

#	Ecology Comment	King County Response (11/19/15)	King County Comments (11/19/15)	Ecology Response / Backcheck (01/06/16)
King County Code: General				
	General: Several sections mention that requirements are more specifically defined in the Surface Water Design Manual (SWDM), but no manual section or page reference is given; for example, 9.04.050 3. Please add references where possible and appropriate.	We feel this is an unnecessary change as the code and manual have been this way for 25 years without a problem. The code is intended to set the basic policy for surface water management and grant authority to the Executive branch to promulgate the rules for implementing that policy. The SWDM sets forth the detailed rules for implementing basic code policy very much like what the WAC does for RCWs at the state level. As such, the SWDM is the main tool used to apply stormwater requirements to new developments, redevelopments, and construction sites in unincorporated King County. There is no need to make the surface water code any more detailed, as it is not relied upon in the review of development projects.		No comment.
King County Code: 9.04.020 Definitions				
	Ensure definition consistency between KCC and SWDM.	As explained above, the definitions in code set the basic policy, which is clarified and presented in greater detail in the SWDM. As long as the more detailed definition in the SWDM does not conflict with that in the surface water code, we feel they are consistent. We will check all definitions to make sure they do not conflict between KCC and SWDM.		No comment.
	9.04.020 Definitions		Luanne check 9.12 to make sure there's consistency with other definitions there; also check application of other 9.12 provisions	See below.
	G. Conveyance System - Includes both receiving waters and stormwater infrastructure (ownership unspecified). Confirm this definition does not conflict with other MS4 requirements, such as IDDE and O&M.	We do not see how the following definition conflicts with MS4 requirements such as IDDE and O&M: "Conveyance system" means the drainage facilities and features, both natural and constructed, that ((collect, contain and)) provide for the ((flow)) collection and transport of surface water and ((storm-water)) stormwater runoff ((from the highest points on the land down to a receiving water)) . The natural elements of the conveyance system include swales and small drainage courses, streams, rivers, lakes and wetlands. The constructed elements of the conveyance system include gutters, ditches, pipes, <u>catch basins</u> , channels and most flow control and water quality treatment facilities.		Revisions to the "conveyance system" definition help address the original comment by removing the reference to a receiving water. Acceptable. The County claims that having a definition of "conveyance system" that includes natural conveyances (e.g., receiving waters) and constructed conveyances (stormwater only) does not conflict with how the term is used in its Stormwater Management Program. For the record, Ecology emphasizes that there are some uses of this term (where the term may not be modified by the words "constructed, closed, or engineered" or "natural") which must apply only to the constructed conveyance system (not to recieving waters). For example, SWDM pg 1-56: "Minor modifications may be made to the conveyance system to achieve the required capacity stated above. Examples of minor modifications include raising a catch-basin rim, replacing or relaying a section of pipe to match the capacity of other pipes in the system, improving a pipe inlet, or enlarging a short, constricted reach of ditch or channel." Presumably the County does not intend to imply that an existing stream should be modified to achieve necessary conveyance capacity. Defer to implementation. No additional action necessary for the purposes of this review.
	L. Drainage Facility - Clarify if this term includes catch basins and Low Impact Development (LID) BMPs. Clarify inclusion of the "lake" example. Does the County have constructed/engineered lakes that are not receiving waters?	We propose the following revisions: "Drainage facility" means a constructed or engineered feature that collects, conveys, stores, ((or)) treats, <u>or otherwise manages</u> surface <u>water</u> and ((storm-water)) stormwater runoff. "Drainage facility" includes, but is not limited to, a constructed or engineered stream, <u>lake, wetland, or closed depression, or a pipe</u> ((line)) , channel, ditch, gutter, <u>catch basin</u> , ((lake, wetland, closed depression,)) flow control <u>facility, flow control BMP</u> , ((or)) water quality treatment facility, erosion and sediment control facility, and <u>any</u> other structure and appurtenance that provides for drainage.		Edits clarify that the term includes catch basins and LID BMPs. Acceptable
		With regard to the inclusion of lakes in the definition, these are situations where the outlets of natural lakes (receiving waters) have been modified for flow control purposes or to control lake levels to prevent flooding.		Note Ecology's implementation concern that a term which references both stormwater infrastructure and receiving water bodies may create implementation challenges for the County. No additional action necessary for the purposes of this review.
	R. Flow Control Best Management Practice - The County is trying to maintain consistency with its previous SWDM by incorporating Minimum Requirement (MR) #5 into MR #7. Ecology is concerned about this approach; refer to comments on 9.04.050.A.3 and Core Requirement #3 below. The definition of "flow control BMP" should be equivalent to Ecology's definition of "LID BMP"but it is not. Update accordingly.	We propose the following revisions: "Flow control BMP" means a ((method or design for dispersing, infiltrating or otherwise reducing or preventing development-related increases in surface and storm water)) small scale drainage facility or feature that is <u>part of a development site strategy to use processes and techniques like infiltration, dispersion, storage, evaporation, transpiration, forest retention and reduced impervious surface footprint, to mimic pre-developed hydrology and minimize stormwater runoff</u> ((at, or near, the sources of those increases)) . "Flow control BMPs" include the methods and designs specified in the Surface Water Design Manual. <u>Flow control BMPs are also known as low impact development (LID) BMPs.</u>		Acceptable.
	S.1 - Refer to comments regarding use of "impervious surface" in thresholds and revise as necessary.	See response below to the comment on 9.04.020 V, HH, and OO.	Issue of sports fields with underdrains	See below.
	S.2 - The Full Drainage Review threshold associated with 7,000 square feet is inconsistent with the Permit's Appendix 1 thresholds for new development and redevelopment. The trigger is 7,000 sq ft of land disturbing activity, not new pervious surface. Correct this threshold throughout KCC & SWDM.	This threshold is not inconsistent with Ecology's, as it is not the main threshold for determining when projects are subject to drainage review. The main threshold is specified in 9.04.030 A and the land disturbing threshold is specified in A.2. Full drainage review is a type of drainage review that applies to a subset of the projects that are subject to drainage review per the main threshold.	No change necessary. Clarified the difference between threshold for drainage review and thresholds for application of treatment and flow control.	Proposed code revisions do in fact change "new pervious surface" to "land disturbing activity." Proposed code revisions are acceptable and this threshold is used in SWDM Section 1.1.2.4 as the threshold for Full Drainage Review.
	S.3 - Did the County incorporate the content of S3 (now deleted) elsewhere? Please explain.	This threshold was found to be unnecessary, as the projects it captured are already being captured by the other thresholds of full drainage review.	Not really an issue.	No action necessary.

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	T.1.b - The last clause is inconsistent with the Permit's Appendix 1 provision at 4.6.1.b specifying oil control thresholds. The clause should read "not including routinely delivered heating oil" (the County uses "fuel oil" and includes storage. Clarify or revise.	We propose the following revision: "High-use site" means the area of a commercial, industrial or road intersection site that generates a higher than average number of vehicle turnovers or has other characteristics that generate the potential for chronic oil accumulation. "High use site" includes:		Acceptable.
		1. ((A))The area of a commercial or industrial site subject to:		
		a. an expected daily traffic count greater than one hundred vehicles per one thousand square feet of gross building area;		
		b. petroleum storage or transfer in excess of one thousand five hundred gallons per year, not including routine ((fuel))heating oil storage or transfer at the end-user point of delivery; or.....		
	V, HH, and OO - The definitions of "New Impervious Surface" and "Replaced Impervious Surface" differ in the code from both the manual definitions and the definition of "Hard Surface" in Ecology's SWMMWW. This affects thresholds for new and redevelopment (such as in the definition of Full Drainage Review), because it leaves out permeable pavement and vegetated roof surfaces. Ecology recommends using the Permit's Appendix 1 terms that now use "hard surfaces" to address this issue.	With regard to your concern about inconsistency between code and the SWDM: As explained in the response to the first comment above, the definitions in code set the basic policy, which is clarified and presented in greater detail in the SWDM. As long as the more detailed definition in the SWDM does not conflict with that in the surface water code, we feel they are consistent. We will check all definitions to make sure they do not conflict between KCC and SWDM.		Acceptable.
		With regard to your concern about the County's definitions of impervious surface, new impervious surface, and replaced impervious surface, we propose the following revisions to the impervious surface definition:		
		"Impervious surface" means a hard surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions before development or that causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions before development. Common impervious surfaces include, but are not limited to, roofs, walkways, patios, driveways, parking lots, storage areas, areas that are paved, graveled, or made of packed or oiled earthen materials, or other surfaces that similarly impede the natural infiltration of surface water or ((storm water))stormwater. <u>For purposes of applying the impervious surface thresholds set forth in this chapter, permeable pavement, vegetated roofs, and underdrained pervious surfaces are considered "impervious surface," while ((A))an open uncovered flow control or water quality treatment facility is not an "impervious surface."</u>		
	V - Last sentence that addresses an open uncovered retention/detention facility should include caveats per the Permit's Appendix 1. It is not considered an impervious surface for the purposes of applying thresholds, but it is for the purpose of runoff modeling. Ensure this is handled accordingly in the SWDM.	We feel this is a design assumption or detail that is more appropriately addressed in the SWDM. There is no need to state it in the code definition.	Change to definitions should fix this.	Acceptable.
	X. Land Disturbing Activity - Note that Ecology added an exclusion to this definition associated with stormwater facility maintenance.	This issue is moot as all facility maintenance is exempt per our SWDM definition and thresholds for drainage review.		No action necessary.
	AA. Directed Drainage Review - This is not in alphabetical order.	We will fix this.		No comment.
	CC. Low Impact Project Drainage Review - The County is not proposing to use low impact development (LID) terminology and thus does not define LID, LID BMPs or LID Principles per the Permit's Appendix 1. Instead, the County proposes to name a review process for projects that are unlikely to trigger MR7 as "low impact project review" implying that these projects have low impacts. This is likely to create confusion around LID. Ecology recommends using the Permit's Appendix 1 terms and reverting to the County's previous "small project drainage review" term. Also, it appears projects meeting the proposed definition would need to meet MRs 1-5 and potentially MR 6, MR 8 and MR 9. Confirm that the County's approach is consistent with these project thresholds.	We propose to rename this type of drainage review to "simplified drainage review." The intent of this drainage review is to apply simplified requirements that are equivalent in protection to the SWDM's core and special requirements. That being the case, the outcome should be protection equivalent to that set forth in Ecology's minimum requirements.		Thank you for your willingness to change the name of the review to avoid confusion with LID. Acceptable.
	II. New Pervious Surface - Clarify if a vegetated roof and permeable pavement would be considered new pervious surfaces under the County's proposed approach. Ecology recommends using the Permit's Appendix 1 approach.	Our proposed revisions to the "impervious surface" definition above will make it clear that permeable pavement and vegetated roofs are considered impervious surface, not pervious surface.		Acceptable.

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	JJ and KK. PGIS and PGPS - Clarify if a vegetated roof and permeable pavement would be considered PGPS or PGIS under the County's proposed approach. Ecology recommends using the Permit's Appendix 1 approach. For PGIS, roofs that are subject to venting should be included (see Permit's Appendix 1). For PGPS, sports fields are clarified as applying to both natural and artificial turf (see Permit's Appendix 1).	Our proposed revisions to the “impervious surface” definition above will make it clear that permeable pavement and vegetated roofs are considered impervious surface, not pervious surface. Therefore, they would be pollution-generating if they meet the definition of PGIS. Because vegetated roofs are not called out under PGIS, we propose the following revision to that definition along with a revision to include roofs subject to venting per Ecology’s Appendix 1 definitions:		Acceptable
		"Pollution-generating impervious surface" means an impervious surface considered to be a significant source of pollutants in ((surface and storm water)) stormwater runoff. “Pollution-generating impervious surface includes those surfaces subject to vehicular use; industrial activities; or storage of erodible or leachable materials, wastes or chemicals and that receive direct rainfall or the run-on or blow-in of rainfall. A covered parking area would be included if runoff from uphill could regularly run through it or if rainfall could regularly blow in and wet the pavement surface. Metal roofs are <u>included</u> ((also considered pollution-generating impervious surface)) unless they are treated to prevent leaching. <u>Roofs exposed to the venting of significant amounts of dusts, mists, or fumes from manufacturing, commercial, or other indoor activities are also included as are vegetated roofs exposed to pesticides, fertilizers, or loss of soil.</u>		
		This term will be split into two separate terms (i.e., “stormwater” and “surface water”) with separate definitions as follows:		See below.
	VV. Surface and Storm Water - Confirm that this term and definition works for all necessary Chapter 9.04 and Chapter 9.12 purposes. Ecology uses different terms for receiving waters and various stormwater system structures. See also County's use of "drainage facility."	<u>“Stormwater” means the water produced during precipitation or snow melt events that runs off, soaks into the ground, or is dissipated through evapotranspiration. Stormwater that runs off or soaks into the ground ultimately becomes surface water or groundwater.</u>		Acceptable.
		<u>“Surface water” means the water that exists on land surfaces before, during, and after stormwater runoff occurs and includes, but is not limited to, the water found on ground surfaces and in drainage facilities, rivers, streams, springs, seeps, ponds, lakes, wetlands, and Puget Sound. It also includes shallow groundwater.</u>		This definition, by referencing "drainage facilities", appears to include stormwater present in a drainage facility. Defer to County implementation. No additional action necessary.
King County Code Chapter 9.04				
	9.04.030.A7 is deleted. Did the County incorporate this content elsewhere? Please explain.	This threshold was found to be unnecessary, as the projects it captured are already being captured by the other thresholds for drainage review.		Acceptable.
	9.04.030.B uses the term "regional surface water system" but this term is not defined. See comment above on definition VV, Storm and Surface Water.	We propose the following revisions: B. The drainage review for any proposed project shall be scaled to the scope of the project's size, type of development and potential for <u>stormwater</u> impacts to ((the regional surface water system)) <u>surface water and ground water</u> to facilitate preparation and review of project applications.		Acceptable.
	9.04.050.A.1 uses the term "drainage systems" but this term is not defined. See comment above on definition VV, Storm and Surface Water.	We propose the following revisions: 1. Core requirement 1: Discharge at the natural location. All surface <u>water</u> and ((storm-water)) <u>stormwater</u> runoff from a project shall be discharged at the natural location so as not to be diverted onto, or away from, downstream properties. The manner in which ((runoff)) <u>surface water and stormwater runoff</u> is discharged from the project site shall not create a significant adverse impact or significantly aggravate an existing adverse impact to downhill properties or drainage ((systems)) <u>facilities</u> as specified in the discharge requirements of the Surface Water Design Manual;		Acceptable.
	9.04.050.A.3 - The threshold for new pervious surface is inconsistent with the Permit's Appendix 1 given that this section is supposed to address both MR 5 and MR 7. See SWDM comment below regarding Core Requirement #3.	KC is proposing a separate Core Requirement 9 (FCBMPs) equivalent to Ecology’s MR#5. The pervious thresholds for Core 3 (FC) and Core 9 (FCBMPs) will be ¼ acre new pervious and 7,000 sf land disturbed, respectively.	Core 9 and Core 3 thresholds updated per response in Title 9.04.05 and within Chapter 1 of the SWDM.	Acceptable. The County's definition of new pervious surface loosely addresses both the 3/4 acre veg threshold and the 2.5 acre conversion threshold, and it includes replaced as well as new.
	9.04.050.A.5 - The terms "water resources" and "watercourses" are used but not defined. See comment above on definition VV, Storm and Surface Water.	We propose the following revisions: 5. Core requirement 5: ((Erosion and sediment control.)) <u>Construction stormwater pollution prevention</u> ((All proposed projects that will clear, grade or otherwise disturb the site shall provide erosion and sediment control that prevents, to the maximum extent practicable, the transport of sediment from the site to drainage facilities, water resources and adjacent properties.)) <u>All proposed projects that will conduct construction activities onsite or offsite or will clear, grade, or otherwise disturb the site must provide stormwater pollution prevention controls, spill controls, and erosion and sediment controls to prevent, reduce, or eliminate the discharge of pollutants including sediment to onsite or adjacent drainage facilities, adjacent properties, and surface water or ground water.</u>		Acceptable.

