

STORMWATER ORDINANCE UPDATE
TECHNICAL ADVISORY COMMITTEE (TAC)
Meeting #11: Wednesday, January 9, 2008
Washington Department of Fish & Wildlife
2108 Grand Blvd.
1:30 - 3:30 p.m.

N O T E S

Agenda / Introduction

Members Attending

Gordon Euler, Patrick Harbison, Chad McMurry, John Milne, Mike Misiak, Mike Soliwoda, Ron Wierenga

Members Absent

Jennifer McClure, Ali Safayi, Fereidoon Safdari

Staff

Tim Kraft, Robin Krause, Trista Kobluskie, Sue Stepan

Audience

Sean Darcy, Eric Golemo, Don Stajgr

Mr. Misiak requested that language pertaining to the Department of Transportation's retrofit on pages 1 and 2 of the December 12, 2007 notes be revised to clarify that the strategy is *proposed* and *under review by Ecology*. The notes were approved as amended.

BOCC Work Session

Mr. Krause reviewed the December 19, 2007 work session with the Board of Clark County Commissioners. The primary topic was the flow control standard. Staff presented three options: 1) retain the 30-year pre-development standard from current code, 2) develop a tiered approach that produces various standards based on basin studies, 3) use Ecology's new forested condition standard in combination with the stop-loss provision, LID techniques, basin studies, and incentives. The Commission directed staff to develop something between options 2 and 3. The BOCC does not want a code that uses the forested condition in the urban area.

Very few spaces in Clark County meet the 40% Total Impervious Area coverage for the past 20 years criteria. The county may hire a consultant to evaluate equivalent options for the local area.

Mr. Golemo: ASCE created a map of probable infiltration areas. Within a basin, the county could allow infiltration in some appropriate areas to make up for higher flows in areas that cannot infiltrate, creating net compliance with less burden.

Mr. Krause noted also that Clark County had extensive pastures for much longer than King County has had impervious coverage. The county could argue for a pasture pre-developed

condition instead of a forested one. We have gathered a lot of information on stream geomorphology that may help.

Mr. Milne asked if the extensive work required for either of those approaches can be completed by the February 2008 deadline. Mr. Krause: we have time to conceptualize an approach, but not to draft code by February. He hoped to continue to work with Ecology between February and August. Alternately, the BOCC can choose to adopt a code that is not compliant.

Mr. Krause: the BOCC is supportive of most of the new code, including LID, incentives to promote LID, stop loss & variance processes. The forested condition is the BOCC's primary concern.

Mr. Golemo stated that the BOCC wanted to see more use of parks & ponds together for passive recreation. Mr. Krause agreed. He thought the new fencing requirements would address that issue, and offered to form a subcommittee after February to finalize the details. Mr. Golemo offered an idea for fencing areas that are wet most of the time and allowing areas that are flooded only once or twice per year to be used for recreation.

Stop Loss and Variance

Variance

Refer to the *DRAFT Variance Code* handout.

Mr. Krause: our intent is to develop a variance process with two types of modifications, administrative and complex. An administrative modification would be a Type I or II process (not requiring a hearing), and a complex modification would be a Type III, requiring a hearing. SAC discussed this yesterday.

Administrative modification would be a numeric variance and able to be decided using sound engineering judgment. Complex modification would be a different technology or something with broad environmental or public interest.

Mr. Krause asked for suggestions for other items that could or should be included in the Administrative Modifications list.

- Percent of facility made up of retaining wall
- Fencing requirements
- Emerging technology for water quality treatment (unless code will rely on Ecology's process for emerging technologies)
- Pilot or conditional use BMPs (unless dealt with in another way in code)
- Varying from the standard detail

SAC was adamant that the list should not be a comprehensive list, but should be a "such as."

Mr. Misiak asked if Clark County considering financial contributions in lieu of stormwater management. Mr. Krause: it has been brought up but BOCC and staff have found that it would be too complicated to administer. The basin plans must already be in place.

Mr. Milne wondered if any Public Works roads projects would fall into the Complex modification category. Ms. Stepan stated that Public Works projects would not likely trigger a Type III process. The group discussed the process of typing a modification; mostly it depends on underlying land use and amount of difference between the final engineering plan and the conditions of approval granted at the preliminary.

Stop-loss

The Ecology manual provides stop-loss as a way to limit the costs of providing stormwater control on redevelopment projects. It limits stormwater control expenditures to a percentage of the project's total budget. King County proposed a stop-loss of 1/3 of the project budget.

Mr. Krause: SAC objected to stop-loss structured as percentage of project budget because the final result will vary between projects and will be unknown. For instance, if you just build as much pond as you can build, you'll hit the overflow pretty quickly and get no benefit out of it. SAC prefers to designate a different standard for quantity control that is less than the full duration standard that would apply to all redevelopment regardless of cost. This would supply a measurable benefit and have the additional advantage of simplified staff review.

