

Annual Report

Number	Permit Section	Question
1	S5.A.2	Attach updated annual Stormwater Management Program Plan (SWMP Plan). (S5.A.2) Saved Document Name: 2019 SWMP FINAL_1_03272019103430
2	S9.D.5	Attach a copy of any annexations, incorporations or boundary changes resulting in an increase or decrease in the Permittee's geographic area of permit coverage during the reporting period per S9.D.5. Saved Document Name: 18-05 - 6625 Annexing 3.85 Acr_2_03272019103933
3	S5.A.3	Implemented an ongoing program to gather, track, and maintain information per S5.A.3, including costs or estimated costs of implementing the SWMP. Yes
4	S5.A.5.b	Coordinated among departments within the jurisdiction to eliminate barriers to permit compliance. (S5.A.5.b) Yes
5	S5.C.1.a.i and ii	Attach description of public education and outreach efforts conducted per S5.C.1.a.i and ii. Saved Document Name: 2018 E&O_5_03272019041922
6	S5.C.1.b	Created stewardship opportunities (or partnered with others) to encourage resident participation in activities such as those described in S5.C.1.b. Yes
8	S5.C.2.a	Describe the opportunities created for the public to participate in the decision making processes involving the development, implementation and updates of the Permittee's SWMP. (S5.C.2.a) A public hearing is held annually in March to allow for comment on the City's proposed SWMP for the following year. The draft SWMP is available for review on the City website for two weeks prior to the public hearing. City staff encourages the public to review the draft SWMP prior to the public hearing and provide comment.
9	S5.C.2.b	Posted the updated SWMP Plan and latest annual report on your website no later than May 31. (S5.C.2.b) Yes
9b	S5.C.2.b	List the website address. https://aberdeenwa.gov/public-works/stormwater-division/
10	S5.C.3.a.i - vi	Maintained a map of the MS4 including the requirements listed in S5.C.3.a.i.-vi. Yes

Number	Permit Section	Question
11	S5.C.3.b.v	Implemented a compliance strategy, including informal compliance actions as well as enforcement provisions of the regulatory mechanism described in S5.C.3.b. (S5.C.3.b.v) Yes
12	S5.C.3.b.vi	Updated, if necessary, the regulatory mechanism to effectively prohibit illicit discharges into the MS4 per S5.C.3.b.vi. (Required no later than February 2, 2018) Yes
12b		Cite the Prohibited Discharges code reference Aberdeen Municipal Code 13.70.200
13	S5.C.3.c.i	Implemented procedures for conducting illicit discharge investigations in accordance with S5.C.3.c.i. Yes
13b	S5.C.3.c.i	Cite methodology Center for Watershed Protection, October 2004 "Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments"
14	S5.C.3.c.i	Percentage of MS4 coverage area screened in reporting year per S5.C.3.c.i. (Required to screen 40% of MS4 no later than December 31, 2017 (except no later than June 30, 2018 for the City of Aberdeen) and 12% on average each year thereafter. (S5.C.3) 100
15	S5.C.3.c.ii	List the hotline telephone number for public reporting of spills and other illicit discharges. (S5.C.3.c.ii) (360)537-3393
15b	S5.C.3.c.ii	Number of hotline calls received. 5
16	S5.C.3.c.iii	Implemented an ongoing illicit discharge training program for all municipal field staff per S5.C.3.c.iii. Yes
17	S5.C.3.c.iv	Informed public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste. (S5.C.3.c.iv) Yes
17b	S5.C.3.c.iv	Describe the information sharing actions. (S5.C.3.c.iv) Quarterly utility bill inserts to all residents providing education on important stormwater subjects (illicit discharge, low impact development, fecal coliform, etc). Posting of several educational documents and flyers on the City website. Handouts and discussion initiated with the public during festivals and public events. Educational training visits to local 6th grade classrooms.

Number	Permit Section	Question
18	S5.C.3.d	Implemented an ongoing program to characterize, trace, and eliminate illicit discharges into the MS4 per S5.C.3.d.
		Yes
19	S5.C.3.d.iv	Number of illicit discharges, including illicit connections, eliminated during the reporting year. (S5.C.3.d.iv)
		7
20	S5.C.3.d.iv	Attach a summary of actions taken to characterize, trace and eliminate each illicit discharge found by or reported to the permittee. For each illicit discharge, include a description of actions according to required timeline per S5.C.3.d.iv
		Saved Document Name: Illicit Discharge - resolved 2_20_03282019095728
21	S5.C.3.e	Municipal illicit discharge detection staff are trained to conduct illicit discharge detection and elimination activities as described in S5.C.3.e.
		Yes
22	S5.C.4.a	Implemented an ordinance or other enforceable mechanism to address runoff from new development, redevelopment and construction sites per the requirements of S5.C.4.a.
		Yes
23	S5.C.4.a.i-iii	Revised ordinance or other enforceable mechanism to effectively address runoff from new development, redevelopment and construction sites per the requirements of S5.C.4.a.i-iii. (Required no later than December 31, 2016, except no later than June 30, 2017 for Permittees in Lewis and Cowlitz counties, and no later than June 30, 2018 for the City of Aberdeen)
		Yes
23b	S5.C.4.a.i-iii	Cite code reference for revised ordinance or other enforceable mechanism to address runoff from new development, redevelopment and construction sites.
		Aberdeen Municipal Code Section 13.70.080
24	S5.C.4.a.i	Number of exceptions granted to the minimum requirements in Appendix 1. (S5.C.4.a.i., and Section 6 of Appendix 1)
		0
25	S5.C.4.a.i	Number of variances granted to the minimum requirements in Appendix 1. (S5.C.4.a.i., and Section 6 of Appendix 1)
		0
26	S5.C.4.b.i	Reviewed Stormwater Site Plans for all proposed development activities that meet the thresholds adopted pursuant to S5.C.4.a.i. (S5.C.4.b.i)
		Yes
26b	S5.C.4.b.i	Number of site plans reviewed during the reporting period.
		32

Number	Permit Section	Question
27	S5.C.4.b.ii	Inspected, prior to clearing and construction, permitted development sites that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7 Determining Construction Site Sediment Damage Potential, or alternatively, inspected all construction sites meeting the minimum thresholds adopted pursuant to S5.C.4.a.i. (S5.C.4.b.ii)
		Yes
27b	S5.C.4.b.ii	Number of construction sites inspected per S5.C.4.b.ii.
		2
28	S5.C.4.b.iii	Inspected permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls. (S5.C.4.b.iii)
		Yes
28b	S5.C.4.b.iii	Number of construction sites inspected per S5.C.4.b.iii.
		10
29	S5.C.4.b.ii, iii and v	Number of enforcement actions taken during the reporting period (based on construction phase inspections at new development and redevelopment projects). (S5.C.4.b.ii, iii and v)
		0
30	S5.C.4.b.iv	Inspected all permitted development sites that meet the thresholds in S5.C.4.a.i upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater facilities. (S5.C.4.b.iv)
		Yes
31	S5.C.4.b.ii-iv	Achieved at least 80% of scheduled construction-related inspections. (S5.C.4.b.ii-iv)
		Yes
32	S5.C.4.b.iv	Verified a maintenance plan is completed and responsibility for maintenance is assigned for projects. (S5.C.4.b.iv)
		Yes
33	S5.C.4.c	Implemented provisions to verify adequate long-term operation and maintenance (O&M) of stormwater treatment and flow control BMPs/facilities that are permitted and constructed pursuant to S5.C.4. a and b. (S5.C.4.c)
		Yes
34	S5.C.4.c.i and ii	Updated provisions to verify long-term operation and maintenance of stormwater treatment and flow control BMPs/facilities that are permitted pursuant to S5.C.4.a and b. (Required no later than December 31, 2016, except no later than June 30, 2017 for Permittees in Lewis and Cowlitz counties, and no later than June 30 2018 for the City of Aberdeen, S5.C.4.c.i and ii)
		Yes
35	S5.C.4.c.iii	Annually inspected stormwater treatment and flow control BMPs/facilities per S5.C.4.c.iii.
		Yes

Number	Permit Section	Question
35b	S5.C.4.c.iii	If using reduced inspection frequency for the first time during this permit cycle, attach documentation per S5.C.4.c.iii
		Not Applicable
36	S5.C.4.c.iv	Inspected new residential stormwater treatment and flow control BMPs/facilities and catch basins every 6 months per S5.C.4.c.iv to identify maintenance needs and enforce compliance with maintenance standards.
		Not Applicable
37	S5.C.4.c.v	Achieved at least 80% of scheduled inspections to verify adequate long-term O&M. (S5.C.4.c.v)
		Yes
38	S4.C.4.c.vi	Verified that maintenance was performed per the schedule in S5.C.4.c.vi when an inspection identified an exceedance of the maintenance standard.
		Yes
38b	S5.C.4.c.vi	Attach documentation of any maintenance delays. (S5.C.4.c.vi)
		Not Applicable
39	S5.C.4.d	Provided copies of the Notice of Intent for Construction Activity and Notice of Intent for Industrial Activity to representatives of proposed new development and redevelopment. (S5.C.4.d)
		Yes
40	S5.C.4.e	All staff responsible for implementing the program to control stormwater runoff from new development, redevelopment, and construction sites, including permitting, plan review, construction site inspections, and enforcement are trained to conduct these activities. (S5.C.4.e)
		Yes
41	S5.C.4.f.i	Reviewed, revised and made effective the low impact development-related enforceable documents per S5.C.4.f.i. (Required by December 31, 2016, except by June 30, 2017 for Permittees in Lewis and Cowlitz counties, and by June 30, 2018 for the City of Aberdeen)
		Yes
41b	S5.C.4.f.ii	Attach a summary of the LID review and revision process that includes the requirements listed in S5.C.4.f.ii. (Required with annual report due no later than March 31, 2017, except no later than March 31, 2018 for Permittees in Lewis and Cowlitz counties, and with the Fifth Year annual report for the City of Aberdeen)
		Saved Document Name: LID Code Review and Revision P_41b_03292019045510
42	S5.C.4.g	Participated and cooperated with the watershed-scale stormwater planning process led by a Phase I county. (S5.C.4.g)
		Not Applicable

Number	Permit Section	Question
43	S5.C.5.a	Updated and implemented maintenance standards as protective, or more protective, of facility function as those specified in Chapter 4 of Volume V of the 2012 Stormwater Management Manual for Western Washington. (Required no later than December 31, 2016, except no later than June 30, 2017 for Permittees in Lewis and Cowlitz counties, and no later than June 30, 2018 for the City of Aberdeen, S5.C.5.a)
		Yes
44	S5.C.5.a	Applied a maintenance standard that is not specified in the Stormwater Management Manual for Western Washington.
		No
45	S5.C.5.a.ii	Performed timely maintenance per S5.C.5.a.ii.
		Yes
46	S5.C.5.b	Annually inspected all municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities. (S5.C.5.b)
		Yes
46b	S5.C.5.b	Number of known municipally owned or operated stormwater treatment and flow control BMPs/facilities. (S5.C.5.b)
		7
46c	S5.C.5.b	Number of facilities inspected during the reporting period. (S5.C.5.b)
		7
46d	S5.C.5.b	Number of facilities for which maintenance was performed during the reporting period. (S5.C.5.b)
		7
47	S5.C.5.b	If using reduced inspection frequency for the first time during this permit cycle, attach documentation per S5.C.5.b.
		Not Applicable
48	S5.C.5.c	Conducted spot checks and inspections (if necessary) of potentially damaged stormwater facilities after major storms as per S5.C.5.c.
		Yes
49	S5.C.5.d	Inspected all municipally owned or operated catch basins and inlets as per S5.C.5.d, or used an alternative approach. (Required once no later than August 1, 2017 and every two years thereafter, except once no later than June 30, 2018 and every two years thereafter for the City of Aberdeen)
		Yes
49b	S5.C.5.d	Number of known catch basins.
		3581
49c	S5.C.5.d	Number of catch basins inspected during the reporting period.
		951

Number	Permit Section	Question
49d	S5.C.5.d	Number of catch basins cleaned during the reporting period.
		261
50	S5.C.5.d.i-ii	Attach documentation of alternative catch basin cleaning approach, if used. (S5.C.5.d.i or ii)
		Not Applicable
51	S5.C.5.f	Implemented practices, policies and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the Permittee, and road maintenance activities under the functional control of the Permittee. (S5.C.5.f)
		Yes
52	S5.C.5.g	Implemented an ongoing training program for Permittee employees whose primary construction, operations or maintenance job functions may impact stormwater quality. (S5.C.5.g.)
		Yes
53	S5.C.5.h	Implemented a Stormwater Pollution Prevention Plan for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this Permit that are not required to have coverage under an NPDES permit that covers stormwater discharges associated with the activity. (S5.C.5.h)
		Yes
54	S7.A	Complied with the Total Maximum Daily Load (TMDL)-specific requirements identified in Appendix 2. (S7.A)
		Yes
55	S7.A	For TMDLs listed in Appendix 2: Attach a summary of relevant SWMP and Appendix 2 activities to address the applicable TMDL parameter(s). (S7.A)
		Saved Document Name: TMDL Summary 3-2019_55_03272019034544
56	S8.A	Attach a description of any stormwater monitoring or stormwater-related studies as described in S8.A.
		Saved Document Name: 2018 TMDL Discharge Point Samp_56_03282019043334
57	S8.B.1	Participated in cost-sharing for the regional stormwater monitoring program (RSMP) for status and trends monitoring. (S8.B.1)
		Not Applicable
58	S8.C.1	Participated in cost-sharing for the regional stormwater monitoring program (RSMP) for effectiveness studies. (S8.C.1) (Required to begin no later than August 15, 2014)
		Yes
59	S8.D.1	Contributed to the RSMP for source identification and diagnostic monitoring information repository in accordance with S8.D.1. (Required to begin no later than August 15, 2014)
		Yes

Number	Permit Section	Question
60	G3	Notified Ecology in accordance with G3 of any discharge into or from the Permittees MS4 which could constitute a threat to human health, welfare or the environment. (G3) Yes
61	G3	Number of G3 notifications provided to Ecology. 1
62	G3.A	Took appropriate action to correct or minimize the threat to human health, welfare, and/or the environment per G3.A. Yes
63	S4.F.1	Notified Ecology within 30 days of becoming aware that a discharge from the Permittee's MS4 caused or contributed to a known or likely violation of water quality standards in the receiving water. (S4.F.1) Yes
64	S4.F.3.a	If requested, submitted an Adaptive Management Response report in accordance with S4.F.3.a. Not Applicable
65	S4.F.3.d	Attach a summary of the status of implementation of any actions taken pursuant to S4.F.3 and the status of any monitoring, assessment, or evaluation efforts conducted during the reporting period. (S4.F.3.d) Not Applicable
66	G20	Notified Ecology of the failure to comply with the permit terms and conditions within 30 days of becoming aware of the non-compliance. (G20) Not Applicable
67	G20	Number of non-compliance notifications (G20) provided in reporting year. 0
67b	G20	List the permit conditions described in non-compliance notification(s). Not Applicable

Attachments:

View Files Attached to Submission

DocDescr	DocName	DocExt	DocID	SubID	AppName	
View WAR045026_2_03272019103933	18-05 - 6625 Annexing 3.85 Acr_2_03272019103933	.pdf	789456	1662697	wqwebportal	
View WAR045026_5_03272019041922	2018 E&O_5_03272019041922	.pdf	789714	1662697	wqwebportal	
View WAR045026_56_03282019043334	2018 TMDL Discharge Point Samp_56_03282019043334	.pdf	790073	1662697	wqwebportal	
View WAR045026_1_03272019103430	2019 SWMP FINAL_1_03272019103430	.pdf	789454	1662697	wqwebportal	
View	COA IDDE Program - 20181227	.pdf	790347	1662697	wqwebportal	
View	Submitted Copy of Record for City of Aberdeen	Copy of Record CityofAberdeen Friday March 29 2019	.pdf	790390	1662697	wqwebportal
View	Submitted Cover Letter for City of Aberdeen	Cover Letter CityofAberdeen Friday March 29 2019	.pdf	790391	1662697	wqwebportal
View WAR045026_20_03282019095728	Illicit Discharge - resolved 2_20_03282019095728	.pdf	789797	1662697	wqwebportal	

View	WAR045026_41b_03292019045510	LID Code Review and Revision P_41b_03292019045510	.pdf	790385	1662697	wqwebportal
View		Municipal O and M Program - 12.28.2018	.pdf	790349	1662697	wqwebportal
View		Stormwater Quality Program - 12.27.2018	.pdf	790346	1662697	wqwebportal
View	WAR045026_55_03272019034544	TMDL Summary 3-2019_55_03272019034544	.pdf	789706	1662697	wqwebportal

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Bill # 18- 05

ORDINANCE NO. 6625

**AN ORDINANCE ANNEXING TO THE CITY OF ABERDEEN REAL PROPERTY,
OWNED BY THE CITY OF ABERDEEN AND CONTIGUOUS TO THE CITY OF
ABERDEEN, FOR MUNICIPAL PURPOSES**

**BE IT ORDAINED BY THE MAYOR AND THE CITY COUNCIL OF THE CITY OF
ABERDEEN:**

SECTION 1. ANNEXATION FOR MUNICIPAL PURPOSES. The following described real property, as also shown on Exhibit A attached to this Ordinance, owned in fee simple by the City of Aberdeen and contiguous to the City's existing boundaries, is hereby annexed to the City of Aberdeen for municipal purposes pursuant to RCW 35.13.180:

Tax Lot 2 of Section 21, Township 17 North, Range 9 West of Willamette Meridian, more particularly described as follows:

That portion of the Southwest Quarter of the Northwest Quarter of Section 21, Township 17 North, Range 9 West of the Willamette Meridian, described as follows:

Beginning at a point on the West line of said Southwest Quarter of the Northwest Quarter, 250 feet South of the Northwest corner thereof; thence North 250 feet to said Northwest corner; thence East on the North line of said Southwest Quarter of the Northwest Quarter, 610.3 feet, more or less, to its intersection with the Westerly line of the right of way owned by the City of Aberdeen; thence Southeasterly on the Westerly line of said road right of way extended Southeasterly 279.35 feet; thence West parallel with the North line of said Southwest Quarter of the Northwest Quarter 734.9 feet, more or less, to the point of beginning; situate in Grays Harbor County, state of Washington.

Deed executed August 3, 2017; recorded August 31, 2017.

SECTION 2. INTERIM ZONING CONTROLS. Under the authority of RCW 35.63.200, all property within the territory annexed by this Ordinance is hereby zoned Industrial (I) and shall be subject to all development regulations of the City of Aberdeen in effect at the time of annexation. These zoning controls are adopted on an interim basis and shall be in full force and effect no longer than six (6) months after the effective date of this section or until final zoning controls are adopted by the City Council, whichever should occur first. The City Council shall hold a public hearing on the interim zoning controls at its regular meeting on August 8, 2018 at 7:15pm. The City Council finds that an interim designation of the annexation area as Industrial

will allow for municipal uses consistent with adjacent city property and provide adequate time for the Planning Commission and City Council to review and adopt permanent zoning controls for the newly annexed area.

SECTION 3. DUTIES OF THE CITY CLERK. This annexation is a change in the boundary of the City of Aberdeen arising from the annexation of contiguous City-owned property held for a public purpose and is exempt from the filing and notice requirements of RCW 36.93.090, it is fewer than 10 acres with an assessed value of less than \$2,000,000.00 and therefore not subject to review with a written statement of the Chair of the Boundary Review Board under 36.93.110. The Finance Director, or in his or her absence the Corporation Counsel, shall file certified copies of the Ordinance to the Grays Harbor County Boundary Review Board and the Washington State Office of Financial Management pursuant to RCW 35.13.260.

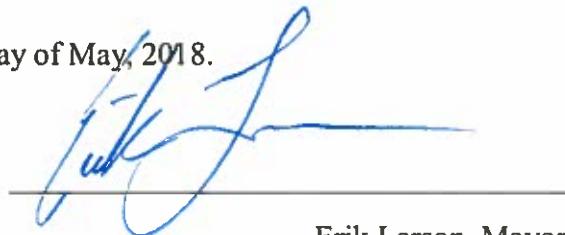
SECTION 4. ZONING MAP AMENDED. The City's Zoning Map is hereby amended to conform to the annexation approved in this Ordinance.

SECTION 5. SEVERABILITY. Should any section, subsection, paragraph, sentence, clause or phrase of this Ordinance or its application to any person or situation be declared unconstitutional or invalid for any reason, such decision shall not affect the validity of the remaining portions of this Ordinance or its application to any other person or situation.

SECTION 6. PUBLICATION BY SUMMARY. The Finance Director, or in his or her absence the Corporation Counsel, is authorized and directed to publish the attached summary in lieu of this Ordinance.

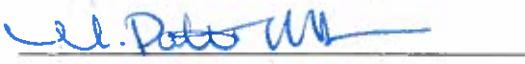
SECTION 7. EFFECTIVE DATE. This Ordinance shall take effect immediately upon its passage, signing, and publication.

PASSED and APPROVED this 9th day of May, 2018.



Erik Larson, Mayor

ATTESTED:



_____, Finance Director

M. Patrice Kent, Acting City Clerk (Corporation Counsel)

ORDINANCE NO. 6625

**AN ORDINANCE ANNEXING TO THE CITY OF ABERDEEN REAL
PROPERTY, OWNED BY THE CITY OF ABERDEEN AND CONTIGUOUS TO THE
CITY OF ABERDEEN, FOR MUNICIPAL PURPOSES**

The following is a summary of the ordinance for the purposes of publication. The full text of the ordinance will be mailed upon request.

Section 1. Annexes 3.85 acre property, further described as tax parcel # 170921230020, into the City of Aberdeen, and modifies the City of Aberdeen boundary to include said parcel.

Section 2. Publication by summary authorized

Section 3. Effective date: immediately upon its passage, signing and publication and not before June 17, 2018.

PASSED and APPROVED on this 9th day of May, 2018

/s/ Erik Larson, Mayor

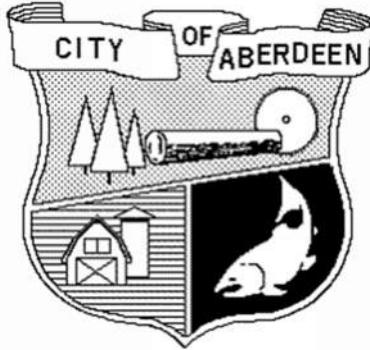
/s/ M. Patrice Kent, Interim City Clerk (Corporation Counsel) (ATTEST)

2018 TMDL Discharge Point Sampling
 Discharge Points: 501-ABDN, 510-MST, 514-HST

Date	Location	Ph	Conductivity (µS/cm)	Temperature (C)	Turbidity (NTU)	Fecal Count (CFU/100mL)
1/12/2018	Division St (501-ABDN)	6.51	98.1	10.7	3.69	E-240
	M St (510-MST)	6.54	93.8	10.6	2.69	E-67
	H St (514-HST)	6.50	133.3	10.2	2.63	E-45
1/30/2018	Division St (501-ABDN)	6.65	85	10.9	3.04	54
	M St (510-MST)	6.65	95.2	11.2	2.15	E-22
	H St (514-HST)	6.79	161.8	12.2	170.00	E-1
3/22/2018	Division St (501-ABDN)	6.91	51.5	11	13.80	210
	M St (510-MST)	6.78	48.4	10.1	71.20	310
	H St (514-HST)	6.72	50.1	10.2	20.30	600
3/23/2018	Division St (501-ABDN)	7.07	128.9	11.7	6.61	74
	M St (510-MST)	6.71	115.5	10.9	6.61	41
	H St (514-HST)	6.60	371	10.7	13.90	390
4/12/2018	Division St (501-ABDN)	6.76	86.4	10.6	4.51	50
	M St (510-MST)	6.56	77.1	12.8	7.20	93
	H St (514-HST)	6.75	74.8	10.9	12.30	100
4/13/2018	Division St (501-ABDN)	6.65	72.3	12.6	6.32	230
	M St (510-MST)	6.53	86.4	11.4	4.75	E-1018
	H St (514-HST)	6.71	215.7	11.5	13.00	E-1081
10/26/2018	Division St (501-ABDN)	6.47	1323	16.9	7.03	5100
	M St (510-MST)	6.44	245.6	17.4	5.93	3100
	H St (514-HST)	7.35	31.5	17	6.33	460
10/28/2018	Division St (501-ABDN)	6.58	223	13.6	9.18	E-2100
	M St (510-MST)	6.47	194	14.8	3.38	E-1160
	H St (514-HST)	6.60	277	14.4	4.67	E-4200
11/28/2018	Division St (501-ABDN)	6.72	133.9	14	-	80
	M St (510-MST)	6.59	138.3	15.3	-	135
	H St (514-HST)	6.68	128.1	14.4	-	315
11/29/2018	Division St (501-ABDN)	6.71	234	13	2.27	E-40
	M St (510-MST)	6.68	150.5	14.7	2.03	E-42
	H St (514-HST)	6.55	195.9	14.7	2.95	42

Table 2-1. 2018 Education and Outreach Work Plan

Task ID #	Task Description	Due Date	Notes
EDUC-1	Schedule, advertise, and conduct public meeting regarding 2018 SWMP	March 2018	Coordinate with regularly scheduled March city-council meeting
EDUC-2	Update stormwater website	March 2018	Include 2018 SWMP, and 2017 annual report
EDUC-3	Schedule and conduct Education and Outreach with Grade 6 students in the Aberdeen School District	June 2018	Schedule with the schools TBD.
EDUC-4	Community Outreach – SPLASH Festival, and Aberdeen Art Walk	July 2018	FINN the Fish, illicit discharge and pet waste.
EDUC-5 & IDDE-7	Educational Utility Bill Insert	December 2018	Fecal Coliform, Illicit Discharge, Low Impact Development, Measurement of Understanding Survey



**City of Aberdeen
Stormwater Management Program (SWMP)**

Calendar Year 2019

Prepared pursuant to the Western Washington Phase II Municipal Stormwater Permit

City of Aberdeen Phase II Permit # WAR04-5026

By

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Introduction

Purpose

This document constitutes the City of Aberdeen 2019 Stormwater Management Program (SWMP) as required under condition S5 of the Western Washington Phase II Municipal Stormwater Permit (Permit). The Permit requires the creation and implementation of a SWMP to address five required program elements (S5.C.1 - S5.C.5), Monitoring and Assessment (S8), and Total Maximum Daily Load (TMDL)(Appendix 2) requirements. This SWMP will be attached to the 2018 Annual Compliance Report, which is due to Ecology on March 31, 2019.

The goal of the SWMP is to reduce the discharge of pollutants from the City's municipal separate storm sewer system (MS4) to the maximum extent practicable and to protect the water quality of local streams and rivers, which receive stormwater runoff from the MS4.

Background

In 1972, the United States Congress passed the Clean Water Act (CWA), which established water quality goals for the surface waters of the United States. Congress amended the CWA in 1987 to address stormwater, which resulted in the creation of the National Pollutant Discharge Elimination System (NPDES) permit program, administered by the Environmental Protection Agency. The agency delegated responsibility to administer the NPDES permit program to most states, including Washington State via the Department of Ecology.

The NPDES was created with the goal of restoring water quality in surface waters (rivers, lakes, streams, bays, etc.). Permits and compliance codes were created to regulate stormwater discharges into surface waters by private and governmental entities. Failure to comply with these regulations may result in fines and other penalties.

The Department of Ecology established a two-phase permit program. Phase I focused on large and medium-sized municipalities and counties, construction sites greater than or equal to five acres, and major industrial sources. Phase II, finalized in 2000, applied to "small" municipalities (jurisdictions with population less than 100,000) located within, or partially within, an urbanized area that operate a MS4 which discharges to waters of the state.

The Western Washington Phase II Municipal Stormwater Permit

Aberdeen has a population of less than 100,000, is in Western Washington, and is an operator of a regulated small MS4. Thus, its Stormwater program must comply with the conditions in the Western Washington Phase II Municipal Stormwater Permit. The current Permit was issued on August 1, 2012 with an effective date of August 1, 2013. Originally, the Permit was scheduled to remain in effect until July 31, 2018. However, in 2017, Ecology announced an extension of the current Permit to remain in effect until July 31, 2019. The Department of Ecology is planning to reissue the 2019-2024 Permit on July 1, 2019, and become effective on August 1, 2019. The 2019-2024 Permit will likely have new and updated conditions that the City will need to meet in order to stay compliant with the Permit.

When adhered to, the Permit, allows the Permittee (City of Aberdeen) to discharge stormwater from the municipal separate storm sewer system (MS4) into "waters of the state" such as rivers, lakes, and streams. The Permittee is required to implement programs and activities that reduce pollutants in stormwater to the maximum extent practicable (MEP), using all known, available, and reasonable methods of prevention, control and treatment (AKART). Requirements are established in the following program areas:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination

- Controlling Runoff from New Development, Redevelopment and Construction Sites
- Municipal Operations and Maintenance
- Monitoring and Assessment
- Total Maximum Daily Load (TMDL) Requirements

The SWMP must be prepared to inform the public of the planned SWMP activities for the upcoming calendar year. In addition, the Permit requires the City to submit an Annual Compliance Report by March 31 of each year that details actions taken in the previous year to achieve compliance. The full text for the Phase II Permit, the latest SWMP, and the latest Annual Compliance Report is available at:

<http://www.aberdeenwa.gov>

These documents can also be viewed upon request by contacting the City of Aberdeen at 360-537-3215.

The Storm and Surface Water Management Utility – Other Activities

This SWMP details activities that are planned and that fall under the purview of the Permit. The annual stormwater management program plan is one part of the City's overall storm and surface water management strategy. The City established the Storm and Surface Water Utility in 2010 for the purpose of planning, design, construction, maintenance, administration, and operation of all city storm and surface water facilities and for overseeing the design, construction, and maintenance of improvements on private property where these may affect storm and surface water management. The utility contains programs that reduce flooding and protect and improve water quality. Although not directly required, flood reduction efforts can often further stormwater management goals. For further detail on Storm and Surface Water Utility activities, contact the Phase II Permit Manager at 360-537-3215.

Stormwater Management Administration

The City will annually update the SWMP Plan for submittal to Ecology by March 31 of the upcoming calendar year. The purpose of a SWMP is to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, meet state AKART requirements, and protect water quality. The program shall include the actions and activities described in Sections 2 through 7 of this SWMP Plan.

The City will submit annual compliance reports to Ecology by March 31, detailing the activities and compliance actions for the previous year. The reports are to summarize SWMP implementation status and present information from assessment and evaluation activities conducted during the reporting period. The Phase II Permit Manager coordinates among departments within the City and other jurisdictions to eliminate barriers to compliance of the Permit.

The City currently implements activities and programs that meet the performance measure requirements of the Permit. The City will continue to implement the programs and activities established for the 2013-2019 Permit. Actions recommended for continued compliance with stormwater management administration include:

- Tracking and reporting of citywide NPDES expenses for implementing the 2013-19 Permit.
- Developing a database for citywide compliance reporting and documentation under the Permit.
- Summarizing SWMP administration activities and programs for Compliance Report submittals.

The Permit as Document Map

The remainder of this document details the required elements of the SWMP in the Permit, and notes current and planned compliance activities. The Permit requirement sections are noted with parentheses in the corresponding sections of this document.

Section 1 - Public Education and Outreach

This section describes Permit requirements related to Public Education and Outreach (E&O), lists the continuing and/or current programs and activities that meet Permit requirements, and identifies the planned activities recommended for continued compliance with the current 2013-19 Permit.

1.1 Permit Requirements

The Permit (Section S5.C.1) requires the City to:

- Implement an E&O program designed to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts and encourage the public to participate in stewardship activities. The program shall be designed to educate target audiences (e.g., the general public, businesses, homeowners, students, developers, engineers, contractors, etc.) about important stormwater topics and provide specific actions they can take to minimize the problem.
- Create stewardship opportunities to encourage participation in activities such as stream teams, storm drain marking, volunteer monitoring, riparian plantings, and education activities.
- Measure the understanding and adoption of the targeted behaviors for at least one targeted audience in at least one subject area to use in directing E&O sources more effectively, as well as to evaluate changes in adoption of the targeted behaviors. Use the resulting measurements to direct E&O resources no later than February 2, 2016. This requirement can be met individually or as a member of a regional group.
- Track and maintain records of Public E&O activities.

The Permit (Appendix 2 Total Maximum Daily Load Requirements) requires the City to:

- Develop a public education and outreach involvement plan that targets the reduction of fecal coliform pollution by increasing public awareness and effecting behavior change. The plan includes stated goals, target audiences, messages, possible formats as well as distribution and evaluation methods. The plan shall be implemented prior to the expiration of the permit and include the following elements:
 - Targeting of the residents of the three high priority water bodies identified in the 2007-2012 NPDES permit.
 - Use mailings, door hangers or similar outreach tools.
 - Reach 4th through 6th grade students.
- Conduct two public education surveys gauging resident's knowledge of the sources of bacteria and prevention of bacteria pollution. One survey should measure the knowledge prior to outreach and the other their knowledge after outreach.

1.2 Current Activities

The City currently implements activities and programs that meet the Permit requirements. The City will continue to implement these programs and activities to remain in compliance with the 2013-19 Permit. The current compliance activities associated with the above Permit requirements include:

- The City conducts numerous education and outreach activities that address stormwater management and directly target the general public, residents/homeowners, businesses, developers, contractors, engineers, and industries. These activities include but are not limited to:
 - Car wash kits for fundraiser carwashes and related outreach and education.
 - Storm drain marking of public storm drains.
 - Construction surface water pollution prevention plan technical assistance.
 - Education and outreach at public festivals.
 - Administration of the City of Aberdeen Stream Team.

- Stormwater maintenance and BMPs technical outreach through the municipal stormwater operations and maintenance.
- Public E&O on hazards associated with illicit discharges.
- Conduct a stormwater education program at Elementary schools focusing on 6th grade students.

1.3 Planned Activities

The City has an education and outreach program which maintains compliance with the performance measures of the Permit (2013-2019). Actions recommended for continued compliance heading into 2019 include:

- Collaborating with other NPDES municipalities to identify appropriate program evaluation techniques.
- Update the target audience for building awareness to engineers, contractors, and developers (previous target audience was 6th grade students).
- Refine the current process to evaluate understanding and adoption of target behaviors and use the measurements to direct future E&O efforts.
- Refine the E&O program as needed to address Permit elements more effectively.
- Website based education for City of Aberdeen citizens.

Table 1-1 is the work plan for the 2019 SWMP Public E&O activities.

Table 1-1. 2019 Education and Outreach Work Plan

Task ID #	Task Description	Target Date	Notes
EDUC-1	Schedule, advertise, and conduct public hearing for the 2019 SWMP	February 2019	Coordinate with regularly scheduled February City Council Meeting
EDUC-2	Update Stormwater page of the City website	March 2019	Upload the 2019 SWMP, 2018 Annual Report, and stormwater education material
EDUC-3	Provide education opportunities for local engineers, contractors and developers	September 2019	Topics may include Erosion Control, Low Impact Development (LID), and Stormwater Treatment and Flow Control BMPs
EDUC-4	Community Outreach – SPLASH Festival, and Aberdeen Art Walk	July 2019	Illicit Discharge, Pet Waste, Source Control BMPs
EDUC-5	Educational Utility Bill Inserts	Quarterly	Fecal Coliform/Illicit Discharge, Landscaping Waste, Erosion Control/Source Control BMPs, Low Impact Development
EDUC-6	Community Outreach – Chehalis Watershed Festival	October 2019	Illicit discharge, Pet Waste, LID, Source Control BMPs

Section 2 - Public Involvement and Participation

This section describes Permit requirements related to Public Involvement and Participation, lists the continuing and/or current programs and activities that meet Permit requirements, and identifies the planned activities recommended for continued compliance with the current 2013-19 Permit.

2.1 Permit Requirements

The Permit (Section S5.C.2) requires the City to:

- Provide ongoing opportunities for Public Involvement and Participation through advisory boards and commissions, public hearings, and watershed committees; participation in developing rate structures and budgets; or other similar activities. The public must be able to participate in the decision-making processes involving the development, implementation, and update of the SWMP.
- Make the SWMP Plan and Annual Compliance Report available to the public, including posting on the City's Web site. Make other documents required to be submitted to Ecology in response to permit conditions available to the public.

The Permit (Appendix 2 Total Maximum Daily Load Requirements) requires the City to:

- Design and implement a Stream Team program where two citizen stream teams are formed to participate in stewardship activities.

2.2 Current Activities

The City provides ongoing opportunities for public involvement and participation and takes comments and suggestions relating to the development and implementation of the SWMP. The City will continue to provide these opportunities to remain in compliance with the 2013-19 Permit. The following is a partial list of public involvement and participation opportunities that have been provided:

- Numerous presentations have been made to the City council about a variety of stormwater issues. Aberdeen is unique in that the City Council consists of 12 members who are elected from 6 wards throughout the City. Due to size and geographic distribution of our City council it is a much broader representation of the citizens of our community than would be found in a typical city. Also at each council meeting there are representatives from two local radio stations and the local newspaper, as a result whatever is reported to the council is often repeated through the news media to the general population.
- The City advertises and conducts a public hearing to give citizens an opportunity to comment on the 2019 Stormwater Management Plan.
- The City of Aberdeen will submit the updated 2019 SWMP and 2018 Annual Report to Ecology prior to the March 31, 2019 deadline and post both on the Stormwater page of the City of Aberdeen website prior to May 31, 2019. The public is encouraged to comment in person at a public hearing or through email on the stormwater page.
- The City of Aberdeen has created the Aberdeen Stream Team and participates in 2-3 organized stream cleaning stewardship opportunities per year where the City supports volunteers with labor, equipment, supplies, trash disposal, and organization.
- The City partners with the Grays Harbor Stream Team and CleanStreamsandMemes to provide assistance with debris haul off and equipment needs when requested.
- City Sponsored Watershed Cleanups
 - Fry Creek
 - Alder Creek

2.3 Planned Activities

Public involvement can promote awareness of and foster a sense of responsibility for the health of the affected watersheds. The City of Aberdeen 2019 SWMP includes ongoing opportunities for public involvement and participation. Actions recommended for continued compliance heading into 2019 include:

- Continue to provide the opportunity for public comment on the SWMP through public hearing.
- Post the 2019 SWMP and 2018 Annual Report on the City website after it has been submitted to the Washington State Department of Ecology.
- Encourage input on the SWMP and stormwater outreach program through public hearing, online advertisement and participation in the Aberdeen Stream Team.
- Solicit general stormwater comments, concerns, and suggestions at all scheduled community outreach events and activities.
- Continued participation in the Aberdeen Stream Team with stewardship events in 2019.

Table 2-1 is the work plan for the 2019 SWMP Public Involvement and Participation Work Plan.

Table 2-1. 2019 Public Involvement and Participation Work Plan

Task ID #	Task Description	Target Date	Notes
PIP-1	Schedule, advertise, and conduct public hearing for the 2019 SWMP	February 2019	Coordinate with regularly scheduled February City Council Meeting
PIP-2	Fry Creek Cleanup Event	March 2019	City sponsored community creek cleanup. (Spring)
PIP-3	Alder Creek Cleanup Event	October 2019	City sponsored community creek cleanup. (Fall)
PIP-4	Continued partnering with GH Stream Team, CleanStreamsandMemes, and other organization to foster public involvement	Ongoing	Provide refuse disposal, partnership, equipment, technical guidance, etc...

Section 3 - Illicit Discharge Detection and Elimination

This section describes the Permit requirements for illicit discharge detection and elimination (IDDE), lists the continuing and/or current programs and activities that meet Permit requirements, and identifies the planned activities recommended for continued compliance with the current 2013-19 Permit.

3.1 Permit Requirements

The Permit (Section S5.C.3) requires the City to:

- Maintain a storm sewer system map that includes stormwater system information identified in the Permit (e.g., MS4, outfalls, receiving waters, etc.).
- Implement an ordinance or other regulatory mechanism to prohibit non-stormwater, illicit discharges into the MS4. The ordinance or other regulatory mechanism shall be in effect no later than February 2, 2018.
- Implement a compliance strategy that includes compliance actions and enforcements provisions necessary to help detect and address illicit discharges.
- Implement and maintain an ongoing program to detect and identify non-stormwater discharges and illicit connections, and address illicit discharges to the MS4 (IDDE Program).
- Develop procedures for and complete field screenings of at least 40 percent of the MS4 no later than June 30, 2018, and on average 12 percent each year thereafter.
- Publicly list and publicize a hotline or other local telephone number for public reporting of spills and other illicit discharges. Track illicit discharge reports, actions taken, and enforcement actions.
- Maintain an ongoing training program for City staff that may come into contact with or respond to illicit connections or discharges. Train staff on proper IDDE response procedures and processes and train municipal field staff to recognize and report illicit discharges.
- Inform public employees, businesses, and general public of hazards associated with illegal discharges and improper disposal of waste.
- Summarize all illicit discharges and connections reported to the City and include a description of the response actions taken for each illicit discharge and connection according to the Permit – specified timeline, including enforcement actions, in the Compliance Report.

The Permit (Appendix 2 Total Maximum Daily Load Requirements) requires the City to:

- Design and implement a program which notifies residents, in a timely manner, when bacteria pollution, that poses a public health concern, reaches the MS4.
- Install and maintain pet waste dispenser units and explanatory signage in public areas with dog use.
- Designate areas within the MS4 that discharge to points 501, 510 & 514 as high priority areas for illicit discharge detection and elimination efforts.

3.2 Current Activities

The City currently implements activities and programs that meet the Permit requirements. The City will continue to implement these programs and activities to remain in compliance with the 2013-19 Permit. The current compliance activities associated with the above Permit requirements include:

- The City maintains a map of the MS4 in ArcGIS (a geographic information system software) that meets the requirements of section S5.C.3 of the Phase II Permit. The map is updated with new facilities or corrected for inconsistencies based on field verification.
- The City reviews and updates the IDDE program annually to ensure consistent citywide implementation of the Permit requirements.

- The City amends city codes, SOPs, and construction standards as needed in order to implement the Permit's illicit discharge and enforcement requirements.
- The City continues the stormwater outfall illicit discharge screening and source control program requirements. This includes performing a 100% storm drainage outfall reconnaissance inventory annually.
- The City prioritizes receiving waters for inspection, and implementing field screening and source control activities for prioritized receiving waters.
- The City continues with illicit discharge awareness and response training program for City staff.
- The City maintains a spill control supply shed for quick access by all City departments.
- The City has a 24-hour illicit discharge response line for public reporting of spills and other illicit discharges (360-537-3393).

3.3 Planned Activities

The City has an IDDE program which maintains compliance with the performance measures of the Permit (2013-2019). Actions recommended for continued compliance heading into 2019 include:

- Continually update the MS4 map in GIS to address missing information, inaccurate data, and new infrastructure constructed throughout the year.
- Review and update the IDDE program annually.
- Update IDDE training for all municipal field staff.
- Summarizing IDDE activities and programs for the Compliance Report submittals

Table 3-1 is the work plan for the 2019 SWMP IDDE activities.

Table 3-1. 2019 Illicit Discharge Detection & Elimination Work Plan

Task ID #	Task Description	Target Date	Schedule Notes
IDDE-1	Update MS4 Mapping	Ongoing	Private connections, Outfalls, Stormwater Facilities
IDDE-2	Update Illicit Discharge Reporting Procedures	November 2019	Move to Online Reporting
IDDE-3	Municipal field staff training on IDDE and Erosion and Sediment Control	Annually May	Coordinate with start of construction season
IDDE-4	Annual IDDE Field Screening of MS4 Outfalls	August 2019	100% Outfall Inspection & Screening
IDDE-5	Review and update City IDDE Program	December 2019	Completed Annually at the end of the year
IDDE-6	Utility Bill Insert (Fecal Coliform/Illicit Discharge)	Early Spring 2019	1 st Quarterly Utility Bill Insert
IDDE-7	Utility Bill Insert (Landscape Waste)	Late Spring 2019	2 st Quarterly Utility Bill Insert

Section 4 - Controlling Runoff from New Development, Redevelopment, and Construction Sites

This section describes the Permit requirements related to Controlling Runoff from New Development, Redevelopment, and Construction Sites, lists the continuing and/or current programs and activities that meet Permit requirements, and identifies the planned activities recommended for continued compliance with the current 2013-19 Permit.

4.1 Permit Requirements

The Permit (Section S5.C.4) requires the City to:

- Implement and enforce a program (Stormwater Quality Program) to reduce pollutants in stormwater runoff to the MS4 from new development, redevelopment, and construction site activities no later than June 30, 2018. The program must apply to both private and public projects, including roads, and address all construction and development-associated pollutant sources.
- Implement an ordinance or other regulatory mechanism by June 30, 2018 that addresses runoff from new development, redevelopment, and construction site projects. The ordinance shall either include requirements that will protect water quality, reduce the discharge of pollutants to the MEP, and satisfy State requirement under chapter 90.48 RCW, or, adopt the requirements, limitations, and criteria provided in the adopted Stormwater Management Manual for Western Washington (SWMMWW), created by the Department of Ecology.
- The program shall include a permitting process with site plan review, inspection and enforcement capability for both private and public projects, using qualified personnel.
- The program shall include provisions to verify adequate long-term operations and maintenance of stormwater treatment and flow control facilities that are permitted and constructed pursuant to the Public Works permitting process. The program shall include an annual inspection process and establish maintenance standards that are as protective or more protective of facility function than those specified in Chapter 4 of the SWMMWW.
- Provide copies of the “Notice of Intent for Construction Activities” and copies of the “Notice of Intent for Industrial Activity” to representatives of proposed new development and redevelopment.
- Provide training to staff whose primary job duties are implementing the program to control stormwater runoff from new development, redevelopment, and construction sites, including permitting, plan review, construction site inspections, and enforcement.
- Review and revise the local development-related policies, codes, and standards or other enforceable documents to incorporate and require LID principles and LID BMPs by June 30, 2018. The range of issues outlined in *Integrating LID into Local Codes: A Guidebook for Local Governments* (Puget Sound Partnership, 2012) is to be considered. A summary of the review and revision process results must be submitted with the fifth year Annual Report and shall include at a minimum, a list of participants, the codes, rules, standards, and other enforceable documents reviewed, and the revisions made to those documents which incorporate and require LID principles and LID BMPs. The summary shall include existing requirements for LID principles and LID BMPs in development related codes.

4.2 Current Activities

The City currently implements activities and programs that meet the Permit requirements. The City will continue to implement these programs and activities to remain in compliance with the 2013-19 Permit. The current compliance activities associated with the above Permit requirements include:

- The City implemented an ordinance in 2010 that addresses runoff from new development, redevelopment, and construction site activities.

- The City implemented a Stormwater Quality Program to reduce pollutants in stormwater runoff to the MS4 from new development, redevelopment, and construction site activities. The City applies the program through the Public Works permitting process and uses the Aberdeen municipal code to enforce the requirements.
- The City adopted the most current version of the SWMMWW as the citywide stormwater standard for development, redevelopment, and construction projects.
- The City reviews and amends city codes and standards as needed to meet the Permit requirements for development, redevelopment, construction stormwater management.
- The City regularly reviews the Public Works permitting process (plan review, inspection, enforcement, and documentation procedures) to check where changes can be made to better address the Permit requirements.
- The City provides ongoing training to staff on new regulations, processes and procedures for the permitting process, inspection and enforcement.
- The City provides a link on the Stormwater page of the City website that directs representatives of proposed new development and redevelopment to Ecology's webpage which contains the "Notice of Intent for Construction Activities" and the "Notice of Intent for Industrial Activity".

4.3 Planned Activities

The City has a Stormwater Quality program which maintains compliance with the performance measures of the Permit (2013-19). Actions recommended for continued compliance heading into 2019 include:

- Review and revise the Stormwater Quality Program to address Permit requirements if needed.
- Continue to review and revise City land use and development-related regulations to incorporate low impact development (LID) principles and BMPs.
- Summarize annual activities for the "Controlling Runoff from New Development, Redevelopment, and Construction Sites" component of the Annual Report.

Table 4-1 is the work plan for the 2019 SWMP activities related to Controlling Runoff from New Development, Redevelopment, and Construction Sites.

Table 4-1. 2019 Controlling Run-off from New Development, Redevelopment, and Construction Sites Work Plan			
Task ID #	Task Description	Target Date	Schedule Notes
CTRL-1	Review and revise the Stormwater Quality Program	December 2019	Updated requirements of the new 2019 Permit
CTRL-2	Review process and procedures of stormwater treatment and flow control BMP/facility inspections	May 2019	Permit S5.C.4.c
CTRL-3	Review training program for staff whose primary duties are controlling run-off through permitting, plan review, inspection, etc.	June 2019	Permit S5.C.4.e
CTRL-4	Continually review and revise City land use and development-related regulations to incorporate LID principles and BMPs	September 2019	Permit S5.C.4.f
CTRL-5	Utility Bill Insert (Erosion Control/Source Control BMPs)	Summer 2019	3 rd Quarterly Utility Bill Insert
CTRL-6	Utility Bill Insert (Low Impact Development)	Fall 2019	4 th Quarterly Utility Bill Insert

Section 5 Municipal Operations and Maintenance

This section describes the Permit requirements related to Municipal Operations and Maintenance (O&M), lists the continuing and/or current programs and activities that meet Permit requirements, and identifies the planned activities recommended for continued compliance with the current 2013-19 Permit.

5.1 Permit Requirements

The Permit (Section S5.C.5) requires the City to:

- Implement an O&M program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations.
- Implement maintenance standards that are as protective, or more protective, of facility function than those specified in Chapter 4 of Volume V of the Stormwater Management Manual for Western Washington (SWMMWW), no later than June 30, 2018.
- Perform annual inspections of all municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities, and take appropriate maintenance actions in accordance with the adopted maintenance standards.
- Perform spot checks of potentially damaged permanent stormwater treatment and flow control BMPs/facilities after major storm events (24-hour storm event with a 10 year or greater recurrence interval).
- Perform inspection of all catch basins and inlets owned or operated by the Permittee at least once, no later than June 30, 2018 and every two years thereafter.
- Implement practices, policies and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the Permittee, and road maintenance activities under the functional control of the Permittee.
- Implement an ongoing training program for employees of the Permittee whose primary construction, operations or maintenance job functions may impact stormwater quality.
- Implement a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this Permit that are not required to have coverage under the General NPDES Permit for Stormwater Discharges Associated with Industrial Activities or another NPDES permit that authorizes stormwater discharges associated with the activity.

5.2 Current Activities

The City currently implements activities and programs that meet the Permit requirements. The City will continue to implement these programs and activities to remain in compliance with the 2013-19 Permit. The current compliance activities associated with the above Permit requirements include:

- The City has implemented a Municipal Operations and Maintenance (O&M) Program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations.
- The City has adopted and utilizes the maintenance standards specified in Chapter 4 of Volume V of the SWMMWW.
- The City will continue to perform the required inspections of all municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities.
- The City performed inspection of all catch basins and inlets owned or operated by the Permittee in 2015, and has been regularly performing inspections of high priority sections of the MS4.
- The City reviews and updates the City crew field manual (Pollution Prevention and Operation and Maintenance for Municipal Field Operations), which was created to implement practices, policies

and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the City, and road maintenance activities under the functional control of the City.

- The City reviews and updates the municipal facility SWPPP for City owned facilities as needed.
- Continue the training program to provide ongoing citywide pollution prevention training for municipal field staff based on the updated and/or new SOPs developed to reduce stormwater runoff from construction, operation, and maintenance of municipal facilities and lands.

5.3 Planned Actions

The City has a Municipal Operations and Maintenance (O&M) program which maintains compliance with the performance measures of the Permit (2013-19). Actions recommended for continued compliance heading into 2019 include:

- Review and revise the Municipal O&M program as needed
- Review and revise inspection processes and procedures for municipally owned facilities as needed.
- Continue required annual inspections of municipally owned facilities.
- Review and revise the municipal facility SWPPP as needed.

Table 5-1 is the work plan for the 2019 SWMP O&M for Municipal Operations activities.

Table 5-1. 2019 Municipal Operations & Maintenance Work Plan

Task ID #	Task Description	Target Date	Schedule Notes
O&M-1	Review and revise the Municipal O&M program as needed	Annually December	Permit S.5.C.5
O&M-2	Inspection of municipally owned or operated permanent stormwater treatment and flow control facilities	Annually	Permit S.5.C.5.b
O&M-3	Spot checks of permanent stormwater treatment and flow control facilities after major storm events	After 24-hr storm with >10 year recurrence	Permit S.5.C.5.c
O&M-4	Continued inspection of catch basins and inlets owned or operated by the City	December 2019	Permit S.5.C.5.d
O&M-5	Schedule training for employees of the City whose primary construction, operations or maintenance job functions may impact stormwater quality.	Annually May	Permit S.5.C.5.g
O&M-6	Review and revise the SWPPP for heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the City	Annually December	Permit S.5.C.5.h

SECTION 6 MONITORING AND ASSESSMENT

This section describes the Permit requirements related to water quality Monitoring and Assessment, lists the continuing and/or current programs and activities that meet Permit requirements, and identifies the planned activities recommended for continued compliance with the current 2013-19 Permit.

6.1 Permit Requirements

The Permit (Section S8) requires the City to:

- Either, conduct and provide stormwater monitoring, studies, and analysis in the Annual Report, or, take part in the Stormwater Action Monitoring (SAM), previously known as Regional Stormwater Monitoring Program (RSMP).
- Pay into a collective fund to implement the SAM effectiveness study due to Ecology annually beginning August 15, 2014. (Aberdeen cost per Ecology: \$6693)
- Pay into a collective fund to implement the SAM Source Identification Information Repository (SIDIR) due to Ecology annually beginning August 15, 2014. (Aberdeen cost per Ecology: \$621)

The Permit (Appendix 2 Total Maximum Daily Load Requirements) requires the City to:

- Design and implement a program which notifies residents, in a timely manner, when bacteria pollution that poses a public health concern reaches the MS4.
- Designate areas within the MS4 that discharge to points 501, 510 & 514 as high priority areas for illicit discharge detection and elimination efforts.
- Complete field screening prior to December 31, 2014, investigations must include activities for both the dry season (May through October) and the wet season (November through April)
- Conduct twice monthly wet weather sampling of the discharge points 501, 510 & 514 to determine if specific discharges from Aberdeen MS4 exceed the water quality criteria for fecal coliform bacteria.