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	9.04.050.A.8 - The % acre threshold is not "new" PGPS, it is "total" PGPS. Please correct and verify correction throughout SWDM & KCC.	Ecology Permit Section 4.6 (MR6: Runoff Treatment) only applies to "those hard and pervious surfaces subject to this minimum requirement as determined in Section 3 of this Appendix". Regarding pervious surfaces, Section 3 cites only "converted vegetation areas". When KC uses "new PGPS", it is synonymous with "converted vegetation areas". Ecology's requirement can be translated as "total converted pervious areas". We believe we are equivalent using new pgps. Using total would imply capturing existing surfaces in addition which is clearly not a target in the Permit.	First comment is resolved with given response.	The County's definition of new pervious surface loosely addresses both the 3/4 acre veg threshold and the 2.5 acre conversion threshold, and it includes replaced as well as new. Acceptable.
	9.04.050.A.8 - Also, the exception to treatment for areas with a DPER approved landscape management plan needs additional explanation. Provide the criteria that are used to approve a landscape management plan. If the criteria only address application of pesticides and fertilizers, then the exemption should only apply to projects that have PGPS associated with application of pesticides and fertilizers (not loss of soil, storage of erodible or leachable materials, etc.).	Re: 2 nd comment: All Chapter 1, Core 8, LMP attributions have been edited to say, "controls solids, pesticides, fertilizers, and other erodible or leachable materials..."	Second comment assigned to DBatts.	SWDM Reference 4-C appears to be the only guidance the County uses for landscape management plans and this reference has not been revised to address the original comment by including requirements to address pollution from lands "subject to vehicular use, industrial activities, storage of erodible or leachable materials, wastes, and chemicals."
			The SWDM (2009) exception includes 'solids' in addition to pesticides and fertilizers. The definition of PGPS mentions "loss of soil" rather than "solids". The definition also includes "subject to vehicular use, industrial activities, storage of erodible or leachable materials, wastes, and chemicals" along with pesticides and fertilizers. The SWDM will be edited to be sure the Landscape Management Plan exception mentions the full suite of pollutants attributed to PGPS as given in the PGPS definition – either directly or by reference. (Chapter 1, Core 8)—EDITS COMPLETED IN Chapter 1, Core 8 and in Title 9, Core 8 (WILGUS).	
	9.04.050.B.1 - Clarify if this Special Requirement #1 is what picks up MR8 requirements when the project is in a designated critical area. Confirm this applies when a project will discharge stormwater into a wetland, either directly or indirectly through a conveyance system. Include citations where possible.	MR#8 is addressed in KC SWDM Core Requirement #2 "Offsite Analysis". Text in Core 2 has been revised to capture off the site wetlands in addition to previously required onsite wetlands. Core 2 text: Potential Impacts to Wetlands Hydrology Problem (Type 4)	Clarify Section 1.2.2.2 that offsite and onsite wetlands to be evaluated as already described w/in ¼ mile offsite analysis to determine if Ref 5 FC is required.-DONE.	Defer to comments on Core Requirement #2, SWDM.
		Potential impacts to wetlands hydrology can be caused by changes in the rate, duration, and quantity of stormwater discharged from the project site to a wetland.	EDITS COMPLETED (Wilgus).	
		Where wetlands are identified on the site, the applicant shall submit a critical area report at a level determined by DPER to adequately evaluate the proposal and probable impacts.		
		Where wetlands are identified off the site AND the project is not exempt from Core Requirement 3, the applicant shall submit a critical area report at a level determined by DPER to adequately evaluate the proposal and probable impacts.		
		Based upon the critical area report, DPER will determine if the quantity of surface and storm water runoff from a proposed project or <i>threshold discharge area</i> within a proposed project could significantly alter the hydrology of a wetland-- in which case, DPER will require (as described in Section 1.2.2.2 under "Drainage Problem-Specific Mitigation Requirements"), implementation of additional flow control or other measures to mitigate the adverse impacts of this alteration in accordance with the wetland hydrology protection guidelines in Reference Section 5		
	9.04.050.C.1 and C.2 - Include a reference to Chapter 1, Section 1.4 of the SWDM. Ensure that the combination of code and SWDM language follows Sections 5 and 6 of Appendix 1 of the Phase I Permit. Refer to SWDM Chapter 1.4 comments below.	For the reasons stated in response to the very first comment, we see no need to include SWDM section references in code. With regard to ensuring consistency with, Sections 5 and 6 of Ecology's Appendix 1, we believe we are consistent. Changing the language in our view would not result in better outcomes and may confuse the user group. See similar response to SWDM comment for Section 1.4, comment 20.		Acceptable.

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	9.04.095: a) This language is specific to short subdivisions. Confirm the County is applying the Permit-required timing of updated requirements to other project Development types (i.e., standard subdivisions, land disturbing activity/clearing, etc.)	In response to your comment that the 5-year vesting period should be reflected in our final code/manual package so applicants know about the 5-year window, we think there are better forms of communication for providing this warning. Having it in the new stormwater code/manual will likely not be seen by those applicants affected because they will have already applied for their permits under the old code/manual. It would be more effective to warn them of the potential 5-year vesting limit through individual letters, development bulletins, and/or web site warnings. We request the use of these forms of communication rather than putting something in the code/manual that may have to be changed as a result of the pending court appeal on vesting. Because the Permit’s 5-year vesting requirement will not be a compliance issue until 5 years after the effective date of the new code/manual, we ask that Ecology accept our code/manual package without explicit mention of this vesting period. When the outcome of the court appeal is known, we will make any changes necessary to the code/manual to ensure that they stay in compliance with Permit.	9.04.095 Vesting period for lots in final short plats. Unless the department finds that a change in conditions creates a serious threat to the public health or safety in the short subdivision, for a period of five years after recording, a lot within a short subdivision shall be governed by the provisions of this chapter in effect at the time a fully completed application for short subdivision approval was filed in accordance with K.C.C. chapter 20.20. (Ord. 15052 § 9, 2004).	Special Condition SSC5.a.iii of the Phase I Permit regarding the timing of applicability of the updated runoff control requirements is an implementation issue that does affect projects outside the context of this most recent planned update to County stormwater code. The “timing of applicability” requirement is in effect, despite ongoing litigation. King County must have adequate legal authority to implement the Stormwater Management Program as specified in the Phase I Permit. The County is responsible for implementing this “timing of applicability” provision for any and all projects that meet the stated criteria, regardless of your choice to delay incorporating the provision into County code. No action necessary at this time.
	9.04.095: b) Is it possible for the provisions of the first half and the second half of this section to conflict? Clarify.	This section of code is not intended to address the Permit's vesting requirements. As such, it is not proposed for amendment at this time.	This section left unchanged. Pending court decision on vesting, necessary changes will be made to code to stay in compliance with the permit.	No action necessary.
	9.04.095: c) There is a typo in the final sentence - "constitute" rather than "constitue".	This section of code is not intended to address the Permit's vesting requirements. As such, it is not proposed for amendment at this time.	This section does not currently have any proposed edits in our draft ordinance. It will updated at a later date.	No action necessary.
	9.08.010 Ensure definitions are consistent between various KCC sections and SWDM chapters.	Definitions can vary from one chapter of code to another based on how the term being defined is used in the chapter. That's why each chapter has a definitions section. KCC 9.08 contains no specific requirements for new development, redevelopment, or construction sites, and is therefore not being opened up for legislative amendments at this time.		No action necessary.
	9.08.010 W - Clarify if "unincorporated King County" includes tribal and federal lands.	KCC 9.08 contains no specific requirements for new development, redevelopment, or construction sites, and is therefore not being opened up for legislative amendments at this time.		No action necessary.
	16.82.175 - Vesting language may conflict with vesting requirements in Permit, but it's not clear that the provisions in Title 16 even overlap with the provisions in the Permit. Please explain.	This section of code is not intended to address the Permit's vesting requirements. As such, it is not proposed for amendment at this time.		No action necessary.
	21A.24.550 - A.3 refers to "small project" drainage review. Update term if necessary following resolution of related comment.	Updated to “simplified drainage review”.	Need to fix in 21A. Ordinance is amended.	Addressed.

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Surface Water Design Manual: General						
1	There are references to the 2012 SWMMWW. Ther correct reference should now be to the 2014 SWMMWW.			Addressed.		
2	This document had inadequate proofing prior to its submission to Ecology for review. For example, all the page references in Chapter 1 are wrong. There are numerous typos, repeated words and acronyms (e.g.dperdper).	Noted. Edits made where errors found. It is expected that QC will continue ongoing.	(jp) Complete this item by final draft	Note that there is still more proofing needed. For example, DPERDPER still appears on page 1-10. The word "impervious" is repeated in Table 1.1.2.A. Etc.	WILGUS 1/15/16 : Corrected "DPER/DPER" in Chapter 1. , Corrected "eight" core requirements to "nine" in Chapter 1. Checked in App C.	No comment.
3	There is a lot of referring to other places in the document, making it difficult to follow the requirements easily.	Noted. No further action required.	No change required.	Ultimately the "user friendliness" of the SWDM is an implementation issue. No action necessary for the purposes of this review.		
Chapter 1						
4	Page 1-1 Key Terms and Definitions - Ensure definition consistency between KCC and SWDM Chapter 1 and SWDM Definitions chapter. See additional Ecology comments on definitions.	Checked and edited as necessary.	EDITS COMPLETED (Wilgus). 9/20/15.	See below.		
	5. Page 1-5 LID BMPs - The County includes a discussion of "LID behavioral BMPs." This is not consistent with the definition of LID and Ecology's intended use of LID. Clarify the County's intent and how these behaviors are referenced in the SWDM.	The LID behavioral BMPs piece of the definition from LID BMPs will be deleted	EDIT COMPLETED (Wilgus) 9/7/15	Acceptable.		
	6. Page 1-6 - The definition of "New Impervious Surface" in this chapter includes permeable pavement and vegetated roofs. This does not match Ecology's definition, nor does it match the KCC definition. Ecology uses the term "Hard Surfaces" to address this issue. Ensure the KCC and SWDM appropriately and consistently address permeable pavement and vegetated roofs in project threshold evaluations consistent with the Phase I permit Appendix 1.	KCC Code, Chapter 1 and Reference Section definition of new impervious will be updated to be consistent and include permeable pavement and vegetated roofs. Permeable pavement and vegetated roofs are ensconced in definition of impervious. From Chapter 1 Definitions: New Impervious surface means the addition of a hard or compacted surface like roofs, pavement, gravel, or dirt; or the addition of a more compacted surface, like paving over pre-existing dirt or gravel. In addition, vegetated roofs and permeable pavements are to be considered new impervious surface along with lawns, landscaping, sports fields, golf courses, and other areas that have modified runoff characteristics resulting from the addition of underdrains. Open, uncovered retention/detention facilities shall not be considered impervious surfaces for purposes of determining whether the thresholds for application of minimum requirements are exceeded. Open, uncovered retention/detention facilities shall be considered impervious surfaces for purposes of runoff modeling."		King County has decided to not use the "hard surfaces" terminology that Ecology uses. Instead, King County will consider permeable pavement and vegetated roofs to be impervious. The SWDM Chapter 1 definitions does not define "impervious surface." Instead, Chapter 1 has individual definitions for "new impervious surface," "replaced impervious surface," "pollution generating impervious surface" and "pollution generating pervious surface." We find the same thing in Appendix C. This approach relies on the user to refer to the additional definitions located at the end of the SWDM to find that the definition of impervious surface includes permeable pavement and vegetated roofs. There are very few definitions reminders that direct users to the end definitions. For example the Guide to using Section 1.1 reminds users to refer to the Key Terms in Section 1. Include the definition of "impervious surface" in Section 1 "Key Terms" and in Appendix C "Key Terms" to avoid further detailed comments on the other related terms.		
			KC is also making the addition of underdrain part of new impervious definition regardless of liner. Applicant could model unlined systems as necessary if they want "credit" for FC design.		WILGUS COMPLETED 1/12/16: Added "Impervious surface" definition to Chapter 1 Key Terms and Definitions and in Appendix C "Key Terms".	Acceptable.
			Check SWDM chapter 1, reference (definitions) and KCC Title 9 definitions.			

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	7. Page 1-7 - The definition for Pollution Generating Impervious Surface in this chapter includes permeable pavement and vegetated roofs. Ensure that permeable pavement and vegetated roofs are appropriately and consistently addressed in project threshold evaluations consistent with the Phase I permit Appendix 1.	With regard to thresholds for permeable pavement and vegetative roofs –see response to prior comment. Chapter 1, SWDM definition of PGIS includes: vegetated roofs exposed to pesticides, fertilizers, or loss of soil. New impervious definition captures both vegetated roofs and permeable pavements. New PGIS definition includes a new impervious surface that is pollution generating.	No Change Required or Proposed.	See comment above re: "impervious surface" defintion placement. Addressed.		
	Section 1.1 Drainage Review 8. Page 1-14 Drainage Review Types and Requirements a) First sentence should refer to projects resulting in 2,000 sf or more of new <i>plus</i> replaced (emphasis added) as a shorthand way of referencing the first project threshold associated with hard surfaces.	Updated.	EDIT COMPLETED (Wilgus)	Addressed.		
	b) This discussion implies all projects are likely to require all MRs, but some project types have a more narrow scope to allow for an efficient, customized review. Note that this is conceptually different than the Permit's Appendix 1 requirements, where Ecology focuses on a two-track distinction: projects that require the evaluation of fewer MRs, and projects that require evaluation of all MRs. Given the changes to the SWDM over time, does having five different drainage review types (including some cases where 2 types are both necessary) truly provide for an efficient, customized review while also resulting in consistent outcomes across projects? Ecology is not requiring changes to this structure at this time, but we are concerned that this approach is too complicated and may result in inconsistent outcomes, particularly when applied by a Phase II permittee. Please provide a cross-walk document that clearly explains how the Phase I permit-required thresholds are addressed in the various review types.	NOTED. KC will split out Flow control facility and FCBMPs as separate core requirements 3 and 9 respectively. We will clarify as much as possible w/in drainage review types sections. We also made 5,000 SF PGIS and 3/4acre PGPS as revised, additional thresholds for "Simplified Drainage Review".	Update Simplified thresholds-Done. Add Core 9 to chart-done. Fill in core 9 requirements on Chart.-DONE Reformat drainage review selection Chart to fit. Revise pervious threshold formulas for Simplified review in chart and text based on impervious being 100% effective—DONE	The County did not provide a cross-walk document that clearly explains how the permit-required thresholds are addressed in the various review types. Refer to comments below regarding the drainage review types and Table 1.1.2.A. A cross-walk document would be useful.	NOTED.	
	c) This page needs proofing.	Updated		No comment.		
	9. Figure 1.1.2.A a) First 3 threshold boxes - Correct to refer to projects resulting in 2,000 sf or more of new <i>plus</i> replaced hard surface (not "and/or").	Updated	EDIT COMPLETED (Wilgus).	Correction addressed. Note remaining comments on Table 1.1.2.A (below) will impact Figure 1.1.2.A as well.		

