

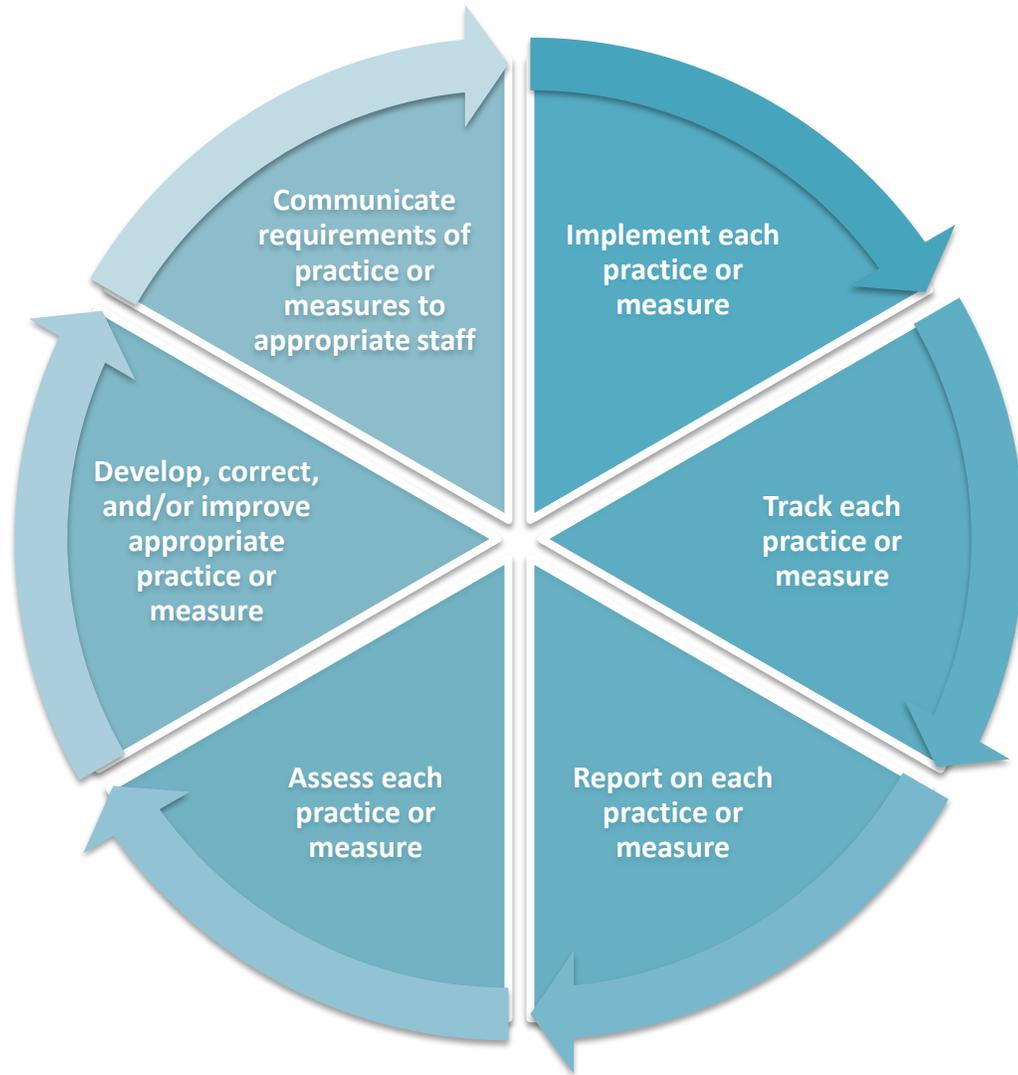
# A Sustainable MS4 Program



## PRACTICES THAT FACILITATE A SUSTAINABLE MS4 PROGRAM

- Practice/measure can be permit requirement
- Practice/measure can be identified in the SW Management Plan
- Practice/measure can be ordinance, policy, procedure, etc.
- Practice/measure can be enforceable, i.e., a requirement in the permit or SW Management Plan
- Practice/measure can simply facilitate a sustainable MS4 Program, i.e., audit performed by an independent third party

**Sustainable MS4 Programs rely on a continuous process that develops, corrects, or improves appropriate practices or measures, communicate the requirements of the practice or measure to the appropriate staff, implement each practice or measure, tracks each practice or measure, reports on each practice or measure, assesses each practice or measure, and revises each practice or measure as necessary.**



## PERMIT REQUIREMENTS

### General Requirements for all Programs

- The Stormwater Plan shall include ordinances or other regulatory mechanisms, or a list identifying the ordinances or other regulatory mechanisms providing the legal authority necessary to implement and enforce the requirements of the permit and the Stormwater Plan.
- The Stormwater Plan shall include written procedures, standard operating procedures, and checklist, or a list identifying written procedures, standard operating procedures and checklist necessary to implement the requirements of the permit. Written procedures shall identify specific action steps, schedules, checklist, resources, and responsibilities.
- Assess program compliance, the appropriateness of each measure or practice, and progress towards achieving measurable goals at least annually.
- Develop and implement a plan and schedule to address the identified modifications and improvements to the Stormwater plan.
- The Stormwater Plan must be up to date and available upon request.

### Adequate Funding and Staffing

- Maintain adequate funding and staffing to implement and manage the provisions of the Stormwater Plan and meet the requirements of this permit. The Stormwater Plan shall identify a specific position(s) responsible for the overall coordination, implementation, and revision to the Plan. Responsibilities for each measure or practice shall be documented and position(s) assignments provided.
- Adequate Staffing may include
  - Municipal Staff and Contracted Staff - Water Quality – Operations Analyst, SW specialist, Engineering Technician
  - Operation and Maintenance – Supervisors, Pipe and ditch Crews, Vac-truck Operators, Street Sweepers
- The local government may share the responsibility to implement minimum control measures with other entities. The local government remains responsible for compliance if the other entity fails to perform the permit obligation and may be subject to enforcement action if neither the local government nor the other entity fully performs the permit obligation.

