permit. However, the permittee(s) shall remain the responsible party. The ESC Manager shall be responsive to requests made by West Plains staff and have any deficiencies in the work corrected.

During the construction phase, erosion and sediment controls will be inspected regularly by the ESC Manager. The ESC Manager will consider the overall effectiveness of the controls for reducing erosion and trapping sediment on the site and will check for proper installation and maintenance of the controls. The site must be inspected at least once per 7 calendar days, as well as, no later than 48 hours after a rainfall event of 0.5 inch or more of rainfall in 24 hours. The required ESC Manager Inspection Report is on the last page of this manual.

After the installation of the final BMPs, monthly inspections must be performed until the close of the permit. All inspection reports are to be kept on-site with the ESC drawing, and ESC Permit in a location accessible to a City Inspector. In the event that inspection logs are not present, a Level III Violation will be issued.

The City will perform quality assurance by performing random inspections in addition to mandatory City inspections to ensure the ESC Manager is performing the required quality control inspections. During these quality assurance inspections, the City Inspector will also perform his/her own inspection of the ESC BMPs. If sediment appears to be leaving the site or the City takes stormwater samples that read greater than 280 nephelometric turbidity units (NTUs) in a sample that has been taken when less than 3.51 inches of rainfall has occurred in a 24-hour period, the City will require the ESC Manager to request a revision to the ESC drawings by the design engineer.

If problems are found on the site by the ESC Manager or the City, they must be corrected within 48 hours. It is recommended that inspections are performed on Wednesday each week so that problems can be fixed by Friday of the same week.

The ESC Manager and alternate ESC Manager shall be named at the on-site preconstruction meeting

Mandatory City Inspections. The permittee(s) shall call the Engineering Department to schedule the following mandatory inspections:

1. Preconstruction meeting/inspection of initial BMPs.
2. Topsoil inspection after topsoil is stripped and stockpiled.
3. Anytime during construction when a new ESC Manager or alternate ESC Manager is chosen.
4. Initial close-out inspection.
5. Vegetation acceptance inspection.

6. Final close-out inspection
7. Before disturbing another phase of a site that has over 40 acres of land disturbance at one at the same time.

Alternate ESC Manager. An alternate ESC Manager, who is able to serve in the same capacity as the ESC Manager, shall also be selected. The alternate ESC Manager shall be the contact person if the ESC Manager is not available. The ESC Manager shall inform the alternate ESC Manager of any absences, fill the alternate ESC Manager in on the status of the ESC Plan implementation, and ensure that the alternate ESC Manager assumes the responsibilities during any absence.

Availability of the ESC Manager. The ESC Manager shall be present at the project site a majority of the time and (along with the alternate ESC Manager) shall provide the City with a 24-hour emergency contact number. In the event the contractor's ESC Manager (or alternate ESC Manager) is not on-site, and cannot be reached during any level of violation, a Stop Work Order shall be issued.



Changing of the ESC Manager or Alternate ESC Manager. Notification in writing shall be provided to the City if the ESC Manager or alternate ESC Manager leaves the company or the permittee(s) intends to change personnel. A field meeting with the ESC Inspector and new ESC Manager or alternate ESC Manager shall be scheduled within 7 days of the change to discuss site conditions and responsibilities of the ESC Manager.

Review of the ESC drawings and ESC Field Manual. Prior to the preconstruction meeting, the ESC Manager shall thoroughly review the ESC drawings, and *ESC Field Manual*. It is the ESC Manager's responsibility to understand all of the requirements of the ESC Permit process as laid out in this section.

The ESC drawings will have three separate stages: initial, interim, and final drawing. The initial BMPs are installed prior to land disturbance on the site and all will be installed at the same time. The installation of the other BMPs in the interim and final stages will not be installed at the same time, but will be installed at different times during or right after the construction. These BMPs will be installed based on the sequencing in the construction notes. The installation timing of the BMPs will be triggered by the completion of something tangible on the site or before or after a specific activity begins or ends. The ESC Manager should review the notes and understand the required sequencing of interim and final BMPs.

Labeling BMP on ESC Drawings. All BMPs will have a symbol, ID, and design parameters at the BMP placement location on the plan-view ESC drawings. The symbol of each type of BMP is shown on a BMP legend on the cover sheet of ESC Plan General Notes and Details. This BMP ID will include: Detail Number-Type of BMP-Intent of BMP-BMP number. The design parameters will assist in specifying product information and providing construction details specific to that BMP.

