

This document provides Ecology's review comments on Snohomish County's revised draft codes and manual that was submitted 4-23-09 in accordance with Agreed Order No. 6688. The County's revised submittal is substantially different from their original draft submittal in February 2008. Because of this, Ecology has made no attempt to carry forward its original comments and associated response correspondence. Ecology has freshly reviewed this submittal against permit requirements, as informed by the older comments.

*Ecology has annotated this document to reflect whether each comment is resolved in the County's final draft ordinance and drainage manual submittal from February 1, 2010 and associated later amendments where listed. Annotations are shown in red, italicized font.*

This document is roughly organized according to the County's revised submittal layout.

- SCC 30.63A Drainage
- SCC 30.90 Definitions
- SCC 30.63B Land Disturbing Activity
- SCC 30.85 Enforcement Provisions
- Misc. other code revisions associated with SCC 30.63A.
- Drainage Manual excerpts

#### **CHAPTER 30.63A DRAINAGE**

30.63A.130 – Note that this section does not refer to later editions of the LID Manual; SCC 30.63C does (“as amended”). *No action necessary. The County has incorporated LID BMPs into the County's Drainage Manual. References to the LID Manual removed.*

30.63A.140 – Use of the WSDOT HRM is allowed for public road projects. Add “public” in front of “road construction” on line 11, page 30. *Reference changed to BMPs for road construction only. Private use of publicly-available equivalent programmatic options such as off-site and in kind stormwater controls is thus prevented. Acceptable.*

30.63A.200 (revised version 07 23 09)

(4) - It would be clearer to say “...that result in less than...” This comment will be repeated everywhere the thresholds are based on new, replaced and new plus replaced impervious surfaces. *Done.*

30.63A.300(2) – Delete the phrase “through the submittal of a targeted site plan.” The types of drainage review submittals are described elsewhere in code. It takes more than submittal of a site plan to comply with minimum requirements. *Done.*

(2)(a) It would be clearer to say “Result in new, replaced or new plus replaced...” This comment will be repeated everywhere the thresholds are based on new, replaced and new plus replaced impervious surfaces. *Done.*

30.63A.300(3) – Delete the phrase “through the submittal of a full stormwater plan.” The types of drainage review submittals are described elsewhere in code. It takes more than submittal of a site plan to comply with minimum requirements. *Done.*

30.63A.310(1) – The last sentence referring to Part 700 is equally applicable to new development. This sentence is not found in 30.63A.300, however. *Reference now also in 30.63A.300. Done.*

30.63A.310(2)(a) - It would be clearer to say “Result in new, replaced or new plus replaced...” This comment will be repeated everywhere the thresholds are based on new, replaced and new plus replaced impervious surfaces. *Done.*

30.63A.310(5) – Suggest deleting the phrase “these requirements shall be met through the submittal of a full stormwater site plan” because it takes more than submittal of a site plan to comply with minimum requirements. *Done.*

*30.63A.310(6) – Ecology’s intent behind the parallel language in Appendix 1 of the permit is lost in this County submittal. Refer to County Manual flow charts 2.3 and 2.4. The intent was to separate out the evaluation of whether you apply MR 1-9 to just the new impervious surfaces or to both the new and the replaced impervious surfaces. It is possible to reflect Ecology’s intent by limiting 30.63A.310(3) to the new impervious surfaces only. After you do that, 310(6) would make sense, as it is the threshold at which the minimum requirements would apply to both the new impervious surfaces and the replaced impervious surfaces. The County amended 30.63A.300 and 30.63A.310 as transmitted to the Snohomish County Planning Commission as part of the Supplemental Staff Report for the March 23, 2010 Public Hearing (dated in error as Feb. 9) to clarify to what surfaces or land areas the minimum requirements must be applied. The County will revise the corresponding flow charts in Volume I of the Drainage Manual prior to its adoption to reflect this proposed code language. Acceptable.*

“...through the submittal of a full stormwater site plan” should be deleted because it takes more than submittal of a site plan to comply with minimum requirements. *Done.*