### Public Involvement and Participation

- Define goals and objectives of the Public Involvement and Participation.
- Promote volunteer opportunities.
- Provide a mechanism for public involvement that provides for input on stormwater issues and the stormwater program.
- Promote and maintain a web site and hotline/helpline for the purpose of public involvement and participation. The web site includes information on ordinances, stormwater projects and activities, and ways to contact stormwater management program staff

## **Public Education and Outreach**

- Define goals and objectives of the Public Education and Outreach Program.
- Maintain a description of the target pollutants and likely sources.
- Describe the target audiences.
- Distribute stormwater educational material to appropriate target groups. Instead of developing its own materials, the local government may rely on Public Education and Outreach materials supplied by the state, and/or other entities through a cooperative agreement.
- Promote and maintain a web site and a hotline/helpline for the purpose of public education and outreach. The web site includes information on ordinances, stormwater projects and activities, and ways to contact stormwater management program staff
- The local government's outreach program, including those elements implemented locally or through a cooperative agreement, shall include a combination of approaches designed to reaching the identified target audiences.
- For each media, event or activity, including those elements implemented locally or through a cooperative agreement the local government shall estimate and record the extent of exposure.

## **Illicit Discharge Detection and Elimination**

- Define goals and objectives of the IDDE Program
- Maintain through ordinance, or other regulatory mechanism, adequate legal authorities to meet the objectives of the Illicit Discharge Detection and Elimination program.
- Annually review IDDE ordinances or other regulatory mechanisms and revise as necessary or adopt any new ordinances or other regulatory mechanisms that provide the local government with adequate legal authority to prohibit illicit connections and discharges and enforce the approved IDDE Program.
- Maintain a current a map showing major outfalls and receiving streams.
- Conduct dry weather flow field observations for the purpose of detecting and removing sources of illicit discharges.
- Maintain written procedures for conducting investigations of identified illicit discharges.
- Track all investigations and document the date(s) the illicit discharge was observed; the results of the investigation; any follow-up of the investigation; and the date the investigation was closed.
- Implement and document a training program for appropriate municipal staff, who as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system.
- Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.
- Promote, publicize, and facilitate a reporting mechanism for the public and staff to report illicit discharges and establish and implement citizen request response procedures.
- Implement a mechanism to track the issuance of notices of violation and enforcement actions as administered by the local government. This mechanism shall include the ability to identify chronic violators for initiation of actions to reduce noncompliance.

## **Sediment and Erosion Control Program**

- A delegated Sediment and Erosion Control Program effectively meets the requirements for Construction Site Runoff Controls. The local government may rely on the State or a State delegated Sediment and Erosion Control Program to comply with this minimum measure.
- The NCG010000 permit, as administered by the State, establishes requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.
- The local government shall provide and promote a means for the public to notify the appropriate authorities of observed erosion and sedimentation problems. The local government may implement a plan promoting the existence of the NCDENR, Division of Land Resources “Stop Mud” hotline to meet the requirements of this paragraph.

## **Post-Construction Site Runoff Controls**

- Define goals and objectives of the Post-Construction Site Runoff Controls
- Maintain through ordinance, or other regulatory mechanism, adequate legal authorities to meet the objectives of the Post-Construction Site Runoff Controls Stormwater Management program.
- Conduct site plan reviews for new development and redevelopment to determine whether adequate stormwater control measures will be installed, implemented, and maintained. The site plan review shall address how the project applicant meets minimum design criteria and ensure long-term maintenance.
- Authority to enter private property for the purpose of inspecting at reasonable times any facilities, equipment, practices, or operations related to stormwater discharges to determine compliance the Post-Construction Stormwater Management Program.
- Adopt the State’s Minimum Design Criteria or certify that the local design criteria meets the requirements in the State’s Minimum Design Criteria.
- Maintain an inventory of projects with post-construction structural stormwater control measures (SCM) covered by the post-construction ordinance.
- Provide mechanism such as recorded deed restrictions and protective covenants that ensure development activities will maintain the project consistent with approved plans.
- Implement or require an operation and maintenance plan for the long-term operation of the structural SCMs.
- Conduct and document inspections of each project site covered under post-construction program, at least one time during the permit term.
- Conduct a post-construction inspection to verify that the local government’s minimum design criteria has been met or that a bond is in place to guarantee completion before issuing a certificate of occupancy or temporary certificate of occupancy.
- Document and maintain records of inspection findings and enforcement actions and make them available for review by the permitting authority.
- Make available through paper or electronic means, ordinances, post-construction requirements, design standards checklist, and other materials appropriate for developers.
- Track the issuance of notices of violation and enforcement actions. Include the ability to identify chronic violators for initiation of actions to reduce noncompliance.
- Meet the requirements of the post-construction program for construction projects that are performed by, or under contract for, the local government.

## **Pollution Prevention and Good Housekeeping for Municipal Operations**

- Maintain a current inventory of facilities and operations owned and operated by the local government with the potential for generating polluted stormwater runoff.
- Maintain, implement, evaluate annually, and update as necessary an Operation and Maintenance (O&M) program for municipal owned and operated facilities with the potential for generating polluted stormwater runoff. Specify the frequency of inspections and routine maintenance requirements.
- Develop written spill response procedures for municipal operations.
- Evaluate SCMs based on cost and the estimated quantity of pollutants removed and select SCMs to reduce polluted stormwater runoff from municipally-owned streets, roads, and public parking lots. Update its Stormwater Plan to include the BMPs selected. Implement selected SCMs selected to reduce polluted stormwater runoff from municipally-owned streets, roads, and public parking lots.
- Develop and implement an O&M program for the stormwater sewer system including catch basins and conveyance systems that it owns and maintains.
- Maintain a current inventory of municipally-owned or operated structural SCMs installed for compliance with the local government's post-construction ordinance.
- Maintain and implement an O&M program for municipally-owned or maintained structural SCM installed for compliance with the local government's post-construction ordinance. The O&M program shall specify the frequency of inspections and routine maintenance requirements.
- Inspect and maintain all municipally-owned or maintained structural SCM in accordance with the schedule developed.
- Document inspections and maintenance of all municipally-owned or maintained structural SCM.
- Ensure municipal employees and contractors are properly trained.
- Implement an employee training program for employees involved in implementing pollution prevention and good housekeeping practices.
- Describe and implement measures to prevent or minimize contamination of the stormwater runoff from all areas used for vehicle and equipment cleaning.

## **Annual Report**

- Description of the status of implementation of the Stormwater Plan as a whole. This will include information on development and implementation of each major component of the Stormwater Plan for the past year and schedules and plans for the year following each report.
- Describe and justify any proposed changes to the Stormwater Plan. This will include descriptions and supporting information for the proposed changes and how these changes will impact the Stormwater Plan (results, effectiveness, implementation schedule, etc.).
- Document any necessary changes to programs or practices for assessment of management measures implemented through the Stormwater Plan.
- Include a summary of data accumulated as part of the Stormwater Plan throughout the year along with an assessment of what the data indicates in light of the Stormwater Plan.
- Include an assessment of compliance with the permit, information on the establishment of appropriate legal authorities, inspections, and enforcement actions.