Detail Number on BMP. The detail number is the first of four parts of the BMP ID. This number corresponds to the detail number of the specific type of BMP shown in the Notes and Details. These Notes and Details give installation and maintenance information.

Type of BMP. The second of four parts of the BMP ID states the type of BMP. To take less space on the drawing, BMPs are called out on an ESC drawing using the two- or three-letter identifier, which is shown with the BMP symbol on the BMP Legend. This legend is on the cover sheet of ESC Plan General Notes and Details.

Intent of BMP. The third of four parts of the BMP ID states the intent of the specific BMP. The same type of BMP can be used to perform different tasks; for example, a silt fence placed on the same elevation throughout and then brought to a higher elevation at the ends could be used to pond stormwater. The same silt fence put on different elevation throughout would move (convey) stormwater. It is important the ESC Manager know the intent of the BMPs to ensure effectiveness. Some different uses of BMP on a site are described below:

- Concentrated Flow BMPs are used to move stormwater. If a BMP is used for this intent, an **M** is used within the BMP ID. The **M** states it is used for moving water.
- Concentrated Flow Stabilization BMPs are used to slow the speed of the stormwater or be a liner in ditches and drainageways to ensure erosion is minimized. A BMP used for this intent has an **SM** within the BMP ID. The **SM** states that it is used for stabilizing moving stormwater from erosion.
- Ponding BMPs are used to collect stormwater from sheet flow area and pond it to allow the sediment to settle out. This intent for a BMP has a **P** placed in the BMP ID. The **P** states that it is used for ponding water.
- Sheet Flow Stabilization BMPs are used for temporary or final stabilization of sheet flow areas. For final stabilization applications, it would be placed after all earthmoving has occurred in a specific area and topsoil has been applied; then the BMP would be applied to reduce erosion until vegetation has been established. In some cases, it may remain and assist the vegetation in stabilizing the soil. For this intent of a BMP, an **S** is included in the BMP ID. The **S** states that it is used for stabilization of sheet flow areas.

- Construction BMPs are used to ensure that sediment does not leave the site but is not specific to ponding stormwater, stabilizing concentrated flow area, or providing final stabilization of an area. This intent of a BMP places a **C** within the BMP ID to denote that it is a construction BMP.

BMP Number. The BMP number is the fourth and final part of the BMP ID. This number corresponds to a specific number for each and all BMPs shown on the plan-view ESC drawings. This allows all BMPs on the site to have a corresponding number to enable it to be called out in construction sequencing, deficiencies in installation, damage, or required maintenance. This numbering will be used during the construction and inspection to single out a specific BMP on the site.

Fill out Form 1. Prior to the preconstruction meeting, the ESC Manager and owner/owner's representative shall fill out and sign Form 1 in the back of the *ESC Field Manual*. This form includes designating responsible parties and states that all final stabilization must occur within 30 days from the start of earthmoving activities or within 15 days of substantial completion of grading. If these time frames cannot be met, the ESC Manager must present a schedule of completion of stabilization as an attachment to Form 1. This schedule of completion of stabilization must present detailed steps of stabilization in a phased format.

Installation of Initial BMPs. The initial BMPs shown on the ESC drawings shall be installed prior to the on-site preconstruction meeting. The initial BMPs are shown on the Initial BMPs Drawing for ESC Plans.

No formal notification needs to be given to the City to install the initial BMPs. After receiving the signed ESC drawings; however, all of the requirements of the ESC Plan shall be complied with. The initial BMPs should be installed at the same time unlike interim and final BMPs.

If the permittee(s) thinks that modifications to initial BMPs shown on the ESC drawings should be made to provide for a more effective plan, the permittee(s) shall contact the design engineer and West Plains Stormwater Coordinator (see contact information in Appendix A) to obtain acceptance of the proposed modifications prior to installing the BMPs.

Construction Shall Not Start. Other than the installation of the initial BMPs shown on the ESC Plan, no stripping operations, haul road grading, or other construction shall occur. Failure to restrict additional activities shall result in issuance of a Stop Work Order.



Scheduling the Preconstruction Meeting. The permittee(s) shall contact the West Plains Stormwater Coordinator to schedule the on-site preconstruction meeting. A 3-day notice (business days, not including Saturdays and Sundays) shall be provided to schedule the meeting. For instance, if the call to the City takes place before 3:30 p.m. on a Monday, the preconstruction meeting can be scheduled for Thursday. If the call to the City takes place before 3:30 p.m. on a Thursday, the Preconstruction Meeting will be scheduled for the following Tuesday.



