

**ORDINANCE NO. 2016-11-22**

**An ordinance amending portions of the Clark County Stormwater Manual 2015**

WHEREAS, pursuant to the National Pollution Discharge Elimination System of the Federal Clean Water Act and Chapter 90.48 RCW, the Washington Department of Ecology (Ecology) issued Clark County a Phase I Municipal Stormwater Permit (Permit) on August 1, 2013 (amended December 2014 and July 2016). The Permit required the county to adopt a revised stormwater manual that is equivalent to Ecology’s *Storm Water Management Manual for Western Washington* (SWMMWW) (2012, amended 2014) that was adopted on November 24, 2015 and became effective January 8, 2016; and,

WHEREAS, to update the *Clark County Stormwater Manual 2015*, in February 2016 Clark County commenced an errata outreach effort that has included: 1) a Technical Advisory Committee consisting of local engineers, design specialists and Phase II permittees, 2) local stakeholders from the general engineering/stormwater community.; and, 3) internal staff stakeholders via Clark County Stormwater implementation forum meetings; and,

WHEREAS, on September 20 and 27, 2016, Clark County Public Works Department published a SEPA determination of non-significance (DNS), and by the end of the comment period, no person provided comments regarding the DNS to the county; and,

WHEREAS, on October 5, 2016, Clark County published legal public notice of the Clark County Planning Commission public hearing to be held October 20, 2016; and,

WHEREAS, on October 6, 2016, the Clark County Planning Commission held a work session concerning the Permit update at a public meeting, and on October 20, 2016, held a public hearing at which it took public testimony. At that public hearing, the Planning Commission deliberated and developed its recommendations to the Board; and,

WHEREAS, on November 7, 2016, Clark County published legal public notice that the Board would hold a public hearing on November 22, 2016 to consider the minor manual updates; and,

WHEREAS, on November 22, 2016, the Board held a public hearing at which it took public testimony and considered the Planning Commission’s recommendations; and,

WHEREAS, the Board finds that it is in the best public interest for the health, safety and welfare of the citizens of Clark County to adopt the errata manual revisions set forth herein to the *Clark County Stormwater Manual 2015 – September 2016 Errata*;

BE IT HEREBY ORDERED, RESOLVED AND DECREED BY THE BOARD OF COUNTY COUNCILORS OF CLARK COUNTY, STATE OF WASHINGTON AS FOLLOWS:

**Section 1. Amendatory.:** Below is a summary of changes required to the *Clark County Stormwater Manual 2015* adopted on November 24, 2015 (effective January 8, 2016), with ~~strikeout~~/underline changes noted:

No.	Book	Section	Page	Change
1	All		All	Add Errata date stamp with <u>Errata September 2016</u>
2	All		Throughout	Update references to web links from

No.	Book	Section	Page	Change
				<del>“.../environmental services/....”</del> to <u>“.../public-works/....”</u>
3	All	Multiple	Throughout	Add the following line to blank pages with no text: <u>“This page intentionally left blank”</u>
4	1	1.2.3	10	Line 2 – Update reference “Chapter 7 of <del>this book</del> ” to <u>“Chapter 7 of Book 2”</u>
5	1	1.5.4	24	Line 9 – Update reference “Section 7.6” to <u>“Section 7.7”</u>
6	1	1.5.5	24	Line 14 – Update reference “Section 1.5.7-1” to <u>“Section 1.5.7”</u>
7	1	1.6.1	36	Line 18 – Update reference <del>“Book 2, Chapter 9”</del> to <u>“referenced in Book 2 Introduction”</u>
8	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>
9	1	1.6.4.1	42	Line 9 – Update reference “Section 7.6” to <u>“Section 7.7”</u>
10	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>
11	1	1.6.7	43	Add section 1.6.7: <u>“1.6.7 Flood Plain Requirements In addition to the requirements of Chapter 40.420 Flood Hazard Areas, any reduction of existing conveyance capacity, and any net loss of existing storage capacity, for the one hundred (100) year storm, are prohibited in FEMA Special Flood Hazard Areas (SFHA). This prohibition also applies to all areas within the limits of the existing one hundred (100) year floodplain, as determined by hydrologic/hydraulic computations, for all streams and manmade channels.”</u>
12	1	1.8.2	53	Line 20 (second paragraph) – Replace the word <u>“Preliminary”</u> with <u>“Final”</u>
13	1	1.8.2	56 & 57	Last line on 56 – Update to include: <u>“...rain gardens, as well as any stormwater system that includes or requires plantings in or over the proposed stormwater system, provide....”</u> Line 2 on 57– Update to include: <u>“...plant types, sizes and locations. Planting plan shall include proposed grading (1-foot contours) and stormwater system layout to ensure minimal conflict between plantings</u>

