Shingle Creek Watershed Management Commission

West Mississippi Watershed Management Commission

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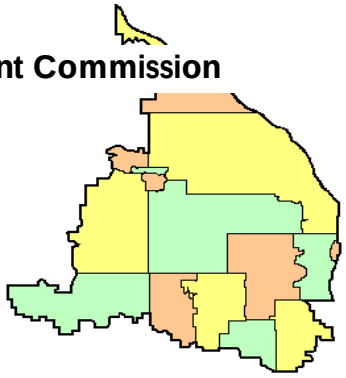

A meeting of the joint Technical Advisory Committee (TAC) of the Shingle Creek and West Mississippi Watershed Management Commissions is scheduled for 8:30 a.m., Thursday, April 28, 2016, at Crystal City Hall, 4141 Douglas Drive North, Crystal, MN.

# A G E N D A

1. Approve agenda.*

2. Approve Minutes of March 24, 2016 meeting.*

3. Potential Rules and Standards Revisions.*
   a. Combined Wellhead Protection Area Boundary.* (from March packet)
   b. Original and Amended Wellhead Protection Areas.* (from March packet)
   c. DWSMA PSCI Map.* (from March packet)

4. Update on Grant Projects.
   a. Connections at Shingle Creek.
   b. Public Art Reaeration Structures.
   c. Iron/Biochar Enhanced Sand Filters.*
   d. Twin Lake Carp Management.

5. Other business.

6. Next Meeting _____

*Attached
**Available at the meeting.

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# Technical Memo

WENCK ASSOCIATES

Responsive partner.
Exceptional outcomes.

**To:** Shingle Creek/West Mississippi TAC

**From:** Ed Matthiesen, P.E.
Diane Spector

**Date:** April 25, 2016

**Subject:** Potential Rules and Standards Revisions

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|---|---|
| **Recommended TAC Action** | Discuss the potential revisions to the Rules and Standards and return recommendations for amendment to the Commissions. |

We continue to monitor ongoing technology and engineering practice changes that may have an impact on the Commissions' development rules and standards. Several items have come up recently that we discussed by the Commissions at the March 10, 2016 regular meeting. The Commissions have asked the Technical Advisory Committee (TAC) to discuss these potential revisions and make recommendations for any rules and standards changes.