6.2 Current Activities

The City currently implements activities and programs that meet the Permit requirements. The City will continue to implement these programs and activities to remain in compliance with the 2013-19 Permit. The current compliance activities associated with the above Permit requirements include:

- The City annually pays into a collective fund to comply with monitoring requirements of the Permit.
- Review QAPP for the sampling and testing component of the permit.
- The City conducts twice monthly wet weather sampling at the pre-determined discharge points.
- The City conducts sampling or testing required for characterizing illicit discharges pursuant to the Permit's IDDE program conditions.
- The City reviews water quality monitoring data and/or reports conducted by or for the City to determine if potential water quality violations are identified.
- The City reports potential water quality violations to Ecology within 30 days of becoming aware of the potential violations per the Permit's Compliance with Standards condition S4.F.

6.3 Planned Activities

The City has a Monitoring and Assessment program which maintains compliance with the performance measures of the Permit (2013-19). Actions recommended for continued compliance heading into 2019 include:

- Review the regional status and trends monitoring options offered by the upcoming 2019-2024 Phase II Permit and select the option that best fits the City's interests.
- Continue to conduct sampling and testing required for characterizing illicit discharges pursuant to the Permit's IDDE program conditions.
- Continue to conduct twice monthly wet weather sampling at the pre-determined discharge points for two wet seasons in accordance with the QAPP.
- Submit collected data for the Compliance Report submittals.

Table 6-1 is the work plan for the 2019 SWMP Monitoring and Assessment activities.

Table 6-1. 2019 Monitoring and Assessment Work Plan

Task ID #	Task Description	Target Date	Schedule Notes
M&A-1	Review the regional status and trends monitoring options offered by the upcoming 2019-2024 Phase II Permit and select the option that best fits the City's interests.	June 2019	2019-2024 Phase II Permit Reissued in August, 2019
M&A-2	Conduct sampling and testing required by the IDDE program and QAPP	Ongoing	Permit S9.C.1.C

Abbreviations and Definitions

The following definitions and abbreviations are taken directly from the Phase II Permit or from this SWMP Plan and are reproduced here for the reader's convenience.

40 CFR means Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the U.S. federal government.

AKART means all known, available, and reasonable methods of prevention, control, and treatment. See also State Water Pollution Control Act, Revised Code of Washington (RCW) Chapters 90.48.010 and 90.48.520.

Applicable TMDL means a total maximum daily load (TMDL) that has been approved by EPA on or before the issuance date of this Permit, or prior to the date that Ecology issues coverage under this Permit, whichever is later.

Beneficial uses means uses of waters of the state that include but are not limited to use for domestic, stock watering, industrial, commercial, agricultural, irrigation, mining, fish and wildlife maintenance and enhancement, recreation, generation of electric power and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state.

BMP means best management practice.

Bypass means the diversion of stormwater from any portion of a stormwater treatment facility.

Component or Program Component means an element of the Stormwater Management Program listed in S5 Stormwater Management Program for Cities, Towns, and Counties or S6 Stormwater Management Program for Secondary Permittees, S7 Compliance with Total Maximum Daily Load Requirements, or S8 Monitoring of this Permit.

CWA means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. 1251 et seq.).

Ecology means the Washington State Department of Ecology.

Entity means a governmental body, or a public or private organization.

E&O means education and outreach.

EPA means the U.S. Environmental Protection Agency.

General Permit means a permit that covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.

Groundwater means water in a saturated zone or stratum beneath the surface of the land or below a surface water body. Refer to Washington Administrative Code (WAC) Chapter 173-200.

Hazardous substance means any liquid, solid, gas, or sludge, including any material, substance, product, commodity, or waste, regardless of quantity, that exhibits any of the physical, chemical, or biological properties described in WAC 173-303-090 or WAC 173-303-100.

Heavy equipment maintenance or storage yard means an uncovered area where any heavy equipment, such as mowing equipment, excavators, dump trucks, backhoes, or bulldozers are washed or maintained, or where at least five pieces of heavy equipment are stored on a long-term basis.

Highway means a main public road connecting towns and cities.

Hyperchlorinated means water that contains more than 10 milligrams/liter chlorine.

IDDE means Illicit Discharge Detection and Elimination.

Illicit connection means any infrastructure connection to the MS4 that is not intended, permitted, or used for collecting and conveying stormwater or non-stormwater discharges allowed as specified in this Permit

(S5.C.3 and S6.D.3). Examples include sanitary sewer connections, floor drains, channels, pipelines, conduits, inlets, or outlets that are connected directly to the MS4.

Illicit discharge means any discharge to an MS4 that is not composed entirely of stormwater or of non-stormwater discharges allowed as specified in this Permit (S5.C.3 and S6.D.3).

Impervious surface means a non-vegetated surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. A non-vegetated surface area 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 prior to development. Common impervious surfaces include, but are not limited to, rooftops, walkways, patios, driveways, parking lots or stormwater areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces that similarly impede the natural infiltration of stormwater.

Land-disturbing activity means any activity that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land-disturbing activities include, but are not limited to, clearing, grading, filling, and excavation. Compaction that is associated with stabilization of structures and road construction shall also be considered land-disturbing activity. Vegetation maintenance practices, including landscape maintenance and gardening, are not considered land-disturbing activity. Stormwater facility maintenance is not considered land-disturbing activity if conducted according to established standards and procedures.

Low-impact development (LID) means a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration by emphasizing conservation, use of onsite natural features, site planning, and distributed stormwater management practices that are integrated into a project design.

Low-impact development best management practices (LID BMP) means distributed stormwater management practices, integrated into a project design, that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration. LID BMPs include, but are not limited to, bio-retention/rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, vegetated roofs, minimum excavation foundations, and water reuse.

Material storage facilities means an uncovered area where bulk materials (liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, or other means.

Maximum extent practicable (MEP) refers to paragraph 402(p)(3)(B)(iii) of the federal Clean Water Act, which reads as follows: Permits for discharges from municipal storm sewers shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and system, design, and engineering methods, and other such provisions as the Administrator or the State determines appropriate for the control of such pollutants.

MEP means maximum extent practicable.

Municipal separate storm sewer system (MS4) means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

- I. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of Washington State.
- II. Designed or used for collecting or conveying stormwater.
- III. Which is not a combined sewer;
- IV. Which is not part of a publicly owned treatment works (POTW) as defined at 40 CFR 122.2.; and

V. Which is defined as “large” or “medium” or “small” or otherwise designated by Ecology pursuant to 40 CFR 122.26.

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the federal Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington Department of Ecology.

Native vegetation means vegetation comprising plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and that reasonably could have been expected to naturally occur on the site. Examples include trees such as Douglas Fir, western hemlock, western red cedar, alder, big-leaf maple; shrubs such as willow, elderberry, salmonberry, and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.

New development means land-disturbing activities, including Class IV General Forest Practices that are conversions from timber land to other uses; structural development, including construction or installation of a building or other structure; creation of hard surfaces; and subdivision, short subdivision, and binding site plans, as defined and applied in Chapter 58.17 RCW. Projects meeting the definition of redevelopment shall not be considered new development. Refer to Appendix 1 of the Permit for a definition of hard surfaces.

New Permittee means a city, town, or county that is subject to the Western Washington Municipal Stormwater General Permit and was not subject to the Permit prior to August 1, 2013.

New Secondary Permittee means a Secondary Permittee that is covered under, a municipal stormwater general permit and was not covered by the Permit prior to August 1, 2013.

Notice of Intent (NOI) means the application for, or a request for coverage under a General Permit pursuant to WAC 173-226-200.

Notice of Intent for Construction Activity means the application form for coverage under the Construction Stormwater General Permit.

Notice of Intent for Industrial Activity means the application form for coverage under the General Permit for Stormwater Discharges Associated with Industrial Activities.

O&M means operations and maintenance.

Outfall means point source as defined by 40 CFR 122.2 at the point where a discharge leaves the MS4 and discharges to waters of the State. Outfall does not include pipes, tunnels, or other conveyances that connect segments of the same stream or other surface waters and are used to convey primarily surface waters (i.e., culverts).

Permittee unless otherwise noted, the term “Permittee” includes city, town, or county Permittee, Co-Permittee, New Permittee, Secondary Permittee, and New Secondary Permittee.

Physically interconnected means that one MS4 is connected to another storm sewer system in such a way that it allows for direct discharges to the second system. For example, the roads with drainage systems and municipal streets of one entity are physically connected directly to a storm sewer system belonging to another entity.

Project site means that portion of a property, properties, or rights-of-way subject to land-disturbing activities, new hard surfaces, or replaced hard surfaces. Refer to Appendix 1 of the Permit for a definition of hard surfaces.

QAPP means Quality Assurance Project Plan.

Qualified personnel means someone who has had professional training in the aspects of stormwater management for which they are responsible and are under the functional control of the Permittee. Qualified personnel may be staff members, contractors, or volunteers.

Quality Assurance Project Plan (QAPP) means a document that describes the objectives of an environmental study and the procedures to be followed to achieve those objectives.

RCW means the Revised Code of Washington State.

Receiving waters means bodies of water or surface water systems to which surface runoff is discharged via a point source of stormwater or via sheet flow. Receiving waters may also be groundwater to which surface runoff is directed by infiltration.

Redevelopment means, on a site that is already substantially developed (i.e., has 35 percent or more of existing hard surface coverage), the creation or addition of hard surfaces; the expansion of a building footprint or addition or replacement of a structure; structural development including construction, installation, or expansion of a building or other structure; replacement of hard surface that is not part of a routine maintenance activity; and land-disturbing activities. Refer to Appendix 1 of the Permit for a definition of hard surfaces.

Regional Stormwater Monitoring Program (RSMP) means, for all of western Washington, a stormwater-focused monitoring and assessment program consisting of these components: status and trends monitoring in small streams and marine nearshore areas, SWMP effectiveness studies, and a Source Identification Information Repository (SIDIR). The priorities and scope for the RSMP are set by a formal stakeholder group. For this Permit term, RSMP status and trends monitoring will be conducted in the Puget Sound basin only.

Regulated small municipal separate storm sewer system means a municipal separate storm sewer system (MS4) that is automatically designated for inclusion in the Phase II stormwater permitting program by its location within an urbanized area, or by designation by Ecology and is not eligible for a waiver or exemption under S1.C.

RSMP means Regional Stormwater Monitoring Program.

Runoff is water that travels across the land surface and discharges to water bodies either directly or through a collection and conveyance system. See also "Stormwater."

Secondary Permittee is an operator of a regulated small MS4 that is not a city, town, or county. Secondary Permittees include special purpose districts and other public entities that meet the criteria in S1.B.

Shared water bodies means water bodies, including downstream segments, lakes, and estuaries that receive discharges from more than one Permittee.

SIDIR means Source Identification Information Repository.

Significant contributor means a discharge that contributes a loading of pollutants considered to be sufficient to cause or exacerbate the deterioration of receiving water quality or instream habitat conditions.

Small municipal separate storm sewer system means an MS4 that is not defined as "large" or "medium" pursuant to 40 CFR 122.26(b)(4) and (7) or designated under 40 CFR 122.26 (a)(1)(v).

SOP means standard operating procedure.

Source control BMP means a structure or operation that is intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. The 2012 Ecology Manual separates source control BMPs into two types. Structural source control BMPs are physical, structural, or mechanical devices, or facilities that are intended to prevent pollutants from entering stormwater. Operational BMPs are non-structural practices that prevent or reduce pollutants from entering stormwater. See Volume IV of the 2012 Ecology Manual for details.

Stormwater means runoff during and following precipitation and snowmelt events, including surface runoff, drainage, or interflow.

Stormwater associated with industrial and construction activity means the discharge from any conveyance that is used for collecting and conveying stormwater, which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, or associated with clearing, grading and/or excavation, and is required to have an NPDES permit in accordance with 40 CFR 122.26.

Stormwater Management Program (SWMP) means a set of actions and activities designed to reduce the discharge of pollutants from the MS4 to the MEP and to protect water quality, and comprising the

components listed in S5 (for cities, towns and counties) or S6 (for Secondary Permittees) of this Permit and any additional actions necessary to meet the requirements of applicable TMDLs pursuant to S7 Compliance with TMDL Requirements, and S8 Monitoring and Assessment.

Stormwater treatment and flow control BMPs/facilities means detention facilities, treatment BMPs/facilities, bio-retention, vegetated roofs, and permeable pavements that help meet Minimum Requirements 6 (treatment), 7 (flow control), or both.

SWPPP means Stormwater Pollution Prevention Plan.

Total maximum daily load (TMDL) means a water cleanup plan. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the water body can be used for the purposes the state has designated. The calculation must also account for seasonal variation in water quality. Water quality standards are set by states, territories, and tribes. They identify the uses for each water body, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. The Clean Water Act, Section 303, establishes the water quality standards and TMDL programs.

Tributary conveyance means pipes, ditches, catch basins, and inlets owned or operated by the Permittee and designed or used for collecting and conveying stormwater.

UGA means Urban Growth Area.

Urbanized area is a federally designated land area comprising one or more places and the adjacent densely settled surrounding area that together have a residential population of at least 50,000 and an overall population density of at least 1,000 people per square mile. Urbanized areas are designated by the U.S. Census Bureau based on the most recent decennial census.

Vehicle maintenance or storage facility means an uncovered area where any vehicles are regularly washed or maintained, or where at least 10 vehicles are stored.

Water Quality Standards means Surface Water Quality Standards, Chapter 173-201A WAC, Ground Water Quality Standards, Chapter 173-200 WAC, and Sediment Management Standards, Chapter 173-204 WAC.

Waters of the state include those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the state" as defined in Chapter 90.48 RCW, which includes lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state of Washington.

Illicit Discharge Detection and Elimination (IDDE) Program

City of Aberdeen Public Works

Created: August 2011

Updated: December 2017

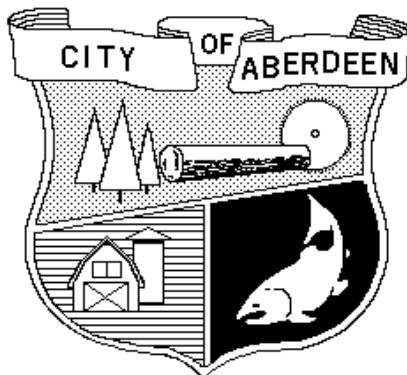


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Illicit Discharge Detection and Elimination (IDDE) Program

Overview

An illicit discharge is generally any discharge, release, or pumping of a pollutant or polluted water into the City's municipal separate storm sewer system (MS4). The National Pollutant Discharge Elimination System (NPDES) regulates the discharge of stormwater under the authority of the Federal Clean Water Act. Washington State Department of Ecology (Ecology) has the designated authority to administer NPDES within the State of Washington. Under this authority, Ecology has issued NPDES permits regulating the discharge of stormwater. The City of Aberdeen is under regulation of the Western Washington Phase II Municipal Stormwater Permit (Phase II Permit) issued on September 1, 2012. The current Phase II permit will remain in effect until July 1, 2019, after which a new Phase II permit will be issued.

The Phase II permit mandates permittees to prepare and implement an Illicit Discharge Detection and Elimination (IDDE) Program. This plan and its implementation satisfies this requirement.

The goal of this plan is to prevent, identify, trace and eliminate illicit discharges into the MS4. Examples of illicit discharges include:

- Direct or indirect sanitary wastewater discharges to the MS4 or a watercourse, such as a shop floor drain connected to a storm drain, a cross-connection between the municipal sanitary sewer and storm sewer systems, a damaged sanitary sewer line that is leaking sewage into a cracked storm sewer line, or a failing septic system that is leaking into a water course.
- Materials (e.g.; used motor oil) that have been dumped illegally into a storm drain catch basin.
- Improper home or business owner activities such as washing paint brushes into a catch basin, washing new textured concrete driveways into a storm drain, draining swimming pools to the storm system (swimming pools have high pH and chlorine), excess use of fertilizers, or washing cars with chemicals that enter the storm drain system.

The Phase II Permit sets forth the following program elements that are required to be compliant. These elements are described throughout the remainder of this document.

- **a) Municipal Storm Sewer System Mapping**
- **b) Ordinance/Regulatory Mechanism (to effectively prohibit illicit discharges)**
- **c) Detect and Identify Illicit Discharges**
- **d) Address and Eliminate Illicit Discharges**
- **e) IDDE Staff Training**
- **f) IDDE Recordkeeping**

a) Municipal Storm Sewer System Mapping

MS4 Mapping

The City currently has the following stormwater related information in their geographic information system (GIS) database:

- Known MS4 outfalls and discharge points
- Receiving waters (other than groundwater)
- Stormwater treatment and flow control BMPs/facilities owned or operated by the City of Aberdeen
- Outfall tributary conveyance
- Authorized connections to the MS4
- Connections between City of Aberdeen MS4 and other municipalities or public entities
- Geographic areas served by the City MS4 that do not discharge stormwater to surface waters

The current storm sewer system mapping is compliant with the Phase II Permit requirements and was completed as part of the previous Phase II Permit requirements. Some of the more specific elements of the program as required by the permit are listed below:

1. A map of all structural BMPs owned, operated, or maintained by the City.
2. Tributary conveyances to all known outfalls and discharge points with a 24-inch nominal diameter and watercourse outfalls. The following attributes are mapped for each outfall: tributary conveyances (type, material, and size where known), associated drainage areas, and land use. Although most of the watercourses and pipes have a cross-sectional area less than a 24-inch-diameter pipe, the City has elected to map all of the known pipe outfalls 6 inches or greater and all flowing (dry weather) watercourses including seeps and drainages.

The City of Aberdeen is bisected by the Chehalis and Wishkah Rivers and there are numerous small streams and drainage channels that run through the City. The City has implemented an IDDE outfall screening process that includes annual physical inspections of all MS4 outfalls and discharge points.

b) Ordinance/Regulatory Mechanism

City Ordinance

Aberdeen Municipal Code Chapter 13.70 (Storm and Surface Water Management) prohibits illicit discharges and illicit connections (13.70.200 Illicit Discharges Prohibited – certain discharges allowed – conditions). All connections and discharges to the City's MS4 must be compliant to this section of code, otherwise they are to be eliminated. AMC Chapter 13.70 is included in the appendix for reference.

AMC 13.70.200 includes a list of allowable non-stormwater discharges and a list of conditionally allowed discharges. The City of Aberdeen will further address any of the allowable discharges in

AMC 13.70.200 if they are ever identified as significant sources of pollutants to waters of the State.

Escalating Enforcement Policy

This policy establishes a formal enforcement procedure to be implemented by the Public Works Director and Stormwater Inspectors when enforcement action is necessary on sites that do not comply with the COA stormwater regulations. Enforcement procedures are outlined below.

I. Preventative Correction

Preventative correction is required for those activities or conditions which have not yet resulted in degradation of surface water quality. These include lack of installation and maintenance of appropriate BMPs and failure to address minor deficiencies in existing BMPs, (Such as adding more straw mulch, repairing silt fence, re-covering stockpiles, etc.). Notices of Correction of minor violation may be verbal or written. The time period for implementing preventative corrections is less than one week or prior to the next precipitation event, whichever is less. A reasonable effort to obtain a voluntary correction should be pursued.

II. Order to Correct Violation (OTCV)

A written *Order to Correct Violation* notice is issued when the following conditions are identified:

- Inspector has pursued reasonable attempts to secure voluntary correction of minor violation; or
- Minor violation has not been corrected within the time set forth by the storm water inspector; or
- Evidence of prior degradation of surface water quality is observed; or
- Sediment, silt, turbid runoff or other non-stormwater discharges (as defined in SWMMWW) are being release from the site due to operator's activities, despite the implementation of BMPs.

III. Stop Work Order (SWO)

Upon issuance of the SWO, work on the site not directly related to correcting the degradation of surface water quality may be suspended as directed by the Public Works Director or City Engineer. A stop work order is issued when:

- The site does not have a valid approved storm water permit before starting the work; or
- Sufficient and appropriate BMPs have not been implemented, as set forth in the approved erosion and sediment control plan or SWPPP, to prevent degradation of surface water quality; or
- Contractor or owner fails to address an Order to Correct violation notice within the timeframe specified; or
- A third Correction Notice has been issued for the potential degradation of surface water quality due to Permittee's activities; or
- An accidental discharge of polluting matter (other than sediment) to the storm drains system or surface water course or a significant public nuisance exist; or
- A threat exists to the water of the State.

The stop work order shall:

- Be in writing;
- Specifically state the applicable Violation and the reason for SWO issuance;
- Be posted on the property in a conspicuous place;
- If practicable, be given to:
 - The person performing the Construction or committing the violation; and
 - To the owner of the property or the owner's agent.
- The stop-work order shall state the conditions under which Construction may be resumed.
- In no way limit the operation of penalties provided elsewhere in the AMC

IV. Notice of Civil Violation (NOCV)

A Notice of Civil Violation may be issued when:

- Contractor or owner fail to comply with a stop work order; or a repeat violation exist; or the violation creates a situation or condition that cannot be readily corrected (e.g. a pollutant spill that enters a stream, wetland or lake); or
- The contractor or owner knows, or reasonably should have known, that the action is in violation of laws, regulations, codes or permit conditions (e.g. an intentional discharge of polluting matter to the storm drainage system and/or surface waters).
- When any of the above circumstances exist, the City Stormwater Inspector immediately issues a SWO, notifies the Public Works Director, and provides documentation supporting the issuance of the NOCV.

Stormwater Compliance Strategy

The City implemented a Stormwater Compliance Strategy, as part of the Public Education and Outreach Program, with the goal of reducing illicit discharges to the City MS4 and providing stormwater information to the public.

The primary focus of the Stormwater Compliance Strategy is to provide property owners and contractors necessary stormwater regulatory documentation, technical assistance and educational material on the City's website (<http://www.aberdeenwa.gov>). The Compliance Strategy will rely upon brochures, print ads, website ads, drain markers, and fact sheets to make citizens aware of stormwater, water pollution, and inform them of the City's hotline for reporting on possible illegal dumping, connections, or discharges. There is an emphasis on target audiences with a high risk as a potential source, such as auto shops, mobile businesses, and commercial property owners/managers may receive specialized educational material.

The City has established a customer phone number (360-537-3393) for reporting of spills or illicit discharges.

c) Detect and Identify Illicit Discharges

Response to Suspected or Reported Illicit Charges

The City currently has a Surface and Stormwater Management Program to fulfill an illicit discharge detection and elimination (IDDE) program which includes: commercial property

inspections, outreach and education, water quality monitoring and stormwater system operation and maintenance.

The City of Aberdeen maintains a hotline that citizens can call during business hours to report a suspected illicit discharge. Calls relative to illicit discharges can be received by several Public Works offices.

City of Aberdeen Phone Numbers:

Stormwater Hotline – (360) 537-3393

Street Department – (360) 537-3268

Sewer Department – (360) 537-3285

Engineering Department – (360) 537-3215

Calls to any of the above numbers will result in information being received and routed to the proper individuals.

Prioritization Procedures

In addition to maintaining a hotline for citizen complaints, the City is required to proactively conduct field assessments to identify illicit discharges and illegal connections to the City's stormwater system and receiving water bodies.

The first step of the proactive work is to prioritize those areas most likely to contain illicit discharges ("hot spots") based on an analysis of land use and other specific information. It is felt that the following types of areas are more likely to generate polluted discharges than others:

1. Locations where there have been repeated problems in the past. This could include areas with water quality data or where repeated complaints have been filed.
2. Older areas of a community typically have a higher percentage of illegal connections. Also, deteriorating sewer pipes can allow wastewater exfiltration from the sanitary lines into the surrounding environment.
3. Commercial and industrial areas tend to have a higher percentage of illicit discharges.
4. Areas with large and/or many storage vessels of hazardous solids or liquids.

Another consideration for Aberdeen is the proximity of the higher risk land uses (commercial/industrial) to receiving waters. These areas will have a short flow path and greater chance of adversely affecting a larger aquatic system in the event of an illicit discharge or spill.

Designation of Priority Areas

Based upon the criteria above and a prior monitoring study completed by the Department of Ecology in 2011 Grays Harbor Fecal Coliform Bacteria Monitoring to Characterize Water Quality in Urban Stormwater Drains, the following areas are designated as high priority areas for illicit discharge and elimination efforts. The City of Aberdeen shall complete field screenings of at least 40% of the MS4 by June 30th, 2018 with these points and their accompanying basins the first priority.

1. 501 – ABDIV, Located at the Division Street pump station

2. 510 – MST, Located at the M Street pump station
3. 514 – HST, Located at the H Street pump station

The Cities IDDE program also consists of the following:

- **Sub-watershed Assessments**: The City has prioritized sub-watersheds for IDDE risk based on four screening factors: total impervious area, wastewater infrastructure material and age, land use, and previous problems.
- **Storm Facility Inspections**: Public Works will identify and inspect private commercial, private residential and City maintained stormwater facilities throughout the City limits. Work on this has begun and is substantially complete.
- **Fecal Coliform Receiving Water Trend Monitoring Program**: Implement an ongoing water quality monitoring program. Monitoring focuses on outfalls to streams and river waters. The data will assist in prioritizing additional detailed system inspections. The sampling will be performed as required by Phase II guidelines.
- **Outfall Reconnaissance**: Will complete a document inspection program for the mapped outfalls annually. The inspection program will include outfall location and screening for illicit discharges.

General Field Assessment Procedures

The City of Aberdeen shall utilize the following manual for guidance in field screenings and source tracing methodology.

Illicit Discharge Detection and Elimination: A guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection, October 2004

Physical Parameters

During dry weather field inspections, a variety of physical parameters will be recorded at each site to assess conditions. At flowing outfalls this includes flow, odor, color, turbidity, and presence or absence of floatables. The information that is obtained from the physical characteristics observed are indicators and cannot be fully relied upon by themselves.

A qualitative observation of flow (none, trickle, moderate, or substantial) should be made. Flow rates can be estimated by one of the following simple methods:

1. Record the time required for the full flow to fill container of a known volume.
2. Multiply cross-sectional flow area by flow velocity. For most instances, flow area is based on an estimate of mean depth and width. Flow velocity is based on the time of travel for an object floating near the surface over a known length.

Odor is described by one of the following terms: sewage, rancid/sour, petroleum/gas, sulfide, or other. The severity of the odor should also be recorded in the field.

Color can be a description of color type and intensity. It is also a quantitative measurement expressed in cobalt-platinum units.

Turbidity can be a qualitative descriptor (clear, slight cloudiness, cloudy, or opaque).

The City will measure turbidity in the WWTP laboratory from samples collected, delivered, and analyzed per standard operating procedures. The City's WWTP lab is an accredited agency for performing turbidity analysis.

Floatables are the best physical indicator. The most common floatables are sewage, suds, and oil sheens. Floatables do not include trash. The observation of sewage at an outfall location indicates that there is a severe problem with the MS4 and should be looked at as to where the source for the sewage is emanating from. Suds can indicate a variety of things. Some suds are naturally formed by the movement of the water. If the suds are located at a water drop off and break up quickly, this may only be water turbulence related. If the suds have a fragrant odor, this can indicate the presence of laundry water or wash water in the water body. Oil sheens need to be looked at to try and determine the source of the oil sheen. Some oil sheens are common and occur naturally by instream processes. This occurs when iron bacteria form a sheet-like film. This can be determined by looking at the sheen and seeing if it cracks when disturbed. Synthetic oil sheens, on the other hand, will swirl when disturbed. If this occurs, then the sheen is from an oil source.

The City may select a few water quality parameters that can be measured at the WWTP laboratory. These include temperature, pH, ammonia, conductivity, chlorine, TSS, BOD and hardness.

There may be physical indicators of illicit discharges even if no flow is present. These include: outfall damage, deposits/stains, abnormal vegetation, poor quality of pooled water, benthic growth in pipe.

During a dry weather inspection, observed flows are considered non-stormwater related. The flow may or may not be the result of an illicit discharge. Also, the absence of a flow does not indicate the absence of an illicit discharge since these discharges can be intermittent or transitory. It is important to observe carefully during the dry weather inspection to determine if an intermittent or transitory pollution problem has occurred.

Water Quality Sampling and Testing

During dry weather inspections physical clues indicating a pollution problem often are not observable. Therefore, water quality sampling and testing will be an essential part of the City's IDDE program. Some parameters can be directly measured in the field using a portable instrument or test kit whereas others require laboratory analysis. Table 1 lists the parameters that must be sampled as well as suggested/optional parameters to be sampled to isolate an illicit discharge. The table also provides the analytical method used when samples are sent to an accredited laboratory and benchmark concentration that typically indicate when there is a problem. Note that these benchmark concentrations are based on samples collected from storm drains nationally. Therefore, benchmark concentrations would be lower for samples drawn from watercourses since the natural base flows would likely dilute any pollutants in water discharged from a contributing storm drainage system.

Table 1

Water Quality Parameter	Use	Analytical Method	Benchmark Concentrations
Specific conductance	B, I	SM 2510B	>2,000 _s/cm
Hardness	B, I	EPA 130.1/SM 2340B	<10 mg/L or >2,000 mg/L as CaCO ₃
Turbidity	B, I	SM 2130B	>1,000 NTU
Color	S, I	SM 2120 B	>500 units
Bacterial counts	B	SM 9222 D/SM 9223 B	>200/>50
Ammonia	R, I	EPA 350.2/SM4500-NH3	>50 mg/L
Surfactants (as MBAS)	R, I	EPA425.1/SM5540C	>0.25 mg/L
pH	B, I	EPA 150.1/SM 4500H	< 5
Temperature	B	SM 2550 B	
Total chlorine	S	SM 4500-Cl G	
Fluoride	S	EPA 300.0	0.25 mg/L
Potassium	S, I	EPA 200.7	>20 mg/L
Optical brighteners (fluorescence)	S	Center for Watershed Protection 2004	
Dissolved oxygen	S	SM 4500-0 G	
Industrial (metals, metalloids, cyanide, oils, grease)	S (for industrial basins)	EPA 200.7/200.9 EPA 1664 Ecology NWTPH-Gx/Dx	
Other pollutants - nutrients, pesticides, automotive fluids	S	EPA 300.0 SM 2540 D	

Key:

B = basic parameter to be analyzed at all sites

R = key parameter to identify source of illicit discharge in a typical residential basin

S = possible supplemental parameter

I = key parameter to identify source of illicit discharge from an industrial/commercial area

d) Address and Eliminate Illicit Discharges

Immediate Response Procedures

The field crew should be prepared to take immediate action in the event of encountering one of the following situations:

- Individuals actively in the process of introducing possible illegal substances or materials to the storm drain system.
- Laboratory test results greater than 20,000 cfu/100ml fecal coliform.
- Very strong chemical odor emanating from storm drain system.
- Presence of fumes or smoke emanating from storm drain system.
- Visible significant stream of a controlled chemical or petroleum product flowing in storm system or downstream waters.
- Large chemical plume in stream or lake downstream of a City outfall.
- Any condition that poses or could pose an immediate threat to property, human health or safety, or aquatic life.

The crew should take the following steps if one of the above situations is encountered:

1. Follow the Public Notification of Bacterial Pollution SOP
2. Ensure crew and public safety by instructing people to stay clear of the area.
3. Call 911 to report active illegal dumping or potential fire or significant chemical incident, if applicable.
4. Call the City's customer response number at 360-537-3393 to report a possible illegal discharge.
5. The following offices must all be called if an unauthorized discharge of oil or hazardous material such as a spill has occurred:
 - a) Washington Emergency Management Division at 1-800-OILS-911; and
 - b) Washington State Department of Ecology – Southwest Regional Office at 360-407-6300.
 - c) Washington State Department of Health Shellfish – If immediate threat to aquatic life – 360-236-3330
 - d) Grays Harbor County Health Department – 360-249-4922
 - e) The National Response Center at 1-800-424-8802
6. If the spill involves sewage, the WWS Manager must be contacted immediately (360-537-3285 or 360-580-1191)
7. If a spill is encountered the following information should be recorded if possible:
 - a) Where is the spill?
 - b) What spilled?
 - c) How much spilled?
 - d) How concentrated is the spilled material?
 - e) Who spilled the material?
 - f) Is anyone cleaning up the spill?
 - g) Are there resource damages (e.g. dead fish or oiled birds)?
 - h) Who is reporting the spill?
 - i) Your contact information?

8. If possible isolate or contain visible chemical pollution in the effected water body with any materials that are accessible. For small discharges earth dams, absorbent pads, and containers may be useful to contain part of the illicit discharge.
9. Take detailed notes and photos/video for subsequent investigation by City or other agencies.

At a minimum, follow-up work includes contacting the Washington State Department of Ecology – Southwest Office (see phone number above) to determine if any additional reporting or investigative actions are necessary.

For incidents not determined to be emergencies, the City should investigate or refer to the appropriate agency any complaints, reports, or monitoring information that indicates a potential illicit discharge, spill, or illegal dumping.

Isolating Illicit Discharges (Source Tracing)

The City's current hotline will continue to be an effective tool for locating illicit discharges. However, in situations where outfall screening identifies an illicit discharge several methods can be used to trace to the source of the illicit discharge. Tracing techniques include visual inspections of drainage structures and lines, dye testing, damming lines to isolate areas, video inspection, indicator monitoring, smoke testing, and optical brightener monitoring traps. Other more elaborate approaches include using remote sensing tools to identify soil moisture, water temperature, and vegetation anomalies associated with failing septic systems and tracking illegal dumping activities. The most common approach for the City will likely rely upon visual inspections of the catch basins in the storm line above the outfall in which an illicit discharge is suspected.

Several resources exist to assist in evaluating the likely source of an illicit discharge. Generally, the sources are washwater, sanitary sewer or septage, potable water leak, animal contamination, illegal dumping, or industrial discharge.

Investigation and Response Procedures

Once an illicit discharge or illegal connection has been located, details about the discharge connection should be documented. Photographs and video may be helpful to record the location and nature of an illicit connection. The City should determine the name and contact information of the property owner.

The response by the City will vary greatly depending on the type, location, frequency, severity, and source of illicit discharge. In general, the City will have several options available to address a specific discharge. In most cases where the violator is identified it is expected that they will voluntarily comply with any action required by the City to eliminate the potential for further illicit discharges. When the violation is the result of an illegal connection from a building, the property owner is anticipated to respond once they are made aware of the connection, the environmental consequences, the applicable regulations, and the recommended remedy.

If the violation is a failing septic system, the violation is transferred to the Grays Harbor County Health District for enforcement. Any transferred violations shall be monitored

closely by the City to assure compliance with permit requirements.

The City will prepare a letter to be sent to the property owner for any illicit discharge or illegal connection. Depending on the circumstances the letter will describe the findings of the investigation, the required remedy, the required deadline for compliance, technical resources, and the enforcement actions, fines, and legal actions that could ensue for non-compliance. The letter should also describe the relevant codes and laws. The letter should specify who the property owner should contact for additional information and to notify the City when the required remedy has been completed.

The City will conduct a follow-up inspection following notification that the required remedy has been completed. Should the owner not remedy the discharge, the City may proceed to abate the violation as a public nuisance in accordance with established City nuisance abatement policies and procedures.

e) Staff Training

Training Lead

For those staff responsible for implementing the IDDE program, on the job training will be managed by the City's IDDE program manager. The program manager will manage and assign training as described below.

Detailed Training

Detailed training will be assigned to those individuals specifically involved in the immediate response procedures, source tracking of potential illicit discharges and sampling.

General Training

General training targets City field staff that may potentially see an illicit discharge including staff from the following departments: Street, Department of Community Development, Facilities Maintenance, Traffic, Sewer and Stormwater Maintenance and Parks. General training will be via PowerPoint presentation and printed material distributed to staff at staff meetings. DVD, print or webcast material may be distributed if the need arises as the program develops.

f) Reporting and Recordkeeping

Tracking (Spills, Inspections, and Public Comment/Feedback)

Tracking, documentation and inspections of suspected violations is a required part of the IDDE program (section S5.C.3.e.) and will be recorded on the appropriate form (see Appendix B).

Public comment/feedback will be conveyed to the IDDE program manager to ensure that the program is responsive to citizen complaints. The public will be directed to either the program manager directly or the hotline if they have general comments they would like to make on the City's IDDE program.

Appendix A – AMC Chapter 13.70

Chapter 13.70

STORM AND SURFACE WATER MANAGEMENT

Sections:

- 13.70.010 Purpose.**
- 13.70.020 Definitions.**
- 13.70.030 Utility established.**
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- 13.70.060 Setting of fees and charges.**
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- 13.70.090 Exemptions.**
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- 13.70.140 Design criteria.**
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- 13.70.180 Penalties.**
- 13.70.190 Cross connections prohibited.**
- 13.70.200 Illicit discharges prohibited – Certain discharges allowed – Conditions.**
- 13.70.210 Easements.**
- 13.70.220 Appeals – Filing deadlines.**

13.70.010 Purpose.

The purpose of this chapter is to protect, maintain, and enhance the public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse impacts associated with increased storm and surface water runoff. Proper management of storm and surface water runoff and implementation of low impact development (LID) practices will minimize damage to public and private property, reduce the effects of development on land and stream channel erosion and sedimentation, assist in the attainment and maintenance of water quality standards, reduce local flooding, and maintain, post-development, as nearly as possible, the predevelopment runoff characteristics, while complying with the Stormwater Management Manual for Western Washington (SWMMWW) and the city's National Pollution Discharge Elimination System (NPDES) Western

Washington Phase II Municipal Stormwater Permit as issued, and as may be amended, by the Washington State Department of Ecology. This chapter also establishes a storm and surface water system as a utility service of the city.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.020 Definitions.

For the purposes of this chapter, the following definitions describe the meaning of the terms used in this chapter:

- A. "Adverse impact" means any deleterious effect on water or wetlands, including their quality, quantity, surface area, species composition, aesthetics or usefulness for human or natural uses, which are or may potentially be harmful or injurious to human health, welfare, safety or property, to biological productivity, diversity or stability, or which unreasonably interferes with the enjoyment of life or property, including outdoor recreation.
- B. "Agricultural land management practices" means those methods and procedures used in the cultivation of land in order to further crop production and conservation of related soil and water resources.
- C. "Applicant" means any person, firm or governmental agency who executes the necessary forms to procure official approval of a project or a permit to carry out construction of a project.
- D. "Aquifer" means a porous water-bearing geologic formation generally restricted to materials capable of yielding an appreciable supply of water.
- E. "City engineer" means the city of Aberdeen public works director or his or her designee.
- F. "Clearing" means the removal of trees and brush from the land, but shall not include the ordinary mowing of grass.
- G. "Detention structure" means a permanent structure designed to store runoff for discharge at rates approximating what would have occurred under predevelopment conditions.
- H. "Develop land" or "development" means to change the runoff characteristics of a parcel of land in conjunction with residential, commercial, industrial or institutional construction or alteration.
- I. "Developer" means a person, group or company engaged in land or property development or proposed development.
- J. "Director" or "public works director" means the city of Aberdeen public works director or his or her designee.
- K. "Drainage area" means that area contributing runoff to a single point measured in a horizontal plane which is enclosed by a ridge line.
- L. "Engineer" means a civil engineer or civil engineering firm that has been retained or employed by the city to perform engineering services.

M. "Easement" means a grant or reservation by the owner of land for the use of such land by others for specific purpose(s), and which must be included in the conveyance of land affected by such easement.

N. "Exemption" means those land development activities that are not subject to the storm and surface water management requirements contained in this chapter.

O. "Flow attenuation" means detaining or retaining runoff to reduce the peak discharge.

P. "Grading" means any act by which soil is cleared, stripped, stockpiled, excavated, scarified, filled or any combination thereof.

Q. "Infiltration" means the passage or movement of water into the soil surface.

R. "Off-site storm and surface water management" means the design and construction of a facility necessary to control storm and surface water from more than one (1) development.

S. "On-site storm and surface water management" means the design and construction of systems necessary to control storm and surface water within an immediate development.

T. "Retention structure" means a permanent structure that provides for the storage of runoff by means of a permanent pool of water or infiltration.

U. "Sediment" means soils or other surficial materials transported or deposited by the action of wind, water, ice or gravity as a product of erosion.

V. "Site" means any tract, lot or parcel of land or combination of tracts, lots or parcels of land which are in one (1) ownership, or are contiguous and in diverse ownership where development is to be performed as part of a unit, subdivision or project.

W. "Stabilization" means the prevention of soil movement by any of various vegetative and/or structural means.

X. "Storm and surface water management" means:

1. For quantitative control, a system of vegetative and structural measures that control the increased volume and rate of surface runoff caused by manmade changes to the land; and
2. For qualitative control, a system of vegetative, structural and other measures that reduce or eliminate pollutants that might otherwise be carried by surface runoff; and
3. For "low impact development (LID)," a stormwater and land use management strategy that strives to mimic predisturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design. LID best management practices (BMPs) include, but are not limited to, bioretention, rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, vegetated roofs, minimum excavation foundations, and water reuse.

Y. "Storm drainage plan" means a set of drawings or other documents, submitted by a person as a prerequisite to obtaining a storm drainage permit, which contain all of the information and specifications pertaining to storm and surface water management.

Z. "Stripping" means any activity which removes the vegetative surface cover, including tree removal, clearing, grubbing and storage, or removal of topsoil.

AA. "Stormwater Management Manual for Western Washington" means the stormwater manual published by the Washington State Department of Ecology and adopted by the city.

BB. "Variance" means the modification of the minimum storm and surface water management requirements for specific circumstances where strict adherence of the requirements would result in unnecessary hardship and not fulfill the intent of this chapter.

CC. "Watercourse" means any natural or artificial stream, river, creek, ditch, channel, swale, conduit, culvert, drain, or ravine, in and including any area adjacent thereto which is subject to inundation by reason of overflow or flood water.

DD. "Watershed" means the total drainage area contributing runoff to a single point.

EE. "Western Washington Phase II Municipal Stormwater Permit" means the National Pollution Discharge Elimination System (NPDES) stormwater permit issued to the city by the Washington State Department of Ecology.

FF. "Wetlands" means an area that has saturated soils or periodic high ground water levels and vegetation adapted to wet conditions and periodic flooding.

(5/23/2018 amend; Ord. 6526, Amended, 01/25/2012; Ord. 6503, Added, 08/25/2010)

13.70.030 Utility established.

For the purpose of carrying out the provisions of this chapter, there is created and established a storm and surface water drainage utility for the city of Aberdeen pursuant to Chapters [35.67](#), [35.92](#), [90.03](#), and [90.54](#) RCW, and by Article [11](#), Section [11](#), of the constitution of the state of Washington. The primary purpose of this utility shall be the planning, design, construction, maintenance, administration, and operation of all city storm and surface water facilities and for overseeing the design, construction, and maintenance of improvements on private property where these may affect storm and surface water management. The utility shall be administered by the public works director. The city council is authorized to make funds available to the utility by appropriation, borrowing, or by other means in accordance with laws of Washington state for the establishment, maintenance, and operation of this utility.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.040 Transfer of property.

All properties, property rights, and interests of every kind or nature owned or held by the city, however acquired, insofar as they relate to or concern storm or surface water facilities, are hereby transferred to the storm and surface water utility, including, by way of example and not limitation, all properties, rights and interest acquired by adverse possession or by prescription in and to the drainage and storage of storm or surface waters over and under lands, watercourses, streams, ponds, and estuaries to the full extent of inundation caused by the largest storm or flood condition.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.050 Storm and surface water fund created.

- A. Pursuant to state law, the city hereby declares its intention to designate the city's storm and surface water system as a utility and enterprise activity of the city to be supported all or in part by the imposition of user charges on all parcels of property within the city which discharge stormwater to the city's storm drainage facilities or are otherwise served by the city's storm drainage facilities.
- B. The city hereby establishes a special fund within the city's fiscal system to be known as "the storm and surface water fund," hereinafter referred to as "the fund."
- C. All revenues from storm drainage user charges and other storm drainage related fees and charges as may be adopted by resolution shall be deposited to the fund.
- D. Expenditures from the fund shall be limited to those expenditures for the improvement, repair, operation, maintenance, and administration of the storm drainage facility as defined by the public works director of the city of Aberdeen. The fund may also transfer funds to the general fund of the city that represent the reasonable and proportionate share of the cost of general city government support of the utility not covered by direct payments from the fund.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.060 Setting of fees and charges.

- A. The city council shall by resolution establish a system of user charges for all parcels in the city.
- B. To the extent practicable, user charges shall be based on each parcel's expected rate and volume of stormwater runoff from a parcel.
- C. The city council may by resolution establish a charge for the connection of any parcel to the city's storm drainage facilities to reflect that parcel's fair share of the cost of the existing city storm drainage facilities serving the parcel.

D. The public works director shall establish appropriate fees for the review and inspection of storm drainage facilities proposed and constructed by private development.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.070 Applicability.

It is not intended that this chapter repeal, abrogate, or impair any existing regulations, easements, covenants, or deed restrictions. The provisions of this chapter shall be held to be minimum requirements in their interpretation and application and shall be liberally construed to serve the purposes of this chapter. When any provision of any other chapter of the city regulations conflicts with this chapter, that which provides more environmental protection shall apply unless specifically provided otherwise in this chapter.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.080 Review and approval of storm and surface water drainage plans.

A storm and surface water drainage plan shall be submitted to the city engineer by the developer for review and approval for any proposed development, unless otherwise exempted. The developer is solely responsible for determining the stormwater requirements applicable to the proposed development for proposing review to the city. These requirements are defined in Volume I of the Stormwater Management Manual for Western Washington, and also found in city provided stormwater guidance forms. The square footage and improvement value thresholds outlined in Volume I of the Stormwater Management Manual for Western Washington shall be cumulative and include all projects permitted on or after January 1, 2012. The storm and surface water drainage plan shall be accompanied by supporting computations, drawings and sufficient information describing the manner, location and type of measures in which storm and surface water runoff will be managed from the entire development. The storm and surface water drainage plan, stormwater facility design, and any supplemental information supplied by the developer shall conform to the design standards set forth in the Stormwater Management Manual for Western Washington. The developer solely is responsible for submitting a storm and surface water management plan which meets the requirements provided by this chapter. No person shall develop any land for residential, commercial, industrial or institutional uses without having provided for required storm and surface water management measures that control or manage runoff from such developments.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.090 Exemptions.

A. The following practices are exempt from the provisions of this chapter and the requirements of providing storm and surface water management as specified in the Western Washington Phase II Municipal Stormwater Permit:

1. *Forest Practices.* Forest practices regulated under WAC Title [222](#), except for Class IV general forest practices that are conversions from timberland to other uses, are exempt from the provisions of the minimum requirements.
2. *Commercial Agriculture.* Commercial agriculture practices involving working the land for production are generally exempt. However, the conversion from timberland to agriculture and the construction of impervious surfaces are not exempt.
3. *Oil and Gas Field Activities or Operations.* Construction of drilling sites, waste management pits, and access roads, as well as construction of transportation and treatment infrastructure such as pipelines, natural gas treatment plants, natural gas pipeline compressor stations, and crude oil pumping stations are exempt. Operators are encouraged to implement and maintain best management practices to minimize erosion and control sediment during and after construction activities to help ensure protection of surface water quality during storm events.
4. *Pavement Maintenance.* The following pavement maintenance practices are exempt: pothole and square cut patching; overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage; shoulder grading; reshaping/regrading drainage systems; crack sealing; resurfacing with in-kind material without expanding the road prism; pavement preservation activities that do not expand the road prism; and vegetation maintenance.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.100 Variances.

The city engineer may grant a written variance from any requirement of this chapter if there are exceptional circumstances applicable to the site such that strict adherence to the provisions of this chapter will result in unnecessary hardship and not fulfill the intent of this chapter. A written request for variance shall be provided to the city engineer and shall state the specific variances sought and reasons for their granting. The city shall not grant a variance unless and until sufficient specific reasons justifying the variance are provided by the person developing land.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.110 Permits – Plan approval required.

A site development permit, building permit, or other development permit may not be issued for any parcel or lot unless a storm and surface water drainage plan has been approved by the city engineer. The approved plan shall become part of the permit and be enforced as an element of any development permit issued by the city.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.120 Plan approval – Conditions.

In granting the plan approval, the city engineer may impose such conditions thereto as may be deemed necessary to ensure compliance with the provisions of this chapter and the preservation of public health and safety. Any site development permit, building permit, or other development permit issued by the city may be suspended or revoked, after written notice is given to the permittee, for any violations of the approved storm and surface water drainage plan.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.130 Low impact development (LID).

A. The city's preferred approach to site development includes low impact development (LID) best management practices (BMPs) as an alternative to conventional stormwater management systems that rely on closed conveyance. LID is intended to manage stormwater runoff close to the source of generation and to mimic the predeveloped hydrologic condition of a site. Beginning June 30, 2018, the city will require the incorporation of low impact development best management practices, for new development and redevelopment, in accordance with the Stormwater Management Manual for Western Washington (SWMMWW) and its National Pollution Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit as issued, and as may be amended, by the Washington State Department of Ecology.

B. LID is accomplished through minimizing the impervious surface coverage, retaining on-site natural features and vegetation, and managing runoff through dispersion, infiltration, evapotranspiration, or a combination of these approaches. Use of LID BMPs may reduce or eliminate the need for conventional detention facilities but does not remove the obligation to comply with the minimum requirements of the Stormwater Management Manual for Western Washington.

C. A variety of BMPs to minimize impervious surfaces and to manage stormwater have been developed and tested for use in Western Washington. These BMPs and the overall LID approach are described in the SWMMWW and additional guidance is provided in the latest version of the LID Technical Guidance Manual for Puget Sound.

D. The menu of LID BMPs identified in the SWMMWW are accepted by the city for use in stormwater site plans to address the minimum requirements for flow control and runoff treatment in this chapter, subject to the specifications, performance standards, and design criteria in the SWMMWW and review and approval under this chapter.

(5/23/2018 amend; Ord. 6526, Amended, 01/25/2012; Ord. 6503, Added, 08/25/2010)

13.70.140 Design criteria.

Storm and surface water systems shall be designed and constructed in accordance with the standards and specifications as set forth in the adopted Stormwater Management Manual for Western Washington.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.150 Maintenance agreement.

Prior to issuance of a storm and surface water utility permit, the city shall require the applicant to execute an inspection and maintenance agreement binding on all subsequent owners of land served by the private storm and surface water drainage system. The maintenance agreement shall be recorded by the city. Such agreement shall provide for access to the system at reasonable times for regular inspection by the city or its authorized representative to ensure that the facility is maintained in proper working condition to meet design standards and any provisions established. The agreements shall include the right of the city to access the system to take such action as necessary to protect the public safety and health in any instance where the owner fails to make the appropriate correction. Such agreement may contain provisions for regular or special assessments.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.160 Inspection.

- A. The developer will submit to the city a proposed construction schedule ten (10) days prior to commencing construction. The city engineer shall conduct inspections and file reports for periodic inspections necessary during construction of storm and surface water management systems to ensure compliance with the approved plans. The developer shall notify the city upon completion of the project when a final inspection will be conducted.
- B. Any portion of the work which does not comply with city regulations will be promptly corrected by the developer, after written notice from the city. The notice shall set forth the nature of corrections required and the time within which corrections will be made.
- C. A final inspection shall be conducted by the city upon completion of the elements of the storm and surface water drainage plan to determine if the completed work is constructed in accordance with the approved plan and this chapter. The developer shall supply an "as-built" certification by a registered professional engineer licensed in the state of Washington to certify that the facility has been constructed as shown in the "as-built" plans and meets approved plans and specifications. The city will provide the developer with a written notification of the results of the final inspection.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.170 Preventive maintenance.

- A. It shall be the responsibility of the developer or property owner to maintain all infiltration systems, retention, detention or other storm and surface water drainage structures as contained in the storm and surface water utility permit and in accordance with the latest maintenance standards set forth in the SWMMWW.

B. The city shall annually inspect all infiltration systems, retention, detention or other storm and surface water drainage structures.

C. If the inspection indicates improper maintenance, unsafe conditions, or danger to public health or safety the city shall so inform the developer or property owner of those conditions as well as a schedule for remediation. The cost of such remediation is the cost of the developer or property owner. In any instance where the developer or property owner fails to make the appropriate correction within the timeline specified by the city engineer, the city will take such action as necessary to protect the public health and safety. Any cost incurred by the city shall be recovered from the developer or property owner.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.180 Penalties.

A. Any person convicted of violating the provisions of this chapter shall be guilty of a gross misdemeanor. Each day that the violation continues shall be a separate offense.

B. In addition to, or as an alternative to any criminal prosecution or other penalty or billable cost of abatement or inspection as provided by ordinance or statute, any responsible person who violates a provision of this chapter, or order of the director issued pursuant to this chapter, may be assessed a civil penalty under Chapter [1.12](#).

C. In addition to imposition of a civil penalty, the director shall have the authority to order any responsible person to stop work if the work does not conform to the permit requirements and the severity is determined to be sufficient to warrant such action. The stop work order shall be issued in accordance with the procedures set forth in Chapter [1.12](#) for notices and orders. Failure to comply with the terms of a stop work order shall result in enforcement actions including, but not limited to, the issuance of a civil penalty.

D. In addition, the city may institute injunctive, mandamus or other appropriate actions or proceedings at law or equity for the enforcement of this chapter, or to correct violations of this chapter, and any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions or other appropriate forms of remedy or relief.

E. Any person who, through an act of commission or omission, aids or abets in the violation shall be considered to have committed a violation.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.190 Cross connections prohibited.