30.63A.400(2) This section references Volume 1, Chapter 3 of the Drainage Manual, yet Chapter 3 does not provide additional information. There is additional information about the off-site analysis part of a site plan in Chapter 2 (Section 2.5.1). *Done.*

30.63A.420 *The County’s revision is clearer. Acceptable. The County submitted a corrected version on 2-2-10 which fixed an inappropriate use of single event storm criteria at 30.63A.420(4)(a)(ii).*

The Ecology Manual (Section 3.1.3) does not provide a lot of detail about the offsite analysis. The inclusion of thresholds in the Ecology Manual adds confusion. The Ecology Manual also references its Section 2.6.2 for information about a “phased” analysis. The County has tried to accommodate the information provided in Ecology’s Manual. These comments are based on a rough understanding of what the County is trying to do:

- (1) This section refers to a “general” off site analysis to be prepared by all projects that presumably trigger MR#1 per 30.63A.300 and 310.
- (2) This section refers to a different “treatment analysis and mitigation report” for larger projects (those that trigger MRs 7-9). I could not locate any information that explains what makes this report different. The County potentially included this language because of the Ecology Manual’s use of thresholds in Section 3.1.3. If the County does not have specific plans for a “treatment analysis and mitigation report,” I suggest this section be deleted from code.
- (3) This section refers to developing a project in phases. This is an incorrect interpretation of Ecology’s reference to Optional Guidance #2, Section 2.6.2 of the Ecology Manual. Ecology’s Manual refers to a phased analysis approach, not a phased project. If a project is planned in phases, the stormwater site planning effort should be undertaken for the entire project. The phased analysis approach is to perform a qualitative analysis, and then to require a quantitative analysis if necessary. The County’s Manual Section 2.5.1 contains information about this phased analysis approach.

30.63A.430 – There is a lot of information in this section. Suggest the County carefully review the contents and make sure this section clearly explains what you expect to be submitted. *Section improved. No further action necessary.*

30.63A.430(1) It is not clear why the phrase “targeted stormwater site plan” is used (line 40, page 36). *Rephrased. OK.*

30.63A.435(1)

It would be clearer to say “...for projects resulting in 200...” (line 44 page 38). This comment will be repeated everywhere the thresholds are based on new, replaced and new plus replaced impervious surfaces. *Done.*

Line 5, page 39 incorrectly describes the NPDES threshold. It should read “Projects that result in less than 2,000 sf of new, replaced or new plus replaced impervious surfaces, or disturb less than...” *Acceptable.*

For all SWPPP elements, paste revised code into Drainage Manual as appropriate. *County Drainage Manual references code and no longer reproduces it. Project proponents are directed to code. Acceptable.*

30.63A.445 – Introductory sentence is awkward/has typos. It should read: “When minimum requirement 2 applies pursuant to part 300 of this chapter or SCC 30.63A.200,...” There is also an errant ) in the sentence. *OK.*

30.63A.445(2)(c) – The first sentence allows small projects (under the NPDES threshold) to use an abbreviated SWPPP. Since this language is in MR2, projects that only have to meet MR2 may also qualify for an abbreviated SWPPP. Suggest better cross referencing between this section,

the Drainage Manual on page 20, subsection 810 and the Appendix 1-F. *Acceptable.*  
The second and third sentences apply to all SWPPPs, not just those small project SWPPPs.  
Suggest breaking these out into a new subsection (d). *Done.*

30.63A.450

(3) – Line 25, page 42. Delete “for developments” or explain its intended meaning.  
(5)(c) – Line 10, page 43. “on the site within the site” appears to be a typo.

