Good Housekeeping Practices

- Dewatering Operations
- Material storage
- Spill prevention and control
- Debris and trash management
- Hazardous waste management
- Concrete waste management

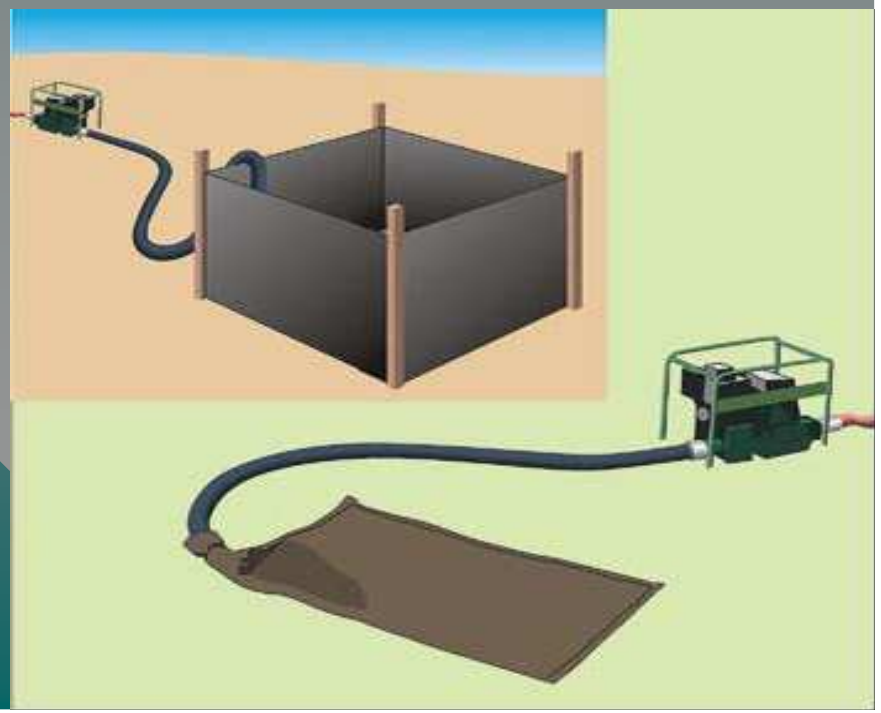
Good Housekeeping Practices

- Sanitary facilities
- Vehicle and equipment maintenance
- Employee training
- Dust control
- Groundwater Protection

Good Housekeeping Practices

Dewatering Operations

- Dewatering is the pumping of stormwater or groundwater from excavation pits or trenches
- The sediment-laden water must be pumped to dewatering structure for sediment removal before it is discharged off-site
  - Socks
  - Bags



Good Housekeeping Practices

Dewatering Operations (Man. 150, FG 8)

Proper Installation Considerations

- Place dewatering sock or bag on low gradient area
- Must have vegetated area below to prevent erosion from water leaving structure
- Can place silt fence or other sediment control device around perimeter of dewatering sock or bag to filter sediment from any leakage that may occur

Good Housekeeping Measures

Material Storage Management

- The practice of receiving, processing, storing, and using materials in a manner that minimizes the risk of spills and pollution of stormwater runoff

Good Housekeeping Measures

Material Storage Management

- Designate specific areas of the construction site for material delivery and storage
- Place material storage areas near the construction entrance and away from waterways and storm drain inlets
- Place materials designated for outside storage in locations that will be paved
- Keep materials in original containers and labeled
- Keep containers tightly sealed after use

Good Housekeeping Practices

Spill Prevention and Control

- Procedures that establish spill response and control actions by anticipating when and how spills might occur and instituting defined actions to contain and clean it up

Good Housekeeping Practices

Spill Prevention and Control

- Store materials away from waterways and storm drain inlets, and indoors, if possible
- Place a stockpile of spill cleanup materials where it can be easily accessed
- Train employees and subcontractors on the need to prevent spills
- Train employees on spill prevention and response
- Fix leaks and clean up spills immediately

Good Housekeeping Practices

Spill Prevention and Control

- Use dry methods to clean up spills—never hose down or bury spill materials
- Dispose of absorbent material properly
- For significant spills call IDEM general hotline at 1-888-233-7745

Good Housekeeping Practices

Spill Prevention and Control

- Construction sites and other facilities that have aboveground storage capacity in excess of 1,320 gallons (measured in 55 gallon drums and larger) for petroleum products are required to have a Spill Prevention, Control, and Countermeasure (SPCC) Plan

Good Housekeeping Practices

Debris and Trash Management

- Policies and procedures designed to minimize the generation of waste and to handle and dispose of waste in a manner that minimizes risks to surface waters

Good Housekeeping Practices

Debris and Trash Management

- Responsibility of all workers, including subs
- Segregate potentially hazardous waste from non-hazardous construction site debris
- Keep debris and trash under cover in designated storage areas
- Store waste materials away from drainage ditches, swales, and catch basins
- Recycle construction and demolition debris
- Recommend not burying on site

Good Housekeeping Practices

Hazardous Waste Management

- Policies and procedures that address the problem of stormwater polluted with hazardous or chemical pollutants through spills or other forms of contact

Good Housekeeping Practices

Hazardous Waste Management

- Minimize use of hazardous materials
- Keep chemicals in sealed, labeled container
- Keep in secondary containment and preferably under cover
- Have MSDS sheets available
- Store materials away from drainage features

Good Housekeeping Practices

Hazardous Waste Management

- Manage wash water for paint cleanup
- Dispose of used paint thinner at designated collection sites
- Allow paint rollers, drop cloths, cans, and other wastes to dry thoroughly, then discard in solid waste containers

