Stormwater Pollution Prevention for Residential Construction
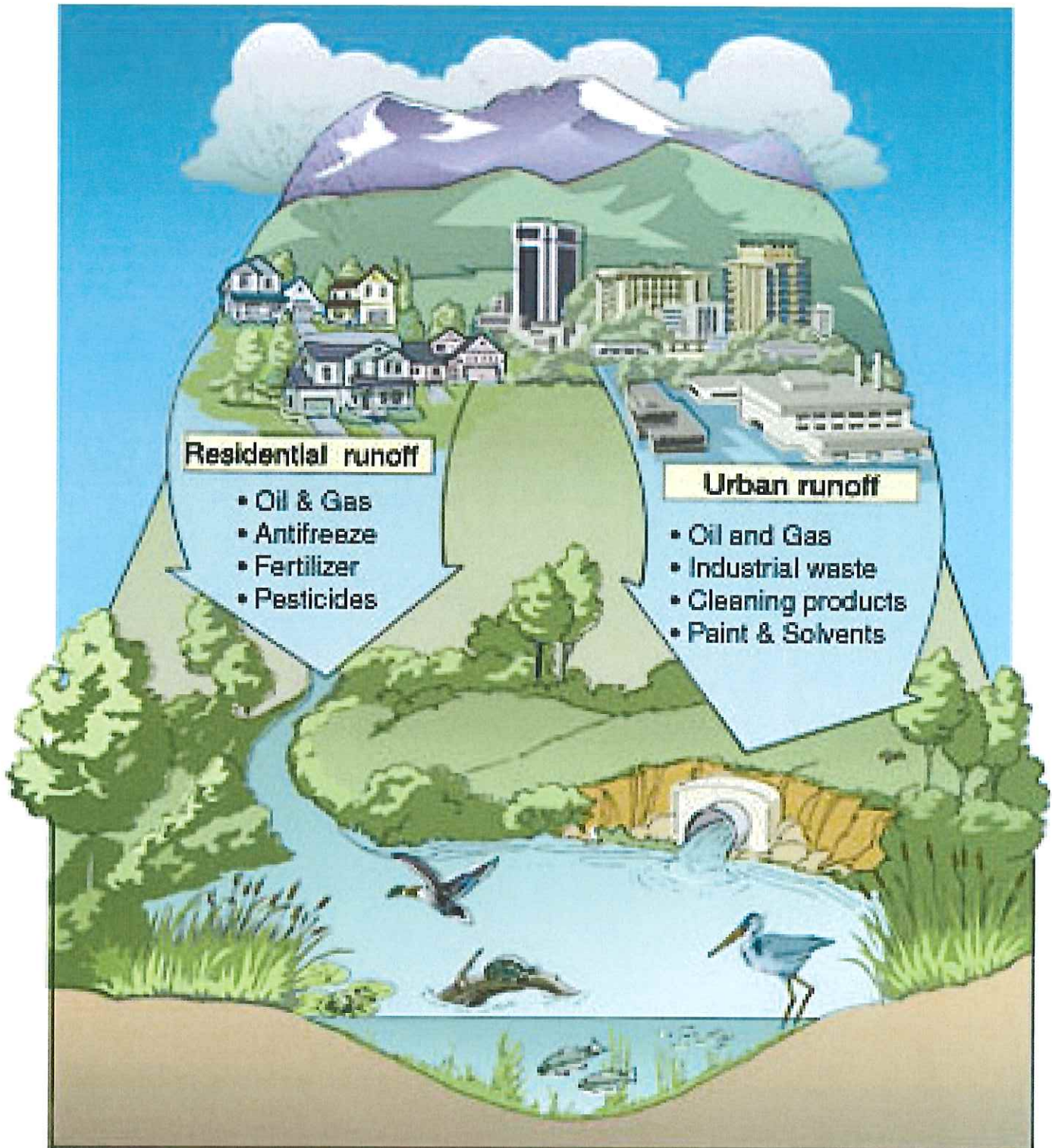
STAR OF THE BIG SKY COUNTRY

BILLINGS

MONTANA

Prepared by the City of Billings Public Works Department

April 2011

Stormwater Cycle

Residential runoff
- Oil & Gas
- Antifreeze
- Fertilizer
- Pesticides

Urban runoff
- Oil and Gas
- Industrial waste
- Cleaning products
- Paint & Solvents

Be aware that stormwater runoff is not treated once it reaches the City storm drain system. All stormwater runoff ends up in the Yellowstone River.

