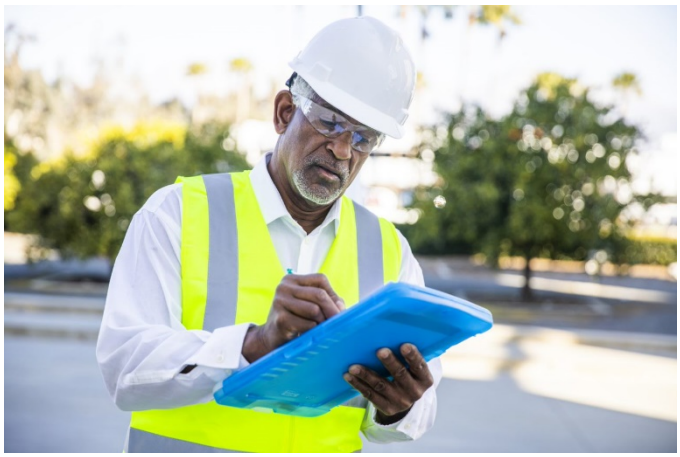
Stormwater Best Management Practice

Municipal Construction Inspection Program

Minimum Measure: Construction Site Stormwater Runoff Control
Subcategory: Municipal Program Oversight

Description

To reduce water quality impacts from active construction sites, the National Pollutant Discharge Elimination System (NPDES) regulations require communities with regulated municipal separate storm sewer systems (MS4s) to implement programs to control stormwater discharge from construction sites. Specific requirements include reviewing construction plans, conducting site inspections, and enforcing control measures necessary to minimize water quality impacts. This fact sheet focuses on the municipality's role in developing a construction inspection program and inspecting construction sites within its jurisdiction.



Municipalities can conduct oversight inspections to ensure erosion and sediment control practices are implemented.

Applicability

Municipal stormwater programs include procedures for inspecting construction projects to ensure that construction staff are installing and maintaining appropriate erosion and sediment control (ESC) practices. Most municipalities also have procedures for inspecting construction projects in accordance with their own ordinances.

Developing a Stormwater Construction Inspection Program

After developing a program to review construction project stormwater plans, the municipal permittee should also develop a program to track, inspect and enforce its local stormwater requirements at construction sites. A comprehensive stormwater construction inspection program should include:

- ***Ordinance/Legal Authority*** – Phase II regulations require "an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance." EPA's example ESC ordinance can help municipalities create their own ordinances.
- ***Construction Site Inventory*** – The municipality should develop a tracking system to inventory projects and identify sites for inspection. The inventory should also track the results of inspections and prioritize construction sites based on factors such as proximity to a waterbody, size, slope and history of past violations. Construction site tracking should also include procedures to locate sites for which construction staff have failed to file proper paperwork.
- ***Construction Requirements and Stormwater Controls*** – Municipalities should provide construction operators with guidance on choosing and designing stormwater control measures. The *Stormwater Management Manual for Western Washington* (Volume 2) and the *Tennessee Erosion and Sediment Control Handbook* are examples of construction stormwater control guidance documents.
- ***Plan Review Procedures*** – Municipalities should develop procedures for site plan reviews which incorporate consideration of potential water quality impacts. Municipalities then implement those procedures to review site plans to ensure they address local requirements and protect water quality. EPA has developed a fact sheet describing construction-phase stormwater plan review procedures.

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- ***Construction Site Inspection Frequency*** – The municipality should identify a routine inspection frequency for sites (e.g., weekly, monthly, twice per season). The inspection frequency can vary based on the site's priority, season and municipal resources.
- ***Enforcement Procedures*** – An inspection program should have clear enforcement procedures, including a written, progressive enforcement policy. For more information on enforcement procedures, see EPA's fact sheet on local ordinances for construction site stormwater control.
- ***Training and Education*** – Municipal stormwater staff conducting inspections should receive training on regulatory requirements, stormwater control measures, inspections and enforcement. The Contractor Training and Certification fact sheet provides information on training programs common to both contractors and municipal stormwater staff. The International Erosion Control Association also provides helpful training resources.

Conducting Stormwater Inspections at Construction Sites

The inspector's primary role is to ensure that construction staff take all relevant precautions to prevent stormwater discharges from impacting downstream waters. The inspector should therefore have a thorough understanding of the construction inspection process and be familiar with applicable statutes, rules, regulations, permit requirements and construction practices.

The inspector should plan an inspection schedule to target sites that are in priority areas (i.e., sites discharging to sensitive waters, sites near surface waters, areas undergoing rapid development, large construction sites, or sites with a history of noncompliance).

During an inspection, the inspector should take a professional approach, objectively documenting all of the inspection findings and developing a working relationship with the construction staff or other members of the public. The inspection should be thorough and consistent and cover all areas of the construction site.