Good Housekeeping Practices

Concrete Waste Management

- Policies and procedures that address the handling and disposal of
  - excess fresh concrete mix, including truck and equipment washing, and
  - concrete dust and concrete debris resulting from demolition

Good Housekeeping Practices

Concrete Waste Management

Don'ts

- Dump in unmanaged vacant areas on the job site
- Illicitly dump away from the job site
- Dump into ditches or drainage facilities
- Dump wash water from trucks and chutes into storm drains

Good Housekeeping Practices

Concrete Waste Management

Dos

- Dump waste and wash water into areas prepared for new concrete pouring
- Provide washout area with a minimum of 6 cubic feet of containment volume for every 10 cubic yards of concrete poured
- Dispose of hardened concrete on regular basis
- Discharge wash water in an area protected by one or more sediment removal BMPs and in accordance with the BMP Plan

Good Housekeeping Practices

Sanitary Facilities

- Policies and procedures to prevent the contamination of stormwater with human waste and to provide for proper public health protection and employee safety

Good Housekeeping Practices

Sanitary Facilities

- Must be provided on the site in close proximity to areas where people are working
- Portable toilets to be provided if permanent facilities are not available
- Locate portable toilets minimum of 20’ away from drainage features or provide containment

- Portable toilets should be regularly serviced by licensed hauler

Good Housekeeping Practices

Vehicle and Equipment Maintenance

- Practices that specify how and where vehicles and equipment will be cleaned, fueled, and maintained in a manner that minimizes risks for spills and runoff of pollutants

Good Housekeeping Practices

Vehicle and Equipment Maintenance

- Use off-site repair and fueling shops as much as possible
- If maintenance or fueling must occur on-site, designate an area away from waterways and storm drain inlets
- Protect on-site cleaning, fueling, and maintenance areas with berms or dikes (secondary containment)

Good Housekeeping Practices

Vehicle and Equipment Maintenance

- Use drip pans or absorbents under leaking vehicles or equipment
- Locate washing away from waterways or storm drain inlets - use phosphate-free, biodegradable soaps, and minimize the amount of water used
- Train employees and subcontractors

Good Housekeeping Practices

Employee Training

- Workshops, meetings, and other structured interaction among managers and employees to distribute and discuss information regarding the management of sediment and other pollutants at construction site

Good Housekeeping Measures

Employee Training (Man. 191, FG 66)

- Train employees and subcontractors
- Integrate good housekeeping training with spill response, EPSC, safety, or other training
- Reinforce training with frequent refreshers
- Consider posting information for employees to read
- Consider sending employees to additional training courses

Good Housekeeping Practices

Pesticide, Herbicide and Fertilizer Use

- Practices that guide how these products should be handled, stored and used

Good Housekeeping Practices

Pesticide, Herbicide and Fertilizer Use

- Similar to hazardous waste management
- Follow manufacturer's recommendations for mixing, application, cleaning and disposal
- Train employees and subcontractors

Good Housekeeping Practices

Dust Control

- Reduction of windborne sediment and dust movement during land disturbing activities
- Purpose is to prevent airborne movement of sediments to off-site areas or on-site areas without sediment control where they could subsequently be washed into surface waters

Good Housekeeping Practices

Dust Control

Options

- Construction activities should be phased to minimize the total exposed soil area and the length of time bare areas are exposed
- Roughen soil to create ridges perpendicular to the prevailing wind direction
- Treat temporary roadways

Good Housekeeping Practices

Groundwater Protection

- Practices that ensure that storage, handling, or use of fertilizers, pesticides, or other hazardous products does not contaminate groundwater
- These measures are especially important in areas with karst features

Project Closeout

Project Closeout

- All land disturbing activities, including construction on building lots, have been completed
- Entire site has been stabilized (at least 70% coverage of vegetation)
- All temporary EPSC measures have been removed
- All post-construction BMPs are operating as intended

Project Closeout

- Conduct final inspection
- Notify permit holder of need to submit a Notice of Termination (NOT)

RULE 5 –
Notice of Termination (NOT)
Storm Water Runoff Associated with Construction Activity
NPDES General Permit Rule 327 IAC 15-5 (Rule 5)

State Form 51514 (R / 1-04)

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

For questions regarding this form, contact:
IDEM – Rule 5 Coordinator
100 North Senate Avenue, Rm 1255
P.O. Box 6015
Indianapolis, IN 46206-6015
Phone: (317) 233-1864 or
(800) 451-6027, ext. 31864 (within Indiana)
Web Access:

NOTE:
- This Notice of Termination must be signed by an individual meeting the signatory requirements in 327 IAC 15-4-3(g).
- Please submit the completed Notice of Termination form to the SWCD, DNR-DSC, or other Entity Designated by the Department as the reviewing agency. The request for termination will be reviewed for concurrence and either returned to the Project Site Owner or forwarded to the IDEM.

Submission of this Notice of Termination letter constitutes notice to the Commissioner that the project site owner is applying for Termination of Coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit Rule for Storm Water Discharges Associated with Construction Activity.

Project Name and Location:

Permit Number: ____________

Project Name: ______________________________ County: ______________

Company Name (If Applicable): ______________________________

Project Site Owner's Name (An Individual): ______________________________

Address: ______________________________

City: ______________ State: ____________ Zip: ____________

Phone: __________ FAX: __________ E-Mail Address (If Available): ______________

This Notice of Termination is Being Submitted for the Following:

Select one of the three Options that apply to Permit Termination by checking the appropriate box, complete all information associated with that option, and complete the "Project Site Owner Responsibility Statement".

