# Boone County, Missouri

# Development Greater than One Acre



Land Disturbance & **Erosion and Sediment** Control Standards

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More details on the Best Management Practices (BMPs) in this brochure, along with additional BMPs, can be found in the County's Stormwater Design Manual.

Boone County's Stormwater Ordinance went into effect on April 15, 2010. The purpose of the ordinance is to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety and welfare of the public residing within Boone County.

Under Federal law, construction site owners and operators must develop and implement plans to address water quality and prevent sediment and other pollutants from entering our streams, creeks and lakes. This brochure provides an overview of procedures for activities disturbing one acre or greater within the unincorporated areas of Boone County. It is not intended to address all circumstances.

#### Who must comply?

All owners and operators of construction activities:

- Disturbing one or more acres of land;
- Redeveloping land that creates or adds 3,000 ft<sup>2</sup> or more of impervious cover;
- Developing land in or near an ecologically and/or environmentally sensitive area (sinkholes, losing streams, caves, springs, wetlands, etc.) that disturbs more than 3,000 ft<sup>2</sup>; and
- Engaging in land development activities that are part of a larger common plan of development.

#### What activities are exempt?

- Agriculture and Silviculture;
- Emergency projects;
- Some linear projects; and
- Plats/plans approved before the ordinance went into effect.

Land disturbance activities less than one acre do not require a land disturbance permit, however, they do require adequate erosion, sediment, and pollution control practices. (See Boone County's Land Disturbance & Erosion Control Standards for Development Less than One Acre)

## PERMITTEE RESPONSIBILITIES

- 1. Notify Boone County Resource Management at least two (2) working days before the start of site clearing.
- 2. Do not cause a violation of the state water quality standards.
- 3. Maintain good housekeeping practices on the site to keep solid waste from entering into waters of the state.
- 4. Designate an individual who will be responsible for environmental matters. This person would be familiar with the site's Stormwater Pollution Prevention Plan (SWPPP) and knowledgeable in erosion, sediment, and stormwater control principles.
- 5. The SWPPP must be implemented, and remain on-site while land disturbance activities are taking place.
- 6. Ensure all contractors and subcontractors are familiar with the contents and location of the SWPPP.
- 7. Conduct weekly scheduled inspections. In cases of a rain event exceeding one-half inch, BMPs must be inspected within 48 hours after the rain event has stoped.
- 8. Post a copy of the public notification sign provided by the Missouri Department of Natural Resources at the main entrance to the site.



### PERMITTEE INSPECTIONS

- The permittee (or a representative of the permittee) will conduct regularly scheduled inspections at least once per seven (7) calendar days and within 48 hours of a rain event of one-half inch or greater ceasing. (This is the person designated in the SWPPP as responsible for environmental matters).
- Inspect all installed BMPs and other pollution control measures for proper installation, operation and maintenance. Inspect all stormwater outfalls for evidence of erosion or sediment deposition.
- Any structural or maintenance problem must be noted in an inspection report and corrected within seven (7) calendar days of the inspection. Retain copies of the inspection reports on-site.

## **COUNTY INSPECTIONS**

- Boone County Resource Management inspection staff will periodically inspect your development site to ensure the SWPPP is properly implemented and any necessary amendments are being made. The erosion and sediment control measures for the site must be maintained by the developer until the site is stabilized.
- The building inspectors will inspect the BMPs on-site during scheduled inspections. If BMPs are not being maintained, the inspection will be denied.
- Issues with erosion and sediment control measures should be corrected within seven calendar days. Extensions may be granted.

| CONSTRUCTION SEQUENCING   |   |  |
|---|---|--|
| <b>Construction Activity</b>  | Schedule Consideration  |  |
| Construction entrance, areas designated for equipment parking   | As soon as construction begins, stabilize any bare areas with gravel and temporary vegetation.  |  |
| Sediment traps and barriers, basin traps, sediment fences, outlet protection  | After construction site is accessed, principal basins should be installed.  |  |
| Runoff control, diversions, perimeter dikes, water bars, outlet protection  | Key practices should be installed after the principal sediment traps and before land grading. Additional runoff control measures may be installed during grading.   |  |
| Runoff conveyance system, stabilize stream banks, storm drains, channels, inlet and outlet protection, slope drains                           | Stabilize stream banks as soon as possible and install principal runoff conveyance system.  |  |
| Land clearing and grading, site preparation (cutting, filling, and grading, sediment traps, barriers, diversions, drains, surface roughening) | Implement major clearing and grading after installation of principal sediment and key runoff-control measures, install additional control measures as grading continues. Clear borrow and disposal areas as needed, and mark trees and buffer areas for preservation. |  |
| Surface stabilization, temporary and permanent seeding, mulching, sodding, riprap   | Temporary or permanent stabilizing measures should be applied to any disturbed areas where work has been completed or delayed.  |  |
| Building construction, buildings, utilities, paving   | Install any erosion and sedimentation control measures that are needed.   |  |
| Landscaping and final stabilization, topsoiling, trees and shrubs, permanent seeding, mulching, sodding, riprap                               | Stabilize all open areas, including borrow and spoil areas, and remove and stabilize all temporary control measures.  |  |