No.	Book	Section	Page	Change
				<u>and stormwater system.”</u>
14	1	1.8.2.3	58	Line 8 – Remove the word “Chapter” from “CCC <del>Chapter</del> 40.386”
15	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.)
16	1	1.8.2.3	62	Lines 18-23 - Remove the word “Chapter” from “CCC <del>Chapter</del> 40.”
17	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> )
18	1	TOC	77	Update references under 2.3 to create the correct subordinate sequence
19	1	2.2	80	Line 22 – Change the first word of the bullet from “ <u>Meeting</u> ” to “ <u>Meet</u> ”
20	1	Table 2.3	84	Heading of table 2.3, remove “ <del>subject to Minimum Requirement #1 – #9</del> ”
21	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
22	1	2.5.5	105	Line 17 – Add “ <u>BMP T5.15</u> ” to heading
23	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 <del>T10.40</del> .
24	1	3.4.5.2	138	Update references from <del>T10.40</del> to <u>D6.40</u> .
25	1	3.4.5.3	139	Update reference from <del>T10.40</del> to <u>D6.40</u>
26	1	4.3.2.1	151	Line 13 – Correct the requirement from “ <del>or</del> ” to “ <u>and</u> ”.
27	1	6.3.4.1	174	Line 28 – Update reference for precipitation data from Ecology’s SWMMWW “ <del>Volume III</del> ” to “ <u>Book 2 Appendix 2-A</u> ”
28	1	6.4.9	183	Line 16 – Update reference from Book 4 to <u>Book 3</u>
29	1	Append. C	C-5	Line 1 – Update equation to bracket the first half of the formula
30	1	Append. E	E-1	Line 6 – add <u>reference to Book 1</u>
31	1	Append. E	E-1	Section 1 – update <del>3.1</del> to <u>2.1</u>
32	1	Append. E	E-1	Section 1 – update <del>3.2</del> to <u>2.2</u>
33	1	Append. E	E-1	Section 1 – update <del>3.3</del> to <u>2.3</u>
34	1	Append. H	H-1	Update Guide Sheet 1, last paragraph to reference Figure <u>1.4</u> instead of Figure 1.5

No.	Book	Section	Page	Change
35	1	Append. H	H-5	In the Minimum Requirement 8 Checklist, Item B., update the reference from Appendix 1-K to Appendix 1-H
36	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 E and existing E to F.
37	1	Append. I	I-8	Lines 15 & 18 – Update groundwater assessment to "groundwater <u>depth</u> assessment"
38	1	Append. I	I-8	Lines 15 & 16 – add ", <u>downspout full infiltration or rain garden</u> " after the word pavement.
39	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> "
40	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 " <del>OR (optional) go to next question</del> " as well as the dotted line to the No line; change box 5. to 4 and eliminate " <del>and 2.</del> "; change box 6. to 5.; change box 7. to 6.; and, change box 8. to box 7.
41	1	Append. I	I-15	Eliminate Box 1 and update formatting (65% of site set aside as native vegetation?)
42	1	Append. I	I-32	Fix formatting - Under the applicant line, eliminate the second line
43	1	Append. I	I-66	Fix formatting – eliminate the underline for "Users may reference the handbook"
44	1	Append. I	I-66	Replace bullets with numbers for <u>1-7</u>
45	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> "
46	2	1.3.1.1	8	Line 10 – Change reference from 1.5.2.2 to 1.5.5.2
47	2	BMP T5.10A	22	Line 19 – Change spelling of "c <del>our</del> se sands" to "c <del>our</del> se sands"
48	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</u>

No.	Book	Section	Page	Change
				<u>connecting to a pretreatment BMP under Minimum Requirement #6."</u>
49	2	BMP T5.11	37	Line 27 – update reference to include punctuation: BMP T5.10C
50	2	BMP T5.13	43	Lines 13 & 14 – Update outdated reference from <del>BMP 7.30</del> to <u>BMP 5.14B</u> ; also eliminate an extra space after the closing parentheses.
51	2	BMP T5.14B	66 & 68	Line 8 – Update <del>BMS</del> to <u>BSM</u> Lines 18-23 – remove existing bullet information [ <del>"If the standard soil mix is used:....."</del> ] and replace with <u>"Option 1: If using the Bioretention Soil Mix recommended herein, the WWHM assumes a default infiltration rate of 12 inches per hour (15.24 cm/hr)."</u> Lines 24-33 – remove existing bullet information [ <del>"If a custom soil mix is used....."</del> ] 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; ¾ 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>
52	2	BMP T5.15	77	Line 11 – Update reference for 2.5.3 Book <del>2</del> to Book <u>1</u> . Line 13 – Replace bullet text <del>"No run-on from pervious surfaces is allowed."</del> 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</u>