Option # 1

☐ **Certification for Change of Ownership:**

(Does not Apply to the Sale of Individual lots within the Permitted Acreage; only the Sale of the Entire Project Site as Originally Permitted)

By Signing this Notice of Termination, I Certify the Following:

A. The project was sold; I am no longer the project site owner as was designated in my Notice of Intent. The new owner of the project site is:

Company Name (If Applicable): ______________________________

Project Site Owner's Name (An Individual): ______________________________

Address: ______________________________

City: ______________ State: ____________ Zip: ____________

Phone: __________ FAX: __________ E-Mail Address (If Available): ______________

B. I have notified the new Project Site Owner of his/her responsibilities to comply with 327 IAC 15-5 and the requirements associated with the rule including filing a new Notice of Intent.

Post-construction Stormwater Pollution Treatment Practices

Post-construction Stormwater Pollution Treatment Practices (STP)

- Infiltration System
- Wet Detention Ponds
- Dry Detention
- Constructed Wetlands
- Biofilters, Swales and Strips
- Water Quality Inlets
- Oil/Water Separator

Post-construction Stormwater Pollution Treatment Practices

- Treat stormwater onsite after construction is complete, so permanent BMPs
- Treatment is usually targeted to sediment

Post-construction STP

Infiltration Systems

- Reduces runoff and contributes to groundwater recharge.
- Requires high level of prior pollution removal
- Highly dependent on soils

Post-construction STP

Infiltration Systems

Design Considerations

- Typically designed by engineer
- Emergency overflow or bypass required
- May not be appropriate near drinking water wells, foundations, septic tanks, drain fields and unstable slopes
- Typically capture 85-95% of average annual runoff

Post-construction STP

Infiltration Systems

Installation Considerations

- Protect infiltration surface during construction
- System needs to be free of clogging, accumulated metals, or other ground water contaminants
- System shall not be located on fill sites or on steep slopes

Post-construction STP

Infiltration Systems

Maintenance Considerations

- If water still present 72 hours after rain, then needs cleaning
- Clean porous pavement grids bi-annually

Inspections

- Annually
- After extreme rainfall events

Post-construction STP

Wet Detention Ponds

Pond that has a permanent water pool to treat incoming stormwater through settling of pollutants and uptake of pollutants through aquatic and perimeter plants

