

Preparing for and passing an Annual or Pre-Occupancy Stormwater System Inspection



RESTORATION + RECOVERY
A Stormwater Management Company



Annual Stormwater System Inspections are required for EVERY stormwater system. The Inspection is a comprehensive review of all parts of your stormwater management program, and confirms to your local regulatory body that your stormwater system is well maintained, and functions as intended.

Pre-Occupancy Inspections occur at the handoff from the general contractor to the property owner. Commonly called Key Turnover Inspection, this Inspection guarantees that the stormwater system being delivered by your general contractor is equal to or better than the stormwater system that was designed.

Both Inspection services deliver a comprehensive report, a site plan markup, and photo documentation of existing conditions.



INTRODUCTION

Inspections in the stormwater management industry serve to confirm that the stormwater management system is functioning as intended and as designed. Inspections typically fall into two areas:

- The pre-occupancy (or “key turnover” of “notice of termination (“NOT”)”) inspection is for the benefit of the property owner or manager, and is conducted at the handoff from the general contractor (who built a building and site plan) to the property owner. Sometimes as long as one year after site completion, this inspection examines the operation of the system, and creates a “punch list” for the general contractor to complete prior to the property owner assuming responsibility for the stormwater system. In many instances, a property owner will hire a stormwater management company to conduct the inspection on its behalf (especially if that same company will be managing the stormwater system). The pre-occupancy inspection report is typically submitted to the property owner.
- The annual inspection is conducted pursuant to federal, state and local regulations requiring that the stormwater system continue to be operated as intended and as designed. A certified stormwater inspector examines all facets of the stormwater system, and develops action plans in the event that the system has been improperly maintained or has developed problems that will require either rehabilitative or restorative repairs. The annual inspection report is typically submitted to the local regulatory body.

This whitepaper will discuss both types of inspections in detail, and for the annual inspections, focus on the necessary steps, for each BMP type, to pass the annual stormwater inspection.



PRE-OCCUPANCY / NOTICE OF TERMINATION (NOT) INSPECTIONS

As noted, the pre-occupancy or pre-NOT inspection is the transition between the design and construction phase of a site to the post-construction operation of a site. It is the turnover from the contractor to the owner.

Typically, the Construction Project Manager organizes a Pre-NOT inspection onsite and includes:

- Owner or owner representative, which could be a Stormwater Maintenance Contractor such as R&R
- General Contractor
- Engineer of Record
- Third Party Inspector

The construction Project Manager prepares and submits a Pre-NOT Inspection report based upon inspection findings. At the same time, the owner or his representative (R&R) documents the existing conditions of the facility with photos and inspection checklists. The checklist and any deficiencies with the system are provided to the General Contractor, and the General Contractor then performs the outstanding punch-list tasks identified in the inspection in order to file the Notice of Termination (terminating the NPDES permit and beginning the post-construction phase of the site stormwater management). Upon NOT filing and acceptance, the owner is then responsible for the maintenance of the stormwater system (and as noted, in many instances contracts with a specialized stormwater management contractor).

The purpose of the “turnover” meeting is basically twofold:

- To ensure compliance of the site, by the General Contractor, in order to file NOT and terminate NPDES coverage
- Owner and Stormwater Maintenance Contractor acceptance of site

After the assumption of the site by the owner, post-construction stormwater management commences, with subsequent annual inspections.



ANNUAL INSPECTION – BMP SPECIFIC INSPECTION AREAS

Stormwater Best Management Practices (“BMP”), also commonly referred to as Stormwater Control Measures (“SCM”), are engineered systems designed to limit the damaging effects of stormwater runoff that results from increased land development. BMP’s are designed to maintain or improve the pre-developed conditions for water quality and quantity downstream of a property. A BMP is designed to improve water quality, reduce downstream flooding and erosion, and promote groundwater recharge. BMP’s can also be an aesthetic asset to a property. In order to provide quality and quantity benefits to a watershed, a system is engineered to perform based on the needs of the site, or watershed.

There are multiple types of BMP’s implemented to satisfy the needs of a site. Successfully passing a stormwater inspection requires that your system and its BMP(s) are performing as originally designed. Inspectors will look for a number of items specific to each BMP that will tell them if the system is working, and being aware of these items is critical to passing the inspection.