No.	Book	Section	Page	Change
				<u>discharging runoff to the pervious pavement.</u> "
53	2	BMP T5.30A	100	Line 10 – Update reference in cross-reference table to add " <u>Book 1</u> " to Section 2.5.3.
54	2	BMP T5.30B	109	Line 9 - Update reference in cross-reference table to add " <u>Book 1</u> " to Section 2.5.3.
55	2	BMP T5.30B	110	Line 22 – Update reference to include proper notation for " <u>BMP T5.30A</u> "
59	2	BMP T5.40	113	Line 21 - Update reference to include proper notation for " <u>BMP T5.30A</u> "
60	2	BMP T5.40	114	Line 8 – Update reference Figure from <del>9.11</del> to <u>1.14</u> in <u>Book 1</u>
61	2	BMP T5.41	116	Line 1 – Add notation for the continuance of the cross reference table from the previous page.
62	2	BMP T8.10	165	Update Figure reference from <del>Plan</del> view to <u>Section</u> view.
63	2	BMP T8.30	172	Line 13 – Update reference for BMP 9.40 to <u>T9.40</u>
64	2	BMP T9.10	200	Line 13 – Update reference from BMP <del>T7.30</del> to <u>5.14B</u>
65	2	BMP T7.40	215	Line 15 – Update reference from BMP <del>T7.30</del> to <u>5.14B</u>
66	2	BMP 7.40	216	Line 2 - Update reference from BMP <del>T7.30</del> to <u>5.14B</u>
67	2	BMP 10.10	221	Line 9 – Update referenced figures from <del>4.27 and 4.28</del> to <u>4.26 and 4.27</u>
68	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> "
69	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> "
70	2	BMP D.610	282	After line 4 – Add bullet: " <u>10. Ensure that mature widths 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> "

No.	Book	Section	Page	Change
71	2	BMP D6.20	287	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 planted a minimum of 10’ from edge of detention tank storage area.”</u>
72	2	BMP D6.40	300	Line 13, second bullet – Update reference from 6.1.7 to 6.1.4
73	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>
74	2	BMP C209	400	Line 15 – Update reference from Section 7.6 to 7.7
75	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”
76	2	Appendix C	C-4	Lines 34 & 36 – Update reference for BMPs in the last bullet from “Book 1” to “Book 2”
77	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”
78	2	Appendix C	C-14	Line 7 – Update reference from BMP T5.10B to C
79	2	Appendix C	C-15	Lines 9 & 13 – Add a period at the end of the sentences.
80	2	Appendix D	D-1	Line 6 – Update reference from “See Appendix 1-D” to “See Appendix 1-C”
81	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”
82	2	Appendix D	D-1	Line 25 – Add “Book 1,” to reference of Section 4.4, Table 4.1

No.	Book	Section	Page	Change
83	2	Appendix D	D-1	Line 26 – Update reference for CARA sites from “Section 4.2.2” to “Section 4.3.1.1”
84	2	Appendix D	D-2	Line 24 – Update reference for coefficient of permeability from “Section 4.5.2” to “Section 4.3.1.3”
85	2	Appendix D	D-2	Line 25 – Update reference for correction factors from “Section 4.5.4” to “Section 4.3.1.3”
86	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> ”
87	3	2.1.3	10	Line 32 – Update reference to metal medallion from “Book 2, Figure 9.1” to “Book 1, Figure 1.5”
88	3	2.1.4	11	Figure 2.2 – Update photo source to correct source: “Source: <u>Brady Worldwide</u> ”
89	3	S412	47	Line 28 – Update references from “Figures 2.6 and 2.6” to “Figures 2.7 and 2.8”
90	3		52	Eliminate duplicate statement: “ <del>This page intentionally left blank.</del> ”
91	3	S419	63	Line 29 – Update statement “.....or covering the storm...”
92	3	S426	79	Figure 2.11 – Update photo source to correct source: “Source: <u>Brady Worldwide</u> ”
93	3	Appendix 3-A	A-17	Line 15 – <u>Insert tab</u> to properly align “Commercial Car and Truck Washes”
94	3	Appendix 3-E	E-1	Second to last line – Update reference from “Table G.6” to “Table E.6”
95	4		6	Line 10 – Update “Biofiltration wale” to “Biofiltration swale”
96	4	Detention Pond	44	Lines 23 and 24 – Update the word “Free” to “ <u>Vegetation</u> ” to clarify that all vegetation should be inspected to minimize impact to inspection access.
97	4	Closed Detention System	73 & 74	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> ”
98	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> ”



No.	Book	Section	Page	Change
99	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> "
End of summary				

1

2 **Section 2. Effective Date.** This ordinance shall take effect at midnight, ten days after adoption  
3 of this ordinance.

4

5 ADOPTED this \_\_\_\_\_ day of November, 2016.

6

BOARD OF COUNTY COUNCILORS

7 ATTEST:

8 \_\_\_\_\_  
9 Clerk of the Board

By: \_\_\_\_\_  
Mark Boldt, Chair

10  
11 Approved as to form only:  
12 ANTHONY F. GOLIK  
13 Prosecuting Attorney,

By: \_\_\_\_\_  
Jeanne E. Stewart, Councilor

14  
15   
16 \_\_\_\_\_  
17 Christine Cook,  
18 Sr. Deputy Prosecuting Attorney

By: \_\_\_\_\_  
Tom Mielke, Councilor

By: \_\_\_\_\_  
Julie Olson, Councilor

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By: \_\_\_\_\_  
David Madore, Councilor