30.63A.460(4) – Why does it say “permits shall be conditioned to require” rather than just require this?  
(also on page 45, line 15) Why include the phrase “...or waters that would otherwise require enhanced treatment”? *Acceptable.*

30.63A.465

(1) – line 16 uses the Ecology phrase “development sites.” You may want to change this to “projects” if it restricts its applicability to redevelopment projects. *Done.*  
(2) and (3) – there may be typos in these sections because line 22 appears to be missing a word, and lines 22-23 contradict lines 27-28. *Done.*

30.63A.470

Line 34, page 44 – Are “water quality standards” really “established” in 7.53 SCC? Suggest changing WQS to “discharge requirements” or similar other text. *Done.*  
Lines 39-41, page 44 – Awkward sentence; insert “shall be constructed as one of the first steps...” *OK.*  
Drainage Manual, page 21, refers to the MR7 Flow control standard, the code refers to the SWPPP element to control flow rates. Which is correct? *OK.*

30.63A.485

(1) – Inlets to infiltration ponds must still be protected from sedimentation. Delete the phrase “except in a permanent infiltration pond.” *Done.*  
Note that is language “except in a permanent infiltration pond” is repeated in Appendix 1-F (8/17/09) SWPPP element 7. *Done.*  
(3) This section requires storm drain inlets to pass the 100-year, 24-hour frequency storm after stabilization. This directive is incomplete without specifying a time step (e.g., the peak 10-minute flow produced by the X-year, Y-hour frequency storm). *Section deleted. Acceptable.*

30.63A.490 – Why state that these conditions apply to “culvert outlets?” (Line 21, page 46) *OK.*

30.63A.495 - Line 19, page 47 includes an errant “approved treatment.” *OK.*

30.63A.510

(1) – The Phase I permit modification clarified that a CESCL is not required for projects that disturb less than 1 acre. Restructure line 32 which references itself. *OK.*

(4) - Interesting inclusion of the monitoring. Will they be reporting the monitoring to you? Note this is not in Appx 1 of the Permit. The Drainage Manual invokes this “when consideration of wet season LDA is requested” and not based on Ecology’s CSWGP. *Section deleted. No action necessary.*

30.63A.515 – Delete “activities” in the section title. Line 17 potentially incorrectly uses the intro text from MR2 by stating that MR3 can be required pursuant to 30.63A.200. It definitely is required pursuant to part 300. This potential error is included in all remaining MR intro sections. *OK.*

30.63A.520(3), (4) and maybe (5) – This section details downstream and upstream analyses that are also discussed in MR1 “Offsite Analyses.” Do these sections work together or are they duplicates? *Section removed. OK.*

30.63A.525 (revised MR#5 approach from 7-10-09).

Consider whether “NPGIS runoff control BMPs” would be better named “NPGIS on-site management BMPs.” *No action necessary.*

(2) and (3) – If the County wishes to be explicit about the applicability to residential projects, ensure that your choice of wording is consistent with land use zoning language such that the chosen code language does not inadvertently limit application to only some single family residential projects. *Acceptable.*

(4) – line 9 should say “...all development and redevelopment projects...” *Done.*

(6) – Since the use of BMP T.513 (Soil Quality and Depth) is not restricted to particular project types or by site conditions, this section should refer only to subsections (2) and (3). In other words, the soil quality and depth BMP must be used where feasible even if LID BMPs are used. *Done.*

30.63A.530

(3)(a) and (b): The County should not presume that treatment facilities on the Phosphorus menu will always be acceptable for stormwater management in waters listed under Section 305(b) or 319(a). A TMDL could require more stringent stormwater measures. *No action necessary.*

(5) – The first part of the sentence is awkward. See Appx 1 page 21 for the Permit-required statement. Delete the word “peak” (page 53, line 42) as it is inconsistent with the requirement. *OK.*

(7)(d) - Delete the word “peak” (page 54, line 20) as it is inconsistent with the requirement. *OK.*

(8) - This section should appear as 530(7)(e). The text is incorrect. It should say, “...are not met.” And the last clause, “or do not require a basic treatment design,” should be deleted. *The County amended 30.63A.530 as transmitted to the Snohomish County Planning Commission as part of the Supplemental Staff Report for the March 23, 2010 Public Hearing(dated in error as Feb. 9) to clarify treatment requirements for infiltration systems. Acceptable.*