Bioretention System

A Bioretention System is an engineered system typically designed with beneficial plants and an engineered media designed to assist in pollutant removal by filtering solids suspended in the stormwater while promoting nutrient uptake.

How It works

A depression is constructed in the landscape with an underground soil media designed to support a variety of vegetation. Stormwater filters through the soil media and commonly exits through an underdrain, effectively removing sediment, heavy metals, nutrients, etc.

Inspection Checklist

- Excess sediment removal from inlet areas
- Remove trash and debris
- Replace dead or dying plants with new healthy ones
- Inspect underdrain and jet the lines if necessary
- Freshen up top mulch layer with and ensure there is at least 3" of depth throughout
- Ensure good coverage of vegetation on side slopes of basin
- Collect all maintenance records and be able to present that with the inspection.
- If your system is not currently maintained by a trained and qualified company, [contact R&R to get a maintenance plan in place quickly to ensure compliance.](#)



Wet Detention Basin / Retention Pond

A Wet Detention Basin is a vegetated system designed to hold a permanent volume of water at all times with an additional storage capacity during and immediately following a rain event.

How It works

Stormwater mixes with the permanent pool and dilutes runoff from storm events. Pollutants are removed by settling of sediment particles and consumption by plants. Stormwater is released over a period of a few days.

Inspection Checklist

- Ensure access to the stormwater facility
- Cut all vegetation around the slopes of the basin to a height of 4-6"
- Remove trash and debris from the water
- Remove debris from Low-Flow orifice at the riser to ensure proper holding elevations in the basin
- Cut down all woody vegetation on the dam slope
- Remove sediment accumulation from the inlets to the basin
- Cut all vegetation, clean up trash, and remove sediment at the Discharge
- Treat any algae or invasive species with aquatic herbicide
- Ensure good coverage of vegetation on side slopes of basin
- Check sediment levels in the forebay and holding areas of the basin
- Collect all maintenance records and be able to present that with the inspection.
- If your system is not currently maintained by a trained and qualified company, **contact R&R to get a maintenance plan in place quickly to ensure compliance.**



Dry Detention Basin (Dry Pond)

A Dry Detention Basin is a vegetated system designed to hold a volume of water only during and up to 48-hours after a rain event.

How It Works

Stormwater enters a vegetated basin and discharges at a designed rate from an outlet control structure. Pollutants are removed by settling of sediment particles and consumption by plants. Infiltration is limited.

Inspection Checklist

- Ensure access to the stormwater facility
- Cut all vegetation throughout the basin to a height of 4-6"
- Remove trash and debris from entire area
- Remove debris from Low-Flow orifice at the riser to ensure proper function of the outlet device
- Cut down all woody vegetation on the dam slope
- Remove sediment accumulation from the inlets to the basin
- Cut all vegetation, clean up trash, and remove sediment at the Discharge
- Treat any invasive species with aquatic herbicide
- Ensure good coverage of vegetation on side slopes of basin
- Check sediment levels in the forebay and holding areas of the basin, if applicable
- Collect all maintenance records and be able to present that with the inspection.
- If your system is not currently maintained by a trained and qualified company, [contact R&R to get a maintenance plan in place quickly to ensure compliance.](#)



Swale

A Swale is a channel typically vegetated or constructed with non-erodible materials and designed to facilitate drainage while promoting infiltration.

How It Works

Stormwater daylights from a pipe or flume and drains across a vegetated or rock-lined channel which dissipates energy and promotes infiltration. Swales have a holding capacity during rain events and achieve a small credit for water quality.

Inspection Checklist

- Cut all vegetation around the slopes of the basin to a height of 4-6", where applicable
- Remove trash and debris
- Replace displaced energy dissipation
- Remove sediment accumulation from the inlets to the basin
- Cut all vegetation, clean up trash, and remove sediment at the Discharge
- Treat any invasive species with aquatic herbicide
- Ensure good coverage of vegetation on side slopes and channel bottom
- Check sediment levels throughout
- Collect all maintenance records and be able to present that with the inspection.
- If your system is not currently maintained by a trained and qualified company, [contact R&R to get a maintenance plan in place quickly to ensure compliance.](#)



Infiltration System

An Infiltration system is a vegetated system designed with highly permeable soils. The system fills with stormwater and water then exits by infiltrating into the soil.