## **Duty to Reapply**

The permittee is not authorized to discharge after the expiration date. In order to receive automatic authorization to discharge beyond the expiration date, the permittee shall submit a permit renewal application and fees as are required no later than 180 days prior to the expiration date of this permit. The renewal application shall include a review of the Stormwater Program.

## **Total Maximum Daily Loads (TMDL)**

If subject to an approved TMDL with an approved Waste Load Allocation (WLAs) assigned to stormwater, prepare a plan that:

- Identifies the watershed(s) subject to an approved TMDL with an approved Waste Load Allocation (WLAs) assigned to stormwater,
- Includes a description of the watershed(s),
- Includes a map of watershed(s) showing streams & outfalls
- Identifies the locations of currently known major outfalls with the potential of contributing to the cause(s) of the impairment to the impaired segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments and
- Includes a schedule to discover and locate other major outfalls within its corporate limits that may be contributing to the cause of the impairment to the impaired stream segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments.
- Describes existing measures being implemented by the local government to enhance water quality in the watershed to which the TMDL applies; and provide an explanation as to how those measures are designed to enhance water quality.
- Includes an assessment of available monitoring data.
- Includes a Monitoring Plan for each pollutant of concern or cause of impairment as specified in the TMDL.
- Describes additional measures to be implemented to enhance water quality in the watershed to which the TMDL applies; and provide an explanation as to how those measures are designed to enhance water quality.
- Identifies a schedule for completing the activities.
- Outlines ways to track and report successes designed to reduce non-point source pollutant loading to MEP. Successes could include increased inspections, expanded and/or tailored BMPs within the scope of the six minimum measures, structural and non-structural BMP installed and/or implemented, including retrofits, and strategies developed and implemented for development and redevelopment that include green infrastructure and LID practices.
- Conduct an annual assessment of the program to enhance water quality in the watershed to which the TMDL applies and submit a report of the assessment to the Division. Any monitoring data and information generated from the previous year are to be submitted with each annual report.

For impaired waters of if there was no storm water waste load allocation in the TMDL, in lieu of developing a Water Quality Recovery Plan, evaluate strategies and tailor and/or expand BMPs within the scope of the six minimum measures to enhance water quality recovery strategies in the watershed(s) with impaired waters or to which the TMDL applies. Describe the strategies and tailored and/or expanded BMPs in their Stormwater Management Plan and annual reports.

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## SPECIFIC MEASURES IN THE SW MANAGEMENT PLAN

### General Requirements for all Programs

- ✓ Include ordinances or other regulatory mechanisms, or a list identifying the ordinances or other regulatory mechanisms that provide the legal authority necessary to implement and enforce the requirements of the permit and the Stormwater Plan.
- ✓ Include written procedures, standard operating procedures, and checklist, or a list identifying written procedures, standard operating procedures and checklist necessary to implement the requirements of the permit. Written procedures shall identify specific action steps, schedules, checklist, resources, and responsibilities.
- ✓ Describe of how the local government will annually assess compliance, the appropriateness of each measure or practice, and progress towards achieving measurable goals.
- ✓ Describe of how the local government will address identified modifications and improvements to the Stormwater plan.
- ✓ Describe of how the local government will update the Stormwater Plan.
- ✓ Include inspection checklist or a list checklist used for program, i.e., IDDE, Industrial and Municipal Housekeeping, Erosion Control, Post-construction.

### Adequate Funding and Staffing

- ✓ Identify expenses and funding sources
- ✓ Identify specific position(s) responsible for the overall coordination, implementation, and revision to the Plan.
- ✓ Identify position(s) responsible for each measure or practice.
- ✓ Identify any control measure(s) and the entity where the local government shares the responsibility to implement a minimum control measure(s) with other entities. The local government remains responsible for compliance if the other entity fails to perform the permit obligation and may be subject to enforcement action if neither the local government nor the other entity fully performs the permit obligation.
- ✓ Maintain a list of other entities/contractors that the local government relies on, i.e., Transit Authorities, Construction and/or Post-construction Responsibilities, Street Sweeping and/or Washing, Maintenance of right-a-ways, Monitoring, Litter or Solid Waste Pickup, Recycling, Household Waste.
- ✓ Maintain contracts or a list of contracts with those contractors hired by the local government to perform municipal maintenance activities. Establish a program that requires contractors to comply with all of the stormwater control measures, good housekeeping practices, and facility-specific stormwater management SOPs.
- ✓ Establish a program to provide oversight of contractor activities to ensure that contractors are using appropriate control measures and SOPs.

### Public Education and Outreach

- ✓ Identify goals and objectives of the Public Education and Outreach Program.
- ✓ Maintain a description of the target pollutants and likely sources.
- ✓ Describe the target audiences.

- ✓ Identify stormwater educational material that are or will be distributed to appropriate target groups and when the material is distributed. Instead of developing its own materials, the local government may rely on Public Education and Outreach materials supplied by the state, and/or other entities through a cooperative agreement.
- ✓ Identify the public education and outreach web site and a hotline/helpline.
- ✓ Identify the approaches designed to reach the identified target audiences.
- ✓ For each media, event or activity, including those elements implemented locally or through a cooperative agreement, document the extent of exposure.

### **Public Involvement and Participation**

- ✓ Identify goals and objectives of the Public Involvement and Participation.
- ✓ Identify volunteer opportunities.
- ✓ Identify the mechanism for public involvement that provides for input on stormwater issues and the stormwater program.
- ✓ Identify the public involvement and participation web site and hotline/helpline.