# **HOW TO OBTAIN PERMIT COVERAGE**

1. Submit the Land Disturbance Permit Application, permit application fee, SWPPP, erosion and sediment control plans, copies of MoDNR forms E & G (or O if disturbance is less than 5 acres), and the stormwater management construction plan, (if applicable) to Boone County Resource Management (BCRM).

BCRM has ten days to review the Construction Plan, SWPPP and determine if the application is complete. If so, the application is accepted for review and the County has 30 days to finish the review. During this time, any conditions, questions or deficiencies in the plans or application will be communicated in writing to the applicant.

Address all review comments and submit the revised information to BCRM.

Once all the deficiencies are resolved, BCRM will issue a Letter of Approval to the Applicant, which will outline the required security deposit requirement for the erosion and sediment control practices identified in the SWPPP.

3. Submit the BCRM Letter of Approval, the original, signed MoDNR forms E & G (or O if disturbance is less than 5 acres) and the MoDNR Land Disturbance Application Fee to MoDNR for approval.

MoDNR will issue the General State Operating Permit and Public Notification Sign.



- 4. If necessary, submit the 404/401 permit application to the US Army Corps of Engineers and MoDNR if work will be done in a jurisdictional water.
- 5. Provide the required security deposit in an approved format.

- 1. Submit a copy of the MoDNR Land Disturbance Permit Approval, a copy of the US Army Corps of Engineers Jurisdictional Determination and/or 404 Permit Approval (if applicable) and security deposit documentation to Boone County Building and Inspection.
- 2. Request a Pre-Construction Meeting with Boone County inspection staff.



3. Meet with contractors and Boone County inspection staff on-site to discuss erosion and sediment control requirements and review stream buffer limits staking (if applicable).

If all conditions are met, Boone County inspection staff will issue the Boone County Land Disturbance Permit and land disturbance can begin.

### **FEES**

- Major Amendment to a Stormwater Management Construction Plan: \$25.00
- Land Disturbance Permit: \$150.00
- Land Disturbance Permit Renewal: \$50.00

## **Security Deposit**

The security deposit is 150% of the value of all erosion and sediment control measures, which are a part of the SWPPP.

Acceptable forms of the security deposit include:

- Cash Bond
- Cash or Equivalent
- Certificate of Deposit
- Surety Bond
- Letter of Credit

## WHAT'S A SWPPP?

As part of the construction plans, developers are requierd to develop a Stormwater Pollution Prevention Plan (SWPPP).

A SWPPP, or Stormwater Pollution Prevention Plan, identifies potential sources of pollution from the construction activity and describes the methods used to control the pollutants.

#### Major Components of a SWPPP:

#### A narrative including:

- Description of the site
- List of contractors, including contact information
- List of receiving waters
- List of potential pollution sources
- List of measures and BMPs to control pollutants
- Schedule of grading and stabilization activities
- Record of inspections performed by qualified personnel

#### A site plan with:

- Identification of drainage patterns
- · Location of stormwater discharges
- Location of pollutant sources and related control measures and BMPs
- Erosion and sediment control plan
- Description of post-development stormwater management procedures



The SWPPP must be revised if there is a change in design, construction, operation or maintenance that can affect the discharge of pollutants from the site.

# WHAT CONTROL MEASURES DO I NEED?

Depending on your site conditions, methods used to control stormwater runoff can vary. Listed below are some of the more common BMPs. For additional information, check out Boone County's Stormwater Design Manual.

# **Understanding the Difference**

**Erosion Control Prevents** erosion from occurring at construction sites by keeping soil in place. Examples include mulch, erosion blankets, seeding, and site phasing.

**Sediment Control Captures** eroding sediments and keep them on-site and away from surface waters. Examples include settling basins and sediment traps, silt fence and straw wattles (fiber rolls).

Both erosion and sediment control practices are required on construction sites to prevent sediment from laving the site.

