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TO: Clark County Planning Commission

FROM: Heath Henderson, Public Works Director
Dean Boening, Clean Water Division Manager

DATE: October 6, 2016

SUBJECT: Clark County Stormwater Manual 2015 Errata and Minor Revisions

BACKGROUND:

The Board of County Councilors adopted the Clark County Stormwater Manual 2015 (CCSM) and related development code in November 2015. Under the Washington Department of Ecology (Ecology) National Pollution Discharge Elimination System (NPDES) Phase I Municipal Stormwater Permit for Clark County (Permit) the county is required to update its stormwater manual and related development code to be equivalent to Ecology's *2014 Stormwater Management Manual for Western Washington (SWMMWW)*.

The CCSM is adopted by reference in County Code (CCC) Chapter 40.386. After adoption of the 1,000-plus page manual, users found a number of typographic and formatting errors that could be addressed as errata. Along with errata, several content changes are made to clarify manual language, restore omitted language from the previous manual requirements, and maintain equivalence to the state manual. Because these omissions and minor errors are changes to a stormwater manual adopted by county ordinance and referenced in county code, the entire set of errata and minor revisions are being made through adoption by county ordinance.

Public involvement included a notice to interested parties identified for the manual development and adoption process in 2013 through 2014.

Staff will finalize the CCSM errata and minor revisions in preparation for public hearing at the Board of County Councilors on November 22, 2016. The updated manual will become effective ten days after enactment.

SUMMARY:

The proposed errata and minor revisions to the CCSM bring these changes into the 2015 manual.

Exhibit 1 includes all of the proposed manual errata and minor revisions. Along with the many formatting and typographical errors at the level of scrivener's errors, revisions to the manual language beyond errata are described.

1) Approximately 80 typographical and formatting errors

2) There are several text changes to clear up omissions of material from the State SWMMWW 2014, to make minor revisions and for internal consistency.

Added a requirement for dual locks on private facilities to ease county inspection access.

Revised the heading to table 2.3 of book 1 to correct an error.

Changed “or” to “and” to require both existing well and groundwater mapping data for soils reports.

Added an omitted threshold to include NPDES permit SWMMWW language to apply wetland protections to degraded wetlands containing endangered species.

Corrected an omission listing the BMPs that need groundwater depth information.

Corrected the LID BMP flow charts in the short form to match the standard requirements.

Added language to the perforated stub out BMP design to clarify that pretreatment is required before infiltration BMPs.

Revised the bioretention BMP soil design to match the updated 2014 Ecology manual.

Updated planting standards to minimize landscape obstructions to facilities.

3) There are revisions to include previous code language inadvertently omitted in the manual.

Language added prohibiting concentrating runoff onto adjacent properties. This wording was lost in the effort to move almost all code language into the manual.

PROPOSED ACTION:

The Planning Commission approve proposed errata and minor revisions to the Clark County Stormwater Manual 2015 as listed herein and recommend adoption by the Board of County Councilors.

RECOMMENDATION:

Based upon the information and the findings presented in this report and in the supporting documents, staff recommends that the Planning Commission forward to the Board of Clark County Councilors a recommendation of **APPROVAL** of the errata and minor edits to the Clark County Stormwater Manual 2015.

Attachment:

Exhibit 1 – Binder of Clark County Stormwater Manual 2015 errata and minor revisions project:

- 1) SEPA; Department of Ecology
- 2) Errata and minor revisions #1 to the Clark County Stormwater Manual 2015
- 3) Summary of minor revisions



Clark County Stormwater Manual 2015
Errata Sheet #1
September 2016

Below is a summary of changes required to the *Clark County Stormwater Manual 2015* adopted on November 24, 2015 (effective January 8, 2016). These changes have been adopted by Board of County Councilors at a public hearing in November __, 2016.