### **Illicit Discharge Detection and Elimination**

- ✓ Define goals and objectives of the IDDE Program
- ✓ Include or identify the ordinance, or other regulatory mechanism, that provides adequate legal authorities to meet the objectives of the Illicit Discharge Detection and Elimination program.
- ✓ Document the annually review of the IDDE ordinance or other regulatory mechanisms and document any revisions as necessary
- ✓ Document any new ordinances or other regulatory mechanisms adopted that provide the local government with adequate legal authority to prohibit illicit connections and discharges and enforce the approved IDDE Program.
- ✓ Provide a current a map showing major outfalls and receiving streams. Either include in the Stormwater plan or provide a link.
- ✓ Document dry weather flow field actions detecting and removing sources of illicit discharges. Either include in the Stormwater Plan or provide a list.
- ✓ Document written procedures for conducting investigations of identified illicit discharges. Either include in the Stormwater plan or provide a list.
- ✓ Document all investigations and document the date(s) the illicit discharge was observed; the results of the investigation; any follow-up of the investigation; and the date the investigation was closed. Either include in the Stormwater plan or provide a list.
- ✓ Document training program for appropriate municipal staff, who as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system. Either include in the Stormwater plan or provide a list.
- ✓ Document efforts to inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.
- ✓ Identify the reporting mechanism for the public and staff to report illicit discharges and establish and implement citizen request response procedures.
- ✓ Document the issuance of notices of violation and enforcement actions as administered by the local government. Include the ability to identify chronic violators for initiation of actions to reduce noncompliance. Either include in the Stormwater plan or provide a list.

## **Sediment and Erosion Control Program**

- ✓ Identify the entity that administers the Sediment and Erosion Control Program.
- ✓ Identify the means for the public to notify the appropriate authorities of observed erosion and sedimentation problems.

## **Post-Construction Site Runoff Controls**

- ✓ Define goals and objectives of the Post-Construction Site Runoff Controls
- ✓ Include or identify the ordinance, or other regulatory mechanism, adequate legal authorities to meet the objectives of the Post-Construction Site Runoff Controls Stormwater Management program.
- ✓ Document site plan reviews, review designs and proposals for new development and redevelopment. Include checklist/SOP for conducting reviews of submitted plans.
- ✓ Authority to enter private property for the purpose of inspecting at reasonable times any facilities, equipment, practices, or operations related to stormwater discharges to determine whether there is compliance the Post-Construction Stormwater Management Program.
- ✓ Document design criteria, i.e., State BMP manual
- ✓ Identify projects with post-construction structural stormwater control measures (SCM) covered by the post-construction ordinance. Either include in the Stormwater plan or provide a list.
- ✓ Document the mechanism such as recorded deed restrictions and protective covenants that ensure development activities will maintain the project consistent with approved plans.
- ✓ Include or identify the operation and maintenance plan for the long-term operation of the structural SCMs. The operation and maintenance plan shall require the owner of each structural BMP to perform and maintain a record of annual inspections of each structural SCM. Annual inspection of permitted structural SCMs shall be performed by a qualified professional.
- ✓ Document inspections of each project site covered under post-construction program, at least one time during the permit term. Either include in the Stormwater plan or provide a list.
- ✓ Document post-construction inspection to verify that the local government's minimum design criteria has been met or that a bond is in place to guarantee completion before issuing a certificate of occupancy or temporary certificate of occupancy. Either include in the Stormwater plan or provide a list.
- ✓ Document records of inspection findings and enforcement actions. Either include in the Stormwater plan or provide a list.
- ✓ Document how ordinances, post-construction requirements, design standards checklist, and other materials are made available for developers.
- ✓ Document the issuance of notices of violation and enforcement actions. Include the ability to identify chronic violators for initiation of actions to reduce noncompliance. Either include in the Stormwater plan or provide a list.
- ✓ Document how the local government meets the requirements of the post-construction program for construction projects that are performed by, or under contract for, the local government.

## Pollution Prevention and Good Housekeeping for Municipal Operations

- ✓ Include a current inventory of facilities and operations owned and operated by the local government
  - ❑ Animal Shelters
  - ❑ Public buildings and parking lots
  - ❑ Parks and recreation areas
  - ❑ Public swimming pools
  - ❑ Public golf courses
  - ❑ Emergency Services, Police and Fire Departments
  - ❑ Public works, equipment and material storage areas, and maintenance facilities
  - ❑ Pesticide storage areas
  - ❑ Fleet Maintenance, vehicle washing and vehicle fueling, fuel farms
  - ❑ Hazardous Waste sites, recycling, household waste, oil collection centers, composting facilities, solid waste handling and transfer facilities
  - ❑ Wastewater treatment facilities and transfer stations, landfills, incinerators
- ✓ Assess facilities and operations owned and operated by the local government for the potential for generating polluted stormwater runoff (see State form for No Exposure).
- ✓ Include a current an Operation and Maintenance (O&M) Plan for municipal owned and operated facilities with the potential for generating polluted stormwater runoff.
- ✓ Include written spill response procedures for municipal operations.
- ✓ Document that SCMs were evaluated based on cost and the estimated quantity of pollutants removed.
- ✓ Document SCMs selected to reduce polluted stormwater runoff from municipally-owned streets, roads, and public parking lots.
- ✓ Document selected SCMs are implemented.
- ✓ Include an O&M Plan for the stormwater sewer system including catch basins and conveyance systems that it owns and maintains. The O&M Plan shall specify the frequency of inspections and routine maintenance requirements. Document O&M inspections and actions taken.
- ✓ Include a current inventory of municipally-owned or operated structural SCMs installed for compliance with the local government's post-construction ordinance.
- ✓ Include the O&M Plan for municipally-owned or maintained structural SCM installed for compliance with the local government's post-construction ordinance. The O&M Plan shall specify the frequency of inspections and routine maintenance requirements.
- ✓ Inspect and maintain all municipally-owned or maintained structural SCM in accordance with the schedule developed. Document inspections and maintenance of all municipally-owned or maintained structural SCM.
- ✓ Document municipal employees and contractors training. Training records should include why they were trained, who was trained, when they were trained, what they were trained on (including a copy of the training material, i.e., power point presentation and/or handouts).
- ✓ Identify measures to prevent or minimize contamination of the stormwater runoff from all areas used for vehicle and equipment cleaning.

