Boone County, Missouri

Best Management Practice Guide for Residential Construction



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 Boone County's Stormwater Design Manual.

∽ Introduction

INTRODUCTION

Erosion is a natural process where soil and rock are loosened and removed. Natural erosion occurs at a very slow pace, but when land is disturbed during grading and other construction activities, the erosion rate increases dramatically. When erosion occurs on a construction site, sediment is available for transport by wind or stormwater runoff. The discharge of sediment and other construction site pollutants can negatively impact downstream water quality.

Understanding the Difference

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

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).

It is much cheper to prevent erosion than it is to capture sediment.

When installing sediment and erosion controls, determine whether there is sheet flow or concentrated flow of stormwater on the property. Sheet flow occurs on gently sloping land without defined drainage ways and stormwater disperses evenly across the property. Concentrated flow occurs where there are defined drainage ways, such as swales or clearly defined waterways. It is possible to have a combination of sheet flow and concentrated flow on the same property.

This brochure provides an overview of procedures that are acceptable for residential building construction within the unincorporated areas of Boone County. It is not intended to address all circumstances.

The building permit holder is responsible for ensuring adequate Best Management Practices (BMPs) are in place and functioning until the building permit is finaled. In some cases, a Stormwater Pollution Prevention Plan (SWPPP) may be in effect for your lot, in accordance with a subdivision development or other land disturbance activities totaling one acre or more. Check with the owner or developer to obtain a copy of the SWPPP, as you could be responsible for that portion of the land disturbance permit that affects your lot.

BUILDING PERMIT HOLDER RESPONSIBILITIES

- 1. Erosion and sediment control devices must remain functional until the site is permanently stabilized.
- 2. The permittee is responsible for all on-going maintenance of erosion and sediment control devices.
- 3. Protect any area inlets on the lot, as well as curb inlets along the street.
- 4. A temporary construction entrance is required until a driveway is built.
- 5. Clean up any sediment trackout on the street daily.
- 6. The permittee is responsible for keeping trash and construction debris on-site and in an approved container at all times.



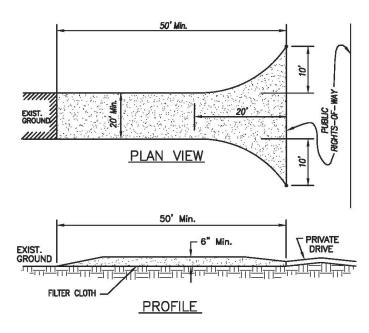
INSPECTIONS

Boone County Inspection staff will inspect your erosion and sediment control devices during routine building and/or subdivision inspections.

If BMPs are not installed in the correct location and/or are not installed correctly, the inspection will be denied.

Issues with erosion and sediment control measures should be corrected within seven calendar days. No inspection will occur until the issue has been corrected.

TEMPORARY CONSTRUCTION ENTRANCE

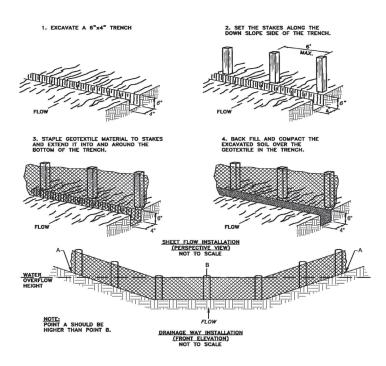


NOTES:

- 1. Stone Size Two inch stone
- 2. Length As required to prevent trackout.
- 3. Thickness Not less than six inches.
- 4. Width 20 foot minimum, but not less than the full width at points where ingress or egress occurs.
- 5. Filter Cloth Will be placed over the entire area prior to stone placement.
- 6. Surface Water Flowing over the construction entrance must be piped or bermed.

- 1. Inspect weekly and after each rain event greater than one-half inch.
- 2. Additional top dressing with stone and/or clean-out may be needed to prevent sediment trackout.
- 3. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed daily.