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	b) Low Impact Project Drainage Review appears to miss meeting water quality BMPs because this figure sends readers to low impact project drainage review with potentially >5,000 sq ft PGHS. This is not consistent with the Phase I permit Appendix 1.	Low Impact Project Drainage review (Appendix C) requirements currently (2009 SWDM) stipulate that PGIS must be below or be reduced below 5,000 SF PGIS—alternatively Appendix C requires that water quality treatment per Core Requirement 8 be provided. Reference section C.1.3.1.C and section C.1.3.2.C.	EDIT COMPLETED in Chapter 1 (Wilgus).	Acceptable solution to the water quality/MR6 concern. The County made additional edits in Section 1.1.2.1 that are intended to replace the previous proposal's "no more than 10,000 sf of total impervious surface" limitation with calculated new target impervious surface and pervious area thresholds shown on page 1-15. In a 1/5/16 meeting, the County explained that these calculated thresholds are based on the 0.15 cfs (15 minute timestep) threshold, and since these are all below 10,000 sf, the 10,000 sf threshold is moot. Acceptable.		
		For clarification in proposed manual, KC will re-name and update Simplified Drainage review thresholds to include 5,000sf pgis and ¾ acre PGPS.	Update Appendix C text accordingly with NEW THRESHOLD LANGUAGE for re-named simplified drainage review.			
	10. Table 1.1.2.A - This table is misleading as it suggests that projects subject to "low impact" review do not have to comply with core requirements. It would be better to show how the "low impact" review addresses certain core requirements only. Similar issue with the discussion on page 1-19 regarding the presumption of compliance with core and special requirements. For example, at this time it does not appear that a project subject to low impact review would at all comply with potentially applicable treatment requirements (MR 6 or Core Requirement #8).	Noted. For clarification in proposed manual, KC will re-name and update Simplified Drainage review thresholds to include 5,000sf pgis and ¾ acre PGPS. KC will evaluate whether further clarification is needed. “Presumption of Compliance with Core and Special Requirements” in text for Simplified Drainage review provides additional clarification.		Several issues still with Table 1.1.2.A. The table's description of "simplified" is not consistent with Section 1.1.2.1 (re: total impervious surface). The table's description of "targeted" is not consistent with Section 1.1.2.2 (re: not subject to Directed review). Add check marks to the Core Requirements that simplified drainage require will require compliance with. Also, consider placing a footnote to explain why a project in Targeted Drainage Review is not required to meeting Core Req #9 (MR5). How does this table reflect compliance with wetlands requirements/MR8?	WILGUS 1/15/16 EDITS: Deleted reference to "total impervious" under "Simplified" Row in Table 1.1.2.A to be consistent w/Section 1.1.2.1. Added "Directed" under "Targeted" Row in Table 1.1.2.A. Deleted "under Directed review" from footnote 2. Deleted "or projects proposing greater than 7,000 sf of land distruing activity (1ac if in Simplified Drainge Review)" from "Targeted" Row in Table 1.1.2.A to reflect that all projects that would disturb 7,000 SF of land will end up in simplified, full, large, or directed drainage review. Deleted same text from figure 1.1.2.A Flow Chart and from TDR Project category 1 text in Section 1.1.2.2. "Targeted Drainage Review". Ecology MR#8 is not called out as a new core requirement, but is ensconced in requirements in Core Requirement #2 "Offsite Analysis". Core 2 exemption will be modified to make sure that any project that triggers flow control threshold requirements will be required to evaluate onsite and offsite wetlands consistent w/Ecy MR#8. JPRAY edits 2/2/2016: Table 1.1.2.A, Simplified Column, added a check for each core and special requirement with new footnote 4 which reads: "A proposed project subject to Simplified Drainage Review that complies with the Simplified drainage requirements detailed in Appendix C is presumed to comply with all the core and special requirements in Sections 1.2 and 1.3 except those requirements that would apply to the project if it is subject to Targeted Drainage Review as specified in Section 1.1.2.2."	Acceptable.
	11. Overall, the Drainage Review Types do not readily translate to the Permit's Appendix 1 project and minimum requirement thresholds. It would be useful for the County to prepare a translator figure to help explain how the County's core and special requirements reflect the Permit's Appendix 1 Minimum Requirements.	We will clarify to ECY through the equivalency review how the SWDM satisfies/equivalent to ECY's MRs. The SWDM will not include a translator figure. Since KC is proposing to split out the FC and FCBMP requirements into separate core requirements, this section will be revamped and provide more clarity.		It would still be useful to have a translator figure /table that explains how the permit requirements are met by the Core and Special requirements. Such a figure need not be part of the SWDM. The figure would be used to support an equivalency determination and associated communications.	Noted.	

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	11.a. Targeted Drainage Review - How does this review address water quality for projects that are subject to Ecology's MR 6 runoff treatment requirements, particularly for Basic Treatment? See page 1-21, discussion under TDR Project Category #1 bullets where it states "Any required flow control facility or tightline system may also trigger compliance with..., and possibly Core Requirement #8 Water Quality." The Permit's Appendix 1 thresholds for treatment do not rely on the presence/absence of a flow control facility or tightline system for triggering water quality treatment.	Projects that exceed either 5,000sf pgis or ¼ acre PGPS must comply with Core 8 water quality. Targeted drainage review projects by definition add /replace less than 2,000 SF of impervious and disturb less than 7,000 SF land area—therefore not required to comply w/Core 8/Water quality. Some Simplified Drainage review projects also require Targeted Drainage Review, but revised thresholds for Simplified Drainage Review will rule out projects that trigger Core 8/water quality. Drainage review selection figure edited to reflect 7,000 SF of land disturbance threshold.	Need to update/clarify table 1.1.2.A in SWDM.	King County comment at left is not correct. Note that TDR Project cat #1 is for 7,000 sf or more of LDA, so not all TDR projects are smaller than the permit-required thresholds. Original comment stands - how are you keeping projects that require WQ out of targeted drainage review? Also, footnote 2 for categ 1 in Drainage Review Type (Table 1.1.2.a) doesn't make sense ("Documentation of compliance required under Directed review") because it appears under Targeted review.	WILGUS EDITS 1/12/16: Edited TDR category #2 text (and associated language in Figure 1.1.2.A and Table 1.1.2.A) language to eliminate the greater than 7,000 SF land disturbed project being captured TDR threshold. Projects that disturb 7,000 SF or greater are already captured either via Simplified drainage review (Single Family and ag projects where pgis and pgps are below wq treatment thresholds and FC exempt thresholds); Directed drainage review (includes an analysis of Core 8 (WQ) requirement); or Full or Large Drainage review. 7,000 sf of land disturbing activity will not result in a stand alone targeted drainage review. Footnote edited in Table 1.1.2.A by deleting "under Directed review" phrase.	Acceptable.
12	Chapter 1.2 Core Requirements: Most of the Minimum Requirements are covered in this chapter, but not MR 5 and MR 8. Please ensure MR5 and MR8 are clearly described in the SWDM as being equally important for overall project compliance.	KC is proposing a new Core Requirement 9 (FCBMPs) equivalent to Ecology MR#5.	Add Core 9 (FCBMPs) to SWDM—EDIT COMPLETED WILGUS 9/30/15. Clarify Section 1.2.2.2 that offsite and onsite wetlands to be evaluated as already described w/in ¼ mile offsite analysis to determine if Ref 5 FC is required..-DONE.	King County's introduction of Core Requirement #9, intended to be equivalent to Minimum Requirement #5, is acceptable. Note the document needs a complete scrub for "eight" to update all text to appropriately refer to the "nine" core requirements. See additional comments on Core Req. #9/Appendix C below.		Acceptable.
		MR#8 is addressed in KC SWDM Core Requirement #2 “Offsite Analysis”. Text in Core 2 has been revised to capture off the site wetlands in addition to previously required onsite wetlands. Core 2 text: Potential Impacts to Wetlands Hydrology Problem (Type 4)				
		Potential impacts to wetlands hydrology can be caused by changes in the rate, duration, and quantity of stormwater discharged from the project site to a wetland.				
		Where wetlands are identified on the site, the applicant shall submit a critical area report at a level determined by DPER to adequately evaluate the proposal and probable impacts.				
		Where wetlands are identified off the site AND the project is not exempt from Core Requirement 3, the applicant shall submit a critical area report at a level determined by DPER to adequately evaluate the proposal and probable impacts.				
		Based upon the critical area report, DPER will determine if the quantity of surface and storm water runoff from a proposed project or <i>threshold discharge area</i> within a proposed project could significantly alter the hydrology of a wetland-- in which case, DPER will require (as described in Section 1.2.2.2 under “Drainage Problem-Specific Mitigation Requirements”), implementation of additional flow control or other measures to mitigate the adverse impacts of this alteration in accordance with the wetland hydrology protection guidelines in Reference Section 5.			The County has added a Type 4 "Potential Impacts to Wetland Hydrology problem" under Core Requirement #2. Compliance with wetlands protection (MR8) requirements of the MS4 Permit is based on the review conducted under Core Requirement #2 and the implementation of measures for Type 4 Drainage Problem-Specific mitigation. It is therefore important to ensure that all projects which would trigger compliance with MR8 are in fact required to comply with Core Req #2. Based on the County's revised draft SWDM, it appears there are still some projects that would fall through the cracks. Example #1: Project not subject to Core 8 WQ (thus does not have sufficient pollution-generating surfaces onsite to trigger WQ) but instead has sufficient new plus replaced impervious surfaces to trigger analysis of Core 3 FC. Example #2: Project has a wetland on-site any of the 3 exemptions from Core 2 are given. Also update discussion on page 1-33 "Significance of Impacts to Existing Drainage Problems" to include the Type 4 wetlands problem and build in a reference to the wetland hydrology protection guidelines in reference section 5.	

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	12.a. Information on the On-site requirements (MR 5) is available, but the SWDM discussion appears to present MR5 as a lesser minimum requirement (i.e., not on the same requirement level as the ones listed specifically in this chapter). Renaming Core Requirement #3 may be one possible solution; however Ecology's preference is MR5 as its own Core Requirement.	KC is proposing a new Core Requirement 9 (FCBMPs) within Chapter 1 of the SWDM that is equivalent to Ecology MR#5	Add Core 9 (FCBMPs) to SWDM—EDIT COMPLETED WILGUS 9/30/15.	King County's introduction of Core Requirement #9, intended to be equivalent to Minimum Requirement #5, is acceptable. See additional comments on Core Req. #9/Appendix C below.		
	12.b. Information regarding Wetland protection (MR 8) was difficult to find. Table 1.2.3.A (page 1-45) refers to the "wetland hydrology protection guidelines in Reference Section 5" when there is a potential impact to wetland hydrology as determined through critical area review (KCC 21.A.24.100). It would be useful to explain how the KC critical area review combined with the Reference Section 5 materials results in MR 8 being met. Confirm the application of MR 8 to all qualifying projects.	MR#8 is addressed via Core Requirement #2 "Offsite Analysis". From Chapter 1, Section 1.2.2.2. "Drainage Problem-Specific Mitigation Requirements" of the KCSWDM, modified to capture off site wetlands where the project also triggers FC: Potential Impacts to Wetlands Hydrology Problem (Type 4)	Clarify Section 1.2.2.2 that offsite and onsite wetlands to be evaluated as already described w/in ¼ mile offsite analysis to determine if Ref 5 FC is required.. EDITS COMPLETED (Wilgus).	The County has added a Type 4 "Potential Impacts to Wetland Hydrology problem" under Core Requirement #2. Compliance with wetlands protection (MR8) requirements of the MS4 Permit is based on the review conducted under Core Requirement #2 and the implementation of measures for Type 4 Drainage Problem-Specific mitigation. It is therefore important to ensure that all projects which would trigger compliance with MR8 are in fact required to comply with Core Req #2. Based on the County's revised draft SWDM, it appears there are still some projects that would fall through the cracks. Example #1: Project not subject to Core 8 WQ (thus does not have sufficient pollution-generating surfaces onsite to trigger WQ) but instead has sufficient new plus replaced impervious surfaces to trigger analysis of Core 3 FC. Example #2: Project has a wetland on-site any of the 3 exemptions from Core 2 are given. Also update discussion on page 1-33 "Significance of Impacts to Existing Drainage Problems" to include the Type 4 wetlands problem and build in a reference to the wetland hydrology protection guidelines in reference section 5.	WILGUS EDIT 1/15/16: Under "Significance of Impacts to Existing Drainage Problems", 1st paragraph, the following text is added: For a Type 4, "Potential Impacts to Wetland Hydrology problem", DPER will make this determination based on required critical area report findings, the wetland hydrology protection guidelines found in Reference Section 5, the project's relative contribution to the identified wetland's hydrology, and the mitigation proposed in meeting other requirements (e.g. flow control facilities and flow control BMPs).	Acceptable.
		Potential impacts to wetlands hydrology can be caused by changes in the rate, duration, and quantity of stormwater discharged from the project site to a wetland.				
		Where wetlands are identified on the site, the applicant shall submit a critical area report at a level determined by DPER to adequately evaluate the proposal and probable impacts.				
		Where wetlands are identified off the site AND the project is not exempt from Core Requirement 3 (Flow Control), the applicant shall submit a critical area report at a level determined by DPER to adequately evaluate the proposal and probable impacts.				
		Based upon the critical area report, DPER will determine if the quantity of surface and storm water runoff from a proposed project or threshold discharge area within a proposed project could significantly alter the hydrology of a wetland-- in which case, DPER will require (as described in Section 1.2.2.2 under "Drainage Problem-Specific Mitigation Requirements"), implementation of additional flow control or other measures to mitigate the adverse impacts of this alteration in accordance with the wetland hydrology protection guidelines in Reference Section 5.				
	13. Core Requirement #2: Clarify how the County handles a project determined by DPER to be exempt from Core Requirement #2 (page 1-31 exemption #1) but must comply with Core Requirement #8. Parts of Core Requirement #8 refer back to Core Requirement #2.	Updated Section 1.2.2 exemption section to capture projects subject to Core 8 --: A proposed project is exempt from Core Requirement #2 if the project is not subject to Core Requirement 8 and any one of the following is true:...	EDIT COMPLETED (Wilgus).	Acceptable solution.		
	14. Page 1.41 Phosphorus Problem - Include information to ensure the County's compliance with the Phase I Permit's Appendix 2 Cottage Lake TMDL requirement, including application to tributaries and elimination of the A mile/15% distance limitation.	Cottage Lake is considered/mapped a sensitive lake and the tributary basin surrounding is considered as sensitive Lake area requiring Phosphorous treatment.	No Change required. Explanation per response.	Understood. Core 8 sensitive lake requirements ensure application of phosphorus controls for qualifying projects without relying on the Core 2 water quality problem specific mitigation requirements. No action necessary.		

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	15. Core Requirement #3: If Core Requirement #3 is the way the County proposes to require MR #5, the basic exemption on page 1.43 is not approvable. A project that has 7,000 sf or more of land disturbing activities must meet MR #5. So a project could result in 1500 sf hard surface and disturb a total of 7,500 sf (including the new/replaced hard surface), thus requiring MR #5 for the hard surfaces and lawn/landscaped areas. The footnote #33 on page 1-43 is not sufficient to fix this problem.	Added new Core 9 (FCBMPs) with thresholds of 7,000 sf of land disturbed and 2,000 sf new plus replaced impervious.	Clarify threshold for new Core Requirement 9 FCBMPs to include 7,000 SF land disturbed—DONE.	King County's introduction of Core Requirement #9, intended to be equivalent to Minimum Requirement #5, is acceptable. See additional comments on Core Req. #9/Appendix C below.		
		Per ECY discussion, KC proposes to clarify that projects with 7,000 SF or more of land disturbing activity only require application of Core 9/FCBMP requirements to impervious surfaces if new plus replaced impervious is also 2,000SF or more.	Adjust Core 3 FC threshold to align w/Ecology FC MR (5,000SF imp; ¼ acre pervious).. --DONE	Core 3 basic exemption is approvable.		
			Delete Footnote addressing soil amendment required where 7,000 SF of land disturbed (now part of Core 9 (FCBMPs)-DONE.	Footnote deletion acceptable.		
			Propose that 2,000SF impervious is the minimum amount required to be addressed by this requirement e.g. less than 2,000 SF imp is exempted. Note: Where land disturbed is over 7,000SF and new plus replaced impervious surfaces is less than 2,000 SF, Core 9 FCBMP does not apply to impervious surfaces.	This proposal is not acceptable. The Permit Appendix 1 requires application of minimum requirements to both the new/replaced and the land disturbed/converted if only one of the project thresholds is exceeded.	WILGUS Edited 1/112/16: Modified Text under 1.2.9.1.A "Target Surfaces": Projects that trigger Core Requirement 9 by disturbing 7,000 square feet or more of land, but where new plus replaced impervious is less than 2,000 square feet, may consider basic dispersion as an equal choice for treating the target impervious surfaces alongside full infiltration, limited infiltration, bioretention, and permeable pavement FCBMPs. These projects are not required to meet the minimum BMP implementation requirements described in “Small Lot BMP Requirements” and “Large Lot BMP Requirements,” (Requirement #5 on both lists), and are not required to comply with Core Requirement 6."	Acceptable.
			—EDIT COMPLETED In new Core Requirement 9 (FCBMPs) WILGUS 9/30/15.			
	16. Page 1-48: There are two references to 0.10 cfs and 0.15 cfs increase in flow rates for 100-yr peak flows. Identify the simulation time step for these flow rates. This is a common comment throughout the entire document. The 0.1 cfs increase is for a time step of 1-hr and the 0.15 cfs increase is for a time step of 15 minutes.	Updated.	EDIT COMPLETED in Chapter 1 (Wilgus).	Acceptable.		
			Chapter 2, 3, 4 (Pray)-done			
			Chapter 5 EDITS COMPLETED (Wilgus)			
			Appendix C (Wilgus)-done			
			Chapter 6 (Batts)-done			
	17. Page 1-72: The Washington State permit is the <i>Construction Stormwater General Permit</i> , not the <i>Baseline General Permit for Stormwater</i> .	Edited text: A NPDES General Permit for Construction (pursuant to the Washington State Department of Ecology's Construction Stormwater General Permit for Stormwater) is required for projects that will disturb one or more acres for purposes of constructing or allowing for construction of a development, or projects disturbing less than one acre that are part of a larger common plan of sale[1] that will ultimately disturb one or more acres.	EDITCOMPLETED (Wilgus).	You can delete the final "for Stormwater" in the parentheses as it is redundant. Acceptable.	WILGUS EDITED 1/15/16: Deleted "for Stormwater" in Section 1.2.5.3.F, bullet 2.	Addressed.