The installation or maintenance of any cross connection, meaning a connection between any storm and surface water drainage system and any sanitary sewer system, is prohibited. Any such cross connections now existing, or hereafter installed, are declared to be public nuisances and shall be abated by the director in the manner provided by Chapter [8.08](#).

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.200 Illicit discharges prohibited – Certain discharges allowed – Conditions.

A. The stormwater system of the city of Aberdeen, natural and artificial, may only be used to convey stormwater runoff and discharges meeting the permit conditions within a current National Pollutant Discharge Elimination System Permit approved by the Washington State Department of Ecology. Except as provided in subsections (B) and (C) of this section, no person shall throw, drain or otherwise discharge, cause or allow others under its control to throw, drain or otherwise discharge into the stormwater system any materials other than stormwater.

B. The following discharges into the stormwater system are permitted, provided the following conditions are met:

1. *Discharges from Potable Water Sources, Including Waterline Flushing, Hyperchlorinated Waterline Flushing, Fire Hydrant System Flushing and Pipeline Hydrostatic Test Water.* Planned discharges shall be dechlorinated to a concentration of one-tenth (0.1) ppm or less, pH adjusted, if necessary (to meet water quality standards), and volumetrically and velocity controlled to prevent resuspension of sediments in the stormwater system. As an option to dechlorinating, planned discharges from potable water sources may be discharged directly to the municipal sanitary sewer system in a manner approved by the director. Planned discharges of waterline and hydrant system flushing need not be dechlorinated at the point of discharge if the discharge methods, location, or dilution will result in a pH concentration less than one-tenth (0.1) ppm at the point the water would enter a natural drainage channel.
2. *Discharges from Lawn Watering and Other Irrigation Runoff.* Reasonable steps shall be taken to minimize runoff including limiting duration and overspray.
3. *Dechlorinated Swimming Pool Discharges.* The discharges shall be dechlorinated to a concentration of one-tenth (0.1) ppm or less, pH adjusted, and reoxygenized if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the stormwater system and the property owner shall obtain permission from the director. Swimming pool cleaning waste water and filter backwash shall not be discharged to the stormwater system.
4. *Street and Sidewalk Wash Water, Water Used to Control Dust, and Routine External Building Wash Down that Does Not Use Detergents.* To avoid washing pollutants into the stormwater system, the discharge must minimize the amount of street wash and dust control water used. At active construction sites, street sweeping must be performed prior to washing the street.
5. *Other Nonstormwater Discharges.* The discharges shall be in compliance with the requirements of the stormwater pollution prevention plan for the discharges as reviewed and approved by the city.
6. *Any Discharges from a Construction Site.* Discharges must be in conformance with the stormwater pollution prevention plan (SWPPP) reviewed by the city.

7. *Combined Sewer Overflow (CSO) Discharges.* This discharge must be in conformance with a current National Pollution Discharge Elimination System permit, approved by the Washington State Department of Ecology.

C. The following categories of nonstormwater discharges are specifically allowed:

1. Diverted stream flows;
2. Rising ground waters;
3. Uncontaminated ground water infiltration (as defined at [40 CFR Section 35.2005\(b\)\(20\)](#));
4. Uncontaminated pumped ground water;
5. Foundation drains;
6. Air conditioning condensation;
7. Irrigation water from agricultural sources that is intermixed with urban stormwater;
8. Springs;
9. Water from crawl space pumps;
10. Footing drains;
11. Flows from riparian habitats and wetlands;
12. Nonstormwater discharges covered by another NPDES permit;
13. Discharges from emergency firefighting activities in accordance with the city of Aberdeen Stormwater NPDES Phase II Permit, Section S2, Authorized Discharges. The city's Stormwater NPDES Phase II Permit is available to view in the office of the director.

D. Except as provided in this section, no person shall use the stormwater system, directly or indirectly, to dispose of any solid or liquid matter other than stormwater. No person shall make or allow any connection to the stormwater system which could result in the discharge of polluting matter. Connections to the stormwater system from the interiors of structures are prohibited. Connections to the stormwater system for any purpose other than to convey stormwater or ground water are prohibited and shall be eliminated.

E. *Stormwater Discharge into the Sanitary System Is Prohibited – Exceptions.*

1. No person shall discharge or cause to be discharged any stormwater, surface water, ground water, roof runoff, subsurface drainage, uncontaminated cooling water, or unpolluted industrial process waters into any sanitary sewer, unless otherwise approved by the director based on lack of feasible alternatives or unless the discharge meets the condition outlined in Section [13.52.390](#).
2. No person shall make connection of roof downspouts, exterior foundation drains, area drains, or other sources of stormwater surface runoff or ground water to a building sewer or building drain which in turn is

connected directly or indirectly to a public sanitary sewer, unless such connection is otherwise approved in writing by the director based on lack of feasible alternatives or other appropriate factors.

F. Stormwater shall be discharged to such sewers as are specifically designated as combined sewers or storm sewers, or to a natural outlet approved by the director. Storm drainage from hard-surfaced or graded areas, such as parking lots, service station yards, and storage yards, shall enter the public storm sewer system or other outlet approved by the director and as required by this chapter and as such facilities are available. Such storm drainage shall not be connected to or allowed to enter a sanitary sewer, unless otherwise approved in writing by the director based on lack of feasible alternatives or other appropriate factors.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.210 Easements.

All public storm drainage systems shall be required to be located within a recorded public storm drainage easement or public right-of-way. An unobstructed ingress/egress maintenance easement shall be provided for city access to said storm drainage facilities. The minimum width of the required drainage easement shall be adequate to encompass all facilities and include room for access and maintenance, as determined by the city.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.220 Appeals – Filing deadlines.

A. Any billing statement, charge, or other fee assessed under this chapter may be appealed to the director. The appeal may be decided informally, without a hearing, or in the sole discretion of the director an informal hearing may be held. The director's decision shall be in writing. The director's decision shall be the final determination unless a written notice of appeal is filed with the finance director within fourteen (14) days of the director's decision. Appeals from the director's decision shall be heard by the city council. The city council's decision on appeal shall be the final determination of the city.

B. Any appeal from the refusal to approve a storm and surface water drainage plan shall be considered in the same manner as an appeal from the denial of the development permit being applied for.

C. Any civil enforcement action taken under this chapter, that does not fall within subsection (A) or (B) of this section, may be appealed to the director in the same manner as provided for appeals under Chapter [1.12](#).

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

The Aberdeen Municipal Code is current through Ordinance 6629, passed July 25, 2018.

Disclaimer: The city clerk's office has the official version of the Aberdeen Municipal Code. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

[City Website: www.aberdeenwa.gov](http://www.aberdeenwa.gov)

City Telephone: (360) 537-3231

[Code Publishing Company](#)

Appendix B – Illicit Discharge Incident Reporting Forms

Illicit Discharge Incident Report Sheet

Responder Information

Call Taken By:

Call Date:

Call Time:

Hotline Call
 Reported by other Department or Agency

Reporter Information

Incident Time:

Incident Date

Caller Contact Information:

Organization:

Precipitation (inches)

24 / 48 hours

Incident Location

Stream Address or Outfall #:

Latitude and Longitude

Closest Street Address:

Nearby Landmark:

Primary Location Description

Secondary Location Description

<input type="checkbox"/> Stream Corridor (In or adjacent to stream)	<input type="checkbox"/> Outfall	<input type="checkbox"/> In-stream Flow	<input type="checkbox"/> Along banks
<input type="checkbox"/> Upland Area (Land not adjacent to stream)	<input type="checkbox"/> Near storm drain	<input type="checkbox"/> Near other water source (Stormwater pond, wetland, ect.)	

Narrative description of location:

Upland Problem Indicator Description

<input type="checkbox"/> Dumping	<input type="checkbox"/> Oil / solvents / chemicals	<input type="checkbox"/> Sewage
<input type="checkbox"/> Wash water, suds, ect.	<input type="checkbox"/> Other:	

Stream Corridor Problem Indicator Description

Odor	<input type="checkbox"/> None	<input type="checkbox"/> Sewage	<input type="checkbox"/> Rancid / Sour	<input type="checkbox"/> Petroleum (gas)
	<input type="checkbox"/> Sulfide	<input type="checkbox"/> Musky	<input type="checkbox"/> Other: Describe in "Narrative" section	
Appearance	<input type="checkbox"/> Normal	<input type="checkbox"/> Oil Sheen	<input type="checkbox"/> Cloudy	<input type="checkbox"/> Turbid
	Other: Describe in "Narrative" section			
Floatables	<input type="checkbox"/> None	<input type="checkbox"/> Sewage	<input type="checkbox"/> Litter	<input type="checkbox"/> Dead Fish
	<input type="checkbox"/> Algae	<input type="checkbox"/> Suds	<input type="checkbox"/> Other: Describe in "Narrative" section	

Narrative description of problem indicators:

Suspected Violator (name, personal or vehicle description, license plate number, ect.)

Required Notifications (Record in correspondence section of sheet two)

Spill Type	Examples	Call / Notify All Listed
Emergency Situation	Sewage Main Break Gasoline Tank Rupture Spill with overwhelming chemical odor Gas / Oil spill in a stream, lake or river Gas / Oil spill flowing into a catch basin Gas / Oil spill into a ditch Motor oil spill flowing into a catch basin	911 National Response Center 800-424-8802 WA. Emergency Management 800-OILS-911 Ecology SW Regional Office 360-407-6300 Department of Health - Sewage 360-236-3330 Aberdeen Public Works 360-537-3393
Non Emergency Situation	Leaking septic system broken side sewer Oil or vehicle fluids on pavement or gravel Concrete washout Muddy construction site runoff Suds Paint	Aberdeen Street Department 360-537-3241 Aberdeen Sewer Department 360-537-3285 Department of Health - Sewage 360-236-3330

Illicit Discharge Incident Investigation / Resolution Sheet

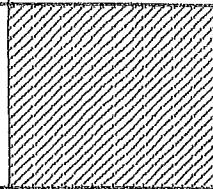
Appendix C – Outfall Reconnaissance Inventory Forms

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigators:		Form completed by:	
Temperature (°F):	Rainfall (in.):	Last 24 hours:	Last 48 hours:
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photo #:s:	
Land Use in Drainage Area (Check all that apply):			
<input type="checkbox"/> Industrial <input type="checkbox"/> Ultra-Urban Residential <input type="checkbox"/> Suburban Residential <input type="checkbox"/> Commercial		<input type="checkbox"/> Open Space <input type="checkbox"/> Institutional Other: _____ Known Industries: _____	
Notes (e.g., origin of outfall, if known):			

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED	
<input type="checkbox"/> Closed Pipe	<input type="checkbox"/> RCP <input type="checkbox"/> CMP <input type="checkbox"/> PVC <input type="checkbox"/> HDPE <input type="checkbox"/> Steel <input type="checkbox"/> Other: _____	<input type="checkbox"/> Circular <input type="checkbox"/> Elliptical <input type="checkbox"/> Box <input type="checkbox"/> Other: _____	<input type="checkbox"/> Single <input type="checkbox"/> Double <input type="checkbox"/> Triple <input type="checkbox"/> Other: _____	Diameter/Dimensions: _____	In Water: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully	
					With Sediment: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully	
	<input type="checkbox"/> Open drainage	<input type="checkbox"/> Concrete <input type="checkbox"/> Earthen <input type="checkbox"/> rip-rap <input type="checkbox"/> Other: _____	<input type="checkbox"/> Trapezoid <input type="checkbox"/> Parabolic <input type="checkbox"/> Other: _____		Depth: _____	
					Top Width: _____	
				Bottom Width: _____		
<input type="checkbox"/> In-Stream	(applicable when collecting samples)					
Flow Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, Skip to Section 5				
Flow Description (If present)	<input type="checkbox"/> Trickle <input type="checkbox"/> Moderate <input type="checkbox"/> Substantial					

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS			
PARAMETER	RESULT	UNIT	EQUIPMENT
<input type="checkbox"/> Flow #1	Volume	Liter	Bottle
	Time to fill	Sec	
<input type="checkbox"/> Flow #2	Flow depth	In	Tape measure
	Flow width	Ft, In	Tape measure
	Measured length	Ft, In	Tape measure
	Time of travel	S	Stop watch
Temperature	°F	Thermometer	
pH	pH Units	Test strip/Probe	
Ammonia	mg/L	Test strip	

Attach a summary of actions taken to characterize, trace and eliminate each illicit discharge found by or reported to the permittee. For each illicit discharge, include a description of actions according to required timeline per S5.C.3.d.iv

- 1-18-18 – Intersection of Wishkah and Fleet. Dispatched from Hotline for visible oil on streets from the intersection of Fleet and Wishkah to the intersection of Young and Lafayette. Staff sanded the street and swept areas with oil sheen.
- 3-13-18 – Near 415 W 4th St. Dispatched from Hotline. Yard clippings and waste dumped on and around catch basin. Staff cleaned the debris with the vactor truck and attempted to make contact with the nearby homeowner to advise not to dump on or near catch basins in the future. Staff did not receive an answer from the homeowner and the area has since been monitored.
- 3-16-17 – Intersection of Sumner and Haight. Dispatched from Aberdeen Fire. Vehicle collision at the intersection caused transmission oil to leak from a vehicle and drained to a nearby private drain. After staff investigated the extent of transmission fluid discharge to the private drain it was determined that the fluid most likely did not reach the City drainage system. Staff cleaned the private drain and downstream City catch basin.
- 5-9-18 – Intersection of Market and Park. Dispatched from Hotline. Construction in the intersection. Contractor was dewatering an open trench/pit by pumping the water to the street which was flowing to a nearby drain. City staff warned the contractor that they were causing an illicit discharge and to discontinue. Staff investigated the drainage system and cleaned the nearby drain.
- 9-12-18 –Near railroad swing bridge at intersection of River and F St. Dispatched from Hotline. Report of portable chemical toilet flipped on its side. City staff investigated and found no evidence of waste or chemical liquid discharge from the toilet. Staff flipped the toilet right side up and no further action required.
- 10-31-18 – B St. from Market St to Bench Dr. Dispatched from Hotline. Visible oil sheen from diesel leak/spill on B St. City Staff responded by blocking off all applicable catch basins along the street, spread sand/dryer on concentrated areas of diesel leak, and swept roadway.
- 11-4-18 – City Wastewater Treatment Plant (WWTP). The WWTP experienced a PLC failure which prevented the headworks screen from functioning. The screens became plugged, causing an overtopping of the structure and untreated sewage entering the on-site stormwater drainage system. City staff plugged all catch basin outlet pipes and redirected sewage to a drain that leads back to the treatment system. City staff contacted Ecology, Grays Harbor Environmental Health, and the Department of Health per standard reporting requirements. See attached summary of the incident.

City of Aberdeen – Headworks overflow 11/4/18, ERTS 18-4200

What happened? A PLC failure prevented the headworks screens in the City's WWTP from functioning. Eventually debris plugged off the screens and efficiency through the screens was reduced significantly causing the water elevation in the channel to rise. Flow then carried over to a by-pass channel which is equipped with a 1" bar screen (manual clean). This too was eventually plugged and flow continued to rise until overtopping the structure. While overflowing it appears approximately 50% of the flow was directed to the primary effluent box and 50% overtopped the sides of the structure.

Review of security camera footage and plant data shows the screens stopped functioning at approximately 11:10pm on Saturday November 3, 2018. Flow began to overtop the structure at approximately 2:22am on Sunday, November 4, 2018. Overflow from the structure stopped at approximately 6:22am on Sunday, November 4, 2018. Flooding of the associated area receded at approximately 8:15am on Sunday, November 4, 2018.

We find it reasonable to estimate the following. It should be noted that there is a lot of variability in the input factors for estimating this event. These numbers represent what the City of Aberdeen believes to be a fair representation of what likely occurred.

Flow pumped to headworks during overflow period: 2.21 million gallons

Flow discharged from WWTP during overflow period: 1.08 million gallons

Volume of sewage overflowed from the headworks during overflow period: 1.13 million gallons

Flow returned to WWTP drains during overflow period: 330,000 gallons

Flow absorbed in to ground via gravel, vaults, pipe penetrations: 20,000 gallons

Sewage discharged to storm drains: 780,000 gallons.

Timeline of Events		
Date	Time	Event
11/3/18	11:10pm	Headworks screens stop functioning.
11/4/18	2:22am	Overflow from headworks begins
	2:50am	SCADA instruments begin to show inconsistency.
	6:15am	Operator arrives at WWTP for regular shift, discovers problem
	6:17am	Operator calls WWTP Chief Operator, who instructs him to shut off pump 1 and pump 4. Pump 4 was not running.
	6:22am	Operator cleans bar screen on headworks
	6:22am	Flow from headworks no longer overflowing
	6:30am	Chief operator arrives on scene.
	6:30am to 7:30am	Chief operator assesses scene. Observes both step screens not functional and large debris pile from cleaning of center bar screen on headworks deck. Cycled power to PLC. No change. Attempted to place screens in manual mode. No change. Cycled power several more times, checked fuses, electrical connections, voltage. Nothing abnormal. Screens still not functional

		<p>Observed adequate passage of flow through bar screen in overflow channel to accommodate current flow. Instructed operator to clean screen frequently. Monitored wet well level of WWTP. Shut off pump #5 so it wouldn't run in the event of high wet well.</p> <p>Observes sewage had overflowed the headworks structure to enter both the WWTP internal drain system and WWTP storm drainage system. During this time it appeared very little flow was draining to the storm system and heavy flow was being directed to the WWTP internal drain system. There was significant flooding of areas of the WWTP not affected by the overflow. This flooding showed no signs of sewage contamination.</p> <p>Additionally, sewage had flooded the headworks influent control box and sludge pumping room. Power control boxes for the gravity thickener, east and west sludge pumps, and cyclone were severely damaged. None of these components were operational.</p>
	6:38am	WWTP Chief Operator called in WWTP Maintenance Supervisor
	7:15am	SCADA instruments appear to resume normal operation
	8:15am	Flooded sewage fully receded.
	8:37am	Headworks screens resume operation. Spontaneously.
	9:15am	Wet Well level rising – Third influent pump placed into service
	9:38am	WWTP Chief Operator called SCADA technician
	9:42am	WWTP Chief Operator called City Electrician – no answer
	9:52am	Called in relief operator to help with clean-up
	9:58am	WWTP Chief Operator received call from SCADA technician learned that assistant City Electrician was at water shop troubleshooting PLC problem.
	10:00 am To 6:00 pm	Clean up and emergency repairs underway. Thickener and cyclone returned to service with temporary repairs. Sludge pumps not operational. All storm catch basins plugged at outfall before clean-up of the area. Water directed to storm system during clean-up was collected from sump via vactor truck. No clean-up water discharged to storm system
	10:17am	WWTP Chief Operator spoke with City Electrician – called in
	12:52pm	WWTP Chief Operator Called Ecology, 360-407-6300, to report spill
	12:56pm	WWTP Chief Operator Called Department of Health, 360-789-8962 to report spill
	1:00pm	WWTP Chief Operator received call back from Ecology
	1:08pm	WWTP Chief Operator Called Grays Harbor County Environmental Health, 360-249-4222. No answer, no ability to leave message
	1:18pm	WWTP Chief Operator called Aberdeen Public Works Director
11/5/18	11:24am	WWTP Chief Operator called Grays Harbor County Environmental Health, left message.
	11:26am	WWTP Chief Operator called Department of Health (Trevor) with revised overflow estimate based on SCADA data
	2:11pm	WWTP Chief Operator returned call to Patricia Bailey (Ecology)
	2:23pm	WWTP Chief Operator spoke with Grays Harbor County Environmental Health, Jeff Nelson. Reported spill. Verified after hours and weekend contact number.

11/6/18	1:16pm	WWTP Chief Operator spoke with Patricia Bailey (Ecology) about difficulty of calculating overflow volume and return flow.
	3:00pm	WWTP Chief Operator met with City Engineer at WWTP to help calculate return flow rates from WWTP internal drain system.
11/7/18	8:00am to 11:00pm	WWTP Chief Operator begins work on written report. Discovered anomalies with SCADA. Consulted with City Engineer, Public Works Director, and Gray & Osborne Engineering.
11/8/18	8:29am	WWTP Chief Operator Called Department of Health (Mark Toy) with revised overflow estimate based on review of all available information.
11/8/18	9:30am To 5:30pm	WWTP Chief Operator worked with SCADA consultant to determine cause of PLC failure and develop solutions for prevention of a similar occurrence in the future. And with City Engineer to verify estimated volumes.
11/8/18	7:00pm	WWTP Chief Operator finished written report. Submitted electronically to Dave Dougherty and Patricia Bailey (ECY), Mark Toy (WSDOH), and Jeff Nelson (GH County)

Narrative:

WWTP Chief Operator, Kyle Scott was contacted by on-shift plant operator, Josh Vessey via telephone at 6:17am on Sunday, November 4, 2018 regarding flooding of the WWTP and an overflowing headworks. Scott advised Vessey to turn off pumps 1 and 4. Vessey then immediately proceeded to the headworks and discovered the east and west channel screens not functioning. Power to the unit was normal. PLC had power, no ability to run in hand or manipulate the program via the touch screen. Vessey then cleaned the center bar screen, placing the rags on the deck of the center channel. The combination of these actions stopped overflow from the headworks before Scott arrived on scene.

Scott arrived on scene at 6:30am. After conferring with Vessey, Scott too tried unsuccessfully to troubleshoot the east and west screens and PLC. Scott instructed Vessey to make sure the bar screen was cleaned frequently to allow flow to continue to pass through the center channel. The flow rate at the time (influent pump 2 and influent pump 3) was adequately passing through the center channel.

Scott observed considerable flooding in the area extending north from the headworks towards the digester and solids buildings. Additionally, flooding of sewage was evident in the area of the gravity thickener and primary clarifiers.

Scott also observed considerable flooding in the east and south east portions of the plant. An area which frequently floods during rain/tide events. None of this flooding appeared to be contaminated with sewage.

Scott observed the river to be well above the median high water mark.

In the most heavily impacted area of flooding, Scott observed two WWTP internal drains collecting a high amount of flow. In the area of the drains flow was whirl pooling. Additionally, flow to the slotted drain which drains to storm drain in the area did not appear to be draining. Nor did any of the storm drains in the entire WWTP.

Scott discovered the headworks pumping room was flooded with sewage to a depth of approximately 4ft. Scott observed flooding in the area of the WWTP internal drains next to the digester building at a depth of approximately 1 ft.

Scott called in WWTP Maintenance Supervisor, Willy Erickson; City Electrician, Shawn Sias; and Plant Operator Ryan Libby. Also working was Plant Operator Shayne Lester, and Assistant City Electrician Sam Adams.

Scott notified Ecology (12:52pm), and Washington State Department of Shellfish (12:56pm) on Sunday November 4, 2018. Initial volume observation were based on a quick review of a SCADA flow totals and observed percentage of flow returned to internal drains versus storm drains. Volume discharged to storm was estimated at 150,000 to 200,000 gallons.

Scott was unable to contact or leave message with Grays Harbor County Environmental Health on 11/4/18. Scott placed a follow up call to Grays Harbor County at 11:24am on 11/5/18. Scott spoke with Jeff Nelson, Director at 2:23pm on 11/5/18. Scott requested and received an after-hours contact number for Grays Harbor County.

Following clean-up and emergency repair efforts, Scott began pulling data from the WWTP SCADA system.

The City's SCADA system reports the following for the overflow period:

SCADA MEASURED VOLUMES	
Equipment	Volume
Influent Pump #1	490,000 gallons
Influent Pump #2	540,000 gallons
Influent Pump #3	400,000 gallons
Total to Headworks	1.43 million gallons
Total to Plant Effluent	1.08 million gallons
Amount overflowed from structure	350,000 gallons

Initially these numbers seemed plausible. Unfortunately, a thorough evaluation of the output of pumps 1, 2, and 3 was not completed beyond reporting of the flow from the totalizer versus the expected GPM.

On 11/5/18, Scott called Washington State Department of Health and shared the information from the SCADA system. We further discussed with dilution that the volume was not as significant.

On 11/7/18, Scott began working on the 5 day written report as required by NPDES permit. While verifying data to complete the written report Scott discovered apparent anomalies with the flow measurement for the period.

Volume Estimates

My training and experience with the Aberdeen WWTP leads me to believe the actual pumped volume was likely greater than the amount totaled in SCADA.

Investigation revealed that relays for the influent pump flow meters, located in the headworks were submerged in sewage for an undetermined period of time. This likely contributed to inconsistent flow

readings for the period of overflow. However, the data does reflect that some instruments appear to be skewed with false flow while others were skewed below the expected output.

After a thorough review of all available data, the City finds it reasonable to assume the following:

- Pump 1 ran at full speed throughout the overflow event. It has no VFD.
- Pump 2 ran at full speed throughout the overflow event. Confirmed by measured VFD output.
 - Pump 2 also suffers from frequent plugging problems and associated loss of efficiency.
- Pump 3 ran at full speed throughout the overflow event. Confirmed by measured VFD output.

Since SCADA generated flow totals appear to show inconsistencies with some pump's totals. The City estimates the following flows for the period of overflow. A 1% reduction was applied to account for head loss from all 3 screens being plugged and 2 additional feet of head in the headworks channel. Estimates are based on the nearest full hour of run time in proximity to the event.

CITY ESTIMATED OVERFLOW VOLUME			
Equipment	GPM	Total Flow	Comment
Pump #1	3940	945,600	99% of average GPM for the first hour pump 1 ran after the event.
Pump #2	2460	590,400	99% of average output for 1 hour period immediately before overflow
Pump #3	2785	668,400	99% of average output for 1 hour period immediately before overflow
Total to Headworks		2.21 mgd	
Total to Plant Effluent		1.08 mgd	
Amount overflowed from structure		1.13 mgd	

WWTP Internal Drain System

Sewage which overflowed the headworks structure was observed to enter both the WWTP drain system which flows back to the influent pump station and also into the strip drain that runs into the flow line along the west and north side of the digester, which is part of the WWTP stormwater drainage system.

At the headworks sewage overflowed into the influent control box below the headworks influent channels. This box is outfitted with a 4" drain. Sewage was observed 4 feet above floor elevation.

Additionally flow entered the primary sludge pump room to flood approximately 4 feet above finished floor elevation. The sludge pump room is also equipped with a 4" drain.

At the digester building sewage overflowed to two 4" drains located on the truck unloading area. Sewage depth at each of these drains was observed at approximately 1 foot. Also, during the event staff witnessed large volumes of sewage "whirl pooling" at each drain while it appeared little to no water was draining through the strip drains.

After consultation with the City Engineer, the estimated flow thru these drains was approximately 1000 gpm accounting for the head of pooled sewage, friction losses at the entrance to the drains, the diameter of the drain lines, friction losses in the drain lines, and the slopes of the drain lines.

Visual observation and review of camera footage shows the structure stopped overflowing at approximately 6:20am. Flow stopped draining through plant drains at approximately 8:15am

Therefore at engineer's estimate, return flows are equal to approximately 1000gpm for 330 minutes. Totaling 0.33 mgd.

CITY ESTIMATED VOLUMES	
A. Volume overflowed from headworks	1.13 mgd
B. Flow returned to WWTP drains	.330 mgd
C. Volume into ground	.020 mgd
D = A - (B+C) = Volume to storm drains	.780 mgd

Composition of Overflow

The headworks overflow event occurred during a period of intense overnight rainfall. Projected influent flow for the period was at a rate of 13.2 mgd. Base sanitary flow for the Aberdeen WWTP is approximately 2.0 mgd.

For comparison I pulled the flow from two different Sundays during the same 4 hour 2:30am to 6:30am period.

COMPARATIVE FLOW PERIODS		
Event	Time	Flow Total
Dry Season, no rain, (7/29/18)	2:30am to 6:30am	.170
Wet Season, no rain, (10/28/18)	2:30am to 6:30am	.230
11/4/18	2:22am to 6:22am	2.21

While acknowledging 100% of the volume was contaminated. It is reasonable to project that approximately 90% of the overflow from the headworks was composed of inflow and infiltration derived water.

Assuming 780,000 gallons was discharged to stormwater, the relative composition of sewage could conservatively be estimated at 150,000 gallons.

Clean-Up Efforts.

After all sewage had receded into the WWTP drain network, staff began the process of cleaning up the overflow. During the course of cleaning all stormwater catch basins were plugged off while cleaning activities occurred. Any water or waste directed to the storm drain was collected via vacuum truck and returned to the WWTP influent wet well.

Additionally all storm drains and strip drains which appeared to be impacted by the sewage overflow were cleaned with high pressure water. This water was also collected via vacuum truck and returned to the WWTP influent wet well.

All cleaning activities were complete by 5:30pm on Sunday, November 4, 2018. There was no rainfall recorded during the clean-up period.

Steps Taken or Planned to Reduce, Eliminate, and Prevent Recurrence of Non-Compliance

- (Taken) Installed valve on drain of headworks sump. This will prevent potential overflow from draining to primary sludge pump room uncontrolled.
- (Taken) Relocated MCC boxes from bottom of panel to higher elevation to mitigate chance of damage from potential flooding.
- (Planned) Replace PLC that failed.
- (Planned) Program redundant PLC to act as back up, in the event of PLC failure.
- (Planned) Install high level float which bypasses PLC programming and puts the screens into run mode in the event of extreme high water level in channel
- (Planned) Install high level float in channel and pump room which links to call-out function with redundant PLC capability.
- (Planned) Install external from SCADA, a call box to monitor vital components in the event of SCADA failure.
- (Under consideration) Rerouting all storm drains in the WWTP's primary clarifier, thickener, digester solids handling building to WWTP influent wet well.

Documentation

Security camera footage for November 4, 2018 has been saved on an external storage device and is available for review.

SCADA records are saved on the server and are available for review.

Chief Operator's Comments

A great deal of effort was put into generating a representative number to report to Ecology, Health, and any other stakeholder who reviews this document.

My staff takes great pride in protecting the water quality of the State of Washington. This was an unfortunate event that the City will use an opportunity to evaluate its practices both specific to this event and to the WWTP in general.

If you have any questions, please don't hesitate to contact me.

Regards,

Kyle Scott
WWTP Chief Operator
City of Aberdeen
360-537-3285 desk
360-580-1191 cell

City of Aberdeen Low Impact Development (LID)

Integration

LID Code Review and Revision Process:

Below is a summary of the process the City of Aberdeen went through and the steps it took to review, revise and make effective the local development –related codes and enforceable documents to incorporate and require Low Impact Development (LID) principles and BMPs. The City completed this process in order to fulfill the requirement of section S5.C.4.f of the Western Washington Phase II Municipal Permit (2013-2019).

The intent of the revisions made to the Aberdeen Municipal Code (AMC) and various stormwater programs is to make LID the preferred and commonly-used approach to site development within the City of Aberdeen. The revisions were designed to minimize impervious surfaces, native vegetation loss, and stormwater runoff in all types of development situations.

City Staff Involved in the Process:

Name: Kyle Fisher

Job Title: Engineer I

Job Description: Project Manager, Designer, Development Permit review, Phase II Municipal Stormwater Permit Administrator.

Department: Public Works, Engineering Division

Name: Kris Koski

Job Title: City Engineer

Job Description: Manages Engineering Division and City Projects

Department: Public Works, Engineering Division

Name: Rick Sangder

Job Title: Public Works Director

Job Description: Manages Public Works Department (Streets, Water, Sewer, Storm, Engineering)

Department: Public Works

Name: Lisa Scott

Job Title: Community Development Director

Job Description: Manages Community Development Department (Building Permits & Inspections, Code Enforcement)

Department: Community Development

Codes, rules, standards, and other enforceable documents reviewed:

The areas of the Aberdeen Municipal Code (AMC) that were reviewed for low impact development incorporation includes the following:

Title 12 Streets, Sidewalks and Public Places

Title 13 Public Services

Title 14 Environmental Regulations

Title 17 Zoning

Existing LID Code Summary:

Prior to this LID integration process the AMC had limited requirements/regulations regarding low impact development standards. AMC Section 13.70.130 “Low Impact Development” (LID), previously named “Minimum control and management requirements”, mentioned Low Impact Development Approaches (LIDA) may be substituted for traditional stormwater management methods. This left the developer or land owner the option to use LID BMPs.

AMC 13.70.80 “Review and approval of storm and surface water drainage plans” required that all information supplied by the developer shall be in conformance with the Stormwater Management Manual for Western Washington, which contains current LID guidelines and standards.

Amended LID Code Summary:

The City of Aberdeen formed a City staff review team, consisting of Kyle Fisher (Phase II Municipal Stormwater Permit Administrator), Kris Koski (City Engineer), Rick Sangder (Public Works Director), and Lisa Scott (Community Development Director). The review team members evaluated certain sections of the existing AMC to determine where and how LID could be integrated into development-related code sections. During the integration process, team members reviewed and utilized the following document to guide and assist in the decision making process, *“Integrating LID into Local Codes: A Guidebook for Local Governments”*

During the first step of the process, team members determined what sections were best suited for incorporation of low impact development requirements. The following sections were chosen to proceed with the LID integration process:

- AMC Chapter 12.32 Filling Drainage Ditches
- AMC Chapter 12.48 Obstruction by Trees and Vegetation
- AMC Chapter 13.70 Storm and Surface Water Management
- AMC Chapter 17.04 General Provisions
- AMC Chapter 17.60 Parking
- AMC Chapter 17.88 Landscaping

The following section was added to the AMC:

- AMC Chapter 14.14 Stormwater Quality

During the second step, members generated draft amendment language to integrate LID into the chosen AMC Chapters. The proposed amendment language was created for the purpose of furthering LID measures to minimize impervious surface and loss of native vegetation from new development and redevelopment. The amendment language went through a couple review

iterations before taking the proposed amendments to the City Council. This included a review by the City's Corporation Counsel.

The third step included taking the proposed amendments to the City Council for review, public comment and adoption into the AMC. City staff brought forward a report and ordinance to amend the selected AMC Chapters, which included three readings (public comment opportunities) of the ordinance at three separate City Council meetings. The amendments received public comments and underwent minor amendments during the process before being adopted into the AMC. Attached is a copy of the amended code sections for referral.

Ongoing LID Integration:

The City is dedicated to ensuring LID is incorporated into new development and redevelopment wherever possible. The Community Development Department is planning a large overhaul of the AMC in order to reorganize and bring existing code language up to date which will be a great opportunity to further incorporate LID into new or updated code sections.

Chapter 12.32

FILLING DRAINAGE DITCHES

Sections:

12.32.010 **Purpose of chapter.**

12.32.0210 **Permit—Required.**

12.32.0320 **Conformance with plans and specifications—Bond required.**

12.32.0430 **Depositing debris.**

12.32.0540 **Violations—Penalties.**

12.32.010 **Purpose of chapter.**

The purpose of this chapter is to standardize and regulate the filling of City drainage ditches. The City of Aberdeen shall, to the maximum extent practical, protect and retain vegetated drainage ditches within City limits, with the purpose of maintaining drainage functions and stormwater retention volume, and retaining existing pervious land cover. The provisions of this chapter shall be carried out pursuant to AMC Chapters 13.70 and 14.14.

12.32.0210 **Permit—Required.**

No person, except duly authorized city officials, shall fill, alter or otherwise impede the flow of any drainage ditch upon any street or alley right-of-way of the city of Aberdeen without first obtaining a permit from the city engineer authorizing such work.

(Prior code § 7.14.010)

12.32.0320 **Conformance with plans and specifications—Bond required.**

Any such work shall be done in accordance with plans and specifications approved by the city engineer. Before any such work is authorized, the person doing such work shall deposit with the city of Aberdeen a bond in such amount deemed

sufficient by the city engineer to guarantee the faithful performance of said work in accordance with such plans and specifications and within the time specified in such permit. The amount set for the bond may be appealed to the building code commission, which, after a hearing, shall have the power to affirm or modify the decision of the city engineer.

(Prior code § 7.14.020)

12.32.0430 Depositing debris.

No person shall deposit or cause to be deposited any waste material, litter, or debris of any kind, including vegetation debris, in any drainage ditch located upon any street or alley right-of-way in the city of Aberdeen.

(Prior code § 7.14.025)

12.32.0540 Violations—Penalties.

Any person violating the provisions of this chapter shall be guilty of a misdemeanor and upon conviction shall be punished by a fine not exceeding five hundred dollars (\$500.00) or by imprisonment in the city jail not to exceed ninety (90) days or both such fine and imprisonment.

(Prior code § 7.14.030)

The Aberdeen Municipal Code is current through Ordinance 6629, passed July 25, 2018.

Disclaimer: The city clerk's office has the official version of the Aberdeen Municipal Code. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

[City Website: www.aberdeenwa.gov](http://www.aberdeenwa.gov)

City Telephone: (360) 537-3231

[Code Publishing Company](#)

Chapter 12.48

OBSTRUCTION BY TREES AND VEGETATION

Sections:

- 12.48.010 Purpose of chapter.**
- 12.48.0210 Removal of certain vegetation.**
- 12.48.0320 Notice to remove.**
- 12.48.0430 Serving notice.**
- 12.48.0540 Hearing by city council.**
- 12.48.0650 Costs of removal.**
- 12.48.0760 Lien.**
- 12.48.0870 Penalty.**
- 12.48.0980 Other remedies.**

12.48.010 Purpose of chapter.

The purpose of this chapter is to standardize and regulate the removal of trees and vegetation for the reasons set forth in Section 12.48.020. The City of Aberdeen shall, to the maximum extent practical, protect and retain existing vegetation and previous land cover within City limits. The provisions of this chapter shall be carried out pursuant to AMC Chapters 13.70 and 14.14.

12.48.0210 Removal of certain vegetation.

The owner of any property within the city of Aberdeen shall remove or destroy all trees, plants, shrubs or vegetation, or any parts thereof, which overhang any sidewalk or street, and which are situated on his property or on the portion of the street abutting thereon, in such a manner as to obstruct or impair the free and full use of the sidewalk or street, including the interruption or interference with the clear vision of pedestrians or persons operating vehicles thereon, and including interference with poles, wires, pipes, fixtures or any other part of any public utility situated in the street. The owner of any property shall remove or destroy all trees, plants, shrubs or vegetation or any parts thereof situated on his property or the street abutting thereon, which are a fire hazard or a menace to public health, safety or welfare.

(Prior code § 7.24.010)

12.48.0320 Notice to remove.

Whenever, in the opinion the department head charged by this city with the control of the matter, any trees, plants, shrubs or vegetation, or parts thereof, should be removed or destroyed for any of the reasons set forth in Section [12.48.0240](#), he shall cause a notice to be served upon the owner of the property in the manner hereinafter set forth. The notice shall describe the property involved and the condition to be corrected, and shall require that the owner cause the condition to be corrected within such period of time as shall be designated in the notice, which in no event shall be less than five days. The notice shall further provide that if the condition is not corrected within the time specified, after the termination of the period of time, and on the date specified in the notice, a resolution will be presented to the city council to provide for the removal or destruction of the trees, plants, shrubs, vegetation, or parts thereof, and the cost of the removal or destruction becomes a charge against the owner and a lien against the property.

(Prior code § 7.24.020)

12.48.0430 Serving notice.

The notice provided for in Section [12.4858.0320](#) shall be served by delivering the notice or a copy thereof to the owner personally, or by leaving the same at his place of residence with a person of suitable age or discretion, or if the owner is not a resident of the city, by leaving the same with the agent handling the property or the tenant in possession thereof, or if there be no such agent or tenant, by posting a copy of the notice in a conspicuous place on the premises involved and mailing a copy thereof to the owner at his last known place of residence, if any.

(Prior code § 7.24.030)

12.48.0540 Hearing by city council.

If the conditions described in the notice have not been corrected prior to the time specified therein, a resolution shall be presented to the city council on the date designated in the notice therefor, which resolution shall provide that the department of the city of Aberdeen named therein shall, after the date set therein, forthwith cause the removal or

destruction of the vegetation, or any part thereof, as specified or complained of in the notice. Upon the introduction of the resolution, the owner shall be entitled to be heard and show cause, if any, why the vegetation or such part thereof, should not be removed or destroyed. The finding of the city council determining that the vegetation described in the notice is or is not a nuisance shall be conclusive. If the city council finds that the same is a nuisance and the owner has appeared at the hearing thereon, the owner may, in the discretion of the council, be given additional time as may be specified by the council to abate the nuisance.

(Prior code § 7.24.040)

12.48.0650 Costs of removal.

Whenever, after authorization by resolution of the city council, any trees, plants, shrubs or vegetation, or parts thereof, are removed or destroyed, the department causing the removal or destruction thereof shall keep an accurate record of the necessary costs thereof, and the costs shall become a charge against the owner and a lien against the property, as authorized by Chapter 113 of the Laws of Washington, 1949.

(Prior code § 7.24.050)

12.48.0760 Lien.

Notice of a lien herein authorized shall, as nearly as practicable, be in substantially the same form, filed with the same officer within the same time and manner and enforced and foreclosed as is provided by law for liens for labor and material.

(Prior code § 7.24.060)

12.48.0870 Penalty.

The owning or maintaining of any trees, plants, shrubs, vegetation, or parts thereof, in the manner described in Section [12.48.0210](#), is declared to be a public nuisance. Anyone violating the provisions of this chapter by failing to abate the nuisance within the time specified in the notice hereinbefore described, or within the time set by resolution of the city council, whichever time may be later, shall, upon conviction thereof, be guilty of a misdemeanor and shall be punished by a

fine not exceeding three hundred dollars (\$300.00) or by imprisonment in the city jail for a period not exceeding ninety (90) days, or by both such fine and imprisonment.

(Prior code § 7.24.070)

12.48.0980 Other remedies.

The provisions of this chapter shall be exclusive and are supplemental and additional to other ordinances covering the same or similar subject matter.

(Prior code § 7.24.080)

The Aberdeen Municipal Code is current through Ordinance 6629, passed July 25, 2018.

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Chapter 13.70

STORM AND SURFACE WATER MANAGEMENT

Sections:

- 13.70.010** Purpose.
- 13.70.020** Definitions.
- 13.70.030** Utility established.
- 13.70.040** Transfer of property.
- 13.70.050** Storm and surface water fund created.
- 13.70.060** Setting of fees and charges.
- 13.70.070** Applicability.
- 13.70.080** Review and approval of storm and surface water drainage plans.
- 13.70.090** Exemptions.
- 13.70.100** Variances.
- 13.70.110** Permits - plan approval required.
- 13.70.120** Plan approval - conditions.
- 13.70.130** ~~Minimum control and management requirements, Low Impact Development (LID)~~
- 13.70.140** Design criteria.
- 13.70.150** Maintenance agreement.
- 13.70.160** Inspection.
- 13.70.170** Preventive maintenance.
- 13.70.180** Penalties.
- 13.70.190** Cross connections prohibited.
- 13.70.200** Illicit discharges prohibited - certain discharges allowed - conditions.
- 13.70.210** Easements.
- 13.70.220** Appeals - ~~filling~~ ~~filling~~ deadlines.

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13.70.010 Purpose.

The purpose of this chapter is to protect, maintain, and enhance the public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse impacts associated with increased storm and surface water runoff. Proper management of storm and surface water runoff ~~and implementation of low impact development (LID) practices~~ will minimize damage to public and private property, reduce the effects of development on land and stream channel erosion and sedimentation, assist in the attainment and maintenance of water quality standards, reduce local flooding, and maintain post-development, as nearly as possible, the predevelopment runoff characteristics,

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while ~~meeting~~ complying with the Stormwater Management Manual for Western Washington (SWMMWW) and the City's National Pollution Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit as issued, and as may be amended, by the Washington State Department of Ecology, Stormwater Management Manual for Western Washington – as adopted by the Department of Ecology. This chapter also establishes a Storm and Surface Water System as a utility service of the city.

(Ord. 662X, Amended, 06/27/2018; Ord. 6503, Added, 08/25/2010)

13.70.020 Definitions.

For the purposes of this chapter, the following definitions describe the meaning of the terms used in this chapter:

- A. "Adverse impact" means any deleterious effect on water or wetlands, including their quality, quantity, surface area, species composition, aesthetics or usefulness for human or natural uses which are or may potentially be harmful or injurious to human health, welfare, safety or property, to biological productivity, diversity or stability, or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation.
- B. "Agricultural land management practices" means those methods and procedures used in the cultivation of land in order to further crop production and conservation of related soil and water resources.
- C. "Applicant" means any person, firm or governmental agency who executes the necessary forms to procure official approval of a project or a permit to carry out construction of a project.
- D. "Aquifer" means a porous water-bearing geologic formation generally restricted to materials capable of yielding an appreciable supply of water.
- E. "City engineer" means the city of Aberdeen Public Works Director or his or her designee.
- F. "Clearing" means the removal of trees and brush from the land, but shall not include the ordinary mowing of grass.
- G. "Detention structure" means a permanent structure designed to store runoff for discharge at rates approximating what would have occurred under predevelopment conditions.
- H. "Develop land" or "development" means to change the runoff characteristics of a parcel of land in conjunction with residential, commercial, industrial or institutional construction or alteration.
- I. "Developer" means a person, group or company engaged in land or property development or proposed development.
- J. "Director" or "Public Works Director" means the city of Aberdeen Public Works Director or his or her designee.

K. "Drainage area" means that area contributing runoff to a single point measured in a horizontal plane which is enclosed by a ridge line.

L. "Engineer" means a civil engineer or civil engineering firm that has been retained or employed by the city to perform engineering services.

M. "Easement" means a grant or reservation by the owner of land for the use of such land by others for specific purpose(s), and which must be included in the conveyance of land affected by such easement.

N. "Exemption" means those land development activities that are not subject to the storm and surface water management requirements contained in this chapter.

O. "Flow attenuation" means detaining or retaining runoff to reduce the peak discharge.

P. "Grading" means any act by which soil is cleared, stripped, stockpiled, excavated, scarified, filled or any combination thereof.

Q. "Infiltration" means the passage or movement of water into the soil surface.

R. "Off-site storm and surface water management" means the design and construction of a facility necessary to control storm and surface water from more than one development.

S. "On-site storm and surface water management" means the design and construction of systems necessary to control storm and surface water within an immediate development.

T. "Retention structure" means a permanent structure that provides for the storage of runoff by means of a permanent pool of water or infiltration.

U. "Sediment" means soils or other surficial materials transported or deposited by the action of wind, water, ice or gravity as a product of erosion.

V. "Site" means any tract, lot or parcel of land or combination of tracts, lots or parcels of land which are in one ownership, or are contiguous and in diverse ownership where development is to be performed as part of a unit, subdivision or project.

W. "Stabilization" means the prevention of soil movement by any of various vegetative and/or structural means.

X. "Storm and surface water management" means:

1. For quantitative control, a system of vegetative and structural measures that control the increased volume and rate of surface runoff caused by manmade changes to the land; and
2. For qualitative control, a system of vegetative, structural and other measures that reduce or eliminate pollutants that might otherwise be carried by surface runoff.

3. For “Low Impact Development (LID) Approaches (LIDA)”, combining quantitative and qualitative controls, a stormwater management and land development strategy applied at the parcel and subdivision scale that aims to mimic natural hydrology and processes by using small scale, decentralized practices that infiltrate, evaporate, and transpire rainwater. LIDA should: minimize impervious surfaces; disconnect hydrologic elements (roofs, downspouts, parking areas); maintain/increase flow paths and times; and utilize decentralized treatment practices, is a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design. LID Best Management Practices (BMPs) include, but are not limited to, bioretention, rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, vegetated roofs, minimum excavation foundations, and water re-use. minimize impervious surfaces; disconnect hydrologic elements (roofs, downspouts, parking areas); maintain/increase flow paths and times; and utilize decentralized treatment practices.

Y. “Storm drainage plan” means a set of drawings or other documents submitted by a person as a prerequisite to obtaining a storm drainage permit, which contains all of the information and specifications pertaining to storm and surface water management.

Z. “Stripping” means any activity which removes the vegetative surface cover, including tree removal, clearing, grubbing and storage, or removal of topsoil.

AA. “Stormwater Management Manual for Western Washington” means the stormwater manual published by the Washington State Department of Ecology and adopted by the City.

ABBB. “Variance” means the modification of the minimum storm and surface water management requirements for specific circumstances where strict adherence of the requirements would result in unnecessary hardship and not fulfill the intent of this chapter.

BBCC. “Watercourse” means any natural or artificial stream, river, creek, ditch, channel, swale, conduit, culvert, drain, or ravine, in and including any area adjacent thereto which is subject to inundation by reason of overflow or flood water.

CCDD. “Watershed” means the total drainage area contributing runoff to a single point.

EE. “Western Washington Phase II Municipal Stormwater Permit” means the National Pollution Discharge Elimination System (NPDES) stormwater permit issued to the City by the Washington State Department of Ecology.

DDFF. “Wetlands” means an area that has saturated soils or periodic high groundwater levels and vegetation adapted to wet conditions and periodic flooding.

(Ord. 6623, Amended, 06/27/2018; Ord. 6526, Amended, 01/25/2012; Ord. 6503, Added, 08/25/2010) *Prior to the adoption of 6526 on 01/25/2012, Section 13.70.020 read as follows.*

13.70.030 Utility established.

For the purpose of carrying out the provisions of this chapter there is created and established a storm and surface water drainage utility for the city of Aberdeen pursuant to chapters [35.67](#), [35.92](#), [90.03](#), and [90.54](#) RCW, and by Article [11](#), Section [11](#), of the constitution of the state of Washington. The primary purpose of this utility shall be the planning, design, construction, maintenance, administration, and operation of all city storm and surface water facilities and for overseeing the design, construction, and maintenance of improvements on private property where these may affect storm and surface water management. The utility shall be administered by the public works director. The city council is authorized to make funds available to the utility by appropriation, borrowing, or by other means in accordance with laws of Washington state, for the establishment, maintenance, and operation of this utility.

(Ord. 6503, Added, 08/25/2010)

13.70.040 Transfer of property.

All properties, property rights, and interests of every kind or nature owned or held by the city, however acquired, insofar as they relate to or concern storm or surface water facilities, are hereby transferred to the Storm and Surface Water Utility, including by way of examples and not limitation, all properties, rights and interest acquired by adverse possession or by prescription in and to the drainage and storage of storm or surface waters over and under lands, watercourses, streams, ponds, and estuaries to the full extent of inundation caused by the largest storm or flood condition.

(Ord. 6503, Added, 08/25/2010)

13.70.050 Storm and surface water fund created.

- A. Pursuant to state law, the city hereby declares its intention to designate the city's storm and surface water system as a utility and enterprise activity of the city to be supported all or in part by the imposition of user charges on all parcels of property within the city which discharge stormwater to the city's storm drainage facilities or are otherwise served by the city's storm drainage facilities.
- B. The city hereby establishes a special fund within the city's fiscal system to be known as "The Storm and Surface Water Fund", hereinafter referred to as the fund.

C. All revenues from storm drainage user charges and other storm drainage related fees and charges as may be adopted by resolution shall be deposited to the fund.

D. Expenditures from the Fund shall be limited to those expenditures for the improvement, repair, operation, maintenance, and administration of the storm drainage facility as defined by the public works director of the city of Aberdeen. The fund may also transfer funds to the general fund of the city that represent the reasonable and proportionate share of the cost of general city government support of the utility not covered by direct payments from the fund.

(Ord. 6503, Added, 08/25/2010)

13.70.060 Setting of fees and charges.

A. The city council shall by resolution establish a system of user charges for all parcels in the city.

B. To the extent practicable, user charges shall be based on each parcel's expected rate and volume of stormwater runoff from a parcel.

C. The city council may by resolution establish a charge for the connection of any parcel to the city's storm drainage facilities to reflect that parcel's fair share of the cost of the existing city storm drainage facilities serving the parcel.

D. The public works director shall establish appropriate fees for the review and inspection of storm drainage facilities proposed and constructed by private development.

(Ord. 6503, Added, 08/25/2010)

13.70.070 Applicability.

It is not intended that this chapter repeal, abrogate, or impair any existing regulations, easements, covenants, or deed restrictions. The provisions of this chapter shall be held to be minimum requirements in their interpretation and application and shall be liberally construed to serve the purposes of this chapter. When any provision of any other chapter of the city regulations conflicts with this chapter, that which provides more environmental protection shall apply unless specifically provided otherwise in this chapter.

(Ord. 6503, Added, 08/25/2010)

13.70.080 Review and approval of storm and surface water drainage plans.

A storm and surface water drainage plan or application for a variance shall be submitted to the City engineer Engineering Department by the developer for review and approval for any proposed development, unless otherwise exempted. The developer is solely responsible for determining the stormwater requirements applicable to the proposed development for proposing review to the City. These requirements are defined in Volume I of the Stormwater Management Manual for Western Washington, and also found in City provided stormwater guidance forms. The square footage and improvement value thresholds outlined in Volume I of the Stormwater Management Manual for Western Washington shall be cumulative and include all projects permitted on or after January 1, 201200. The storm and surface water drainage plan shall be accompanied by supporting computations, drawings and sufficient information describing the manner, location and type of measures in which storm and surface water runoff will be managed from the entire development. The storm and surface water drainage plan, stormwater facility design, and any supplemental information supplied by the developer shall be produced in conformance with conform to the design standards set forth in the above-referenced Stormwater Management Manual for Western Washington as prepared by the Department of Ecology. The developer solely is responsible for submitting a storm and surface water management plan which meets the design requirements provided by this chapter. No person shall develop any land for residential, commercial, industrial or institutional uses without having provided for appropriate required storm and surface water management measures that control or manage runoff from such developments. A storm and surface water drainage plan or application for a variance shall be submitted to the city engineer by the developer for review and approval for any proposed development, unless otherwise exempted. The storm and surface water drainage plan shall be accompanied by supporting computations, drawings and sufficient information describing the manner, location and type of measures in which storm and surface water runoff will be managed from the entire development. The information supplied by the developer shall be in conformance with the Stormwater Management Manual for Western Washington as prepared by the Department of Ecology. The developer is responsible for submitting a storm and surface water management plan which meets the design requirements provided by this chapter. No person shall develop any land for residential, commercial, industrial or institutional uses without having provided for appropriate storm and surface water management measures that control or manage runoff from such developments.