## **Impaired Waters and Total Maximum Daily Loads (TMDL)**

If subject to an approved TMDL with an approved Waste Load Allocation (WLAs) assigned to stormwater:

- ✓ Identify the watershed(s) subject to an approved TMDL with an approved Waste Load Allocation (WLAs) assigned to stormwater,
- ✓ Include a description of the watershed(s),
- ✓ Include a map of watershed(s) showing streams & outfalls
- ✓ Identify the locations of currently known major outfalls within its corporate limits with the potential of contributing to the cause(s) of the impairment to the impaired segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments and
- ✓ Include a schedule to discover and locate other major outfalls within its corporate limits that may be contributing to the cause of the impairment to the impaired stream segments, to their tributaries, and to segments and tributaries within the watershed contributing to the impaired segments.
- ✓ Describe existing measures being implemented by the local government to enhance water quality in the watershed to which the TMDL applies; and provide an explanation as to how those measures are designed to enhance water quality.
- ✓ Include an assessment of available monitoring data.
- ✓ Include a Monitoring Plan for each pollutant of concern or cause of impairment as specified in the TMDL.
- ✓ Describe additional measures to be implemented to enhance water quality in the watershed to which the TMDL applies; and provide an explanation as to how those measures are designed to enhance water quality.
- ✓ Identify a schedule for completing the activities.
- ✓ Outline ways to track and report successes designed to reduce non-point source pollutant loading to MEP. Successes could include increased inspections, expanded and/or tailored BMPs within the scope of the six minimum measures, structural and non-structural BMP installed and/or implemented, including retrofits, and strategies developed and implemented for development and redevelopment that include green infrastructure and LID practices.
- ✓ Document an annual assessment of the program to enhance water quality in the watershed to which the TMDL applies and submit a report of the assessment to the Division.

For impaired waters of if there was no storm water waste load allocation in the TMDL, in lieu of developing a Water Quality Recovery Plan, describe and document strategies and BMPs tailored and/or expanded within the scope of the six minimum measures that enhance water quality recovery strategies in the watershed(s) with impaired waters or to which the TMDL applies.

## **Annual Reports**

Maintain copies of the annual reports. Annual reports should:

- ✓ Describe of the status of implementation of the Stormwater Plan as a whole. This will include information on development and implementation of each major component of the Stormwater Plan for the past year and schedules and plans for the year following each report.
- ✓ Describe and justify any proposed changes to the Stormwater Plan. This will include descriptions and supporting information for the proposed changes and how these changes will impact the Stormwater Plan (results, effectiveness, implementation schedule, etc.).

- ✓ Documents any necessary changes to programs or practices for assessment of management measures implemented through the Stormwater Plan.
- ✓ Summarizes data accumulated as part of the Stormwater Plan throughout the year along with an assessment of what the data indicates in light of the Stormwater Plan.
- ✓ Includes an assessment of compliance with the permit, information on the establishment of appropriate legal authorities, inspections, and enforcement actions.

### **Duty to Reapply**

Document that a permit renewal application and fee was submitted as are required no later than 180 days prior to the expiration date of the permit. Include a review of the Stormwater Program

## WRITTEN PROCEDURES, STANDARD OPERATING PROCEDURES, AND CHECKLISTS

Written procedures, standard operating procedures, and checklists should be included in the Stormwater Plan, or the Stormwater Plan should include a list identifying written procedures, standard operating procedures, and checklists and where they are maintained.

### Illicit Discharge Detection and Elimination

- ✓ Written procedures for conducting investigations of identified illicit discharges.
- ✓ Written procedures for issuance of notices of violation and enforcement actions. Include the ability to identify chronic violators for initiation of actions to reduce noncompliance.

### Post-Construction Site Runoff Controls

- ✓ Checklist for site plan reviews and proposals for new development and redevelopment
- ✓ Design criteria document
- ✓ Checklist that document recorded deed restrictions and protective covenants.
- ✓ Current operation and maintenance plan for the long-term operation of the structural SCMs.
- ✓ SCM inspection checklist
- ✓ Post-construction inspection checklist to verify compliance with minimum design criteria

### Pollution Prevention and Good Housekeeping for Municipal Operations

- ✓ Current an Operation and Maintenance (O&M) Plan for municipal owned and operated facilities with the potential for generating polluted stormwater runoff.
- ✓ SWPPP and potentially SPCC Plans for oil storage
- ✓ Inspection checklist for municipal owned and operated facilities including stormwater control devices, OWS, tanks and container storage areas, solid waste containers, material storage areas, waste storage areas, and general site conditions.
- ✓ Written spill response procedures for municipal operations.
- ✓ Current O&M Plan for the stormwater sewer system including catch basins and conveyance systems that it owns and maintains. The O&M Plan shall specify the frequency of inspections and routine maintenance requirements.
- ✓ O&M inspection checklist for the stormwater sewer system including catch basins and conveyance systems that it owns and maintains.
- ✓ Current O&M Plan for municipally-owned or maintained structural SCM installed for compliance with the local government's post-construction ordinance.
- ✓ SCM inspection and maintenance checklist

### Written Standard Operating Procedures

Maintain hardcopy SOP and electronic copy of all SOPs on shared drives. Copies should be easily accessible and updated as process changes

- ✓ Public Education and Outreach Plan
- ✓ IDDE Manual
- ✓ O&M Manual
- ✓ Logs – Dry weather monitoring, Inspections

## ORDINANCES

Each ordinance or other regulatory mechanisms should be included in the Stormwater Plan, or the Stormwater Plan should include a list identifying the ordinances or other regulatory mechanisms and where they are located.

- ✓ Post Construction Ordinance
- ✓ IDDE Ordinance
- ✓ Unified Development Ordinance
- ✓ Stormwater Ordinance
- ✓ Pet Waste Ordinance
- ✓ Flood Damage Protection Ordinance
- ✓ Tree Protection Ordinance
- ✓ Open Space Ordinance
- ✓ Buffer Ordinance

Each ordinance or other regulatory mechanisms should be reviewed at least annually, the requirements communicated to the appropriate staff.

## POLICY

Each policy should be included in the Stormwater Plan, or the Stormwater Plan should include a list identifying each policies and where they are located.