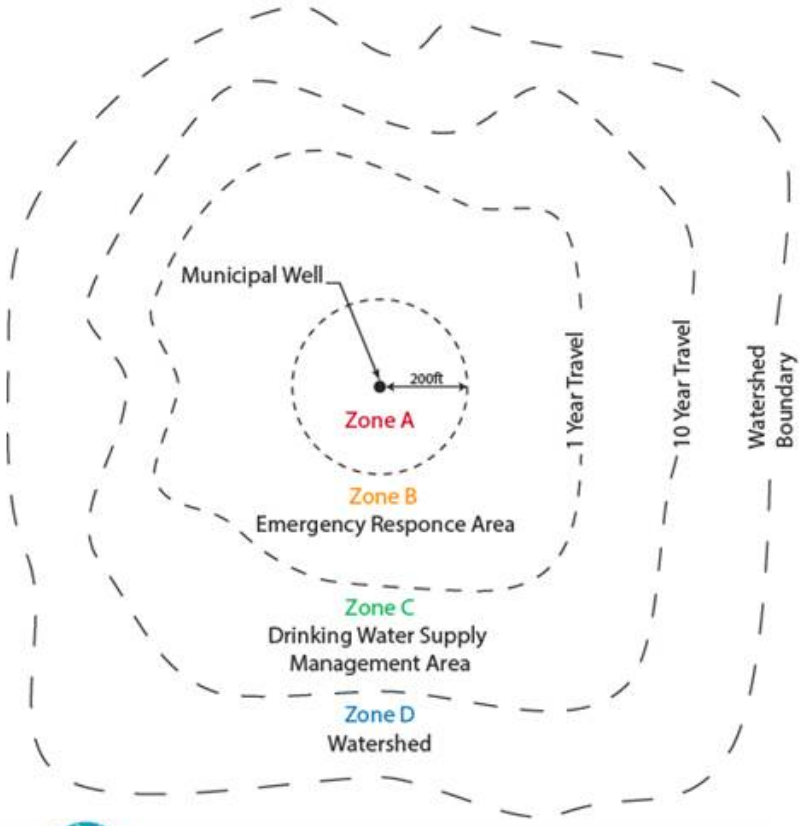
**1. Drinking Water Protection**

The Commissions' rules and standards prohibit infiltration within the one year time-of-travel zone of any drinking water well. This is very broad and in some cases infiltration of runoff from certain types of impervious may be allowable. We've been working with some other WMOs to refine those definitions. On the next page is a diagram Ed developed based on his discussions with local, state and EPA officials. The concept is to create zones around municipal drinking water wells based on modeling completed for the local Wellhead Protection Plans. Infiltration would be prohibited in the zone closest to the well, with infiltration limitations becoming less restrictive the further away from the well. The second figure shows the location of municipal Emergency Response Areas (ERAs) and Drinking Water Supply Management Areas (DWSMAs) across the Shingle Creek and West Mississippi watersheds *as of September 2014*. Many of these areas are being remodeled as cities are updating their Wellhead Protection Plans. In some cases, the DWSMAs have changed considerably. Attached is a set of figures from the City of Brooklyn Center showing the remodeled zones and how they compare between the old and new.

Some questions for consideration:

1. Is this something you even want to consider?
2. Does it seem workable and fit in with your other WHP responsibilities?
3. Since so much of Shingle Creek is within a DWSMA, for administrative ease should the whole watershed outside the ERAs be treated as a Zone C?
4. How should DWSMA Vulnerability be taken into account?
5. What other concerns do you have or examples to share?

# Infiltration Practices in Relation to a Drinking Water Supply Management Area




Shingle Creek
Watershed Management Commissions
West Mississippi

**Zone A** No Infiltration Allowed
Within 200 ft of a Municipal Well

**Zone B** Emergency Responce Area (ERA)

Roof Infriltration Allowed

All Other Hard Surfaces Must
Filtrate Prior to Discharge to a
Storm Sewer, Ditch or Creek

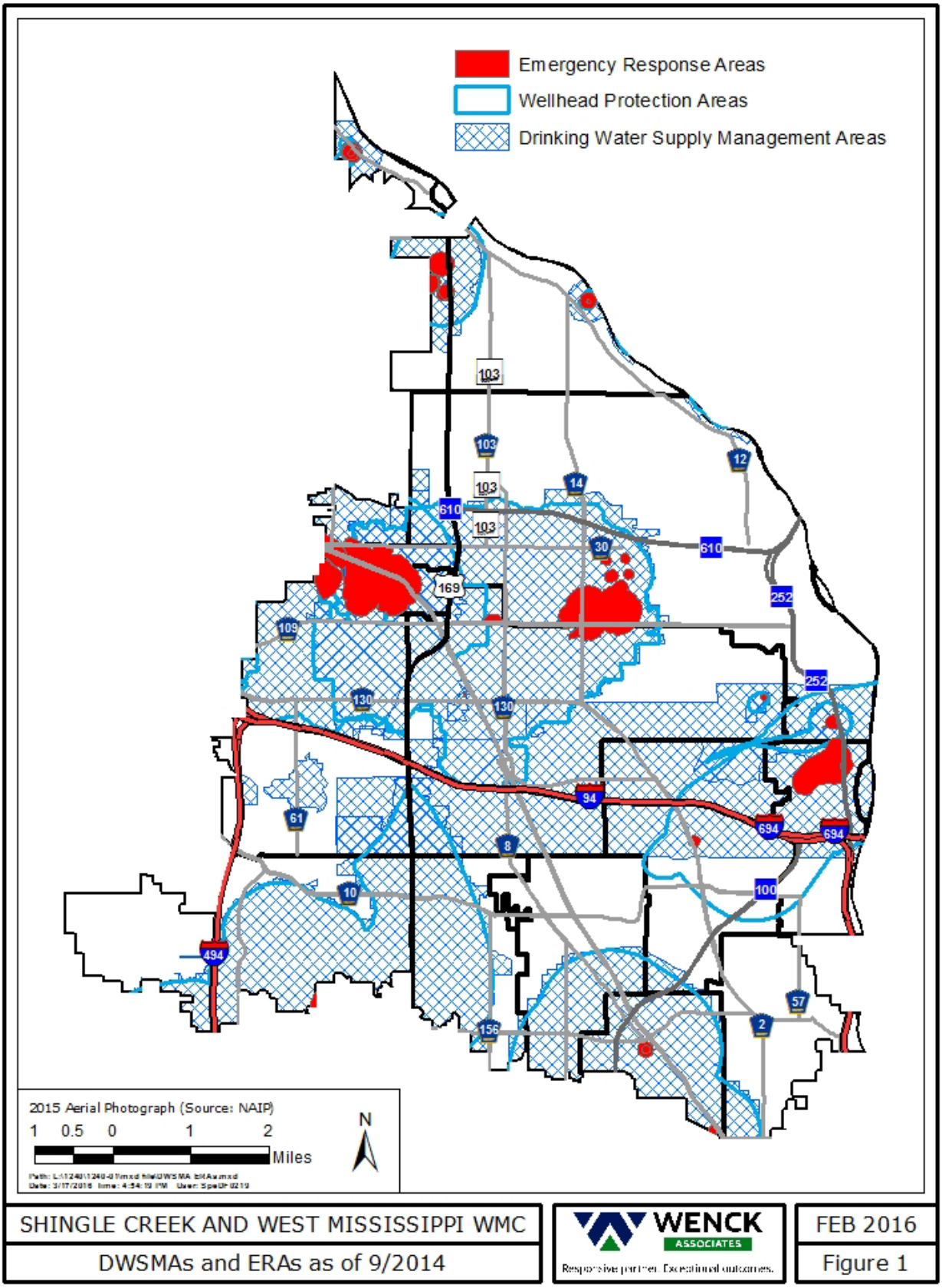
**Zone C** Drinking Water Supply Management Area (DWSMA)