(Ord. 662X, Amended, 06/27/2018; Ord. 6503, Added, 08/25/2010)

13.70.090 Exemptions.

A. The following development activities practices are exempt from the provisions of this chapter and the requirements of providing storm and surface water management as specified in the Western Washington Phase II Municipal Stormwater Permit.

1. Agricultural land management activities;

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Commented [PK2]: my intent here is to be sure the city does not inadvertently accept liability for over- or under-estimating for the developers purposes, while also recognizing our role in review

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- ~~2. Additions or modifications to existing single-family detached residential structures;~~
- ~~3. Developments that do not disturb over five thousand square feet of land area; or~~
- ~~4. City of Aberdeen owned facilities and streets.~~

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1. Forest practices: Forest practices regulated under Title 222 WAC, except for Class IV General forest practices that are conversions from timberland to other uses, are exempt from the provisions of the minimum requirements..

2. Commercial agriculture: Commercial agriculture practices involving working the land for production are generally exempt. However, the conversion from timberland to agriculture, and the construction of impervious surfaces are not exempt.

3. Oil and Gas Field Activities or Operations: Construction of drilling sites, waste management pits, and access roads, as well as construction of transportation and treatment infrastructure such as pipelines natural gas treatment plants, natural gas pipeline compressor stations, and crude oil pumping stations are exempt. Operators are encouraged to implement and maintain Best Management Practices to minimize erosion and control sediment during and after construction activities to help ensure protection of surface water quality during storm events.

4. Pavement Maintenance: The following pavement maintenance practices are exempt: pothole and square cut patching, overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage, shoulder grading, reshaping/regrading drainage systems, crack sealing, resurfacing with in-kind material without expanding the road prism, pavement preservation activities that do not expand the road prism, and vegetation maintenance.

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(Ord. 662X, Amended, 06/27/2018; Ord. 6503, Added, 08/25/2010)

13.70.100 Variances.

The city engineer may grant a written variance from any requirement of this chapter if there are exceptional circumstances applicable to the site such that strict adherence to the provisions of this chapter will result in unnecessary hardship and not fulfill the intent of this chapter. A written request for variance shall be provided to the city engineer and shall state the specific variances sought and reasons for their granting. The city shall not grant a variance unless and until sufficient specific reasons justifying the variance are provided by the person developing land.

(Ord. 6503, Added, 08/25/2010)

13.70.110 Permits - plan approval required.

A ~~grading/fill permit site development permit~~, building permit, or other development permit may not be issued for any parcel or lot unless a storm and surface water drainage plan has been approved by the eCity engineer. ~~Engineering~~

~~Department~~ The approved plan shall ~~be~~ become part of the permit and be enforced as an element of any development permit issued by the city.

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(Ord. 662X, Amended, 06/27/2018; Ord. 6503, Added, 08/25/2010)

13.70.120 Plan approval - conditions.

In granting the plan approval, the city engineer may impose such conditions thereto as may be deemed necessary to ensure compliance with the provisions of this chapter and the preservation of public health and safety. Any ~~grading/filling permit site development permit~~, building permit, or other development permit issued by the city may be suspended or revoked, after written notice is given to the permittee, for any violations of the approved storm and surface water drainage plan.

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(Ord. 662X, Amended, 06/27/2018; Ord. 6503, Added, 08/25/2010)

13.70.130 Minimum control and management requirements. Low Impact Development (LID)

~~The minimum storm and surface water control and management requirements shall be in accordance with standards adopted by the city and included in the Stormwater Management Manual for Western Washington. Low Impact Development Approaches (LIDA) may be substituted for structural standards in the Stormwater Management Manual where the LIDA is developed by a licensed professional in accordance with accepted industry practices.~~

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A. The City's preferred approach to site development includes low impact development (LID) best management practices (BMPs), as an alternative to conventional stormwater management systems that rely on closed conveyance. LID is intended to manage stormwater runoff close to the source of generation and to mimic the predeveloped hydrologic condition of a site. Beginning June 30, 2018, the City will require the incorporation of low impact development best management practices, for new development and redevelopment, in accordance with the Stormwater Management Manual for Western Washington (SWMMWW) –and its National Pollution Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit as issued, and as may be amended, by the Washington State Department of Ecology.

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B. LID is accomplished through minimizing the impervious surface coverage, retaining on-site natural features and vegetation, and managing runoff through dispersion, infiltration, evapotranspiration, or a combination of these approaches. Use of LID BMPs may reduce or eliminate the need for conventional detention facilities but does not remove the obligation to comply with the minimum requirements of the Stormwater Management Manual for Western Washington.

C. A variety of BMPs to minimize impervious surfaces and to manage stormwater have been developed and tested for use in Western Washington. These BMPs and the overall LID approach are described in the SWMMWW and additional guidance is provided in the latest version of the LID Technical Guidance Manual for Puget Sound.

D. The menu of LID BMPs identified in the SWMMWW are accepted by the City for use in stormwater site plans to address the minimum requirements for flow control and runoff treatment in this chapter, subject to the specifications, performance standards, and design criteria in the SWMMWW and review and approval under this chapter.

(Ord. 662X, Amended, 06/25/2018; Ord. 6526, Amended, 01/25/2012; Ord. 6503, Added, 08/25/2010)

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Prior to the adoption of 6526 on 01/25/2012, Section 13.70.130 read as follows.

The minimum storm and surface water control and management requirements shall be in accordance with standards adopted by the city and included in the Stormwater Management Manual for Western Washington.

(Ord. 662X, Amended, 06/27/2018; Ord. 6526, Amended, 01/25/2012; Ord. 6503, Added, 08/25/2010)

13.70.140 Design criteria.

Storm and surface water systems shall be designed and constructed in accordance with the standards and specifications as set forth in the adopted Standard Specifications for Road, Bridge and Municipal Construction published by the American Public Works Association (APWA) and the Washington State Department of Transportation, and Stormwater Management Manual for Western Washington, published by the Washington State Department of Ecology.

(Ord. 662X, Amended, 06/27/2018; Ord. 6503, Added, 08/25/2010)

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13.70.150 Maintenance agreement.

Prior to issuance of a storm and surface water utility permit, the city shall require the applicant to execute an inspection and maintenance agreement binding on all subsequent owners of land served by the private storm and surface water drainage system. The maintenance agreement shall be recorded by the city. Such agreement shall provide for access to the system at reasonable times for regular inspection by the city or its authorized representative to ensure that the facility is maintained in proper working condition to meet design standards and any provisions established. The agreements shall include the right of the city to access the system to take such action as necessary to protect the public safety and health in any instance where the owner fails to make the appropriate correction. Such agreement may contain provisions for regular or special assessments.

(Ord. 6503, Added, 08/25/2010)

13.70.160 Inspection.

A. The developer will submit to the city a proposed construction schedule ten days prior to commencing construction. The city engineer shall conduct inspections and file reports for periodic inspections necessary during construction of storm and surface water management systems to ensure compliance with the approved plans. The developer shall notify the city upon completion of the project when a final inspection will be conducted.

B. Any portion of the work which does not comply with city regulations will be promptly corrected by the developer, after written notice from the city. The notice shall set forth the nature of corrections required and the time within which corrections will be made.

C. A final inspection shall be conducted by the city upon completion of the elements of the storm and surface water drainage plan to determine if the completed work is constructed in accordance with approved plan and this chapter. The developer shall supply an "as-built" certification by a registered professional engineer licensed in the state of Washington to certify that the facility has been constructed as shown in the "as-built" plans and meets approved plans and specifications. The city will provide the developer with a written notification of the results of the final inspection.

(Ord. 6503, Added, 08/25/2010)

13.70.170 Preventive maintenance.

A. It shall be the responsibility of the developer or property owner to maintain all infiltration systems, retention, detention or other storm and surface water drainage structures

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~~as contained in the storm and surface water utility permit, and in accordance with the latest maintenance standards set forth in the SWMMWW.~~

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B. The city shall annually inspect all infiltration systems, retention, detention or other storm and surface water drainage structures.

C. If the inspection indicates improper maintenance, unsafe conditions, or danger to public health or safety, the city shall so inform the developer or property owner of those conditions as well as a schedule for remediation. The cost of such remediation is the cost of the developer or property owner. In any instance where the developer or property owner fails to make the appropriate correction ~~within the timeline specified by the City engineer~~, the city will take such action as necessary to protect the public health and safety. Any cost incurred by the city shall be recovered from the developer or property owner.

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~~A. It shall be the responsibility of the developer or property owner to maintain all infiltration systems, retention, detention or other storm and surface water drainage structures~~

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~~as contained in the storm and surface water utility permit.~~

~~B. The city shall annually inspect all infiltration systems, retention, detention or other storm and surface water drainage structures.~~

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~~C. If the inspection indicates improper maintenance, unsafe conditions, or danger to public health or safety, the city shall so inform the developer or property owner of those conditions as well as a schedule for remediation. The cost of such remediation is the cost of the developer or property owner. In any instance where the developer or property owner fails to make the appropriate correction, the city will take such action as necessary to protect the public health and safety. Any cost incurred by the city shall be recovered from the developer or property owner.~~

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(Ord. 662X, Amended, 06/27/2018; Ord. 6503, Added, 08/25/2010)

13.70.180 Penalties.

A. Any person convicted of violating the provisions of this chapter shall be guilty of a gross misdemeanor. Each day that the violation continues shall be a separate offense.

B. In addition to, or as an alternative to any criminal prosecution or other penalty or billable cost of abatement or inspection as provided by ordinance or statute, any responsible person who violates a provision of this chapter, or order of the director issued pursuant to this chapter, may be assessed a civil penalty under chapter [1.12](#) AMC.

C. In addition to imposition of a civil penalty, the director shall have the authority to order any responsible person to stop work if the work does not conform to the permit requirements and the severity is determined to be sufficient to warrant such action. The stop work order shall be issued in accordance with the procedures set forth in 1.12 AMC for notices and orders. Failure to comply with the terms of a stop work order shall result in enforcement actions including, but not limited to, the issuance of a civil penalty.

C. In addition, the city may institute injunctive, mandamus or other appropriate action or proceedings at law or equity for the enforcement of this chapter or to correct violations of this chapter, and any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent, injunctions or other appropriate forms of remedy or relief.

D. Any person who, through an act of commission or omission, aids or abets in the violation shall be considered to have committed a violation.

(Ord. 6503, Added, 08/25/2010)

13.70.190 Cross connections prohibited.

The installation or maintenance of any cross connection, meaning a connection between any storm and surface water drainage system and any sanitary sewer system, is prohibited. Any such cross connections now existing, or hereafter installed, are declared to be public nuisances and shall be abated by the Director in the manner provided by chapter [8.08](#) AMC.

(Ord. 6503, Added, 08/25/2010)

13.70.200 Illicit discharges prohibited - certain discharges allowed - conditions.

A. The stormwater system of the city of Aberdeen, natural and artificial, may only be used to convey stormwater runoff and discharges meeting the permit conditions within a current National Pollutant Discharge Elimination System Permit approved by the Washington State Department of Ecology. Except as provided in subsections B and C below, no person shall throw, drain or otherwise discharge, cause or allow others under its control to throw, drain or otherwise discharge into the stormwater system any materials other than stormwater.

B. The following discharges into the stormwater system are permitted provided the following conditions are met:

1. *Discharges from potable water sources, including waterline flushing, hyper chlorinated waterline flushing, fire hydrant system flushing and pipeline hydrostatic test water.* Planned discharges shall be dechlorinated to a

concentration of 0.1 ppm or less, pH adjusted, if necessary (to meet water quality standards) and volumetrically and velocity controlled to prevent re-suspension of sediments in the stormwater system. As an option to dechlorinating, planned discharges from potable water sources may be discharged directly to the municipal sanitary sewer system in a manner approved by the Director. Planned discharges of waterline and hydrant system flushing need not be dechlorinated at the point of discharge if the discharge methods, location, or dilution will result in a pH concentration less than 0.1 ppm at the point the water would enter a natural drainage channel.

2. *Discharges from lawn watering and other irrigation runoff.* Reasonable steps shall be taken to minimize runoff including limiting duration and over-spray.

3. *Dechlorinated swimming pool discharges.* The discharges shall be dechlorinated to a concentration of 0.1 ppm or less, pH adjusted, and re-oxygenized if necessary, and volumetrically and velocity controlled to prevent re-suspension of sediments in the stormwater system and the property owner shall obtain permission from the Director. Swimming pool cleaning waste water and filter backwash shall not be discharged to the stormwater system.

4. *Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents.* To avoid washing pollutants into the stormwater system, the discharge must minimize the amount of street wash and dust control water used. At active construction sites, street sweeping must be performed prior to washing the street.

5. *Other non-stormwater discharges.* The discharges shall be in compliance with the requirements of the stormwater pollution prevention plan for the discharges as reviewed and approved by the City.

6. *Any discharges from a construction site.* Discharges must be in conformance with the stormwater pollution prevention plan (SWPPP) reviewed by the City.

7. *Combined sewer overflow (CSO) discharges.* This discharge must be in conformance with a current National Pollution Discharge Elimination System Permit, approved by the Washington State Department of Ecology.

C. The following categories of non stormwater discharges are specifically allowed:

1. Diverted stream flows;
2. Rising ground waters;
3. Uncontaminated ground water infiltration (as defined at AMC [13.52.390](#));
4. Uncontaminated pumped ground water;
5. Foundation drains;
6. Air conditioning condensation;

7. Irrigation water from agricultural sources that is commingled with urban stormwater;
8. Springs;
9. Water from crawl space pumps;
10. Footing drains;
11. Flows from riparian habitats and wetlands;
12. Non stormwater discharges covered by another NPDES permit;
13. Discharges from emergency fire fighting activities in accordance with the city of Aberdeen Stormwater NPDES Phase II Permit Section S2 Authorized Discharges. The city's Stormwater NPDES Phase II Permit is available to view in the office of the Director.

D. Except as provided in this section, no person shall use the stormwater system, directly or indirectly, to dispose of any solid or liquid matter other than stormwater. No person shall make or allow any connection to the stormwater system which could result in the discharge of polluting matter. Connections to the stormwater system from the interiors of structures are prohibited. Connections to the stormwater system for any purpose other than to convey stormwater or groundwater are prohibited and shall be eliminated.

E. Stormwater discharge into the sanitary system is prohibited - exceptions.

1. No person shall discharge or cause to be discharged any stormwater, surface water, ground water, roof runoff, subsurface drainage, uncontaminated cooling water, or unpolluted industrial process waters into any sanitary sewer, unless otherwise approved by the Director based on lack of feasible alternatives or unless the discharge meets the condition outlined in AMC [13.52.390](#).
2. No person shall make connection of roof downspouts, exterior foundation drains, area drains, or other sources of stormwater surface runoff or groundwater to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer, unless such connection is otherwise approved in writing by the Director based on lack of feasible alternatives or other appropriate factors.

F. Stormwater shall be discharged to such sewers as are specifically designated as combined sewers or storm sewers, or to a natural outlet approved by the Director. Storm drainage from hard-surfaced or graded areas, such as parking lots, service station yards, and storage yards, shall enter the public storm sewer system or other outlet approved by the Director and as required by this Chapter and as such facilities are available. Such storm drainage shall not be connected to or allowed to enter a sanitary sewer, unless otherwise approved in writing by the Director based on lack of feasible alternatives or other appropriate factors

(Ord. 6503, Added, 08/25/2010)

13.70.210 Easements.

All public storm drainage systems shall be required to be located within a recorded public storm drainage easement or public right-of-way. An unobstructed ingress/egress maintenance easement shall be provided for city access to said storm drainage facilities. The minimum width of the required drainage easement shall be adequate to encompass all facilities and include room for access and maintenance, as determined by the city.

(Ord. 6503, Added, 08/25/2010)

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13.70.220 Appeals ~~-- filling filling~~ deadlines.

A. Any billing statement, charge, or other fee assessed under this chapter may be appealed to the Director. The appeal may be decided informally, without a hearing, or in the sole discretion of the Director an informal hearing may be held. The Director's decision shall be in writing. The Director's decision shall be the final determination unless a written notice of appeal is filed with the Finance Director within fourteen days of the Director's decision. Appeals from the Director's decision shall be heard by the city council. The city council's decision on appeal shall be the final determination of the city.

B. Any appeal from the refusal to approve a storm and surface water drainage plan shall be considered in the same manner as an appeal from the denial of the development permit being applied for.

C. Any civil enforcement action taken under this chapter, that does not fall within subsections A or B of this section, may be appealed to the Director in the same manner as provided for appeals under chapter [1.12](#) AMC.

(Ord. 662X, Amended, 06/27/2018; Ord. 6503, Added, 08/25/2010)

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The Aberdeen Municipal Code is current through Ordinance 6623, passed March 14, 2018.

Disclaimer: The city clerk's office has the official version of the Aberdeen Municipal Code. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

[City Website: www.aberdeenwa.gov](#)

City Telephone: (360) 537-3231

[Code Publishing Company](#)

Chapter 14.14

Stormwater Quality

Sections:

- 14.14.010 Purpose of this chapter.**
- 14.14.020 Regulatory authority.**
- 14.14.030 Stormwater quality.**

14.14.010 Purpose of this chapter.

The purpose of this chapter is to define and standardize stormwater quality in the City of Aberdeen. The City shall adhere to all federal and state regulations regarding stormwater management and water quality protection.

14.14.020 Regulatory authority.

The City of Aberdeen is required to obtain coverage under the Western Washington Phase II Municipal Stormwater Permit through the National Pollutant Discharge Elimination System and State Waste Discharge General Permit for discharges from Small Municipal Separate Storm Sewers in Western Washington. This permit is in compliance with the provisions of The State of Washington Water Pollution Control Law Chapter 90.48 Revised Code of Washington and The Federal Water Pollution Control Act (The Clean Water Act) Title 33 United States Code, Section 1251 *et seq.*

Under the federal Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The NPDES Stormwater Program requires the implementation of stormwater programs. Phase II of the NPDES rules extend coverage to operators of regulated small municipal separate storm sewer systems (MS4s) serving less than 100,000. The Washington State Department of Ecology develops and administers National Pollutant Discharge Elimination System (NPDES) municipal stormwater permits in Washington State.

The Phase II Permit authorizes the discharge of stormwater to surface waters and to ground waters of the state from Municipal Separate Storm Sewer Systems (MS4) owned or operated by the Permittee (City of Aberdeen). The City is

required to reduce the discharge of pollutants to the maximum extent practicable (MEP) and use all known, available, and reasonable methods of prevention, control and treatment (AKART) to prevent and control pollution of waters of the state of Washington.

14.14.030 Stormwater quality.

Stormwater is rain and snow melt that runs off rooftops, paved streets, highways, and parking lots. As it runs off, it picks up pollution like oil, fertilizers, pesticides, soil, trash, and animal manure. Most stormwater flows untreated into streams, lakes, and marine waters. According to the Department of Ecology, stormwater runoff is the leading threat to Washington's urban waters, streambeds, banks, and habitats. As the population grows in Aberdeen, urban development increases. This results in more developed land and an increase in stormwater runoff and pollution to waters of the state. Unmanaged stormwater runoff can damage fish habitat, contribute to flooding, contaminate swimming areas, pollute shellfish beds, contaminate groundwater, and degrade water quality.

The City works to improve the quality of stormwater runoff by requiring developers and property owners to utilize effective stormwater management principles and proven best management practices (BMPs) when proposing development projects. The goal of these requirements come in the form of the following:

- Manage stormwater as close to the source as possible.
- Mimic natural processes on site that result in the infiltration or evapotranspiration.
- Preserve and/or recreate natural vegetation.
- Minimize effective impervious surfaces.
- Slow down stormwater transportation by promoting natural movement of water within an ecosystem.

The principles above are all part of a land development technique commonly known as Low Impact Development (LID). Proper management of stormwater runoff and implementation of LID practices minimize damage to public and private property, reduce the effects of development on land and stream channel erosion and sedimentation, assist in the attainment and maintenance of water quality standards, reduce local flooding, and maintain, post-development, as nearly as possible, the predevelopment runoff characteristics. Applied on a broad scale, LID can maintain or restore a watershed's hydrologic and ecological functions.

The City of Aberdeen has developed a permitting process that emphasizes proper stormwater management and ensures compliance with state and federal regulations. Refer to AMC Chapter 13.70 for provisions related to storm and surface water management and permitting.

The Aberdeen Municipal Code is current through Ordinance 6629, passed July 25, 2018.

Disclaimer: The city clerk's office has the official version of the Aberdeen Municipal Code. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

[City Website: www.aberdeenwa.gov](http://www.aberdeenwa.gov)

City Telephone: (360) 537-3231

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Chapter 17.60

PARKING

Sections:

- 17.60.010 Purpose.**
- 17.60.020 Parking requirements.**
- 17.60.030 Residential uses.**
- 17.60.040 Commercial uses.**
- 17.60.050 Industrial uses.**
- 17.60.060 Public and semi-public uses.**
- 17.60.070 Mini-warehouses/self-service storage facilities.**
- 17.60.080 Location of parking spaces.**
- 17.60.090 Improvement of parking spaces and access to parking spaces.**
- 17.60.100 Downtown areas exempt from off-street parking requirements.**
- 17.60.110 Loading space.**
- 17.60.120 Nonconforming parking regulations.**
- 17.60.130 Heavy truck and heavy equipment yards not parking areas.**
- 17.60.140 Joint use of required parking spaces.**

17.60.010 Purpose. The purpose of this chapter is to protect the public welfare by requiring adequate numbers of parking spaces and improvements other than those on the public right-of-way to lessen the potential for impacts of developments on neighboring uses and the community. (Prior code § 11.020.010)

17.60.020 Parking requirements.

A. The minimum required parking spaces for the various uses shall be as listed in Sections 17.60.030 through 17.60.070. Where the requirements produce a fractional result, the number shall be increased to the next highest unit. The parking requirement for a use not specifically mentioned in this chapter shall be the same as the use which is most similar. In the case of mixed uses, the total requirement of parking shall be the sum of the requirements of the various uses computed separately. (Prior code § 11.020.020)

B. All proposed new or altered parking areas development within the City shall implement Low Impact Development (LID) practices to the maximum extent practicable (MEP) using all known, available and reasonable methods of preservation, control and treatment (AKART). LID shall be implemented adhere to Low Impact Development (LID) requirements in accordance with AMC Section 13.70.130.

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17.60.030 Residential uses.

- A. Detached single-family residences: two spaces per dwelling unit. Driveways may be used for parking, but shall not be used for purposes of calculating required parking.
- B. Mobile homes: two spaces per dwelling unit.
- C. Duplexes and town homes: two spaces per dwelling unit.

- D. Multi-family residences (except those listed below): two spaces per dwelling unit.
- E. Multi-family residences limited to low- and moderate-income residents: one space per dwelling unit.
- F. Multi-family residences limited to residents age sixty (60) and/or older: one-half space per dwelling unit.
- G. Rooming and boarding houses: one space for every bed.
- H. Group homes and other supervised residential living arrangements: three spaces for every five beds, except for uses exclusively serving children under sixteen (16) and the handicapped, whereby one space shall be provided for every four beds.
- I. Home occupations and beauty shops: See Sections 17.56.030 and 17.56.040.
- J. Accessory dwellings: one space for the accessory dwelling in addition to the two spaces required for the main dwelling unit.
- K. Bed and breakfast inns: one space for each guest room in addition to the number required for the dwelling. (Prior code § 11.020.030)

17.60.040 Commercial uses.

- A. Personal and professional services, financial services, beauty schools, veterinarians and business offices: one space for every three hundred (300) feet of gross floor area. Each drive-through window used shall provide reservoir lanes with a capacity for a minimum of five waiting vehicles.
- B. Child care facilities in all districts: one space per employee plus one space per thirteen (13) children.
- C. Convenience stores: one space per two hundred (200) square feet of gross floor area with a minimum of four spaces.
- D. Grocery stores, drug stores, department stores, self-service laundry and retail sales within a building: one space for every two hundred fifty (250) square feet of gross floor area with a minimum of four spaces.
- E. Furniture, appliance, feed stores, secondhand sales and retail sales of bulky items: one space per five hundred (500) square feet of gross floor area with a minimum of four spaces.
- F. Motor vehicle and mobile home sales, rental or repair: one space per three hundred (300) square feet of gross floor area with a minimum of four spaces.
- G. Service stations: one space per two hundred (200) square feet of gross floor area of the building devoted primarily to gasoline sales operations and a reservoir lane with a capacity for five waiting vehicles.
- H. Car washes: conveyor type, one space for every three employees on the maximum shift plus reservoir capacity equal to five times the capacity of the washing operation. Self-service type, two spaces for drying and cleaning purposes per stall plus two reservoir spaces in front of each stall.
- I. Wholesale stores and machinery and equipment sales and repair: one space per employee on the peak shift with a minimum of four spaces.
- J. Retail sales: one space per three hundred (300) square feet of gross floor area with a minimum of four spaces.
- K. Retail sales outside fully enclosed building: one space per four hundred (400) square feet of gross floor with a minimum of two spaces.

- L. Hotels, motels and bed and breakfast inns: one space for each room or suite and one space for every employee on the largest shift with a minimum of four spaces.
- M. Bowling alleys, skating rinks, indoor athletic courts, pool halls and exercise facilities: one space per two hundred (200) square feet of gross floor area; a minimum of four spaces required.
- N. Outdoor recreation facilities such as miniature golf courses, skate board parks, and similar uses: one space per three hundred (300) square feet of activity area plus one space per two hundred (200) square feet of building gross floor area. Driving range: one space per tee plus one space per two hundred (200) square feet of building gross floor area; a minimum of four spaces required.
- O. Social, fraternal clubs, lodges, union halls, and similar uses: one space for every four persons; a minimum of four spaces required.
- P. Theaters: one space for every four seats with a minimum of four spaces.
- Q. Dance halls and similar uses without fixed seats: one space for every four persons; a minimum of four spaces is required.
- R. Restaurants, taverns, cocktail lounges with inside tables and only incidental take-out services: one space per seventy-five (75) feet of gross floor area. If the use has outside tables one additional space shall be provided for each four outside seats. A minimum of four spaces is required.
- S. Drive-in restaurants where food is eaten in vehicles: one space per seventy-five (75) feet of gross floor building area and one space per employee on the largest shift. If the use has outside tables one additional space shall be provided for each four outside seats. Each drive-in window shall provide a reservoir lane with a capacity for five waiting vehicles. A minimum of four spaces total is required.
- T. Kennels, animal boarding and similar uses: one space per employee on the largest shift and one space reserved for customer pick up.
- U. Recreational vehicles in a recreational vehicle park: one space per recreational vehicle space with a minimum of four spaces. (Prior code § 11.020.040)

17.60.050 Industrial uses. Warehousing, fabricating, manufacturing, processing, and all other industrial uses: one space for every two employees on the largest shift with a minimum of four spaces. (Prior code § 11.020.050)

17.60.060 Public and semi-public uses.

- A. Elementary schools, middle schools and junior high schools: one space for every fifteen (15) students; provided, that the number of spaces for public assembly areas shall be determined separately.
- B. High schools: one space for every ten students; provided, that the number of spaces for public assembly areas shall be determined separately.
- C. Colleges, trade schools, business colleges: one space for every eight students; provided, that the number of spaces for public assembly areas shall be determined separately.
- D. Public assembly areas including auditoriums, stadiums, performing halls and gymnasiums: one space for every four seats or if fixed seats are not provided, one space for every four persons. For public assembly areas included on a campus or

school grounds, the number of spaces required for the school or college may be counted towards the spaces required for the public assembly area.

- E. Libraries, museums, art galleries, art centers and similar uses: one space for every four hundred (400) square feet with a minimum of four spaces.
- F. Churches, other places of worship, and mortuaries: one space for every five seats in the portion of the building used for services.
- G. Public and private hospitals, sanitariums, convalescent homes, nursing homes and rest homes: one space for every three patient beds and one additional space for each employee on the largest shift with a minimum of four spaces required.
- H. Correction facilities: one space for every two employees on the largest shift. (Prior code § 11.020.060)

17.60.070 Mini-warehouses/self-service storage facilities.

- A. Self-service storage facilities with a live-in manager unit: one space per dwelling unit.
- B. Self-service storage facilities, which contain a leasing office: one space per two hundred (200) units, with a minimum of two spaces.
- C. All self-service storage facilities shall meet the following aisle width requirements to accommodate parking and to provide for a proper lane of travel for vehicles:
 1. One-way aisles shall provide a fifteen-foot lane of travel with a ten-foot parking lane adjacent to storage units.
 2. Two-way aisles shall provide two twelve-foot lanes of travel with a ten-foot parking lane adjacent to storage units.
- D. The parking lanes may be eliminated when the driveway does not serve storage units.
- E. For storage units with no outside access and located in a single or multi-story building, two load/unload spaces shall be provided. (Prior code § 11.020.070)

17.60.080 Location of parking spaces.

- A. Required parking shall be located within three hundred (300) feet of the use to be served and any off-site parking facility shall be connected to the use served by sidewalks; except that residential parking in the downtown area defined in AMC 17.60.100 shall be physically contiguous and functionally connected to the use which it serves.
- B. Parking areas serving uses not allowed in a residential zoning district shall not be located in a residential zoning district.
- C. Parking shall not be located within the required front yard setback in the R-P and M-I zones. Parking for residential uses in all zones shall not be located within a required front yard. Where four or more residential units are served by the same parking lot, outdoor parking shall be no closer than five feet to any on-site building and not closer than three feet to any property line.
- D. Prior to establishing off-site parking or any use to be served thereby, the property owner or owners shall file with the Grays Harbor County Auditor and with the City of Aberdeen Planning and Community Development Department a written agreement and approved by the Director of Planning and Community Development providing for the off-site or shared parking use. The agreement

shall be recorded on the title records of each affected property. (Prior code § 11.020.080)

17.60.090 Improvements of parking spaces and access to parking spaces. All off-street parking required by this chapter shall be designed and constructed to comply with Chart P-1 and Figure P-2 for compliance with the following:

- A. Any parking facility, including access driveways and aisles, for three or less vehicles shall meet the following minimum standards:
 1. The parking facility shall be minimally surfaced with three inches of crushed rock or of equivalent materials approved by the city engineer. See Figure P-3(A).
 2. The driveway access to the parking facility shall be hard surfaced, to the satisfaction of the city engineer, for a length of at least ten feet from the street surface.
- B. Any parking facility, including access driveways and aisles, for four or more vehicles shall meet the following minimum standards:
 1. The parking facility, aisles and access driveways shall be graded and drained so as to dispose of surface water to the satisfaction of the city engineer and in compliance with any approved drainage plan for the property.
 2. The parking facility, aisles and access driveways shall be surfaced with concrete, asphaltic concrete, bituminous surface treatment or an equivalent satisfactory to the city engineer. See Figure P-3(B).
 3. The parking facility, aisles and access driveways shall be maintained in good condition free of weeds, dust, trash, debris, pot-holes, etc., and the parking space lines and markings shall be kept clearly visible and distinct.
 4. The parking facilities and aisles shall not be located so as to require backing across a sidewalk or street.
 5. Individual parking spaces shall be designated by contrasting paint or markers. See Figure P-4.
 6. Where parking spaces front on a property line, wall, fence or sidewalk, wheel stops or similar barriers shall be provided. See Figure P-5.
 7. At least seventy (70) percent of the parking spaces shall be standard size stalls and thirty (30) percent or less of the parking spaces may be compact size stalls, as indicated by Chart P-1 and Figure P-2. All compact parking spaces shall be labeled "compact." See Figure P-4.
 8. Driveways providing access to a parking facility shall be at least twelve (12) feet wide for each lane of travel.
 9. Aisles providing access to parking spaces shall meet the minimum standards as defined by the parking area dimensions chart and diagram.
 10. Circulation areas shall be designed so that vehicles can proceed safely without posing a danger to pedestrians or other vehicles and without interfering with parking areas. See Figure P-6.
 11. Parking facilities for nonresidential uses which will be used after dark shall be lighted; provided, the light source shall be designed to reflect light away from any adjoining residential premises or streets.

12. Where parking spaces or an aisle serving a parking facility are adjacent to property zoned for residential uses, a sight-obscuring fence of at least four feet high shall be provided in addition to the required landscaping.
13. Parking spaces for the disabled shall be consistent with the provisions of WAC 51.20 and design criteria of Figure P-7. (Prior code § 11.020.090)

17.60.100 Downtown areas exempt from off-street parking requirements.

- A. For the purpose of this Section, the downtown area shall be defined as that area enclosed by the following streets and rivers: west of the Wishkah River, west of Fuller Way, west of North "F" Street, south of the alley between First and Second Streets, east of "L" Street, and north of State Street until State Street meets "F" Street then south on "F" Street extended until it meets the Chehalis River, then along the north bank of the Chehalis River and the west bank of the Wishkah River.
- B. Commercial, industrial, public and semi-public uses within the downtown area designated in this section shall be exempt from the off-street parking requirements in AMC 17.60.040, 050, and 060; except, that any loading spaces required by AMC 17.60.110 shall be provided. Residential uses within the downtown area shall comply with all off-street parking requirements.
- C. If any use or building in the downtown area elects to provide parking or has been required to provide parking through any other review procedure, the parking facility, aisles and access driveways shall comply with the applicable requirements of AMC 17.60.090. (Prior code § 11.020.100)

17.60.110 Loading space. For commercial, industrial and public and semi-public buildings and uses of more than five thousand (5,000) square feet of gross floor area, space either inside or outside the building for the loading and unloading of goods and materials shall be provided. Such space shall not be less than ten feet wide, twenty-five (25) feet long, nor less than fifteen (15) feet in height if covered. Such space shall be provided with direct access to an alley or street. (Prior code § 11.020.110)

17.60.120 Nonconforming parking regulations. Parking facilities existing at the time of adoption of this title and accessory to a lawfully established use, but nonconforming as to the provisions of this chapter, shall satisfy the parking required for that specific use. Any change in the use, the building, and/or the parking facilities shall be subject to the following provisions:

- A. An existing parking facility accessory to a lawfully established use shall not be reduced in area or redesigned so that the facility is less in conformance with the provisions of this chapter.
- B. If a building or use is expanded, parking as required by this chapter shall be provided for the expanded portion of the use. Any existing parking shall be retained or replaced by an equivalent or grater number of parking spaces or the number of spaces required by this chapter, whichever is less.
- C. If the use of land or a building is changed to a use with a grater parking requirement, parking equal to the difference between the requirements for the existing and the proposed use, as contained herein, shall be provided in accordance with this chapter. Existing parking shall be retained or be replaced by

an equivalent number of parking spaces or the number of spaces required by this chapter, whichever is less. (Prior code § 11.020.120)

17.60.130 Heavy truck and heavy equipment yards not parking areas. Heavy truck and equipment maintenance and storage areas shall not be considered parking areas for the purposes of this chapter and shall not have to comply with the improvement requirements of Section 17.60.090. (Prior code § 11.020.130)

17.60.140 Joint use of required parking spaces.

- A. One parking area may contain required spaces for several different uses, but except as otherwise provided in this chapter, the required space(s) assigned to one use may not be credited to any other use.
- B. Developments that wish to make joint use of the same parking spaces but predominately operate at different times, the same spaces may be credited to both uses.
- C. A use or development wishing to take advantage of joint use of required parking spaces must present satisfactory written evidence that the use or development has the permission of the owner or the person in charge of the parking spaces to use such spaces. The evidence must specify the number of spaces the use or development is allowed to use. The principal of the use or development must sign an acknowledgement that the continuing validity of the permit depends on the continuing ability to provide the required number of spaces. (Prior code § 11.020.140)

CHART P-1

A	B	C	D	E	F
PARKING ANGLE	STALL WIDTH	CURB LENGTH	STALL DEPTH	AISLE WIDTH 1-WAY 2-WAY	UNIT DEPTH 1-WAY 2-WAY
0	Desired 8.0*	20.0*	8.0*	12.0 20.0	** **
	Desired 9.0	22.5	9.0	12.0 20.0	30.0 38.0
30	Desired 8.0*	16.0*	15.0*	10.0 20.0	** **
	Desired 9.0	18.0	17.0	10.0 20.0	44.0 54.0
45	Desired 8.0*	11.5*	17.0*	12.0 20.0	** **
	Desired 9.0	12.5	19.5	12.0 20.0	51.0 59.0
60	Desired 8.0*	9.5*	18.0*	18.0 20.0	** **
	Desired 9.0	10.5	21.0	18.0 20.0	60.0 62.0
90	Desired 8.0*	8.0*	16.0*	23.0 23.0	** **
	Desired 9.0	9.0	20.0	23.0 23.0	63.0 63.0

* For compact stall only

** Variable with compact and standard combinations

FIGURE P-2

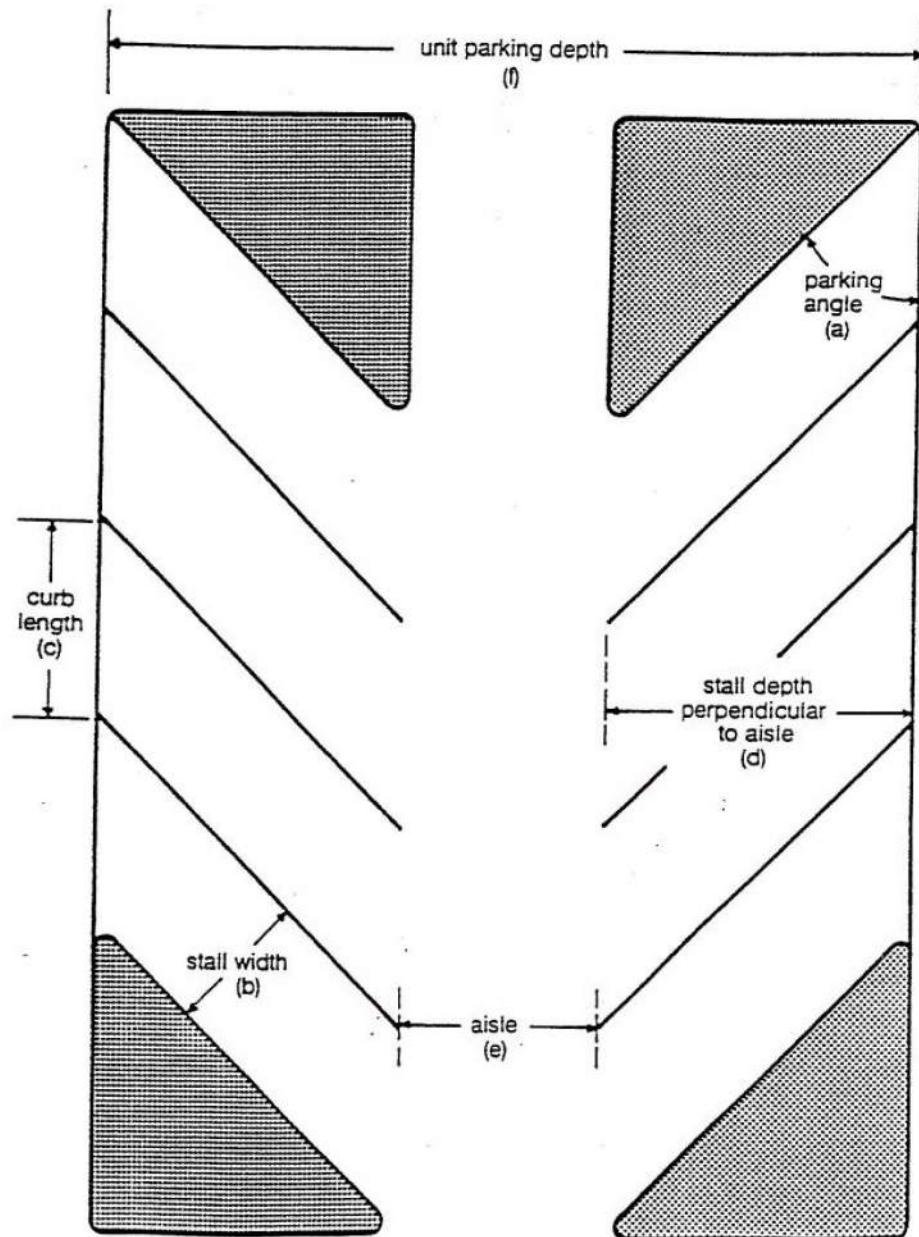
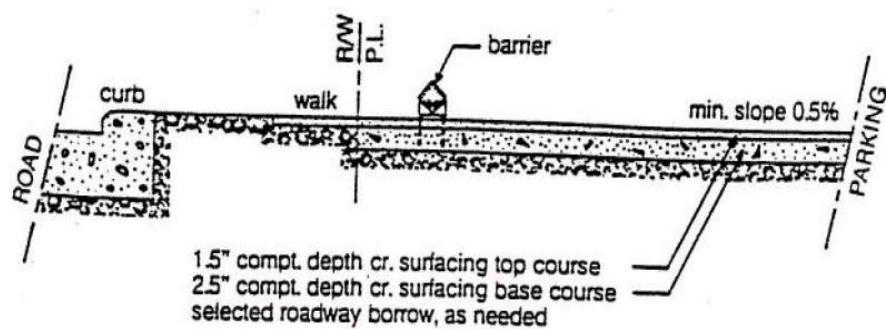


FIGURE P-3

A



B

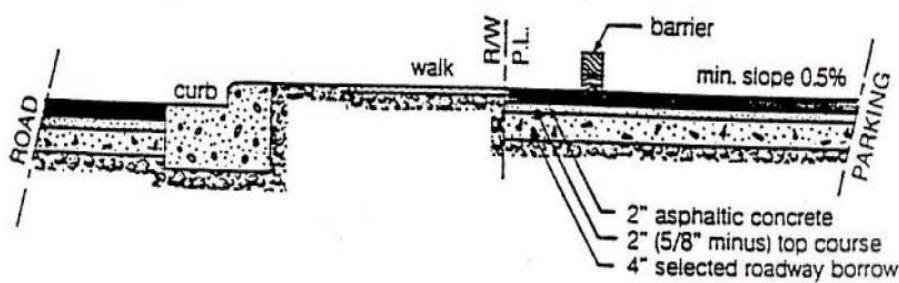


FIGURE P-4

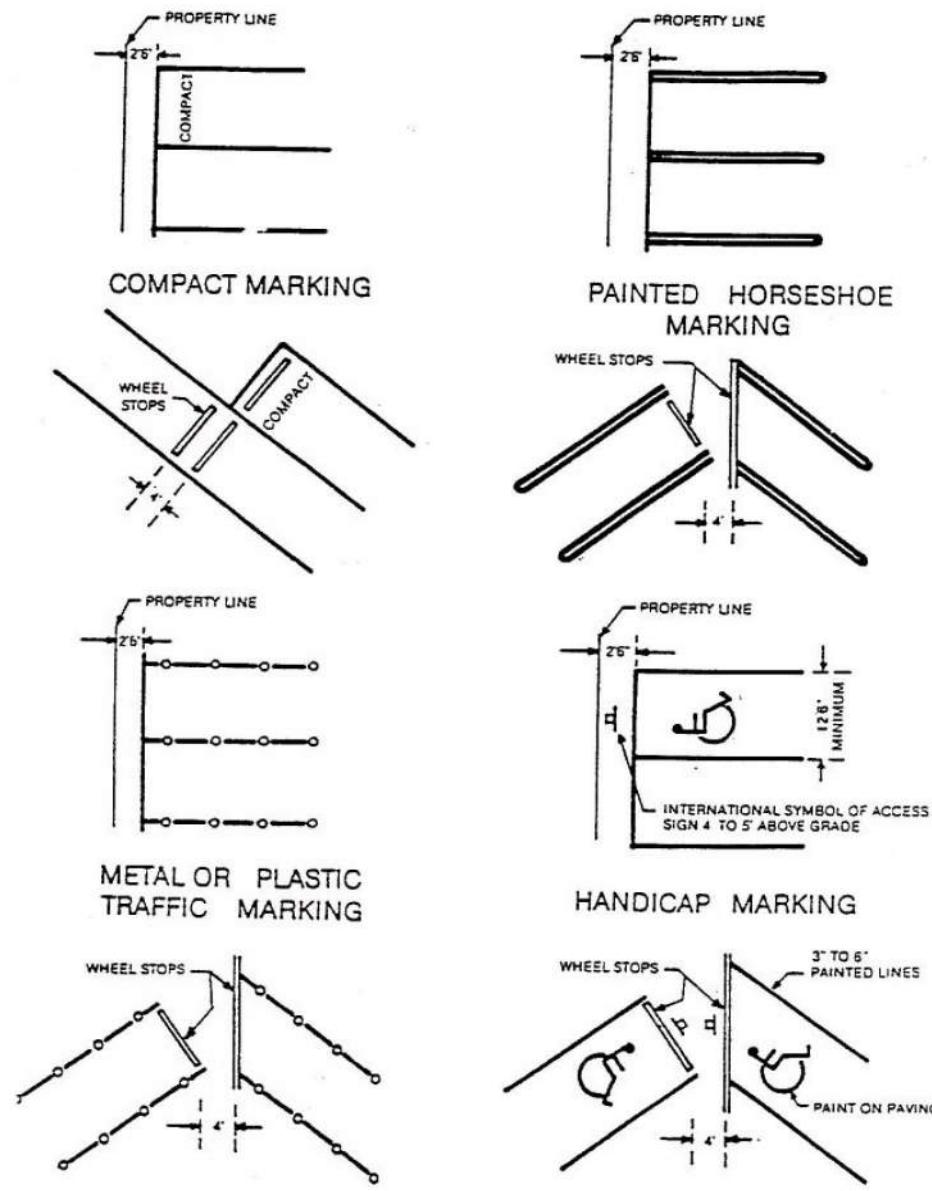


FIGURE P-5

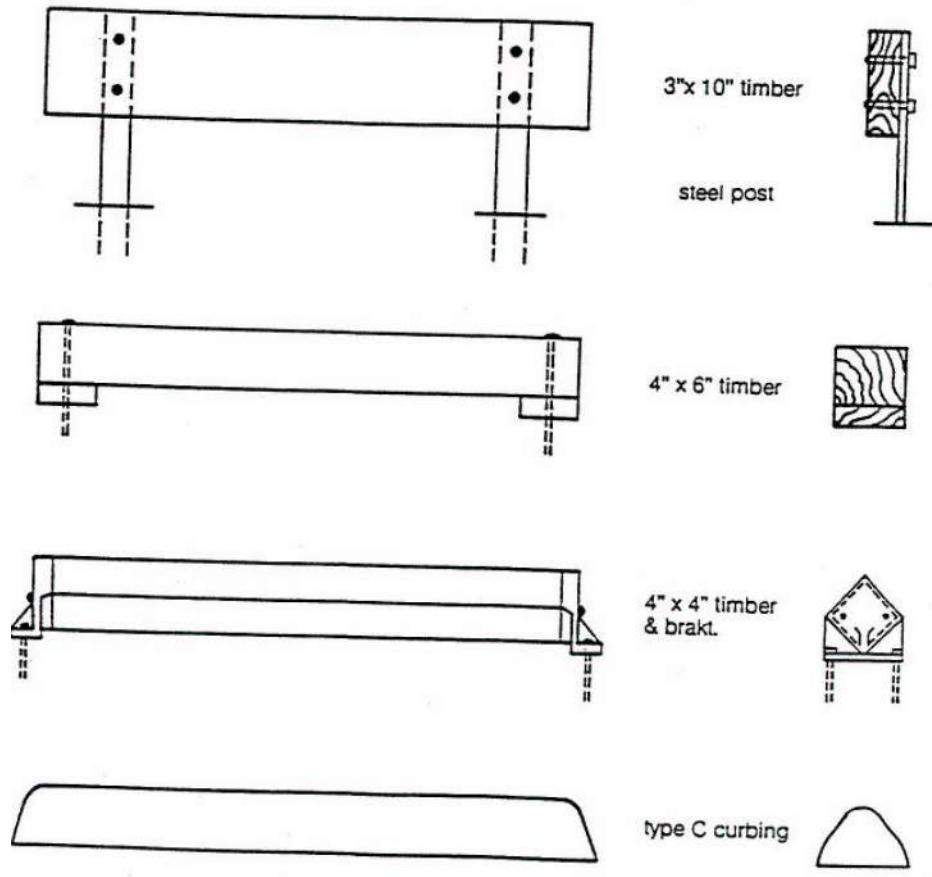
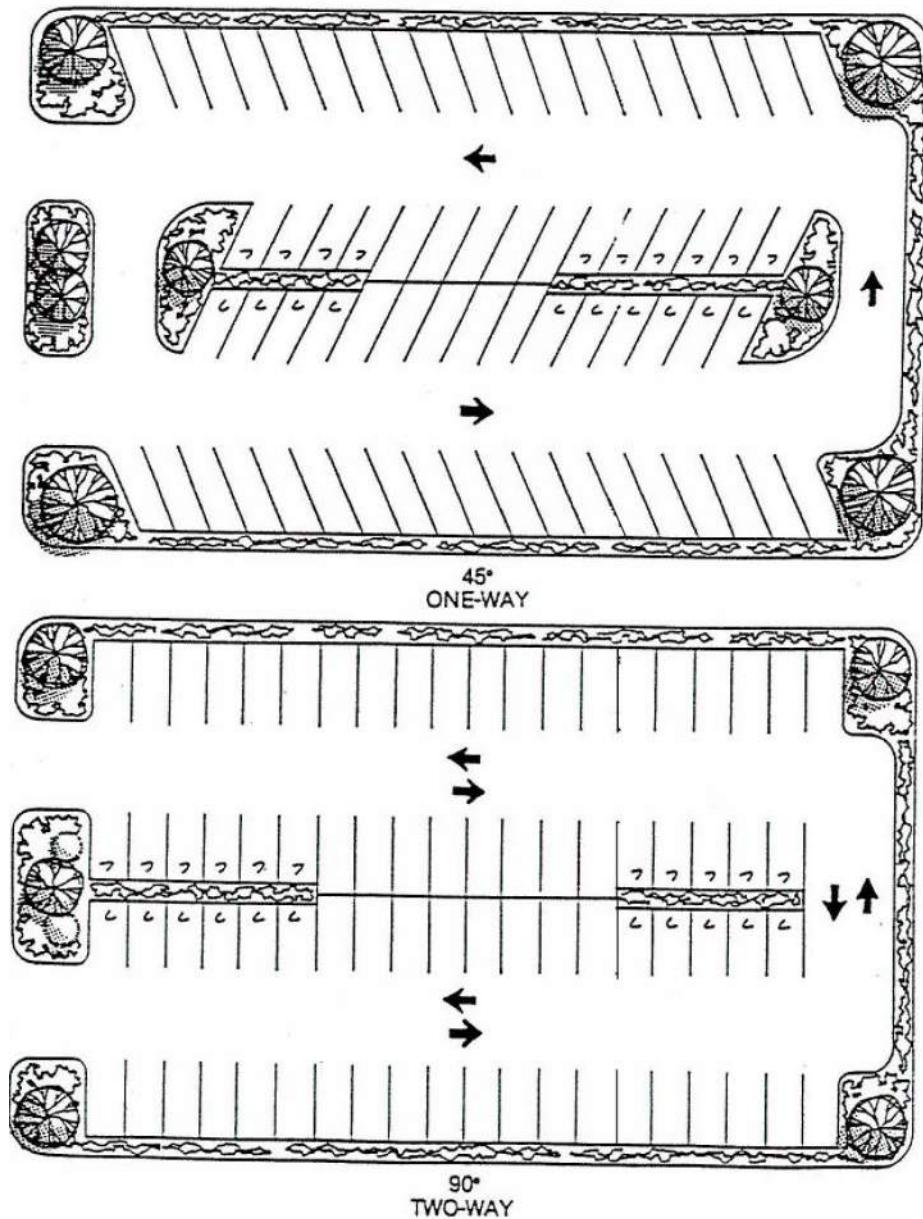


FIGURE P-6



Barrier Free Parking Requirements

Chapter 17.88

LANDSCAPING

Sections:

- 17.88.010 Purpose.**
- 17.88.020 General landscaping standards.**
- 17.88.030 Description of landscaping.**
- 17.88.040 Type of landscaping required.**
- 17.88.050 Landscaping plan requirements.**
- 17.88.060 Installation and performance bond requirements.**
- 17.88.070 Maintenance and enforcement.**

17.88.010 Purpose. The purpose of the landscaping requirements of this chapter is to increase compatibility between different intensities of land uses by providing visual barriers, and providing a visual separation and physical buffer between varying intensities of abutting land uses; to encourage the retention of significant existing vegetation to the extent feasible; to reduce erosion and water runoff; to minimize impacts of noise, light and glare; and to aid in regulating vehicular circulation. (Prior code § 11.028.010)

17.88.020 General landscaping standards. Where required by this title or as a condition for a rezone, conditional use permit, special use permit, or unclassified use permit, the proposed development shall provide landscaping so that:

- A. Neighboring properties are shielded from any adverse external effects of that development;
- B. The development is shielded from the negative impacts of adjacent uses such as streets or railroads;
- C. When determining which buffering requirements apply between two different principal uses on the same lot and another adjacent use, the city shall utilize the more intensive use to select the appropriate buffer;
- D. Significant existing vegetation is retained and incorporated into the new landscaping design.
- E. The All development within the City shall implement Low Impact Development (LID) practices to the maximum extent practicable (MEP) using all known, available and reasonable methods of prevention, control and treatment (AKART). LID shall be implemented adhere to Low Impact Development (LID) requirements in accordance with AMC Section 13.70.130.

(Prior code § 11.028.020)

17.88.030 Description of landscaping. The following are types of landscaping as required in Section 17.88.040; all proposed plant material, sizes and characteristics shall be in accordance with current American Association of Nursery Standards:

- A. Type I - Screen. Type I landscaping shall generally consist of a mix of predominantly evergreen plantings including living trees, shrubs and ground covers. Evergreen trees shall be a minimum height of four feet at time of planting.