No.	Book	Section	Page	Change
1	All		All	Add Errata date stamp with <u>Errata #1 September 2016</u>
2	All		throughout	Update references to web links from " <u>.../environmental-services/....</u> " to " <u>.../public-works/....</u> "
3	1	1.2.3	10	Line 2 – Update reference "Chapter 7 of this book " to "Chapter 7 of <u>Book 2</u> "
4	1	1.5.4	24	Line 9 – Update reference "Section 7.6" to "Section <u>7.7</u> "
5	1	1.5.5	24	Line 14 – Update reference "Section 1.5.7.1" to "Section <u>1.5.7</u> "
6	1	1.6.1	36	Line 18 – Update reference " Book 2, Chapter 9 " to " <u>referenced in Book 2 Introduction</u> "
7	1	1.6.3	42	Line 4 – Add " <u>No new development, redevelopment, or drainage project shall be allowed to materially increase or concentrate stormwater runoff onto an adjacent property or block existing drainage from adjacent lots.</u> "
8	1	1.6.4.1	42	Line 9 – Update reference "Section 7.6" to "Section <u>7.7</u> "
9	1	1.6.6	43	Line 10 – Add " <u>All private stormwater facilities that are gated and locked are required to have a double locking system for inspection purposes. It is preferred to use a chain with a county lock and the private lock.</u> "
10	1	1.8.2	53	Line 20 (second paragraph) – Replace the word " Preliminary " with " <u>Final</u> "
11	1	1.8.2.3	58	Line 8 – Remove the word "Chapter" from " CCC Chapter 40.386 "
12	1	1.8.2.3	60-61	Bullet list numbers 7-13 should be updated and renumbered to include the appropriate subordinate list for analysis (a.-d.)
13	1	1.8.2.3	62	Lines 18-23 - Remove the word "Chapter" from " CCC Chapter 40. "
14	1	1.8.2.3	63	Update sections titles to eliminate duplicate Sections D.3 (update to <u>D.4</u> and <u>D.5</u>)

No.	Book	Section	Page	Change
15	1	TOC	77	Update references under 2.3 to create the correct subordinate sequence
16	1	2.2	80	Line 22 – Change the first word of the bullet from “ Meeting ” to “ <u>Meet</u> ”
17	1	Table 2.3	84	Heading of table 2.3, remove “ subject to Minimum Requirement #1 – #9 ”
18	1	2.3.X	85-89	Subheadings – Change “2.3.1.X” to the next higher level of headings “2.3.X” under Section 2.3
19	1	2.5.5	105	Line 17 – Add “ <u>BMP T5.15</u> ” to heading
20	1	3.2.3.6	129	Update reference to <i>Combined Detention and Wetpool Facilities</i> should be to <u>BMP D6.40</u> instead of T10.40 .
21	1	3.4.5.2	138	Update references from T10.40 to <u>D6.40</u> .
22	1	3.4.5.3	139	Update reference from T10.40 to <u>D6.40</u>
23	1	4.3.2.1	151	Line 13 – Correct the requirement from “ or ” to “ <u>and</u> ”.
24	1	6.3.4.1	174	Line 28 – Update reference for precipitation data from Ecology’s SWMMWW “ Volume III ” to “ <u>Book 2 Appendix 2-A</u> ”
25	1	6.4.9	183	Line 16 – Update reference from Book 4 to <u>Book 3</u>
26	1	Append. C	C-5	Line 1 – Update equation to bracket the first half of the formula
27	1	Append. E	E-1	Line 6 – add <u>reference to Book 1</u>
28	1	Append. E	E-1	Section 1 – update 3.1 to <u>2.1</u>
29	1	Append. E	E-1	Section 1 – update 3.2 to <u>2.2</u>
30	1	Append. E	E-1	Section 1 – update 3.3 to <u>2.3</u>
31	1	Append. H	H-1	Update Guide Sheet 1, last paragraph to reference Figure <u>1.4</u> instead of Figure 1.5
32	1	Append. H	H-5	In the Minimum Requirement 8 Checklist, Item B., update the reference from Appendix 1-K to Appendix <u>1-H</u>
33	1	Append. H	H-5	Add the following question to the Checklist: “ <u>Does the wetland provide habitat for threatened or endangered species? If yes complete the checklist below. If No Stop.</u> ” Update the question bullets to change existing D to <u>E</u> and existing E to <u>F</u> .
34	1	Append. I	I-8	Lines 15 & 18 – Update groundwater assessment to “groundwater <u>depth</u> assessment”