Post-construction STP

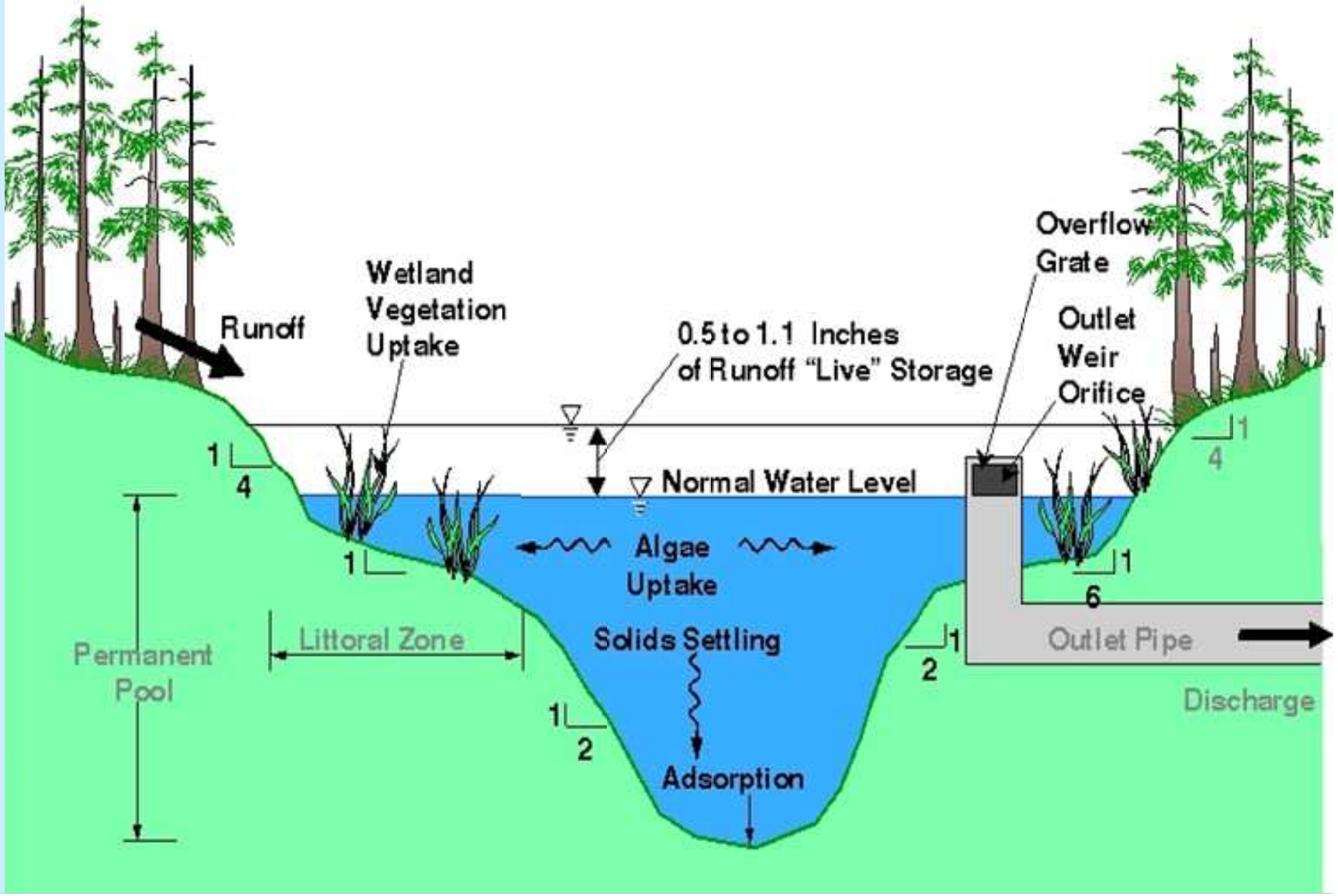
Wet Detention Ponds

Appropriate Uses/Design Considerations

- Ideal for large, regional tributary areas
- Performance goal of capturing 85-95% of annual average runoff
- Stores runoff temporarily before discharging
- Provide dedicated access for maintenance and inspection

Post-construction STP

Wet Detention Ponds



Post-construction STP

Wet Detention Ponds

Maintenance and Inspection Considerations

- Mosquitoes are not excessive
- Floatables are being removed
- Acceptable oxygen is being maintained in water
- Sediment is being removed
- Check for structural integrity of the pond

Post-construction STP

Dry Detention Ponds

Ponds that are dry between storms, but fill during storm events and slowly drain off

Post-construction STP

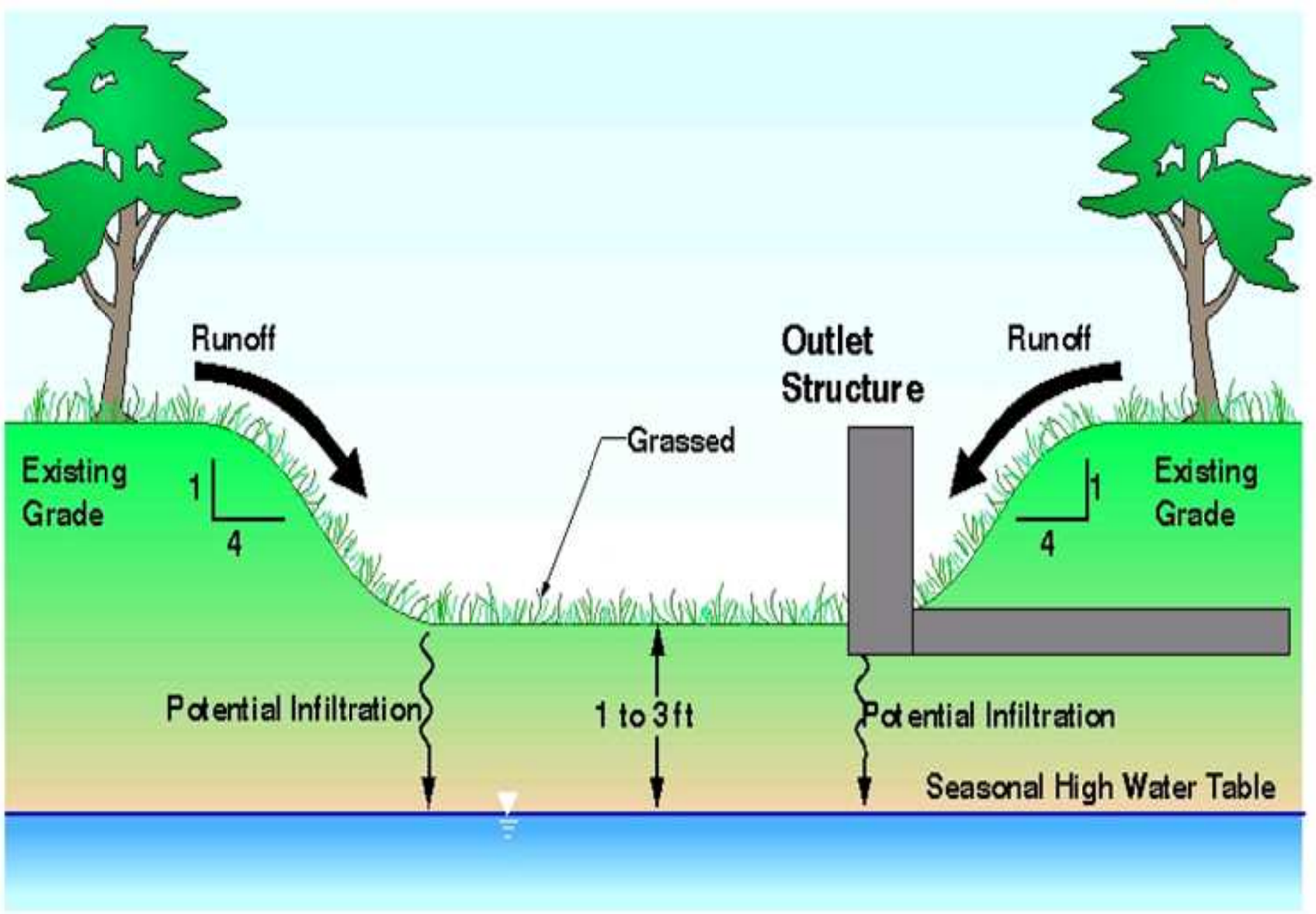
Dry Detention Ponds

Appropriate Uses

- When there is a lack of water which prevents the use of wet ponds, wetlands, or biofilters
- Use where shallow wet ponds would cause unacceptable mosquito conditions
- This facility removes particulate pollutants only
- Appropriate when dry weather base flow cannot be used to maintain water levels, as is required for wet ponds and constructed wetlands.