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	18. Clarify how Core Requirement #8 and Core Requirement #2 do or don't work together. For example, how does a project know when they need to implement phosphorus treatment when there is no mention of phosphorus treatment in Core Requirement #8?	Core 8 ,SECTION 1.2.8 :”Guide to Applying Core Requirement 8” captures both mapped Sensitive Lake Areas and other water quality treatment areas(see #2 under Guide to Applying Core Requirement 8) and water quality problem areas requiring special attention identified via Core requirement #2 (Offsite Analysis) (see #5 under Guide to Applying Core Requirement 8). Section 1.2.8.1 “area specific wq requirements” part B is for Sensitive Lake Water Quality Treatment Areas” which are required to treat for phosphorus.	No Change Required or proposed beyond the response.	Understood. Core 8 area-specific requirements ensure application of phosphorus, basic and enhanced water quality facilities for qualifying projects without relying on the Core 2 water quality problem specific mitigation requirements. Edit to Core 2 exemption substantially helps as well. No further action necessary.		
		(db) Core #8 mentions phosphorus under Treatment Goal and Options: "The treatment goal for facility options in the Sensitive Lake Protection menu is 50% annual average total phosphorus (TP) removal assuming typical pollutant concentrations in urban runoff"	(db) Core#8 says the intent of the Sensitive Lake facilities is phosphorus treatment. Core#2 says for a phosphorus problem, use a facility from the Sensitive Lakes treatment menu. It seems to me there's already good cross-referencing.			
		Core #2 says for mitigation of a DO Problem: "IF the DO problem is documented to be caused by excessive nutrients phosphorus and a water quality facility is required per Core Requirement #8, THEN <u>a treatment facility option from the Sensitive Lake Protection menu shall be a component of the required treatment system.</u> "				
	19. Page 1-98: There is a reference to Figure 1.3.5B that doesn't exist.	Edit Made.	EDIT COMPLETED (Wilgus).	No comment.		
	20. Section 1.4 Adjustment Process: Note King County uses "standard adjustment" for the Permit's "adjustment," and "criteria exception" for the Permit's "exceptions/variances" terminology. Ensure that the combination of code and SWDM language follows Sections 5 and 6 of Appendix 1 of the Phase I Permit. The Permit states an adjustment will provide "substantially equivalent environmental protection" whereas the County (in KCC & SWDM) uses "comparable result that is in the public interest." These are not equivalent statements.	With regard to ensuring consistency with, Sections 5 and 6 of Ecology’s Appendix 1, we believe we are consistent. The terms and definitions cited were approved in the prior manual and changing the language would not create better outcomes. It is our view that KC’s combination of the following two requirements for adjustment approval are providing same/better result than the permit language:	Similar response to comment on code section 9.04.05 C.1 and C.2.	No action necessary.		
		1 Produce a compensating or comparable result that is in the public interest, AND				
		2. Meet the objectives of safety, function, appearance, environmental protection, and maintainability based on sound engineering judgement.	No change to current SWDM or Code language required or proposed.			
	21. Page 1-101: The references are not listed in numerical order.	Edit made.	EDIT COMPLETED (Wilgus).	No comment.		
	22. Page 1-102: The reference to a 2012 NPDES General Municipal Stormwater Permit is incorrect and inappropriate because the bullets that follow are not exactly the language in Appendix 1 of the Phase I Permit.	Deleted reference to ecology permit	EDIT COMPLETED (Wilgus).	Acceptable.		

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	23. Page 1-103, Experimental Design Adjustments, 2nd bullet: Regarding maintenance and inspection frequencies for TAPE and CTAPE devices, Seattle has developed alternative sizing criteria designed to reduce maintenance frequencies. Ecology supports this approach if the County wishes to consider it.	Noted. No change to current SWDM or Code language required or proposed at this time.	No change to current SWDM or Code language required or proposed.	No action necessary.		
			To extend maintenance period to 1 year, Seattle is oversizing by providing additional canisters/adding factor of safety, etc. Should we consider?			
			(db) No maintenance issues have been brought to our attention with our configuration requiring pre-settling. No action required at this time.			
	24. Page 1-104, Adjustment Application Process, Standard Adjustments, Bullet 1 - This section limits only standard adjustments to being offered prior to permit expiration. Given the Phase I Permit's criteria for granting a "criteria exception," it seems that a project already at the final construction approval or maintenance acceptance stage could not qualify for a criteria exception.	This was discussed and it was agreed that criteria exceptions could be considered up until the permit is closed.		Acceptable.		
	25. Page 1-106, Blanket Adjustments: A blanket adjustment that involves an exception to the Phase I Permit's Minimum Requirements in Appendix 1 is considered a jurisdiction-wide exception and requires Ecology's prior approval. Refer to Appendix 1 of the Phase I Permit and update SWDM discussion of blanket adjustment accordingly.	NOTED. Per discussion w/Ecology, to be approvable , KC blanket adjustments would meet the “comparable and compensating” criteria and therefore not rise to the level of a jurisdiction wide criteria exception. We agree that a jurisdiction wide criteria exception would require Ecology prior approval. No change to current SWDM or Code language required or proposed.	No change to current SWDM or Code language required or proposed.	No action necessary.		
Chapter 2, Drainage Plan Submittal						
	26. Based on the footers, this is the same document as the 2009 Manual (1/9/2009). This is incorrect.	Edited.	(jp) Include in edits for final draft	No comment.		
	27. You now introduce a <i>Low Impact Project Drainage Review</i> that you don't mention in Chapter 1. These are new requirements, and you nearly hide them in out-of-the way places instead of stating them clearly as requirements.	Re-named “Simplified Drainage Review”.	(jp) Need to align Ch 2 with Ch.1 changes when completed	Addressed.		
	28. The <i>Low Impact Project Drainage Review</i> (Chapter 2) is confusing with the <i>Low Impact Drainage Review</i> (Chapter 1).	Renaming to Simplified Drainage Review. Used term consistently.	(jp) Need to align Ch 2 with Ch.1 changes when completed	Addressed.		
	29. Page 2-18 you reference WWHM2012 here, yet your Approved Model is MGS Flood.	Update to say approved model. The reference will list all approved models, likely to include both WWHM and MGS.	(jp) Updated for current draft of Ch.2; need to review “APPROVED MODEL” text in all locations for clarity at final draft	Acceptable.		
Appendix C, Small Project Drainage Requirements						

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	30. The "Approved Model" is MGS Flood. Ecology considers this an acceptable model, but does this mean that designers can't use WWHM, since it is not the "approved model"? Clarify.	WWHM12 is also listed as an approved model.	(jp) Chapter 3 has been revised with the assumption that both models will be acceptable.	Acceptable.		
	31. In the discussion of how to categorize impervious pavement, there is no discussion of permeable pavement. Permeable pavement is included in your definition of impermeable pavement.	Table 3.2.2.D lists effective impervious fractions to be used pre or post development. Post developed surfaces with fraction of 1.0 include footnote 3, which dictates use of appropriate BMP modeling credits. Permeable pavement, if designed per the SWDM specifications would be modeled as 50% impervious and 50% grass e.g. 50% effective.		You can do this if you use WWHM 4, or MGSFlood. If you use WWHM 2014 you need to use the Permeable Pavement module	WILGUS 1/17/16 EDIT: Text added to Note 1 in Table 1.2.9.A Flow Control Facility Sizing Credits: " Explicit modeling of BMP infiltration for facility sizing is not allowed. When applying modeling credits for flow control facility sizing, infiltrative BMPs tributary to the facility that are included in the modeling scenario (including the permeable pavement element with area reduced to 50% impervious area fraction, or other BMPs (e.g., bioretention, trenches, drywells) treating upstream runoff) must have the infiltration option turned off during the flow routing analysis for facility sizing to avoid double-counting the BMP infiltration benefit. Alternatively, the permeable pavement BMP with infiltration turned off may be represented by an impervious area land use element of equivalent area."	Acceptable.
Chapter 5, Flow Control and Design						
	32. This appears to be MR 5 requirements, but doesn't stand out as a requirement equal to the others in Chapter 1. The County appears to be linking MR5 with MR7. This may be problematic for several reasons:	KC is adding Core Requirement 9 (FCBMPs) to be equivalent to ECY MR5. All related requirements and thresholds w/be contained in Chapter 1, Core 9.	Add Core 9 (FCBMP) to SWDM chapter 1 and migrate FCBMP appropriate text EDIT COMPLETED (WILGUS).	King County's introduction of Core Requirement #9, intended to be equivalent to Minimum Requirement #5, is acceptable. See additional comments on Core Req. #9/Appendix C below.		
	a). Not all projects that must meet MR5 will also have to meet MR7.					
	b). With the added emphasis on MR5 in the 2013-2018 Phase I permit, the County will have a harder time explaining how to implement MR5 to interested parties.					
	c). The SWDM is used by numerous Phase II cities and they need to be able to explain how MR5 is implemented for all projects as required.					
	33. It appears the County grouped all roof runoff with surface runoff for the LID component. This links PGHS and NPGHS together and forces you to treat roof runoff. Ecology allows you to not treat some roof runoff provided it remains separate from PGHS.	For FCBMPs, roofs are first evaluated for full dispersion and full infiltration; then any number of BMPs may be considered since roofs aren't categorically PGIS. The applicant isn't forced to mix PGIS and NPGIS in general, though it remains their option to do so and provide water quality treatment for all tributary areas.	Don't understand the comment fully. MEETING COMMENT: Double-check the language. See response.	The FCBMP design criteria contain information about water quality treatment for pollution generating surfaces that is not found in the text of Core #9. Acceptable.		

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	34. The proposed LID BMP list does not follow the ranking from the Phase I permit Appendix 1. The County must provide technical justification (e.g., modeling results and associated design criteria) for changing the ranking of LID BMPs in the lists. Without Ecology's review and acceptance of the technical justification, the County's proposed changes to the MR5 LID BMP lists are not approvable.	This approach has been approved by Ecology. Final revised documentation/memo dated 7/29/15 and titled, <u>“Proposed Modifications to Ecology’s MR#5 BMP List Required for Lots Less Than 5 acres in Size OR Located Inside the Urban Growth Area (UGA)”</u> and attachments provides summary of approach and justification.	Add Core 9 (FCBMP) to SWDM chapter 1 and migrate FCBMP appropriate text. EDIT COMPLETED (WILGUS). This approach has been approved by Ecology. Final revised documentation/memo dated 7/29/15 and titled, <u>“Proposed Modifications to Ecology’s MR#5 BMP List Required for Lots Less Than 5 acres in Size OR Located Inside the Urban Growth Area (UGA)”</u> and attachments provides summary of approach and justification. EDITS COMPLETED (WILGUS) 10/8/15	Note that the final memo attachments were transmitted to Ecology on 9/9/15. Acceptable.		
	35. Additionally, the County proposes to create a pre-approved set of BMPs to use outside the UGA on large properties which are required to meet the LID Performance Standard per Phase I permit Appendix 1. The County provided Ecology a memo and model input files (4/10/15) to technically justify the ranking and grouping of LID BMPs for these projects. Ecology is currently reviewing the technical justification and will provide a detailed response in writing.	Memo submitted and reviewed. Discuss This approach has been approved by Ecology. Final revised documentation/memo dated 8/26/15 and titled, <u>“Proposed Alternative Approach to Ecology’s LID Performance Modeling Required for Large Rural Lots (Revised 8/26/15)”</u> and attachments provides summary of approach and justification.	Add Core 9 (FCBMP) to SWDM chapter 1 and migrate FCBMP appropriate text. This approach has been approved by Ecology. Final revised documentation/memo dated 8/26/15 and titled, <u>“Proposed Alternative Approach to Ecology’s LID Performance Modeling Required for Large Rural Lots (Revised 8/26/15)”</u> and attachments provides summary of approach and justification. EDITS COMPLETED (WILGUS) 10/8/15	Note that the final memo attachments were transmitted to Ecology on 9/9/15. Acceptable.		
	36. There is no minimum size for bioretention/rain gardens in the list. Ecology uses a minimum surface area (measured at the overflow elevation) of 5-percent of the area draining to the bioretention facility. You need to determine the minimum bioretention facility sizing for use in the list option. If you change your list to include bioretention only if permeable pavement is infeasible, you can use a minimum size of 5- percent. If you consider permeable pavement and bioretention as equal, you must develop a minimum sizing for bioretention that ensures the device will meet the LID Performance Standard.	Minimum equivalent storage volumes are now provided w/in the prescribed BMP lists depending on project location and soil type. The minimums represent optimized sizing from Technical memos that result in LID Performance Standard compliance. Additionally, Appendix C bioretention requirements will include specifying a minimum bioretention top footprint equal to 5% of the tributary impervious area.	UPDATE SWDM (Appendix C and new Chapter 1, Core 9(FCBMPS))per the revised lists submitted to Ecology once approved. EDITS COMPLETED (WILGUS)	Acceptable.		
	37. Include a citation/reference to the infeasibility criteria when you mention "maximum extent feasible".	The BMP lists reference Appendix C infeasibility criteria and design criteria for each BMP.		Acceptable.		
	38. Section 5.2.1.1 and 5.1.2.2, item 4: It appears from this paragraph that you require some lesser level of on-site improvement if you determine that all the BMPs listed in item 3 are infeasible. Is this a correct interpretation of the language? If not, how do you propose to implement these requirements?	The answer to this question is “yes”. These are “last resort BMPs” required by KC to meet KC minimums where not enough of previous BMPs in list are deemed feasible to achieve stated minimums. Ecology requires no minimums.		Acceptable.		