Plantings shall be chosen and spaced so as to grow together within three years sufficient to obscure sight through the barrier. The entire planting strip shall be landscaped; however, those plantings used to achieve the sight-obscuring screen shall cover at least five feet of the width of the strip, and shall be located farthest from the property line. Existing vegetation may be incorporated into the landscape providing it contributes to achieving the intent of this subsection. See Figure L-1.

B. Type II - Visual Buffer. Type II landscaping shall consist of a mix of evergreen and deciduous plantings including living trees, shrubs and ground covers. Plantings of shrubs and ground covers shall be chosen and spaced to result in a total covering of the landscape strip. Shrubs shall be of a type that achieve a height of approximately six feet within three years, and effectively screen views along the length of the planting strip. Deciduous trees shall have a minimum trunk diameter of one and three-quarter inches at time of planting; evergreen trees shall be a minimum four feet tall at time of planting. All trees shall be spaced at intervals resulting in touching of branches after ten years of normal growth. Trees shall be staggered in two or more rows when the minimum width of the landscaping strip is twenty (20) feet or more. Existing vegetation may be incorporated into the landscape design provided it contributes to achieving the intent of this subsection. See Figure L-1.

C. Type III - See Through Buffer. Type III landscaping shall consist of a mix of evergreen and deciduous plantings including living trees, shrubs and ground covers. Plantings of shrubs and ground covers shall be chosen and spaced to result in a covering of the landscape strip within three years. Shrubs shall be of a type that do not exceed a height at maturity of approximately three to four feet. Deciduous trees shall have a minimum trunk diameter of one and three-quarter inches at time of planting, and be spaced so as to result in touching of branches after ten years of normal growth. Evergreen trees shall be a minimum of four feet tall at time of planting and spaced so as to result in a space between trees approximately equal to the mature spread of the trees used. See Figure L-1.

D. Type IV - Open Area Landscaping. Type IV landscaping shall consist of canopy-type deciduous trees or spreading evergreen trees planted in wells or strips, with a mix of living evergreen and deciduous ground covers and low shrubs. Shrubs shall be of a type that do not exceed a height at maturity of approximately three to four feet. Planting wells or strips shall be a minimum of thirty-two (32) square feet in area, with the narrowest dimension not less than four feet. Deciduous trees shall have a minimum trunk diameter of one and three quarter inches at time of planting. Evergreen trees shall be a minimum of four feet tall at time of planting. See Figure L-1. (Prior code § 11.028.030)

17.88.040 Type of landscaping required. Landscaping shall be provided in all developments subject to this title as set forth below, except for single-family residences and duplexes:

A. Table L-2 sets forth the type and width of landscaping required along side and rear property lines not abutting public right-of-ways, streets or alleys. The proposed use shall buffer less intensive uses adjacent to it.

B. Five feet of Type III landscaping is required adjacent to all streets, except where permitted structures and driveways are proposed.

- C. Type IV landscaping shall be provided within all surface, open air parking lots, as follows:
 - 1. At least ten percent of the total parking area, excluding any other required landscaping, shall be utilized for landscaping when said areas exceed twenty (20) parking stalls;
 - 2. At least one tree for every five parking stalls shall be provided, to be evenly distributed throughout the parking lot;
 - 3. No parking stall shall be more than sixty (60) feet from the nearest landscaping;
 - 4. Permanent curbs and structural barriers shall be provided to protect the plantings from vehicle overhang. See Figure P-4 in Chapter 17.60 for design details;
 - 5. A minimum of forty (40) percent of the trees shall be evergreen.
- D. Landscaping is not required adjacent to alleys.
- E. The buffer requirement between uses not specifically mentioned in this chapter shall be the same as the most similar above circumstance. (Prior code § 11.028.040)

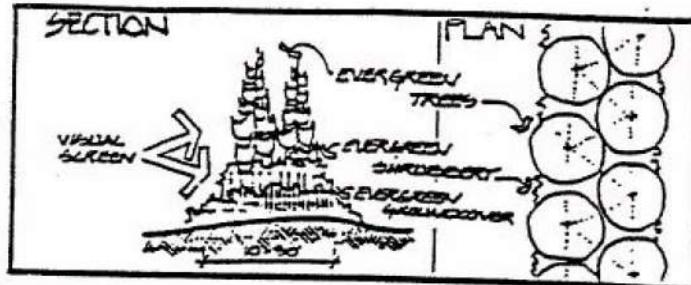
17.88.050 Landscaping plan requirements. The plan shall be accurately drawn, using an appropriate engineering or architect scale, and show the following:

- A. Boundaries and dimensions of the site;
- B. Location and identification of all streets, alleys and easements on the site;
- C. Proposed location and dimensions of all on-site buildings;
- D. Proposed landscaping including species, and size at the time of planting;
- E. Existing vegetation;
- F. Details of any proposed architectural barriers;
- G. Locating of existing and proposed driveways and parking surfaces, curbs and sidewalks. (Prior code § 11.028.050)

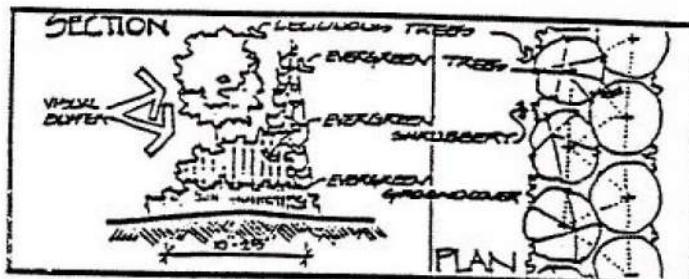
17.88.060 Installation and performance bond requirements. Landscaping required pursuant to this chapter shall be installed in accordance with the approved site plan prior to the issuance of a certificate of occupancy for the project. The department, the board of adjustment, the planning commission, or the city council may require performance bonds or other appropriate security, including letters of credit and set aside letters, to insure that the landscaping will be installed and maintained for one year, according to the approved plan and specifications. (Prior code § 11.028.060)

17.88.070 Maintenance and enforcement. All landscaped areas required by this chapter shall be planted according to accepted practice in good soil with a water source within seventy-five (75) feet, and maintained with respect to pruning, trimming, watering and other methods to create an attractive appearance and a healthy growing condition. Dead, diseased, stolen or vandalized plantings shall be replaced within three months. Property owners shall keep the planting area free of weeds and trash; lack of maintenance shall constitute a violation of this code. The department shall have the authority to enforce the standards set forth in this chapter and the conditions attached to all permits for development pursuant to application of this chapter, in accordance with the provisions of Chapter 17.96. (Prior code § 11.028.070)

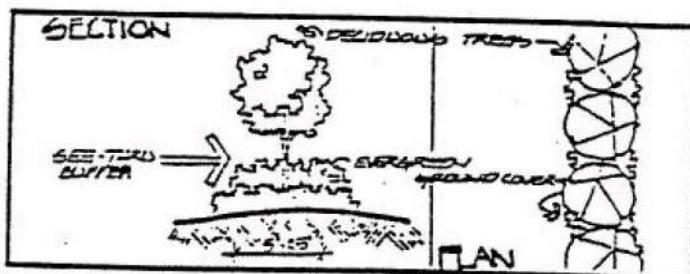
TABLE L-1



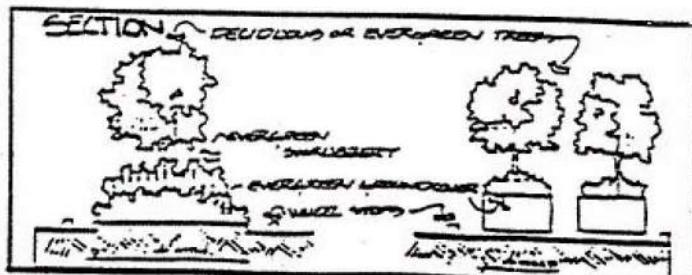
Type I. A visual screen with plantings chosen and spaced to grow together within three years sufficient to obscure sight through the screen.



Type II. A visual buffer to effectively screen views at eye level within three years. Trees are to be spaced so that branches touch within ten years.



Type III. A see-through buffer which permits relatively unobstructed views while providing benefits of landscaping.



Type IV. Open area landscaping, typically used in parking lots to provide shading and relief from paved areas.

TABLE L-2**REQUIRED LANDSCAPING****Buffer Type and Width**

ZONE	ADJACENT ZONE	TYPE and WIDTH
R-M, R-P	R-S	I 5'
	R-M, R-P	III 5'
	C-R, C-D, C-G, M-I	II 5'
	W-D, L-I, I	I 15'
C-R, C-D, C-G, M-I	R-S	I 10'
	R-M, R-P	II 5'
	C-R, C-D, C-G, M-I	III 5'
	W-D, L-I, I	II 10'
W-D, L-I, I	R-S	I 15'
	R-M, R-P	I 15'
	C-R, C-D, C-G, M-I	II 10'
	W-D, L-I, I	III 5'

Stormwater Quality Program

City of Aberdeen Public Works

Created: December 2017

Updated: December 2018

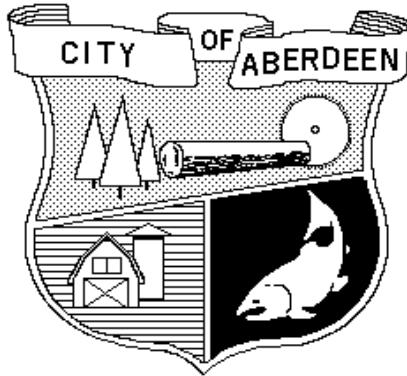


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Appendices

Appendix A: AMC Chapter 13.70

Appendix B: Construction ESC Inspection Checklists

Stormwater Quality Program

Overview

Stormwater runoff is rain or snowmelt that flows over land and does not percolate into the soil. Impervious surfaces, such as buildings, homes, roads, sidewalks, and parking lots can significantly alter the natural hydrology of the land by increasing the volume, velocity, and temperature of runoff and by decreasing its infiltration capacity. In addition, as stormwater runoff moves across surfaces, it picks up trash, debris, and pollutants such as sediment, oil and grease, pesticides and other toxics. Soil exposed by construction activities is especially vulnerable to erosion. The primary stormwater pollutant at a construction site is sediment. The best way to stop erosion is to keep the soil in place through vegetation, erosion control blankets, or other source control BMP's to prevent the soil from becoming dislodged during rain events.

The National Pollutant Discharge Elimination System (NPDES) regulates the discharge of stormwater under the authority of the Federal Clean Water Act. Washington State Department of Ecology (Ecology) has the designated authority to administer NPDES within the State of Washington. Under this authority, Ecology has issued NPDES permits regulating the discharge of stormwater. The City of Aberdeen is under regulation of the Western Washington Phase II Municipal Stormwater Permit (Phase II Permit) issued on September 1, 2012. The current Phase II permit will remain in effect until July 1, 2019, after which a new Phase II permit will be issued.

The Phase II permit mandates permittees to implement and enforce a program to reduce pollutants in stormwater runoff to a regulated small MS4 from new development, redevelopment and construction site activities. This program and its implementation satisfies this requirement.

The Phase II Permit sets forth the following minimum performance measures required to be compliant. The following elements are described throughout the remainder of this document.

- a) Ordinance/Regulatory Mechanism (to address stormwater runoff)**
- b) Permitting, Stormwater Review and Inspection**
- c) Operations and Maintenance (O&M) of Permitted Stormwater Facilities**
- d) Notice of Intent (NOI)**
- e) Stormwater Quality Staff Training**
- f) Low Impact Development Requirements**

a) Ordinance/Regulatory Mechanism

City Ordinance

Aberdeen Municipal Code Chapter 13.70 (Storm and Surface Water Management) addresses stormwater runoff from new development, redevelopment, and construction site projects (13.70.080 Review and Approval of Storm and Surface Water Drainage Plans). As this code section states, the City of Aberdeen chooses to use the requirements, limitation, and criteria in the Stormwater Management Manual for Western Washington to meet the requirements of the Phase II Permit. AMC Chapter 13.70 is included in Appendix A for reference.

b) Permitting, Stormwater Review and Inspection

Stormwater Site Plan Review

All proposed development in the City of Aberdeen that results in disturbed soil (any amount) is required to go through a stormwater review performed by qualified personnel in the Engineering Division. The typical stormwater review is comprised of the following steps:

- 1) Review the submitted application (Site Development Permit, ROW Development Permit, etc) requiring a stormwater review.
- 2) Review submitted Stormwater Site Plan, Grading Plan and Erosion and Sediment Control Plan, if applicable.
- 3) Research and evaluate the project site, project scope, site topography, surrounding properties, public utilities, ditches, catch basins, drainage system, nearby waterways, and critical areas.
- 4) Complete the worksheet “Determining Construction Site Sediment Damage Potential” (*Appendix 7, Western Washington Phase II municipal Stormwater Permit*).
- 5) Determine which Project Threshold (I, II or III) the project falls under (*City of Aberdeen Stormwater Review Overview*).
- 6) If only Minimum Requirement #2 is required to be addressed (Threshold I), complete and issue the Standard City of Aberdeen Construction Stormwater Pollution Prevention Plan to the contractor and/or property owner.
- 7) If Minimum Requirements #1-5 are required to be addressed (Threshold II), notify the property owner or the owner’s representative that they need to provide a Condensed Drainage Submittal to complete the stormwater review (if it has not already been submitted). Review the submitted material and provide comments or approve the submitted documentation.
- 8) If Minimum Requirements #1-10 are required to be addressed (Threshold III), notify the property owner or the owner’s representative that they need to provide a Full Drainage Submittal to complete the stormwater review (if it has not already been submitted). Review the submitted material and provide comments or approve the submitted documentation.

Inspection of High Sediment Potential Sites (Pre-Construction)

Permitted development sites receiving a high sediment transport potential from the completed “Determining Construction Site Sediment Damage Potential” worksheet require inspection prior to clearing and construction. A trained Stormwater Inspector shall conduct an inspection of these permitted development sites prior to construction to ensure adequate erosion and sediment controls have been installed. The Initial ESC Inspection Checklist, included in Appendix B, is used for the pre-construction inspection.

Inspection of all Permitted Sites (During Construction)

All permitted development sites require a stormwater inspection during construction. A trained Stormwater Inspector shall conduct an inspection of the development site during construction to verify proper installation and maintenance of required erosion and sediment controls. The Stormwater Inspector shall verify that commercial and residential development erosion control BMPs are maintained in good condition in accordance with approved CSWPPP.

The Construction ESC Inspection Checklist, included in Appendix B, is used for the during-construction inspection. Where applicable, the Construction of Permanent Stormwater BMPs/Facilities Inspection Checklist, included in Appendix B, is also used for the during-construction inspection. If the expected BMPs are not in place, Stormwater Inspectors notify the site superintendent of the deficiencies. Enforcement shall be made as necessary based on the inspection and per the enforcement strategy outlined later in this section.

Inspection of all Permitted Sites (Post-Construction)

All permitted development sites require inspection of permanent stormwater facilities upon completion of construction and prior to final approval or occupancy. A trained Stormwater Inspector shall conduct an inspection of the development site upon completion of construction activities to ensure proper installation of permanent stormwater facilities and to verify that erosion control BMPs are maintained in good condition in accordance with approved CSWPPP.

The Post-Construction ESC Inspection Checklist, included in Appendix B, is used for the post-construction inspection. Where applicable, the Post-Construction of Permanent Stormwater BMPs/Facilities Inspection Checklist, included in Appendix B, is also used for the post-construction inspection. Enforcement shall be made as necessary based on the inspection and per the enforcement strategy outlined in this program.

Escalating Enforcement Policy

This policy establishes a formal enforcement procedure to be implemented by the Public Works Director and Stormwater Inspectors when enforcement action is necessary on sites that do not comply with the COA stormwater regulations. Enforcement procedures are outlined below.

I. Preventative Correction

Preventative correction is required for those activities or conditions which have not yet resulted in degradation of surface water quality. These include lack of installation and maintenance of appropriate BMPs and failure to address minor deficiencies in existing BMPs, (Such as adding more straw mulch, repairing silt fence, re-covering stockpiles, etc.). Notices of Correction of minor violation may be verbal or written. The time period for implementing preventative corrections is less than one week or prior to the next precipitation event, whichever is less. A reasonable effort to obtain a voluntary correction should be pursued.

II. Order to Correct Violation (OTCV)

A written *Order to Correct Violation* notice is issued when the following conditions are identified:

- Inspector has pursued reasonable attempts to secure voluntary correction of minor violation; or
- Minor violation has not been corrected within the time set forth by the storm water inspector; or
- Evidence of prior degradation of surface water quality is observed; or
- Sediment, silt, turbid runoff or other non-stormwater discharges (as defined in SWMMWW) are being released from the site due to operator's activities, despite the implementation of BMPs.

III. Stop Work Order (SWO)

Upon issuance of the SWO, work on the site not directly related to correcting the degradation of surface water quality may be suspended as directed by the Public Works Director or City Engineer. A stop work order is issued when:

- The site does not have a valid approved storm water permit before starting the work; or
- Sufficient and appropriate BMPs have not been implemented, as set forth in the approved erosion and sediment control plan or SWPPP, to prevent degradation of surface water quality; or
- Contractor or owner fails to address an Order to Correct violation notice within the timeframe specified; or
- A third Correction Notice has been issued for the potential degradation of surface water quality due to Permittee's activities; or
- An accidental discharge of polluting matter (other than sediment) to the storm drains system or surface water course or a significant public nuisance exist; or
- A threat exists to the water of the State.

The stop work order shall:

- Be in writing;
- Specifically state the applicable Violation and the reason for SWO issuance;
- Be posted on the property in a conspicuous place;
- If practicable, be given to:
 - The person performing the Construction or committing the violation; and
 - To the owner of the property or the owner's agent.
- The stop-work order shall state the conditions under which Construction may be resumed.
- In no way limit the operation of penalties provided elsewhere in the AMC

IV. Notice of Civil Violation (NOCV)

A Notice of Civil Violation may be issued when:

- Contractor or owner fail to comply with a stop work order; or a repeat violation exist; or the violation creates a situation or condition that cannot be readily corrected (e.g. a pollutant spill that enters a stream, wetland or lake); or
- The contractor or owner knows, or reasonably should have known, that the action is in violation of laws, regulations, codes or permit conditions (e.g. an intentional discharge of polluting matter to the storm drainage system and/or surface waters).

- When any of the above circumstances exist, the City Stormwater Inspector immediately issues a SWO, notifies the Public Works Director, and provides documentation supporting the issuance of the NOCV.

c) Operation and Maintenance (O&M) of Permitted Stormwater Facilities

Maintenance and Inspection Responsibilities

Aberdeen Municipal Code sections 13.70.150-13.70.180 states the developer or property owner is responsible for stormwater facility maintenance, requires access for annual City inspection of all permitted stormwater facilities, and establishes enforcement procedures to manage instances of noncompliance.

All new development with permitted stormwater treatment or flow control BMPs/facilities are required to complete and sign an Operation and Maintenance Agreement with the City of Aberdeen which includes a site specific Facility Maintenance Program, outlining the facility details and maintenance requirements.

City Maintenance Standards

The City of Aberdeen has adopted the maintenance standards defined in Chapter 4 of Volume V of the Stormwater Management Manual for Western Washington. The purpose of these maintenance standards is to determine if maintenance is required. The maintenance standard is not a measure of the facility's required condition at all times between inspections.

These standards are used by City staff to determine if and when maintenance is required on stormwater structures and BMPs/facilities. It also outlines the maintenance procedures to be conducted when maintenance thresholds are exceeded.

The adopted maintenance standards include provisions for stormwater treatment and flow control BMPs/facilities. These standards are applied during the annual inspections of all permitted stormwater treatment and flow control BMPs/facilities.

Annual Inspection of Permitted Stormwater Treatment and Flow Control BMPs/Facilities

All stormwater treatment and flow control BMPs/facilities that discharge to the MS4 and were permitted by the City since 2007 (S5.C.4.c.iii) shall receive annual inspection from a trained City Stormwater Inspector. The City tracks and inspects all permitted stormwater treatment and flow control BMPs/facilities that discharge to the MS4 through the City Stormwater Inspection Agenda.

Inspection of Stormwater Facilities and Catch Basins in New Residential Developments

Inspection is required of all permanent stormwater treatment and flow control BMPs/facilities and catch basins in new residential developments every six months until 90% of the lots are constructed (or when construction is stopped and the site is fully stabilized) to identify

maintenance needs and enforce compliance with maintenance standards as needed. The City tracks and inspects all permitted stormwater treatment and flow control BMPs/facilities and catch basins in new residential developments.

Inspection Compliance

The Phase II Permit measures compliance of required inspections in this section by achieving at least 80% of the scheduled inspections.

Maintenance of Permitted Facilities

Maintenance of all permitted stormwater treatment and flow control BMPs/facilities and other storm and surface water drainage structures is the responsibility of the developer or property owner.

The Phase II Permit sets a required timeframe of maintenance for stormwater facilities exceeding the maintenance standards. Unless there are circumstances beyond the City's control, when an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed by the property owner:

- Within 1 year for typical maintenance of facilities, except catch basins.
- Within 6 months for catch basins.
- Within 2 years for maintenance that requires capital construction of less than \$25,000.

Circumstances beyond the City's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. For each exceedance of the required timeframe, the City shall document the circumstances and how they were beyond their control.

Inspection/Enforcement/Maintenance Recordkeeping

All City performed inspections, enforcement actions taken and maintenance performed shall be documented and retained according to the City's recordkeeping policy.

d) Notice of Intent (NOI)

Ecology now requires all applicants of new development to complete the Notice of Intent (NOI) online at <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance>.

The City of Aberdeen, as part of the Public Education and Outreach Program will be providing a link to the NOI application on the City website.

e) Stormwater Quality Staff Training

Training Lead

All staff whose primary job duties are implementing the program to control stormwater runoff from new development, redevelopment, and construction sites, including permitting, plan review, construction site inspections, and enforcement, on the job training will be managed by the City Stormwater Quality Program manager. The program manager will manage

and assign training to staff involved in the varying job duties. Follow-up training shall be provided as needed to address changes in procedures, techniques or staffing.

Detailed Training

Detailed training will be assigned by the City Stormwater Quality Program manager to those individuals specifically involved in the permitting and stormwater review process.

General Training

General training will be via PowerPoint presentation and printed material distributed to staff at staff meetings. DVD, print or webcast material may be distributed if the need arises as the program develops.

f) Low Impact Development (LID) Requirements

Revised LID Code

Below is the updated Aberdeen Municipal Code addressing low impact development:

13.70.130 Low impact development (LID)

A. The city's preferred approach to site development includes low impact development (LID) best management practices (BMPs) as an alternative to conventional stormwater management systems that rely on closed conveyance. LID is intended to manage stormwater runoff close to the source of generation and to mimic the pre-developed hydrologic condition of a site. Beginning June 30, 2018, the city will require the incorporation of low impact development best management practices, for new development and redevelopment, in accordance with the Stormwater Management Manual for Western Washington (SWMMWW) and its National Pollution Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit as issued, and as may be amended, by the Washington State Department of Ecology.

B. LID is accomplished through minimizing the impervious surface coverage, retaining on-site natural features and vegetation, and managing runoff through dispersion, infiltration, evapotranspiration, or a combination of these approaches. Use of LID BMPs may reduce or eliminate the need for conventional detention facilities but does not remove the obligation to comply with the minimum requirements of the Stormwater Management Manual for Western Washington.

C. A variety of BMPs to minimize impervious surfaces and to manage stormwater have been developed and tested for use in Western Washington. These BMPs and the overall LID approach are described in the SWMMWW and additional guidance is provided in the latest version of the LID Technical Guidance Manual for Puget Sound.

D. The menu of LID BMPs identified in the SWMMWW are accepted by the city for use in stormwater site plans to address the minimum requirements for flow control and runoff treatment in this chapter, subject to the specifications, performance standards, and design criteria in the SWMMWW and review and approval under this chapter.

(5/23/2018 amend; Ord. 6526, Amended, 01/25/2012; Ord. 6503, Added, 08/25/2010)

Appendix A – AMC Chapter 13.70

Chapter 13.70

STORM AND SURFACE WATER MANAGEMENT

Sections:

- 13.70.010 Purpose.**
- 13.70.020 Definitions.**
- 13.70.030 Utility established.**
- 13.70.040 Transfer of property.**
- 13.70.050 Storm and surface water fund created.**
- 13.70.060 Setting of fees and charges.**
- 13.70.070 Applicability.**
- 13.70.080 Review and approval of storm and surface water drainage plans.**
- 13.70.090 Exemptions.**
- 13.70.100 Variances.**
- 13.70.110 Permits – Plan approval required.**
- 13.70.120 Plan approval – Conditions.**
- 13.70.130 Low impact development (LID).**
- 13.70.140 Design criteria.**
- 13.70.150 Maintenance agreement.**
- 13.70.160 Inspection.**
- 13.70.170 Preventive maintenance.**
- 13.70.180 Penalties.**
- 13.70.190 Cross connections prohibited.**
- 13.70.200 Illicit discharges prohibited – Certain discharges allowed – Conditions.**
- 13.70.210 Easements.**
- 13.70.220 Appeals – Filing deadlines.**

13.70.010 Purpose.

The purpose of this chapter is to protect, maintain, and enhance the public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse impacts associated with increased storm and surface water runoff. Proper management of storm and surface water runoff and implementation of low impact development (LID) practices will minimize damage to public and private property, reduce the effects of development on land and stream channel erosion and sedimentation, assist in the attainment and maintenance of water quality standards, reduce local flooding, and maintain, post-development, as nearly as possible, the predevelopment runoff characteristics, while complying with the Stormwater Management Manual for Western Washington (SWMMWW) and the city's National Pollution Discharge Elimination System (NPDES) Western

Washington Phase II Municipal Stormwater Permit as issued, and as may be amended, by the Washington State Department of Ecology. This chapter also establishes a storm and surface water system as a utility service of the city.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.020 Definitions.

For the purposes of this chapter, the following definitions describe the meaning of the terms used in this chapter:

- A. "Adverse impact" means any deleterious effect on water or wetlands, including their quality, quantity, surface area, species composition, aesthetics or usefulness for human or natural uses, which are or may potentially be harmful or injurious to human health, welfare, safety or property, to biological productivity, diversity or stability, or which unreasonably interferes with the enjoyment of life or property, including outdoor recreation.
- B. "Agricultural land management practices" means those methods and procedures used in the cultivation of land in order to further crop production and conservation of related soil and water resources.
- C. "Applicant" means any person, firm or governmental agency who executes the necessary forms to procure official approval of a project or a permit to carry out construction of a project.
- D. "Aquifer" means a porous water-bearing geologic formation generally restricted to materials capable of yielding an appreciable supply of water.
- E. "City engineer" means the city of Aberdeen public works director or his or her designee.
- F. "Clearing" means the removal of trees and brush from the land, but shall not include the ordinary mowing of grass.
- G. "Detention structure" means a permanent structure designed to store runoff for discharge at rates approximating what would have occurred under predevelopment conditions.
- H. "Develop land" or "development" means to change the runoff characteristics of a parcel of land in conjunction with residential, commercial, industrial or institutional construction or alteration.
- I. "Developer" means a person, group or company engaged in land or property development or proposed development.
- J. "Director" or "public works director" means the city of Aberdeen public works director or his or her designee.
- K. "Drainage area" means that area contributing runoff to a single point measured in a horizontal plane which is enclosed by a ridge line.
- L. "Engineer" means a civil engineer or civil engineering firm that has been retained or employed by the city to perform engineering services.

M. "Easement" means a grant or reservation by the owner of land for the use of such land by others for specific purpose(s), and which must be included in the conveyance of land affected by such easement.

N. "Exemption" means those land development activities that are not subject to the storm and surface water management requirements contained in this chapter.

O. "Flow attenuation" means detaining or retaining runoff to reduce the peak discharge.

P. "Grading" means any act by which soil is cleared, stripped, stockpiled, excavated, scarified, filled or any combination thereof.

Q. "Infiltration" means the passage or movement of water into the soil surface.

R. "Off-site storm and surface water management" means the design and construction of a facility necessary to control storm and surface water from more than one (1) development.

S. "On-site storm and surface water management" means the design and construction of systems necessary to control storm and surface water within an immediate development.

T. "Retention structure" means a permanent structure that provides for the storage of runoff by means of a permanent pool of water or infiltration.

U. "Sediment" means soils or other surficial materials transported or deposited by the action of wind, water, ice or gravity as a product of erosion.

V. "Site" means any tract, lot or parcel of land or combination of tracts, lots or parcels of land which are in one (1) ownership, or are contiguous and in diverse ownership where development is to be performed as part of a unit, subdivision or project.

W. "Stabilization" means the prevention of soil movement by any of various vegetative and/or structural means.

X. "Storm and surface water management" means:

1. For quantitative control, a system of vegetative and structural measures that control the increased volume and rate of surface runoff caused by manmade changes to the land; and
2. For qualitative control, a system of vegetative, structural and other measures that reduce or eliminate pollutants that might otherwise be carried by surface runoff; and
3. For "low impact development (LID)," a stormwater and land use management strategy that strives to mimic predisturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design. LID best management practices (BMPs) include, but are not limited to, bioretention, rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, vegetated roofs, minimum excavation foundations, and water reuse.

Y. "Storm drainage plan" means a set of drawings or other documents, submitted by a person as a prerequisite to obtaining a storm drainage permit, which contain all of the information and specifications pertaining to storm and surface water management.

Z. "Stripping" means any activity which removes the vegetative surface cover, including tree removal, clearing, grubbing and storage, or removal of topsoil.

AA. "Stormwater Management Manual for Western Washington" means the stormwater manual published by the Washington State Department of Ecology and adopted by the city.

BB. "Variance" means the modification of the minimum storm and surface water management requirements for specific circumstances where strict adherence of the requirements would result in unnecessary hardship and not fulfill the intent of this chapter.

CC. "Watercourse" means any natural or artificial stream, river, creek, ditch, channel, swale, conduit, culvert, drain, or ravine, in and including any area adjacent thereto which is subject to inundation by reason of overflow or flood water.

DD. "Watershed" means the total drainage area contributing runoff to a single point.

EE. "Western Washington Phase II Municipal Stormwater Permit" means the National Pollution Discharge Elimination System (NPDES) stormwater permit issued to the city by the Washington State Department of Ecology.

FF. "Wetlands" means an area that has saturated soils or periodic high ground water levels and vegetation adapted to wet conditions and periodic flooding.

(5/23/2018 amend; Ord. 6526, Amended, 01/25/2012; Ord. 6503, Added, 08/25/2010)

13.70.030 Utility established.

For the purpose of carrying out the provisions of this chapter, there is created and established a storm and surface water drainage utility for the city of Aberdeen pursuant to Chapters [35.67](#), [35.92](#), [90.03](#), and [90.54](#) RCW, and by Article [11](#), Section [11](#), of the constitution of the state of Washington. The primary purpose of this utility shall be the planning, design, construction, maintenance, administration, and operation of all city storm and surface water facilities and for overseeing the design, construction, and maintenance of improvements on private property where these may affect storm and surface water management. The utility shall be administered by the public works director. The city council is authorized to make funds available to the utility by appropriation, borrowing, or by other means in accordance with laws of Washington state for the establishment, maintenance, and operation of this utility.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.040 Transfer of property.

All properties, property rights, and interests of every kind or nature owned or held by the city, however acquired, insofar as they relate to or concern storm or surface water facilities, are hereby transferred to the storm and surface water utility, including, by way of example and not limitation, all properties, rights and interest acquired by adverse possession or by prescription in and to the drainage and storage of storm or surface waters over and under lands, watercourses, streams, ponds, and estuaries to the full extent of inundation caused by the largest storm or flood condition.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.050 Storm and surface water fund created.

- A. Pursuant to state law, the city hereby declares its intention to designate the city's storm and surface water system as a utility and enterprise activity of the city to be supported all or in part by the imposition of user charges on all parcels of property within the city which discharge stormwater to the city's storm drainage facilities or are otherwise served by the city's storm drainage facilities.
- B. The city hereby establishes a special fund within the city's fiscal system to be known as "the storm and surface water fund," hereinafter referred to as "the fund."
- C. All revenues from storm drainage user charges and other storm drainage related fees and charges as may be adopted by resolution shall be deposited to the fund.
- D. Expenditures from the fund shall be limited to those expenditures for the improvement, repair, operation, maintenance, and administration of the storm drainage facility as defined by the public works director of the city of Aberdeen. The fund may also transfer funds to the general fund of the city that represent the reasonable and proportionate share of the cost of general city government support of the utility not covered by direct payments from the fund.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.060 Setting of fees and charges.

- A. The city council shall by resolution establish a system of user charges for all parcels in the city.
- B. To the extent practicable, user charges shall be based on each parcel's expected rate and volume of stormwater runoff from a parcel.
- C. The city council may by resolution establish a charge for the connection of any parcel to the city's storm drainage facilities to reflect that parcel's fair share of the cost of the existing city storm drainage facilities serving the parcel.

D. The public works director shall establish appropriate fees for the review and inspection of storm drainage facilities proposed and constructed by private development.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.070 Applicability.

It is not intended that this chapter repeal, abrogate, or impair any existing regulations, easements, covenants, or deed restrictions. The provisions of this chapter shall be held to be minimum requirements in their interpretation and application and shall be liberally construed to serve the purposes of this chapter. When any provision of any other chapter of the city regulations conflicts with this chapter, that which provides more environmental protection shall apply unless specifically provided otherwise in this chapter.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.080 Review and approval of storm and surface water drainage plans.

A storm and surface water drainage plan shall be submitted to the city engineer by the developer for review and approval for any proposed development, unless otherwise exempted. The developer is solely responsible for determining the stormwater requirements applicable to the proposed development for proposing review to the city. These requirements are defined in Volume I of the Stormwater Management Manual for Western Washington, and also found in city provided stormwater guidance forms. The square footage and improvement value thresholds outlined in Volume I of the Stormwater Management Manual for Western Washington shall be cumulative and include all projects permitted on or after January 1, 2012. The storm and surface water drainage plan shall be accompanied by supporting computations, drawings and sufficient information describing the manner, location and type of measures in which storm and surface water runoff will be managed from the entire development. The storm and surface water drainage plan, stormwater facility design, and any supplemental information supplied by the developer shall conform to the design standards set forth in the Stormwater Management Manual for Western Washington. The developer solely is responsible for submitting a storm and surface water management plan which meets the requirements provided by this chapter. No person shall develop any land for residential, commercial, industrial or institutional uses without having provided for required storm and surface water management measures that control or manage runoff from such developments.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.090 Exemptions.

A. The following practices are exempt from the provisions of this chapter and the requirements of providing storm and surface water management as specified in the Western Washington Phase II Municipal Stormwater Permit:

1. *Forest Practices.* Forest practices regulated under WAC Title [222](#), except for Class IV general forest practices that are conversions from timberland to other uses, are exempt from the provisions of the minimum requirements.
2. *Commercial Agriculture.* Commercial agriculture practices involving working the land for production are generally exempt. However, the conversion from timberland to agriculture and the construction of impervious surfaces are not exempt.
3. *Oil and Gas Field Activities or Operations.* Construction of drilling sites, waste management pits, and access roads, as well as construction of transportation and treatment infrastructure such as pipelines, natural gas treatment plants, natural gas pipeline compressor stations, and crude oil pumping stations are exempt. Operators are encouraged to implement and maintain best management practices to minimize erosion and control sediment during and after construction activities to help ensure protection of surface water quality during storm events.
4. *Pavement Maintenance.* The following pavement maintenance practices are exempt: pothole and square cut patching; overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage; shoulder grading; reshaping/regrading drainage systems; crack sealing; resurfacing with in-kind material without expanding the road prism; pavement preservation activities that do not expand the road prism; and vegetation maintenance.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.100 Variances.

The city engineer may grant a written variance from any requirement of this chapter if there are exceptional circumstances applicable to the site such that strict adherence to the provisions of this chapter will result in unnecessary hardship and not fulfill the intent of this chapter. A written request for variance shall be provided to the city engineer and shall state the specific variances sought and reasons for their granting. The city shall not grant a variance unless and until sufficient specific reasons justifying the variance are provided by the person developing land.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.110 Permits – Plan approval required.

A site development permit, building permit, or other development permit may not be issued for any parcel or lot unless a storm and surface water drainage plan has been approved by the city engineer. The approved plan shall become part of the permit and be enforced as an element of any development permit issued by the city.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.120 Plan approval – Conditions.

In granting the plan approval, the city engineer may impose such conditions thereto as may be deemed necessary to ensure compliance with the provisions of this chapter and the preservation of public health and safety. Any site development permit, building permit, or other development permit issued by the city may be suspended or revoked, after written notice is given to the permittee, for any violations of the approved storm and surface water drainage plan.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.130 Low impact development (LID).

A. The city's preferred approach to site development includes low impact development (LID) best management practices (BMPs) as an alternative to conventional stormwater management systems that rely on closed conveyance. LID is intended to manage stormwater runoff close to the source of generation and to mimic the predeveloped hydrologic condition of a site. Beginning June 30, 2018, the city will require the incorporation of low impact development best management practices, for new development and redevelopment, in accordance with the Stormwater Management Manual for Western Washington (SWMMWW) and its National Pollution Discharge Elimination System (NPDES) Western Washington Phase II Municipal Stormwater Permit as issued, and as may be amended, by the Washington State Department of Ecology.

B. LID is accomplished through minimizing the impervious surface coverage, retaining on-site natural features and vegetation, and managing runoff through dispersion, infiltration, evapotranspiration, or a combination of these approaches. Use of LID BMPs may reduce or eliminate the need for conventional detention facilities but does not remove the obligation to comply with the minimum requirements of the Stormwater Management Manual for Western Washington.

C. A variety of BMPs to minimize impervious surfaces and to manage stormwater have been developed and tested for use in Western Washington. These BMPs and the overall LID approach are described in the SWMMWW and additional guidance is provided in the latest version of the LID Technical Guidance Manual for Puget Sound.

D. The menu of LID BMPs identified in the SWMMWW are accepted by the city for use in stormwater site plans to address the minimum requirements for flow control and runoff treatment in this chapter, subject to the specifications, performance standards, and design criteria in the SWMMWW and review and approval under this chapter.

(5/23/2018 amend; Ord. 6526, Amended, 01/25/2012; Ord. 6503, Added, 08/25/2010)

13.70.140 Design criteria.

Storm and surface water systems shall be designed and constructed in accordance with the standards and specifications as set forth in the adopted Stormwater Management Manual for Western Washington.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.150 Maintenance agreement.

Prior to issuance of a storm and surface water utility permit, the city shall require the applicant to execute an inspection and maintenance agreement binding on all subsequent owners of land served by the private storm and surface water drainage system. The maintenance agreement shall be recorded by the city. Such agreement shall provide for access to the system at reasonable times for regular inspection by the city or its authorized representative to ensure that the facility is maintained in proper working condition to meet design standards and any provisions established. The agreements shall include the right of the city to access the system to take such action as necessary to protect the public safety and health in any instance where the owner fails to make the appropriate correction. Such agreement may contain provisions for regular or special assessments.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.160 Inspection.

- A. The developer will submit to the city a proposed construction schedule ten (10) days prior to commencing construction. The city engineer shall conduct inspections and file reports for periodic inspections necessary during construction of storm and surface water management systems to ensure compliance with the approved plans. The developer shall notify the city upon completion of the project when a final inspection will be conducted.
- B. Any portion of the work which does not comply with city regulations will be promptly corrected by the developer, after written notice from the city. The notice shall set forth the nature of corrections required and the time within which corrections will be made.
- C. A final inspection shall be conducted by the city upon completion of the elements of the storm and surface water drainage plan to determine if the completed work is constructed in accordance with the approved plan and this chapter. The developer shall supply an "as-built" certification by a registered professional engineer licensed in the state of Washington to certify that the facility has been constructed as shown in the "as-built" plans and meets approved plans and specifications. The city will provide the developer with a written notification of the results of the final inspection.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.170 Preventive maintenance.

- A. It shall be the responsibility of the developer or property owner to maintain all infiltration systems, retention, detention or other storm and surface water drainage structures as contained in the storm and surface water utility permit and in accordance with the latest maintenance standards set forth in the SWMMWW.

B. The city shall annually inspect all infiltration systems, retention, detention or other storm and surface water drainage structures.

C. If the inspection indicates improper maintenance, unsafe conditions, or danger to public health or safety the city shall so inform the developer or property owner of those conditions as well as a schedule for remediation. The cost of such remediation is the cost of the developer or property owner. In any instance where the developer or property owner fails to make the appropriate correction within the timeline specified by the city engineer, the city will take such action as necessary to protect the public health and safety. Any cost incurred by the city shall be recovered from the developer or property owner.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.180 Penalties.

A. Any person convicted of violating the provisions of this chapter shall be guilty of a gross misdemeanor. Each day that the violation continues shall be a separate offense.

B. In addition to, or as an alternative to any criminal prosecution or other penalty or billable cost of abatement or inspection as provided by ordinance or statute, any responsible person who violates a provision of this chapter, or order of the director issued pursuant to this chapter, may be assessed a civil penalty under Chapter [1.12](#).

C. In addition to imposition of a civil penalty, the director shall have the authority to order any responsible person to stop work if the work does not conform to the permit requirements and the severity is determined to be sufficient to warrant such action. The stop work order shall be issued in accordance with the procedures set forth in Chapter [1.12](#) for notices and orders. Failure to comply with the terms of a stop work order shall result in enforcement actions including, but not limited to, the issuance of a civil penalty.

D. In addition, the city may institute injunctive, mandamus or other appropriate actions or proceedings at law or equity for the enforcement of this chapter, or to correct violations of this chapter, and any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions or other appropriate forms of remedy or relief.

E. Any person who, through an act of commission or omission, aids or abets in the violation shall be considered to have committed a violation.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.190 Cross connections prohibited.

The installation or maintenance of any cross connection, meaning a connection between any storm and surface water drainage system and any sanitary sewer system, is prohibited. Any such cross connections now existing, or hereafter installed, are declared to be public nuisances and shall be abated by the director in the manner provided by Chapter [8.08](#).

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.200 Illicit discharges prohibited – Certain discharges allowed – Conditions.

A. The stormwater system of the city of Aberdeen, natural and artificial, may only be used to convey stormwater runoff and discharges meeting the permit conditions within a current National Pollutant Discharge Elimination System Permit approved by the Washington State Department of Ecology. Except as provided in subsections (B) and (C) of this section, no person shall throw, drain or otherwise discharge, cause or allow others under its control to throw, drain or otherwise discharge into the stormwater system any materials other than stormwater.

B. The following discharges into the stormwater system are permitted, provided the following conditions are met:

1. *Discharges from Potable Water Sources, Including Waterline Flushing, Hyperchlorinated Waterline Flushing, Fire Hydrant System Flushing and Pipeline Hydrostatic Test Water.* Planned discharges shall be dechlorinated to a concentration of one-tenth (0.1) ppm or less, pH adjusted, if necessary (to meet water quality standards), and volumetrically and velocity controlled to prevent resuspension of sediments in the stormwater system. As an option to dechlorinating, planned discharges from potable water sources may be discharged directly to the municipal sanitary sewer system in a manner approved by the director. Planned discharges of waterline and hydrant system flushing need not be dechlorinated at the point of discharge if the discharge methods, location, or dilution will result in a pH concentration less than one-tenth (0.1) ppm at the point the water would enter a natural drainage channel.
2. *Discharges from Lawn Watering and Other Irrigation Runoff.* Reasonable steps shall be taken to minimize runoff including limiting duration and overspray.
3. *Dechlorinated Swimming Pool Discharges.* The discharges shall be dechlorinated to a concentration of one-tenth (0.1) ppm or less, pH adjusted, and reoxygenized if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the stormwater system and the property owner shall obtain permission from the director. Swimming pool cleaning waste water and filter backwash shall not be discharged to the stormwater system.
4. *Street and Sidewalk Wash Water, Water Used to Control Dust, and Routine External Building Wash Down that Does Not Use Detergents.* To avoid washing pollutants into the stormwater system, the discharge must minimize the amount of street wash and dust control water used. At active construction sites, street sweeping must be performed prior to washing the street.
5. *Other Nonstormwater Discharges.* The discharges shall be in compliance with the requirements of the stormwater pollution prevention plan for the discharges as reviewed and approved by the city.
6. *Any Discharges from a Construction Site.* Discharges must be in conformance with the stormwater pollution prevention plan (SWPPP) reviewed by the city.

7. *Combined Sewer Overflow (CSO) Discharges.* This discharge must be in conformance with a current National Pollution Discharge Elimination System permit, approved by the Washington State Department of Ecology.

C. The following categories of nonstormwater discharges are specifically allowed:

1. Diverted stream flows;
2. Rising ground waters;
3. Uncontaminated ground water infiltration (as defined at [40 CFR Section 35.2005\(b\)\(20\)](#));
4. Uncontaminated pumped ground water;
5. Foundation drains;
6. Air conditioning condensation;
7. Irrigation water from agricultural sources that is intermixed with urban stormwater;
8. Springs;
9. Water from crawl space pumps;
10. Footing drains;
11. Flows from riparian habitats and wetlands;
12. Nonstormwater discharges covered by another NPDES permit;
13. Discharges from emergency firefighting activities in accordance with the city of Aberdeen Stormwater NPDES Phase II Permit, Section S2, Authorized Discharges. The city's Stormwater NPDES Phase II Permit is available to view in the office of the director.

D. Except as provided in this section, no person shall use the stormwater system, directly or indirectly, to dispose of any solid or liquid matter other than stormwater. No person shall make or allow any connection to the stormwater system which could result in the discharge of polluting matter. Connections to the stormwater system from the interiors of structures are prohibited. Connections to the stormwater system for any purpose other than to convey stormwater or ground water are prohibited and shall be eliminated.

E. *Stormwater Discharge into the Sanitary System Is Prohibited – Exceptions.*

1. No person shall discharge or cause to be discharged any stormwater, surface water, ground water, roof runoff, subsurface drainage, uncontaminated cooling water, or unpolluted industrial process waters into any sanitary sewer, unless otherwise approved by the director based on lack of feasible alternatives or unless the discharge meets the condition outlined in Section [13.52.390](#).
2. No person shall make connection of roof downspouts, exterior foundation drains, area drains, or other sources of stormwater surface runoff or ground water to a building sewer or building drain which in turn is

connected directly or indirectly to a public sanitary sewer, unless such connection is otherwise approved in writing by the director based on lack of feasible alternatives or other appropriate factors.

F. Stormwater shall be discharged to such sewers as are specifically designated as combined sewers or storm sewers, or to a natural outlet approved by the director. Storm drainage from hard-surfaced or graded areas, such as parking lots, service station yards, and storage yards, shall enter the public storm sewer system or other outlet approved by the director and as required by this chapter and as such facilities are available. Such storm drainage shall not be connected to or allowed to enter a sanitary sewer, unless otherwise approved in writing by the director based on lack of feasible alternatives or other appropriate factors.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.210 Easements.

All public storm drainage systems shall be required to be located within a recorded public storm drainage easement or public right-of-way. An unobstructed ingress/egress maintenance easement shall be provided for city access to said storm drainage facilities. The minimum width of the required drainage easement shall be adequate to encompass all facilities and include room for access and maintenance, as determined by the city.

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

13.70.220 Appeals – Filing deadlines.

A. Any billing statement, charge, or other fee assessed under this chapter may be appealed to the director. The appeal may be decided informally, without a hearing, or in the sole discretion of the director an informal hearing may be held. The director's decision shall be in writing. The director's decision shall be the final determination unless a written notice of appeal is filed with the finance director within fourteen (14) days of the director's decision. Appeals from the director's decision shall be heard by the city council. The city council's decision on appeal shall be the final determination of the city.

B. Any appeal from the refusal to approve a storm and surface water drainage plan shall be considered in the same manner as an appeal from the denial of the development permit being applied for.

C. Any civil enforcement action taken under this chapter, that does not fall within subsection (A) or (B) of this section, may be appealed to the director in the same manner as provided for appeals under Chapter [1.12](#).

(5/23/2018 amend; Ord. 6503, Added, 08/25/2010)

The Aberdeen Municipal Code is current through Ordinance 6629, passed July 25, 2018.

Disclaimer: The city clerk's office has the official version of the Aberdeen Municipal Code. Users should contact the city clerk's office for ordinances passed subsequent to the ordinance cited above.

[City Website: www.aberdeenwa.gov](http://www.aberdeenwa.gov)

City Telephone: (360) 537-3231

[Code Publishing Company](#)

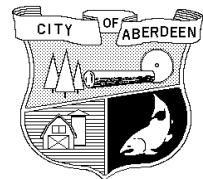
Appendix B – Construction ESC Inspection Checklists

City of Aberdeen

Public Works Department

200 E Market St

Aberdeen, WA 98520



Initial ESC Inspection Checklist

Objective: The initial erosion and sediment control (ESC) inspection should be conducted after the pre-construction meeting and installation of temporary best management practices (BMPs), but prior to any clearing, grubbing, or grading at the site. This inspection is required for sites that have a high potential for sediment transport.

Project Information

Project Name:	Project/Permit Number:
Project Location:	
Property Owner Information Owner Name: _____ Owner Phone Number: _____ Owner Email Address: _____	Inspection Information Inspector Name: _____ Date of Inspection: _____ Time of Inspection: _____
Contractor Information Contractor Name: _____ Lead Contact Name: _____ Lead Phone Number: _____ Lead E-mail Address: _____	Certified Erosion and Sediment Control Lead (CESCL) CESCL Name: _____ CESCL Certification Expiration Date: _____ CESCL Phone Number: _____ CESCL E-mail Address: _____
Does the contractor have appropriate documentation onsite or within reasonable access to the site? <input type="checkbox"/> Yes <input type="checkbox"/> Site Map/Plan <input type="checkbox"/> Action required <input type="checkbox"/> Construction SWPPP (with sequencing) <input type="checkbox"/> N/A <input type="checkbox"/> Soil and Vegetation Management Plan <input type="checkbox"/> ESC Plan <input type="checkbox"/> Daily log <input type="checkbox"/> Other: _____	

Initial ESC Inspection Items

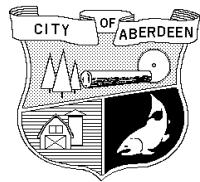
Item #	Inspection Item	BMP Examples	Satisfactory?
1 and 13	Are the following clearly marked? <ul style="list-style-type: none">• Project clearing limits/perimeter• Sensitive/critical areas and buffers• Protected trees• LID BMPs (infiltration/dispersion)	<ul style="list-style-type: none">• Flagging• High visibility fence• Silt fence	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
2	Has a stabilized construction entrance/exit been installed?	<ul style="list-style-type: none">• Stabilized construction entrance/exit• Wheel wash	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A

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Aberdeen, WA 98520



Initial ESC Inspection Items

Item #	Inspection Item	BMP Examples	Satisfactory?
4	Have perimeter sediment controls been installed?	<ul style="list-style-type: none">Brush barrierGravel filter bermSilt fenceWattles	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A

Notes/Comments:

Summary of Corrective Actions

Are corrective actions needed?

Yes, see following table

No, none required

Item#	Description and Location	Action Required	Completion Date	Initials

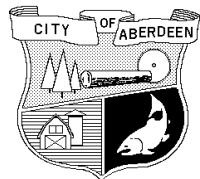
Attach additional page(s) if needed.

City of Aberdeen

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Construction ESC Inspection Checklist

Objective: Inspections conducted during construction activities should verify proper installation and maintenance of required erosion and sediment control (ESC) best management practices (BMPs) and the protection of permanent stormwater BMPs/facilities.

Project Information

Project Name:	Project/Permit Number:
---------------	------------------------

Location:

Property Owner Information Owner Name: _____ Owner Phone Number: _____ Owner Email Address: _____	Inspection Information Inspector Name: _____ Date of Inspection: _____ Time of Inspection: _____
Contractor Information Contractor Name: _____ Lead Contact Name: _____ Lead Phone Number: _____ Lead E-mail Address: _____	Certified Erosion and Sediment Control Lead (CESCL) CESCL Name: _____ CESCL Certification Expiration Date: _____ CESCL Phone Number: _____ CESCL E-mail Address: _____

Is the inspection occurring:

<input type="checkbox"/> After a holiday?	<input type="checkbox"/> On a Friday afternoon?	<input type="checkbox"/> During a storm?
<input type="checkbox"/> On a Monday morning?	<input type="checkbox"/> Before a predicted storm?	<input type="checkbox"/> After a storm? (<24 hours)

Does the contractor have appropriate documentation onsite or within reasonable access to the site?