Stormwater Pollution Prevention for Residential Construction

Stormwater pollution occurs when water (including rain, snow melt, irrigation runoff) flows across surfaces and picks up pollutants, such as debris, chemicals, dirt, oil, and other pollutants, and discharges into surface and ground waters. The City's stormwater collection system is designed to prevent flooding and not designed to remove pollutants created from residential, commercial and industrial uses. Even small amounts of pollutants such as fertilizers, motor oil, and soap can be harmful to our watershed. While individual homeowner activity, including construction, may seem insignificant, small amounts from many sources can accumulate to significantly impair water resources.

Common stormwater pollutants and their sources.	
Pollutant	*Common Sources*
Sediment (sand, silt, clay particles)	Bare spots in lawns and gardens, construction sites, streambank erosion, sloping areas, farm fields, wastewater from washing vehicles
Nutrients (nitrogen, phosphorous, others)	Over-application or spilled fertilizer, pet waste, livestock manure, grass clippings, leaves
Pesticides	Over-application or spilled material, leaks, sprayer wash-out
Disease-causing Organisms (bacteria, viruses)	Pet waste, livestock manure, garbage
Hydrocarbons	Engine exhaust, fuel and oil spills and leaks, coolant leaks, vehicle tire wear
Metals	Vehicle brake and tire wear, engine exhaust, metal gutters and downspouts, scrap piles

Preventing Stormwater Pollution During Residential Construction

Construction activities, such as grading, excavation, and stock piling, on residential sites can increase stormwater runoff and may pollute adjoining properties and City streets, and dump sediment into storm drains, streams, ditches, or the Yellowstone River. Contractors and builders must incorporate Best Management Practices (BMPs) to control both erosion and sedimentation from construction sites. These recommended BMPs are listed in the City's Stormwater Management Manual available on the city website.

GENERAL CONSTRUCTION:

- Minimize site disturbance by staging construction activity to reduce disturbed soil exposure. Preserve natural landscaping as long as possible.

Examples of phased construction. Stormwater detention areas are in place while houses are still under construction. Landscaping and detention facilities are constructed with each phase.
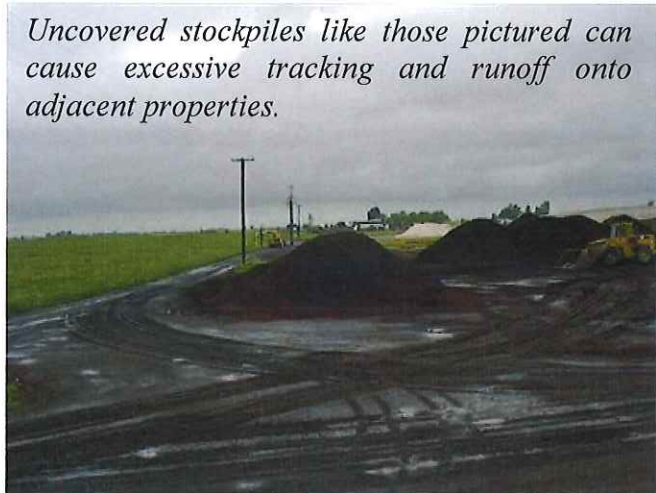

- Reduce site access to a single entry point by installing silt fencing or construction fencing or tape. Minimize vehicular traffic on and off the site. Install vehicle tracking controls by constructing a track pad with 3" to 6" angular rock w/ a geotextile mat or vehicle tracking control pads if space permits.

Examples of excessive tracking of mud onto local streets due to lack of access control during construction.