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	39. Page 5-65 references a minimum 3-foot separation between the bottom of infiltration facilities and maximum ground water level. Site Suitability Criteria 5 (SWMWW Vol. III, page 3-85) says you need greater than 5-foot separation for infiltration facilities. Bioretention facilities can decrease to 3-feet, but not for general infiltration facilities. The incorrect depth to groundwater is also mentioned elsewhere in this chapter and needs correction.	Section 5.4 is now Section 5.2 EDITS MADE to section 5.2, “DESIGN INFILTRATION RATE”: The design infiltration rate determination shall include a groundwater mounding evaluation using an analytical groundwater model to investigate the effects of the local hydrologic conditions on facility performance. Groundwater modeling will not be required for facilities serving less than 1 acre of tributary area and where there is at least 5 feet of separation between the bottom of the proposed facility and the maximum seasonal groundwater table or low permeability stratum, unless requested by DPER review staff, or as part of an analysis in the event of facility failure at performance testing. A ground water mounding analysis is advisable for facilities with drainage areas smaller than 1 acre if the depth to a low permeability layer (e.g., less than 0.1 inches per hour) is less than 10 feet. If the ground water in the area is known to be greater than 50 feet below the proposed facility, detailed investigation of the ground water regime for flow control design is not necessary.	(jp) From SMMWW 2014 Vol III.3.3.7, Soil Suitability Criteria SSC-5 (emphasis added):	Acceptable.		
		Section 5.4,.1, SOILS: <i>For projects that perform a groundwater mounding analysis as described below in “Groundwater Mounding Analysis”, the basic requirement is a minimum of 3 feet of permeable soil below the bottom of the facility (bottom of pond or excavation for tank) and at least 3 feet between the bottom of the facility and the maximum wet-season water table. For projects that do not perform a groundwater mounding analysis as allowed and described in the “Design Infiltration Rate” section below, the basic requirement is a minimum of 5 feet of permeable soil below the bottom of the facility (bottom of pond or excavation for tank) and at least 5 feet between the bottom of the facility and the maximum wet-season water table.</i>	“SSC-5 Depth to Bedrock, Water Table, or Impermeable Layer The base of all infiltration basins or trench systems shall be ≥ 5 feet above the seasonal high-water mark, bedrock (or hardpan) or other low permeability layer. A separation down to 3 feet may be considered if the ground water mounding analysis, volumetric receptor capacity, and the design of the overflow and/or bypass structures are judged by the site professional to be adequate to prevent overtopping and meet the site suitability criteria specified in this section .”	While you may go to a 3-foot minimum distance, it requires appropriate outcome of a mounding analysis to allow the 3-foot. Otherwise, the basic requirement is 5 feet. Restructure the sentence in 5.2.1 to avoid misinterpretation.	WILGUS EDIT 1/24/16: "For projects that perform a groundwater mounding analysis that demonstrates the design is adequate and that overtopping does not occur, the basic requirement is a minimum of 3 feet of permeable soil below the bottom of the facility (bottom of pond or excavation for tank) and at least 3 feet between the bottom of the facility and the maximum wet-season water table. For projects that do not perform a groundwater mounding analysis as allowed and described in the “Design Infiltration Rate” section below, the basic requirement is a minimum of 5 feet of permeable soil below the bottom of the facility (bottom of pond or excavation for tank) and at least 5 feet between the bottom of the facility and the maximum wet-season water table.."	Acceptable.
			KCSWDM requires a mounding analysis for all infiltration facilities serving 1 acre or more, in addition to addressing overflow and/or bypass structure requirements for site-specific designs. Where no mounding analysis is performed, 5' separation as described is required.	Acceptable.		
	40. Page 5-66: The SWMMWW lists three methods to determine infiltration rates: Large Scale PIT, Small scale PTI, and Grain Size Analysis (using D10, D60, and D90). The draft SWDM lists techniques that ECY no longer accepts. Please update the SWDM and or provide justification to ECY for any techniques that the County wishes to continue using that ECY no longer accepts.	Chapter 5, Section 5.2.1 has been edited to remove the EPA Falling Head and Double Ring Infiltrometer tests for use in design of infiltration facilities, BMPs serving more than 1 lot, used in modeling of LID Performance compliance, OR serving greater than 10,000 sf of impervious OR ¾ acre of pervious, or 5,000 sf of PGIS .	(jp) ECY has dropped the EPA falling head test and the double-ring infiltrometer test.	Acceptable.		
		The removed tests will only be allowed for FCBMP feasibility evaluation when using the prescribed/pre-sized list approach.	PROPOSED EDITS ARE COMPLETED IN SECTION 5.2.1			
Chapter 6, Water Quality Design						

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	41. Based on our latest communication, King County is still making changes in the design flow rates as you change from KCRTS to either MGS Flood or WWHM. King County must provide Ecology with their revisions to the flow rates.	jp) Chapter 6 methodology has been rewritten to incorporate WWHM/MGS FLOOD methodology. All WWHM-based follow the SMMWW, all MGS-based follow the WSDOT Highway Runoff Manual for lack of other guidance from ECY.	Edits completed.	Addressed.		
	1. General: a) There are page references and section references that are incorrect. You need to perform a full edit on the references. For example, on page 6-23, you reference page 6-28 but it should reference page 6-25 and on page 6-31, you reference Section 3.2.4 instead of 3.2.5.	Noted. Final editing is ongoing.	(jp) Complete before final draft			
	b) The date in the footer does not print fully.	Noted. Final editing is ongoing.	(jp) Complete before final draft			
	2. Page 6-3, Section 6.1, Guide to Applying Water Quality Menus: In item 5, you have a section reference that does not exist.	Noted. Final editing is ongoing.	(jp) Complete before final draft	Addressed.		
	3. Page 6-4 Footnote 2: You state, "That is subject to change, as Ecology is re-evaluating their assumptions." I am not aware that Ecology is re-evaluating our TSS removal standards.	The reference language has been deleted form the footnote .	In retrospect, it would have been more accurate to say in the footnote that the TAPE committee (and not Ecology) was re-evaluating assumptions. That could have resulted in a recommendation to Ecology, and based on history, it's likely although not guaranteed that Ecology would have gone with the recommendation. That's what was on my radar at the time we submitted the redline Surface Water Design Manual to Ecology for Equivalency review, but it's a moot point now. Subsequent to that, there's no mention of TSS in TAPE SAG communications, so it does not appear that TAPE 2.0 will change with regard to the typical or representative influent TSS concentration range; TSS consideration will follow the August 2011 version of TAPE, and our manual will follow suit.	There is no change of TSS requirements by Ecology or TAPE. No further action necessary.		
	4. Page 6-5, Section 6.1.1, bottom: There is a spelling error in "PROPRIETARY" (PPROPRIETARY).	Edit made.	(jp) Complete before final draft	No comment.		
	5. Page 6-6, Section 6.1.1: You identify the StormFilter as approved through TAPE. Is it your plan to exclude the other canister filters?	Other canister filters will require Experimental Adjustments per that section of the SWDM.		Acceptable.		

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	6. Page 6-8, Section 6.1.2: At the top of the page, you have “PLACEHOLDER”. We assume you will remove this text. If you change the text, Ecology will need to review the revised text.	Removed	We are not including Ecology's CAVFS for Enhanced Basic treatment, as there is currently too much uncertainty with regard to use of compost and potential net discharge of copper for some time after application.	Acceptable.		
	7. Page 6-10, section 6.1.3: You need to add the influent range of 0.1 to 0.5 mg/l to the treatment goal for phosphorus.	The text as submitted says, "assuming typical forms and concentrations of phosphorus in untreated stormwater runoff", and is footnoted with: " Typical TP concentrations in untreated Seattle-area runoff are considered to be between 0.10 and 0.50 mg/L. For projects that are expected to generate higher levels of TP, such as animal husbandry operations, a higher treatment goal may be appropriate."	Our text seems to go above and beyond the suggested text.	Acceptable.		
	8. Page 6-11 a) Table 6.1.3.A: You include the StormFilter as the first basic WQ device, but Ecology does not have this in their list. The treatment train, as you list it in the Manual, should meet the requirements (e.g., it is acceptable as written). I am just pointing this out as a BMP not listed by Ecology.	Noted. Table 6.1.3.A now says "Proprietary media or membrane filter" generically with footnote to clarify that ZPG Stormfilter is only such filter approved by KC as stand-alone basic facility or first facility in a 2 facility treatment train.		Acceptable.		
	8. Page 6-11 b) Credit Earning Actions, item 1: You appear to have changed the number of points for this action. This change appears to make the earning of credits more difficult and Ecology accepts the change.	King County deleted credit earning action #4 (covered parking) and kept other points same.		Acceptable.		
	9. Page 6-12, end of item 4: You need add a carriage return to create an item 5 for <i>Providing covered vehicle washing areas connected to the sanitary sewer system</i> .	Edited. This credit earning action is now #4 as we’ve deleted covered parking as a credit earning action.	(jp) Complete before final draft	Addressed.		
	10. Page 6-13: a) You changed the number of points eligible for item 1 from 10 to 7, but you also need to change the point number in the text at the top of the page.	King County deleted credit earning action #4 (covered parking) and kept other points same.		Addressed.		
	10. Page 6-13: b) Table 6.1.3.B: You include Covered solid waste storage area in this table, but there is no discussion on details in the text.	Intent was to remove this option entirely. It is now removed from the table.		Acceptable		
	11. Page 6-17: Footnote 21 says, “no proprietary filter designs only one proprietary oil control facility”. This is a confusing statement.	Footnote deleted. Text for proprietary facility design includes: “Note: At time of publication of this version of the SWDM, no proprietary oil control facilities are approved by King County for use. Any such future approvals will appear in SWDM Reference 14-A.”		Acceptable.		
	12. Page 6-19, Section 6.2: a) You have a problem with font following the Use of Materials text. It looks like you started Section 6.2.1 too early in the text.	Corrected		Addressed.		

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	12. Page 6-19, Section 6.2: b) Ecology has not reviewed this section (6.2.1). We are waiting for King County to finalize their change from KCRTS to WWHM before reviewing the final text.	(jp) This section, along with the rest of the Ch 6 methodology, has been completely revised to align with ECY-approved methodology using WWHM and MGS.		Acceptable. Note this calculation methodology only applies to the BMPs in Section 6.3. Make sure all users are aware that other flow rate based BMPs do not have to go through this process, as this is a common mistake that designers make.	Addressed. Added (see italics for clarification) to the next to last sentence in the paragraph preceding new Table 6.2.1.A to read as follows: "This correlation is used in sizing <i>water quality</i> flow-based facilities in Section 6.3 and is presented in Table 6.2.1.A (Note: this table does not apply to flow-based non-water quality BMPs; see relevant flow rate requirements for flow-based non-water quality BMPs in Appendix C)."	Acceptable.
	13. Page 6-35, Section 6.2.6: You mention "WSDOT design drawing to be added after modification to fit SWDM format". We assume you will do this.	We have decided not to include this drawing.		Acceptable.		
	14. Pages 6-40 and 6-41: You have a blank page and an embedded .pdf file with a note saying you are waiting for CAD files.	We have decided not to include this drawing. The concept is being incorporated into existing text and drawings. The embedded PDF and note have been removed.		Acceptable.		
	15. Page 6-42, Section 6.3: There is a great deal of new text in the redline document that is not included in the hard copy. The title of the text is "General Considerations". This occurs in another location in the Chapter as well (Section 6.5.2.2, page 6-124).	Noted and Resolved.	This was added between the first submittal which included 'accepted changes' PDFs and hard copy; the second submittal per Ecology's request was for redline PDFs. This was a non-equivalency change.	Addressed.		
	16. Pages 6-112 and 6-13: There is a box at the top of the page for Table 6.5.2.A. The actual table is on page 6-114.	This table has been removed as part of the edits regarding abandonment of model KCRTS and acceptance of models WWHM and MGS Flood.	(db) Edits by JP	Acceptable. Note that since you removed Table 6.5.2.A, the remaining table numbers may need changed (6.5.2.B and 6.5.2.C).	Addressed. Table numbers revised.	Addressed.
	17. Page 6-130: There is a figure at the top of page 6-131 and page 6-130 is completely blank. You need to do formatting of the document.	Fixed in current draft.	(db) Vet all widow-orphan control and pagination before final draft	No comment.		
	18. Pages 6-147, C-148, and C-149: You deleted a large amount of text from the previous manual, but it appears that the pagination still remains.		(db) Vet all widow-orphan control and pagination before final draft	No comment.		
Wilgus Working Definitions (in redlines)						
	42. Ensure definition consistency between KCC and SWDM Chapter 1 and SWDM Definitions chapter. See additional Ecology comments on definitions.		EDITS COMPLETED (Wilgus).	No comment.		

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	43. The definition of "Impervious Surface" in this chapter (Page 13) does not include permeable pavement or vegetated roofs like earlier definitions. This matches Ecology's definition, but we also have a definition of "Hard Surfaces" for threshold calculations. The County must clarify its intent and consistently update KCC and SWDM accordingly.	Update for consistency w/Chapter 1 definition.	EDIT COMPLETED (Wilgus)	Definition of "impervious surface" in SWDM Definitions is acceptable. Per comment above, this term should be included in the "key terms" lists in Chapter 1 and Appendix C so that the remaining key terms that rely on it clearly and consistently address permeable pavement, vegetated roofs, etc.		
	44. Many definitions in this document are in this document only and are not included in the list of definitions in Chapter 1. It is somewhat confusing and unclear why some terms are included in Chapter 1 and some are not. The missing definitions are not critical, but you may want to include them.	Noted.	No Change necessary.	See earlier comments regarding "impervious surface" definition.		
References						
	45. The Bioretention Soil Mix matches Ecology Default mix. Note that Ecology may develop a new Bioretention Soil Mix in the future that will be an alternative option to the default mix.	Noted.	No Change necessary.	No comment.		
Appendix C, Small Project Drainage Requirements						
	46. This section still has the 2009 manual footer.	Footer updated.		Addressed.		
	47. Definitions: a). New Impervious Surface definition: Manual says "underdrains located 8" above the bottom of the in-situ soils" makes the surface permeable. This is not a correct statement. BMPs with underdrains are considered impervious.	New impervious surface definition is edited to include addition of underdrains as resulting in determination of "new impervious" regardless of liner addition and regardless of whether a 'hard' or 'soft' surface. We have removed the language referring to "underdrains located 8"..." etc. for determination of new pervious.	EDIT COMPLETED (WILGUS) 9/22/15	Acceptable.		
	47. Definitions: b). Include the definition for pollution generating pervious surfaces from the Phase I permit Appendix 1. Note Ecology lists sports fields (natural and artificial turf) as PGPS.	Definition as follows: "Pollution-generating pervious surface (PGPS) means a non-impervious surface considered to be a significant source of pollutants in surface and storm water runoff. Such surfaces include those that are subject to vehicular use, industrial activities, storage of erodible or leachable materials, wastes, or chemicals, and that receive direct rainfall or the run-on or blow-in of rainfall; or subject to use of pesticides and fertilizers, or loss of soil. Such surfaces include, but are not limited to, the lawn and landscaped areas of residential, commercial, and industrial sites or land uses, golf courses, parks, sports fields (natural and artificial turf), cemeteries, and County-standard grassed modular grid pavement"	EDIT COMPLETED (WILGUS) 9/22/15	Acceptable.		
	47. Definitions: c). Replaced impervious surface, 5th line: "other impervious surfaced, removed" should be "other impervious surfaces removed".		EDIT COMPLETED (WILGUS) 9/22/15	Addressed.		

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	48. Section 1.3.1 through 1.3.3: King County is using a cafeteria selection process for LID BMPs that is not equivalent to Ecology's lists. The County must provide technical justification (i.e. modeling and associated design criteria) to support your proposal. Ecology is ok with Steps 1 and 2, but changes are needed in the following steps. See also related comment on Chapter 5.	This approach has been approved by Ecology. Final revised documentation/memo dated 7/29/15 and titled, " <u>Proposed Modifications to Ecology's MR#5 BMP List Required for Lots Less Than 5 acres in Size OR Located Inside the Urban Growth Area (UGA)</u> " and attachments provides summary of approach and justification.	EDITS COMPLETED (WILGUS) 10/8/15	Note that the final memo attachments were transmitted to Ecology on 9/9/15. Acceptable.		
	49. Section C.1.3.3: Refer to related comment #35, above in Chapter 5, regarding the County's proposal to create a pre-approved set of BMPs to use outside the UGA on large properties which are required to meet the LID Performance Standard per Phase I permit Appendix 1.	This approach has been approved by Ecology. Final revised documentation/memo dated 8/26/15 and titled, " <u>Proposed Alternative Approach to Ecology's LID Performance Modeling Required for Large Rural Lots (Revised 8/26/15)</u> " and attachments provides summary of approach and justification.	EDITS COMPLETED (WILGUS) 10/8/15	Note that the final memo attachments were transmitted to Ecology on 9/9/15. Acceptable.		
	50. Section C.1.3.4 appears to be missing. You skip from C.1.3.3 to C.1.3.5. The redline version has C.1.3.4, but the final clean version goes to C.1.3.5.	Formatting updated.		Addressed.		
	51. Section C1.4.2 doesn't include all 13 elements from the Permit's Appendix 1 and Volume II of the SWMMWW. Projects that trigger MR2 need to consider all 13 Elements and develop controls for all elements that pertain to the project site.	Within Section 1.4.1 Ecology Minimum 13 elements, ae addressed as follows: Element 1: Bullet A; Element 2: Bullet B; Element 3: Not applicable—sites subject to Simplified Drainage review have been predetermined to not require formal flow control facilities and are adjudged as low impact enough to not require flow control during construction consistent w/allowance in Ecology Element 3, bullet b.."where necessary.."; Element 4: Bullet C; Element 5: Bullet D; Element 6: Bullet E; Element 7: Bullet C; Element 8: Bullet E; Element 9: Bullet G.; Element 10: Bullet F; Element 11.: : new Bullet I (this was modified to address Ecology 11.a). Element 12: Section 1.4.2 as retitled, "ESC and SWPPS Implementation and Management Requirements". Element 13 : inserted as Bullet H.	EDITS COMPLETED (Wilgus).	Acceptable.		
	52. Section C.2.1.1: Impervious surface can be no more than 15% of dispersion area (10% into 65% of site).	Per discussion w/Ecology, no change is necessary.	Per discussion w/Ecology, no change is necessary.	Acceptable.		
	53. Section C2.1.2: Full dispersion onto pasture/cropland. Ecology defines BMP T5.30 Full Dispersion as " <i>fully dispersing</i> " runoff from impervious surfaces and cleared areas of development sites that protect at least 65% of the site (or a threshold discharge area on the site) in a forest or native condition . This does not include dispersion onto pasture/cropland.	Re-submitted a proposal to Ecology that covers "Farmland/Cropland Dispersion BMP" and "Impervious Surface Percentage Exemption for Ag Projects" on 8/12/15. KC is awaiting written review comments.	KC is awaiting written review comments.	Ecology is reviewing the County's proposal.	Ecology will provide official response.	Ecology is neither accepting nor rejecting the proposed Farmland Dispersion BMP. Defer to County implementation.