<input type="checkbox"/> Yes	<input type="checkbox"/> Site Map/Plan
<input type="checkbox"/> Action required	<input type="checkbox"/> Construction SWPPP
<input type="checkbox"/> N/A	<input type="checkbox"/> Soil and Vegetation Management Plan
	<input type="checkbox"/> ESC Plan
	<input type="checkbox"/> Daily Log
	<input type="checkbox"/> Discharge monitoring reports (DMRs)
	<input type="checkbox"/> Other: _____

Are any of the following BMPs present? Bioretention/Rain Gardens Permeable Pavement

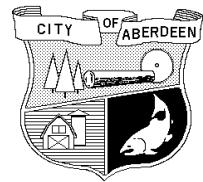
See Construction of Permanent Stormwater BMPs/Facilities Inspection Checklist

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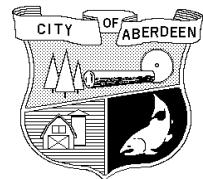
Item #	Inspection Item	BMP Examples	Satisfactory?				
1 and 13A	Are the following clearly marked and in good condition? <ul style="list-style-type: none">Project clearing limits/perimeterSensitive/critical areas and buffersProtected trees/vegetationLID BMPs (infiltration/dispersion)	<ul style="list-style-type: none">FlaggingHigh visibility fenceSilt fence	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A				
2	Is track-out of sediment prevented?	<ul style="list-style-type: none">Stabilized construction entrance/exitWheel wash	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A				
3A	Are flow control facilities installed and functioning properly?		<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A				
3B	If permanent flow control facilities are used for flow control during construction, are they protected from siltation?		<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A				
4A	Are perimeter sediment controls installed and functioning properly?	<table><tbody><tr><td>• Brush barrier</td><td>• Silt fence</td></tr><tr><td>• Wattles</td><td>• Gravel filter berm</td></tr></tbody></table>	• Brush barrier	• Silt fence	• Wattles	• Gravel filter berm	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
• Brush barrier	• Silt fence						
• Wattles	• Gravel filter berm						
4B	Are sediment control BMPs constructed and functioning properly?	<ul style="list-style-type: none">Sediment pondsSediment traps	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A				
5A	Are soils and stockpiles covered and stabilized properly?	<table><tbody><tr><td>• Seeding</td><td>• Nets and blankets</td></tr><tr><td>• Mulching</td><td>• Plastic covering</td></tr></tbody></table>	• Seeding	• Nets and blankets	• Mulching	• Plastic covering	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
• Seeding	• Nets and blankets						
• Mulching	• Plastic covering						
5B	Are dust control measures effective?	<ul style="list-style-type: none">Dust suppression (water, palliative, PAM)Windbreaks/ windscreensPlanting/ mulchingPaving/gravelMaintain ground coverStreet sweeping	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A				
6	Are slopes protected and is erosion prevented?	<ul style="list-style-type: none">SeedingMulchingCheck damSurface rougheningNets and blanketsInterceptor dike/swaleGrass-lined channelPipe slope drainPlastic covering	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A				

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Aberdeen, WA 98520



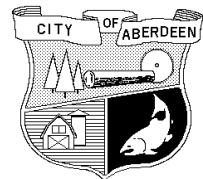
Item #	Inspection Item	BMP Examples	Satisfactory?
7	Are drain inlets protected and functioning properly?	<ul style="list-style-type: none">• Filter sock• Berm	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
8	Are conveyance channels and outlets stabilized, protected, and functioning properly?	<ul style="list-style-type: none">• Channel lining• Check dam• Nets and blankets• Outlet protection	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
9A	Are waste materials and demolition debris handled and disposed of properly?	<ul style="list-style-type: none">• Proper paint storage/ disposal• Proper disposal of plaster• Proper disposal of sheet rock	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
9B	Are pollutant source control measures available onsite?	<ul style="list-style-type: none">• Secondary containment• Solid Waste Management/ dumpster• Covered chemical storage area• Concrete washout• Spill kit	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
10	Are dewatering BMPs in place and functioning properly?	<ul style="list-style-type: none">• Water bars• Vegetative filtration• Pump containment• Splash pad/energy dissipater	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
12	Is construction following sequencing identified in the Construction SWPPP?		<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13B	Have LID BMPs (infiltration and dispersion) been protected from: <ul style="list-style-type: none">• Siltation• Compaction		<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13C	Were precautions taken in the choice of excavation equipment?	<ul style="list-style-type: none">• Lightweight, low ground-contact pressure equipment• Machinery (e.g., backhoe/excavator), but only operated outside of permanent BMP footprint	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13D	Have proper soil amendments been provided in planting and turf/lawn areas?	<ul style="list-style-type: none">• See Post-Construction Soil Quality and Depth BMP in the Stormwater Management Manual for Western Washington	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13E	Has appropriate vegetation and mulch been installed?	<ul style="list-style-type: none">• Site is permanently stabilized	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A

City of Aberdeen

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Aberdeen, WA 98520



Notes/Comments:

Summary of Corrective Actions

Are corrective actions needed?

Yes, see following table

No, none required

Item#	Description and Location	Action Required	Completion Date	Initials

Attach additional page(s) if needed.

Water Quality Observations and Measurements

Was water quality monitoring part of this inspection?

Yes, see following table

No

Parameter	Method (select one)	Result			Calibrated?	Comments (muddy, cloudy, oil sheen, color, etc.)
		NTU	cm	pH		
Turbidity ¹	<input type="checkbox"/> Tube <input type="checkbox"/> Meter <input type="checkbox"/> Laboratory				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
pH ²	<input type="checkbox"/> Paper/test strip <input type="checkbox"/> Kit <input type="checkbox"/> Meter				<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	

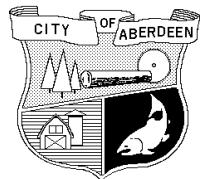
¹ Compliance for turbidity is normally < 250 NTU (or > 6 centimeters transparency).

² Compliance for pH is between 6.5 and 8.5.

City of Aberdeen**Public Works Department**

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Post-Construction ESC Inspection Checklist

Objective: Post-construction inspections should verify full site stabilization and proper removal of temporary erosion and sediment control (ESC) best management practices (BMPs).

Project Information

Project Name:	Project/Permit Number:
Location:	
Property Owner Information <p>Owner Name: _____</p> <p>Owner Phone Number: _____</p> <p>Owner Email Address: _____</p>	Inspection Information <p>Inspector Name: _____</p> <p>Date of Inspection: _____</p> <p>Time of Inspection: _____</p>
Contractor Information <p>Contractor Name: _____</p> <p>Lead Contact Name: _____</p> <p>Lead Phone Number: _____</p> <p>Lead E-mail Address: _____</p>	Certified Erosion and Sediment Control Lead (CESCL) <p>CESCL Name: _____</p> <p>CESCL Certification Expiration Date: _____</p> <p>CESCL Phone Number: _____</p> <p>CESCL E-mail Address: _____</p>
<p>Has the required documentation been submitted to the City prior to formal project turnover?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> Unknown</p>	
<p>Date that the Stormwater Drainage System was last cleaned: _____</p>	
<p>Upcoming Inspections</p> <p><input type="checkbox"/> Permanent bioretention or permeable pavement facilities with infiltration testing requirements</p> <p><input type="checkbox"/> Stormwater Performance and Maintenance Bond estimated inspection date: _____</p> <p><input type="checkbox"/> N/A</p>	

Are any of the following BMPs present? Bioretention/Rain Gardens Permeable Pavement

See Post-Construction Verification of Permanent Stormwater BMPs/Facilities Inspection Checklist.

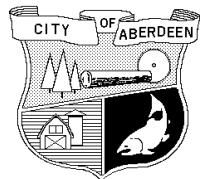
Item #	Inspection Item	Status
5A	Is the site fully stabilized?	<input type="checkbox"/> Yes, proceed with inspection <input type="checkbox"/> No, stop inspection; provide feedback on additional stabilization needs
5B	Is vegetation (e.g., grasses, sod, trees) protected, well-established and meet the landscaping design specifications?	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
9A	Have waste and demolition materials been removed?	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13	Have LID BMPs (infiltration and dispersion) been protected from: <ul style="list-style-type: none"> • Siltation • Compaction 	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A

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Item #	Inspection Item	Status		
Have all temporary ESC BMPs been removed or have BMPs/facilities been restored/maintained as needed for long-term protection?				
1	Flagging or fencing	<input type="checkbox"/> Yes	<input type="checkbox"/> Action required	<input type="checkbox"/> N/A
2	Stabilized construction entrance/exit and wheel wash	<input type="checkbox"/> Yes	<input type="checkbox"/> Action required	<input type="checkbox"/> N/A
3	Permanent flow control facilities used for flow control during construction	<input type="checkbox"/> Yes	<input type="checkbox"/> Action required	<input type="checkbox"/> N/A
4	Perimeter sediment control BMPs (e.g., silt fence, wattles, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> Action required	<input type="checkbox"/> N/A
6	Slope protection BMPs (e.g., seeding, mulching, pipe slope drains, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> Action required	<input type="checkbox"/> N/A
7	Temporary drain inlet protection (e.g., filter sock, berm, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> Action required	<input type="checkbox"/> N/A
8	Conveyance channels and outlets stabilization BMPs (e.g., channel lining, nets and blankets, etc.)	<input type="checkbox"/> Yes	<input type="checkbox"/> Action required	<input type="checkbox"/> N/A
9B	Concrete washout area	<input type="checkbox"/> Yes	<input type="checkbox"/> Action required	<input type="checkbox"/> N/A

Notes/Comments:

Summary of Corrective Actions

Are corrective actions needed?

Yes, see following table

No, none required

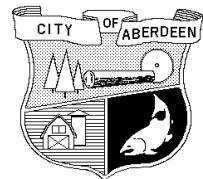
Item#	Description and Location	Action Required	Completion Date	Initials

City of Aberdeen

Public Works Department

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Aberdeen, WA 98520



Construction of Permanent Stormwater BMPs/Facilities Inspection Checklist

Objective: Inspections conducted during construction activities should verify proper installation and maintenance of permanent best management practices (BMPs).

Project Information

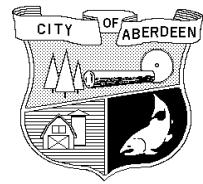
Project Name:	Project/Permit Number:
Location:	
Property Owner Information Owner Name: _____ Owner Phone Number: _____ Owner Email Address: _____	Inspection Information Inspector Name: _____ Date of Inspection: _____ Time of Inspection: _____
Contractor Information Contractor Name: _____ Lead Contact Name: _____ Lead Phone Number: _____ Lead E-mail Address: _____	Certified Erosion and Sediment Control Lead (CESCL) CESCL Name: _____ CESCL Certification Expiration Date: _____ CESCL Phone Number: _____ CESCL E-mail Address: _____
Is the inspection occurring: <input type="checkbox"/> After a holiday? <input type="checkbox"/> On a Friday afternoon? <input type="checkbox"/> During a storm? <input type="checkbox"/> On a Monday morning? <input type="checkbox"/> Before a predicted storm? <input type="checkbox"/> After a storm? (<24 hours)	
Does the contractor have appropriate documentation onsite or within reasonable access to the site? <input type="checkbox"/> Yes <input type="checkbox"/> Site Map/Plan <input type="checkbox"/> Action required <input type="checkbox"/> Construction SWPPP <input type="checkbox"/> N/A <input type="checkbox"/> Soil and Vegetation Management Plan <input type="checkbox"/> <input type="checkbox"/> ESC Plan <input type="checkbox"/> Daily Log <input type="checkbox"/> Discharge monitoring reports (DMRs) <input type="checkbox"/> Other: _____	

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Protection of Permanent Stormwater BMPs/Facilities

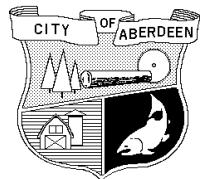
Item #	Inspection Item	Applicable BMPs/Specifications	Satisfactory?
13A	Are the following clearly marked and in good condition? <ul style="list-style-type: none">• LID BMPs (infiltration and dispersion)	<ul style="list-style-type: none">• Flagging• High visibility fence• Silt fence	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13B	Have LID BMPs (infiltration and dispersion) been protected from: <ul style="list-style-type: none">• Siltation• Compaction	<ul style="list-style-type: none">• Construction sequencing	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13C	Were precautions taken in the choice of excavation equipment?	<ul style="list-style-type: none">• Lightweight, low ground-contact pressure equipment• Machinery (e.g., backhoe/excavator); only operated outside permanent BMP (except for permeable pavement)	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13D	Are protective surfaces placed over any permeable pavement areas used for construction staging?	<ul style="list-style-type: none">• Waterproof tarps• Steel plates	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13E	Have proper soil amendments been provided in planting and turf/lawn areas?	<ul style="list-style-type: none">• See Post-Construction Soil Quality and Depth BMP in the Stormwater Management Manual for Western Washington	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13F	Has appropriate vegetation and mulch been installed?	<ul style="list-style-type: none">• Site is permanently stabilized	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A

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Bioretention/Rain Gardens Installation

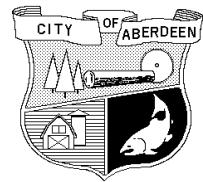
Item #	Inspection Item	Applicable BMPs/Specifications	Satisfactory?
B-1	Are curb and gutters blocked during ____? <input type="checkbox"/> Bioretention soil media (BSM) installation <input type="checkbox"/> Mulch installation <input type="checkbox"/> Planting activities	<ul style="list-style-type: none">Block and gravel barrierSandbag bermRock berm	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
B-2	Did appropriate actions occur following excavation and prior to BSM placement?	<ul style="list-style-type: none">Sediment deposits removedSubgrade raked/scarified to \geq 3 inches	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
B-3	Was the underdrain installed correctly?	<ul style="list-style-type: none">Pipe meets design specsAggregate meets design specsNot wrapped in geotextile fabric	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
B-4	Was the BSM installed correctly?	<ul style="list-style-type: none">Meets design specs< 6 inches per layerCompacted to 85% of maximum dry density	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
B-5	Did appropriate actions occur following BSM installation and prior to planting?	<ul style="list-style-type: none">Compaction inspectedBSM/rain garden soil aerated prior to planting if compaction is observed	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
B-6	Was the BSM installed at the proper grade and the required ponding depth provided below the overflow?	<ul style="list-style-type: none">Cell is not overfilled with mulch and BSMRequired ponding depth is provided	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A

City of Aberdeen

Public Works Department

200 E Market St

Aberdeen, WA 98520



Permeable Pavement Installation

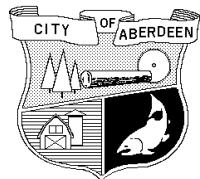
Item #	Inspection Item	Applicable BMPs/ Specifications	Satisfactory?
P-1	Did appropriate actions occur following excavation and prior to aggregate base placement?	<ul style="list-style-type: none">• Sediment deposits removed• Subgrade raked/scarified to \geq 3 inches	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-2	Was the subgrade properly prepared and protected?	<ul style="list-style-type: none">• Planned construction sequencing followed• Subgrade inspected and approved prior to placement of base materials• Subgrade not used for construction access or staging	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-3	Was the impermeable liner installed correctly?	<ul style="list-style-type: none">• Liner meets design specs• No tears• \geq 2 inches of slack where liner is mechanically fastened• Attached to perimeter wall after backfilling• Liner properly bedded to avoid punctures	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-4	Was the subsurface overflow installed correctly?	<ul style="list-style-type: none">• Pipe meets design specs• Aggregate meets design specs• Not wrapped in geotextile fabric	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-5	Was the cleanout installed correctly?	<ul style="list-style-type: none">• Cleanout meets design specs• Covers are installed and watertight	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-6	Was the orifice installed correctly?	<ul style="list-style-type: none">• Orifice plate installed in the appropriate location per design specs	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-7	Did appropriate actions occur following excavation and prior to aggregate base placement?	<ul style="list-style-type: none">• Base materials protected from contamination• Contaminated material replaced• Aggregate materials meet design specs	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-8	Was the water quality treatment course (optional layer) installed correctly?	<ul style="list-style-type: none">• Compaction within the appropriate range	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-9	Did appropriate actions occur prior to wearing course placement?	<ul style="list-style-type: none">• Materials and admixtures protected from contamination• Materials protected from damage by equipment, vehicles, and/or weather	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A

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Permeable Pavement Installation

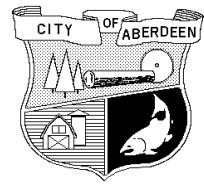
Item #	Inspection Item	Applicable BMPs/ Specifications	Satisfactory?
P-10	Was the porous asphalt installed correctly?	<ul style="list-style-type: none">Delivered asphalt meets design specs for binder and gradation (verify load tickets)No deviation from design line and gradeUniform surface textureAt least one inspection occurs during installation of porous asphalt	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-11	Was the pervious concrete installed correctly?	<ul style="list-style-type: none">Number and type of National Ready Mixed Concrete Association (NRMCA) certified personnel meets design specsTest panel meets design specsConformance to job mix formula (verify load tickets, plastic unit weight)No deviation from design line and gradeUniform surface texture (no raveling, no areas of smeared paste, free of ridges/cracks)At least one inspection occurs during installation of pervious concrete	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-12	Were the permeable pavers and/or grass/gravel pave installed correctly?	<ul style="list-style-type: none">Meets design specs	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
P-13	Did appropriate actions occur once the pavement was finished and set?	<ul style="list-style-type: none">Pavement covered with plastic to facilitate proper curingCovered with geotextile, steel plates, etc. to protect from other construction activities	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A

City of Aberdeen

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200 E Market St

Aberdeen, WA 98520



Notes/Comments:

Summary of Corrective Actions

Are corrective actions needed?

Yes, see following table

No, none required

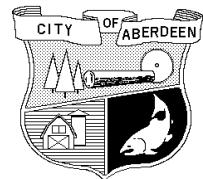
Attach additional page(s) if needed.

City of Aberdeen

Public Works Department

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Post-Construction of Permanent Stormwater BMPs/Facilities Inspection Checklist

Objective: Post-construction inspection(s) should verify proper installation, maintenance, and performance of permanent best management practices (BMPs).

Project Information

Project Name:	Project/Permit Number:
Location:	
Property Owner Information Owner Name: _____ Owner Phone Number: _____ Owner Email Address: _____	Inspection Information Inspector Name: _____ Date of Inspection: _____ Time of Inspection: _____
Contractor Information Contractor Name: _____ Lead Contact Name: _____ Lead Phone Number: _____ Lead E-mail Address: _____	Certified Erosion and Sediment Control Lead (CESCL) CESCL Name: _____ CESCL Certification Expiration Date: _____ CESCL Phone Number: _____ CESCL E-mail Address: _____
Has the required documentation been submitted to the [City/County] prior to formal project turnover? <input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> Unknown	
Date that the stormwater drainage system was last cleaned: _____	
Upcoming Inspections <input type="checkbox"/> Infiltration testing for permanent bioretention or permeable pavement facilities <input type="checkbox"/> Stormwater Performance and Maintenance Bond estimated inspection date: _____ <input type="checkbox"/> N/A	

Permanent Stormwater BMPs/Facilities

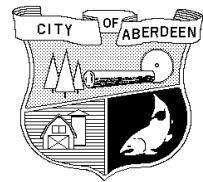
Item #	Inspection Item	Applicable BMPs/Specifications	Satisfactory?
13A	Have LID BMPs (infiltration and dispersion) been protected from: <ul style="list-style-type: none">• Siltation• Compaction	<ul style="list-style-type: none">• Construction sequencing	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13D	Have proper soil amendments been provided in planting and turf/lawn areas?	<ul style="list-style-type: none">• See Post-Construction Soil Quality and Depth BMP in the Stormwater Management Manual for Western Washington	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A
13E	Has appropriate vegetation and mulch been installed?	<ul style="list-style-type: none">• Site is permanently stabilized	<input type="checkbox"/> Yes <input type="checkbox"/> Action required <input type="checkbox"/> N/A

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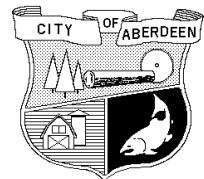
Item #	Inspection Item	Status	Infiltration Test Results (if required)
B-1	Bioretention	<input type="checkbox"/> Facility was installed as designed; no maintenance needed <input type="checkbox"/> Facility was not installed as designed <input type="checkbox"/> Soils were scarified along the dispersion flow path, if disturbed during construction <input type="checkbox"/> Tested infiltration rate (if required) meets design infiltration rate <input type="checkbox"/> Action required <input type="checkbox"/> Maintenance required <input type="checkbox"/> N/A	Tested infiltration rate(s): _____ _____ _____ _____ Design infiltration rate: _____ <i>*Attach additional pages if necessary</i>
P-1	Permeable pavement driveways	<input type="checkbox"/> Facility was installed as designed; no maintenance needed <input type="checkbox"/> Facility was not installed as designed <input type="checkbox"/> Tested infiltration rate (if required; using the 5-gallon bucket test, ASTM C1701, or ASTM C1781) meets design infiltration rate <input type="checkbox"/> Action required <input type="checkbox"/> Maintenance required <input type="checkbox"/> N/A	5-gallon bucket test observations: <input type="checkbox"/> Scant amount of puddles runs off the surface <input type="checkbox"/> Significant runoff occurs ASTM C1701 or ASTM C1781 results: Tested infiltration rate(s): _____ _____ _____ Design infiltration rate: _____ <i>*Attach additional pages if necessary</i>
P-2	Permeable pavement roads and parking lots	<input type="checkbox"/> Facility was installed as designed; no maintenance needed <input type="checkbox"/> Facility was not installed as designed <input type="checkbox"/> Tested infiltration rate (if required; using ASTM C1701 or ASTM C1781) meets design infiltration rate <input type="checkbox"/> Action required <input type="checkbox"/> Maintenance required <input type="checkbox"/> N/A	ASTM C1701 or ASTM C1781 results: Tested infiltration rate(s): _____ _____ _____ Design infiltration rate: _____ <i>*Attach additional pages if necessary</i>
A-1	Other permanent BMPs/facilities	<input type="checkbox"/> Facility was installed as designed; no maintenance needed <input type="checkbox"/> Facility was not installed as designed <input type="checkbox"/> Maintenance required <input type="checkbox"/> Action required <input type="checkbox"/> N/A	

City of Aberdeen

Public Works Department

200 E Market St

Aberdeen, WA 98520



Notes/Comments:

Summary of Corrective Actions

Are corrective actions needed?

Yes, see following table

No, none required

Attach additional page(s) if needed.

Municipal Operations and Maintenance (O&M) Program

City of Aberdeen Public Works

Created: December 2017

Updated: December 2018

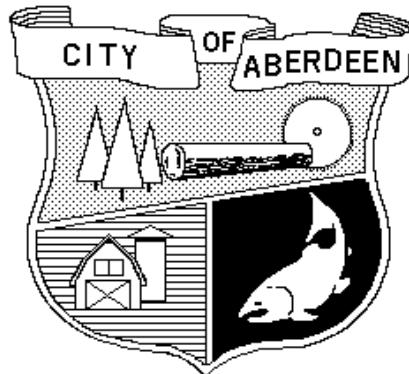


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Appendices

Appendix A: Municipal Facility Inspection Program

Appendix B: V-4.6 Maintenance Standards for Drainage Facilities

Appendix C: Pollution Prevention and Operation & Maintenance for Municipal Field Operations

Appendix D: Stormwater Pollution Prevention Plan for City Owned Facilities

Municipal O&M Program

Overview

The City of Aberdeen Public Works Department is primarily responsible for the maintenance of the City's stormwater infrastructure. This includes inspecting and cleaning catch basins and manholes, clearing roadside ditches, and maintaining stormwater treatment and disposal facilities. The City's municipal employees engage in a number of activities that may positively or negatively impact water quality. The City's goal is to conduct municipal operations and maintenance procedures in a manner that reduces the discharge of pollutants to the maximum extent practicable (MEP) using all known, available, and reasonable methods of prevention, control, and treatment (AKART).

This Municipal O&M Program includes stormwater pollution prevention and good housekeeping practices that should be utilized during municipal maintenance activities in the following areas:

- Stormwater Collection and Conveyance System,
- Roads, Highways, and Parking Lots,
- Vehicle Fleets,
- Municipal Buildings,
- Other Facilities and Activities.

The National Pollutant Discharge Elimination System (NPDES) regulates the discharge of stormwater under the authority of the Federal Clean Water Act. Washington State Department of Ecology (Ecology) has the designated authority to administer NPDES within the State of Washington. Under this authority, Ecology has issued NPDES permits regulating the discharge of stormwater. The City of Aberdeen is under regulation of the Western Washington Phase II Municipal Stormwater Permit (Phase II Permit) issued on September 1, 2012. The current Phase II permit will remain in effect until July 1, 2019, after which a new Phase II permit will be issued. Under the Phase II Permit, the City of Aberdeen is required to develop and implement a Municipal Operations and Maintenance (O&M) Program to protect water quality and reduce the discharge of pollutants into receiving waters. Receiving waters include surface waters, groundwater, and the stormwater collection and conveyance system.

The Phase II Permit sets forth the following minimum performance measures required to be compliant with program requirements. The following elements are described throughout the remainder of this document.

- a) Maintenance Standards**
- b) Annual Inspection of Municipal Permanent Treatment & Flow Control Facilities**
- c) Spot Checks of Municipal Permanent Treatment & Flow Control Facilities**
- d) Inspection of all Municipal Catch Basins and Inlets**
- e) Inspection Program**
- f) Practices, Policies and Procedures to Reduce Stormwater Impacts**
- g) O&M Staff Training**
- h) Stormwater Pollution Prevention Plan for City Owned Facilities**
- i) O&M Recordkeeping**

a) Maintenance Standards

The City of Aberdeen has adopted the maintenance standards defined in Chapter 4 of Volume V of the Stormwater Management Manual for Western Washington, included in Appendix B. The purpose of these maintenance standards is to determine if maintenance is required. The maintenance standard is not a measure of the facility's required condition at all times between inspections.

These standards are used by City staff to determine if and when maintenance is required on various aspects of the City's stormwater infrastructure. It also outlines the maintenance procedures to be conducted when maintenance thresholds are exceeded.

The Phase II Permit sets a required timeframe of maintenance for municipal stormwater facilities exceeding the maintenance standards. Unless there are circumstances beyond the City's control, when an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed:

- Within 1 year for typical maintenance of facilities, except catch basins.
- Within 6 months for catch basins.
- Within 2 years for maintenance that requires capital construction of less than \$25,000.

Circumstances beyond the City's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. For each exceedance of the required timeframe, the City shall document the circumstances and how they were beyond their control.

b) Annual Inspection of Municipal Permanent Treatment & Flow Control Facilities

The Phase II Permit requires the City of Aberdeen to perform annual inspections of all municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities, and take appropriate maintenance action in accordance with the City adopted maintenance standards.

City crews perform annual inspections of all municipally owned or operated stormwater treatment and flow control BMPs/facilities. Maintenance is performed on these facilities in accordance with the adopted maintenance standards. Table 1 below provides a list of BMPs/Facilities in which the City owns or operates. The Municipal Facility Inspection Program provides additional facility information and is included in Appendix A.

Table 1: Current municipal permanent stormwater treatment and flow control BMPs/facilities.

Facility Name	Location
Highland Detention Vaults (3)	Highland Development
Basich Ponds (2)	Highland Development
Duffy Street Detention Basin	2116 W 1 st St
Franklin Field Detention Basin	450 W Market St
Gateway Center Parking Lot - Water Quality Vault	416 Wishkah St

c) Spot Checks of Municipal Permanent Treatment & Flow Control Facilities

The Phase II Permit requires the City of Aberdeen to perform spot checks of potentially damaged permanent stormwater treatment and flow control BMPs/facilities after major storm events (24-hour storm event with a 10 year or greater recurrence interval). If the spot checks indicate widespread damage/maintenance needs, the City shall inspect all stormwater treatment and flow control BMPs/facilities that may be affected. Repairs or appropriate maintenance action is to be performed in accordance with the City adopted maintenance standards established above, based on the results of the inspections.

In the occurrence of a major storm event, a trained City Stormwater Inspector shall spot check at least 3 municipally owned permanent stormwater treatment and flow control BMPs/facilities to check for potential damage or maintenance needs.

d) Inspection of all Municipal Catch Basins and Inlets

The Phase II Permit requires the City of Aberdeen to perform inspection of all catch basins and inlets owned or operated by the City at least once within the current permit cycle (Sept. 2012 - June, 2018) and every two years thereafter. The catch basins and inlets shall be cleaned if the inspection indicates cleaning is needed to comply with the City adopted maintenance standards.

The total number of municipally owned or operated catch basin and inlets in the City of Aberdeen is 3,699 according to the GIS mapping software operated by the Engineering Division. The City is working to develop a “circuit based” alternative inspection method, whereby 25% of catch basins and inlets within each circuit are inspected annually to identify maintenance needs. While this alternative inspection method is being developed, the Engineering Division has employed a part time intern to inspect catch basins in high sediment accumulation areas.

e) Municipal Facility Inspection Program

The Phase II Permit requires the City of Aberdeen to establish an inspection program designed to inspect all sites and achieve at least 95% of inspections from sections b, c, and d. The Municipal Facility Inspection Program is included in Appendix A for reference.

Inspection and Maintenance Process

The inspection process of municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities includes the following:

- Inspect the permanent stormwater treatment or flow control BMP/facility during the scheduled inspection timeframe.
- Ensure the applicable City inspection form is utilized. The inspection forms to be used on municipally owned or operated facilities are included in Appendix A.
- If maintenance actions are necessary, take note and schedule maintenance based on priority.

f) Practices, Policies and Procedures to Reduce Stormwater Impacts

The Phase II Permit requires the City of Aberdeen to implement practices, policies and procedures to reduce stormwater impacts associated with runoff from all City owned or maintained lands, and road maintenance activities under the functional control of the City. Lands owned or maintained by the City include, but are not limited to, streets, parking lots, roads, highways, buildings, parks, open space, road right of-ways, maintenance yards, and stormwater treatment and flow control BMPs/facilities. The following activities are required to be addressed:

- Pipe cleaning
- Cleaning of culverts that convey stormwater in ditch systems
- Ditch maintenance
- Street cleaning
- Road repair and resurfacing, including pavement grinding
- Snow and ice control
- Utility installation
- Pavement striping maintenance
- Maintaining roadside areas, including vegetation management
- Dust control
- Application of fertilizers, pesticides, and herbicides according to the instructions for their use, including reducing nutrients and pesticides using alternatives that minimize environmental impacts
- Sediment and erosion control
- Landscape maintenance and vegetation disposal
- Trash and pet waste management
- Building exterior cleaning and maintenance

The City has compiled a field operations manual for municipal operation and maintenance activities, along with a description of the activity and BMPs to be utilized for the individual action. The manual, Pollution Prevention and Operation & Maintenance for Municipal Field Operations, addresses the above activities and includes the City's practices, policies and procedures in effect to reduce stormwater impacts associated with runoff from all City owned or maintained lands, and road maintenance activities under the functional control of the City. The field operations manual is included in Appendix C.

g) O&M Staff Training

Training Lead

For those staff responsible for implementing the O&M program, on the job training will be managed by the City's O&M program manager. The program manager will manage and assign training as described below.

Detailed Training

Detailed training will be assigned to those individuals specifically involved in facility inspections and maintenance procedures.

General Training

General training targets City field staff that would have exposure to the facilities and could identify maintenance needs including staff from the following departments: Street, Facilities Maintenance, Traffic, Sewer and Stormwater Maintenance. General training will be via PowerPoint presentation and printed material distributed to staff at staff meetings. DVD, print or webcast material may be distributed if the need arises as the program develops.

h) Stormwater Pollution Prevention Plan for City Owned Facilities

The Phase II Permit requires the City of Aberdeen to create a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this Permit that are not required to have coverage under the General NPDES Permit for Stormwater Discharges Associated with Industrial Activities or another NPDES permit that authorizes stormwater discharges associated with the activity. The SWPPP for City Owned Facilities is included in Appendix D for reference.

i) O&M Recordkeeping

All City performed inspections and maintenance actions performed shall be documented and retained according to the City's recordkeeping policy.

Appendix A – Municipal Facility Inspection Program

Municipal Facility Inspection Program

City of Aberdeen Public Works

Created: December 2018

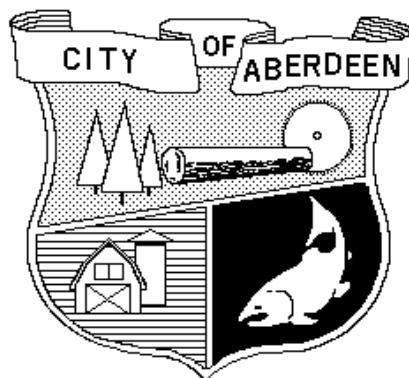


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Attachments

Appendix A: Municipal Facility Inspection Checklist

Municipal Facility Inspection Program

Overview

The City of Aberdeen Public Works Department responsible for inspection and maintenance of the City's stormwater infrastructure. This includes inspecting and cleaning catch basins and stormwater treatment and flow control BMPs/facilities. The City's goal is to conduct municipal operations and maintenance procedures in a manner that reduces the discharge of pollutants to the maximum extent practicable (MEP) using all known, available, and reasonable methods of prevention, control, and treatment (AKART).

This Municipal Facility Inspection Program includes stormwater pollution prevention and good housekeeping practices that should be utilized during municipal maintenance activities in the following areas:

- Stormwater Collection and Conveyance System,
- Roads, Highways, and Parking Lots,
- Vehicle Fleets,
- Municipal Buildings,
- Other Facilities and Activities.

The City of Aberdeen is under regulation of the Western Washington Phase II Municipal Stormwater Permit (Phase II Permit) issued on September 1, 2012. The current Phase II permit will remain in effect until July 1, 2019, after which a new Phase II permit will be issued. Under the Phase II Permit, the City of Aberdeen is required to develop and implement a Municipal Facility Inspection Program to establish inspection policies that will protect water quality, enhance flow control effectiveness, and reduce the discharge of pollutants into receiving waters.

The Phase II Permit requires the City of Aberdeen to establish a municipal inspection program designed to inspect all sites and achieve at least 95% of inspections from sections S5.C.5.b, c, and d of the Phase II Permit. Below are sections b, c, and d which are covered in this program.

- b) Annual Inspection of Municipal Permanent Treatment & Flow Control Facilities**
- c) Spot Checks of Municipal Permanent Treatment & Flow Control Facilities**
- d) Inspection of all Municipal Catch Basins and Inlets**

Annual Inspection of Municipal Permanent Treatment & Flow Control Facilities

The Phase II Permit requires the City of Aberdeen to perform annual inspections of all municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities, and take appropriate maintenance action in accordance with the City adopted maintenance standards.

City crews perform annual inspections of all municipally owned or operated stormwater treatment and flow control BMPs/facilities. Maintenance is performed on these facilities in accordance with the adopted maintenance standards. City crews complete the Municipal Facility Inspection

Checklist when inspecting these facilities. The checklist is provided in Attachment 1. Table 1 below contains information about the municipally owned or operated stormwater treatment and flow control BMPs/facilities

Table 1: Municipally owned or operated stormwater treatment and flow control BMPs/facilities

Facility ID	Address	Lat (N)	Long (W)	Facility Type	Facility Mfr.	QTY	Insp. Freq.
Basich Pond 1	1120 Basich Blvd	46° 58' 57"	123° 50' 40"	Wetpond	-	1	Annual
Basich Pond 2	2900 Basich Blvd	46° 59' 15"	123° 50' 25"	Wetpond	-	1	Annual
Highland Vault 2SW	-	46° 58' 53"	123° 50' 30"	Flow Control Vault	-	1	Annual
Highland Vault 2SE	-	46° 58' 52"	123° 50' 15"	Flow Control Vault	-	1	Annual
Highland Vault 2N	-	46° 59' 02"	123° 50' 26"	Flow Control Vault	-	1	Annual
Highland Vault 3SW	-	46° 59' 08"	123° 50' 25"	Flow Control Vault	-	1	Annual
Highland Vault 3SE	-	46° 59' 08"	123° 50' 13"	Flow Control Vault	-	1	Annual
Duffy St Detention Basin	2200 1st Ave	46° 58' 12"	123° 50' 34"	Wetpond	-	1	Annual
Franklin Field Detention Basin	450 W Market St	46° 58' 24"	123° 49' 24"	Detention Basin	-	1	Annual
Gateway Parking Lot Vault	490 E Wishkah St	46° 58' 39"	123° 48' 08"	Water Quality Vault MWS-L-6-8-V	Modular Wetlands	1	Annual

Spot Checks of Municipal Permanent Treatment & Flow Control Facilities

The Phase II Permit requires the City of Aberdeen to perform spot checks of potentially damaged permanent stormwater treatment and flow control BMPs/facilities after major storm events (24-hour storm event with a 10 year or greater recurrence interval). If the spot checks indicate widespread damage/maintenance needs, the City shall inspect all stormwater treatment and flow control BMPs/facilities that may be affected. Repairs or appropriate maintenance action is to be performed in accordance with the City adopted maintenance standards, based on the results of the inspections.

In the occurrence of a major storm event, a trained City Stormwater Inspector shall spot check at least 3 municipally owned permanent stormwater treatment and flow control BMPs/facilities to check for potential damage or maintenance needs.

Inspection of all Municipal Catch Basins and Inlets

The Phase II Permit requires the City of Aberdeen to perform inspection of all catch basins and inlets owned or operated by the City at least once within the current permit cycle (Sept. 2012 - June, 2018) and every two years thereafter. The catch basins and inlets shall be cleaned if the inspection indicates cleaning is needed to comply with the City adopted maintenance standards.

The total number of municipally owned or operated catch basin and inlets in the City of Aberdeen is 3,699 according to the GIS mapping software operated by the Engineering Division. The City is working to develop a “circuit based” alternative inspection method, whereby 25% of catch basins and inlets within each circuit are inspected annually to identify maintenance needs. While this alternative inspection method is being developed, the Engineering Division has employed a part time intern to inspect catch basins in high sediment accumulation areas.

Attachment 1 – Municipal Facility Inspection Checklist



Municipal Facility Stormwater Inspection Report
City of Aberdeen - Stormwater Department
1101 W. Heron Street, Aberdeen, WA 98520

Facility No.			Inspector:		
Address / Location			Date:		
Inspection Type	Annual Inspection		Last Rainfall	< 24 Hours	<input type="checkbox"/>
	Routine Maint.			1-3 Days	<input type="checkbox"/>
	Public Concern			> 1 Week	<input type="checkbox"/>
	Follow Up				
Items Inspected	Maintenance		Observations / Comments		
	Req'd	Not Req'd			
I. Ponds					
A	Trash & Debris				
B	Poisonous/Invasive Vegetation				
C	Visible Pollution				
D	Grass/Ground Cover				
E	Rodent Holes				
F	Insects				
G	Tree Growth				
H	Surface Erosion				
I	Sediment				
J	Emergency Spillway				
K	Fencing				
L	Gates				
M	Access Road				
N	Rock Filters				
O	Tide Gate				
P	Other				
II. Closed Detention Systems (Pipes/Tanks/Vaults)					
A	Air Vents				
B	Pipe Section/Tank				
	1 Sediment				
	2 Cracks				
	3 Structural Damage				
C	Other				
III. Control Structure / Restrictor Tee					
A	Sediment < 1.25'				
B	Structural Integrity				
C	Cleanout Gate				
	1 Operational				
	2 Chained				
D	Orifice Plate				
	1 In Place				
	2 Obstruction Free				
IV. Catch Basins / Manholes					
A	Grate Clear				
B	Sump < 1/3 Full				
C	Structural Integrity				
D	Vegetation				
E	Visible Polution				
F	Cover				
G	Ladder				
H	Other				

Appendix B – V-4.6 Maintenance Standards for Drainage Facilities

V-4.6 Maintenance Standards for Drainage Facilities

The facility-specific maintenance standards contained in this section are intended to be conditions for determining if maintenance actions are required as identified through inspection. They are not intended to be measures of the facility's required condition at all times between inspections. In other words, exceedence of these conditions at any time between inspections and/or maintenance does not automatically constitute a violation of these standards. However, based upon inspection observations, the inspection and maintenance schedules shall be adjusted to minimize the length of time that a facility is in a condition that requires a maintenance action.

Table V-4.5.2(1) Maintenance Standards - Detention Ponds

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
General	Trash & Debris	<p>Any trash and debris which exceed 1 cubic feet per 1,000 square feet. In general, there should be no visual evidence of dumping.</p> <p>If less than threshold all trash and debris will be removed as part of next scheduled maintenance.</p>	Trash and debris cleared from site
	Poisonous Vegetation and noxious weeds	<p>Any poisonous or nuisance vegetation which may constitute a hazard to maintenance personnel or the public.</p> <p>Any evidence of noxious weeds as defined by State or local regulations.</p> <p>(Apply requirements of adopted IPM policies for the use of herbicides).</p>	<p>No danger of poisonous vegetation where maintenance personnel or the public might normally be.</p> <p>(Coordinate with local health department)</p> <p>Complete eradication of noxious weeds may not be possible.</p> <p>Compliance with State or local eradication policies required</p>

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
	Contaminants and Pollution	Any evidence of oil, gasoline, contaminants or other pollutants (Coordinate removal/cleanup with local water quality response agency).	No contaminants or pollutants present.
	Rodent Holes	Any evidence of rodent holes if facility is acting as a dam or berm, or any evidence of water piping through dam or berm via rodent holes.	Rodents destroyed and dam or berm repaired. (Coordinate with local health department; coordinate with Ecology Dam Safety Office if pond exceeds 10 acre-feet.)
	Beaver Dams	Dam results in change or function of the facility.	Facility is returned to design function. (Coordinate trapping of beavers and removal of dams with appropriate permitting agencies)
	Insects	When insects such as wasps and hornets interfere with maintenance activities.	Insects destroyed or removed from site. Apply insecticides in compliance with adopted IPM policies

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
	Tree Growth and Hazard Trees	<p>Tree growth does not allow maintenance access or interferes with maintenance activity (i.e., slope mowing, silt removal, vacating, or equipment movements). If trees are not interfering with access or maintenance, do not remove</p> <p>If dead, diseased, or dying trees are identified</p> <p>(Use a certified Arborist to determine health of tree or removal requirements)</p>	<p>Trees do not hinder maintenance activities. Harvested trees should be recycled into mulch or other beneficial uses (e.g., alders for firewood).</p> <p>Remove hazard Trees</p>
Side Slopes of Pond	Erosion	<p>Eroded damage over 2 inches deep where cause of damage is still present or where there is potential for continued erosion.</p> <p>Any erosion observed on a compacted berm embankment.</p>	<p>Slopes should be stabilized using appropriate erosion control measure(s); e.g., rock reinforcement, planting of grass, compaction.</p> <p>If erosion is occurring on compacted berms a licensed civil engineer should be consulted to resolve source of erosion.</p>
Storage Area	Sediment	Accumulated sediment that exceeds 10% of the designed pond depth unless otherwise specified or affects inletting or outletting condition of the facility.	Sediment cleaned out to designed pond shape and depth; pond reseeded if necessary to control erosion.
	Liner (if Applicable)	Liner is visible and has more than three 1/4-inch holes in it.	Liner repaired or replaced. Liner is fully covered.

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
Ponds Berms (Dikes)	Settlements	<p>Any part of berm which has settled 4 inches lower than the design elevation</p> <p>If settlement is apparent, measure berm to determine amount of settlement</p> <p>Settling can be an indication of more severe problems with the berm or outlet works. A licensed civil engineer should be consulted to determine the source of the settlement.</p>	Dike is built back to the design elevation.
	Piping	<p>Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue.</p> <p>(Recommend a Geotechnical engineer be called in to inspect and evaluate condition and recommend repair of condition.)</p>	Piping eliminated. Erosion potential resolved.
Emergency Overflow/ Spillway and Berms over 4 feet in height	Tree Growth	<p>Tree growth on emergency spillways creates blockage problems and may cause failure of the berm due to uncontrolled overtopping.</p> <p>Tree growth on berms over 4 feet in height may lead to piping through the berm which could lead to failure of the berm.</p>	Trees should be removed. If root system is small (base less than 4 inches) the root system may be left in place. Otherwise the roots should be removed and the berm restored. A licensed civil engineer should be consulted for proper berm/spillway restoration.

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
	Piping	<p>Discernable water flow through pond berm. Ongoing erosion with potential for erosion to continue.</p> <p>(Recommend a Geotechnical engineer be called in to inspect and evaluate condition and recommend repair of condition.)</p>	Piping eliminated. Erosion potential resolved.
Emergency Overflow/Spillway	Emergency Overflow/Spillway	<p>Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out flow path of spillway.</p> <p>(Rip-rap on inside slopes need not be replaced.)</p>	Rocks and pad depth are restored to design standards.
	Erosion	See "Side Slopes of Pond"	

Table V-4.5.2(2) Maintenance Standards - Infiltration

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
General	Trash & Debris	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Poisonous/Noxious Vegetation	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Contaminants and Pollution	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Rodent Holes	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1)

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
Storage Area	Sediment	<p>Water ponding in infiltration pond after rainfall ceases and appropriate time allowed for infiltration. Treatment basins should infiltrate Water Quality Design Storm Volume within 48 hours, and empty within 24 hours after cessation of most rain events.</p> <p>(A percolation test pit or test of facility indicates facility is only working at 90% of its designed capabilities. Test every 2 to 5 years. If two inches or more sediment is present, remove).</p>	Sediment is removed and/or facility is cleaned so that infiltration system works according to design.
Filter Bags (if applicable)	Filled with Sediment and Debris	Sediment and debris fill bag more than 1/2 full.	Filter bag is replaced or system is redesigned.
Rock Filters	Sediment and Debris	By visual inspection, little or no water flows through filter during heavy rain storms.	Gravel in rock filter is replaced.
Side Slopes of Pond	Erosion	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Emergency Overflow Spillway and Berms over 4 feet in height.	Tree Growth	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Piping	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Emergency Overflow Spillway	Rock Missing	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Erosion	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
Pre-settling Ponds and Vaults	Facility or sump filled with Sediment and/or debris	6" or designed sediment trap depth of sediment.	Sediment is removed.

Table V-4.5.2(3) Maintenance Standards - Closed Detention Systems (Tanks/Vaults)

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Storage Area	Plugged Air Vents	One-half of the cross section of a vent is blocked at any point or the vent is damaged.	Vents open and functioning.
	Debris and Sediment	Accumulated sediment depth exceeds 10% of the diameter of the storage area for 1/2 length of storage vault or any point depth exceeds 15% of diameter. (Example: 72-inch storage tank would require cleaning when sediment reaches depth of 7 inches for more than 1/2 length of tank.)	All sediment and debris removed from storage area.
	Joints Between Tank/Pipe Section	Any openings or voids allowing material to be transported into facility. (Will require engineering analysis to determine structural stability).	All joint between tank/pipe sections are sealed.
	Tank Pipe Bent Out of Shape	Any part of tank/pipe is bent out of shape more than 10% of its design shape. (Review required by engineer to determine structural stability).	Tank/pipe repaired or replaced to design.

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
	Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	<p>Cracks wider than 1/2-inch and any evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determines that the vault is not structurally sound.</p> <p>Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or any evidence of soil particles entering the vault through the walls.</p>	<p>Vault replaced or repaired to design specifications and is structurally sound.</p> <p>No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe.</p>
Manhole	Cover Not in Place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Manhole is closed.
	Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread (may not apply to self-locking lids).	Mechanism opens with proper tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. Intent is to keep cover from sealing off access to maintenance.	Cover can be removed and reinstalled by one maintenance person.
	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.
Catch Basins	See "Catch Basins" (No. 5)	See "Catch Basins" (No. 5).	See "Catch Basins" (No. 5).

Table V-4.5.2(4) Maintenance Standards - Control Structure/Flow Restrictor

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Trash and Debris (Includes Sediment)	Material exceeds 25% of sump depth or 1 foot below orifice plate.	Control structure orifice is not blocked. All trash and debris removed.
	Structural Damage	Structure is not securely attached to manhole wall.	Structure securely attached to wall and outlet pipe.
		Structure is not in upright position (allow up to 10% from plumb).	Structure in correct position.
		Connections to outlet pipe are not watertight and show signs of rust.	Connections to outlet pipe are watertight; structure repaired or replaced and works as designed.
Cleanout Gate	Damaged or Missing	Any holes - other than designed holes - in the structure.	Structure has no holes other than designed holes.
		Cleanout gate is not watertight or is missing.	Gate is watertight and works as designed.
		Gate cannot be moved up and down by one maintenance person.	Gate moves up and down easily and is watertight.
		Chain/rod leading to gate is missing or damaged.	Chain is in place and works as designed.
Orifice Plate	Damaged or Missing	Gate is rusted over 50% of its surface area.	Gate is repaired or replaced to meet design standards.
		Control device is not working properly due to missing, out of place, or bent orifice plate.	Plate is in place and works as designed.
	Obstructions	Any trash, debris, sediment, or vegetation blocking the plate.	Plate is free of all obstructions and works as designed.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Overflow Pipe	Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe.	Pipe is free of all obstructions and works as designed.
Manhole	See "Closed Detention Systems" (No. 3).	See "Closed Detention Systems" (No. 3).	See "Closed Detention Systems" (No. 3).
Catch Basin	See "Catch Basins" (No. 5).	See "Catch Basins" (No. 5).	See "Catch Basins" (No. 5).

Table V-4.5.2(5) Maintenance Standards - Catch Basins

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
General	Trash & Debris	Trash or debris which is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%.	No Trash or debris located immediately in front of catch basin or on grate opening.
		Trash or debris (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe. Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height. Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No trash or debris in the catch basin. Inlet and outlet pipes free of trash or debris. No dead animals or vegetation present within the catch basin.
	Sediment	Sediment (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe.	No sediment in the catch basin

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
	Structure Damage to Frame and/or Top Slab	<p>Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch. (Intent is to make sure no material is running into basin).</p> <p>Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached</p>	<p>Top slab is free of holes and cracks.</p> <p>Frame is sitting flush on the riser rings or top slab and firmly attached.</p>
	Fractures or Cracks in Basin Walls/ Bottom	<p>Maintenance person judges that structure is unsound.</p> <p>Grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.</p>	<p>Basin replaced or repaired to design standards.</p> <p>Pipe is regROUTed and secure at basin wall.</p>
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.
	Vegetation	<p>Vegetation growing across and blocking more than 10% of the basin opening.</p> <p>Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.</p>	<p>No vegetation blocking opening to basin.</p> <p>No vegetation or root growth present.</p>

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
	Contamination and Pollution	See "Detention Ponds" (No. 1).	No pollution present.
Catch Basin Cover	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Catch basin cover is closed
	Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.	Mechanism opens with proper tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. (Intent is keep cover from sealing off access to maintenance.)	Cover can be removed by one maintenance person.
Ladder	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
Metal Grates (If Applicable)	Grate opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.
	Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
	Damaged or Missing.	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.

Table V-4.5.2(6) Maintenance Standards - Debris Barriers (e.g., Trash Racks)

Maintenance Components	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Trash and Debris	Trash or debris that is plugging more than 20% of the openings in the barrier.	Barrier cleared to design flow capacity.
Metal	Damaged/ Missing Bars.	Bars are bent out of shape more than 3 inches.	Bars in place with no bends more than 3/4 inch.
		Bars are missing or entire barrier missing.	Bars in place according to design.
		Bars are loose and rust is causing 50% deterioration to any part of barrier.	Barrier replaced or repaired to design standards.
	Inlet/Outlet Pipe	Debris barrier missing or not attached to pipe	Barrier firmly attached to pipe

Table V-4.5.2(7) Maintenance Standards - Energy Dissipaters

Maintenance Components	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
External:			

Maintenance Components	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Rock Pad	Missing or Moved Rock	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil.	Rock pad replaced to design standards.
	Erosion	Soil erosion in or adjacent to rock pad.	Rock pad replaced to design standards.
Dispersion Trench	Pipe Plugged with Sediment	Accumulated sediment that exceeds 20% of the design depth.	Pipe cleaned/flushed so that it matches design.
	Not Discharging Water Properly	Visual evidence of water discharging at concentrated points along trench (normal condition is a "sheet flow" of water along trench). Intent is to prevent erosion damage.	Trench redesigned or rebuilt to standards.
	Perforations Plugged.	Over 1/2 of perforations in pipe are plugged with debris and sediment.	Perforated pipe cleaned or replaced.
	Water Flows Out Top of "Distributor" Catch Basin.	Maintenance person observes or receives credible report of water flowing out during any storm less than the design storm or its causing or appears likely to cause damage.	Facility rebuilt or redesigned to standards.
	Receiving Area Over-Saturated	Water in receiving area is causing or has potential of causing landslide problems.	No danger of landslides.

Maintenance Components	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
Internal:			
Manhole/Chamber	Worn or Damaged Post, Baffles, Side of Chamber	Structure dissipating flow deteriorates to 1/2 of original size or any concentrated worn spot exceeding one square foot which would make structure unsound.	Structure replaced to design standards.
	Other Defects	See "Catch Basins" (No. 5).	See "Catch Basins" (No. 5).

Table V-4.5.2(8) Maintenance Standards - Typical Biofiltration Swale

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Sediment Accumulation on Grass	Sediment depth exceeds 2 inches.	Remove sediment deposits on grass treatment area of the bio-swale. When finished, swale should be level from side to side and drain freely toward outlet. There should be no areas of standing water once inflow has ceased.
	Standing Water	When water stands in the swale between storms and does not drain freely.	Any of the following may apply: remove sediment or trash blockages, improve grade from head to foot of swale, remove clogged check dams, add underdrains or convert to a wet biofiltration swale.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
	Flow spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed through entire swale width.	Level the spreader and clean so that flows are spread evenly over entire swale width.
	Constant Baseflow	When small quantities of water continually flow through the swale, even when it has been dry for weeks, and an eroded, muddy channel has formed in the swale bottom.	Add a low-flow pea-gravel drain the length of the swale or by-pass the baseflow around the swale.
	Poor Vegetation Coverage	When grass is sparse or bare or eroded patches occur in more than 10% of the swale bottom.	Determine why grass growth is poor and correct that condition. Re-plant with plugs of grass from the upper slope: plant in the swale bottom at 8-inch intervals. Or re-seed into loosened, fertile soil.
	Vegetation	When the grass becomes excessively tall (greater than 10-inches); when nuisance weeds and other vegetation starts to take over.	Mow vegetation or remove nuisance vegetation so that flow not impeded. Grass should be mowed to a height of 3 to 4 inches. Remove grass clippings.
	Excessive Shading	Grass growth is poor because sunlight does not reach swale.	If possible, trim back over-hanging limbs and remove brushy vegetation on adjacent slopes.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
	Inlet/Outlet	Inlet/outlet areas clogged with sediment and/or debris.	Remove material so that there is no clogging or blockage in the inlet and outlet area.
	Trash and Debris Accumulation	Trash and debris accumulated in the bio-swale.	Remove trash and debris from bioswale.
	Erosion/Scouring	Eroded or scoured swale bottom due to flow channelization, or higher flows.	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. If bare areas are large, generally greater than 12 inches wide, the swale should be re-graded and re-seeded. For smaller bare areas, overseed when bare spots are evident, or take plugs of grass from the upper slope and plant in the swale bottom at 8-inch intervals.

