

Faircloth Skimmer®

Why Orifices Fail in Post-Construction Stormwater Control Measures (SCMs)



A Maintenance and Performance Risk Hiding in Plain Sight

Post-construction stormwater control measures (SCMs) commonly rely on small, submerged orifices to regulate discharge rates and meet design criteria. While orifices are simple and familiar, their long-term performance is frequently compromised by clogging, limited access, and maintenance challenges. These issues can quietly undermine hydraulic performance, water quality objectives, and long-term system reliability.

Common Causes of Orifice Failure

- **Debris Accumulation** - Submerged orifices are prone to clogging from organic material, trash, sediment fines, and biological growth. Once restricted, the outlet no longer performs as designed.
- **Limited Visibility and Access** - Orifices are often submerged and difficult to inspect. Maintenance may require dewatering or confined-space entry, causing issues to go unnoticed until a failure or inspection issue occurs.
- **Maintenance Burden Shifts to the Owner** - Clogged orifices reduce available storage, extend drawdown times, elevate water levels, and increase the likelihood of emergency maintenance and long-term ownership costs.



Impacts of a Clogged Orifice

Impacts of a clogged or restricted orifice may include:

- Reduced hydraulic performance and delayed drawdown
- Increased flooding or overtopping risk
- Inspection failures and noncompliance with design intent
- Higher long-term maintenance and emergency repair costs
- Prolonged elevated water surface elevations that may submerge aquatic vegetation beyond intended durations, potentially stressing or killing planted species in vegetated shelves and littoral zones
- Degraded water quality performance

A Design Question Worth Asking

If outlet performance and maintenance access are critical to long-term SCM success, should the controlling device be buried, submerged, and difficult to maintain?

Looking Ahead

As stormwater regulations continue to emphasize long-term performance, maintainability, and water quality outcomes, designers and reviewers are reassessing traditional submerged orifice outlets. Emerging outlet-control approaches are being evaluated that prioritize accessibility, surface withdrawal, and long-term reliability.

This document is intended to support informed discussions regarding outlet-control strategies for permanent stormwater control measures.