SILT FENCE



NOTES:

- 1. The height of the fence shall be a minimum of 16 inches above the ground surface.
- 2. Fasten the fence to the upslope side of the posts using a minimum of one inch long, heavy duty wire staples or tie-wires.
- 3. Backfill the trench with dirt or gravel.

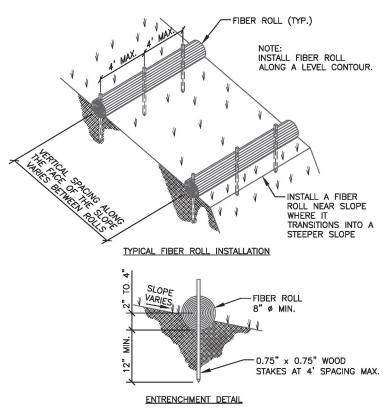
MAINTENANCE:

- 1. Inspect silt fences weekly and after every rain event greater than one-half inch. Make any repairs immediately.
- 2. Replace any ineffective, torn, collapsed or decomposed fence.
- Sediment accumulation should not exceed one-half the height of



the fence. Remove sediment deposits as necessary to provide adequate storage volume and reduce pressure on the fence.

FIBER ROLLS/WATTLES



NOTES:

- 1. On slopes, install fiber rolls along the contour with a slight downward angle at the end of each row to prevent ponding at the midsection.
- 2. Typically, the rolls are installed along sidewalks, on the bare lot side, to keep sediment from washing onto sidewalks, streets, gutters and storm drains.



- 1. Inspect weekly and after every rain event greater than one-half inch.
- 2. Remove sediment accumulation when it reaches one-half the height of the roll/wattle.
- 3. Repair split, torn, unraveled, or slumping fiber rolls.

Erosion Control - Erosion Blanket ∞

EROSION BLANKET Joper Entrenchment (Key Trench at Top of Slope Shown Anchor (Typ) Overlap Joint (Typ) Lower Entrenchment (Key Trench at Toe of Slope Shown) NOTE: WHERE THERE IS A BERM AT THE TOP OF THE SLOPE BRING THE MATERIAL OVER NOTE: THE BERM AND ANCHOR BRING MATERIAL DOWN TO A LEVEL AREA IT BEHIND THE BERM. BEFORE TERMINATING THE INSTALLATION. 6 Face of Slope **BFRM** (Prepared Subgrade) ISOMETRIC BLANKET Compacted Backfi 6 و، **KEY TRENCH - TOE OF SLOPE** TOP OF SLOPE ANCHOR SLOT DITCH FLOW NOTE: IN DITCHES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. USE CHECK SLOTS AS REQUIRED. AVOID JOINING MATERIAL IN THE CENTER OF THE DITCH IF AT ALL POSSIBLE. FOLLOW BLANKET MANUFACTURER'S RECOMMENDATIONS FOR ALLOWABLE VELOCITY AND SHEAR STRESS

NOTES:

- 1. Soil needs to be free of large rocks and dirt clods, seeded and fertilized prior to installation.
- 2. Start laying the blanket from top to bottom, stapling as you go. If you have to add another piece, make sure the beginning fabric overlaps the addition. Do not stretch the blanket tight.

- 1. Inspect weekly and after each rain event greater than one-half inch.
- 2. Repair erosion and/or undermining at top of slope by filling and compacting eroded area, revegetating, and resecuring the blanket.
- 3. Reposition or replace blanket(s) that have moved along the slope or have been damaged.

SEEDING/MULCHING



NOTES:

- 1. Complete grading and remove all debris larger than one inch.
- 2. Loosen compacted soils to a depth of four inches. Spread loose topsoil at a depth of four inches.
- 3. Seed and mulch exposed soil after finish grading has been completed, or areas where no activity will occur for 14 days.

- 1. Inspect weekly and after each rain event greater than one-half inch.
- 2. Reseed and mulch areas that have not sprouted within 21 days of planting.
- 3. Repair damaged or eroded areas and reseed/mulch and stabilized as needed.
- 4. Do not mow until four inches of growth occurs. During the first four months, mow no more than one-third the grass height.