- ✓ Identify policies dealing with procurement and contracting activities

## PRACTICES THAT FACILITATE A SUSTAINABLE MS4 PROGRAM

- ✓ Management support and a written commitment to the MS4 program and to improving water quality
- ✓ Provide information to citizens and City council, i.e., annual report
- ✓ Establishing a team that includes upper management, peers, subordinates, regulators, industry leaders, political representatives, and neighborhood support
- ✓ Identify clear water quality objectives and targets with specific time frames
  - Conduct a need assessment
  - Establish goals for improvement
  - Develop an implementation plan
  - Measure performance toward attaining goals
  - Objectives and targets may apply broadly or more narrowly to site specific ones for individual activities.
  - Appropriate levels of management should define the objectives and targets.
  - Objectives and targets should be periodically reviewed and revised, and should take into consideration the views of interested parties.
- ✓ Maintain a current organizational chart
- ✓ Maintain a current list of resources - include internet sites, trade groups, the chamber of commerce, regulatory agencies, hot lines, newsletters, and publications
- ✓ Develop a process to prioritize task
- ✓ Maintain a list of conferences and/or workshops attended in the past 12 months as well as a list of employees that would benefit from attending conferences and/or workshops in the next 12 months. Include cost, travel request, and approvals.
- ✓ Have a clear understanding the laws, regulations, and permit conditions
  - Maintain a summary of applicable legislative and regulatory requirements
  - Create and maintain a list of inspection requirements
  - Create and maintain a list of required plans
  - Create and maintain a list of deficiencies or needs
  - Create and maintain a list of required training
  - Create and maintain a list of regulatory reports
  - Create and maintain a list of key deadlines, tasks, activities, and projects
  - Create and maintain a calendar of key events
- ✓ Create and maintain a critical path for key projects
- ✓ Maintain a description of significant environmental issues
- ✓ Maintain a record of previous incidents of non-compliance
- ✓ Establish a written program to identify functions or activities that can enable or impede performance
- ✓ Provide Cross Training to other departments and staff
- ✓ Maintain a list/description of internal performance criteria - management systems, employee responsibilities, property management and divestiture, performance criteria for suppliers and contractors, capital projects, energy management, and transportation
- ✓ For each employee maintain a current list or description of required skills and experience – communication skills, organizational skills, technical and/or educational skills, experience, certifications, registrations, dealing with conflict, facilitating meetings, etc.

- ✓ Verify compliance – internal and independent audits. A systematic and comprehensive comparison of existing policies and practices with standard policies and practices.
  - Self-audits
  - Municipal Separate Storm Sewer Systems Assessment (MS4A)
  - Independent audits by either the State or other MS4s
  - Self-Assessment involves more than public works
- ✓ Coordination between and among all divisions to breaking down barriers
  - Organizational culture
  - Based on “One Team”
  - Everyone takes ownership
  - Department goal – have city staff buy into SW mission statement and NPDES compliance

*Winston-Salem Mission Statement: “To provide quality stormwater services through a collaborative effort”*

*Winston-Salem Motto: Stormwater Division - the Solution to Water Pollution*

- ✓ A process that develops (or revises as necessary) appropriate practices or measures, communicates the requirements of the practice or measure to the appropriate staff, implement each practice or measure, tracks each practice or measure, reports and provides feedback on each practice or measure, assesses each practice or measure, and revises each practice or measure as necessary.
- ✓ Regular meetings with staff to access practices and measures, identify areas for corrective and preventive action and improvement, verify that corrective and preventive actions and improvements are effective and timely.
- ✓ A process to engage employees in compliance and program management
- ✓ Established on-going partnerships with EEP, the Clean Water Trust Fund, NCSU (BAE) or other public or private entities, CWEP, County soil and water, chamber of commerce, river-watch organizations, citizen’s groups, other. Maintain a list/description of issues with a potential for collaboration with other entities
  - Are the issues are complex?
  - Are there a lot of diverse stakeholders?
  - Is there is a great deal to be lost or gained by some of the stakeholders?
  - Are there multiple agencies with jurisdiction?
  - Are there multiple agencies with resources and expertise?
  - Is there no clear solution?
  - Are parties are willing to negotiate?
- ✓ Maintain a list and description of partnerships and affiliations, i.e., serving as mentors, joint statement of support from local business, schools, community leaders, etc., collaborating with other local governments and state agencies, APWA and SWANC, NCCF, SELC, American Rivers, etc.
- ✓ Establish a bond/fund to ensure ongoing maintenance and operation of stormwater systems.
- ✓ Data Management System for maintaining and organizing data and information, both current and archived data should be readily accessible, organized, and maintained such that can be tracked

- ✓ Establish a long range plan
  - 10 years
  - TMDL
  - Operations and Optimization Study
  - Capital Improvement Projects
- ✓ Develop a Strategic Plan
- ✓ Develop a master plan that maps SW drainage, create hydrologic and hydraulic models, identifies SW hot spots, protects public infrastructure, and prioritizes capital projects.
- ✓ Develop an overall Team Commitment to Compliance
- ✓ Department and Staff Work Plans and/or Employee Turnover folder
  - For each employee maintain a current list or description of required skills and experience – communication skills, organizational skills, technical and/or educational skills, experience, certifications, registrations, dealing with conflict, facilitating meetings, etc.
  - Retain all training records
  - Retain all work/computer files
  - Have employee write document that summarizes work performed and records generated and retained.
  - Access each work plan to ensure the plan fits into the overall Department work plan objectives
  - Include clear and quantifiable goals and objectives
  - Include a job safety analysis to identify required PPE or potential hazards
  - Include other duties as assigned
- ✓ Seek accreditation to promote and recognize excellence in operation and management – APWA, 401 Certification, BMP O&M certification, LID Certification
- ✓ Comprehensive development plan that includes:
  - ❑ Buffer zones
  - ❑ Dedicated open space
  - ❑ Measures to preserve, protect and maintain trees
  - ❑ Measures to direct development to previously developed areas,
  - ❑ Measures to direct growth to areas with existing infrastructure
  - ❑ Street design standards that encourage streets to be no wider than is necessary
- ✓ Comprehensive development plan that allow:
  - ❑ LID practices
  - ❑ Mixed use and transit-oriented developments
- ✓ Comprehensive development plan that Encourage
  - ❑ Pervious or permeable pavement,
  - ❑ Alternative parking requirements
  - ❑ Landscaping to reduce runoff,

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## APPENDIX A



## **COMMITMENT TO THE MS4 PROGRAM**

To ensure success obtain a commitment from the top management. The ongoing commitment and leadership of the top management is crucial. A commitment to the MS4 Program establishes an overall sense of direction and sets the parameters of action for an organization. It sets the overall goal as to the level of performance required of the organization against which all subsequent actions will be judged. A policy should consider the following:

- The organization's mission, vision, core values and beliefs
- Requirements of and communication with interested parties
- Continual improvement
- Guiding principles
- Alignment with other organizational policies

The organization should begin where there is obvious benefit, for example, by focusing on regulatory compliance, by limiting sources of liability or by making more efficient use of resources. As MS4 Program takes shape, procedures, programs and technologies can be put in place to further improve performance. As the MS4 Program matures, environmental considerations can be integrated into all business decisions.

Issues to be considered:

- Does the organization have a written commitment to the MS4 Program?
- Does the commitment reflect the organization's values and guiding principles?
- Has the commitment been approved?
- Does the commitment drive the setting of objectives and targets?
- Does the commitment guide the organization towards monitoring technology and management practices?
- Does the commitment support continual improvement?
- Does the commitment meet or exceed the legal requirements?
- Does the commitment meet or exceed the expectations of its interested parties?

