

Landscaping and Chemical Applicator Practices for Storm Water Compliance

March 7, 2017

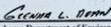
Participants

- * Hosted by Shelby County Development Services and Indian Springs Village
- * Waynes Environmental Services – 205-985-7709
- * Alabama Professional Services (205) 518-8216

What is MS4

- * The Municipal Separate Storm Sewer System (MS4) general permit is mandated by the federal regulations under the Clean Water Act and administered by the Alabama Department of Environmental Management (ADEM)
- * Basically, it is all the storm water run off conveyance into the larger creeks and Cahaba River

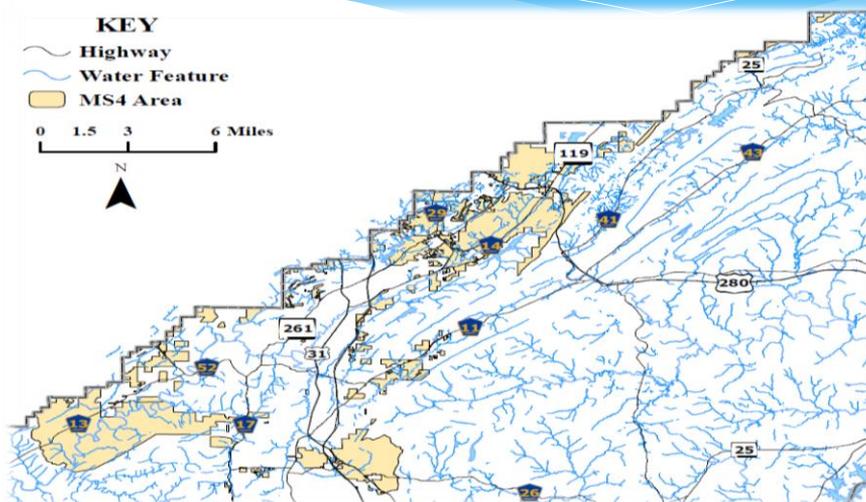
MS4 Permit for Shelby County

ADEM		
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT		
PERMITTEE:	SHELBY COUNTY	
AREA OF COVERAGE:	CORPORATE BOUNDARIES OF SHELBY COUNTY WITHIN THE CAHABA RIVER DRAINAGE BASIN UPSTREAM OF PINEY WOODS CREEK	
PERMIT NUMBER:	AL500008	
RECEIVING WATERS:	WATERBODIES WITHIN THE CORPORATE BOUNDARIES OF SHELBY COUNTY WITHIN THE CAHABA RIVER DRAINAGE BASIN UPSTREAM OF PINEY WOODS CREEK	
<small>In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1113(i)-1173 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-15, and rules and regulations adopted thereunder, and subject further to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the above-named receiving waters.</small>		
ISSUANCE DATE:	SEPTEMBER 30, 2015	
EFFECTIVE DATE:	OCTOBER 1, 2015	
EXPIRATION DATE:	SEPTEMBER 30, 2020	
 Cecilia L. Perry Alabama Department of Environmental Management		

- * Municipal Separate Storm Sewer System (MS4)
- * Cahaba River Basin



Shelby County MS4



Total Maximum Daily Load?

- * What is the TMDL?
 - * A total amount of pollutants a stream system can handle in a day.... A limit.
 - * Calculates tolerable amount of pollution a water body can receive and maintain water quality.
 - * Includes loads from point sources and nonpoint sources in the watershed.
 - * The County's MS4 program is responsible for its portion
 - * Implemented through Best Management Practices, sampling and education.

Over the top and in the flow

- * The MS4 regulation requires that storm water runoff be addressed on site.
- * Detention/retention must accommodate a 1.1 inch rainfall over a 24 hour period preceded by a 72 hour antecedent dry period.
- * Storm water should be absorbed on site whenever possible.