Permanent Seeding Lawn Seed Mixtures		
Grass	% by Weight	
Tall Fescue	90%	
Annual Ryegrass	10%	
Seeding Rate - 400 lb./acre		
Dormant Seeding Lawn Seed Mixtures		
Lawii Seeu	Mixtures	
Grass	Mixtures % by Weight	
Grass	% by Weight	
Grass Tall Fescue	% by Weight 80%	

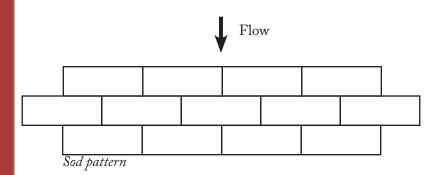
Temporary Seeding Lawn Seed Mixtures		
Grass	% by Weight	
Tall Fescue Annual Ryegrass	Can be any	
Millet	combination of grasses	
Wheat	listed.	
Oats		
Seeding Rate - 200 lb./acre		

SODDING

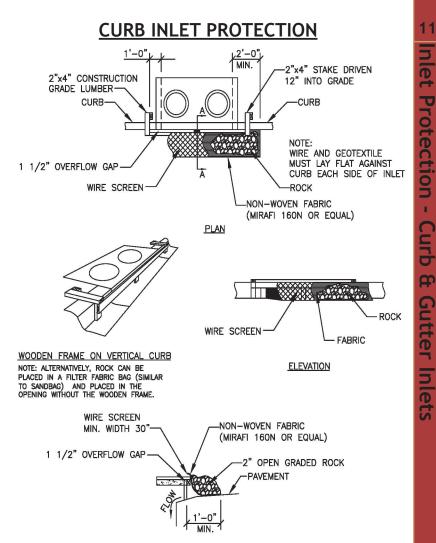


NOTES:

- 1. Remove all debris larger than one-half inch in diameter and concentrated areas of smaller debris.
- 2. Butt the strips tightly together. Do not leave gaps or overlap.
- 3. Roll sod to achieve firm contact with the soil.
- 4. Apply water immediately after installation. Provide enough to soak four inches into the soil without causing runoff.



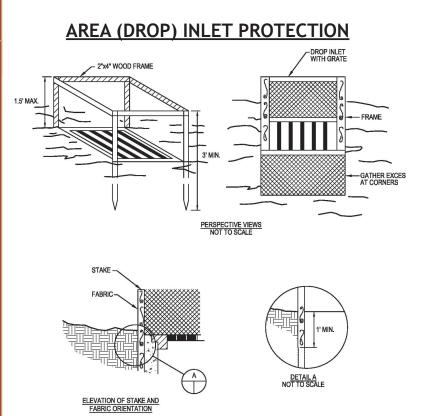
- 1. Water daily for three weeks.
- 2. Reposition areas that have moved along the slope.
- 3. Remove sediment accumulations.
- 4. Do not mow until three inches of new growth occurs. During the first four months, mow no more than one-third the grass height.



NOTES:

- 1. Add an overflow bypass into the inlet protection structure.
- 2. Sediment controls behind the curb are necessary to prevent the discharge of sediment in these bypasses.

- 1. Inspect weekly and after each rain event greater than one-half inch.
- 2. Remove trash, debris, and sediment from inlet structure as need-ed.
- 3. Remove sediment from inlet protection when one-half the height has been filled.

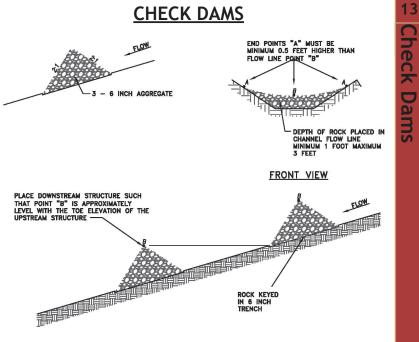


NOTES:

- 1. Space stakes evenly around the perimeter of the inlet at a maximum of three feet apart and 18 inches deep.
- 2. Make a frame of 2x4 wood strips around the crest of the overflow area at a maximum of one and one-half feet above the crest.
- 3. Backfill the bottom of the fence in a trench.
- 4. Fasten fence with staples, or wire it to the stakes and frame.