No.	Book	Section	Page	Change
35	1	Append. I	I-8	Lines 15 & 16 – add “, <u>downspout full infiltration or rain garden</u> ” after the word pavement.
36	1	Append. I	I-11	Lines 15 & 16 – add to requirement: “ <u>No new development, redevelopment, or drainage project shall be allowed to materially increase or concentrate stormwater runoff onto an adjacent property or block existing drainage from adjacent lots.</u> ”
37	1	Append. I	I-14	Eliminate Box 1.; change box 2. To 1.; change box 3. to 2.; change box 4. to 3.; second orange box – Eliminate text “ OR (optional) go to next question ” as well as the dotted line to the No line; change box 5. to 4 and eliminate “ and 2. ”; change box 6. to 5.; change box 7. to 6.; and, change box 8. to box 7.
38	1	Append. I	I-15	Eliminate Box 1 and update formatting (65% of site set aside as native vegetation?)
39	1	Append. I	I-32	Fix formatting - Under the applicant line, eliminate the second line
40	1	Append. I	I-66	Fix formatting – eliminate the underline for “Users may reference the handbook”
41	1	Append. I	I-66	Replace bullets with numbers for 1-7
42	1	Append. I	I-74	Lines 33 & 34 – Eliminate references to Section 2.5.5.3 in Book 2 and Table 2.3. Replace with “... <u>infeasibility criteria below.</u> ”
43	2	1.3.1.1	8	Line 10 – Change reference from 1.5.2.2 to 1.5.5.2
44	2	BMP T5.10A	22	Line 19 – Change spelling of “ <u>course sands</u> ” to “ <u>coarse sands</u> ”
45	2	BMP T5.10D	33	Line 8 – Add the following to the limitations section: “ <u>Perforated stub outs do not provide pretreatment. Perforated stub outs are not allowed to drain into a subsurface detention or retention facility without first connecting to a pretreatment BMP under Minimum Requirement #6.</u> ”
46	2	BMP T5.11	37	Line 27 – update reference to include punctuation: BMP T5.10C
47	2	BMP T5.13	43	Lines 13 & 14 – Update outdated reference from BMP 7.30 to <u>BMP 5.14B</u> ; also eliminate an extra space after the closing parentheses.
48	2	BMP T5.14B	66 & 68	Line 8 – Update BMS to <u>BSM</u> Lines 18-23 – remove existing bullet information [“ If the standard soil mix is used:..... ”] and replace with “ <u>Option 1: If using the Bioretention Soil Mix recommended herein, the WWHM assumes a default</u> ”