Before 3:30 p.m.

Attendees at the Preconstruction Meeting. The on-site preconstruction meeting is a critical milestone prior to the start of construction. In addition to the ESC Inspector, the following representatives shall attend:



Three Business Days

1. **Owner or Owner's Representative** (the contractor may **NOT** be the owner's representative).
2. **General Contractor.**
3. **ESC Manager and Alternate ESC Manager** (one or both may be the same as the owner or general contractor representative).
4. **Grading Sub-Contractor**, if different than the general contractor.
5. **Design Engineer** (the design engineer's attendance is not mandatory; however, it is strongly recommended that the design

engineer attend to avoid possible delays if the City or the permittee(s) determine that modifications to the ESC Plan are necessary).

General Meeting Agenda. The following agenda items are addressed at the preconstruction meeting.

1. **Introductions.** Introductions of all attendees, including the ESC Manager and alternate ESC Manager, will take place. **Contact Information.** Attendees will exchange contact information.
2. **Contact Information.** Attendees will exchange contact information.
2. **Field Review of ESC drawings.** The ESC drawings for all stages and phases will be reviewed to confirm the attendees' understanding of the ESC Plan and to discuss any modifications to the plan. If modifications to the ESC Plan are thought to be advantageous, input will be sought from the design engineer and final acceptance of changes will be as determined by the Stormwater Coordinator. Limits of construction and topsoil stripping limits shall be confirmed.
3. **Acceptance of Form 1.** Form 1 will be reviewed to ensure that it is filled out and signed. Form 1 states that if all final stabilization will not occur within 30 days from the start of earthmoving activities or within 15 days of substantial completion of grading or a schedule of completion of stabilization is required and will be reviewed to ensure that it presents detailed steps of stabilization in a phased format.
4. **Inspection of Initial BMPs.** A visual inspection of all of the initial BMPs that have been installed will take place. The ESC Inspector will confirm if any corrections are required.

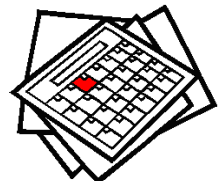
Important!

If one of the mandatory attendees does not attend the preconstruction meeting, if the accepted ESC Plans are not in the ESC Manager's possession, or if the installation of the initial BMPs is not approved by the ESC Inspector, the meeting shall be rescheduled and the applicant will be assessed a \$50.00 reinspection fee. The fee shall be paid at the West Plains Engineering office prior to scheduling another preconstruction meeting.

5. **Acceptance of Initial BMPs and Form 1.** If the initial BMPs and Form 1 are accepted by the ESC Inspector, as is or with minor corrections, the ESC Inspector will inform the permittee(s), sign the ESC Permit application, and submit the ESC Permit application to the Engineering Department for processing. **Construction shall not start until an executed ESC Permit is obtained from the City.**

Corrections to the BMPs or Major Revisions to Schedule. If the ESC Inspector determines that significant modifications or corrections to the BMPs are necessary, the ESC Inspector will inform the permittee(s) that such corrections shall be made, that a follow-up inspection shall be scheduled with the City, and that acceptance of the corrected BMPs by the ESC Inspector shall take place prior to the signing of the ESC Permit or prior to any additional inspections. If schedule completion of stabilization is required and major revisions are needed to the schedule, the ESC Manager will be required to submit a revised schedule prior to the inspector signing the ESC Permit application. Modifications to the ESC drawings will, in most cases, require acceptance of the design engineer who sealed and signed the ESC drawings. The re-inspection requires a 1-day notice (by 3:30 pm the weekday prior to the inspection) and shall be scheduled with the Engineering Department.

Pick Up the Executed ESC Permit. West Plains will execute the ESC Permit generally within 24 hours after the signing of the ESC Permit application by the ESC Inspector (either at the preconstruction meeting or at a follow-up inspection). Once the permittee(s) picks up the executed ESC Permit, construction can start.



24 hours

Duration of ESC Permit. An ESC Permit is valid for 1 year from the date the ESC Permit is granted (the date the ESC Permit is executed). An ESC Permit shall be renewed prior to its expiration. The permittee(s) shall contact the City and start the renewal process at least 14 days prior to the original ESC Permit's expiration date. The permittee(s) shall have a valid ESC Permit until final close-out acceptance (after revegetation is established and all BMPs are removed).