Post-construction STP

Dry Detention Ponds



Post-construction STP

Dry Detention Ponds

Design Considerations

- Public safety is of foremost concern
- Pond volume is sized to capture 85-95% of annual volume of runoff with a drawdown time of 24 to 48 hours
- Provide emergency by-pass or pass through
- Provide dedicated access for maintenance and inspection

Post-construction STP

Dry Detention Ponds

Inspection and Maintenance Considerations

- Check outlet for clogging and remove any debris
- Check banks and bottom of pond for erosion
- Remove sediment accumulation of 6 inches or more
- Vegetation in pond is managed

Post-construction STP

Constructed Wetlands

- Typically shallower water allowing for more aquatic vegetation

Post-construction STP

Constructed Wetlands

Appropriate Uses/Design Considerations

- Need high level of particulate removal and some dissolved contaminants
- Additional benefits of passive recreation associated with wildlife
- Provide dedicated access for maintenance and inspection
- Address mosquito concerns

Post-construction STP

Constructed Wetlands

Inspection and Maintenance Considerations

- Check yearly and after extreme storm events
- Remove foreign debris and sediment build-up
- Check banks for erosion
- Remove nuisance plant species
- Harvest excessive growth

Post-construction STP

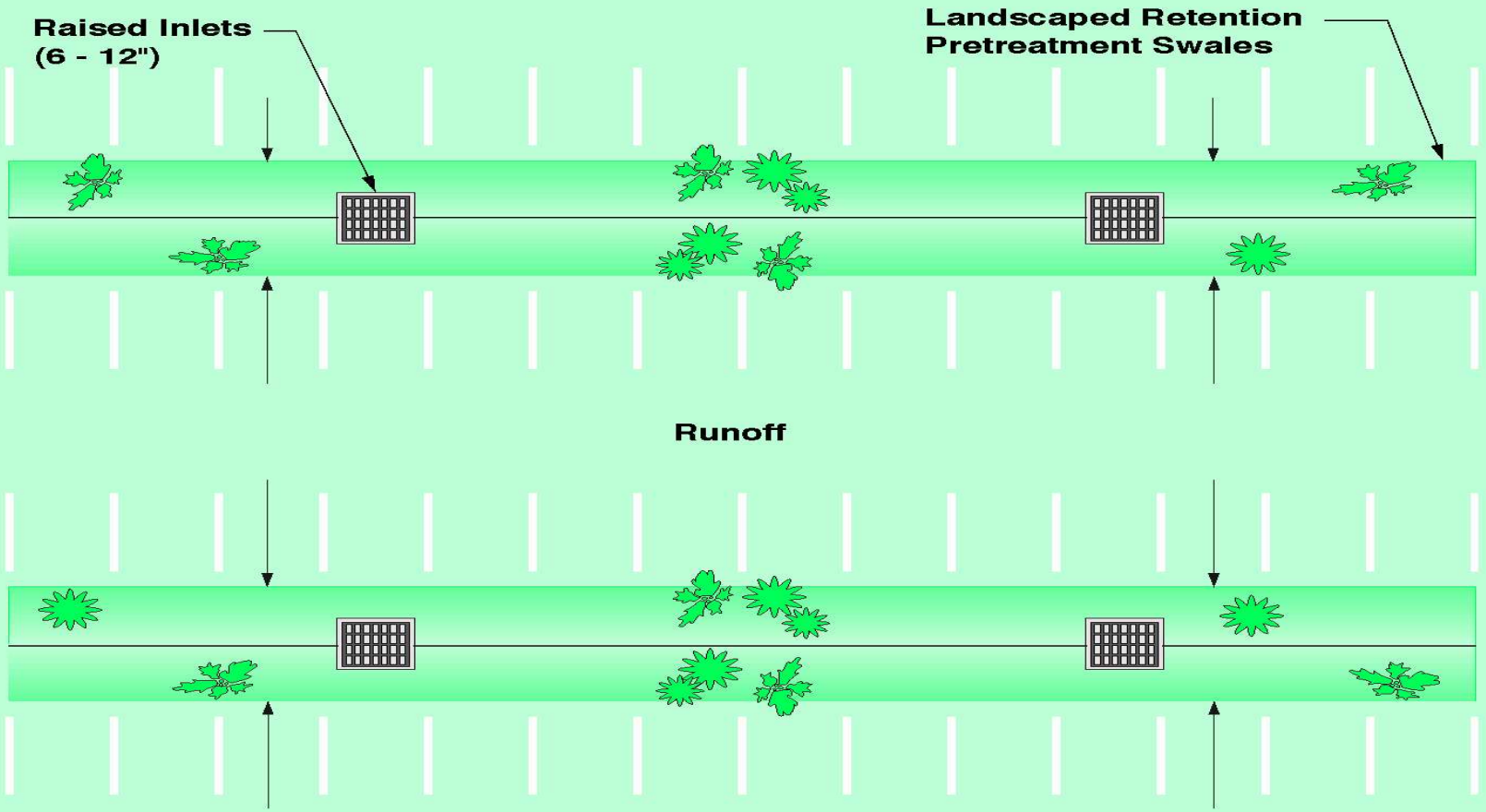
Biofilter: Swales and Strips

- Biofilters:
  - Swales
  - Strips

- Swale: vegetated channel that treats concentrated flow
- Filter strip: vegetated area that treats sheet flow and is placed parallel to the contributing surface