30.63A.535(1)(c) and (f) are duplicates. *OK.*

30.63A.540

(3) The reference to “the full 2 year release rate from the detention facility” only applies when treatment is provided downstream of detention facilities, as in 540(2). Thus, either move (3) to a (2)(a) position, or change the language to something like “...equivalent to the applicable water quality design flow rate.” *OK.*

30.63A.550(3) This section appears to throw out the flow control standard if discharge is treated and the increase in flow rate is less than 0.1 cfs and the downstream analysis does not show problems. This is not an approvable exception to the flow control standard. *Removed.*  
In addition, note that use of the 0.1 cfs standard is inconsistent with Ecology’s calculation. When determining whether the 0.1 cfs increase threshold has been exceeded, Ecology intended comparing the 100-year runoff rates of the land cover existing immediately prior to the project (not pre-developed), with the post-project land cover. *OK.*

30.63A.550(4)

4(b)(iii) should be 4(c)

4(b)(iv) should be 4(d)

4(b)(v) should be 4(e)

and all these should be connected with “and” *OK.*

30.63A.550(5) What is the purpose of this clause? The thresholds, which are in the next section, are a clear indication that a project proponent needs to understand the threshold discharge areas. Is there a special analysis for TDA that you have included in the site planning section? Suggest deleting or incorporating into the threshold section 555. *No action necessary.*

30.63A.550(6) This appears to be a partial representation of the flow control standard, which is correctly described in 550(2). Perhaps this was meant to simply direct applicants to select, design and maintain flow control BMPs in accordance with Volume III of the Drainage Manual? (Per Appx 1 page 25, Additional Requirement.) *OK.*

30.63A.555(1) Is the term “land use BMPs” defined? Do you mean MR5? Also, the a-e conditions are not “and” statements. Only one has to be true in order for a flow control facility to be required. Use “or” instead. *Intent understood. Acceptable.*

30.63A.565 – This is an awkward re-statement of MR5. Its purpose is not clear. Suggest deleting. *OK.*

30.63A.570(3) and (4) - This section is not consistent with the Appx 1, page 26, requirement. Ecology uses “except for” instead of “unless” which means that conveyance systems that are necessary can be built in a buffer; not that treatment or flow control facilities can be built in a buffer if a

conveyance system is necessary. (3)(b) works as is, but (3)(a) does not. This error is repeated in (4). *OK.*

30.63A.570(6), Page 59, line 15 – Delete the phrase “...together with created wetlands intended to mitigate for loss of wetlands...” Per Ecology Comment #52, you must make drainage decisions using the intended categorization of the created wetland; not all created wetlands are category 3 or 4. *OK.*

30.63A.575

(3) This section references 7.53.140 for maintenance and inspection requirements. Note that the requirement for an inspection once every five years, per 7.53.140(1), does not meet the County’s obligation to inspect facilities on a different frequency per the Phase I Permit. *No action necessary.*

(5)(a) The reference to Volume III seems incorrect. Should it refer to Volume V? Where is a maintenance schedule required in MR9? Isn’t this a circular statement? *OK.*

Drainage Manual, Section 4.6, Maintenance Standards

The applicability in 4.6.2 and 4.6.3 is limited to those drainage facilities “that are subject to” the Phase I Permit. Are you referring only to those facilities that discharge into the MS4 (“facilities regulated by the Permittee”) How does a property owner know the status of their facility? *Clarified.*

The wet season is described in 30.63A.475 to be October 1 through April 30; contrast with Manual page 56, item #6 and page 57, item #7. *Done.*

The maintenance schedule in 4.6.3 does not address the Permit requirement to perform catch basin maintenance within 6 months of inspection. Ecology intends that catch basins which require cleaning (based on trash/debris or sediment per Table 4.5 No. 5) be cleaned (e.g. vactored out) within 6 months. *Done.*