# **Construction Site Access & Tracking**



- Install a temporary access road or driveway on all sites.
- Keep adjacent streets free of sediment and debris.
- Clean up track-out daily.

#### **Erosion Controls**



- Stabilize soil within 14 days of clearing or inactivity.
- Redirect upslope runoff around disturbed areas.
- Prevent dust or sediment from leaving the site.
- Stabilize or cover soil stockpiles at the end of each work day.

#### Sediment Controls



 Protect adjacent properties by using a vegetated buffer strip in combination with perimeter controls wherever possible.

# **Inlet Protection**



- Protect inlets from receiving polluted stormwater.
- Inspect, repair and remove sediment deposits weekly.

# Clearing & Grading



- Retain natural vegetation and natural drainage patterns whenever possible.
- Establish sediment control devices and perimeter controls before clearing and grubbing.
- No cut and fill slopes greater than 3:1 are allowed without approval from Boone County.

#### Seed and Mulch



- Apply seed and mulch immediately after rough or finished grading is completed.
- Install upstream BMPs to prevent erosion.

# Sodding



• Install sod after finish grading, installation of area inlets, and trenches.

#### Other Construction Pollutants



- Construction Waste must be disposed of by a licensed solid waste management contractor. Waste may not be buried on-site.
- Concrete Truck Washout can not make contact with storm waters or natural streams.
- **Fertilizers** Follow the manufacturer's directions and store in a covered area or watertight container.
- Hazardous Materials Store hazardous materials such as oils, greases, paints, fuels, and chemicals in a covered area with secondary containment. Dispose of these items according to state regulations and manufacturer's recommendations.
- **Petroleum Products** Store in clearly labeled and tightly sealed containers or tanks. Waste water from paint, drywall, stucco or masonry can not enter the stormwater system or be disposed of where it can eventually wash into creeks and streams.
- Sanitary Waste Maintain portable units through a state licensed sanitary waste management contractor.
- **Dewatering** Pump trenches, foundations or other excavated areas so as not to deposit sediment off-site or cause erosion. A filter bag, sediment trap or vegetated area may be used to filter sediment.

| STREAM BUFFER REQUIREMENTS |        |         |          |  |
|----------------------------|--------|---------|----------|--|
| Streamside Zone            |        |         |          |  |
| Stream Type:               | Туре I | Type II | Type III |  |
| Width:                     | 50     | 25      | 15       |  |
| Outer Zone                 |        |         |          |  |
| Stream Type:               | Type I | Type II | Type III |  |
| Width:                     | 50     | 25      | 15       |  |

- All streams must have a drainage area of 50 acres for the stream buffer to kick in.
- The outer zone width can change depending on the slope. See chart below.
- If you think a stream buffer may apply to your development, contact Boone County at 573-886-4330.

| MODIFICATIONS BASED ON SLOPE      |             |  |
|-----------------------------------|-------------|--|
| Percent Slope Width of Outer Zone |             |  |
| 0-14%                             | No Change   |  |
| 15% - 25%                         | Add 25 feet |  |
| Greater than 25%                  | Add 50 feet |  |



Type III Stream Buffer

| ADDITIONAL LAND USE RESTRICTIONS NEAR STREAMS   |                      |  |
|---|----------------------|--|
| Use   | Required<br>Distance |  |
| Storage and use of hazardous substances (Up to 20 gal. of liquid fertilizers or pesticides and up to 100 gal. of granular fertilizers or pesticides is allowed up to the edge of the outer zone.) | 300 feet             |  |
| Above-or-below ground petroleum storage (Up to 500 gal. of heating oil, gasoline, or diesel fuel and up to 1,000 gal. of propane is allowed up to the edge of the outer zone.)                    | 300 feet             |  |
| Salvage yards or automobile recyclers   | 600 feet             |  |

| ENVIRONMENTALLY SENSITIVE AREAS   |  |  |
|---|--|--|
| Sensitive Area  | Required Buffer  |  |
| Wetlands  | 50 feet  |  |
| Losing Streams (stream or portion of stream is diverted underground) Outstanding Resource Waters (has outstanding resource value) | Type I Streams: 200 feet<br>Type II Streams: 100 feet<br>Type III Streams: 60 feet |  |
| Class P Streams (permanently flowing) Type I Streams  | 50 feet minimum  |  |
| Sinkholes<br>Caves  | 150 feet minimum<br>300 feet maximum   |  |



Discharge pipe drains to a sinkhole



# Boone County, Missouri

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www.showmeboone.com



Courtesy of Boone County

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