Post-construction STP

Biofilter: Swales and Strips



Source: City of Nashville

Post-construction STP

Biofilter: Swales and Strips

Appropriate Uses/Design Considerations

- Often used in conjunction with other stormwater management practices
- Placed along or serve parking lots
- Limited to treating a few acres
- Experience large head loss that may require special consideration in hydraulic design of stromwater collection system

Post-construction STP

Biofilter: Swales and Strips

Inspection and Maintenance Considerations

- Want sheet flow and not concentrated flow so check for erosion, vegetation loss and flow channelization
- Level spreaders are free of debris
- Grass is mown regularly
- Sediment removal

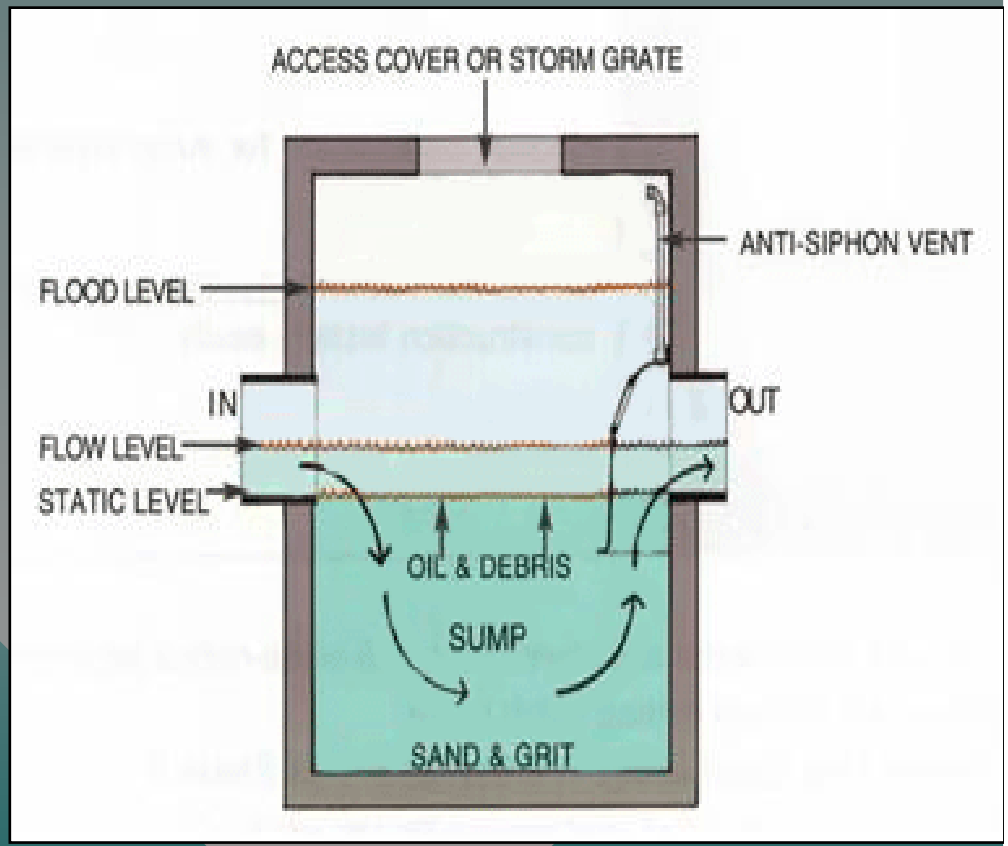
Post-construction STP

Media Filtration/Media Filters and Water Quality Inlets

This system consists of a settling basin followed by a filter

Common filter media:

- Sand
- Peat/sand
- Other sorbent material



Post-construction STP

Media Filtration/Media Filters and Water Quality Inlets

Appropriate Uses/Design Considerations

- Has to be allowed time to "dry out"
- Ability to bypass or convey large storm events without damaging system or re-suspending collected pollutants