- Maintain good housekeeping practices by removing and or containing debris and waste construction material. Locate or cover stock piles to minimize sediment runoff onto adjoining properties and City rights-of-way (curb, gutter, sidewalks, streets).
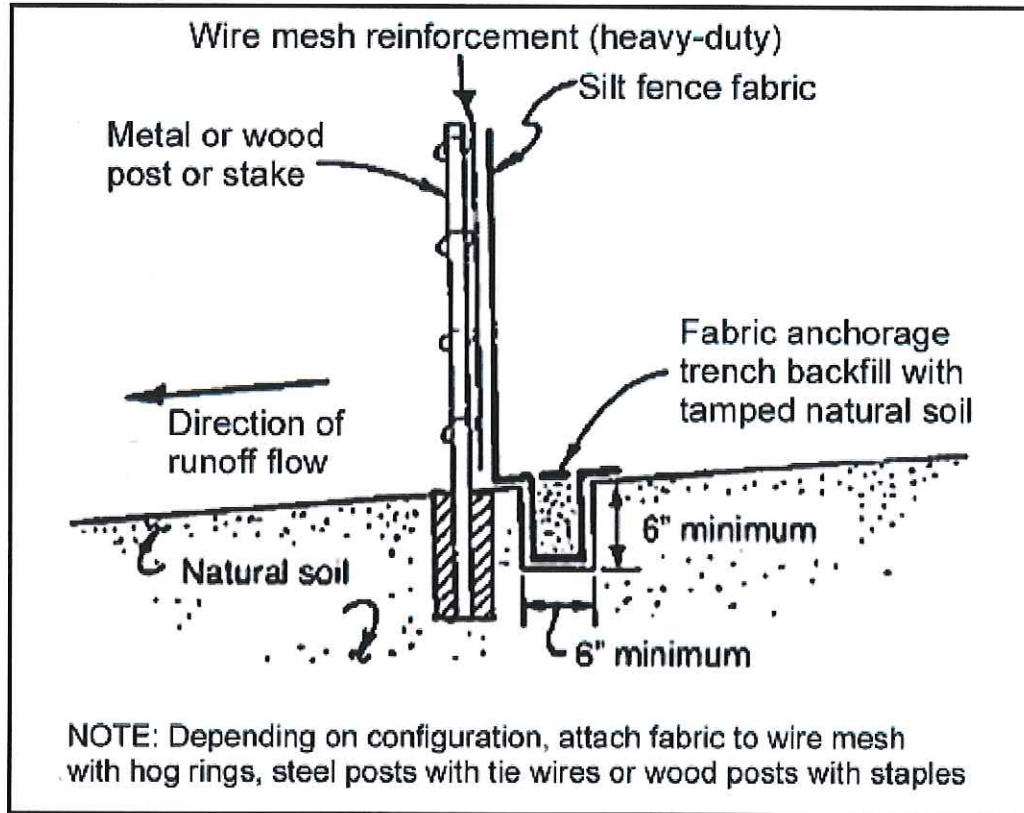

Uncovered stockpiles like those pictured can cause excessive tracking and runoff onto adjacent properties.

Covered stockpiles reduce tracking and stormwater pollution.

- Routinely sweep and shovel tracked sediment from city streets. Do not clean these areas with water.

Street rights-of-way within developing residential subdivisions recently cleaned

- **Install sediment controls such as straw wattles, silt fences, or other filter fabrics at stormwater inlets downstream of the construction site.**

Wire mesh reinforcement (heavy-duty)

Silt fence fabric

Metal or wood post or stake

Fabric anchorage trench backfill with tamped natural soil

Direction of runoff flow

6" minimum

Natural soil

6" minimum

NOTE: Depending on configuration, attach fabric to wire mesh with hog rings, steel posts with tie wires or wood posts with staples

Properly installed silt fencing.

Straw wattle installed at stomwater inlet.

Improperly installed and unmaintained silt fencing.

Additional General Construction Techniques

- Construct a liquid waste wash facility to minimize runoff from the site.
- Inspect erosion and sediment controls within 24 hours of a storm event.
- Monitor subcontractors and employees to ensure they are practicing good housekeeping techniques and are aware of spill prevention, control, and cleanup procedures and proper waste disposal methods.
- For construction sites disturbing one acre or larger submit a Stormwater Pollution Prevention Plan (SWPPP) to both the Montana Department of Environmental Quality and the City Public Works Department. A copy of the SWPPP should be on the job site or with the construction foreman. The SWPPP form is on the City's web site.
- For more information on storm water system operation and maintenance, refer to the Billings Stormwater Management Manual.

PAINTING:

- Clean latex (water-based) paint brushes and equipment with water in a sink that is connected to the sanitary sewer.
- Clean oil-based paint brushes and equipment where waste paint and solvents can be collected and disposed as hazardous waste.
- Segregate wastes for recycling and/or disposal.
- When removing lead-based paint, use a drop cloth under scraping and during sandblasting activities. For proper disposal mechanisms contact the Solid Waste Division at 657-8260.

RECOMMENDED CONSTRUCTION PRACTICES:

- Inventory hazardous materials used, stored on site, or contained in equipment. Seek out ways to remove or replace non-essential hazardous materials wherever possible.
- Store materials under cover or in areas with secondary containment.
- Provide a gravel pad on-site for materials and equipment delivery.
- Establish an operation and maintenance schedule and track maintenance activities.
- List the contact person responsible for inspection and maintenance.

CITY INSPECTIONS

To ensure that BMP's are incorporated with any land disturbing or construction activity, the City may conduct inspections and provide enforcement of violations pursuant to Section 28-100, Billing Municipal City Code, the Federal Clean Water Act of 1972, and Phase II Stormwater Regulations.

To report stormwater pollution or obtain additional information, please contact:

Environmental Affairs Division at (406) 247-8663
Engineering Division at (406) 657-8231

For building code questions and to apply for a Building Permit, please contact:

Building Division at 657-8270

Information is also available on the Environmental Affairs web page of the City of Billings Website at:

http://ci.billings.mt.us