Relation to the Vegetation

- * Sediment/leaves
 - * -compost
- * Debris
- * Nutrients
- * Chemicals
 - * Pesticides
 - * Herbicides
 - * Fertilizers

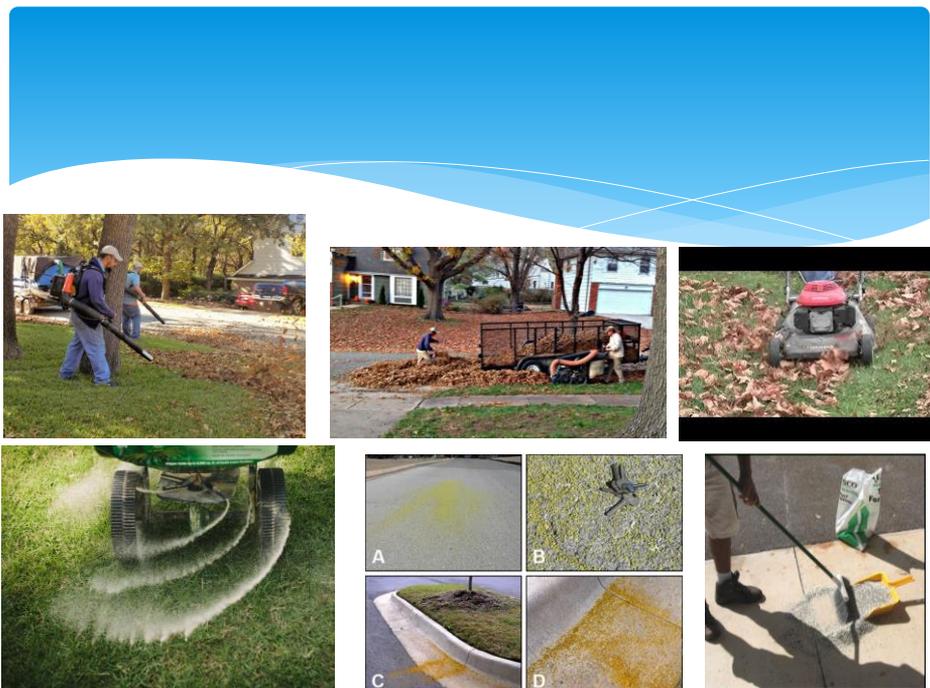
Debris-

- * The drains are just for RAIN
- * Bag it, don't blow it.



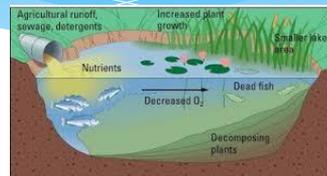
What to do with yard clipping, leaves and other landscape materials

- * Leaves can be mulched and spread in the yard to replenish planting beds and grass.
- * Add leaves to a compost pile as it recirculates for rich mulch later in the year
- * Barriers along planting beds can reduce sediment from washing away
- * Chip limbs/trees to mulch planting beds or haul away.
- * **DO NOT** blow into the storm drains and ditches
- * **DO NOT** blow into the roadway