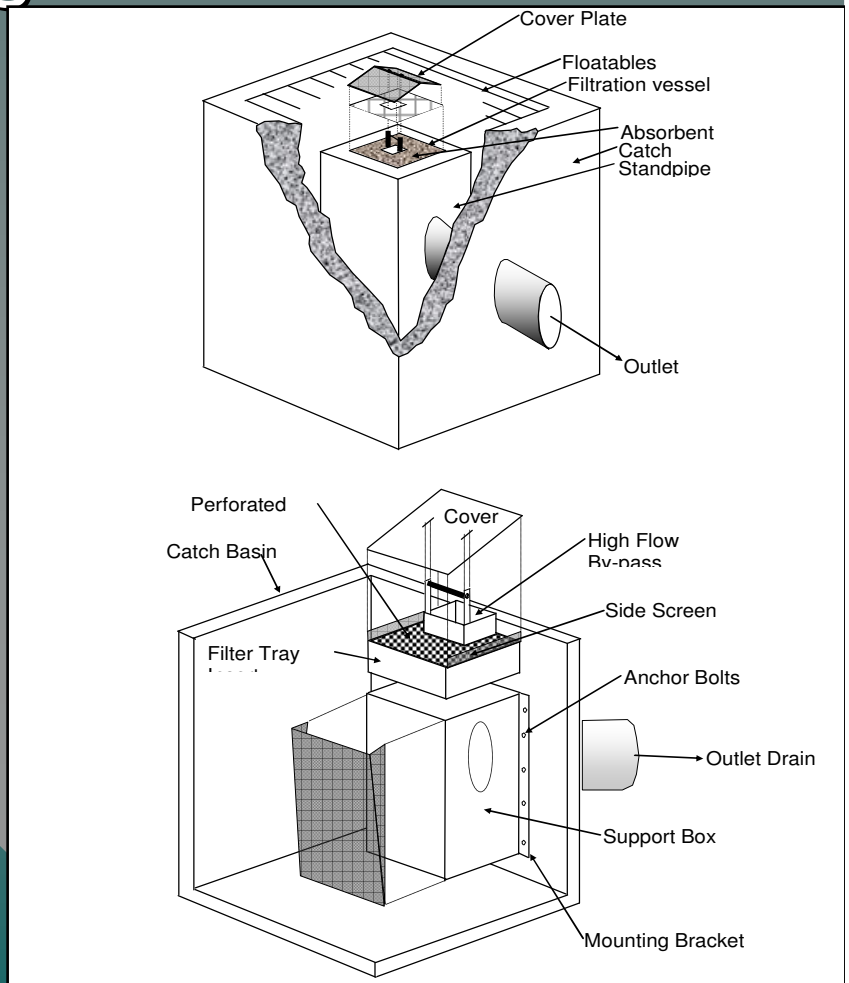


Figure STP-06-8
Catch Basin Insert Filters

Post-construction STP

Media Filtration/Media Filters and Water Quality Inlets

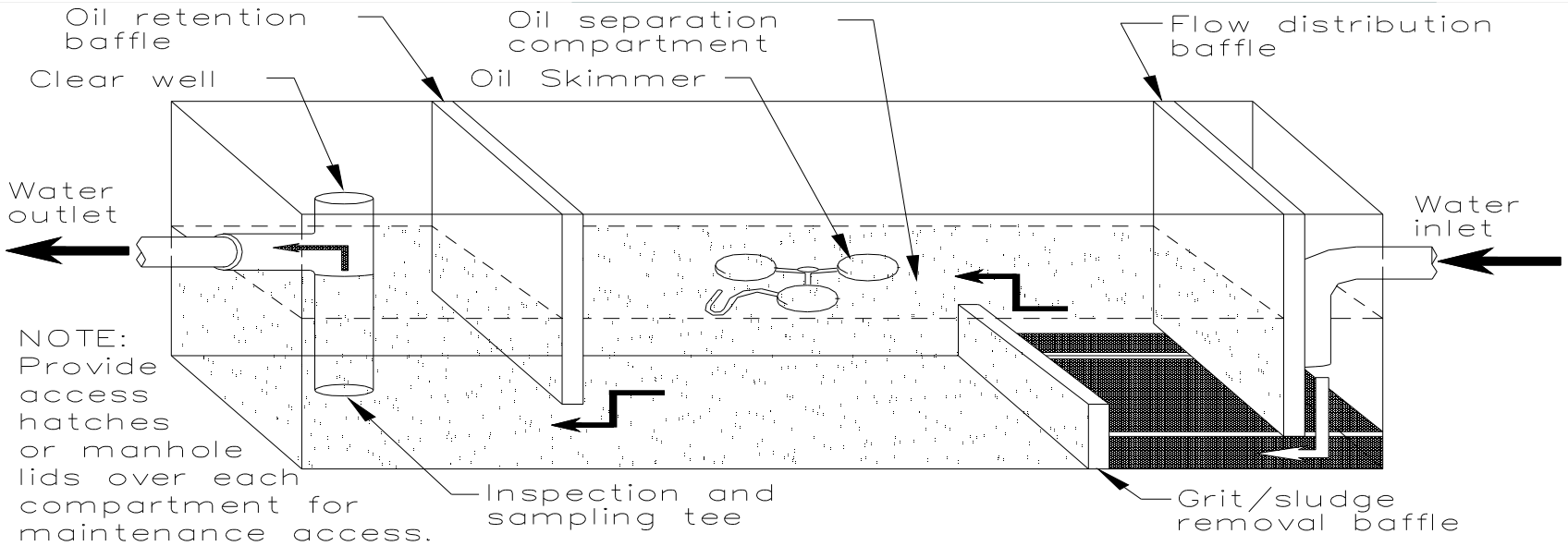
Inspection and Maintenance Considerations

- Regularly clean filter
- Remove accumulated debris
- Replace filter media as recommended