14 days

Transfer of an ESC Permit. If a project or portion of a project is sold to a new owner, or if the contractor that is identified on the ESC Permit is replaced by a different contractor, the ESC Permit shall be transferred to the new owner and/or contractor using a specific transfer procedure. The transfer shall require a new ESC Permit application, payment of a transfer fee, new fiscal security (if new owner), and an additional preconstruction meeting on-site. Failure to transfer the ESC Permit, if the owner or contractor changes, will result in issuance of a Stop Work Order.



Start of Construction. The following activities shall be done when the ESC Permit is issued:

Topsoil Stripping. With the executed ESC Permit picked up and on-site, construction can start. The first construction operation shall consist of the stripping and stockpiling of topsoil within the areas where construction is to occur (actual limits of topsoil stripping shall be confirmed at the preconstruction meeting). Topsoil stripping shall not take place outside the accepted limits of construction.

Topsoil stripping and replacement is critical to the successful reestablishment of vegetation after a project is constructed. Topsoil shall be stripped to a depth of 6 inches unless otherwise accepted by the ESC Inspector. Woody material in the area to be stripped shall be removed prior to stripping, but grasses shall be left in the topsoil layer to be stripped. Before burning material on-site, the West Plains Fire Department should be contacted and an MDNR burn permit may be required. Wood material may also be chipped and used on-site as a mulch and possible erosion and sediment control if construction details are included in the ESC drawings and approved by the Stormwater Coordinator.

Topsoil Stockpiles. Topsoil stockpiles (as well as stockpiles of

excess excavated material that may be generated later) shall have side slopes no steeper than 3 (horizontal) to 1 (vertical) and be placed in the area indicated on the ESC drawings.

Topsoil Inspection. The permittee(s) shall call the Engineering Department to schedule an inspection after the topsoil is stripped and stockpiled. Failure to strip, stockpile, and obtain an inspection from the ESC Inspector shall result in the issuance of a Stop Work Order. If inadequate quantities of topsoil have been stockpiled (sufficient to replace at least 4 inches of topsoil in all areas to receive vegetation), the permittee(s) shall import an adequate quantity of topsoil to the site. The Stop Work Order shall remain in place until adequate, acceptable topsoil is imported to the site.



Correct Installation and Maintenance of BMPs. The overall effectiveness of the ESC Plan depends on the correct installation and maintenance of BMPs. The ESC Manager should review ESC drawings Notes and Details, each detail will have correct installation and maintenance procedures. These procedures should be inspected during quality controls inspections that are performed at least once per 7 calendar days, as well as, no later than 48 hours after a rainfall event of 0.5 inch or more of rainfall in 24 hours. The required ESC Manager Inspection Report is on the last page of this manual.

Installation of Interim and Final BMPs. It is the responsibility of the ESC Manager to ensure that interim and final BMPs are installed based on the sequencing in the construction notes. The installation timing of the BMPs will be triggered by the completion of something tangible on the site or before or after a specific activity begins or ends. The ESC Manager should review the notes and understand the required sequencing of interim and final BMPs.

For BMPs where a specific time frame is not given, the controls shall be installed as soon as construction of the infrastructure is substantially

complete or when grading activities have produced grades close to the final grade. In any case, it is up to the discretion of the Stormwater Coordinator to make the final determination of interim and final BMP installation time frames.

Preparing for Initial Closeout Inspection. In preparation for the initial ESC Acceptance Inspection prior to the permittee(s) leaving the site, the ESC Manager shall undertake the following:

1. *Clean all streets, sidewalks, and flowlines of sediment by sweeping. **WASHING OF STREETS, SIDEWALKS, AND FLOWLINES IS IN DIRECT VIOLATION.** Clean all inlets, trickle channels, and all other drainage features.*
2. *Completely install all final stabilization BMPs and remove any initial or interim as stated in ESC drawings .*

Scheduling the Initial Closeout Inspection. Once all items are completed, the ESC Manager shall call the Engineering Department prior to 3:30 pm the day before the inspection and schedule an initial closeout inspection.

Attendees. Representatives of the permittee(s), including the ESC Manager, shall attend the initial close-out inspection along with City ESC Inspector.

General Meeting Agenda. The following agenda items are addressed at the initial close-out inspection:

- **Inspection of Final BMPs.** Installation of all final BMPs are inspected including topsoil spreading, soil preparation, and seeding and mulching.
- **Inspection of Site Cleanup.** Cleanup of the site and adjoining streets is checked.