No.	Book	Section	Page	Change
				<p>infiltration rate of 12 inches per hour (15.24 cm/hr).”</p> <p>Lines 24-33 – remove existing bullet information [“If a custom soil mix is used....”] and replace with <u>“Option 2: If creating a custom bioretention soil mix, Use ASTM D 2434 Standard Test Method for Permeability of granular Soils (Constant Head) with a compaction rate of 85 percent using ASTM D1557 Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort. The WWHM user must enter the derived value into WWHM using “View/Edit Soil Types” pull down menu and adjusting the Ksat value. After selecting option 1 or 2 above, determine the appropriate safety factor for the saturated hydraulic conductivity (Ksat). If the contributing area of the bioretention cell or swale is equal to or exceeds any of the following limitations: 5,000 square feet of pollution-generating impervious surface; 10,000 square feet of impervious surface; ¼ acre of lawn and landscape, use 4 as the infiltration rate (Ksat) safety factor. If the contributing area is less than all of the above areas, or if the design includes a pretreatment device for solids removal, use 2 as the Ksat safety factor. The WWHM has a field for entering the appropriate safety factor.”</u></p>
49	2	BMP T5.15	77	<p>Line 11 – Update reference for 2.5.3 Book 2 to Book 1.</p> <p>Line 13 – Replace bullet text “No run-on from pervious surfaces is allowed.” with <u>“Run-on from pervious surfaces is not allowed, except from minor or incidental pervious areas that cannot be directed elsewhere. Those areas must be fully stabilized before discharging runoff to the pervious pavement.”</u></p>
50	2	BMP T5.30A	100	<p>Line 10 – Update reference in cross-reference table to add <u>“Book 1”</u> to Section 2.5.3.</p>
51	2	BMP T5.30B	109	<p>Line 9 - Update reference in cross-reference table to add <u>“Book 1”</u> to Section 2.5.3.</p>
52	2	BMP T5.30B	110	<p>Line 22 – Update reference to include proper notation for <u>“BMP T5.30A”</u></p>
53	2	BMP T5.40	113	<p>Line 21 - Update reference to include proper notation for <u>“BMP T5.30A”</u></p>
54	2	BMP	114	<p>Line 8 – Update reference Figure from 9.11 to <u>1.14 in</u></p>

No.	Book	Section	Page	Change
		T5.40		<u>Book 1</u>
55	2	BMP T5.41	116	Line 1 – Add notation for the continuance of the cross reference table from the previous page.
56	2	BMP T8.10	165	Update Figure reference from Plan view to <u>Section</u> view.
57	2	BMP T8.30	172	Line 13 – Update reference for BMP 9.40 to <u>T9.40</u>
58	2	BMP T9.10	200	Line 13 – Update reference from BMP T7.30 to <u>5.14B</u>
59	2	BMP T7.40	215	Line 15 – Update reference from BMP T7.30 to <u>5.14B</u>
60	2	BMP 7.40	216	Line 2 - Update reference from BMP T7.30 to <u>5.14B</u>
61	2	BMP 10.10	221	Line 9 – Update referenced figures from 4.27 and 4.28 to <u>4.26 and 4.27</u>
62	2	5.1.1	250	After Line 6 – Add a new bullet: <u>“Reference BMP D6.10 and BMP 6.20 for landscape requirements at stormwater facilities.”</u>
63	2	5.1.1.3	251	Line 16 – Update the first sentence: <u>“A facility to treat Pretreatment of stormwater influent for suspended solids must precede the is required for each infiltration facility.”</u>
64	2		262	Add to blank page: <u>This page intentionally left blank</u>
65	2	BMP D.610	282	After line 4 – Add bullet: <u>“10. Ensure that mature width of plants are taken into consideration near access roads, pedestrian walkways or manmade structures. To reduce safety and maintenance liabilities, mature plant width should not overhang or encroach into these features.”</u>
66	2	BMP D6.20	288	After line 6 – Add new section: <u>“Landscaping 1. Refer to BMP D6.10 for landscape requirements, as well as statements listed below. 2. Plantings directly above the detention tank system shall include only shallow rooted herbaceous perennials, low growing shrubs or grasses. Trees and shrubs should be avoided to minimize risk of roots impeding storage volume and capacity, as well as structural integrity of the system. Plantings should not include varieties that are water seeking such as sedges or rushes. 3. Avoid any plantings around the perimeter of detention tank that will cause root encroachment into the tank storage area. Large trees should be</u>