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	54. C.2.1.4, Splash Blocks: Ecology limits roof area to 700 sq ft, while King County allows up to 1,400 sq ft as long as the flow path increases. The increased length is not an acceptable way to enable higher surface areas at splash blocks. Ecology wants to limit the roof area directed to a splash block to 700 sq ft.	KC is proposing no change at this time. The allowance for additional impervious in trade for additional flow path was prior approved and yields benefit in that the additional flow path must remain vegetated (native for full dispersion), slope restricted, and within a covenant. This additional area is therefore available for potential infiltration and evapotranspiration and other ancillary benefits of forested cover. Most projects will not use this provision because of how difficult and undesirable to the applicant the long flow paths are to achieve. Leaving this requirement as is, however, allows the odd project that needs/elects this option to do so w/o an adjustment.	Per discussion w/Ecology staff, Doug Howie was going to determine if Ecology felt this was an equivalency issue and important enough for further discussion. NO CHANGE CURRENTLY PROPOSED.	Acceptable for Full Dispersion only (Section C.2.1).	Noted. Thanks.	Acceptable.
	55. Section C.2.1.6: Gravel filled trenches are ok for roofs, but need treatment before infiltrating water from PGHS.	Appendix C, Section C.2.3 Limited Infiltration “Applicable Surfaces” states, “limited infiltration may be applied to any non-pollution generating impervious surface (e.g. approved roofs, sidewalks, or patio) and to those pollution generating impervious surfaces (e.g. driveway, road, or parking area) where the soil beneath the infiltration BMP has properties that reduce the risk of groundwater contamination from typical stormwater runoff or where a water quality facility provides treatment prior to infiltration as specified in Core Requirement #8 and Special Requirement #5 of the King County Surface Water Design Manual.	Resolved via text in Response column.	Acceptable.		
	56. Sections C2.2.4 and C2.2.5: You need to include treatment before drywells for full infiltration. See item 9 in Section C2.2.3.	Appendix C, Section C.2.2 Full Infiltration “Applicable Surfaces” states, “full infiltration may be applied to any non- pollution generating impervious surface (e.g. approved non-pollution generating roof systems, sidewalks or patios) and to those pollution generating impervious surfaces (e.g. driveways, roads, parking areas, and pollution generating roof systems) where either the soil beneath the infiltration BMP has properties that reduce the risk of groundwater contamination from typical stormwater runoff or where a water quality facility provides treatment prior to infiltration as specified in Core Requirement #8 and Special Requirement #5 of the King County Surface Water Design Manual.	Resolved via text in Response column.	Acceptable.		
	57. Section C.2.4, Infeasibility Criteria: Spelling error (Basicl) at end of second line.	Edit made.	EDIT COMPLETED (WILGUS) 9/22/15	Addressed.		
	58. Section C.2.4.2, Design Specs: You limit splash blocks to 700sq of roof for basic dispersion, but allow up to 1,400 sq ft in Full dispersion. ECY doesn’t allow increase in roof surface areas. See comment above on Section C.2.3.4.	See above response re: splash blocks for full dispersion. Full dispersion requires a native vegetated flow path and basic dispersion does not. Therefore, for basic dispersion, KC is limiting to 700 sf of impervious and not allowing additional impervious in exchange for longer flow paths. This is consistent w/Ecology’s request. Since basic dispersion can use non native vegetative surfaces for dispersion, the benefits ascribed to forested areas under response for allowing longer flow path/additional impervious for full dispersion are not achieved for basic dispersion.	No Change requested or made for splash blocks for basic dispersion.	Acceptable.		

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	59. Section C.2.5: a). You reference figures, but have "xx" in the figure name. Ecology created three new figures for bioretention in the 2014 SWMMWW.	Bioretention is now Section C.2.6. Two figures for bioretention cells are referenced (2.6.A and 2.6.B)that are undergoing final updates. KC is still determining what other figures will be provided.	(jp) Update the "xx" to appropriate numeration when App C revisions are concluded	No comment.		
	59. Section C.2.5: b). Additional Requirements for Large Bioretention Facilities: You need to note that the 0.15 cfs increase is in a 15-minute time step or 0.1 cfs in the 1-hour time step.	Edits made.	EDIT COMPLETED (WILGUS) 10/8/15	Addressed.		
	60. Section C.2.5.1 Minimum Design Requirements (Also applies to Section C.2.6.1):	Edited: Minimum bioretention equivalent storage volumes are now provided w/in the prescribed BMP lists in Chapter 1, Core 9 (FCBMPS) and in Appendix C, Section 1.3. . The minimums represent optimized sizing from aforementioned technical memos that result in LID Performance Standard compliance. Additionally, Appendix C bioretention requirements include specifying a minimum bioretention footprint at overflow elevation equal to 5% of the tributary impervious area. KC is not including bioretention in our list of water quality treatment facilities due to uncertainty/studies re: treatment effectiveness and leachate studies, but looks forward to an alternative mix design that will allow inclusion as a treatment facility.	EDIT COMPLETED (WILGUS) 10/8/15	Ensure users are aware of the 5% minimum size. Acceptable.		
	a). #1: How does the volume criteria in the SWDM compare with the surface area requirements in MR #5. Ecology uses the 6-month, 24-hour storm volume for water quality analysis. How does the proposed volume calculation (1.2" over the surface draining to the facility) compare to Ecology's volume? What portion of the facility can you use to measure volume, only the pool, or a proportion of the soil and underlying gravel? This question also applies to Section C.2.6.1.					
	b). #2: Where do you measure the footprint? Bottom of facility? Overflow elevation?	Appendix C bioretention minimum design requirements include specifying a minimum bioretention footprint at overflow elevation equal to 5% of the tributary impervious area.	EDIT COMPLETED (WILGUS) 10/8/15	Acceptable.		
	c). #4: This text is not acceptable for the list option: "Where drawdown criteria described cannot be achieved without installation of underdrains, bioretention is considered infeasible and not required." When using the list option, Ecology allows underdrains when the infiltration rate is between 0.3 and 0.6 in/hr. There is a new figure in the SWMMWW that shows the accepted configuration (Vol V, Figure 7.4.1b). If you unable to achieve drawdown in an acceptable time period, you need to decrease the ponding depth.	Ecology text references underdrains as "optional" when design (long-term corrected) rates are between .3 and .6 inches/hour. KC requires lowering bioretention head (decreasing pond depth) to minimum of 6"—to achieve required 24 hour drawdown. KC holds bioretention volume constant. KC will not require installation of underdrains in order to achieve drawdown.	Per discussion w/Ecology, KC's proposed text is acceptable.	Just because the County does not want to use underdrains, you can't use drawdown time as an infeasibility criterion as part of "Bioretention Infeasibility Criteria List." However, as a design criterion, it is acceptable because the County has multiple BMPs on the pre-sized list that will result in application of an appropriate LID BMP if the drawdown time is not met. To avoid confusion, remove the sentence in italics.	WILGUS 1/17/16 EDIT: Deleted " Where drawdown criteria described cannot be achieved without installation of underdrains, bioretention is considered infeasible and not required." from bioretention design criteria # 4.	Acceptable.
		Per discussion w/Ecology, KC's proposed text is acceptable. Note that rather than saying that underdrained systems cannot discharge to surface waters (to deal with pollutant concerns to surface waters from the BSM), KC is making clear that underdrains are not standard in FCBMP design and require a SWDM adjustment that evaluates maintainability, hydraulic performance, and water quality concerns.				

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	61. Section C.2.5.2 Supplemental Requirements and Guidance: Underdrain (Optional): Ecology modified our requirements for the List #2 bioretention where the infiltration rate is between 0.3 and 0.6 in/hr. Figure 7.4.1b shows the required design for the underdrain system. The following text is in Ecology's 2014 Manual in the Underdrain (Optional) section; King County may use this revised design for bioretention facilities built under the list option if desired. "Where the underlying native soils have an estimated initial infiltration rate between 0.3 and 0.6 inches per hour, bioretention facilities without an underdrain, or with an elevated underdrain directed to a surface outlet, may be used to satisfy List #2 of Minimum Requirement #5."	Noted. See above. Per discussion w/Ecology, KC's proposed text is acceptable.	Per discussion w/Ecology, KC's proposed text is acceptable. No change proposed or required.	Acceptable.		
	62. Section C.2.5.3, Minimum Design Requirements (Road-Side Bioretention Ditch): Item #4, if you base the stated design on 20-ft wide roadway, what changes do you need to make for a 30-ft roadway?	This section has been updated to be consistent w/LID modeling results for limited infiltration referenced in aforementioned technical memos. For the Roadside Bioretention ditch, KC will require an LID optimized/sized gravel trench underneath the 18" deep BSM. BSM pore space is "extra" (e.g. not considered in compliance modeling that determines sizing) and therefore a particularly conservative design. Gravel trench lengths are sized based on tributary surfaces, rainfall region, and SCS soil type.	EDIT COMPLETED (WILGUS_.	Acceptable.		
	63. Section C.2.6.1: a). #1: You use a design storm that is one-half of the storm for a Bioretention facility. Why did you decrease the size of the storm?	NOT APPLICABLE. KC is now proposing only bioretention designs. Rain gardens are deleted.	Delete Rain Garden references from SWDM. EDIT COMPLETED (Wilgus).	Acceptable.		
	63. Section C.2.6.1: b). #2: You appear to allow Rain Gardens in the public right of way serving R-O-W improvements. These improvements must be less than 5,000 sq ft or you must install bioretention facilities and not Rain Gardens.	Not applicable. KC is now proposing only bioretention designs. Rain gardens are deleted.	Delete Rain Garden references from SWDM. EDIT COMPLETED (Wilgus).	Acceptable.		
	63. Section C.2.6.1: c). #9: Why would you allow a Rain Garden with an underdrain in any circumstance, not just where it would discharge to surface waters? Aren't Rain Gardens used to assist in reducing surface runoff? Installation of an underdrain appears to defeat this purpose.	Not applicable. KC is now proposing only bioretention designs. Rain gardens are deleted.	Delete Rain Garden references from SWDM. EDIT COMPLETED (Wilgus).	Acceptable.		
	63. Section C.2.6.1: d). #11: Isn't this covered in #9 already (discharge to sensitive lake)?	KC will keep prohibition re: bioretention draining to sensitive lake (bioretention minimum design requirement #19)or listed water bodies (bioretention MDR#20)and delete general /overarching prohibition to discharge underdrained bioretention to surface waters. Rather than saying that underdrained systems cannot discharge to surface waters (to deal with pollutant concerns to surface waters from the BSM), KC is making clear that underdrains are not standard in FCBMP design and require a SWDM adjustment that evaluates maintainability, hydraulic performance, and water quality concerns.	EDIT COMPLETED (Wilgus).	Acceptable.		

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	64. Table C.2.6.A: You have a table of water tolerant plants for Rain Gardens, but not for Bioretention. Won't this list also apply to Bioretention in Section C.2.5?	This table will be relocated to the bioretention section of Appendix C.2.5. Rain garden section is being deleted.	Relocate the table to bioretention section and delete rain garden references in SWDM. EDIT COMPLETED (Wilgus).	Acceptable.		
			EDITS MADE: Infeasibility Criteria List, “21. Where the native soils below a pollution-generating permeable pavement (e.g., road or parking lot) do not meet the soil suitability criteria for providing treatment (See Section 5.2.1). Note that where the soil beneath the infiltration BMP does not have properties that reduce the risk of groundwater contamination, the applicant has the option of using permeable pavement for residential driveways serving 2 or less households that are not within a groundwater protection area if a 6” sand liner beneath the permeable pavement is included in the design. This approach is optional and does not make permeable pavement required to be implemented as part of the prescriptive BMP lists detailed in Core Requirement 9 of the SWDM and Section 1.3 of Appendix C.”			
	65. Section C. 2.7: You can also install permeable pavement when the existing soils are not adequate for treatment as long as there is a sand filter installed below the pavement.	Although KC concerned about maintainability of the proposed set up, KC will allow placement of the mentioned sandfilter to use permeable pavement for pollution generating surfaces as long as the subject permeable pavement is a residential driveway serving no more than 2 households to limit pollutant concerns. This allowance will be at the applicant’s discretion and not required to be implemented as part of the maximum feasible/list approach e.g. lack of treatment soils will still make pollution generating permeable pavement” infeasible” for purposes of the mandatory lists unless the applicant OPTs to place a sandfilter.. It is likely that projects that are required to meet the LID performance standard, projects that need BMPs applied to 100% of target surfaces (Rural Alternative to modeling list), subdivisions looking to get modeling credit for their regional FC / WQ facility, or projects trying to meet KC minimum BMP application will pursue this optional allowance for residential driveways.	And MINIMUM DESIGN REQUIREMENTS: “4.Permeable pavements that are pollution generating are only allowed where the underlying soils meet criteria for groundwater protection defined in Section 5.2.1 with the single exception that where the soil beneath the infiltration BMP does not have properties that reduce the risk of groundwater contamination, the applicant has the option of using permeable pavement for residential driveways serving 2 or less households that are not within a groundwater protection area if a 6” sand liner beneath the permeable pavement is included in the design. This approach is optional and does not make permeable pavement required to be implemented as part of the prescriptive BMP lists detailed in Core Requirement 9 of the SWDM and Section 1.3 of Appendix C.” EDIT COMPLETED (Wilgus). 10/8/15	Acceptable.		
	66. Section C.2.7, Infeasibility Criteria: a). You indented Item 13 e) from where it is in the Ecology list. It is not a subset of item 13, but an item of its own.		EDIT COMPLETED (Wilgus). 10/8/15	Addressed.		

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	66. Section C.2.7, Infeasibility Criteria: b). You removed the alternative to install a 6-inch layer of sand below permeable pavement in item 20. Is this a conscious decision on your part or a typo?	Although KC concerned about maintainability of the proposed set up, KC will allow placement of the mentioned sandfilter to use permeable pavement for pollution generating surfaces as long as the subject permeable pavement is a residential driveway serving no more than 2 households to limit pollutant concerns. This allowance will be at the applicant's discretion and not required to be implemented as part of the maximum feasible/list approach e.g. lack of treatment soils will still make pollution generating permeable pavement" infeasible" for purposes of the mandatory lists unless the applicant OPTs to place a sandfilter.. It is likely that projects that are required to meet the LID performance standard, projects that need BMPs applied to 100% of target surfaces (Rural Alternative to modeling list), subdivisions looking to get modeling credit for their regional FC / WQ facility, or projects trying to meet KC minimum BMP application will pursue this optional allowance for residential driveways.	EDIT COMPLETED (Wilgus). 10/8/15 SEE RESPONSE TO #65 above.	Acceptable.		
	66. Section C.2.7, Infeasibility Criteria: c). Ecology changed the text for items #24 and #25 to read: "Roads that receive more than very low traffic volumes, and areas having more than very low truck traffic. Roads with a projected average daily traffic volume of 400 vehicles or less are very low volume roads (AASHTO, 2001) (U.S. Dept. of Transportation, 2013). Areas with very low truck traffic volumes are roads and other areas not subject to through truck traffic but may receive up to weekly use by utility trucks (e.g., garbage, recycling), daily school bus use, and multiple daily use by pick-up trucks, mail/parcel delivery trucks, and maintenance vehicles. Note: This infeasibility criterion does not extend to sidewalks and other non-traffic bearing surfaces." King County can change the manual to reflect this change in the SWMMWW if you want.	Suggested edit was made.	EDIT COMPLETED (Wilgus). 10/8/15 I pasted in the new language verbatim.	Acceptable.		
	66. Section C.2.7, Infeasibility Criteria: d). Item #31 (In shaded areas that increase the likelihood of moss growth and/or in areas subject to heavy leaf litter resulting in a maintenance frequency of more than 1 time per year to preserve functionality of permeable pavements) is proposed as new infeasibility criteria. Ecology is not likely to accept this as valid infeasibility criteria under MR#5. Discussion needed.	Per Ecology, the proposed infeasibility criteria is not allowed and has been removed.	Remove the proposed "shaded area" criteria from permeable pavement infeasibility criteria list in Appendix C of SWDM. EDIT COMPLETED (Wilgus).	Acceptable.		
	67. Section C.2.7.1: You cite that "permeable pavements shall be installed in accordance with the manufacturer's specifications". Where do we find these specifications since there is really no manufacture?	Purveyors of these pavement types do have installation specifications/methods. Roadway specifications (materials, performance, and or installation) will be per King County Roads Standards, unique designs via a Road Variance, or as otherwise approved by KC Road Engineer (interim standards prior to official update of Road Standard, for example). For other systems, design Specs shall be per manufacturer, but no less than specified design specifications in text for each pavement type.	SEE RESPONSE TO LEFT. No Change Made or Required.	Acceptable.		