## **WRITTEN PLANS AND PROCEDURES**

Written plan and procedures provide the long term framework for the organization. Management plans and procedures can be free standing or integrated into Stormwater Management Plan. Within the framework provided by the plan and/or procedure, specific action steps, schedules, resources and responsibilities required to achieve the stated targets, in order of their priority to the organization are identified. Written plan and procedures should be dynamic and should be revised regularly to reflect changes objectives and targets. The plans and procedures can be divided into a series of more specific action plans to deal with individual processes, projects, products, services, sites or facilities within a site. Issues to be considered include:

- Does the planning process involve all responsible parties?
- Are written plans and/or procedures linked to the policies and objectives?
- Is there a process for periodic reviews of the plans and/or procedures?
- Do written plans and/or procedures address the issues of resources, responsibility, timing, and priority?

## **VERIFYING COMPLIANCE**

Audits and/or reviews should be conducted on a periodic basis to determine whether the system conforms to planned arrangements and has been properly implemented and maintained. Audits can be carried out by staff, and/or by external parties. In any case, the person conducting the audit should be in a position to do so objectively and impartially and should be properly trained. The frequency of audits should be guided by the nature of the operation in terms of its environmental aspects and potential impacts. Also, the results of previous audits should be considered in determining frequency.

The findings, conclusions, and recommendations reached as a result of audits and reviews should be documented and the necessary corrective and preventive actions identified. Management should ensure that these corrective and preventive actions have been implemented and that there is systematic follow-up. Issues to be Considered in Corrective and Preventive Action and Continual Improvement:

- Does the organization have a process to identify areas for corrective and preventive action and improvement?
- Does the organization verify that corrective and preventive actions and improvements are effective and timely?

## **ACCOUNTABILITY AND RESPONSIBILITY**

Responsibility for the overall effectiveness of the MS4 Program should be assigned to a senior person or function(s) with sufficient authority, competence, and resources.

Operational managers should clearly define the responsibilities of relevant personnel and be responsible and accountable for effective implementation of the MS4 Program. Employees at all levels should be accountable, within the scope of their responsibilities. Issues to be considered:

- Are the responsibilities, training, qualifications, and accountability defined and documented?
- Are personnel provided sufficient training and resources?
- Do personnel:
  - Initiate action to ensure compliance?
  - Anticipate, identify, and record any problems?
  - Initiate, recommend, or provide solutions to those problems?
  - Verify the implementation of such solutions?
  - Control further activities until any deficiency or unsatisfactory condition has been corrected?
  - Know how to act in emergency situations?
  - Understand the consequences of noncompliance?
  - Understand the accountability that applies to them?
  - Encourage voluntary action and initiatives?
- Are responsibilities and performance recognized in reward and recognition systems?

## **INSPECTION CHECKLIST FOR BOTH PUBLIC AND PRIVATE STORMWATER CONTROL DEVICE(S)**

- ✓ Identify Project
- ✓ Identify Project Location
- ✓ Identify Current Owner
- ✓ The project is built in accordance with the approved plans
- ✓ Identify and briefly describe each stormwater control device
- ✓ Structural stormwater control devices are accessible
- ✓ Structural stormwater control devices are free of debris, oil and grease.
- ✓ The perimeter is free of any bare soil, erosion, or gullies.
- ✓ Inlet/outlet pipes and/or devices are clear and undamaged.
- ✓ Embankments are free of unplanted shrubs or trees.
- ✓ Embankments are in good condition.
- ✓ Grass cover is healthy.
- ✓ The forebay areas are in good condition.
- ✓ Rip rap is not displaced.
- ✓ The stormwater control device is free of weeds or noxious plants.
- ✓ Storm water management devices are maintained and functioning properly.

### **KNOWLEDGE, SKILLS AND TRAINING**

The knowledge and skills necessary to achieve objectives should be identified. These should be considered in personnel selection, recruitment, training, skills development, and ongoing education.

- Have training needs been identified?
- Are the training needs of specific job functions analyzed?
- Are training programs developed and reviewed regularly?
- Does this process include documentation and evaluation?

Appropriate training relevant to the achievement of objectives and targets should be provided to all personnel within an organization. Employees should have an appropriate knowledge base, which includes training in the methods and skills required to perform their tasks in an efficient and competent fashion and knowledge of the impact their activities can have if performed incorrectly.

The organization should also ensure that contractors working at the site provide evidence that they have the requisite knowledge and skills to perform the work in a responsible manner.

Training program typically has the following elements:

- Identification of employee training needs;
- Development of a training plan to address defined needs;
- Verification of conformance of training programs;
- Training of target employee groups; and,
- Documentation of training received, including what and how the employee was trained.

## **TRAINING RECORDS**

- ✓ Maintain a record of who was trained, what they were trained on (agenda and/or a description of the training) and when they were trained.
- ✓ Maintains copies of the materials used in the training.

## **MUNICIPAL SEPARATE STORMWATER SEWER SYSTEM (MS4) INSPECTION**

- ✓ Open channels, culverts, conveyance systems and other drainage structures are in good condition and free of trash and debris, floatables, pollutants, oil and grease.
- ✓ Catch basins and inlets are in good condition, free leaves and grass clippings and free of trash and debris, floatables, pollutants, oil and grease.
- ✓ Right-of-ways are in good condition and free of trash and debris, floatables, pollutants, oil & grease.
- ✓ Parking lots are in good condition and free of trash and debris, floatables, pollutants, oil and grease.

## DOCUMENTATION

Operational processes and procedures should be clearly defined and appropriately documented and updated as necessary. Documentation supports employee awareness of what is required to achieve objectives and enables the evaluation of the MS4 program. For ease of use, consider organizing and maintaining a summary of the documentation to:

- Collate the environmental policy, objectives, and targets;
- Describe the means of achieving environmental objectives and targets;
- Document the key roles, responsibilities and procedures;
- Provide direction to related documentation and describe other aspects of the organization's management system where appropriate;

The organization should ensure that:

- Files are maintained on a shared drive or central file system
- All documentation should be dated (with dates of revision), readily identifiable, organized, and retained for a specified period.
- Documents can be identified with the appropriate organization, division, function, activity, and/or contact person;
- Documents are periodically reviewed, revised as necessary and approved by authorized personnel prior to issue;
- Current versions of relevant documents are available at all appropriate locations;
- Obsolete documents are promptly removed from all points of issue and points of use.