Roof Infiltration Allowed

All Other Hard Surfaces Must
Filtrate Prior to Infiltration

**Zone D** Watershed

All Hard Surfaces can be Infiltrated

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| SHINGLE CREEK AND WEST MISSISSIPPI WMC | WENCK ASSOCIATES Responsive partner. Exceptional outcomes. | FEB 2016 |
| DWSMAs and ERAs as of 9/2014 | | Figure 1 |

**2. Application of Rules to Sidewalks and Trails**

Linear projects such as sidewalks and trails do not lend themselves well to traditional bioinfiltration BMPs to accomplish the 1.3" of infiltration needed to meet water quality and infiltration requirements. These linear projects are typically sloped to sheetflow runoff to the boulevard or shoulders of the trails. We have developed a preliminary standard that would allow the applicant to meet that requirement by amending the soil receiving the sheetflow to a certain width depending on soil type (see diagram on following page).

**3. BMP Banking**

A discussion at a previous TAC meeting broached the subject of BMP banking. For example, a City has an opportunity to install a BMP with a project that would not require it, or that would go above and beyond what the Commission requires. Can they "bank" that extra treatment capacity to be used on a future project where treatment is required but infeasible? This is similar to wetland banking.

Some questions for consideration:

1. Is this feasible?
2. Under which circumstances it would be allowable?
3. Should the use of credits be limited to projects draining to the same receiving water?
4. How it would be documented?

**4. Sump Sizing Standardization**

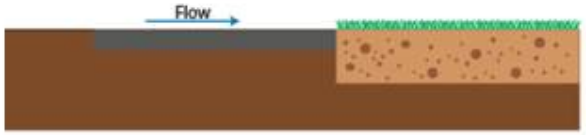
For administrative ease we suggest establishing sizing standards for sump manholes. We will present proposed standards based on the model SHSAM and on a method set forth by the EPA. We will also discuss methods that can reduce the overall size of the sump by incorporating hydrodynamic separation. Two economical options are SAFL Baffle (http://upstreamtechnologies.us/products/safl-baffle) or The Preserver™ (http://www.momentumenv.com), both of which have design guidelines for optimal water quality treatment.

# Trail Infiltration Summary

Trail A Soils 1:1 Ratio


B Soils 4:1 Ratio


C & D Soils




Amended Soils needed at 1:1 Wide Ratio in receiving area

Therefore:

- 10' Wide Trail next to A soils then 10' grassed area
- 10' wide Trail next to B soils then 40' grassed area
- 10 ' wide Trail next to C or D soils needs a 1:1 ratio of Amended Soils

Shingle Creek Watershed Management Commissions West Mississippi