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	68. Sections C.2.7.2 and C.2.7.3: Ecology has not provided a material specification for these products. You need to provide a detailed material specification for porous concrete and porous asphaltic concrete, or provide a place to look for the material specification. King County needs to include specification for the construction of permeable pavement (both asphalt and concrete). It can be in this document or another document you reference.	KC Roads is developing a standard for use in roadways. Road standards update expected in 2016. The SWDM will reference that permeable pavement used for in roadways will meet the material specifications per the KC Road Standards or otherwise require approval by the KC Roads engineer.	Edit permeable pavement section in Appendix C to say that permeable pavement (asphalt and concrete) used for roadways (public or private) will be per the KC Road Standards or otherwise require approval by the KC Roads engineer. EDIT COMPLETED (Wilgus). 10/8/15	Acceptable.		
	69. Section C.2.8: Do you propose some modeling credit for Rainwater Harvesting? You don't list anything in this section. If you want to include a modeling credit for Rainwater Harvesting, you need to describe the credit and what is required to obtain the credit.	KC proposes to make modeling credit for rain water harvesting dependent on an approved KC adjustment that details the justification for the credit. Proposed relevant text in Rainwater Harvesting section: "For a rainwater harvesting system proposed to be used towards meeting Core 3 (Flow Control) or Core 9 (Flow Control BMPs) requirements, an approved drainage adjustment is required that demonstrates the system's impact/benefit and specifies conditions of use to achieve the same. "	KC will propose to make modeling credit for rain water harvesting dependent on an approved KC adjustment that details the justification for the credit. Make change in Appendix C and in Chapter 1, Core 9 FCBMP credits table/discussion. EDIT COMPLETED (Wilgus):	Use of the "adjustment" process to review and approve any rainwater harvesting defers the details to implementation. If the County has to evaluate rainwater harvesting used to get FC or WQ modeling credit, the County will need to use detailed criteria similar to the criteria Seattle has developed for their Director's Rule. No additional action at this time.		
			MINIMUM DESIGN REQUIREMENTS: All of the following requirements must be met in order for rainwater harvesting to be applicable to a target impervious surface:			
			1. For a rainwater harvesting system proposed to be used towards meeting Core 3 (Flow Control) or Core 9 (Flow Control BMPs) requirements, an approved drainage adjustment is required that demonstrates the system's impact/benefit and specifies conditions of use to achieve the same.			
			2. To assure the system functions as designed and provides the required stormwater management, system-specific maintenance and operation instructions must be submitted and approved by DPER. Such instructions should be prepared by the system's manufacturer or installer.			
			3. A minimum 5-foot setback shall be maintained between any part of the rainwater harvesting system and any property line.			
	70. After Section C.2.8: You eliminated Vegetated Roofs from your manual. Is this intentional?	Intentional deletion of vegetated roofs. Not on ECY lists, not effective as a FCBMP. Would allow under an adjustment, but probably no FC modeling or FCBMP "credit".	No change required.	Acceptable.		

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	71. Section C.2.9, Reduced Impervious Surface Credit: This appears to be a BMP from the previous manual. We don't fully understand how this provides flow control. Please provide an explanation of how this works in light of the current permit and manual.	This is a "Last resort BMP" included as an option to meet KC prescribed minimum BMP application after maximum feasible determinations for higher order BMPs are evaluated/applied from prescriptive BMP list approach. In some cases, "higher order/ECY" BMPs will be determined infeasible. KC still will require minimum BMP applications and this BMP along w/preservation of native surfaces that are effective in achieving minimums with no infiltration based infeasibility concerns. ECY requires no minimums. Not an equivalency issue. Applicant reduces footprint size below max allowed by zoning—thereby ensuring less impervious, more pervious—basic LID principle—but called a BMP for aforementioned purpose.	No change required beyond response.	Acceptable approach to incentivize reduced impervious surfaces and native growth retention. Ecology understands that the "fee in lieu" provision is a placeholder to allow the County to develop such a program if there is interest.		
	72. Section C.2.9.5: Ecology doesn't consider open grid decking as impervious surface; we already consider the ground beneath the decking as pervious. We don't want to double-count the area. Removing the pervious surface beneath the decking is not a valid activity. The homeowner still needs to mitigate the area under the decking.	This is a "Last resort BMP" included as an option to meet KC prescribed minimum BMP application after maximum feasible determinations for higher order BMPs are evaluated/applied from prescriptive BMP list approach. In some cases, "higher order/ECY" BMPs will be determined infeasible. KC still will require minimum BMP applications and this BMP along w/preservation of native surfaces that are effective in achieving minimums with no infiltration based infeasibility concerns are to be applied. As such, this implementation goes above and beyond Ecology requirements and should not be considered an equivalency issue.	Update SWDM Appendix C Open Grid Decking requirement #1 to match amended soil BMP language from the standard prescriptive BMP 1.	Acceptable.		
		For complying with Core 9 (FCBMPs/ECYMR5), the open grid decking would be only considered pervious surface by KC definitions if along w/meeting the other open graded decking listed requirements, the underlying soil is amended or remains native as stated in the requirements for this BMP. The open graded deck requirements has been clarified to make the soil amendment requirement consistent w/language in the BMP list approaches for pervious surfaces. Otherwise, the decking (and area underneath) is considered impervious for BMP list approaches requiring evaluation of feasibility of higher order BMPs (bioretention, limited infiltration, perm pavement (n/a); then dispersion, etc.	EDIT COMPLETED (Wilgus): "The pervious surface beneath the decking must be either undisturbed native soil, or amended soil in accordance with KCC 16.82.100 (G) which requires soil amendment to mitigate for lost moisture holding capacity where compaction or removal of some or all of the duff layer or underlying topsoil has occurred. The amendment must be such that the replaced topsoil is a minimum of 8 inches thick, unless the applicant demonstrates that a different thickness will provide conditions equivalent to the soil moisture holding capacity native to the site. The replaced topsoil must have an organic content of 5-10% dry weight and a pH suitable for the proposed surface vegetation (for most soils in King County, 4 inches of well-rotted compost tilled into the top 8 inches of soil is sufficient to achieve the organic content standard.) The amendment must take place between May 1 and October 1. The specifications for compost for soil amendment can be found in Reference 11-C.lists."			
	73. Section C.2.11.1, item 2: Ecology uses 10-ft per 5,000 sq ft, not per 10,000 sq ft (BMP T5.10C). You need to revise your requirements to match Ecology's.	Edit made.	Edit Perforated Pipe Connection BMP Min. Design Requirements in Appendix C, item 2 to say "5000sf" instead of "10000" sf. EDIT COMPLETED (Wilgus).	Acceptable.		
Appendix D, Erosion and Sedimentation Control Standards						

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	74. King County added the equivalent of Element 13 (Protect LID features), but the SWDM only has 10 Measures total. At a minimum, the County is missing Elements 11 and 12 that deal with maintaining the measures and managing the project.	(jp) Elements 11 and 12 explicitly added, see Sections D.2 General CSWPP Requirements, D.2.1 ESC Measures, D.2.1.11 (ESC) Maintain Protective BMPs , D.2.1.12 (ESC) Manage the Project, D.2.2 SWPPS Measures, D.2.2.10 (SWPPS) Maintain Protective BMPs, D.2.2.11 (SWPPS) Manage the Project. Element 9 Control Pollutants bullet added per Mark's request, referencing Section D.2.2 (this element was emphasized with its own major section per DPER staff request).	(jp) EDIT COMPLETED	Acceptable.		
	75. King County includes Stake and Wire Fencing that we eliminated from the SWMMWW. Ecology recommends eliminating this BMP.	Stake and Wire fence deleted.		Acceptable.		
	76. King County includes plastic covering over newly seeded area that we eliminated from the SWMMWW. Ecology recommends eliminating this BMP.	KC has elected to keep the plastic covering as a tool. Caveats are included in the text under Conditions of Use.	Assure text emphasizes removal of plastic sheeting in a timely manner	Acceptable.		
New Ecology Comments on 11/19/15 Submittal						
N1	Some discussions of core requirements have not been updated to reflect Nine requirements. For exmple: Section 1.1.2.4, Section 1.2.					
N2	WQ Treatment exceptions and facility wiavers for ag projects are still under Ecology review. Note that the County's proposal to rely on a Farm Management Plan is essentially an alternative BMP to a WQ facility and therefore Farm Management Plans need to have a relevant maintenance standard and associated inspections, and be enforceable by the County.				Ecology will provide official response.	Ecology is neither accepting nor rejecting the proposed WQ treatment exemption and facility waiver for agrigultural projects. Defer to County implementation.
New Section 1.2.9 Core Requirement #9						
N3	Section 1.2.9.1, last sentence before Section A: Check sentence structure and punctuation to clarify intent. It currently reads as if any sized project outside the UGA, and any site that is 5 acres or more in size regardless of UGA placement, would require meeting the LID Performance Standard. The permit requires meeting this standard for ouside the UGA on a parcel of 5 acres or greater. Is this intentional?				WILGUS EDIT 1/17/16: "Demonstrating compliance with the LID Performance Standard using modeling is the required method for projects located outside the Urban Growth Area (UGA) boundary that are on sites 5 acres or larger in size, and is an optional method for all other projects.."	Acceptable.

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N4	Section C. The title should include the word "Performance" between LID and Standard. Also please add the term and definition for LID Performance Standard to the SWDM Definitions section, as the term is used quite a bit in the SWDM but is defined in just a couple of places.				WILGUS EDIT 1/17/16: Added "Performance" in Section C. Title between "LID" and "Standard". No other flow control or water quality treatment standards definitions are included in reference definitions or key terms (chapter 1) definitions--current manual style is to define these terms within the core requirement or implementation chapter.	Acceptable.
N5	Section D, item 1: There is a reference to Table 1.2.3.C, but there is no table with that number. Reference should be to Table 1.2.9.A and Section 1.2.9.4, page 1-95.				WILGUS EDIT 1/17/16: Corrected table reference to 1.2.9.A.	Addressed.
N6	Section 1.2.9.2.1. There are typos in Items 3 and 7 (missing spaces between words).				WILGUS EDIT 1/17/16: Corrected referenced typos.	Addressed.
N7	Section 1.2.9.2.3, item 4 contains several additional sentences regarding the soil quality and depth BMP that should also appear in Sections 1.2.9.2.1 (item 6), 1.2.9.2.2 (item 6), 1.2.9.3.2 (item 4).				WILGUS EDITS 1/17/16: Expanded text pasted into areas noted.	Acceptable.
SWDM Misc.						
N8	Section 3.1.2: There is a typo in the last paragraph under "Low Impact Development (LID) Performance Standard ("9and")).					
N9	Figure 5.1.4.F: there are errors in your figure. These are also in the SWMMWW. Your equation is incorrect. You need to use $Q=CdTan(\theta/2)*H^{(5/2)}$. The horizontal axis of the graph at the bottom of the page should be "H" not "Y". Reference for this is Brater and King Handbook of Hydraulics 1976, page 5-15				The referenced figure has been revised. A copy will be provided to Ecology. Insertion into chapter 5 will occur during final editing.	Acceptable.
N10	Chapter 6, page 6-2: You reference Worksheets in Reference 8-C, but there are no pages titled Reference 8-C. Ensure all reference pages have the associated reference title, as not all people will be using the pdf hotlinks.				Noted. These will be included in the final manual posted to the web. "Reference 8-c" will be added to the worksheet titles and title pages for all references will be provided in same fashion as are provided in the 2009 SWDM.	No comment.
N11	Reference 4-C Landscape Management Plan: a) See related comment in CODE tab. b) Note that the LMP is essentially an alternative BMP to a WQ facility and therefore LMPs need to have a relevant maintenance standard and associated inspections, and be enforceable by the County. Given the "plan implementation" language in Ref 4-C, II #6, the County appears to have an oversight (incl. inspection and sampling) program. Ensure this program is implemented to be equivalent to the required inspection and maintenance program for WQ facilities.				Comment Noted.	Per KC, SWDM Reference 4-C is a working guidance that the County has developed for landscape management plans. This reference should be revised to include guidance to address pollution from lands "subject to vehicular use, industrial activities, storage of erodible or leachable materials, wastes, and chemicals." Defer to implementation.
Appendix C, Small Project Drainage Requirements						
N12	Appendix C, TOC: You list Section C.2.7 twice				EDITED /Jeff Pray1/22/16.	Addressed.

#	Ecology Comment	King County Response (11/19/15)	King County Comments (11/19/15)	Ecology Response / Backcheck (01/06/16)	King County Response (2/2/2016)	Final Ecology Response (2/29/16)
N13	Appendix C, Definitions of Key Terms: Refer to earlier comment regarding the addition of "impervious surface" definition from the SWDM Definitions to the Chapter 1 and Appendix C "Key Terms" to resolve ongoing concerns with the individual definitions of other terms that rely on the definition of "impervious surface" in order to make sense.					
N14	Section C.1 - Threshold footnote 2 on page C-7. The footnote is not correct. The thresholds in the second paragraph on this page are also project-level thresholds, not TDA thresholds.				Respectfully disagree. The 2nd paragraph is referencing PGIS and PGPS thresholds determinative of whether a water quality treatment (ECY MR 6) facility is required, which is evaluated by TDA. KC is using this qualifier because we want to keep projects that trigger a wq facility requirement out of simplified drainage review.	Understood; KC is collapsing the project level threshold into the WQ facility threshold in this section. No action necessary.
N15	Section C.2.1.5, Simple 10-ft trench: Ecology limits this to 700 sq. ft. of roof area and you have 1,400 sq. ft.				Per 1/22/16 discussion with Doug Howie, no edit equired. The 10 ft trench is 5 times wider than splash blocks and rock pads (where 700 sf of roof areas is allowed for a 100 ft flowpath). We are proposing (same as current 2009 SWDM) to allow 1,400 sf of roof area for a 100 ft flow path, or double that allowed for rock pads and splash blocks which is conservative but still recognizes the extra width . It complements the goal of encouraging low impact development/full dispersion w/all of the ancillary benefits described in earlier response to #54. The trench has additional benefits of storage and infiltration potential.	Acceptable.
N16	Figure C.2.1.D: The text is strange on this figure when referring to dimensions. Ø				Response: Noted. This results from translation from Word to PDF. This will addressed when the final document is posted to the web.	No comment.
N17	Section C2.2.2.1.b: You refer to "Depth of soil" twice in this section and no where else in the document. Other phrases used are "depth to groundwater" and "depth to the maximum wet-season water table." It looks like "depth of soil" (as it is used in this section) should be defined explicilty as the distance between the bottom of an infiltration facility and the seasonal high groundwater level.				WILGUS EDIT 1/22/16: b) For purposes of determining whether full infiltration of roof runoff is mandatory as outlined in Section C.1.3, the distance measured down from the bottom of the infiltration device to the maximum wet season water table or hardpan must be at least 3 feet. For any optional or mandatory application of full infiltration, the distance measured down from the bottom must be at least1 foot for a gravel filled infiltration system and 3 feet for a ground surface depression.	Acceptable.
N18	Figures C.2.2.a through C.2.2.D: Show the minimum distance to seasonal high groundwater level like you do on Figure C.2.2.C.				Jeff Pray has completed this edit. Revised figures are included in resubmittal.	Acceptable.
N19	C.2.5 Farmland Dispersion BMP proposal - Ecology is reviewing the County's farmland dispersion BMP for equivalency under MR5 as well as the County's related proposals for "impervious surface percentage exemption for ag projects" from MR7 and exclusion from target surfaces for flow control facility. Note that the Farmland Dispersion BMP is essentially an alternative BMP to an LID BMP and therefore Farmland Dispersion BMPs need to have a relevant maintenance standard and associated inspections (where required), and be enforceable by the County.				Ecology will provide official response.	Ecology is neither accepting nor rejecting the proposed Farmland Dispersion BMP. Defer to County implementation.