The question for the TAC is what standard to choose and how to justify it to Ecology. Mr. Kraft found that simply cutting the flow duration standard did not result in significant reduction in pond sizes (therefore would not significantly impact costs of building stormwater controls). Mr. Misiak suggested reverting to single-event modeling. Mr. McMurry suggested using the flow standard (not flow duration). Mr. Misiak suggested peak duration. Mr. Krause added that would also save on engineering costs.

Mr. McMurry asked about redeveloping a site that has existing flow control facilities. Mr. Krause: SAC wants to see reduction from today's flows offsite. Mr. McMurry: so if the pond was designed for 1/2 the two-year, now you will modify it for 1/4 of the two-year? The pond will become smaller! Mr. Krause: should there be something that addresses that specifically?

Mr. Harbison: on smaller ponds, minimum orifice sizes limit how much you can discharge. Mr. Krause: for the applicability standard, Ecology clarified that a ".1 cfs increase in offsite flows" is compared to today's flows, not compared to pre-developed. Mr. Misiak noted that significant figures are an issue with such small numbers.

Mr. Golemo: when we talk about the reduction in flow from pre-developed, is there a way to do it by changing, giving a credit for the existing impervious removed. Maybe you get a credit for 1/2 the existing impervious that you're removing, then when you punch it into your pre-existing, it moves the line over. Now when you punch in your new, you're basically getting a credit, because you'll be allowed to release more. It might not be 1:1. Also, it gets a little more complicated.

Mr. Krause: so you're meeting the duration standard. Mr. Harbison: you get your proposed areas, and you subtract 1/2 of your existing impervious. Mr. Golemo: if you're removing existing impervious. Mr. McMurry clarified that Mr. Golemo's idea would result in higher calculated flows on the pre-developed condition, thereby allowing greater release post-development.

Mr. Misiak: address differences between sites with an existing facility to a lower standard (1996, e.g.) vs. site with no flow control. Mr. Misiak: Ed O'Brien gave some advice to WSDOT. They're allowing WSDOT to maintain the existing system, not have to completely retrofit it. Ratchet this standards down a little bit. Mr. Misiak will share that guidance with TAC and staff.

Mr. Milne recommended using an old single event model from the Ecology 2001 manual. The pond sizes were larger than before but not nearly as large as those from WWHM in the 2005 manual. Since Ecology has this on the books, it may be adequate.

Mr. Krause: we want the simplest approach that produces a good result.

Mr. McMurry asked if you have to choose between flow control and water quality, where is the balance. Mr. Krause replied that stop-loss applies only to flow control; water quality must meet Minimum Requirement #6. Mr. Wierenga that standard is consistent with Watershed

planning. At 35% impervious cover, you've pretty much lost all biological integrity, so you're just trying not to make people sick.

Infiltration Standards

Refer to *Design Methodology for Stormwater Infiltration Systems* handout.

Mr. Kraft: section 3.3 of the Ecology manual deals with infiltration. It is detailed and long and significantly differs from today's practices and standards. One dramatic change is the requirement for infiltration testing. They're moving away from the falling head test and recommends the PIT where practicable. The PIT seems somewhat infeasible in most situations. At the same time, the local ASCE chapter has been addressing infiltration standards in Clark County; TAC discussed the white paper ASCE published on it. The premise of our ordinance is that the Ecology manual is the design manual, and revised where needed or desired for use in Clark County. This is one area where we are really adapting standards for use in Clark County.

The group discussed conditions for requiring ground water monitoring wells to characterize the infiltration receptor. The Ecology manual calls for ground water monitoring wells unless highest ground water is known to be at least 50 feet below the bottom of the infiltration facility. The concept code modifies this to 15 feet below.

The group discussed what documentation would establish depth of ground water at a location. Well logs on the site would work. Ground water level maps published by Clark County are too general. Bore logs. The concept code does not really change those requirements from Ecology.

Mr. Kraft clarified that the infiltration standards here are not intended to apply to LID techniques. The concept code still lacks clarifying language on that point. Mr. Harbison asked about non-LID individual roof infiltration systems. Mr. Kraft thought that the Ecology manual roof downspout section has criteria. For rain gardens and planter boxes, the county plans to allow the use of textural classifications from ASTM gradation.

Mr. Misiak asked about the consequences of adopting an infiltration test method not in Ecology's manual. Mr. McMurry replied that Ecology allows the local authority to accept a local method with replicable science.

Mr. Kraft stated that the concept code allows one of the methods recommended by the ASCE white paper, the single-ring falling head test. The concept code includes some language for emphasis regarding the Pilot Infiltration Test (PIT). Mr. Krause: some have asked for a scaled down version of the PIT, however infiltration into the side of the pit is the issue with size.

Mr. Misiak asked if Massmann's detailed gradation test is allowed. Yes, it states in E(2) that the detailed approach is allowed. The group discussed the applicability of the detailed gradation method to local conditions. It may need some tweaking. Currently, WSDOT cannot use the detailed gradation in eastern Washington because the soil deposits are so different.