- **Discussion of Vegetation Requirements.** The required vegetation inspections and coverage are described.

Corrections to Site. The permittee(s) shall make any corrections to the site as requested by the City ESC Inspector. If the corrections are substantial, the ESC Inspector may require a follow-up inspection to be scheduled prior to issuing initial close-out acceptance.

Required Inspections and Maintenance. The permittee(s) shall undertake the following inspections and maintenance operations. In addition, the ESC Manager will make monthly inspection reports of the revegetation area.

Inspection and maintenance requirements include the following:

- 1. Seeded and mulched areas shall be inspected monthly by the permittee(s) until a written acceptance of vegetation is received from the City. Repairs and reseeding and mulching shall be undertaken at least twice per year, or as requested by the ESC Inspector, for any areas failing to meet the required coverage.*
- 2. Rill and gully erosion shall be filled with topsoil prior to reseeding. The reseeding method shall be approved by the City.*
- 3. Noxious weeds shall be controlled in a manner approved by the West Plains Stormwater Coordinator.*

Required Vegetation Coverage. Required vegetation coverage is defined as follows:

Required coverage for vegetative areas shall be defined as follows:

- 1. At least 80% vegetative cover of grass species planted.*
- 2. No bare areas larger than 4 square feet, 2 feet by 2 feet or equivalent.*
- 3. Free of eroded areas.*
- 4. Free from infestation of noxious weeds.*



Full vegetation coverage is required prior to release of fiscal security.

Vegetation Acceptance Inspection. Once vegetation has reached the required coverage, the permittee(s) shall call the Engineering Department to schedule a vegetation acceptance inspection.

Written Acceptance. The ESC Inspector will confirm that vegetation has met the required coverage and that noxious weeds have been controlled. If the required coverage has been met, the ESC Inspector

will issue written acceptance of the vegetation and give the permittee(s) instructions to remove remaining on-site BMPs. If the required coverage is not met, repairs or corrections will have to be made by the permittee (s) and a follow-up vegetation acceptance inspection scheduled once the vegetation meets the required coverage.

Removal of On-site BMPs. After obtaining written acceptance of the vegetation coverage, the remaining on-site BMPs shall be removed and properly disposed. The site shall be cleaned up and any areas disturbed as a result of the BMP removal shall be seeded and mulched. The final close-out inspection shall then be scheduled with the City.

Final Close-out Inspection. The ESC Inspector will check the removal of BMPs and either accept the work or stipulate the corrections that have to be made. If corrections are substantial, the ESC Inspector may require that a follow-up inspection be scheduled with the City. Once final close-out acceptance has been obtained, the permittee(s) may submit a Release of Erosion and Sediment Control Fiscal Security Request Form to the West Plains Engineering Department located in Section 5 and all inspection reports completed during the project. After the Engineering Department has received both and completed the request form, it will be signed-off by the ESC Inspector and the project's fiscal security will be released.

Default by Permittee(s). In the event that there is a default by the permittee(s) of any of the requirements of the ESC Permit, ESC

drawings, or ESC Field Manual, the default by the permittee(s) shall be based on conditions including, but not limited to, the following:

Default Conditions:

- (a) Permittee(s) fails to construct the improvements in substantial compliance with the ESC Plan and the other requirements of the ESC Permit;*
- (b) Permittee(s) fails to complete construction of the ESC improvements by the completion date provided in schedule of completion in Form 1, the ESC Plan or Permit as the same may be extended;*
- (c) Permittee(s) fails to cure any noncompliance specified in any written notice of noncompliance within the timeframe specified in the notice;*
- (d) Permittee(s) otherwise breaches or fails to comply with any obligation of the ESC Permit;*
- (e) Permittee(s) becomes insolvent, files a voluntary petition of bankruptcy, is adjudicated as bankrupt pursuant to an involuntary petition in bankruptcy, or a receiver is appointed for the permittee;*
- (f) Permittee(s) fails to maintain in full force and effect a letter of credit in the amounts specified above or in the ESC Permit.*

Notice of Default. If the Stormwater Coordinator, or representative of the Stormwater Coordinator, gives notice that a default by the permittee(s) exists, and if the permittee(s) fails to cure such default within the time specified by the Stormwater Coordinator, the City shall be entitled to: (a) make a draw on the letter of credit for the amount reasonably determined by the City to be necessary to cure the default in a manner consistent with the approved ESC Plan up to the face amount of the letter of credit; and (b) sue the permittee(s) for recovery of any amount necessary to cure the default over and above the amount available under the letter of credit.