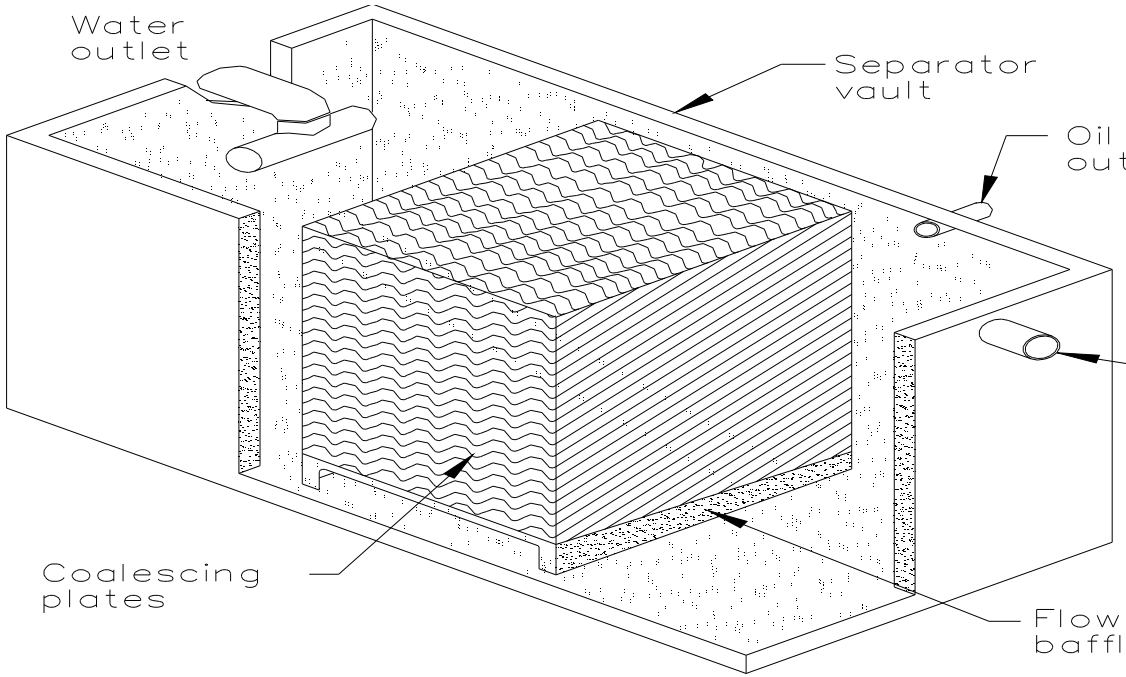
Post-construction STP

Oil/Water Separation

- Oil/water separators are designed to remove petroleum compounds and grease
- Two basic types: conventional gravity and coalescing plate interceptor



CONVENTIONAL SEPARATOR



Adapted from: Romano, 1990

COALESCING PLATE SEPARATOR

Post-construction STP

Oil/Water Separation

Appropriate Uses/Design Considerations

- Typically used where significant vehicular operation, fueling and maintenance occurs
- Ability to bypass or convey large storm events without damaging system or re-suspending collected pollutants
- Allow access for inspection and maintenance

Post-construction STP

Oil/Water Separation

Inspection and Maintenance Considerations

- Perform frequent periodic maintenance
- Regularly remove accumulated petrochemical compounds and other floatables
- Regularly remove accumulated sediment

Enforcement and Liability

Enforcement and Liability (Permit Holder)

- IDEM
  - Civil penalty up to $25,000 per day per violation
  - Criminal penalty (first conviction) up to $25,000 per day per violation and 1 year in prison
  - Criminal penalty (next convictions) up to $50,000 per day per violation and 2 years in prison
- USEPA
  - Civil penalty up to $32,500 per day per violation
  - Criminal penalty up to $250,000 and 15 years in prison

Enforcement and Liability (Permit Holder)

- Enforcement actions from local MS4
  - Varies by jurisdiction
  - Typical range for civil penalty
    - $1,000s to $10,000s per day per violation
    - Cost to remedy the adverse effects resulting from violation
    - Compensatory damages for loss or destruction to environment
- Third party lawsuits

Liability (Qualified Professional Inspector)

- Main liability with IDEM/EPA is that evaluation report was filled out honestly and accurately
  - Criminal penalty jail time
- Local MS4
  - Lose licensure/registration

Summary

Summary

- Purpose
  - Help keep pollutant laden runoff from entering waters of the State
  - Help keep the permit holder in compliance with their permit
- Taking Exam
  - On-line or hard copy
  - Minimum 75% correct to pass
  - You and participating community notified of pass/fail status

Summary

- Regulations
  - Clean Water Act (CWA)
  - National Pollution Discharge Elimination System (NPDES)
  - Indiana Department of Environmental Management (IDEM) Rules 5 and 13
  - Local ordinances

Summary

- Permitting Process
  - Pre-construction
    - Public Notice
    - Plan Submission and approval
    - Notice of intent (NOI)
    - Filing fee
  - Site Preparation
    - Perimeter Control Plan (PCP)
    - Perimeter/Outfall Protection Permit (PPP)

Summary

- Permitting Process (cont.)
  - Active Construction
    - Stormwater Pollution Prevention Plan (SWPPP)
    - Grading Plan
    - Drainage Plan
    - Stormwater Quality Management Permit (SWQMP)
  - Post-construction
    - Post-construction SWPPP
    - Notice of Termination (NOT)
    - Long Term Operations and Maintenance Agreement (LTOMA)

Summary

- Erosion Prevention
- Sediment Control
- Soil has different texture and erodibility
- Pollution is more than just dirt
- Impacts of development
  - Decreases infiltration
  - Increases runoff
  - Decreases aquatic habitat

Summary

- QP Responsibilities
  - Implement SWPPP
  - Conduct inspections
  - Document inspections
  - Communicate inspection findings
- Make your job easier
  - Conduct Pre-construction Meeting
  - Divide site into manageable pieces

Summary

- Inspection Frequency
  - Rule 5 (minimums)
    - At least once every seven days
    - End of the next business day following a rain event of 0.5” or greater
  - Local ordinances may vary
- Have rain gauge on site

Summary

- What to do during inspection
  - Assess correct functioning of EPSC and good housekeeping measures, including maintenance
  - Identify additional measures that may be necessary to be in compliance with permit

Summary

- How to conduct inspection
  - Construction entrance/exit
  - For each drainage area
    - Has land disturbance occurred since last visit?
    - Outlet
    - Upstream BMPs
    - Perimeter controls
  - Good housekeeping measures

Summary

- Documentation
  - Complete an inspection report
  - What report should include
    - Inspector's name
    - Date of evaluation
    - Problems identified at the site
    - Corrective actions recommended
    - Corrective actions taken by Contractor
    - Site location
    - Amount of rainfall
    - Scope of inspection
    - Signature (inspector, and if possible Contractor)

Summary

- Communicate inspection results back to SWPPP preparer and appropriate site personnel
  - Provide copy of report
  - Verbal
- Revisions to SWPPP should be performed as determined during Pre-construction Meeting