30.63A.700(1) Is there a comma missing? “where impervious surfaces are not expanded” applies to both the preceding conditions, not just the latter. Why include “for retrofitting”? *Acceptable.* See the Drainage Manual, page 9, for similar language (note “apply” vs. “germane” for MR2 reference). Consider a reference to SCC 30.63A.700. *Acceptable.*

30.63A.740(3) – This section provides design criteria for drainage stub-outs in the context of conveyance systems. In the revised MR5 documentation, perforated stub-out connections are the final option for NPGIS runoff controls; design criteria are in Vol III Chapter 3, section 3.1.3. It is not clear how this section 30.63A.740(3) relates to MR5 requirements. *Acceptable.*

30.63A.805 (and similar issue in 815 - *OK*)

(1) Is the purpose of the first sentence to say that a Targeted Stormwater Site Plan shall be

submitted to document compliance with MRs 1-5 (sections 400-525)? Also, it seems a little strong to say “comply with” the checklists; perhaps “consistent with”? *OK.*

(2) What is the purpose of this statement in the context of the Targeted Stormwater Site Plan?

*Purpose is to allow for adaptive management if site conditions warrant. Acceptable.*

(3) Delete “detention or treatment design” because those are not required under MRs 1-5. You may want to replace it with “on-site BMPs.” *OK.*

30.63A.810(3) What is meant by “and provide controls for MRs 1-9 which pertain to the site” in the context of the small project abbreviated SWPPP? Suggest deleting. *OK.*

30.63.A.815 The definition of Full Stormwater Site Plan (page 84) is clearer than the language in this section. *Acceptable.*

30.63A.820(3) Clarify what is meant by “when required by MR1.” Consider adding “on-site BMPs” to the last sentence. *Acceptable.*

Do all of these situations result in either a conditional approval or a denial? Are there any outright approvals? *No action necessary.*

30.63A.840(5) Note that Appx 1 uses the phrase “severe and unexpected economic hardship” instead of denial of all economically viable use. The information in (a)-(f) are used to evaluate whether there is a severe and unexpected economic hardship. The text in (g) and (h) reflect criteria that must be met for any waiver – they must not increase risk and they must be the least possible waiver. *The County is using a more restrictive standard (e.g., to deny all economically viable use) which is consistent with other County code provisions. The County has incorporated the required criteria that must be met for any waiver [30.63A.840(5)(b) and (c)]. The County has also incorporated the required evaluation criteria in 30.63A.840(9) that will be documented in the written decision. Acceptable.*

How does the County intend to comply with the legal public notice of a waiver requirements in Appx 1?

Should this be reflected in 840(8)? What does it mean to be a party of record? *No further action necessary.*

## **DEFINITIONS**

Note there is a difference between definitions in Appendix 1 and those of the Permit itself. The definitions of the Permit itself are used with the Permit; the Appendix 1 definitions were intended for local government’s use in the runoff controls program. If there are definitions from the Permit that you felt obliged to include (such as LID and MEP), be sure instead that they are workable for you. *Some unnecessary definitions removed. Acceptable.*

Discharge is defined in SCC 7.53 as a verb. Discharge in 30.91.D.287 is tied to overland flow, conveyance systems and infiltration facilities, and it provides units of measure for hydraulic rate of flow. Does this discrepancy work? *No action necessary.*

Pre-developed condition (revised definition from 8/5) – Ecology can approve the following modified definition of pre-developed condition: *“Pre-developed condition means a fully-forested condition (soils and vegetation) of mature second-growth forest to which an Ecology-approved continuous runoff hydrologic model is calibrated, unless reasonable, historic information is provided that indicates the site was prairie prior to Euro-American settlement.”* Inclusion of the concept of “mature” trees is necessary. Broadening the reference from WWHM to an Ecology-approved continuous runoff hydrologic model is recommended to allow for future flexibility. *The concept of mature trees is captured by Ecology approval of a calibrated model. Acceptable.*

