Standards Oversight Council *(SOC)*

Supporting Technical Standards for Urban and Rural Soil and Water Conservation

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Permeable Pavement Team
DRAFT MEETING NOTES
Friday, March 29, 2013 || 9:30 am – 3:30pm
Conference Room 121A, Dane County LCD Office, 5201 Fen Oak Dr., Madison, WI 53718

Attendees: Roger Bannerman, Chris Homburg, Bob Roehrig, Bob Givens, Michelle Reynolds, Laura Fenley, Kate Gleason, Pete Wood, Scot Schwandt, Jason Kruger, Gini Knight, John McCarthy.

Welcome / Updates

Costco Research Project Update: Roger has received positive approval from Costco regarding the research project, slated to begin installation in May. The project is moving forward, although has been delayed due to a change in the budget and structure of the research. The research appears to only be moving forward with only testing permeable concrete pavers. The research project does not have the financial support to also install and monitor the three pavement systems (1) porous asphalt, 2) pervious concrete, and 3) permeable concrete pavers, as intended. Only testing one pavement system in the research may influence the table providing pollutant removal credit. The research team intends to move forward with installation in mid-May.

Depending on this year's rainfall, Roger plans to present data from the research to the team in the late winter/early spring of 2014. We hope the standard will be completed or nearly completed at that time. As new research becomes available, we can adapt the standard.

V. Criteria G. Pollutant Removal Credit

The team plans to determine the best credit value from current available research. The team will further discuss the difference between the amount of filtration occurring at the pavement surface, through the aggregate, and the amount of filtration occurring through particle settling at the bottom of the basin. There was a suggestion to include a third subsection under Pollutant Removal Credit as Particle Settling. Roger plans to provide a literature review related to this table at the next meeting.

The team intends for the standard to be generic, not name specific products, and provide flexibility to newly developed products. Give the inability to compare the three pavement systems in the research project, the team is considering the possibility of lab research that tests the filtration efficacy of various physical properties of pavement products. We may find critical variables that could define positive filtration. We may be able to create a chart of filtration credit vs. physical parameters, which could influence new product innovations and provide more guidance on developing new products. Josh, with the help of others, volunteered to look further into this possibility.

An additional suggestion was to include a note and reference under the table to acknowledge where the chart came from and the current technical understanding at that time.

At a future meeting the team will discuss whether the standard should require users to run a model for verification. If users follow the standard's design criteria, do they also need to run the model to verify the system. It was noted that it may depend on whether the users are modeling one BMP or modeling multiple BMPs.

V. Criteria B. Pavement Infiltration Properties

Roger reviewed the updates on the infiltration modeling runs based on the discussion at the last meeting on clogging frequency and minimum infiltration rate and the team discussed each of the recommendations with relate to Criteria B.

Consultants provided an estimate of the cost for permeable pavement cleaning. ~$100-$150/hr for a vacuum sweeping service, which operates at approximately 2 mi/hr. In comparison, it costs $5000/yr to maintain an acre of bio-basin.

Recommendations.

1. Approved using clogging capacity of 0.4 lbs/sf in model.

2. The team will have more discussion on the ratio of source areas to permeable pavement surface area. Different maintenance schedules may be required for different ratios. The team decided that Roger should shorten design life of these systems to 20 years in the model runs. Roger will provide more model results to help decide the ratio tied to cleaning frequency. Maybe ask Tom's experience.

The models are currently assuming the source area or run-on is pavement. Since the type of run-on has varying levels of sedimentation, Roger will define source areas as either rooftop water or turf/andscape area, in addition to pavements. Based on results, we may add turf and roof-top as different ratios in Criteria F. Run-on ratio.

3. Team approved 10 in/hr minimum infiltration rate for design purposes. The team discussed whether to require testing for that rate in the criteria or maintenance.

4. The team discussed the requirement of a minimum cleaning frequency of once per year. After modeling runs are conducted, the team may decide to require a higher cleaning frequency for higher run-on ratios. The specifics of cleaning will be discussed in considerations. The designer will work specifics into the maintenance plan.

5. Discussed in #4.

6. Team approved that a restorative percentage of 50% should be applied to filtration rate after cleaning.

The team also discussed whether the initial surface infiltration rate of 100 in/hr should be tested or should a test, like ASTM 1701 be referenced or in a definition of the system. A suggestion was given to include the degradation rate of the system, to acknowledge how model accounts for clogging or degradation of filtration. The team also noted the suggestion of re-organizing the subsections in Criteria B to design, construction, and then maintenance.

V. Criteria D. Drainage

The Drainage section will be reorganized to have subsections 1) Drainage Outlet and 2) Infiltration, previously Criteria E. Using a filter sock will be added into considerations to give designer maximum flexibility.

Under the Drainage Outlet section, the native soil infiltration rate will be changed to at least 3.6"/hr instead of "sufficiently high" before an underdrain is required. Strike the 2nd sentence in Perforations subsection. Move the Clean-out Port and Outlet subsections to considerations.

V. Criteria E- J.

Subsection 4 in Criteria E. Infiltration will be deleted as redundant with Section III. Conditions Where Applies and Section IV.

The next steps for moving forward were discussed. The team will continue to move through the draft standard at the next two meetings. Ideally we will work through the rest of the Criteria at the May meeting and then work on Considerations, Plans and Specs, and O & M at the June meeting. The team will discuss Criteria F & G with the results of the model runs. Criteria H & I will be discussed in the broader context of whether the standard requires users to model their designs.

The team hopes to be ready to send a full draft of the standard out to select initial reviewers by the end of the 3rd quarter of 2013.

Next Meetings:

- May 15, Jun 25, late Aug/early Sep – Doodle Poll to select date.

Action Items:

- Roger will develop and literature review of the available research regarding pollutant removal of permeable pavement systems.
- Josh, along with Bob Givens, and other industry representatives, will look into the possibility of comparing individual physical properties of pavement systems for pollutant removal.
- Pete will update the draft standards with the comments received from the meeting.
- Everyone to review Criteria E. Infiltration (which will now be a subsection of Drainage) and Criteria H & I for discussion of modeling requirement.
- Chris, Pete, and Laura will work on Tech Note, and Criteria J. Construction Practices.
- Good time for everyone to go out and observe permeable pavement systems.
- Gini will send out a Doodle Poll for scheduling a late August/early September meeting.

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