#	Ecology Comment	King County Response (11/19/15)	King County Comments (11/19/15)	Ecology Response / Backcheck (01/06/16)	King County Response (2/2/2016)	Final Ecology Response (2/29/16)
N20	C.2.6: Infeasibility criteria only applies to the MR#5 (CR#9) lists. You can use bioretention as a BMP for water quality and flow control even if it grades out as infeasible for the LID list.				Noted. KC is not allowing bioretention for WQ until change in BSM occurs. Already clear that if modeling to meet LID standard, designers may propose functional designs.	No action necessary.
N21	Figures C.2.6.A and C.6.2.6.B are still under modification and will require Ecology review.				Jeff Pray has completed this edit. Revised figures are included in resubmittal.	Acceptable.
N22	C.2.7, Design Considerations: Maximum run-on, regardless of your modeling is 2:1 for PGIS and 5:1 for NPGIS. You need to change the text because you have 5:1 for PGIS surfaces in paragraph 2 under "design considerations".				WILGUS 1/22/16 EDIT:Runoff from other impervious areas ("run on") may be directed to permeable pavements that meet the following criteria: Inside Urban Growth Area boundary: Run-on area is limited to a maximum of 5 times the permeable pavement area to which the run-on is directed, of which no more than 2 times may be from pollution generating impervious surfaces. Outside the Urban Growth Area boundary: In till soils, run-on area (including both pollution generating and non-pollution generating impervious surfaces) is limited to a maximum of 2 times the permeable pavement area to which the run-on is directed. In outwash soils, run-on area is limited a maximum of 5 times the permeable pavement area to which the run-on is directed, of which no more than 2 times may be from pollution generating impervious surfaces. Run-on from pollution generating impervious surfaces is only allowed in areas where the soil beneath the permeable pavement has properties that reduce the risk of groundwater contamination.	Acceptable.
N23	Reference 14-A, lists only Contech StormFilters as approved proprietary facilities. This is your choice, you do not have to list any others. However, you list both ZPG and CSF media. Ecology has reviewed the ZPG media through the TAPE program and found that it is acceptable for Basic treatment. We have no looked at the CSF media, and are unsure whether or not it can meet the treatment levels required as a part of a treatment train for Sphagnum Bog Protection. No action necessary.					
N24	Target Impervious Surfaces as described on page 1-16 for new development is inconsistent with the Permit Appendix 1, as requirements apply to replaced impervious surfaces even in a new development scenario. Ensure the determination of target impervious surfaces is consistent with the Permit.				WILGUS 1/17/16 EDIT: Modified the text to be in compliance w/Permit and other target surfaces text/sections. Also modified in Appendix C.	Acceptable.
	WILGUS NEW EDIT: Update maintenance definition in Chapter 1 and Ref Definitions to include Ecology equivalent caveats re: maintenance exemptions related to pavement repair/replaced.				WILGUS 1/24/16 EDIT to Key Terms and Definitions in Chapter 1 and in Definitions (Reference Section) ,"Maintenance: Drainage review is not required for projects proposing only maintenance with the exception of the following pavement maintenance practices which require review and evaluation of compliance with the core and special requirements: removing and replacing a paved surface to base course or lower (ie. "replaced impervious surfaces"), extending the edge of pavement or paving graveled shoulders, or resurfacing that meets the definition of "new impervious surface" in this manual."	Acceptable.

#	Ecology Comment	Original Page	Redline Version	King County Response (11/19/15)	Ecology Response / Backcheck (01/06/16)	King County Response (1/14/16)
STORMWATER POLLUTION PREVENTION MANUAL GENERAL						
1	We see you are trying to use a standard format for each of the Worksheets in Chapter 3, and we understand that the County has not yet formatted the SPPM completely. There are a number of places where you use different names of documents and you refer to other documents in dissimilar manner. Examples are provided below. While people will probably get to the right place, it would be better to have a consistent naming approach.			This clarification has been made. Now there is a consistent naming Activity Sheets and Information Sheets.	Per the table of contents, the SPPM uses "BMP Activity Sheet" for commercial activity BMPs, no particular nomenclature for residential BMPs (however the residential introduction refers to these as "information sheets"), and "information sheets" in Chapter 5 for additional details on certain BMPs. Note that the Step by Step approach, Step 2, refers to the "Activities Worksheet" and the actual sheet is called "BMP Activity Worksheet." While this may cause implementation confusion, for the purposes of this review, the County's general approach is acceptable. It is the County's responsibility to ensure the document is usable.	
1a	The SPPM refers to the "Containment BMP Info Sheet", the "Containment - BMP Info Sheet", the "Containment Information Sheet", and others. The title of this sheet in the table of contents for Chapter 5 is "Containment BMP Information Sheet" and the title on the actual sheet is "Containment Information Sheet".			Edits have been made to be more consistent in naming.	The Information Sheet references in each BMP Activity Sheet in Chapter 3 have not been consistently revised. Refer to the "Additional Information" section of BMP Activity Sheets and update references for consistency and accuracy. For example, we found the following references in Chapter 3 that should be referring to the same Chapter 5 "Information Sheet": <i>Containment BMP Info Sheet</i> , <i>Containment – BMP Info Sheet</i> and <i>Containment Information Sheet</i> . Another example: <i>Drainage system contractors Info sheet</i> vs. <i>drainage maintenance contractors information sheet</i> . Revise "Additional Information" sections in Chapter 3 for consistency with Chapter 5.	These consistencies were made throughout the document.
1b	There are also differences in the naming of the section with Additional Information (A-4 has "More detailed information can be found at". Additionally, there are some places with one *, some with two **, and even one with three ***.			Asterisks have been removed.	Acceptable.	
2	Page breaks also need fixed. There are several places where only the first line or title of a section is on one page with the remainder on the next page (for example pages 7-8, 9-10, and 20-21).			This will be addressed with graphics when moving finalized content into the new template.	Acceptable.	
3	Include a more detailed Table of Contents so that users can readily find information about the specific content they are looking for.			We have expanded the TOC to address your concerns. The overall format is been changed to a more technical looking document, with the intention of creating more user-friendly layout and photographs for the individual BMP Activity Sheets and Information Sheets to be posted on the website and handed out. Users of the BMP information in the manual normally get BMP information tailored to their activity rather than using the entire manual.	Acceptable. Note that there are no photos in the submittal.	
STORMWATER POLLUTION PREVENTION MANUAL CHAPTER 1						
4	You refer to "Activity Sheet 1" in Step 4. You don't include the Activity Sheet 1 in this document; however you may be referring to the "Activity Worksheet" on page 20. Clarify the Activity Sheet 1 reference.	6	8	This clarification has been made.	Acceptable.	

5	Please name or describe the permit type that DPER issues for treatment BMPs and what KCC citations support such a permit.	7	9	Added statement instructing users to contact DPER. DPER will determine the need and type of permit required.	Acceptable.	
STORMWATER POLLUTION PREVENTION MANUAL CHAPTER 2						
6	You have a small description of the differences between storm and sanitary collection systems. This appears to be a manual for the general public and the difference is a confusing issue for many in the public. You may want to expand on this description with examples of what is and what isn't a stormwater drainage system. For example, sanitary sewer connections are generally sinks, toilets, floor drains, process wastewater; stormwater drainage is generally catch basins and other inlets, roof downspouts, footing drains.	12	15	This has been expanded and reworded to be clearer.	Acceptable. Note the last sentence in the second modified paragraph is incomplete.	Could not identify an incomplete sentence in this section.
Stormwater Pollution Prevention Manual Chapter 3						
7	BMP Activity Sheet listing: Ecology has other Source Control BMPs in Volume IV of the SWMMWW that you haven't included in this document. For example, you don't include BMP S404 BMPs for Commercial Printing Operations and BMP S410 BMPs for Illicit Connections to Storm Drains. Include all source control BMPs from Volume IV or provide Ecology with justification for excluding any that are left out of the SPPM.	20	26	We don't believe that we have any Commercial Printing Facilities in unincorporated King County, nor do we have any experience with them. A note has been added indicating that Volume IV of Ecology's Manual applies to any business type that is not included in our manual	Acceptable.	
				BMPs for illicit connections are found in A-1. We have added additional information to make this clearer.	Acceptable.	
8	The second sentence of the second bullet is a different thought and deserves a bullet of its own.	28	A-4	This has been done.	Acceptable	
9	Ecology prefers the short name of "Ecology" instead of "WSDOE".	35	A-10	References have been changed to "Ecology"	We suggest you do a search and replace function for "DOE" as well (see A-44 for an example). Addressed.	This has been done
10	How do you propose they deal with spills and not just storage of hazardous materials? Ecology BMP S426 provides guidance on hazardous material spills.	35	A-10	Added additional information to point to Spill Information Sheet.	Acceptable.	
11a	Ecology prepared a Vehicle Washing Guidance Manual you may want to reference. (https://fortress.wa.gov/ecv/publications/SummaryPages/95056.html)	38	A-13	This has been done.	Acceptable	
11b	There is an important note at the bottom about Critical Aquifer Recharge Areas that may get lost in the page since it is not included in the bulk of the page.	38	A-13	This has been done.	Acceptable	
12	Ecology has a BMP for washing boats (BMP S420) that you may want to reference in your note near the bottom of the page.	40	A-15	Ecology's S420 does not address BMPs for washing boats. Added reference to relevant Activity sheet in A-13.	Ecology's boat washing BMPs are in BMP S401. SPPM addresses boat washing in A-30. Acceptable.	
13	The sentence in the second paragraph suddenly stops at "required". Please correct.	42	A-17	This has been done.	Acceptable	

14	You discuss catch basin inserts in the Supplemental BMPs section and reference Chapter 6.6.1 of the KCSWDM. However, there is no discussion of catch basin inserts for oil control in Chapter 6.6.1.	43	A-17	Removed chapter citation.	Acceptable.	
15	Also include "directing outside runoff away from the composting areas" as a required BMP.	53	A-24	This has been done.	Acceptable	
16	There is no discussion of keeping demolition debris from contacting stormwater while such materials remain on site. Include BMPs for this activity.	58	A-28	Added additional language, consistent with Ecology's BMPs.	Acceptable	
17	There is a * suggesting there is additional information for business that will clean parking lots, but nothing is listed in the <i>Additional Information</i> section.	63	A-31	This has been done.	Asterix has been removed; no additional information provided. Acceptable.	
18	You suggest using "filtering devices at catch basins". Provide explanatory details or a reference to what these devices are (i.e., catch basin inserts or some other BMP).	64	A-32	This has been done.	Acceptable	
19	Ecology does not approve the discharge of pool and spa water or filter backwash to surface waters or stormwater systems, so bullet #3 is not accurate. Note too that the County's approach here appears to be more stringent than Ecology as there appears to be no BMPs that would allow a discharge of dechlorinated, pH adjusted & volume/velocity controlled pool/spa water to the stormwater system. Also note similarities and differences with R-7/page 96 activity sheet. This is confusing.	65	A-33	Made clarifications in the language, and made the two BMPs consistent.	Acceptable	
				Allowed conditional discharges to stormwater system	Acceptable	
20a	You state "may include water quality treatment BMPs* such as catch basin filters". Catch basin filters are not water quality treatment BMPs. They are devices that can provide some limited treatment, but they should not be grouped with true water quality treatment BMPs.	73	A-39	This has been done.	Acceptable	
20b	You have a * after mentioning wet vacs, but don't include anything in the <i>Additional Information</i> section.	73	A-39	This has been done.	Asterix has been removed; no additional information provided. Acceptable.	
21a	There are several problems with this Activity Sheet as it is not consistent with Phase I Permit IDDE requirements for conditionally allowable discharges from potable water sources.	77	A-42	This has been done.	See below.	
	For discharges to the stormwater system, the Phase I Permit requires dechlorination "to a <i>total residual</i> chlorine concentration of 0.1 ppm or less" (emphasis added). Update the required BMP to be consistent with permit language.				Add or less to the document.	Or Less was added.
21b	It is not clear what the word "treated" refers to in the second bullet.	77	A-42	Took out the word 'Treated'.	Acceptable	
21c	Ecology does not give approvals for discharging potable water to the stormwater system. Delete reference to Ecology.	77	A-42	Removed the reference.	Acceptable	

21d	The Phase I Permit states that such discharges must be "volumetrically and velocity controlled to prevent resuspension of sediments in the MS4" (emphasis added). It is important to explain the purpose of controlling volumes and velocities so that	77	A-42	This has been done.	Acceptable	
21e	The last bullet does not comply with Phase I Permit requirements. Hydrant flushing must also be conditioned as required by the Phase I Permit.	77	A-42	Took this out.	Acceptable	
22	You need to include a discussion of pH increases caused by water running through crushed concrete.	78	A-44	Modified A-19 to include concrete production and recycling.	Include a reference to SWDM Appendix D Section D.2.2.7 and D.2.2.8 for pH adjustment BMP requirements that are also relevant to SPPM A-19.	This edit has been made.
23	There is a random letter (g) in the middle of the third line.	84	A-48	Clarified meaning and added additional content to clarify A-17 and A-48.	Acceptable.	
Stormwater Pollution Prevention Manual Chapter 4						
24	I believe you mean "car" instead of "war" at the end of the third paragraph.	87	R-1	Corrected.	Addressed	
25a	You have extra words "unless the wash water" in the first line.	88	R-1	Corrected.	Addressed	
25b	Explain the County's approach, if any, with kits for organizations who want to hold a charity car wash.	88	R-1	King County has discontinued its car wash kit program and encourages the use of commercial car washes as promoted by the Puget Sound Starts Here campaign. It was difficult to get the kits returned and most were lost, and organizations no longer wanted to come downtown to pick up kits. Other jurisdictions with loaner car wash kits have concluded that a staff person must be present during operations otherwise the kits are not used effectively. This is not an option King County is considering. A grant request to explore regional solutions for charity car wash is being considered.	No action necessary.	
26	See comments also on sheet A-33/page 65. Clarify the distinction between these two BMP sheets or ensure they are identical where possible. Note that the County's apparent position to not conditionally allow pool/spa discharges to a stormwater system leaves fewer options for homeowners and places additional emphasis on finding an appropriate infiltration location. If you intentionally are being more stringent, Ecology recommends providing explicit BMP guidance for "indirect" discharges to the stormwater system (i.e., when the grassy area they chose for infiltration just doesn't infiltrate it all and instead runs off) to ensure compliance with applicable Phase I Permit provisions.	96	R-1	Both BMPs are now identical and reworded to be less stringent and consistent with Ecology's guidance.	Acceptable	
Stormwater Pollution Prevention Manual Chapter 5						
27	Please stress the importance of maintenance for catch basin inserts.	98	109	CB Insert Info Sheet. Emphasis has been added.	Acceptable. Note repeated "Effluent water is free of oils and has no visible sheen" in third column of added maintenance table. It is not clear if this is the appropriate entry for the row "Media Insert Water Saturated"	Removed "from media insert" to read "Effluent water is free of oils and has no visible sheen".

28	How do you determine the "maximum expected flow" into a catch basin?	99	109	Made necessary edits and clarifications.	Acceptable. Defer to implementation. It seems to us that users will still need guidance on how to determine the flow rate to use to size the insert.	
29	What do you mean by the phrase "due to a sturdy dike" near the bottom of the page?	101	111	Containment Info Sheet, This phrase has been removed.	Acceptable	
30	Here is a good place to refer to Chapter 6.6.1 in the KCSWDM.	116	126	O/W Separator Info Sheet. We feel that a general reference to the KCSWDM is sufficient in this case.	Acceptable.	
31		NA	A-29	We have added an additional Activity Sheet A-48 Mobile Fueling, in order to better address this activity, instead of including it in the stationary fueling activity sheets.	Acceptable.	
32			94	We have added additional language clarifying the applicability of commercial BMPs for commercial activities occurring on single family residential properties.	Acceptable	
33				We have removed the Activity Sheet A-47 Sport and Athletic Fields	No comment.	