Redevelopment (pg 88) – Line 43 contains a clause in parentheses; delete the parentheses. Page 89 lines 1-3 reflect a more broad interpretation of the road maintenance exemptions in Appendix 1, page 1, of the Phase I Permit. Instead, the exemptions in 30.63A.200(1), (3) and (7) (reference to 07 23 09 revised version) better address these topics. *OK.*

Replaced impervious surfaces – Seattle proposed, and Ecology approved, a definition that may be more clear regarding structures. *“Replaced impervious surface” or “replacement of impervious surface” means for structures, the removal and replacement of impervious surface down to the foundation. For other impervious surface, the impervious surface that is removed down to earth material and a new impervious surface is installed.* Note they also had to define earth material: *“Earth material” means any rock, gravel, natural soil, fill, or re-sedimented soil, or any combination thereof, but does not include any solid waste as defined by RCW 70.95.* *No action necessary.*

Targeted stormwater site plan – Page 90, lines 42 through end. This language is awkward and somewhat different than 30.63A.820. Should it read more like: *“Pursuant to 30.63A.820, a targeted stormwater site plan may also be submitted when an applicant is required to comply with minimum requirements 1 through 9 in order to initiate review for projects subject to a public hearing.”* *No action necessary.*

#### **CHAPTER 30.63B LAND DISTURBING ACTIVITY**

*Note: Ecology limited review to topics covered in comments from 2008 (corresponding to topic numbers 62-66 in earlier comment-response document).*

30.63B.070 (revised version from 07 23 09)

(1)(d) – Replace “clears” with “disturbs.” *OK.*

(1)(e) – The County has introduced the 2,000 sf of new, replace or new plus replaced impervious surface area as a threshold for obtaining an LDA permit, and thus triggers SCC 30.63A

requirements at thresholds consistent with Appendix 1 of the Phase I Permit. *No further action necessary.*

30.63B.070(1)(5) – This is the County’s Right to Farm provision. At this time, Ecology understands that multiple other permits or project approvals will prevent the projects discharging into an MS4 most likely to impact receiving waters from qualifying for this exemption. This includes critical areas, shoreline use, conditional use and rezone, and right-of-way use (relevant for MS4 tie-in) permits. *No action necessary.*

30.63B.150 – The introduction sentence is awkward. *OK.*

#### **CHAPTER 30.63C LOW IMPACT DEVELOPMENT**

30.23.050 – Revised citation on page 7 should be to 30.63C (not 30.63A). *OK.*

30.63C.020 – Page 9, line 39 – It is not clear if “on” is the right word; should it be vested before or after, instead? *Done.*

30.63C.060(2) – “...conventional stormwater management strategies and techniques ~~may~~ shall be used in conjunction with other...” If LID proves infeasible for a Little Bear UGA project, the project must still meet the 30.63A requirements, presumably using conventional techniques. *Done.*

30.63C.110(2)(e)(iii) – Would “restoration” be a better word than “redevelopment” in this clause? *Acceptable.*

#### **CHAPTER 30.85 ENFORCEMENT PROCEDURES**

30.85.090 – This section lists numerous county codes that are subject to the citation/criminal provisions of the chapter. 30.63A is listed in its entirety. 7.53 is not listed because that code has its own enforcement procedures. How does the County enforce compliance with 30.63B and 30.63C? *No action necessary.*

#### **MISC OTHER CODE REVISIONS**

30.42B.135 *No action necessary. Section repealed in separate action.*

(1) Is the intent to limit the types of detention facilities required under MR#7 that can be built in PRDs? Should MR#7 be specifically referenced so as not to unintentionally limit on-site BMPs pursuant to MR#5?

(2) New development or redevelopment projects can only use established regional drainage facilities if the facility was built to accommodate the runoff from that project. If the project was not conceived when the regional facility was built, the project must show that the available

unused volume will meet the project's MR#7 requirements (in the case of a regional detention facility, for example).

(3) Is there a reason why this clause is limited to detention vaults under MR#7 as opposed to applying also to an underground treatment facility?

(4)(b) Where is the EDDS reference to a "forebay infiltration facility"?