- Inspect weekly and after each rain event greater than one-half inch.
- 2. Remove trash, debris, and sediment from inlet structure as needed.
- 3. Remove sediment from inlet protection when one-half the height has been filled.





SIDE VIEW

NOTES:

- 1. Place at a distance and height to allow small pools to from behind them.
- 2. Install the first check dam approximately 16 feet from the outfall device.

- 1. Inspect weekly and after every rain event greater than one-half inch.
- 2. Remove trash and leaf accumulation. Remove sediment when depth reaches one-half of the check dam height.



SOIL STOCKPILES



NOTES:

- 1. Stockpiles should not be located near the street or adjacent property lines.
- 2. Perimeter control should be installed around all stockpiles. If using silt fence, do not install directly at the toe of the stockpile
- 3. If your stockpile is small, consider covering it with a tarp.
- 4. Stockpiles should be stabilized if not actively being worked.

- 1. Inspect weekly and after every rain event greater than one-half inch.
- 2. Repair/replace perimeter controls as needed.
- 3. Remove sediment from perimeter control when it reaches onehalf the height of the control.



OTHER 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.
- **Fueling** Provide secondary containment barriers for fuel stored on-site.
- 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, dry-wall, 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.

Compliance Checklist

COMPLIANCE CHECKLIST	
Best Management Practice (BMP)	>
Inlet Protection - BMPs are in place and functioning for both area and curb inlets. Maintenance includes removal of sediment following each rain event and replacement of failing materials. Do not allow sediment to enter inlet during maintenance.	
Perimeter Controls - BMPs are installed along back of curb and along the lot line of adjacent properties which are downhill and receive runoff from the permitted lot. Following sidewalk installation, BMPs are moved to the back of the sidewalk to prevent sediment from reaching the sidewalk. BMPs are maintained to ensure proper function, including repair or replacement of torn, degrading, missing or otherwise ineffective materials. Remove sediment deposits as necessary to provide adequate protection.	

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				ecklist
Temporary Construction Entrance - Required for each individual lot. A surface suitable for parking and unloading that prevents tracking of mud and rock onto the street is installed. A minimum depth of six inches of two inch stone is requested. All vehicles that access the lot shall use the construction entrance. Restrict other access if necessary to prevent tracking onto the street.	Soil Stockpiles are protected to prevent sediment from reaching the street and adjacent properties. Stockpiles are located away from streets and property lines.	Intermediate Control - Long or steep drainage paths have intermediate or interior BMPs installed to help slow the flow of runoff. Failure of perimeter controls due to the force of runoff often determines the need for intermediate controls.	Other Pollutants - Trash and other debris are contained. All waste water, including concrete washout, is properly disposed of. Materials and chemicals are stored properly. Dewatering is done in such a manner as not to deposit sediment off site or cause erosion.	Compliance Checklist 2

STREAM BUFFER REQUIREMENTS

Streamside Zone

Streamshee Zone			
Stream Type:	Type 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 Distance
Storage and use of hazardous substances	300 feet
(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.)	
Above-or-below ground petroleum storage	300 feet
(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.)	
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 Type II Streams: 100 feet Type III Streams: 60 feet	
Class P Streams (permanently flowing) Type I Streams	50 feet minimum	
Sinkholes Caves	150 feet minimum 300 feet maximum	

* Land development in or near an ecologically and/or environmentally sensitive area that disturbs more than 3,000 ft² requires a Land Disturbance Permit.



Boone County, Missouri

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www.showmeboone.com



Courtesy of Boone County

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