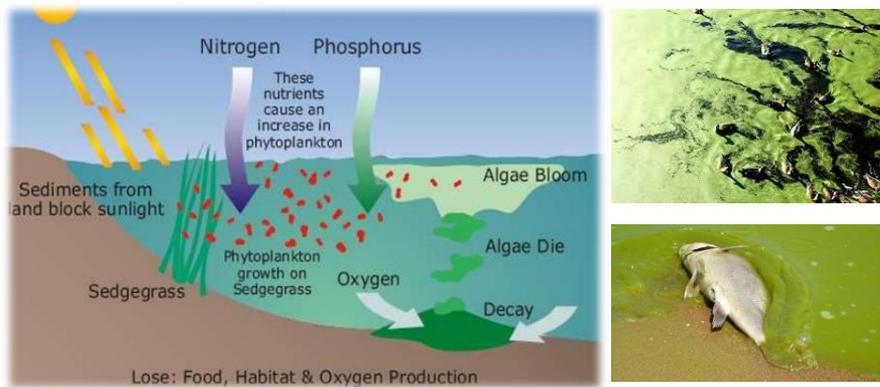


Nutrients

- * Elevated nutrients may cause
 - * Polluted Drinking Water
 - * Excessive aquatic flora growth
 - * Bacteria break down the plant life....Lowers dissolved oxygen levels
 - * Decreased health or death of water fauna...Leads to summer fish kills
 - * Nutrient pollution is the process where too many nutrients, mainly nitrogen and phosphorus, are introduced to bodies of water and can act as a fertilizer, causing excessive growth of algae leading to other water related issues.



Eutrophication



Best Management Applications of Fertilizers as it pertains to Storm Water

- * Know when to apply fertilizers
- * Don't over apply the amounts
- * Don't apply onto sidewalks, roads, and driveways
- * Don't apply large amounts before a heavy rain

Slowing water by design

- * Downspouts focus water runoff and increase both volume and velocity at the output.
- * Capture and disperse the flow with barrels, rocks, and design features.
- * Don't direct drainage onto the street.



Designing to reduce waste

- * Reducing water run-off
 - * Slow the flow
 - * Increase absorption-native plants
 - * Creating barriers



Reducing maintenance and absorbing the flow



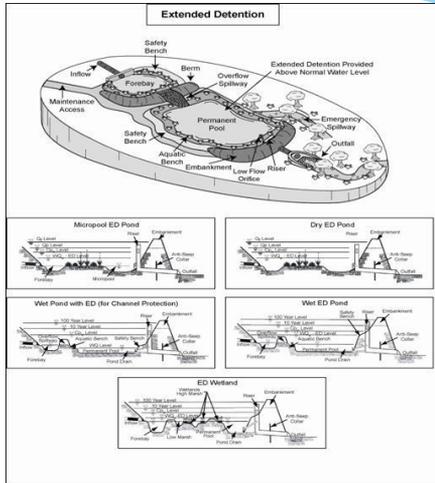
- * Using Native plants.
- * Drought tolerant plants.
- * Breaks in impervious surfaces to allow for better infiltration.
- * Barrier stops with stone or edging- prevent flush of applied chemicals and allow settling of water.

Detention , Retention and Reuse

- * Ponds
- * BioSwales
- * Rain Gardens
- * Rain Barrels
- * Cisterns
- * Downspouts to Spigots



Ponds: Retain or Detain



Rain Barrels and Cisterns

Downspouts to Spigots



Bioswales and Rain Gardens



North Shelby Library

- * North Shelby Library had a swale that settled and just didn't move the water
- * A Low Impact Development (LID) technique was used to solve the problem
- * Bio Swale





Edenton- Rain Gardens

A collage of six photographs showing different rain garden installations in a residential neighborhood. The photos include: 1) A concrete walkway leading to a rain garden with mulch and plants. 2) A circular rain garden with a central island of mulch and plants, surrounded by a lawn. 3) A long, narrow rain garden along a gravel path. 4) A rain garden with a black trash can and a sign. 5) A rain garden with a central island of mulch and plants, similar to the second photo. 6) A rain garden with a central island of mulch and plants, similar to the second photo. All photos have a timestamp '02/01/2017' in the bottom right corner.

St. Vincents 119 Bio Swales



Client Education

- * Overwatering-plants sip, they don't guzzle
- * Over treating- too much can burn, run off wastes \$\$
- * Storing your chemicals-preventing leaks, proper disposal
- * Clipping clean up-compost, chip, toss
- * Down the Drain and Up in your cup or on your plate



Chemical Storage

Size determines need

- * Storage shed
- * Portable storage unit
- * Designated area inside another facility



Industrial Inspections

- * Shelby County visits sites that perform industrial and commercial business and have potential impacts to storm water
- * Lawn care, lawn maintenance, pest control, and material storage/sales companies
- * Inspections occur a minimum 1 time per year
- * Inspectors look at chemical storage and BMPs in place to manage and prevent chemical spills