(4)(e) Should there be a reference here to 30.63A.570 because this section deals with facilities adjacent to or near wetlands and their buffers?

30.61.122 – This section should also reference 30.63A. This reference was inadvertently omitted. *OK.*

30.62A.340(3)(c) – The statement "but otherwise allowed" is misleading. It contradicts 30.63A.570(5) which prohibits use of Category 1 and 2 wetlands and their buffers for stormwater treatment or detention. *No action necessary.*

## **DRAINAGE MANUAL**

### **Drainage Manual 7-09 Revisions to Vol. III, Chapter 3 *Revised and acceptable.***

Section 3.1 restricts dispersion systems to sites which meet certain soil types in Figure 3.1. This unnecessarily restricts their use. The on-site dispersion approaches are appropriate in tighter soils. Since those soils must be amended to meet the soil quality and depth requirement, they will have capacity to absorb some water.

Section 3.1 also requires 3 feet minimum to groundwater before on-site dispersion is allowed. This is more restrictive than the Ecology criteria. What is the County's technical justification?

Note that the criteria for flow control credit for dispersion differ from criteria for design. Only designs that are on lots greater than 22,000 sf, and which have a flow path length greater than 50 ft are allowed to take flow control credit. If the County wants to give credit to lots less than 22,000 sf but that can meet the 50 foot flow path, it must provide a reasonable technical argument.

Suggest clarifying "individual" lot size. (page 3)

The design criteria refer to "roof area" in a few places (page 5, line 16 for example). This should be changed to "impervious area" to reflect that these BMPs can also service patio surfaces.

Suggest inserting a reference to Ecology's Underground Injection Control requirements, such as "Note that Washington State UIC rules may apply (page 5, line 28 for example). See <http://www.ecy.wa.gov/programs/wq/grndwtr/uic/index.html> for more information."

Page 6, line 29 – Suggest adding reference to MR7. For example, “...for sizing stormwater facilities as applicable under MR7.”

Page 10, line 12. Typo. “if”

Section 3.1.3, Perforated Stub Out Connections. Suggest stating clearly that hydrologic modeling credits are not available for perforated stub-out connections.

**Drainage Manual 7-09 Revisions to Vol. V, Chapter 5** *Revised and acceptable.*

The soil type and depth to groundwater restrictions are unnecessarily restrictive and not acceptable as minimum criteria for use of dispersion for PGIS on residential sites. The dispersal areas must meet the soil quality and depth requirement, BMP T5.13. Therefore, they will have lots of pollutant removal capability. If the County would like to ensure a minimum depth to groundwater to protect against groundwater pollution and to make sure flow control credits (where eligible) are reasonable, it must submit a rationale and receive Ecology concurrence. Given the drainage area restrictions (generally 700 sq ft) in the drawings, it seems overkill to require such extensive distances to groundwater. Ecology has allowed a minimum clearance of 1 foot for rain gardens serving threshold discharge areas less than those triggering engineered systems. Given the small drainage areas utilizing these BMP’s, a similar distance to groundwater would seem acceptable. If the County is concerned about infiltration below the distribution trenches, it can specify design criteria to prevent that (e.g., soil below trenches must meet BMP T5.13 for a depth of 1 foot; or, distribution trenches must have impermeable liners to force all runoff horizontally into the soil that meets BMP T5.13.

Sheet Flow Dispersion – The Ecology Manual calls for a flat or moderate slope, <15%.

**Drainage Manual Volume I, Appendix I-F**

The County submitted a revised draft Appendix I-F on 08-17-09 which is substantially different than the 04-09 version. The newest version focuses on MR2 and requirements for an abbreviated SWPPP. The older version included requirements associated with MR1 – MR5. If the County wishes to streamline any other MRs for small projects, such as was proposed in the 04-09 version, please clarify this. *Appendix I-F addresses MR2 only. No further action necessary.*

SWPPP Element 7 contains the same error as is present in code; delete “except in a permanent infiltration pond.” *Done.*