How It Works

Stormwater collects in constructed trench devices or in a retention basin where it can soak into the underlying soils over time. Infiltration devices reduce runoff, remove pollutants, and recharge groundwater. They are suitable in permeable soils only.

Inspection Checklist

- Excess sediment removal from inlet areas
- Remove trash and debris
- Cut down all vegetation around the basin to a height of 6"
- Ensure good coverage of vegetation on the bottom and side slopes of basin
- Cut all vegetation, clean up trash, and remove sediment at the discharge
- Collect all maintenance records and be able to present that with the inspection.
- If your system is not currently maintained by a trained and qualified company, [contact R&R to get a maintenance plan in place quickly to ensure compliance.](#)



Permeable Pavement

Permeable Pavement is a product installed to replace asphalt or concrete in order to decrease surface runoff volumes; it is typically implemented in watersheds with soils that have high infiltration rates.

How It Works

Permeable Pavement reduces the impervious acreage of a site and allows infiltration of a portion of rain during storm events.

Inspection Checklist

- Perform a simple infiltration test to portions of your pervious pavement to ensure water does not pool
- If pooling is prevalent, schedule a sweeping service for the area
- Remove trash and debris
- Visually inspect structural condition and gradation of pavers
- Collect all maintenance records and be able to present that with the inspection.
- If your system is not currently maintained by a trained and qualified company, **contact R&R to get a maintenance plan in place quickly to ensure compliance.**



Level Spreader

A Level Spreader is a device which reduces the energy level in high-velocity flow by converting it into sheet flow

How It Works

Stormwater runoff is conveyed to a blind swale, as the blind swale fills, flow diffuses along the length of the level spreader. Infiltration of stormwater and removal of particulate pollutants are expected as runoff flows through the riparian buffer or vegetative filter strip downslope of the level spreader.

Checklist for preparation:

- Remove excess sediment from inlet areas and from holding area of the sump
- Ensure no areas of erosion or channelization has occurred
- Remove trash and debris
- Make sure that dam is level and clear of woody vegetation
- Collect all maintenance records and be able to present that with the inspection
- If your system is not currently maintained by a trained and qualified company, [contact R&R to get a maintenance plan in place quickly to ensure compliance.](#)



Sand Filter

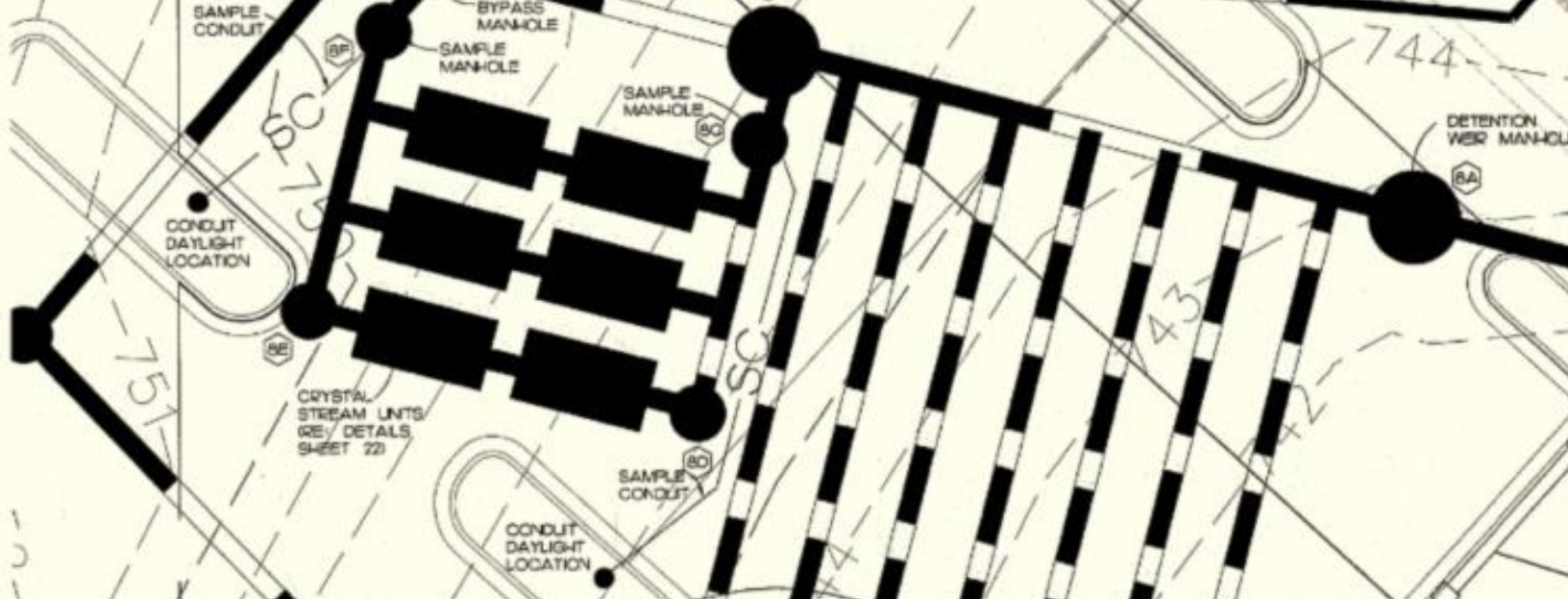
A Sand Filter is a system that facilitates the passage of stormwater through a sand media designed to assist in pollutant removal by filtering suspended solids, oils and debris.

