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## A bit about the “Before and After” of stormwater management

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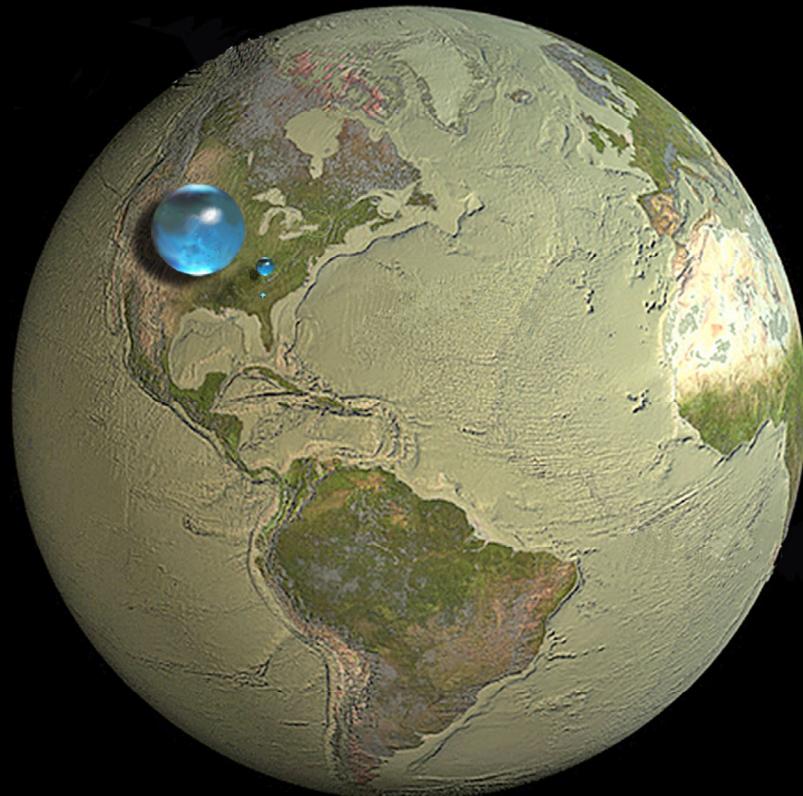
Associate Research Professor

John A. Chapman

February 13, 2025



# The World's Water



- All water on, in, and above the Earth
- Liquid fresh water
- Fresh-water lakes and rivers

Howard Perlman, USGS,  
Jack Cook, Woods Hole Oceanographic Institution,  
Adam Nieman  
Data source: Igor Shiklomanov  
<http://ga.water.usgs.gov/edu/earthhowmuch.html>







AUTHORIZATION TO DISCHARGE  
STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY  
UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)  
STATE DISPOSAL SYSTEM (SDS) PROGRAM  
MNR100001

Permittee: Multiple  
Project Name: Construction Stormwater General Permit  
Issuance date: August 1, 2023  
Expiration date: July 31, 2028

The state of Minnesota, on behalf of its citizens through the Minnesota Pollution Control Agency (MPCA), authorizes the permittee(s) named above seeking coverage under this general permit to discharge stormwater associated with construction activity to waters of the state of Minnesota in accordance with the requirements of this permit.

The goal of this permit is to reduce pollutant levels in point source discharges and protect water quality in accordance with the U.S. Clean Water Act, Minnesota statutes and rules, and federal laws and regulations.

This permit is effective on the issuance date identified above. This permit expires at midnight on the expiration date identified above.