City Right to Complete Improvements. The City shall have the right to complete the ESC improvements in substantial accordance with the ESC Plan, the opinion of probable costs, and other requirements of this *ESC Manual*. It can do this either itself, by contract with a third party, or by assignment of its rights to a successor permittee(s) who has acquired the property by purchase, foreclosure, or otherwise. The City, any contractor under contract with the City, or any such successor permittee(s), their agents, subcontractors, and employees shall have the nonexclusive right to enter upon the subject property for the purpose of completing the ESC improvements.

Use of Funds by City. Any funds obtained by the City under a letter of credit, or recovered by the City from the permittee(s) by suit or otherwise, will be used by the City to pay the costs of completion of the ESC improvements substantially in accordance with the ESC Plan and the other requirements of the ESC Program. The funds will also be used to pay the reasonable costs and expenses of the City in connection with the default by permittee(s), including reasonable attorneys' fees, with the surplus, if any, to be returned to the permittee(s).

Section V

Construction Forms

RESPONSIBLE PARTY DESIGNATION

Site name: _____ Date: _____

I have been designated the on-site ESC Manager/alternate ESC Manager. I am responsible for maintaining and repairing all erosion and sedimentation controls on the approved site. Additionally, I have read and understand the *ESC Field Manual* and understand not all West Plains requirements are included in the *ESC Field Manual*. It is my responsibility to ensure compliance with the *ESC Manual*, ESC Permit, and accepted ESC drawings. I additionally understand I shall be on-site the majority of the time and must be able to be reached by the below given mobile phone/pager number 24 hours a day. I reviewed installation sequencing of BMPs in the construction notes on the ESC drawings and have identified if any final stabilization will not occur within 30 days from the start of earthmoving activities or within 15 days of substantial completion of grading. If this stabilization will not occur within the required time, I have attached a schedule of completion of stabilization to this sheet. This sheet will be reviewed to ensure that it presents detailed steps of stabilization in a phased format.

Printed Name: _____ Company: _____

Telephone Number: _____ Mobile/Pager Number: _____

Signature: _____ Date: _____

Alternate ESC Manager: _____ Phone # _____

Signature: _____ Date: _____

I, being the owner/owner's representative understand it is my responsibility to ensure my ESC Manager understands and complies with all applicable West Plains criteria and will ensure if I change contractors or the ESC Manager is removed from this project, the new contractor will contact West Plains to receive the information listed in the *ESC Field Manual* and become designated as the new on-site ESC Manager. I further understand the permittee(s), as listed on the ESC Permit shall remain the legally responsible party(s).

Printed Name: _____ Company: _____

Telephone Number _____ Mobile/Pager Number _____

Signature: _____ Date: _____

Erosion and Sediment Control (ESC) Manager Inspection Report

West Plains, MO

Level I violations shall result in issuance of a Stop Work Order and revocation of the ESC Permit, Level II violations shall be corrected immediately upon receipt of this inspection form, and Level III violations shall be corrected within 48 hours unless otherwise directed by the City Stormwater Coordinator. Failure to complete the Level II or Level III violations, as directed below, may result in issuance of a Level I violation and Stop Work Order. This inspection report shall be kept onsite and made available to the Stormwater Coordinator upon request until final acceptance is granted.

Project:	Date of Inspection:
Contractor:	Report No.:
Owner/Permittee:	Permit No.:
Inspection Type: Weekly Rain Event (date of event)	
# of BMPs currently installed:	

BMP #	Maintenance Required?		BMP #	Maintenance Required?		Course of Action Required (State BMP #)	Date Items to be Completed
	Yes	No		Yes	No		
1			26				
2			27				
3			28				
4			29				
5			30				
6			31				
7			32				
8			33				
9			34				
10			35				
11			36				
12			37				
13			38				
14			39				
15			40				
16			41				
17			42				
18			43				
19			44				
20			45				
21			46				
22			47				
23			48				
24			49				
25			50				

Comments:

On-site ESC Manager/Representative: _____
Name Signature

West Plains

Missouri

RELEASE OF SECURITY FOR EROSION AND SEDIMENT CONTROL PERMIT

DATE: _____ FILE NUMBER: _____

PROJECT NAME: _____

LOCATION: _____

AMOUNT OF SECURITY: _____

DATE OF APPROVAL OF FINAL CLOSEOUT INSPECTION: _____