Inspectors should document and track all findings using inspection forms, photographs, notes and written logs. This documentation will aid the inspector in documenting their findings to ensure any fixes are made and, when needed, escalating enforcement or pursuing more stringent penalties if the site is in continuous noncompliance. EPA has developed a stormwater construction inspection report template that municipalities can adapt for their own use.

Recommended Construction Inspection Process

To conduct a thorough construction site inspection, inspectors should consider using a process similar to the following, which EPA adapted from the Minnesota Pollution Control Agency's *Stormwater Construction Inspection Guide* (MPCA, 2008):

1. Plan your inspection ahead of time.

The inspector should obtain and review permit requirements, a site map with stormwater control measure locations marked, past inspection reports, and any other necessary information needed to plan the site inspection. The inspector should begin at a low point and work uphill, noting all discharge points.

2. Inspect perimeter controls and slopes.

The inspector should examine all perimeter controls, slopes and temporary stockpiles to determine if sediment and erosion controls are effective in controlling stormwater discharges. The inspector should assess stabilization practices to determine if they are functioning properly and construction staff put them in place within the required time frames.

3. Compare ESC practices in the site plan with the construction site conditions.

The inspector should determine whether ESC practices are in place as specified in the site plan and evaluate whether construction staff have correctly installed and maintained them. The inspector should look for areas that need other ESC practices, not specified in the site plan.

4. Inspect site entrances/exits.

The inspector should examine the vehicle construction entrance/exit and surrounding areas for excessive tracking of sediment from the site. The inspector should also look for evidence of other areas where vehicles are entering or exiting the site that are not on the site plan

and do not implement sufficient construction track-out controls.

5. Inspect structural sediment controls.

The inspector should check structural sediment controls to determine if they are functioning correctly or need maintenance or replacement by construction staff.

6. Inspect pollution prevention and good housekeeping practices.

The inspector should check trash areas and material storage and staging areas to ensure that construction staff have properly maintained these areas and that rainfall or stormwater cannot reach pollutant sources. Inspectors should also look for evidence of leaks or spills in vehicle/equipment fueling and maintenance areas.

7. Inspect discharge points and downstream, off-site areas.

The inspector should identify and check all discharge points and downstream areas to determine if ESC practices are effective in preventing off-site impacts. Inspectors should walk off-site, if necessary, to look for evidence of discharges from the site. The inspector should document any violations or evidence of off-site impacts on the inspection form and with photographs.

Limitations

Municipalities often lack staff resources for frequent, comprehensive inspections. Inspections can be time-consuming, especially in large, rapidly developing communities. Without adequate time, inspectors sometimes do more "drive-by" inspections in lieu of more thorough site walkthroughs, which vastly decrease the effectiveness of an inspection program given the lack of detailed inspections.

Some municipalities hire third-party inspectors with approved training. The State of Florida, for example, uses certified third-party inspectors to inspect construction sites covered under state Construction General Permits (FDEP, 2020). Private inspectors can reduce burden on agency staff resources but should meet the same accountability standards as agency staff.

Inspectors should also have the necessary authority to enforce the local ordinance, which municipalities should address in the ordinance itself.

Effectiveness

There are several ways to measure the effectiveness of a construction inspection program. For example, municipal staff can document and track the rate of change of instances of noncompliance at construction sites and follow-ups/responses. They can also track the number, types and overall performance of stormwater control measures at sites in the community to determine if regular inspections improve any of these factors over time. Finally, municipal staff can track the number of inspections performed each month or the number of visits to each site in a year to measure programmatic progress in terms of inspector efficiency.

ESC Enforcement Program

The **City of Charlotte** and the **County of Mecklenburg in North Carolina** have collaborated to develop an effective ESC enforcement program that employs frequent inspections, notices of violation, and fines, as well as an appeals process to effectively and fairly require compliance (City of Charlotte, 2020). Inspections take place about once every two weeks, and fines of up to $5,000 per day are possible. Before any earth disturbance, the site owner or developer must complete a form naming the person "financially responsible" for each project. The financially responsible party is on record as the party to accept any notices of violation or related documents for any noncompliance with the City of Charlotte's Soil Erosion and Sedimentation Ordinance.

Additional Information

Additional information on related practices and the Phase II MS4 program can be found at EPA's National Menu of Best Management Practices (BMPs) for Stormwater website

References

City of Charlotte. (2020). *Protecting the environment using erosion & sediment control.*

Florida Department of Environmental Protection (FDEP). (2020). *Florida stormwater, erosion, and sedimentation control inspector training & certification program.*

Minnesota Pollution Control Agency (MPCA). (2008). *Stormwater construction inspection guide.*

Disclaimer

This fact sheet is intended to be used for informational purposes only. These examples and references are not intended to be comprehensive and do not preclude the use of other technically sound practices. State or local requirements may apply.