No.	Book	Section	Page	Change
				<u>planted a minimum of 10' from edge of detention tank storage area."</u>
67	2	BMP D6.40	300	Line 13, second bullet – Update reference from 6.1.7 to 6.1.4
68	2	7.2	303	Add last bullet: <u>No new development, redevelopment, or drainage project shall be allowed to materially increase or concentrate stormwater runoff onto an adjacent property or block existing drainage from adjacent lots.</u>
69	2	BMP C209	400	Line 15 – Update reference from Section 7.6 to 7.7
70	2	Appendix C	C-4	Line 16 – Update reference from "BMP T5.10B of Volume III – Chapter 3" to "BMP T5.10C of Book 2"
71	2	Appendix C	C-4	Lines 34 & 36 – Update reference for BMPs in the last bullet from "Book 1" to "Book 2"
72	2	Appendix C	C-13	Lines 26 & 27 – Update reference "explained in Book 1, Section 2.2.1.3" and "Book 1, Section 4.3.1.3" to "Book 1, Section 2.3.1.4"
73	2	Appendix C	C-14	Line 7 – Update reference from BMP T5.10B to C
74	2	Appendix C	C-15	Lines 9 & 13 – Add a period at the end of the sentences.
75	2	Appendix D	D-1	Line 6 – Update reference from "See Appendix 1-D" to "See Appendix 1-C"
76	2	Appendix D	D-1	Line 20 – Update reference for Site Characterization Study from "Section 4.4" to "Book 1, Section 4.3.1.2"
77	2	Appendix D	D-1	Line 25 – Add "Book 1," to reference of Section 4.4, Table 4.1
78	2	Appendix D	D-1	Line 26 – Update reference for CARA sites from "Section 4.2.2" to "Section 4.3.1.1"
79	2	Appendix D	D-2	Line 24 – Update reference for coefficient of permeability from "Section 4.5.2" to "Section 4.3.1.3"
80	2	Appendix D	D-2	Line 25 – Update reference for correction factors from "Section 4.5.4" to "Section 4.3.1.3"
81	3	2.1.3	9	Figure 2.1 - Picture caption – Left justify Source information and update to correct reference "Source: <u>Fresh Look Mobil Power Wash</u> "
82	3	2.1.3	10	Line 32 – Update reference to metal medallion from "Book 2, Figure 9.1" to "Book 1, Figure 1.5"
83	3	2.1.4	11	Figure 2.2 – Update photo source to correct source:

No.	Book	Section	Page	Change
				"Source: <u>Brady Worldwide</u> "
84	3	S412	47	Line 28 – Update references from "Figures 2.6 and 2.6" to "Figures 2.7 and 2.8"
85	3		52	Eliminate duplicate statement: " This page intentionally left blank. "
86	3	S419	63	Line 29 – Update statement ".....or covering the storm..."
87	3	S426	79	Figure 2.11 – Update photo source to correct source: "Source: <u>Brady Worldwide</u> "
88	3	Appendix 3-A	A-17	Line 15 – <u>Insert tab</u> to properly align "Commercial Car and Truck Washes"
89	3	Appendix 3-E	E-1	Second to last line – Update reference from "Table G.6 " to "Table <u>E.6</u> "
90	4		6	Line 10 – Update "Biofiltration wale" to "Biofiltration <u>swale</u> "
91	4	Detention Pond	44	Lines 23 and 24 – Update the word " Tree " to " <u>Vegetation</u> " to clarify that all vegetation should be inspected to minimize impact to inspection access
92	4	Closed Detention System	73	After Line 44, add a new row in the table: " <u>Vegetation Encroachment - Root encroachment of tree or shrub have impacted function or integrity of wetvault. - Roots are found in vault to be removed and repair vault.</u> "
93	4	Wet Vault	77	After Line 31, add a new row in the table: " <u>Vegetation Encroachment - Root encroachment of tree or shrub have impacted function or integrity of wetvault. - Roots are found in vault to be removed and repair vault.</u> "
94	4	Modular Detention Systems	79	After Line 41, add a new row in the table: " <u>Vegetation Encroachment - Root encroachment of tree or shrub have impacted function or integrity of wetvault. - Roots are found in vault to be removed and repair vault.</u> "
<i>End of summary</i>				