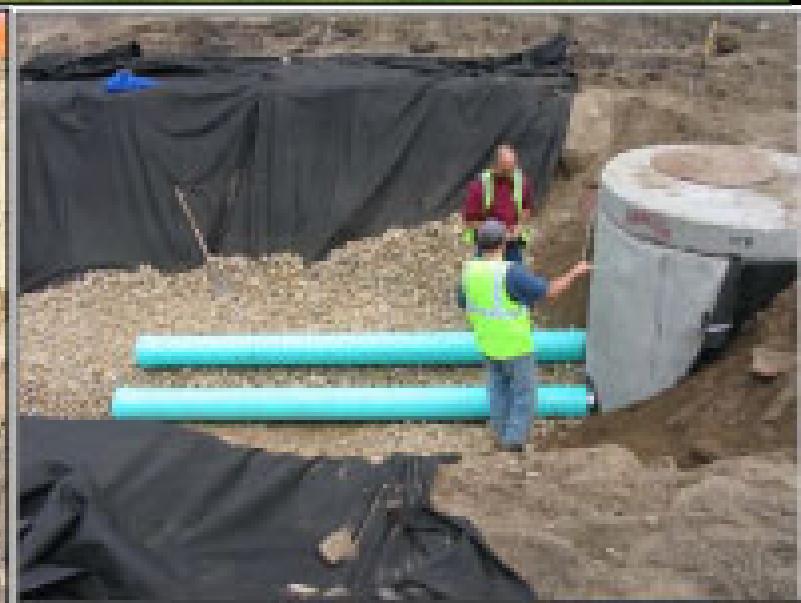
Signature: *Ryan Anderson*  
This document has been electronically signed.

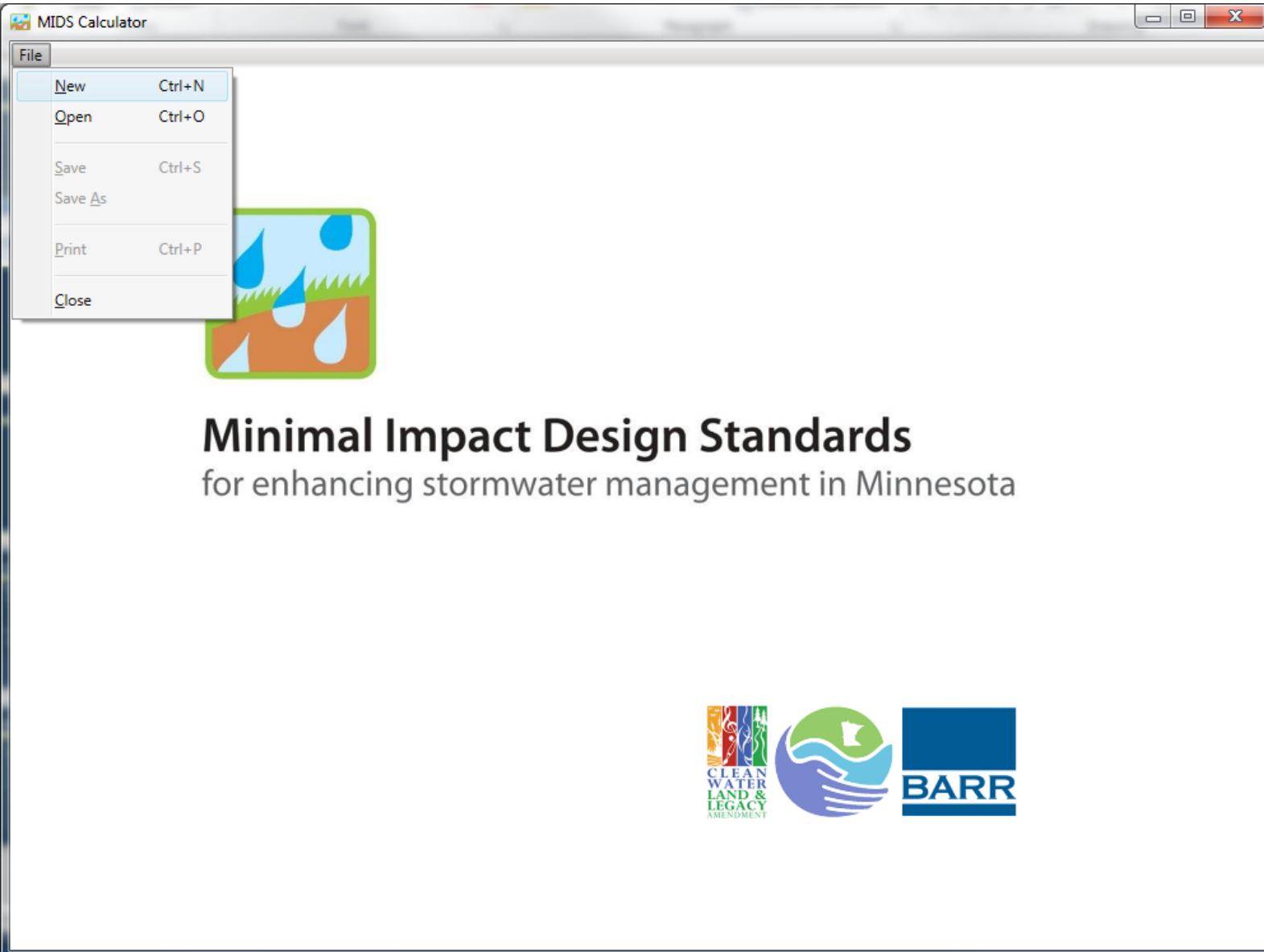
Ryan Anderson  
Manager  
Stormwater Section  
Municipal Division