Mr. Harbison asked for the definition of "mounding analysis," which is required in (7). Mr. Kraft replied that the definition is in (13), though it is still under development. A mounding analysis must be done by a Professional Engineer or a registered Geologist.

Mr. Krause said the other big change is the correction factor and calculating the coefficient of permeability. For underground systems, the concept code uses correction factors from the ASCE recommendations. For open systems, the concept code follows Ecology's correction factors. Mr. Harbison cautioned about wording "closed" vs. "underground."

Mr. Golemo cautioned that the correction factors use the old thresholds from single-event models. They should be updated to use the area for continuous modeling. Mr. Kraft agreed.

Mr. Golemo, Mr. Krause and Mr. McMurry discussed whether Ecology's correction factors are based on the coefficient of permeability or on the raw infiltration rate. It appears that they are based on the coefficient of permeability or a similar calculation, therefore using Ecology's safety factors for open-air facilities is appropriate. Mr. Krause pointed out that the concept code relies on Ecology's safety factors only for open-air facilities. Since both of the existing open-air infiltration ponds in Clark County have failed, using more conservative safety factors seems appropriate.

Mr. Darcy asked if the infiltration rates under discussion are for water quality treatment. Mr. Kraft: no, this section deals only with using infiltration for quantity control. Mr. Darcy recommended clarifying which purpose the section covers.

Mr. Misiak, Mr. Krause and Mr. Harbison discussed differences in how and how much water is treated before being discharged to various infiltration BMPs. For UIC wells, treatment is not required first. For stormwater flow control BMPs, runoff must be treated for water quality first. Mr. Misiak found the differing standards somewhat arbitrary. Mr. Krause: they are different regulations. An open-air system will not have to comply with UIC.

Submittal Requirements (40.380.080)

Refer to the submittal requirements handout.

Mr. Kraft stated that submittal requirements have turned out to be an important method for increasing the user-friendliness of the code. The first draft of the requirements, presented at the last TAC meeting, was approximately as long and complicated as existing code. Comments made at the last meeting have been incorporated, and the code is simplified.

Regardless of how submittal requirements are formulated, the high standards for stormwater control that Ecology has set mean that stormwater information is now required at the preliminary engineering stage. This includes knowing which Minimum Requirements apply, which on-site BMPs are usable, how many lots will be dedicated to stormwater facilities, etc. Stormwater necessarily becomes a significant part of site design.

We continue to look at the use of worksheets to make submittal requirements more expedient. Mr. Milne asked if GIS could develop seven or eight standard plans for Maps Online.

Mr. Kraft: one improvement thus far is specific definitions of key terms, including Preliminary Stormwater Plan, Preliminary Development Plan, Final TIR, Final Development Plan, etc.

Mr. Misiak asked if the Stormwater Pollution Prevention Plan (SWPP) is the same as the Sediment & Erosion Control plan. The group discussed whether the developer or the contractor prepares these documents. The SWPP is a living document and may change as site conditions change.

Mr. Wierenga asked if the SWPP must be stamped by a licensed engineer. Mr. Krause: engineering calculations within must be stamped, but not the SWPP. Mr. Wierenga noted that the SWPP is basically a summary of erosion control measures on the site, not an engineering document itself. Mr. Kraft noted that the concept code calls for an abbreviated SWPP for sites under one acre.

Next Steps

Staff and Otak are meeting with Ecology tomorrow to iron out some details. The preliminary draft code will be distributed to TAC, SAC & DEAB by Friday. The next TAC meeting is January 23, 2008 and will focus on comments on the preliminary draft code.

Mr. Krause stated that it appears now that a stormwater manual may be in order, rather than including so many provisions in code. He asked for TAC's opinion. Mr. Harbison stated that he does not like technical and engineering language in code. He prefers a design manual. Mr. McMurry stated that unlike code, a design manual can share justifications for decisions. Mr. Misiak: it will simplify the code process. Mr. Harbison: tables and figures can be more easily incorporated into a manual than into code.

Mr. Kraft: we are writing an Agriculture Manual, and LID Manual, an infiltration section, a conveyance section. Put those together with a table of contents, and you're halfway to a manual. Mr. Misiak cautioned that writing a manual is the first step; the agency must dedicate the resources to maintain it.

Mr. Soliwoda asked if the manual could be a living document, updated when needed. Mr. Krause replied that King County's manual can be updated by staff while Pierce County's manual must be adopted through code and may not be updated by staff. Mr. Euler recommended formulating it like the standard details manual and granting authority to the Public Works Director to update it. He recommended against using a manual approach unless the Public Works Director may update it. Mr. Golemo requested that any technical changes and policy changes go through the engineering community, such as DEAB.

Respectfully Submitted,

Trista Kobluskie