General Storage Requirements

- * Common sense, safety requirements for all pesticides
- * Prevent leaking
- * Regular inspection of products and locks
- * No unlabeled containers
- * Do not store chemicals in any food, feed, beverage, or medicine container

Safe Transports of Chemicals

Do This



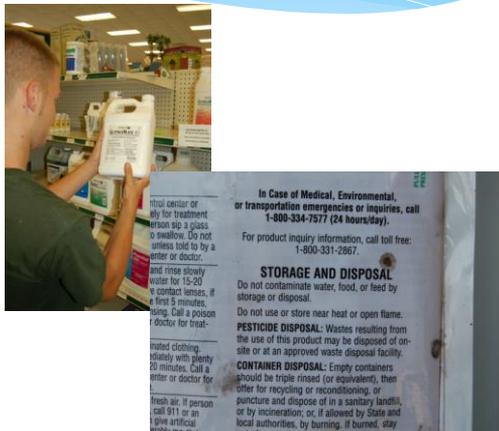
DIAL 911 if a spill or leak occurs

Not This



Always read and follow the label

- * Before purchasing or recommending a product make sure the minimum requirements for safe storage can be met
- * Look for statements under “Storage and Disposal”, “Note”, or “General Instructions”



Proper Conditions: Temperature & Ventilation

- * Maintain temps between 40 and 100 degrees F.
- * Freezing may cause chemical separation and container failure
- * Excess heat may cause explosion or fire
- * Minimize fire hazards if you provide heating



- * Constant ventilation needed to remove vapors, excess heat, and humidity
- * Provides safe conditions for workers and extends shelf life of pesticides
- * Use exhaust fans or passive vents
- * Exhaust air directly to outside
- * May be reduced in winter

The problem with drains

Use Non-absorbent shelving material



- * Existing floor drains must be sealed unless connected to a tank that can be cleaned out
- * Outflow must be captured and disposed as hazardous waste



- * Metal shelves with lip to contain spills
- * Wooden shelves coated with epoxy paint or plastic
- * Containment trays or pans



Protecting the environment

- * Floors should be made of non-porous material, free of cracks
- * Allows for easier cleanup
- * Construct floors with 2- to 4-inch lip or recess below the level of the doors to contain large spills



Defined...

- * a pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest.”
- * “...a pest is any harmful, destructive, or troublesome animal, plant or microorganism.”

-US Environmental Protection Agency (EPA)

The Invaders



- * Spring-Spiders, rodents, termites, ants, mosquitos, fleas, ticks, roaches, flies
- * Summer- spiders, termites, ants, worms, mice, fleas, ticks, roaches, wasps & yellow jackets, mosquitos
- * Fall-spiders, termites, ants, rodents, fleas, ticks, roaches, mosquitos
- * Winter-spiders, termites, ants, rodents, fleas, ticks, roaches, silverfish



A small dose goes a long way

The function of a pesticide is to kill or harm some form of life.

- * Insecticides (kill insects)
 - * Organochlorines
 - * Organophosphates
 - * Carbamates
 - * Synthetic Pyrethroids
- * Herbicides (kill plants)
- * Rodenticides (kill rodents)
- * Fungicides (kill fungus)
- * Fumigants (kill whatever)

Questions

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We encourage you to contact participating members of our public involvement program



866-WAYNES1
205-985-7009

Alabama Professional Services
APS
Call For Pest Control & Lawn Protection
(205) 518-8216
(205) 951-9717



Landscaping and Chemical Applicator Practices for Storm Water Compliance Hosted by Shelby County Development Services and Indian Springs Village Tuesday, March 07, 2017		
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2 Roger Moore	Alabama Professional Services	205-785-8229
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4 Tim Kendrick	WAYNES Environmental Services	tKendrick@callwaynes.com
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