for the Minnesota Pollution Control Agency

questions on this permit?  
Contact e-Services at  
651-757-2728 or 844-828-0942

Permit application:  
Submit via MPCA e-Services at  
<https://rso.pca.state.mn.us/>





What about  
Maintenance?

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# Perimeter Control



# Filter berm – wood chip



# Filter berms : cornstalks and rock



# Filter berm : topsoil



## Bag-type inlet protection



# Storm drain inlet protection



No unsealed coverings!



Don't forget to protect the curb head



Repair inlets once found destroyed!

Protect and sweep!







# Enforcement





# References and Research

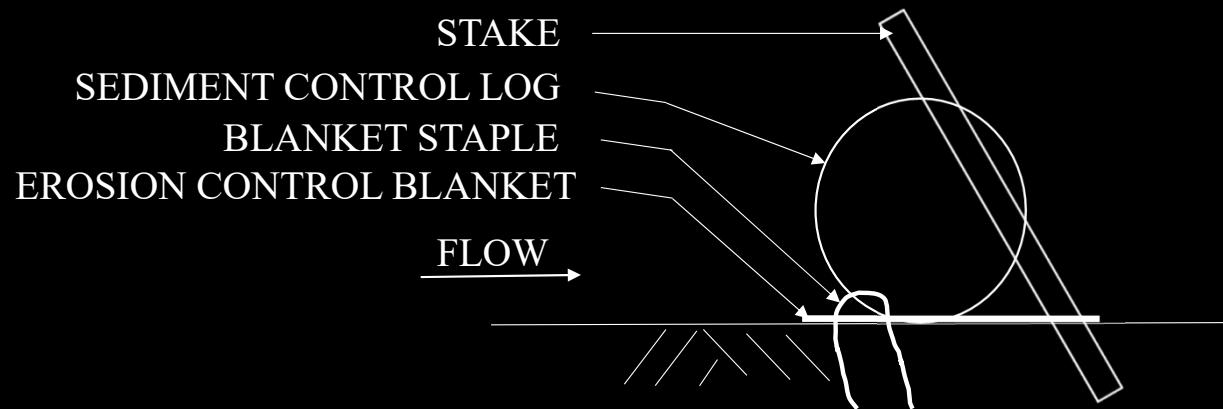
- Minnesota Stormwater Manual:  
[stormwater.pca.mn.us](http://stormwater.pca.mn.us)  
MIDS
- [Erosion.umn.edu](http://Erosion.umn.edu)
  - Biolog performance
  - Manhole sump performance
  - Gross solids in Stormwater
  - Erosion Control Blanket Longevity (in progress)



# Installation



# Installation





A photograph of a person in a wooden canoe on a calm lake. The person is wearing a hat, sunglasses, and a life vest, and is holding a paddle. A yellow paddle is visible in the foreground. The background shows a forested shoreline and a clear sky.

Thank you

[www.erosion.umn.edu](http://www.erosion.umn.edu)