Documents should cover:

- Legislative and regulatory requirements
- Permits
- Aspects and impacts
- Training activity
- Inspection, calibration and maintenance activity
- Details of non-conformance: incidents, complaints and follow up action
- Audits and reviews

The key features of good information management include a means of identification, collection, indexing, filing, storage, maintenance, retrieval, retention, and disposition of pertinent documentation and records.

Maintain a list of documents including:

- Post Construction Ordinance
- IDDE Ordinance
- Unified Development Ordinance
- Stormwater Ordinance
- Pet Waste Ordinance
- Flood Damage Protection Ordinance
- Tree Protection Ordinance
- Open Space Ordinance
- Buffer Ordinance
- Organizational chart
- List of stormwater staff, job descriptions, training requirements and/or qualifications,
- Annual Reports
- Budget
- Copies of interagency agreements or partnerships
- Map of watershed showing streams & major outfalls
- Comprehensive development plan incorporating practices to reduce the volume of stormwater runoff, i.e., green Infrastructure
- List of target pollutants
- List of target groups
- Records of public outreach and public involvement activities
- Description of residential and industrial/commercial issues
- Materials used for public education activities
- IDDE inspection and enforcement records
- Storm sewer system map showing the location of major outfalls and the names and location of waters that receive discharges from those outfalls
- Standard Operating Procedure (SOP) or description of plan review process
- Documentation of plan review
- Inventory of projects with post-construction structural stormwater control measures
- Inspection and enforcement records
- Inventory and/or a map of municipal operations and/or activities
- Site Plan (showing drains and stormwater control devices, i.e., OWS and SW BMPs)
- O&M Plan and/or inspection and maintenance schedule for stormwater control measures
- Inspection and maintenance records for stormwater control measures
- Spill incidents reporting records
- Spill response procedures
- Training records
- Inventory and/or a map of stormwater control devices
- O&M Plan and/or inspection and maintenance schedule for City Streets, Parking Lots, right-of-Ways, Catch Basins, Inlets, Open Channels, Culverts, Conveyance Systems and Drainage Structures
- Inspection and maintenance schedule and inspection and maintenance records for City Streets, Parking Lots, right-of-Ways, Catch Basins, Inlets, Open Channels, Culverts, Conveyance Systems and Drainage Structures

## **MUNICIPALLY OWNED AND/OR OPERATED FACILITIES INSPECTION CHECKLIST**

- ✓ Facility Name:
- ✓ Facility Address:
- ✓ Facility Contact and Phone No:
- ✓ Provide a brief description of the Municipal Operations (and/or Industrial Activity):
- ✓ The facility's site plan show drainage areas, stormwater and sanitary piping, manholes, cleanouts, drains, inlets, outfalls, oil water separators, and stormwater control devices.
- ✓ Employees have access to MSDS, personal protective equipment, spill response kits, storm drain inlet/outlet protection.
- ✓ The facility has developed inspection checklists.
- ✓ The facility maintains copies of inspections and follow-up records.
- ✓ The facility keep records (and photos) of deficiencies observed.
- ✓ The facility developed and implemented practices designed to prevent or minimize exposure, including loading and unloading procedures, material handling procedures, activities that are prohibited, vehicle washing and/or maintenance procedures, other.

### Stormwater control devices inspection checklist

- ✓ Identify and briefly describe stormwater control devices.
- ✓ Structural stormwater control devices are accessible
- ✓ Structural stormwater control devices are free of debris, oil and grease
- ✓ The perimeter is free of any bare soil, erosion, or gullies.
- ✓ Inlet/outlet pipes and/or devices are clear and undamaged.
- ✓ Embankments are free of unplanted shrubs or trees.
- ✓ Embankments are in good condition.
- ✓ Grass cover is healthy.
- ✓ Forebay areas are in good condition.
- ✓ Rip rap is not displaced.
- ✓ The stormwater control device is free of weeds or noxious plants.
- ✓ Storm water management devices are maintained and functioning properly.

### Oil Water Separators (OWS) inspection checklist

- ✓ Oil Water Separators (OWS) that discharges to:
  - The Sanitary Sewer System
  - The Storm Sewer System
  - The Stream.
- ✓ The OWS is accessible.
- ✓ The area is free of signs of overflow.
- ✓ All drains are free flowing with no water back-up.
- ✓ All drains are free from obstruction.
- ✓ The discharge is free of visible signs of oil or debris.
- ✓ The facility posted appropriate warnings about the proper use of the oil water separator(s).
- ✓ The facility has developed and implemented an oil/water separator inspection, maintenance, and operation program.

### Materials (including waste) or products stored outside in tanks and containers inspection checklist

- ✓ Tanks and containers are in good condition, closed, and properly marked.
- ✓ Tanks, containers, and piping free of rust, pits or deterioration or evidence of leaks.
- ✓ Tank supports are free of rust, damage, or deterioration.
- ✓ Secondary containment is free of accumulated water, debris, cracks, holes, or evidence of leaks
- ✓ Secondary containment drain valves are maintained in the closed position unless the facility is draining the secondary containment.
- ✓ The facility maintains secondary containment drain logs.

### Outside Storage Areas inspection checklist

- ✓ The facility prohibits activities outside where chemicals could be exposed to stormwater runoff.
- ✓ The facility prohibits the storage of material handling equipment, industrial machinery and/or equipment and vehicles stored outside.
- ✓ Loading/unloading areas are designed to minimize storm water run-on.
- ✓ Materials are protected from rainfall, run-on and run-off.
- ✓ Areas are free of any signs of residual or past spills and leaks.
- ✓ The facility is free of any particulate matter or visible deposits of residuals from roof stacks and/or vents.
- ✓ Employees know where the drains discharge.
- ✓ Stormwater inlets and outlets are clearly identified and accessible.
- ✓ Catch basins and inlets are in good condition and free of trash and debris, floatables, pollutants, oil and grease and are free of any signs of past spills, releases, or illicit discharges.

### Solid Waste Containers inspection checklist

- ✓ Solid waste containers are in good condition and of sufficient size to contain all materials.
- ✓ Solid waste containers have lids and are free of recyclable materials, hazardous materials, tires, liquids, and any leaks.
- ✓ Solid waste containers are labeled "Prohibited - No Hazardous Waste, No Recyclable Materials, No Liquids."