Table V-4.5.2(9) Maintenance Standards - Wet Biofiltration Swale

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Sediment Accumulation	Sediment depth exceeds 2-inches in 10% of the swale treatment area.	Remove sediment deposits in treatment area.
	Water Depth	Water not retained to a depth of about 4 inches during the wet season.	Build up or repair outlet berm so that water is retained in the wet swale.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
	Wetland Vegetation	Vegetation becomes sparse and does not provide adequate filtration, OR vegetation is crowded out by very dense clumps of cattail, which do not allow water to flow through the clumps.	Determine cause of lack of vigor of vegetation and correct. Replant as needed. For excessive cattail growth, cut cattail shoots back and compost off-site. Note: normally wetland vegetation does not need to be harvested unless die-back is causing oxygen depletion in downstream waters.
	Inlet/Outlet	Inlet/outlet area clogged with sediment and/or debris.	Remove clogging or blockage in the inlet and outlet areas.
	Trash and Debris Accumulation	See "Detention Ponds" (No. 1).	Remove trash and debris from wet swale.
	Erosion/Scouring	Swale has eroded or scoured due to flow channelization, or higher flows.	Check design flows to assure swale is large enough to handle flows. By-pass excess flows or enlarge swale. Replant eroded areas with fibrous-rooted plants such as <i>Juncus effusus</i> (soft rush) in wet areas or snowberry (<i>Symphoricarpos albus</i>) in dryer areas.

Table V-4.5.2(10) Maintenance Standards - Filter Strips

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
General	Sediment Accumulation on Grass	Sediment depth exceeds 2 inches.	Remove sediment deposits, re-level so slope is even and flows pass evenly through strip.

Maintenance Component	Defect or Problem	Condition When Maintenance is Needed	Recommended Maintenance to Correct Problem
	Vegetation	When the grass becomes excessively tall (greater than 10-inches); when nuisance weeds and other vegetation starts to take over.	Mow grass, control nuisance vegetation, such that flow not impeded. Grass should be mowed to a height between 3-4 inches.
	Trash and Debris Accumulation	Trash and debris accumulated on the filter strip.	Remove trash and Debris from filter.
	Erosion/Scouring	Eroded or scoured areas due to flow channelization, or higher flows.	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. The grass will creep in over the rock in time. If bare areas are large, generally greater than 12 inches wide, the filter strip should be re-graded and re-seeded. For smaller bare areas, overseed when bare spots are evident.
	Flow spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed through entire filter width.	Level the spreader and clean so that flows are spread evenly over entire filter width.

Table V-4.5.2(11) Maintenance Standards - Wetponds

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Water level	First cell is empty, doesn't hold water.	Line the first cell to maintain at least 4 feet of water. Although the second cell may drain, the first cell must remain full to control turbulence of the incoming flow and reduce sediment resuspension.
	Trash and Debris	Accumulation that exceeds 1 CF per 1000-SF of pond area.	Trash and debris removed from pond.
	Inlet/Outlet Pipe	Inlet/Outlet pipe clogged with sediment and/or debris material.	No clogging or blockage in the inlet and outlet piping.
	Sediment Accumulation in Pond Bottom	Sediment accumulations in pond bottom that exceeds the depth of sediment zone plus 6-inches, usually in the first cell.	Sediment removed from pond bottom.
	Oil Sheen on Water	Prevalent and visible oil sheen.	Oil removed from water using oil-absorbent pads or vactor truck. Source of oil located and corrected. If chronic low levels of oil persist, plant wetland plants such as <i>Juncus effusus</i> (soft rush) which can uptake small concentrations of oil.
	Erosion	Erosion of the pond's side slopes and/or scouring of the pond bottom, that exceeds 6-inches, or where continued erosion is prevalent.	Slopes stabilized using proper erosion control measures and repair methods.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Settlement of Pond Dike/Berm	Any part of these components that has settled 4-inches or lower than the design elevation, or inspector determines dike/berm is unsound.	Dike/berm is repaired to specifications.
	Internal Berm	Berm dividing cells should be level.	Berm surface is leveled so that water flows evenly over entire length of berm.
	Overflow Spillway	Rock is missing and soil is exposed at top of spillway or outside slope.	Rocks replaced to specifications.

Table V-4.5.2(12) Maintenance Standards - Wetvaults

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Trash/Debris Accumulation	Trash and debris accumulated in vault, pipe or inlet/outlet (includes floatables and non-floatables).	Remove trash and debris from vault.
	Sediment Accumulation in Vault	Sediment accumulation in vault bottom exceeds the depth of the sediment zone plus 6-inches.	Remove sediment from vault.
	Damaged Pipes	Inlet/outlet piping damaged or broken and in need of repair.	Pipe repaired and/or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened or removed, especially by one person.	Pipe repaired or replaced to proper working specifications.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Ventilation	Ventilation area blocked or plugged.	Blocking material removed or cleared from ventilation area. A specified % of the vault surface area must provide ventilation to the vault interior (see design specifications).
	Vault Structure Damage - Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab	Maintenance/inspection personnel determine that the vault is not structurally sound. Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound. Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection staff.	Baffles repaired or replaced to specifications.
	Access Ladder Damage	Ladder is corroded or deteriorated, not functioning properly, not attached to structure wall, missing rungs, has cracks and/or misaligned. Confined space warning sign missing.	Ladder replaced or repaired to specifications, and is safe to use as determined by inspection personnel. Replace sign warning of confined space entry requirements. Ladder and entry notification complies with OSHA standards.

Table V-4.5.2(13) Maintenance Standards - Sand Filters (Above Ground/Open)

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Above Ground (open sand filter)	Sediment Accumulation on top layer	Sediment depth exceeds 1/2-inch.	No sediment deposit on grass layer of sand filter that would impede permeability of the filter section.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Trash and Debris Accumulations	Trash and debris accumulated on sand filter bed.	Trash and debris removed from sand filter bed.
	Sediment/Debris in Clean-Outs	When the clean-outs become full or partially plugged with sediment and/or debris.	Sediment removed from clean-outs.
	Sand Filter Media	Drawdown of water through the sand filter media takes longer than 24-hours, and/or flow through the overflow pipes occurs frequently.	Top several inches of sand are scraped. May require replacement of entire sand filter depth depending on extent of plugging (a sieve analysis is helpful to determine if the lower sand has too high a proportion of fine material).
	Prolonged Flows	Sand is saturated for prolonged periods of time (several weeks) and does not dry out between storms due to continuous base flow or prolonged flows from detention facilities.	Low, continuous flows are limited to a small portion of the facility by using a low wooden divider or slightly depressed sand surface.
	Short Circuiting	When flows become concentrated over one section of the sand filter rather than dispersed.	Flow and percolation of water through sand filter is uniform and dispersed across the entire filter area.
	Erosion Damage to Slopes	Erosion over 2-inches deep where cause of damage is prevalent or potential for continued erosion is evident.	Slopes stabilized using proper erosion control measures.
	Rock Pad Missing or Out of Place	Soil beneath the rock is visible.	Rock pad replaced or rebuilt to design specifications.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Flow Spreader	Flow spreader uneven or clogged so that flows are not uniformly distributed across sand filter.	Spreader leveled and cleaned so that flows are spread evenly over sand filter.
	Damaged Pipes	Any part of the piping that is crushed or deformed more than 20% or any other failure to the piping.	Pipe repaired or replaced.

Table V-4.5.2(14) Maintenance Standards - Sand Filters (Below Ground/Enclosed)

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Below Ground Vault.	Sediment Accumulation on Sand Media Section	Sediment depth exceeds 1/2-inch.	No sediment deposits on sand filter section that which would impede permeability of the filter section.
	Sediment Accumulation in Pre-Settling Portion of Vault	Sediment accumulation in vault bottom exceeds the depth of the sediment zone plus 6-inches.	No sediment deposits in first chamber of vault.
	Trash/Debris Accumulation	Trash and debris accumulated in vault, or pipe inlet/outlet, floatables and non-floatables.	Trash and debris removed from vault and inlet/outlet piping.
	Sediment in Drain Pipes/Cleanouts	When drain pipes, cleanouts become full with sediment and/or debris.	Sediment and debris removed.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Short Circuiting	When seepage/flow occurs along the vault walls and corners. Sand eroding near inflow area.	Sand filter media section re-laid and compacted along perimeter of vault to form a semi-seal. Erosion protection added to dissipate force of incoming flow and curtail erosion.
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired and/or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened, corrosion/deformation of cover. Maintenance person cannot remove cover using normal lifting pressure.	Cover repaired to proper working specifications or replaced.
	Ventilation	Ventilation area blocked or plugged	Blocking material removed or cleared from ventilation area. A specified % of the vault surface area must provide ventilation to the vault interior (see design specifications).
	Vault Structure Damaged; Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab.	Cracks wider than 1/2-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound. Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound. Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Baffles/Internal walls	Baffles or walls corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired to specifications, and is safe to use as determined by inspection personnel.

Table V-4.5.2(15) Maintenance Standards - Manufactured Media Filters

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Below Ground Vault	Sediment Accumulation on Media.	Sediment depth exceeds 0.25-inches.	No sediment deposits which would impede permeability of the compost media.
	Sediment Accumulation in Vault	Sediment depth exceeds 6-inches in first chamber.	No sediment deposits in vault bottom of first chamber.
	Trash/Debris Accumulation	Trash and debris accumulated on compost filter bed.	Trash and debris removed from the compost filter bed.
	Sediment in Drain Pipes/Clean-Outs	When drain pipes, clean-outs, become full with sediment and/or debris.	Sediment and debris removed.
	Damaged Pipes	Any part of the pipes that are crushed or damaged due to corrosion and/or settlement.	Pipe repaired and/or replaced.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
Above Ground Cartridge Type	Access Cover Damaged/Not Working	Cover cannot be opened; one person cannot open the cover using normal lifting pressure, corrosion/deformation of cover.	Cover repaired to proper working specifications or replaced.
	Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound. Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound. Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Baffles	Baffles corroding, cracking warping, and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired and meets specifications, and is safe to use as determined by inspection personnel.
Below Ground Cartridge Type	Media	Drawdown of water through the media takes longer than 1 hour, and/or overflow occurs frequently.	Media cartridges replaced.
	Short Circuiting	Flows do not properly enter filter cartridges.	Filter cartridges replaced.

Table V-4.5.2(16) Maintenance Standards - Baffle Oil/Water Separators (API Type)

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
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Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Monitoring	Inspection of discharge water for obvious signs of poor water quality.	Effluent discharge from vault should be clear with out thick visible sheen.
	Sediment Accumulation	Sediment depth in bottom of vault exceeds 6-inches in depth.	No sediment deposits on vault bottom that would impede flow through the vault and reduce separation efficiency.
	Trash and Debris Accumulation	Trash and debris accumulation in vault, or pipe inlet/outlet, floatables and non-floatables.	Trash and debris removed from vault, and inlet/outlet piping.
	Oil Accumulation	Oil accumulations that exceed 1-inch, at the surface of the water.	Extract oil from vault by vactoring. Disposal in accordance with state and local rules and regulations.
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired or replaced.
	Access Cover Damaged/Not Working	Cover cannot be opened, corrosion/deformation of cover.	Cover repaired to proper working specifications or replaced.
	Vault Structure Damage - Includes Cracks in Walls Bottom, Damage to Frame and/or Top Slab	See "Catch Basins" (No. 5) Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound. Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired and meets specifications, and is safe to use as determined by inspection personnel.

Table V-4.5.2(17) Maintenance Standards - Coalescing Plate Oil/Water Separators

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Monitoring	Inspection of discharge water for obvious signs of poor water quality.	Effluent discharge from vault should be clear with no thick visible sheen.
	Sediment Accumulation	Sediment depth in bottom of vault exceeds 6-inches in depth and/or visible signs of sediment on plates.	No sediment deposits on vault bottom and plate media, which would impede flow through the vault and reduce separation efficiency.
	Trash and Debris Accumulation	Trash and debris accumulated in vault, or pipe inlet/outlet, floatables and non-floatables.	Trash and debris removed from vault, and inlet/outlet piping.
	Oil Accumulation	Oil accumulation that exceeds 1-inch at the water surface.	Oil is extracted from vault using vactroring methods. Coalescing plates are cleaned by thoroughly rinsing and flushing. Should be no visible oil depth on water.

Maintenance Component	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
	Damaged Coalescing Plates	Plate media broken, deformed, cracked and/or showing signs of failure.	A portion of the media pack or the entire plate pack is replaced depending on severity of failure.
	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.	Pipe repaired and or replaced.
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.	Baffles repaired or replaced to specifications.
	Vault Structure Damage - Includes Cracks in Walls, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound. Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or evidence of soil particles entering through the cracks.	Vault replaced or repairs made so that vault meets design specifications and is structurally sound. Vault repaired so that no cracks exist wider than 1/4-inch at the joint of the inlet/outlet pipe.
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.	Ladder replaced or repaired and meets specifications, and is safe to use as determined by inspection personnel.

Table V-4.5.2(18) Maintenance Standards - Catch Basin Inserts

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Sediment Accumulation	When sediment forms a cap over the insert media of the insert and/or unit.	No sediment cap on the insert media and its unit.

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
	Trash and Debris Accumulation	Trash and debris accumulates on insert unit creating a blockage/restriction.	Trash and debris removed from insert unit. Runoff freely flows into catch basin.
	Media Insert Not Removing Oil	Effluent water from media insert has a visible sheen.	Effluent water from media insert is free of oils and has no visible sheen.
	Media Insert Water Saturated	Catch basin insert is saturated with water and no longer has the capacity to absorb.	Remove and replace media insert
	Media Insert-Oil Saturated	Media oil saturated due to petroleum spill that drains into catch basin.	Remove and replace media insert.
	Media Insert Use Beyond Product Life	Media has been used beyond the typical average life of media insert product.	Remove and replace media at regular intervals, depending on insert product.

Table V-4.5.2(19) Maintenance Standards - Media Filter Drain (MFD)

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Sediment accumulation on grass filter strip	Sediment depth exceeds 2 inches or creates uneven grading that interferes with sheet flow.	Remove sediment deposits on grass treatment area of the embankment. When finished, embankment should be level from side to side and drain freely toward the toe of the embankment slope. There should be no areas of standing water once inflow has ceased.

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
	No-vegetation zone/flow spreader	Flow spreader is uneven or clogged so that flows are not uniformly distributed over entire embankment width.	Level the spreader and clean to spread flows evenly over entire embankment width.
	Poor vegetation coverage	Grass is sparse or bare, or eroded patches are observed in more than 10% of the grass strip surface area.	Determine why grass growth is poor and correct the offending condition. Reseed into loosened, fertile soil or compost; or, replant with plugs of grass from the upper slope.
	Vegetation	Grass becomes excessively tall (greater than 10 inches); nuisance weeds and other vegetation start to take over.	Mow vegetation or remove nuisance vegetation to not impede flow. Mow grass to a height of 6 inches.
	Media filter drain mix replacement	Water is seen on the surface of the media filter drain mix long after the storms have ceased. Typically, the 6-month, 24-hour precipitation event should drain within 48 hours. More common storms should drain within 24 hours. Maintenance also needed on a 10-year cycle and during a preservation project.	Excavate and replace all of the media filter drain mix contained within the media filter drain.
	Excessive shading	Grass growth is poor because sunlight does not reach embankment.	If possible, trim back overhanging limbs and remove brushy vegetation on adjacent slopes.
	Trash and debris	Trash and debris have accumulated on embankment.	Remove trash and debris from embankment.

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
	Flooding of Media filter drain	When media filter drain is inundated by flood water	Evaluate media filter drain material for acceptable infiltration rate and replace if media filter drain does not meet long-term infiltration rate standards.

Table V-4.5.2(20) Maintenance Standards - Compost Amended Vegetated Filter Strip (CAVFS)

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Sediment accumulation on grass	Sediment depth exceeds 2 inches.	Remove sediment deposits. Relevel so slope is even and flows pass evenly through strip.
	Vegetation	Grass becomes excessively tall (greater than 10 inches); nuisance weeds and other vegetation start to take over.	Mow grass and control nuisance vegetation so that flow is not impeded. Grass should be mowed to a height of 6 inches.
	Trash and debris	Trash and debris have accumulated on the vegetated filter strip.	Remove trash and debris from filter.

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
	Erosion/scouring	Areas have eroded or scoured due to flow channelization or high flows.	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with a 50/50 mixture of crushed gravel and compost. The grass will creep in over the rock in time. If bare areas are large, generally greater than 12 inches wide, the vegetated filter strip should be regraded and reseeded. For smaller bare areas, overseed when bare spots are evident.
	Flow spreader	Flow spreader is uneven or clogged so that flows are not uniformly distributed over entire filter width.	Level the spreader and clean so that flows are spread evenly over entire filter width

Table V-4.5.2(21) Maintenance Standards - Bioretention Facilities

Maintenance Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Facility Footprint				

Maintenance Component	Recommended Frequency		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Earthen side slopes and berms	B, S		Erosion (gullies/rills) greater than 2 inches deep around inlets, outlet, and alongside slopes	<ul style="list-style-type: none"> • Eliminate cause of erosion and stabilize damaged area (regrade, rock, vegetation, erosion control matting) • For deep channels or cuts (over 3 inches in ponding depth), temporary erosion control measures should be put in place until permanent repairs can be made. • Properly designed, constructed and established facilities with appropriate flow velocities should not have erosion problems except perhaps in extreme events. If erosion problems persist, the following should be reassessed: (1) flow volumes from contributing areas and bioretention facility sizing; (2) flow velocities and gradients within the facility; and (3) flow dissipation and erosion protection strategies at the facility inlet.
	A		Erosion of sides causes slope to become a hazard	Take actions to eliminate the hazard and stabilize slopes
	A, S		Settlement greater than 3 inches (relative to undisturbed sections of berm)	Restore to design height
	A, S		Downstream face of berm wet, seeps or leaks evident	Plug any holes and compact berm (may require consultation with engineer, particularly for larger berms)
	A		Any evidence of rodent holes or water piping in berm	<ul style="list-style-type: none"> • Eradicate rodents (see "Pest control") • Fill holes and compact (may require consultation with engineer, particularly for larger berms)
Concrete sidewalls	A		Cracks or failure of concrete sidewalls	<ul style="list-style-type: none"> • Repair/ seal cracks • Replace if repair is insufficient
Rockery sidewalls	A		Rockery side walls are insecure	Stabilize rockery sidewalls (may require consultation with engineer, particularly for walls 4 feet or greater in height)

Maintenance Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Facility area		All maintenance visits (at least biannually)	Trash and debris present	Clean out trash and debris
Facility bottom area	A, S		Accumulated sediment to extent that infiltration rate is reduced (see "Ponded water") or surface storage capacity significantly impacted	<ul style="list-style-type: none"> Remove excess sediment Replace any vegetation damaged or destroyed by sediment accumulation and removal Mulch newly planted vegetation Identify and control the sediment source (if feasible) If accumulated sediment is recurrent, consider adding presettlement or installing berms to create a forebay at the inlet
		During/after fall leaf drop	Accumulated leaves in facility	Remove leaves if there is a risk to clogging outlet structure or water flow is impeded
Low permeability check dams and weirs	A, S		Sediment, vegetation, or debris accumulated at or blocking (or having the potential to block) check dam, flow control weir or orifice	Clear the blockage
			Erosion and/or undercutting present	Repair and take preventative measures to prevent future erosion and/or undercutting
	A		Grade board or top of weir damaged or not level	Restore to level position

Maintenance Component	Recommended Frequency		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Ponded water	B, S		Excessive ponding water: Water overflows during storms smaller than the design event or ponded water remains in the basin 48 hours or longer after the end of a storm.	<p>Determine cause and resolve in the following order:</p> <ol style="list-style-type: none"> 1. Confirm leaf or debris buildup in the bottom of the facility is not impeding infiltration. If necessary, remove leaf litter/debris. 2. Ensure that underdrain (if present) is not clogged. If necessary, clear underdrain. 3. Check for other water inputs (e.g., groundwater, illicit connections). 4. Verify that the facility is sized appropriately for the contributing area. Confirm that the contributing area has not increased. If steps #1-4 do not solve the problem, the bioretention soil is likely clogged by sediment accumulation at the surface or has become overly compacted. Dig a small hole to observe soil profile and identify compaction depth or clogging front to help determine the soil depth to be removed or otherwise rehabilitated (e.g., tilled). Consultation with an engineer is recommended.

Maintenance Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Bioretention soil media	As needed		Bioretention soil media protection is needed when performing maintenance requiring entrance into the facility footprint	<ul style="list-style-type: none"> Minimize all loading in the facility footprint (foot traffic and other loads) to the degree feasible in order to prevent compaction of bioretention soils. Never drive equipment or apply heavy loads in facility footprint. Because the risk of compaction is higher during saturated soil conditions, any type of loading in the cell (including foot traffic) should be minimized during wet conditions. • Consider measures to distribute loading if heavy foot traffic is required or equipment must be placed in facility. As an example, boards may be placed across soil to distribute loads and minimize compaction. • If compaction occurs, soil must be loosened or otherwise rehabilitated to original design state.
Inlets/Outlets/Pipes				
Splash block inlet	A		Water is not being directed properly to the facility and away from the inlet structure	Reconfigure/ repair blocks to direct water to facility and away from structure
Curb cut inlet/outlet	M during the wet season and before severe storm is forecasted	Weekly during fall leaf drop	Accumulated leaves at curb cuts	Clear leaves (particularly important for key inlets and low points along long, linear facilities)
Pipe inlet/outlet	A		Pipe is damaged	Repair/ replace
	W		Pipe is clogged	Remove roots or debris
	A, S		Sediment, debris, trash, or mulch reducing capacity of inlet/outlet	<ul style="list-style-type: none"> Clear the blockage Identify the source of the blockage and take actions to prevent future blockages
		Weekly during fall leaf drop	Accumulated leaves at inlets/outlets	Clear leaves (particularly important for key inlets and low points along long, linear facilities)

Maintenance Component	Recommended Frequency		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
		A	Maintain access for inspections	<ul style="list-style-type: none"> Clear vegetation (transplant vegetation when possible) within 1 foot of inlets and outlets, maintain access pathways Consultation with a landscape architect is recommended for removal, transplant, or substitution of plants
Erosion control at inlet	A		Concentrated flows are causing erosion	Maintain a cover of rock or cobbles or other erosion protection measure (e.g., matting) to protect the ground where concentrated water enters the facility (e.g., a pipe, curb cut or swale)
Trash rack	S		Trash or other debris present on trash rack	Remove/dispose
	A		Bar screen damaged or missing	Repair/replace
Overflow	A, S		Capacity reduced by sediment or debris	Remove sediment or debris/dispose
Underdrain pipe	Clean pipe as needed	Clean orifice at least biannually (may need more frequent cleaning during wet season)	<ul style="list-style-type: none"> Plant roots, sediment or debris reducing capacity of underdrain Prolonged surface ponding (see "Ponded water") 	<ul style="list-style-type: none"> Jet clean or rotary cut debris/roots from underdrain(s) If underdrains are equipped with a flow restrictor (e.g., orifice) to attenuate flows, the orifice must be cleaned regularly.
Vegetation				

Maintenance Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Facility bottom area and upland slope vegetation	Fall and Spring		Vegetation survival rate falls below 75% within first two years of establishment (unless project O&M manual or record drawing stipulates more or less than 75% survival rate).	<ul style="list-style-type: none"> Determine cause of poor vegetation growth and correct condition Replant as necessary to obtain 75% survival rate or greater. Refer to original planting plan, or approved jurisdictional species list for appropriate plant replacements (See Appendix 3 - Bioretention Plant List, in the LID Technical Guidance Manual for Puget Sound). Confirm that plant selection is appropriate for site growing conditions Consultation with a landscape architect is recommended for removal, transplant, or substitution of plants
Vegetation (general)	As needed		Presence of diseased plants and plant material	<ul style="list-style-type: none"> Remove any diseased plants or plant parts and dispose of in an approved location (e.g., commercial landfill) to avoid risk of spreading the disease to other plants Disinfect gardening tools after pruning to prevent the spread of disease See Pacific Northwest Plant Disease Management Handbook for information on disease recognition and for additional resources Replant as necessary according to recommendations provided for "facility bottom area and upland slope vegetation".

Maintenance Component	Recommended Frequency		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Trees and shrubs		All pruning seasons (timing varies by species)	Pruning as needed	<ul style="list-style-type: none"> Prune trees and shrubs in a manner appropriate for each species. Pruning should be performed by landscape professionals familiar with proper pruning techniques All pruning of mature trees should be performed by or under the direct guidance of an ISA certified arborist
	A		Large trees and shrubs interfere with operation of the facility or access for maintenance	<ul style="list-style-type: none"> Prune trees and shrubs using most current ANSI A300 standards and ISA BMPs. Remove trees and shrubs, if necessary.
	Fall and Spring		Standing dead vegetation is present	<ul style="list-style-type: none"> Remove standing dead vegetation Replace dead vegetation within 30 days of reported dead and dying plants (as practical depending on weather/planting season) If vegetation replacement is not feasible within 30 days, and absence of vegetation may result in erosion problems, temporary erosion control measures should be put in place immediately. Determine cause of dead vegetation and address issue, if possible If specific plants have a high mortality rate, assess the cause and replace with appropriate species. Consultation with a landscape architect is recommended.

Maintenance Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Trees and shrubs adjacent to vehicle travel areas (or areas where visibility needs to be maintained)	Fall and Spring		Planting beneath mature trees	<ul style="list-style-type: none"> When working around and below mature trees, follow the most current ANSI A300 standards and ISA BMPs to the extent practicable (e.g., take care to minimize any damage to tree roots and avoid compaction of soil). Planting of small shrubs or groundcovers beneath mature trees may be desirable in some cases; such plantings should use mainly plants that come as bulbs, bare root or in 4-inch pots; plants should be in no larger than 1-gallon containers.
	Fall and Spring		Presence of or need for stakes and guys (tree growth, maturation, and support needs)	<ul style="list-style-type: none"> Verify location of facility liners and underdrain (if any) prior to stake installation in order to prevent liner puncture or pipe damage Monitor tree support systems: Repair and adjust as needed to provide support and prevent damage to tree. Remove tree supports (stakes, guys, etc.) after one growing season or maximum of 1 year. Backfill stake holes after removal.
Trees and shrubs adjacent to vehicle travel areas (or areas where visibility needs to be maintained)	A		Vegetation causes some visibility (line of sight) or driver safety issues	<ul style="list-style-type: none"> Maintain appropriate height for sight clearance When continued, regular pruning (more than one time/ growing season) is required to maintain visual sight lines for safety or clearance along a walk or drive, consider relocating the plant to a more appropriate location. Remove or transplant if continual safety hazard Consultation with a landscape architect is recommended for removal, transplant, or substitution of plants
Flowering plants		A	Dead or spent flowers present	Remove spent flowers (deadhead)
Perennials		Fall	Spent plants	Cut back dying or dead and fallen foliage and stems

Maintenance Component	Recommended Frequency		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Emergent vegetation		Spring	Vegetation compromises conveyance	Hand rake sedges and rushes with a small rake or fingers to remove dead foliage before new growth emerges in spring or earlier only if the foliage is blocking water flow (sedges and rushes do not respond well to pruning)
Ornamental grasses (perennial)		Winter and Spring	Dead material from previous year's growing cycle or dead collapsed foliage	<ul style="list-style-type: none"> Leave dry foliage for winter interest Hand rake with a small rake or fingers to remove dead foliage back to within several inches from the soil before new growth emerges in spring or earlier if the foliage collapses and is blocking water flow
Ornamental grasses (evergreen)		Fall and Spring	Dead growth present in spring	<ul style="list-style-type: none"> Hand rake with a small rake or fingers to remove dead growth before new growth emerges in spring Clean, rake, and comb grasses when they become too tall Cut back to ground or thin every 2-3 years as needed
Noxious weeds		M (March - October, preceding seed dispersal)	Listed noxious vegetation is present (refer to current county noxious weed list)	<ul style="list-style-type: none"> By law, class A & B noxious weeds must be removed, bagged and disposed as garbage immediately Reasonable attempts must be made to remove and dispose of class C noxious weeds It is strongly encouraged that herbicides and pesticides not be used in order to protect water quality; use of herbicides and pesticides may be prohibited in some jurisdictions Apply mulch after weed removal (see "Mulch")
Weeds		M (March - October, preceding seed dispersal)	Weeds are present	<ul style="list-style-type: none"> Remove weeds with their roots manually with pincer-type weeding tools, flame weeders, or hot water weeders as appropriate Follow IPM protocols for weed management (see "Additional Maintenance Resources" section for more information on IPM protocols)

Maintenance Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Excessive vegetation		Once in early to mid- May and once in early- to mid-September	Low-lying vegetation growing beyond facility edge onto sidewalks, paths, or street edge poses pedestrian safety hazard or may clog adjacent permeable pavement surfaces due to associated leaf litter, mulch, and soil	<ul style="list-style-type: none"> Edge or trim groundcovers and shrubs at facility edge Avoid mechanical blade-type edger and do not use edger or trimmer within 2 feet of tree trunks While some clippings can be left in the facility to replenish organic material in the soil, excessive leaf litter can cause surface soil clogging
		As needed	Excessive vegetation density inhibits stormwater flow beyond design ponding or becomes a hazard for pedestrian and vehicular circulation and safety	<ul style="list-style-type: none"> Determine whether pruning or other routine maintenance is adequate to maintain proper plant density and aesthetics Determine if planting type should be replaced to avoid ongoing maintenance issues (an aggressive grower under perfect growing conditions should be transplanted to a location where it will not impact flow) Remove plants that are weak, broken or not true to form; replace in-kind Thin grass or plants impacting facility function without leaving visual holes or bare soil areas Consultation with a landscape architect is recommended for removal, transplant, or substitution of plants
		As needed	Vegetation blocking curb cuts, causing excessive sediment buildup and flow bypass	Remove vegetation and sediment buildup

Mulch

Maintenance Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Mulch		Following weeding	Bare spots (without mulch cover) are present or mulch depth less than 2 inches	<ul style="list-style-type: none"> Supplement mulch with hand tools to a depth of 2 to 3 inches Replenish mulch per O&M manual. Often coarse compost is used in the bottom of the facility and arborist wood chips are used on side slopes and rim (above typical water levels) Keep all mulch away from woody stems
Watering				
Irrigation system (if any)		Based on manufacturer's instructions	Irrigation system present	Follow manufacturer's instructions for O&M
	A		Sprinklers or drip irrigation not directed/located to properly water plants	Redirect sprinklers or move drip irrigation to desired areas
Summer watering (first year)		Once every 1-2 weeks or as needed during prolonged dry periods	Trees, shrubs and groundcovers in first year of establishment period	<ul style="list-style-type: none"> 10 to 15 gallons per tree 3 to 5 gallons per shrub 2 gallons water per square foot for groundcover areas Water deeply, but infrequently, so that the top 6 to 12 inches of the root zone is moist Use soaker hoses or spot water with a shower type wand when irrigation system is not present <ul style="list-style-type: none"> Pulse water to enhance soil absorption, when feasible Pre-moisten soil to break surface tension of dry or hydrophobic soils/mulch, followed by several more passes. With this method, each pass increases soil absorption and allows more water to infiltrate prior to runoff Add a tree bag or slow-release watering device (e.g., bucket with a perforated bottom) for watering newly installed trees when irrigation system is not present

Maintenance Component	Recommended Frequency		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Summer watering (second and third years)		Once every 2-4 weeks or as needed during prolonged dry periods	Trees, shrubs and groundcovers in second or third year of establishment period	<ul style="list-style-type: none"> • 10 to 15 gallons per tree • 3 to 5 gallons per shrub • 2 gallons water per square foot for groundcover areas • Water deeply, but infrequently, so that the top 6 to 12 inches of the root zone is moist • Use soaker hoses or spot water with a shower type wand when irrigation system is not present <ul style="list-style-type: none"> ◦ Pulse water to enhance soil absorption, when feasible ◦ Pre-moisten soil to break surface tension of dry or hydrophobic soils/mulch, followed by several more passes. With this method, each pass increases soil absorption and allows more water to infiltrate prior to runoff
Summer watering (after establishment)		As needed	Established vegetation (after 3 years)	<ul style="list-style-type: none"> • Plants are typically selected to be drought tolerant and not require regular watering after establishment; however, trees may take up to 5 years of watering to become fully established • Identify trigger mechanisms for drought-stress (e.g., leaf wilt, leaf senescence, etc.) of different species and water immediately after initial signs of stress appear • Water during drought conditions or more often if necessary to maintain plant cover
Pest Control				

Maintenance Component	Recommended Frequency		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Mosquitoes	B, S		Standing water remains for more than 3 days after the end of a storm	<ul style="list-style-type: none"> Identify the cause of the standing water and take appropriate actions to address the problem (see "Ponded water") To facilitate maintenance, manually remove standing water and direct to the storm drainage system (if runoff is from non pollution-generating surfaces) or sanitary sewer system (if runoff is from pollution-generating surfaces) after getting approval from sanitary sewer authority. Use of pesticides or <i>Bacillus thuringiensis israelensis</i> (Bti) may be considered only as a temporary measure while addressing the standing water cause. If overflow to a surface water will occur within 2 weeks after pesticide use, apply for coverage under the Aquatic Mosquito Control NPDES General Permit.
Nuisance animals	As needed		Nuisance animals causing erosion, damaging plants, or depositing large volumes of feces	<ul style="list-style-type: none"> Reduce site conditions that attract nuisance species where possible (e.g., plant shrubs and tall grasses to reduce open areas for geese, etc.) Place predator decoys Follow IPM protocols for specific nuisance animal issues (see "Additional Maintenance Resources" section for more information on IPM protocols) Remove pet waste regularly For public and right-of-way sites consider adding garbage cans with dog bags for picking up pet waste.
Insect pests	Every site visit associated with vegetation management		Signs of pests, such as wilting leaves, chewed leaves and bark, spotting or other indicators	<ul style="list-style-type: none"> Reduce hiding places for pests by removing diseased and dead plants For infestations, follow IPM protocols (see "Additional Maintenance Resources" section for more information on IPM protocols)

Maintenance Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)		
	Inspection	Routine Maintenance				
Note that the inspection and routine maintenance frequencies listed above are recommended by Ecology. They do not supersede or replace the municipal stormwater permit requirements for inspection frequency required of municipal stormwater permittees for "stormwater treatment and flow control BMPs/facilities".						
a Frequency: A = Annually; B = Biannually (twice per year); M = Monthly; W = At least one visit should occur during the wet season (for debris/clog related maintenance, this inspection/maintenance visit should occur in the early fall, after deciduous trees have lost their leaves); S = Perform inspections after major storm events (24-hour storm event with a 10-year or greater recurrence interval).						
IPM - Integrated Pest Management						
ISA - International Society of Arboriculture						

Table V-4.5.2(22) Maintenance Standards - Permeable Pavement

Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Surface/Wearing Course				
Permeable Pavements, all	A, S		Runoff from adjacent pervious areas deposits soil, mulch or sediment on paving	<ul style="list-style-type: none"> • Clean deposited soil or other materials from permeable pavement or other adjacent surfacing • Check if surface elevation of planted area is too high, or slopes towards pavement, and can be regraded (prior to regrading, protect permeable pavement by covering with temporary plastic and secure covering in place) • Mulch and/or plant all exposed soils that may erode to pavement surface

Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Porous asphalt or pervious concrete		A or B	None (routine maintenance)	<p>Clean surface debris from pavement surface using one or a combination of the following methods:</p> <ul style="list-style-type: none"> • Remove sediment, debris, trash, vegetation, and other debris deposited onto pavement (rakes and leaf blowers can be used for removing leaves) • Vacuum/sweep permeable paving installation using: <ul style="list-style-type: none"> ◦ Walk-behind vacuum (sidewalks) ◦ High efficiency regenerative air or vacuum sweeper (roadways, parking lots) ◦ ShopVac or brush brooms (small areas) • Hand held pressure washer or power washer with rotating brushes Follow equipment manufacturer guidelines for when equipment is most effective for cleaning permeable pavement. Dry weather is more effective for some equipment.

Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Ab			Surface is clogged: Ponding on surface or water flows off the permeable pavement surface during a rain event (does not infiltrate)	<ul style="list-style-type: none"> Review the overall performance of the facility (note that small clogged areas may not reduce overall performance of facility) Test the surface infiltration rate using ASTM C1701 as a corrective maintenance indicator. Perform one test per installation, up to 2,500 square feet. Perform an additional test for each additional 2,500 square feet up to 15,000 square feet total. Above 15,000 square feet, add one test for every 10,000 square feet. If the results indicate an infiltration rate of 10 inches per hour or less, then perform corrective maintenance to restore permeability. To clean clogged pavement surfaces, use one or combination of the following methods: <ul style="list-style-type: none"> Combined pressure wash and vacuum system calibrated to not dislodge wearing course aggregate. Hand held pressure washer or power washer with rotating brushes Pure vacuum sweepers <p>Note: If the annual/biannual routine maintenance standard to clean the pavement surface is conducted using equipment from the list above, corrective maintenance may not be needed.</p>
A			Sediment present at the surface of the pavement	<ul style="list-style-type: none"> Assess the overall performance of the pavement system during a rain event. If water runs off the pavement and/or there is ponding then see above. Determine source of sediment loading and evaluate whether or not the source can be reduced/eliminated. If the source cannot be addressed, consider increasing frequency of routine cleaning (e.g., twice per year instead of once per year).

Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
A	Summer		Moss growth inhibits infiltration or poses slip safety hazard	<ul style="list-style-type: none"> • Sidewalks: Use a stiff broom to remove moss in the summer when it is dry • Parking lots and roadways: Pressure wash, vacuum sweep, or use a combination of the two for cleaning moss from pavement surface. May require stiff broom or power brush in areas of heavy moss.
	A		Major cracks or trip hazards and concrete spalling and raveling	<ul style="list-style-type: none"> • Fill potholes or small cracks with patching mixes • Large cracks and settlement may require cutting and replacing the pavement section. Replace in-kind where feasible. Replacing porous asphalt with conventional asphalt is acceptable if it is a small percentage of the total facility area and does not impact the overall facility function. • Take appropriate precautions during pavement repair and replacement efforts to prevent clogging of adjacent porous materials
Interlocking concrete paver blocks and aggregate pavers	A or B		None (routine maintenance)	<p>Clean pavement surface using one or a combination of the following methods:</p> <ul style="list-style-type: none"> • Remove sediment, debris, trash, vegetation, and other debris deposited onto pavement (rakes and leaf blowers can be used for removing leaves) • Vacuum/sweep permeable paving installation using: <ul style="list-style-type: none"> ◦ Walk-behind vacuum (sidewalks) ◦ High efficiency regenerative air or vacuum sweeper (roadways, parking lots) ◦ ShopVac or brush brooms (small areas) <p>Note: Vacuum settings may have to be adjusted to prevent excess uptake of aggregate from paver openings or joints. Vacuum surface openings in dry weather to remove dry, encrusted sediment.</p>

Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Ab			Surface is clogged: Ponding on surface or water flows off the permeable pavement surface during a rain event (does not infiltrate)	<ul style="list-style-type: none"> Review the overall performance of the facility (note that small clogged areas may not reduce overall performance of facility) Test the surface infiltration rate using ASTM C1701 as a corrective maintenance indicator. Perform one test per installation, up to 2,500 square feet. Perform an additional test for each additional 2,500 square feet up to 15,000 square feet total. Above 15,000 square feet, add one test for every 10,000 square feet. If the results indicate an infiltration rate of 10 inches per hour or less, then perform corrective maintenance to restore permeability. Clogging is usually an issue in the upper 2 to 3 centimeters of aggregate. Remove the upper layer of encrusted sediment, and fines, and/or vegetation from openings and joints between the pavers by mechanical means and/or suction equipment (e.g., pure vacuum sweeper). Replace aggregate in paver cells, joints, or openings per manufacturer's recommendations
A			Sediment present at the surface of the pavement	<ul style="list-style-type: none"> Assess the overall performance of the pavement system during a rain event. If water runs off the pavement and/or there is ponding, then see above. Determine source of sediment loading and evaluate whether or not the source can be reduced/eliminated. If the source cannot be addressed, consider increasing frequency of routine cleaning (e.g., twice per year instead of once per year).
Summer			Moss growth inhibits infiltration or poses slip safety hazard	<ul style="list-style-type: none"> Sidewalks: Use a stiff broom to remove moss in the summer when it is dry Parking lots and roadways: Vacuum sweep or stiff broom/power brush for cleaning moss from pavement surface

Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Open-celled paving grid with gravel	A		Paver block missing or damaged	Remove individual damaged paver blocks by hand and replace or repair per manufacturer's recommendations
	A		Loss of aggregate material between paver blocks	Refill per manufacturer's recommendations for interlocking paver sections
	A		Settlement of surface	May require resetting
	A or B		None (routine maintenance)	<ul style="list-style-type: none"> Remove sediment, debris, trash, vegetation, and other debris deposited onto pavement (rakes and leaf blowers can be used for removing leaves) Follow equipment manufacturer guidelines for cleaning surface.
			Aggregate is clogged: Ponding on surface or water flows off the permeable pavement surface during a rain event (does not infiltrate)	<ul style="list-style-type: none"> Use vacuum truck to remove and replace top course aggregate Replace aggregate in paving grid per manufacturer's recommendations
	A		Paving grid missing or damaged	<ul style="list-style-type: none"> Remove pins, pry up grid segments, and replace gravel Replace grid segments where three or more adjacent rings are broken or damaged Follow manufacturer guidelines for repairing surface.
	A		Settlement of surface	May require resetting
	A		Loss of aggregate material in paving grid	Replenish aggregate material by spreading gravel with a rake (gravel level should be maintained at the same level as the plastic rings or no more than 1/4 inch above the top of rings). See manufacturer's recommendations.
	A		Weeds present	<ul style="list-style-type: none"> Manually remove weeds Presence of weeds may indicate that too many fines are present (refer to Actions Needed under "Aggregate is clogged" to address this issue)

Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Open-celled paving grid with grass		A or B	None (routine maintenance)	<ul style="list-style-type: none"> Remove sediment, debris, trash, vegetation, and other debris deposited onto pavement (rakes and leaf blowers can be used for removing leaves) Follow equipment manufacturer guidelines for cleaning surface.
	A _b		Aggregate is clogged: Ponding on surface or water flows off the permeable pavement surface during a rain event (does not infiltrate)	Rehabilitate per manufacturer's recommendations.
	A		Paving grid missing or damaged	<ul style="list-style-type: none"> Remove pins, pry up grid segments, and replace grass Replace grid segments where three or more adjacent rings are broken or damaged Follow manufacturer guidelines for repairing surface.
	A		Settlement of surface	May require resetting
	A		Poor grass coverage in paving grid	<ul style="list-style-type: none"> Restore growing medium, reseed or plant, aerate, and/or amend vegetated area as needed Traffic loading may be inhibiting grass growth; reconsider traffic loading if feasible
		As needed	None (routine maintenance)	Use a mulch mower to mow grass
		A	None (routine maintenance)	<ul style="list-style-type: none"> Sprinkle a thin layer of compost on top of grass surface (1/2" top dressing) and sweep it in Do not use fertilizer
		A	Weeds present	<ul style="list-style-type: none"> Manually remove weeds Mow, torch, or inoculate and replace with preferred vegetation
Inlets/Outlets/Pipes				
Inlet/outlet pipe	A		Pipe is damaged	Repair/replace
	A		Pipe is clogged	Remove roots or debris

Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
Underdrain pipe	Clean pipe as needed	Clean orifice at least biannually (may need more frequent cleaning during wet season)	Plant roots, sediment or debris reducing capacity of underdrain (may cause prolonged drawdown period)	<ul style="list-style-type: none"> • Jet clean or rotary cut debris/roots from underdrain(s) • If underdrains are equipped with a flow restrictor (e.g., orifice) to attenuate flows, the orifice must be cleaned regularly
Raised subsurface overflow pipe	Clean pipe as needed	Clean orifice at least biannually (may need more frequent cleaning during wet season)	Plant roots, sediment or debris reducing capacity of underdrain	<ul style="list-style-type: none"> • Jet clean or rotary cut debris/roots from under-drain(s) • If underdrains are equipped with a flow restrictor (e.g., orifice) to attenuate flows, the orifice must be cleaned regularly
Outlet structure	A, S		Sediment, vegetation, or debris reducing capacity of outlet structure	<ul style="list-style-type: none"> • Clear the blockage • Identify the source of the blockage and take actions to prevent future blockages
Overflow	B		Native soil is exposed or other signs of erosion damage are present at discharge point	Repair erosion and stabilize surface
Aggregate Storage Reservoir				
Observation port	A, S		Water remains in the storage aggregate longer than anticipated by design after the end of a storm	If immediate cause of extended ponding is not identified, schedule investigation of subsurface materials or other potential causes of system failure.
Vegetation				
Adjacent large shrubs or trees		As needed	Vegetation related fallout clogs or will potentially clog voids	<ul style="list-style-type: none"> • Sweep leaf litter and sediment to prevent surface clogging and ponding • Prevent large root systems from damaging subsurface structural components

Component	Recommended Frequency a		Condition when Maintenance is Needed (Standards)	Action Needed (Procedures)
	Inspection	Routine Maintenance		
		Once in May and Once in September	Vegetation growing beyond facility edge onto sidewalks, paths, and street edge	Edging and trimming of planted areas to control groundcovers and shrubs from overreaching the sidewalks, paths and street edge improves appearance and reduces clogging of permeable pavements by leaf litter, mulch and soil.
Leaves, needles, and organic debris		In fall (October to December) after leaf drop (1-3 times, depending on canopy cover)	Accumulation of organic debris and leaf litter	Use leaf blower or vacuum to blow or remove leaves, evergreen needles, and debris (i.e., flowers, blossoms) off of and away from permeable pavement

Note that the inspection and routine maintenance frequencies listed above are recommended by Ecology. They do not supersede or replace the municipal stormwater permit requirements for inspection frequency required of municipal stormwater permittees for "stormwater treatment and flow control BMPs/facilities".

a Frequency: A= Annually; B= Biannually (twice per year); S = Perform inspections after major storm events (24-hour storm event with a 10-year or greater recurrence interval).

b Inspection should occur during storm event.

Washington State Department of Ecology

[2012 Stormwater Management Manual for Western Washington, as Amended in December 2014 \(The 2014 SWMMWW\)](http://www.ecy.wa.gov/programs/stormwater/permits/2014swmmww.html)

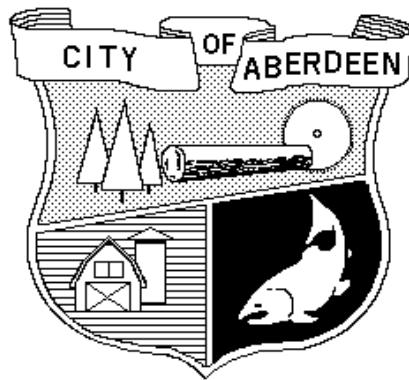
Appendix C – Pollution Prevention and Operation & Maintenance for Municipal Field Operations

Pollution Prevention and Operation and Maintenance for Municipal Field Operations

City of Aberdeen Public Works

Created: March 2012

Updated: December 2018



Overview

The Washington State Department of Ecology has implemented the Western Washington Phase II Municipal Stormwater Permit to municipalities over 10,000 residents. The City of Aberdeen, as a regulated MS4, is required to comply with the Phase II permit regulations.

In accordance with the Phase II permit, The City of Aberdeen Public Works Department has established practices, policies and procedures to reduce stormwater impacts associated with runoff from all City owned or maintained lands, and road maintenance activities under the functional control of the City. Lands owned or maintained by the City include, but are not limited to, streets, parking lots, roads, highways, buildings, parks, open space, road right of-ways, maintenance yards, and stormwater treatment and flow control BMPs/facilities. The following activities are addressed in this field manual:

- Pipe cleaning
- Cleaning of culverts that convey stormwater in ditch systems
- Ditch maintenance
- Street cleaning
- Road repair and resurfacing, including pavement grinding
- Snow and ice control
- Utility installation
- Pavement striping maintenance
- Maintaining roadside areas, including vegetation management
- Dust control
- Application of fertilizers, pesticides, and herbicides according to the instructions for their use, including reducing nutrients and pesticides using alternatives that minimize environmental impacts
- Sediment and erosion control
- Landscape maintenance and vegetation disposal
- Trash and pet waste management
- Building exterior cleaning and maintenance
- Concrete Work
- Fueling Station
- Loading, unloading & storage of liquid or solid materials
- Equipment Repair
- Parking and storage of vehicles
- Gravel stockpiles
- Washing and steam cleaning vehicles
- Industrial washout rack

What:	Pipe Cleaning & Cleaning of Culverts within Ditch Systems
Why:	Most stormwater pipes are self-scouring making scheduling of manual cleaning unnecessary. Regular inspection and cleaning of catch basins is typically sufficient to prevent buildup and loss of capacity within the stormwater system.
	Maintaining culverts in the ditch conveyance system is an important part of keeping the ditch system working efficiently. Culverts create points of blockage when debris is impeded on the culvert opening. Ditches that are built up with sediment and vegetation will impede flows enough to allow sedimentation of culverts.
Where:	Stormwater system throughout the City of Aberdeen
Schedule:	Continuously as required, generally on low stormwater flow days unless a blockage occurs.
How:	Stormwater pipes are cleaned through the use of the public works vactor truck. Vactor operations are preformed on a continual basis in the daily maintenance of the stormwater system. The cleaning of catch basins and manholes is the first priority. Stormwater catch basins and manholes are inspected and cleaned according to the operations and maintenance procedure for <i>Maintenance of Stormwater Facilities</i> found elsewhere in this manual.
	Debris from culverts and ditches is continually removed from the ditch, If sedimentation of culvert occurs it shall be cleaned isolating the stormwater and using the vactor truck. All material pulled from the culvert will be removed from the area.
Proposed Changes:	None

What:	Ditch Maintenance
Why:	Ditch cleaning is performed to remove grown up vegetation, sediment or debris that impedes the flow of stormwater within the stormwater conveyance system.
Where:	Ditches are manmade stormwater conveyance placed within the street or alley right of way, in many cases parallel to the adjacent road. Ditches can be located in unimproved right of ways that have no improved streets or alleys. Ditches to be cleaned are located throughout the City of Aberdeen but are predominately located in South Aberdeen. The Duffy Street sediment trap and Canyon Court sediment trap are also considered ditches and are cleaned on a semiannual basis.
Schedule:	Maintenance staff keeps an informal list of problem areas in the City's ditch system. These ditches are typically heavy flow ditches and are maintained every summer. Ditches are typically cleaned on low flow days without rainfall. Ditches may be cleaned out of season on an emergency basis when flooding is likely to happen if it not immediately addressed.
How:	Ditches can be cleaned with a backhoe, wheeled excavator, track excavator, or by hand with shovels. Whenever possible, ditches are pumped dry or the flows are rerouted prior to excavation through the use of pipe plugs and earthen berms. Dewatering can be through the use of a 2" submersible pump or 3" – 4" trash pumps with the standing ditchwater pumped behind a vegetative barrier to reduce turbidity and erosion. Material is removed to approximately 6 inches below the adjoining culverts. Materials excavated from stormwater conveyance ditches are hauled to Charley Creek dump site and allowed to dewater as addressed elsewhere in this O&M manual under "Charley Creek Dump Site".

Proposed Changes: None

What:	Street Cleaning (Sweeping)
Why:	Street sweeping is performed on a continuous four day per week schedule to remove fine particle materials and garbage before it is allowed to enter the stormwater system. During the fall months the sweeper is operated 5 days per week to keep the leaves from entering and plugging the stormwater conveyance system. The sweeper is also used to pickup harmful materials that have been illegally spilled within the city right of way such as oil, paint, or gravel.
Where:	The sweeper is operated throughout the City of Aberdeen on paved streets.
Schedule:	Street sweeping is conducted between the hours of 6:00am and 2:30pm, Monday through Thursday. Sweeping operations are temporarily suspended during times of heavy rainfall and extreme cold (ice/snow). The sweeper is occasionally used to pickup illegal spills within the right of way and absorbent material may be placed prior to sweeping in order to draw the spill material out of the road or surface water.
How:	Street sweepings are dumped at the City of Aberdeen maintenance yard temporarily until there is a large enough volume to haul in dump trucks. Street sweepings are then hauled to approved fill sites. Erosion control BMP's are followed at the fill site and care is taken to not track materials onto the road surface. Approved construction entrances shall be placed if deemed necessary by the City Engineer. Sweepings contaminated with illicit spill materials are dumped at the vactor waste facility and run through the settling basins and oil water separators that are part of that operation. The City of Aberdeen operates an Elgin Pelican sweeper. The current model is 8 years old and in good overall condition. The sweeper is washed out daily at the street department wash rack. A major overhaul is scheduled for winter of 2010 with the undercarriage and conveyor belt system to be replaced.
Proposed Changes:	Change schedule to 5 days a week during leaf season and after sanders have been operating.