How It Works

Runoff is directed to a surface or subsurface device which contains a sand media whereby pollutants are filtered. Treated effluent is then discharged or infiltrated.

Inspection Checklist

- Pull covers off and remove the top sediment layer from the sand media
- Rake out and disturb the sand media to reverse the compaction that has occurred
- Clean debris from the inlet area and the underdrain discharges
- Collect all maintenance records and be able to present that with the inspection
- If your system is not currently maintained by a trained and qualified company, [contact R&R to get a maintenance plan in place quickly to ensure compliance.](#)



Manufactured (Underground) Systems

A manufactured underground system is a product often retrofitted into a storm sewer system with storage and pollutant removal capabilities. They are commonly used when space is at a premium (and where aboveground BMP's may therefore be too costly). These systems are also commonly known as Proprietary Systems.

How It Works

In chambered devices, runoff passes through several chambers where settling of sediment and flotation of hydrocarbons occurs. Hydrodynamic devices provide sediment removal by providing a swirling motion. Some devices provide filtration through the use of filter cartridges or media, thereby removing some of the solid pollutants. These systems are designed and built by a variety of companies and range in sizes and purpose; each system is unique and requires a specific maintenance plan.

Inspection Checklist

- Determine manufacturer of the device and what its designed purpose is and then design a maintenance plan for the facility.
- Collect all maintenance records and be able to present that with the inspection
- If your system is not currently maintained by a trained and qualified company, **contact R&R to get a maintenance plan in place quickly to ensure compliance.**

CONCLUSION

With the stormwater regulatory changes of the last decade, owners and managers of **properties with more than one acre roofed or paved** have a clear responsibility to manage stormwater. In addition to the legal responsibility, taking care of the surrounding environment is the right thing to do and is good for business. While the legal responsibility is direct, the various requirements, rules, regulations, and nuances can make stormwater management an arduous and confusing undertaking.

Restoration & Recovery is the only company that solely specializes in stormwater management. We help our clients:

- safeguard the investment they've made in their stormwater management infrastructure through proper maintenance,
- stay compliant with federal, state, and local laws and regulations,
- protect the environment,
- keep their properties beautiful,
- and save money.

Restoration & Recovery's comprehensive post-construction stormwater management services include:

- **Inspection,**
- **Maintenance,**
- **Repairs to Aboveground Stormwater Facilities,**
- **Repairs to Underground Stormwater Devices,**
- **Emergency Response,** and
- **Consulting.**

Most importantly, we are as passionate about our customer service as we are about our technical expertise. We are **focused and comprehensive**, we aim to turn all of our clients into **raving fans**, we believe in the tenets of the **Stormwater Circle**, and all of our work is backed by our **Unconditional Guarantee**. We call these four concepts the "R&R Difference," and every action each day is informed by these beliefs.



Request a FREE consultation

Restoration & Recovery

Water Quality Excellence Through Superior Stormwater Management

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