What:	Road Repair and Resurfacing, including Pavement Grinding
Why:	Improved streets and alleys within the City of Aberdeen require continual maintenance due to normal deterioration. The repairing of streets and alleys rehabilitates asphalt streets, eliminates potholes, reclaims gravel as it migrates towards the road shoulders and creates a better driving surface.
Where:	Street repairs are performed on improved streets and alleys throughout the City of Aberdeen as well as on logging roads within the Charley Creek basin and City of Aberdeen watershed.
Schedule:	<p>Asphalt overlays are conducted in the dry summer months while pothole repair can occur at anytime during the year. Potholes are repaired as they develop or are reported.</p> <p>Grading of gravel streets is conducted periodically on an as needed basis. Typical scheduling of street grading maintenance work is every 2-3 months but can vary due to weather conditions and the amount of traffic the road has seen. Logging roads and gravel access roads are graded much less frequently, typically every 6-12 months. Street and road grading is not to be conducted during while it is raining. Water is to be added to the streets prior to grading during times of extreme dryness to keep dust at a minimum.</p>
How:	<p>Street overlays are performed by a contractor. Before work begins the contractor must sign a contract that has provisions for stormwater pollution prevention. The City of Aberdeen Engineering department oversees the construction of asphalt overlays making sure the contractor is in compliance with developed guidelines.</p> <p>Gravel streets are maintained by grading the existing base and adding gravel. Grader operators are to cut both shoulders and bring material to the middle of the road prior to final grading. Extreme care is to be taken to keep windrow material out of parallel ditches and drainage features.</p> <p>Potholes are always repaired using hot mix asphalt if it is available. When the local asphalt plants shut down for the winter potholes are repaired using a cold mix asphalt. The potholes to be repaired are cleaned of all loose material prior to placement of asphalt. When possible the pothole is to be squared up with a grinder prior to placement of asphalt. Asphalt is raked smooth and completely compacted to match the existing driving surface.</p> <p>Planing and grinding of asphalt shall be done in such a manner as to restrict the material from entering the storm system. Material shall be swept up immediately and under no circumstances shall staff leave the job</p>

site prior to complete cleanup. The use of the vactor truck or industrial shop vacuum shall also be considered a BMP in the removal of asphalt grindings.

Proposed Changes: None

What: **Snow and Ice Control**

Why: To give traction to motorist when the roads are icy.

Where: Priority goes to the hill areas and bridges within the City of Aberdeen. In times of severe weather that lasts for prolonged periods, most intersections are also maintained.

When: Winter months when streets are icy

How: Sand and salt are dispersed on the roads from dump trucks with sanders. The sanding material is mixed at the maintenance yard at a 2:1 ratio of sand to salt prior to placing in the trucks. Truck drivers disperse material where needed through controls inside the cab of the truck. Dispersal is as light as possible while still giving the required traction to motorists. Sand is picked up as soon as possible through use of street sweeper and vactor truck to prevent excess sediment reaching the stormwater system.

Proposed Changes: None

What: **Utility Installation**

Why: New utilities are required throughout the City as improvements are made to the system.

Where: The city places and replaces storm, sewer, electrical and water utility lines within the right of way as required

When: Utility placement can occur at any time during the year. Sub-surface projects are typically scheduled during times of low stormwater flow however emergencies can create situations where the public works crews are working during high flows with saturated conditions.

How: Proper precautions shall be taken to prevent stormwater intrusion into the utility trench. If ground water intrusion becomes a problem it is to be pumped to a vegetative barrier and allowed to infiltrate.

Materials excavated are to be reused for cover whenever possible, if excavated materials are deemed unsuitable as backfill they will be loaded into a dump truck and hauled to a permitted dump site for disposal.

Daily excavation should not exceed the amount of utility to be placed in the 8-hour shift.

Utilities shall be placed according to manufacturers specifications and backfilled with a fill material approved by the City Engineer. Lifts shall be placed in 8 inch increments and shall be thoroughly compacted by use of a rammer compactor (jumping jack) or vibratory plate compactor.

Proper safety rules and regulations shall be followed, including use of a trench box when required.

Proposed Changes: None

What: **Pavement Striping Maintenance**

Why: Pavement stripping is required to delineate lanes of travel on arterial streets as well as to place crosswalk safety markings.

Where: In the City of Aberdeen, within the right of way.

When: Pavement striping is conducted during the summer months.

How: The City of Aberdeen contracts with Stripe Rite Inc. to place all painted centerline and fog line markings. Before work begins the contractor must sign a contract that has provisions for stormwater pollution prevention. The City of Aberdeen Sign department oversees the placement of painted striping making sure the contractor is in compliance with developed guidelines. Torch down pavement markings are used to mark crosswalks and directional arrows

Proposed Changes: None

What: **Maintaining Roadside Areas, including Vegetation Management.**

Why: Roadside areas need continued maintenance to keep them in a state of repair. Gravel shoulders develop potholes that interfere with roadside drainage and roadside vegetation can become overgrown, blocking both pedestrian passage stormwater conveyance and creating sight distance safety concerns. Un-maintained shoulders hinder driving, parking, pedestrian traffic and roadside drainage.

Where: Many streets and alleys within the City of Aberdeen.

Schedule: Gravel shoulder maintenance occurs throughout the year during times of low stormwater sheet flow. Mowing and spraying of herbicide occurs during the spring and summer months. Spraying is only done early in the morning on dry days with no wind by licensed personnel.

How: When maintaining existing gravel shoulders, all vegetation is to be removed prior to placement of gravel. Gravel is dumped into any depressions and raked flat with a hand rake or by use of a motor grader. Gravel is to be leveled and thoroughly compacted and road edges are to be thoroughly swept.

Roadside brush mowing is achieved using a flail mower attached to a wheeled excavator. Vegetation is mowed when the brush is ok to remain in place after the project is complete. Occasionally ditches will be mowed and the debris will be removed at a later date.

Spraying of herbicide is done according to strict adherence to manufacturers specifications. Herbicide should be placed within 2 weeks of mowing in such a concentration as to stunt the plant growth without killing. Strict records shall be kept for every application made and be completed only by authorized personnel.

Proposed Changes: None

What: **Dust Control**

Why: Keep fine particle material out of the stormwater system.

Where: Gravel roads.

Schedule: During summer months as required.

How: When gravel roads become dry enough that fine particle material becomes airborne the City will water down the roads with a flusher truck. Care shall be taken not to exceed the minimum amount of water needed to accomplish dust control.

Proposed Changes:

1. Water down gravel roads more frequently.

What: **Sediment and Erosion Control**

Why: Sediment and Erosion Control is required on all City Projects and Maintenance Activities.

Where: In the City of Aberdeen, within the right of way and on City owned property.

When: Sediment and erosion control is applicable at any time during the year, with special emphasis during the wet season (October 1 to April 30).

How: The City of Aberdeen has adopted the current version of the Stormwater Management Manual for Western Washington (SWMMWW) and follows the erosion and sediment control standards within it. City crews shall deploy applicable erosion and sediment control measures on all projects and maintenance activities.

Proper selection and installation of erosion and sediment control measures is vitally important to the work being done. Correct installation ensures better water quality of receiving water.

City crews shall reference Chapter II-4 "Best Management Practices Standards and Specifications" of the adopted SWMMWW for erosion and sediment control guidance.

Proposed Changes: None

What: **Landscape Maintenance and Vegetation Disposal**

Why: Landscape maintenance is performed for a variety of reasons including drainage enhancement, road sight distance, and improves visual aesthetics.

Where: In the City of Aberdeen, within the right of way and on City owned property.

When: Landscape maintenance can mostly be performed throughout the year. Mowing and spraying of herbicide shall occur during the spring and summer months. Replanting shall occur during the spring or fall.

How: Landscape maintenance performed by City crews shall be conducted in a way that doesn't cause erosion or allow sediment-laden water into the MS4. Always install applicable erosion control measures.

Roadside brush mowing is achieved using a flail mower attached to a wheeled excavator. Vegetation shall be mowed when it is acceptable to leave grass clippings and small vegetation debris after mowing is completed. Large vegetation clippings and debris shall be removed and disposed of at a location approved by the public works director.

Proposed Changes: None

What: **Trash and Pet Waste Management**

Why: Trash and pet waste management is a responsibility of the City at parks and other City owned property accessible to the public.

Where: In the City of Aberdeen, within the right of way and on City owned property.

When: Trash and pet waste management is applicable at any time during the year.

How: City crews shall collect trash and pet waste from City provided receptacles at appropriate times, as to not allow the receptacles to overflow and spill out onto the ground. All trash and pet waste shall be disposed of at an approved location. Trash and pet waste receptacles in disrepair shall be replaced with new ones. It is the responsibility of the pet owner to collect pet waste. However, pet waste shall be collected by City staff if observed.

Proposed Changes: None

What: **Building Exterior Cleaning and Maintenance**

Why: Building exteriors require periodic cleaning and maintenance.

Where: On City owned property.

When: Building exterior cleaning and maintenance can be performed throughout the year. Emphasis shall be placed on erosion and sediment control measures during the wet season (October 1 to April 30).

How: Building exteriors can be pressure washed/steam cleaned/scrubbed with appropriate equipment. Only biodegradable detergents and eco-friendly products shall be used for cleaning purposes.

All adjacent storm drain inlets shall be protected during cleaning and maintenance operations. City crews shall ensure no sediment-laden runoff enters the MS4. City crews shall reference Chapter II-4 "Best Management Practices Standards and Specifications" of the adopted SWMMWW for erosion and sediment control guidance.

Proposed Changes: None

What: **Concrete Work**

Why: City crews place concrete periodically for sidewalks, curbs, and foundations among other things. Concrete grinding is occasionally required to remove concrete tripping hazards in sidewalks.

Where: Concrete sidewalks and curbs throughout the City of Aberdeen and anywhere within the City limits that concrete work may be preformed

Schedule: New concrete construction is placed periodically, Sidewalk and curb grinding occurs continuously as required, typically when it is not raining.

How: City of Aberdeen maintenance workers will make or place forms if necessary prior producing concrete. Concrete for small projects can be mixed in a wheelbarrow or small cement mixer while a concrete distributor will deliver concrete for larger projects. The maintenance workers will place concrete and apply the finish required for the type of concrete poured. Tools are typically washed off in a vegetative area where runoff does not go directly to the storm system.

Tripping hazards are grinded away with a small one-man concrete grinder.

Proposed Changes: Remove concrete tripping hazards in dry weather only. When finished use a industrial shop vacuum to pick up the grindings so that they do not get into the stormwater system. Water may be added if required to keep dust down.

What: **Fueling Station**

Why: To fill City of Aberdeen equipment and vehicles with fuel.

Where: Maintenance yard,

Schedule: Continuously, as vehicles need fuel.

How: Equipment is fueled at the City of Aberdeen fueling station. Extreme care shall be taken to not spill fuel on equipment or ground. If fuel is spilled it shall be reported immediately according to the spill procedure. Spill cleanup materials are located in the small equipment area within the Street department truck barn. To the most practical extent possible *BMP's for Fueling at Dedicated Stations* shall be followed.

Proposed Changes:

1. Move a spill kit to the fueling station.
2. Create a asphalt berm around the pump station that will allow ponding of spilled fuel prior to interaction with catch basins

What: **Loading Unloading & Storage of Liquid or Solid Materials**

Why: Raw materials used in the construction of public works projects are unloaded and stored at the public works maintenance yard.

Where: Maintenance yard,

Schedule: Materials are unloaded periodically and then stored onsite indefinitely according to BMP's.

How: To the most practical extent possible materials shall be unloaded and loaded according to *BMP's for Loading and Unloading Areas for Liquid or Solid Material*, while material storage shall follow the *BMP's for Storage of Liquid, Food Waste, or Dangerous Waste containers* where possible.

What: **Equipment Repair**

Why: Repair and maintenance of vehicles and equipment.

Where: Maintenance yard,

Schedule: Continuously, as vehicles need maintenance and repairs.

How: Certified mechanics perform equipment repair and maintenance within the city shop facility. Strict adherence to *BMP's for Maintenance and Repair of Vehicles and Equipment* shall be followed

Proposed Changes:

1. Housekeeping must improve, keep area cleaned up
2. Floor drains in shop must be connected to sanitary sewer

Recycling / Disposal of Vehicle Fluids / Other Wastes
City of Aberdeen - Equipment Repair Shop

Shop Waste	Management Method	Contractor
Antifreeze	Recycle	Safety Kleen
Batteries	Recycle	Carquest
Brake Fluid	NA	
Fuel	NA	
Fuel Filters	Drain and dumpster	Lemay
Oil Filters	Drain and dumpster	Lemay
Paint	Hazardous Waste Disposal	Lemay
Power Steering Fluid	Recycle	Safety Kleen
Shop Towels/Oily Rags	Laundry Service	
Solvents	Recycle	Safety Kleen
Transmission Oil	Onsite Oil Recycle Tank	
Used Oils	Onsite Oil Recycle Tank	
Windshield Washer Fluid	NA	

What: **Parking and Storage of Vehicles**

Why: City vehicles are parked in the available parking lots during the day and under cover at night

Where: Maintenance yard.

Schedule: Continuously

How: Vehicles are to be parked in doors when not in use. To the most practical extent possible *BMP's for Parking and Storage of Vehicles and Equipment shall be followed.*

What: **Gravel Stockpiles**

Why: The City of Aberdeen using large quantities of crushed gravel in public works projects.

Where: Maintenance Yard

Schedule: Rock is delivered throughout the year as needed

How: The City of Aberdeen buys bulk gravel quantities from local contractors. To the most practical extent possible *BMP's for Storage or Transfer of Solid Raw Materials, By-Products, or Finished Products* shall be followed.

Proposed Changes: None

What: **Washing and Steam Cleaning Vehicles**

Why: To clean City of Aberdeen vehicles as they become dirty.

Where: Maintenance yard,

Schedule: Continuously, as vehicles get dirty.

How: Vehicles are to be washed and steam cleaned at the vehicle wash rack. The wash rack is a covered facility that has stormwater treatment in the form of a oil water separator. Oil water separator is to be maintained according to *BMP's for Maintenance of Stormwater Facilities*.

Proposed Changes: No washing of vehicles is allowed at any site other than the vehicle wash rack.

What: **Industrial Washout Rack**

Why: Wash heavy equipment and fill water storage tanks in sweeper, vactor truck and flusher.

Where: Public works maintenance yard

Schedule: Continuously, as required

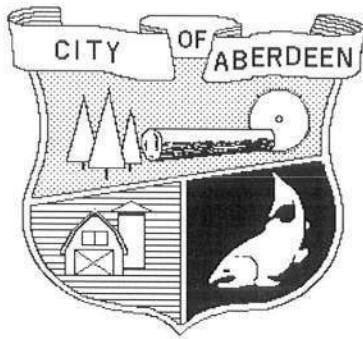
How: Park heavy equipment over the wash out rack, hose off material with fire hose. No materials that are visibly contaminated with hydrocarbons are permitted.

Solid material is collected in a concrete settling basin while water is drained off the top and sent to an oil water separator. Materials collected in the settling basin are removed using the vactor truck when the basin solids are approximately 50% capacity.

Proposed Changes:

1. Prior to removing solids with the vactor the wash rack is to be left unused for a minimum of two days to allow the settling out of all suspended solids. Water will then be decanted off and sent through the oil water separator.
2. Schedule periodic maintenance for oil water separator.

Appendix D – Stormwater Pollution Prevention Plan for City Owned Facilities



City of Aberdeen
Stormwater Pollution Prevention Plan for
Operations Facility, Vactor Solids Facility, and
Charley Creek Dump Site

October 2012

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BACKGROUND AND GENERAL REQUIREMENTS

The City of Aberdeen is covered as a permittee under the National Pollutant Discharge Elimination System (NPDES) Phase II Municipal Stormwater Permit (Phase II Permit). The NPDES program is a requirement of the federal Clean Water Act and is implemented by the Department of Ecology in Washington State. The Phase II Permit requires that all permittees develop a stormwater management program (SWMP) aimed at reducing the discharge of pollutants into the permittee's municipal separate storm sewer system (MS4).

A required component of the SWMP is the implementation of an operations and maintenance (O&M) program designed to prevent or reduce pollutant runoff from municipal operations and from municipally-owned stormwater facilities. One requirement of the O&M program is the development of a stormwater pollution prevention plan (SWPPP) for all City heavy equipment maintenance and storage yards, and material storage facilities.

This SWPPP has been developed to meet the O&M requirements outlined above. This SWPPP must be implemented at the current City of Aberdeen Operations facility located at 1101 West Heron Aberdeen, WA 98520, with certain elements applicable to the Vactor-solids facility, located at 1303 W Hood St. Aberdeen, WA 98520.

SWPPP AVAILABILITY

A copy of this SWPPP will be kept at each applicable City of Aberdeen facility or within reasonable access to the facility. It will be made available to Ecology personnel on request. If requested, a copy of this SWPPP will be made available to the public within a reasonable time frame.

SWPPP UPDATE

This SWPPP will be updated periodically to reflect changed conditions.

OBJECTIVES OF THE SWPPP

This document serves as the Stormwater Pollution Prevention Plan (SWPPP) for the City of Aberdeen Public Works Operations Facility; a heavy equipment maintenance and storage yard, and material storage facility.

The objectives of this SWPPP are:

- To identify locations of all materials that could cause pollution if spilled or otherwise released into the environment;
- To identify all storm sewer conveyances, treatment facilities, and discharge points to aid in the isolation of contaminants should any be spilled into the system;

- To identify locations of spill containment equipment and materials;
- To implement and maintain best management practices (BMPs) that identify, reduce, eliminate, and/or prevent the discharge of stormwater pollutants;
- To prevent violations of State surface water quality, groundwater quality, and sediment management standards;
- To eliminate unpermitted discharges and other illicit discharges to separate storm drainage systems;
- And to provide information to staff on BMPs for the Operations yard.

This document describes the methods and procedures that City of Aberdeen personnel will implement in order to reduce and/or eliminate the contamination of stormwater runoff and discharges of pollutants from City of Aberdeen facilities.

This SWPPP contains BMPs that the Aberdeen Operations and Vactor Solids facilities implement to reduce or eliminate the release of pollutants to the MS4 and surface waters. The mechanisms for such a release may include the inadvertent contamination of stormwater from illicit discharges to the MS4 or from spills that reach the MS4.

This document includes the following information:

- Definition of SWPPP Coordinator requirements and responsibilities;
- Identification of Pollution Prevention Team personnel;
- Facility description and activities;
- Description of BMPs;
- Description of monitoring, inspection, and recordkeeping requirement.

NPDES PERMIT COVERAGE

The City's stormwater discharges are authorized under the terms and conditions of the Phase II Permit; effective February 16, 2007, through February 15, 2012, or as notified by Ecology. The City of Aberdeen is responsible for the operation and maintenance of the MS4, including all flow control and treatment stormwater BMPs located at its facilities.

INTEGRATION WITH OTHER COVERAGE

This SWPPP is required under the NPDES Municipal Phase II Permit. The Operations and Vactor Solids facilities are not subject to coverage under any other NPDES permits. Any construction or industrial activities that occur on these sites will be assessed for NPDES coverage requirements and integrated with this plan as appropriate.

FACILITY ASSESSMENT

The City of Aberdeen facilities requiring this SWPPP, according to NPDES Permit requirements, are:

1. The City of Aberdeen Operations Facility – an operations and maintenance facility that maintains and stores heavy equipment and stores materials used at City facilities and on City property.
2. The City of Aberdeen Vactor Solids Facility – a city-owned and operated facility used to sort, store, and dewater street-waste solids prior to placement at the Charley Creek Dump Site.
3. The City of Aberdeen Charley Creek Dump Site – a City owned dump site maintained and operated to dump and contain solid materials in a land fill application.

There are currently no other City-owned or operated facilities required to develop a SWPPP as part of the Phase II Permit requirements.

POLLUTION PREVENTION TEAM

The pollution prevention team is responsible for developing the SWPPP and assisting in its implementation, maintenance, and modification. The activities and responsibilities of the pollution prevention team address all aspects of this SWPPP.

The responsibilities include:

- Assigning one or more individuals by name and title to be responsible for developing the SWPPP and assisting the SWPPP Coordinator in its implementation, maintenance, and modification;
- Holding regular meetings to review the overall operation of the BMPs;
- Establishing responsibilities for inspections, O&M, and emergency situations
- Arranging the training of all team members in the operation, maintenance, and inspections of BMPs.

The pollution prevention team consists of management and facility operations personnel and includes a SWPPP Coordinator (the Facility Supervisor) at each facility and other identified individuals responsible for developing the plan and assisting the supervisor in its implementation. A list of team members, contact information, and a brief description of their primary area of responsibility regarding stormwater pollution is identified in Table 1.

Table 1. Pollution Prevention Team

Position	Name(s)	Phone Number(s)	Primary Responsibilities
SWPPP Coordinator	Rick Sangder – Deputy Public Works Director	(360) 537-3241	Ensure that each facility employee is in compliance with the ABERDEEN SWPPP regarding their operations; the Facility Supervisor must certify the completeness and accuracy of the SWPPP by signing a certification statement.
NPDES Phase II Coordinator	Rick Sangder – Deputy Public Works Director	(360) 537-3241	Manage NPDES permit requirements (including developing, implementing, maintaining, and revising the SWPPP) and assisting each facility with state and City of Aberdeen regulatory issues pertaining to stormwater pollution prevention.
Applicable Aberdeen Supervisors and Staff	Mike Randich (Water Systems Manager) Steve Randich (Street maintenance supervisor) Jeff Springer (Stormwater maintenance supervisor) Lenonard Graham (Water maintenance supervisor)	(360) 537-3273 (360) 537-3268 (360) 537-3393 (360) 537-3274	Ensure that BMPs listed are in place, operative, and effective at all times in and around the areas where activities that impact stormwater are conducted.

OPERATIONS AT CITY OF ABERDEEN FACILITIES

The primary uses of the Aberdeen Operations Center include storage and maintenance of: City vehicles, a City vehicle fueling station, Vactor truck & heavy equipment storage, mowing and landscape equipment storage, raw and solid materials storage, & liquid storage.

CITY OF ABERDEEN OPERATIONS FACILITY

Activities conducted at the City of Aberdeen Public Works Operations facility include:

- Washing and pressure washing of vehicles, equipment and building structures
- Loading and unloading of liquid or solid materials
- Fueling at dedicated stations
- Automotive repair and maintenance
- Painting of buildings
- Outdoor storage or transfer of solid raw materials, byproducts or finished products
- Outdoor portable container storage
- Storage of liquids in permanent aboveground tanks
- Parking lot maintenance and storage of vehicles and equipment
- Storage of emulsions in portable containers

Activities conducted at the City of Aberdeen Vactor solids facility include:

- Storage of bulk dirt, sand and rock
- Storage of collected street waste solids and other stormwater facility solids
- Dewatering of Vactor slurry

FACILITY PLANS AND MAPS

PUBLIC WORKS OPERATIONS FACILITY MAP & DRAINAGE PLANS

An Operations Facility map is included in Appendix A of this document. The Operations Facility map identifies the facility layout; building spill kit locations; stormwater drainage system; sanitary sewer system; heavy equipment maintenance and storage areas; and material storage areas.

VACTOR SOLIDS FACILITY MAP & DRAINAGE PLANS

A Vactor Solids Facility map is included in Appendix A of this document. The Vactor Solids Facility map identifies the facility layout; building spill kit locations; stormwater drainage system; sanitary sewer system; and material storage areas.

RECEIVING WATERS & WETLANDS

In general, stormwater runoff from the City of Aberdeen Public Works Operations Center facilities includes runoff from buildings, parking lots, a gravel storage yard, and other paved areas. The stormwater runoff discussed in this SWPPP is conveyed to the City's MS4, specifically once the stormwater leaves the facility it is conveyed one block to the northwest

and then approximately 700 feet to the southeast where it enters the Chehalis River along the Lincoln Street stormline. A map is included in Appendix A that shows the receiving waters in relation to the Operations and Vactor Solids facilities. Facility locations and points of discharge to receiving waters are identified in Table 2.

Table 2. Facility and discharge locations

Facility	Address	Point(s) of Discharge (Latitude/Longitude)
City of Aberdeen Public Works Operations Center	1101 W Heron St. Aberdeen, WA 98520	(46.966606 / 123.827944)
City of Aberdeen Public Works Vactor Solids Facility	1303 W Hood St. Aberdeen, WA 98520	(46.966929 / 123.8311292)
City of Aberdeen Charley Creek Dump Site	Parcel #170921230010	(46.951550 / 123.820564)

POTENTIAL POLLUTANTS

Table 3 below lists activities conducted at the Operations and Vactor solids facilities that have the potential to generate pollution if not managed properly. Proper management requires utilization of the source control BMPs listed in the right column. These BMPs are from Volume IV, Chapter 2 of the 2005 Stormwater Management Manual for Western Washington (WA State Dept of Ecology, 2005). The BMP numbers correspond to the page within the SWMMWW on which the BMP can be found. Table 4 below summarizes each BMP. BMPs identified in Table 3 are included in Appendix B of this document.

Table 3. Potential pollution-generating activities and relevant BMPs

Facility Name	Pollution-generating Activity	Potential Pollutants	Source control BMP ¹
Public Works Operations 1101 West Heron Aberdeen, WA 98520	Washing and pressure washing of vehicles, equipment, and building structures	Soaps and detergents, oils and greases, suspended solids, metals	BMP 2-64
	Loading and unloading of liquid or solid materials	Fuels, hydraulic fluids, oils, bulk salt, granular de-icing material, mixed rubble	BMP 2-29
	Fueling at dedicated stations	Gasoline or Diesel Fuel	BMP 2-19
	Automotive repair and maintenance	Gasoline or diesel fuel, lubricating oils	BMP 2-34
	Landscaping and lawn and vegetation management	Pesticides, fertilizers	BMP 2-23
	Painting of buildings	Paint, solvents, metals	BMP 2-46
	Outdoor storage or transfer of solid raw materials, byproducts, or finished products	Street sweeping debris, clean asphalt, clean-screened soil, mixed rubble, clean green debris, crushed rock, bulk salt, granular de-icing salt, and sand	BMP 2-60
	Outdoor portable container storage	Crankcase oil, pesticides, lacquers, latex paint, ethyl ether, mercury, and PDBs	BMP 2-55
	Storage of liquids in portable above ground tanks	Crankcase oil, waste oil, mixed fuel	BMP 2-58
Vactor Solids Facility 1303 W Hood St Aberdeen, WA 98520	Parking lot maintenance and storage of vehicles and equipment	Oils & greases, suspended solids, metals	BMP 2-48
	Loading and unloading of liquid or solid materials	Fuels, hydraulic fluids, oils, bulk salt, granular de-icing material, mixed rubble	BMP 2-29
	Outdoor storage or transfer of solid raw materials, byproducts, or finished products	Street sweeping debris, clean asphalt, clean-screened soil, mixed rubble, clean green debris, crushed rock, bulk salt, granular de-icing salt, and sand	BMP 2-60

HISTORICAL SPILLS & LEAKS

The Aberdeen Operations Facility will retain spill history records and maintain a copy of their own spill records for a minimum of five years. A copy of the spill records will be produced if requested by Ecology. Records will include all of the significant spills or leaks of oils and toxic or hazardous pollutants that have occurred at areas either exposed to precipitation or that drain to a stormwater conveyance.

A significant spill or leak is defined as any quantity of contaminant that enters a storm drain or receiving water or contaminates soil and/or surface water at levels above state water quality standards. Also, any spill of oil or gas that exceeds the reportable quantity as described by the US Department of Energy is considered significant and will be documented and reported as necessary. Reportable quantities of chemicals used at each facility can be determined by entering the chemical name or chemical abstract service (CAS) number into the reportable quantity calculator on the US Department of Energy website (<http://homer/ornl.gov/rq/>).

There are no records of significant spills at the Operations, Vactor Solids facilities or Charley Creek Dump Site since the inception of the Phase II permit in 2007.

MONITORING PLAN

Stormwater monitoring is not required for discharges leaving the Aberdeen Public Works Operations or Vactor Solids facility. However, visual observation of stormwater effluent is included in all regular facility inspections.

ILLICIT DISCHARGES

The Public Works department manages the illicit discharge detection and elimination (IDDE) program for the City, which includes an illicit discharge ordinance, spill and illicit discharge hotline, business inspections, and illicit connection investigations.

The City of Aberdeen depends on its employees to implement spill prevention and to supply spill kit materials, clean up leaks and/or spills, and report spills. If the spill enters the separate storm drainage system, the Stormwater Section of Public Works at the City of Aberdeen shall be notified.

All spills must be cleaned up as per the City of Aberdeen Public Works IDDE Program. Additionally, all spills shall be reported to the SWPPP Coordinator and NPDES Coordinator as identified on the Pollution Prevention Team roster in Table 1. The Aberdeen Fire Department will be called for any spill or illicit discharge significant enough to endanger human health.

FACILITY BEST MANAGEMENT PRACTICES (BMPS)

BMPS FOR COMPLIANCE WITH THE NPDES PERMIT

The NPDES Permit requires the implementation of BMPs to comply with Ecology water

quality standards; all known, available, and reasonable methods of prevention, control, and treatment (AKART); and federal technology-based treatment requirements will be applied. These standards and technology-based requirements have been adopted by Ecology as rules.

OPERATIONAL BMPS

Operational BMPs are defined by Ecology as a schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the contamination of stormwater.

REQUIRED CITYWIDE BMPS

All facilities within the City must implement the following six City-wide operational source control BMPs:

BMP 1 - Eliminate illicit connections to storm drains

Every City facility must examine their plumbing systems to identify any illicit connections. Public Works manages the IDDE program for the City, which includes a spill and illicit discharge hotline, business inspections, and illicit connection investigation.

BMP 2 - Perform routine maintenance for stormwater drainage systems

Sediment and pollutants can accumulate over time in various components of stormwater collection, conveyance, and treatment systems, such as catch basins, ditches, storm drains, and oil/water separators. Regular maintenance of the stormwater drainage system decreases the amount of pollutants that are available to contaminate the stormwater. Routine cleaning of catch basins is one of the most important stormwater source control measures that a facility can implement. When catch basins are about 60 percent full of sediment, sediment removal efficiency drops; thus catch basins must be cleaned when sediment depth reaches 60% of capacity.

BMP 3 - Dispose of fluids and wastes properly

Every City facility must properly dispose of solid and liquid wastes, and contaminated stormwater. There are generally four options for disposal, depending on the type of waste:

- Municipal solid waste disposal facilities
- Hazardous waste treatment, storage, and disposal facilities
- Sanitary sewer

Many liquid wastes and contaminated stormwater (depending on the pollutants and associated concentrations) can be discharged to the sanitary sewer system, which is subject to approval by the King County Industrial Waste Program. If wastes cannot be legally discharged to a sanitary sewer, one of the three other disposal options must be used. Sumps or holding tanks may be useful for storing liquid wastes temporarily. Dangerous or hazardous wastes must be properly

transported to an appropriate hazardous waste treatment, storage, and disposal facility, requiring appropriate documentation.

BMP 4 - Proper storage of solid wastes

City facilities must store wastes in suitable containers with leak-proof lids that are closed at all times. The waste storage area must be swept or otherwise cleaned frequently to collect all loose solids for proper disposal in a storage container. The area should not be hosed to collect or clean solids. Employees should be educated about the need to check for and replace leaking containers. Drains located near dumpsters, dumpster pads, and trash compactors should be connected to the sanitary sewer. Discharges to the sanitary sewer system are regulated by the City of Aberdeen WWTP. Accumulated waste should not be allowed to exceed the capacity of the storage container. If this occurs, another storage container should be obtained and used.

BMP 5 - Spill prevention and cleanup

A spill can be a one-time event, a continuous leak, or a frequent small leak. All three types of spills must be prevented. Leaks and spills of solid and liquid pollutants including oils, solvents, fuels, and dust from manufacturing operations on any exposed soil, vegetation, or paved area should be promptly contained and cleaned up. Spill cleanup kits should be available at activity locations where spills may occur. In order to reduce the potential for spills, the following practices should be implemented:

- Clearly label all containers that contain potential pollutants
- Store and transport liquid materials in appropriate containers with tight fitting lids
- Place drip pans underneath all containers, fittings, valves, where materials are likely to spill or leak
- Use tarpaulins, ground cloths, or drip pans in areas where materials are mixed, carried, and applied to capture any spilled materials
- Train employees on the safe techniques for handling materials that are used on the site and encourage them to check for leaks and spills
- Spill cleanup kits should be stored near areas with a high potential for spills, so that they are easily accessible in the event of a spill. The contents of the spill kit should be selected based on the types and quantities of materials stored or used at the facility and refilled when the materials are used

BMP 6 - Provide oversight and training for staff

All team members should be trained annually in the operation, maintenance, and inspections of BMPs. This training must be documented. Training staff about good housekeeping expectations is one of the most effective methods for keeping sediment and other pollutants out of stormwater and receiving waters.

Further actions include assigning one or more qualified individuals to be responsible for the oversight and training of staff regarding stormwater pollution control. Regular meetings should be held to review the overall operation of the BMPs, establish responsibilities for

inspections and O&M, and determine responsibilities for emergency situations.

SCHEDULE FOR IMPLEMENTING ADDITIONAL OR ENHANCED BMP'S

If additional or enhanced BMPs are either ordered by Ecology or are necessary due to facility change or a self-inspection, a schedule for their implementation will be incorporated into this SWPPP within 30 days of the self-determination or Ecology order.

SOURCE-SPECIFIC STRUCTURAL SOURCE CONTROL BMP'S

The table below provides source-specific structural source control BMPs for the City of Aberdeen Public Works Operations Center based on outdoor activities that could potentially impact stormwater quality. These are actions required in addition to the operational BMPs.

Table 4. Pollution Prevention BMP summaries

Pollution Generating	Source Control BMP	BMP Descriptions
Washing, pressure washing, and steam cleaning of vehicles, equipment, and building structures	BMP 2-64	<ul style="list-style-type: none">• Conduct outside washing operation in a designated paved wash area• Convey the washwater to a sump (like a grit separator) and then to a sanitary sewer• The containment sump must have a positive control outlet valve for spill control• Collect the washwater from building structures and convey it to appropriate treatment such as a sanitary sewer
Loading and unloading of liquid or solid material	BMP 2-29	<ul style="list-style-type: none">• Sweep outside, uncovered loading/unloading areas frequently to remove material that could otherwise be washed off by stormwater• Place drip pans at locations where leaks or spills may occur such as hose connections, hose reels and filler nozzles• Implement the PW Operations Emergency Spill Cleanup Plan
Fueling at dedicated station(s)	BMP 2-19	<ul style="list-style-type: none">• Train employees on the proper use of fuel dispensers Post signs in accordance with the Uniform Fire Code (UFC)• Post “No Topping Off” signs• Cover fueling area• Dead-end sumps or other spill isolation system• Spill containment sill or berm around island (min. 4 inch in height)• Route stormwater from fueling island to sanitary sewer

Automotive repair and maintenance	BMP 2-34	<ul style="list-style-type: none"> • Inspect for leaks all vehicles, parts, and equipment stored temporarily outside and use drip pans as necessary • Remove batteries and liquids from vehicles in designated areas designed to prevent stormwater contamination • Store cracked batteries in a covered non-leaking secondary containment system • Empty oil and fuel filters before disposal • Provide for proper disposal of waste oil and fuel • Do not pour/convey washwater, liquid waste, or other pollutant into storm drains or to surface water • Do not connect maintenance and repair shop floor drains to storm drains or to surface water • Conduct all maintenance and repair of vehicles and equipment in a building, or other covered impervious containment area that is sloped to prevent run-on of uncontaminated stormwater and runoff of contaminated stormwater • Do not hose down work areas. Use dry methods for cleaning leaked fluids • Recycle greases, used oil, oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic fluids, transmission fluids, and engine oils • Dispose of all chemicals, fuels, lubricants and other hazardous materials properly as per Fleet Services SOPs
Landscaping , lawn and vegetation management	BMP 2-23	<ul style="list-style-type: none"> • Implement integrated pest management plan • If pesticides/herbicides are used they must be carefully applied in accordance with label instructions • Do not dispose of collected vegetation into waterways or storm drainage systems • Use erosion control BMPs whenever soil is disturbed • Implement the PW Operations Emergency Spill Cleanup Plan • Maintain a list of selected pesticides and their specific uses; brands, formulations, application methods and quantities to be used; equipment use and maintenance procedures; safety, storage, and disposal methods • Mix pesticides/herbicides and clean the application equipment in an area where accidental spills will not enter surface or ground waters, and will not contaminate the soil. • Store pesticides in enclosed areas or in covered impervious containment • Ensure that pesticide contaminated stormwater or spills/leaks of pesticides are not discharged to storm drains • Store and maintain appropriate spill cleanup materials in a location known to all near the storage area • Clean up any spilled pesticides and ensure that the pesticide contaminated waste materials are kept in designated covered and contained areas

Painting, finishing, and coating of vehicles, buildings, and equipment	BMP 2-46	<ul style="list-style-type: none"> • Train employees in the careful application of paints, finishes, and coatings to reduce misuse and over spray • Use ground or drop cloths underneath outdoor painting, scraping, and sandblasting work • Wipe up spills with rags and other absorbent materials immediately • Do not hose down the area to a storm drain or receiving water or conveyance ditch to receiving water • Use a storm drain cover, filter fabric, or similarly effective runoff control device if dust, grit, or other pollutants may escape the work area and enter a catch basin • Use a ground cloth, pail, drum, drip pan, tarpaulin, or other protective device for activities such as paint mixing and tool cleaning outside or where spills can contaminate stormwater • Properly dispose of all wastes and prevent all uncontrolled releases to the air, ground or water • Clean brushes and tools covered with non-water-based paints, finishes, or other materials in a manner that allows collection of used solvents (e.g., paint thinner, turpentine, xylol, etc.) for recycling or proper disposal • Store toxic materials under cover during precipitation events and when not in use to prevent contact with stormwater • Enclose and/or contain all work while using a spray gun or conducting sand blasting • Do not conduct outside spraying, grit blasting, or sanding activities during windy conditions • Clean paintbrushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain
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Outdoor storage or transfer of solid raw materials, byproducts, or finished products	BMP 2-60	<ul style="list-style-type: none"> • Do not hose down the contained stockpile area to a storm drain or a conveyance to a storm drain or to a receiving water • Store bulk materials in a building or paved and bermed covered area • Place temporary plastic sheeting (polyethylene, polypropylene, hypalon, or equivalent) over the material as necessary • Place curbs or berms along the perimeter of material • storage areas to prevent the run-on of uncontaminated stormwater and to collect and convey runoff to treatment • For large stockpiles that cannot be covered, implement containment practices at the perimeter of the site and at any catch basins as needed to prevent erosion and discharge of the stockpiled material offsite or to a storm drain • Ensure that contaminated stormwater is not discharged directly to catch basins without conveying through a treatment BMP • Sweep paved storage areas regularly for collection and disposal of loose solid materials • Stock cleanup materials, such as brooms, dustpans, and vacuum sweepers near the storage area
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Outdoor portable container storage	BMP 2-55	<ul style="list-style-type: none"> • Store containers in impervious containment under a roof or other appropriate cover, or in a building and: • Place tight-fitting lids on all containers • Place drip pans beneath all mounted container taps and at all potential drip and spill locations during filling and unloading of containers • Inspect container storage areas regularly for corrosion, structural failure, spills, leaks, overfills, and failure of piping systems • Check containers daily for leaks/spills. • Replace containers, and replace and tighten bungs in drums as needed • Storage of reactive, ignitable, or flammable liquids must comply with the Uniform Fire Code (Appendix IV-D R.2) • Cover dumpsters, or keep them under cover such as a lean-to, to prevent the entry of stormwater and: <ul style="list-style-type: none"> • Replace or repair leaking garbage dumpsters • Drain dumpsters and/or dumpster pads to sanitary sewer • Keep dumpster lids closed • Keep containers with Dangerous Waste or other potential pollutant liquids inside a building unless this is impracticable due to site constraints or Uniform Fire Code requirements • Store containers in a designated area, which is covered, bermed or diked, paved and impervious in order to contain leaks and spills. The secondary containment shall be sloped to drain into a dead-end sump for the collection of leaks and small spills • For liquid wastes, surround the containers with secondary containment capable of holding 110 percent of the volume contained in the largest container • For contaminated stormwater in the containment area, connect the sump outlet to a sanitary sewer or other approved treatment facility such as an API or CP oil/water separator, catch basin filter or other appropriate system • Equip the sump outlet with a normally closed valve to prevent the release of spilled or leaked liquids, especially flammables (compliance with Fire Codes), and dangerous liquids. This valve may be opened only for the conveyance of contaminated stormwater to treatment or to a tank truck or other appropriate vehicle for off-site treatment and/or disposal
Parking lot maintenance and storage of vehicles and equipment	BMP 2-48	<ul style="list-style-type: none"> • If washing of a parking lot is conducted, discharge the washwater to a sanitary sewer, if allowed by the local sewer authority, or other approved wastewater treatment system, or collect it for off-site disposal • Do not hose down the area to a storm drain or to a receiving water • Sweep parking lots, storage areas, and driveways, regularly to collect dirt, waste, and debris

REPORTING AND RECORD KEEPING

Records of all inspections, observations, and compliance records, as applicable, will be kept by the City of Aberdeen Public Works Operations facility on-site for a minimum of five years. Copies of these records shall be provided upon request.

INSPECTIONS

Staff identified in the pollution prevention team must regularly inspect all areas on City of Aberdeen-owned sites where heavy equipment maintenance or storage and material storage are exposed to stormwater and assess how well stormwater BMPs are operating. Complete, routine inspections must occur annually; a minimum of one additional inspection, preferably during the wet season (October through April) after trees have lost their leaves, is required to ensure that trash, debris, sediment, and/or vegetation is not blocking more than 10 percent of the inlet capacity.

It is recommended that additional inspections be performed as appropriate after major events (e.g., >1 inch of precipitation in 24 hours or environmental incident that causes contaminant release). Record the results of the inspections on the Public Works Utility Inspection forms.

If at any time a BMP is not effective, it must be repaired or maintained before the next anticipated storm event. If maintenance prior to the next storm event is not possible, maintenance must be completed as soon as possible and documented on the form for the extended repair schedule. In the interim, back-up measures must be implemented to ensure that stormwater quality is not diminished.

CONCLUDING STATEMENT

The intent of this SWPPP is to prevent the introduction of pollutants into stormwater at the Public Works Operations and Vactor Solids facilities. However, this SWPPP will not be effective at maximizing pollution reduction unless it is implemented fully.

Full implementation of this plan includes regular staff training as well as compliance checks to ensure that BMPs are being utilized consistently and correctly.

This document is considered a “living document”, meaning that it can and should be updated as often as necessary to ensure that the State requirements of AKART (All Known And Reasonable Technology) and MEP (Maximum Extent Practicable) are employed to minimize the discharge of pollutants from these facilities.

APPENDIX A – FACILITY MAPS AND PLANS

Figure A.1 – Drainage Map; City of Aberdeen Operations and Vactor Solids Facilities

FIGURE A.3

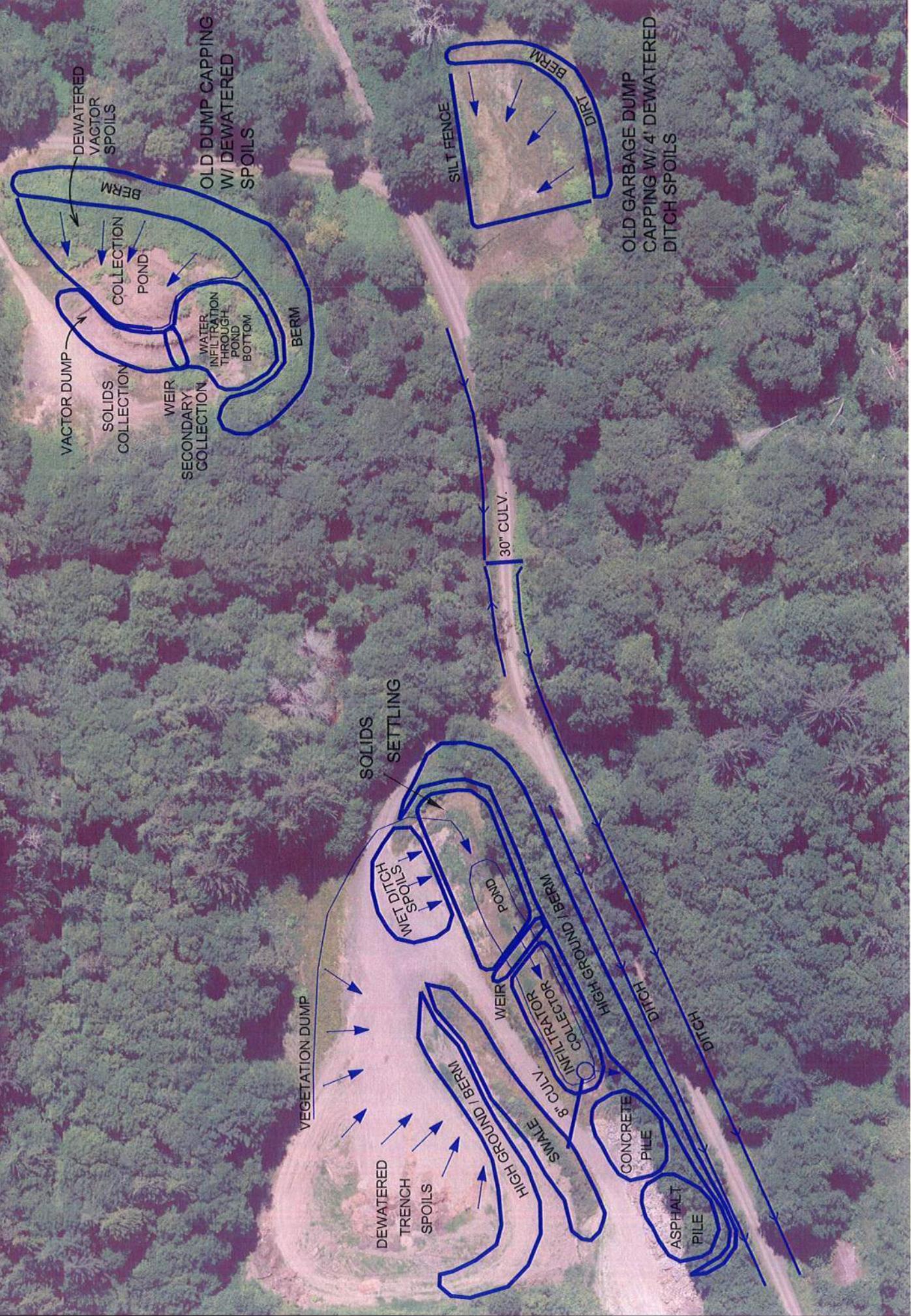


Figure A.2 – Site Map - Operations Facility

FIGURE A.1

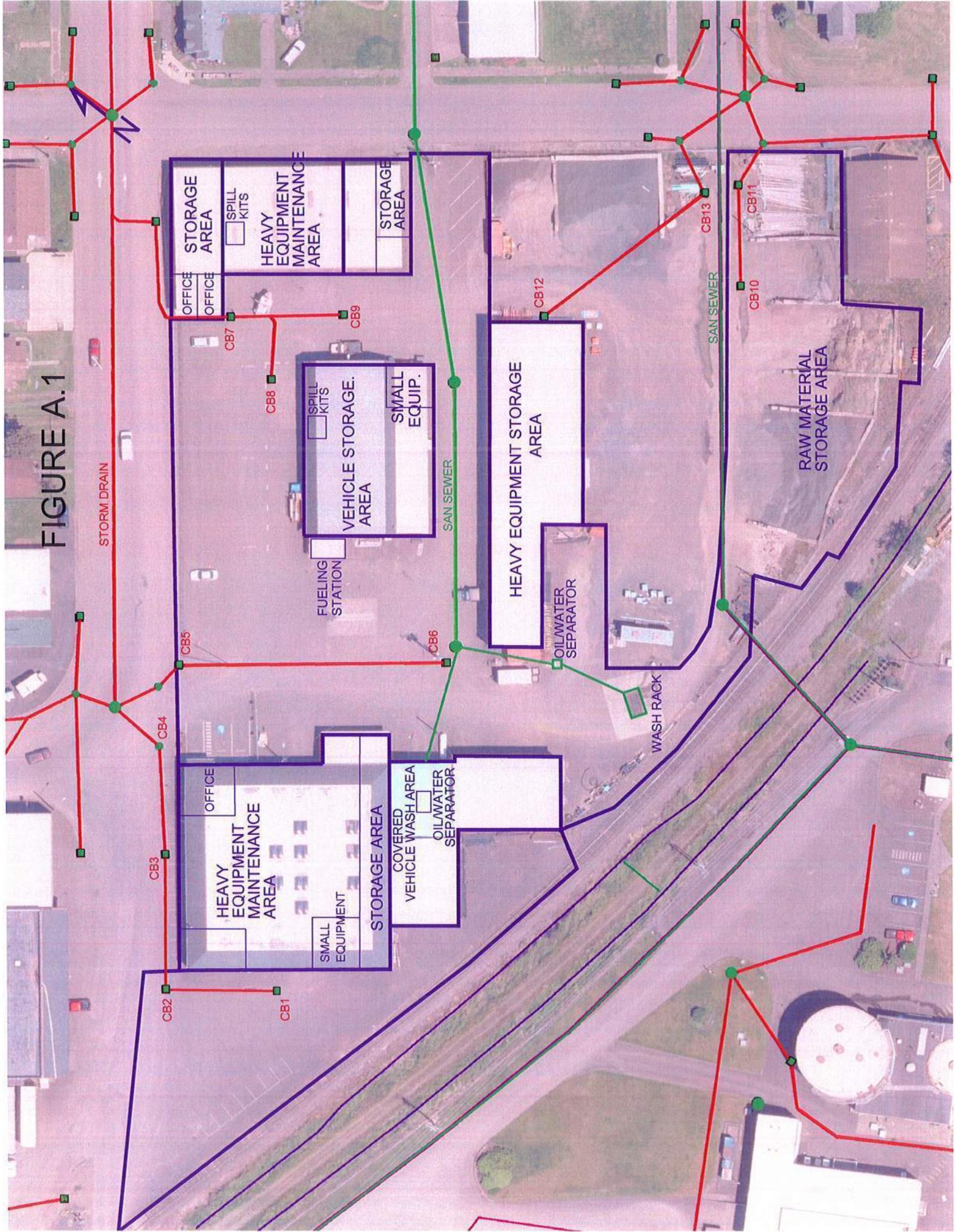
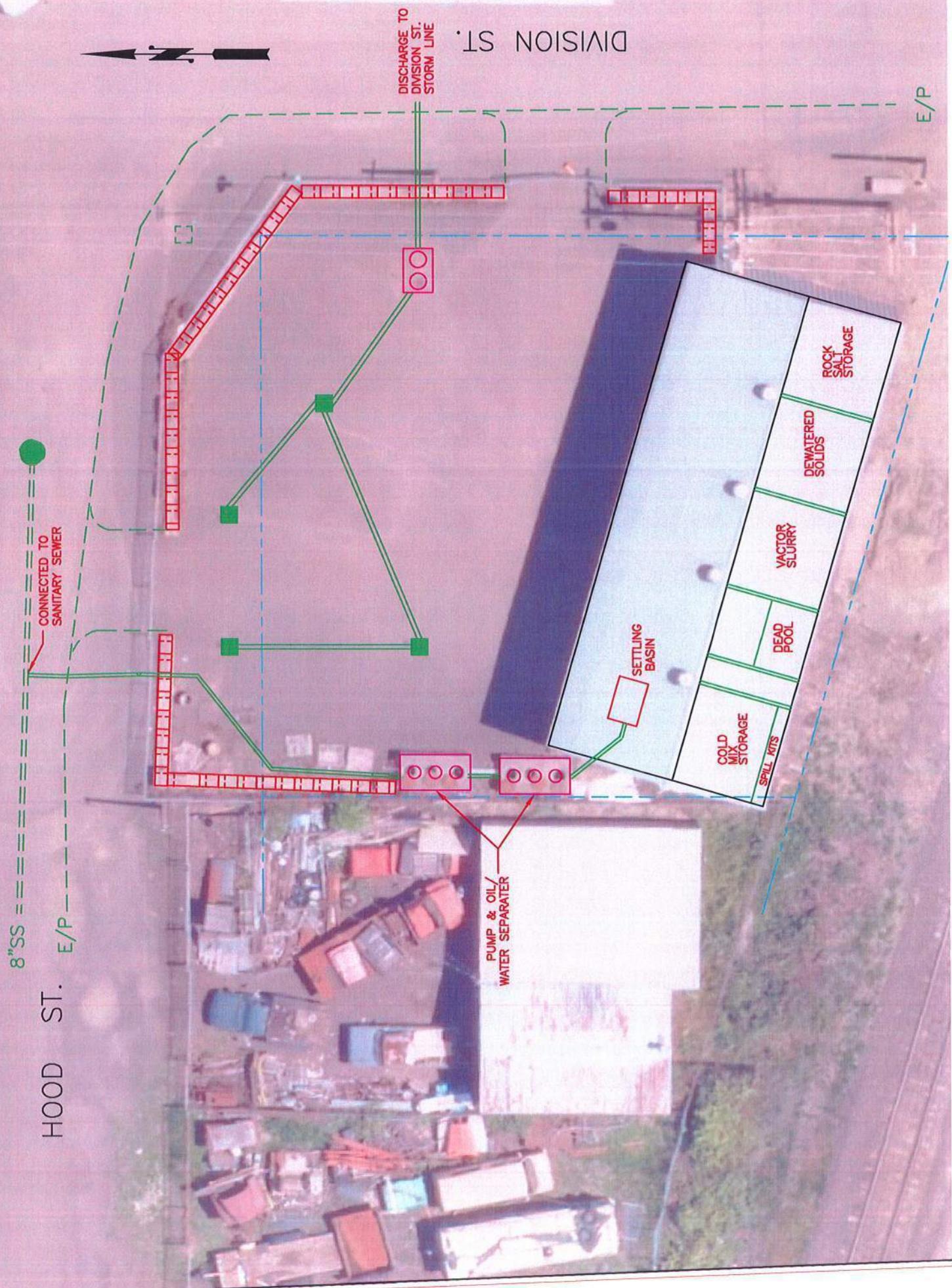
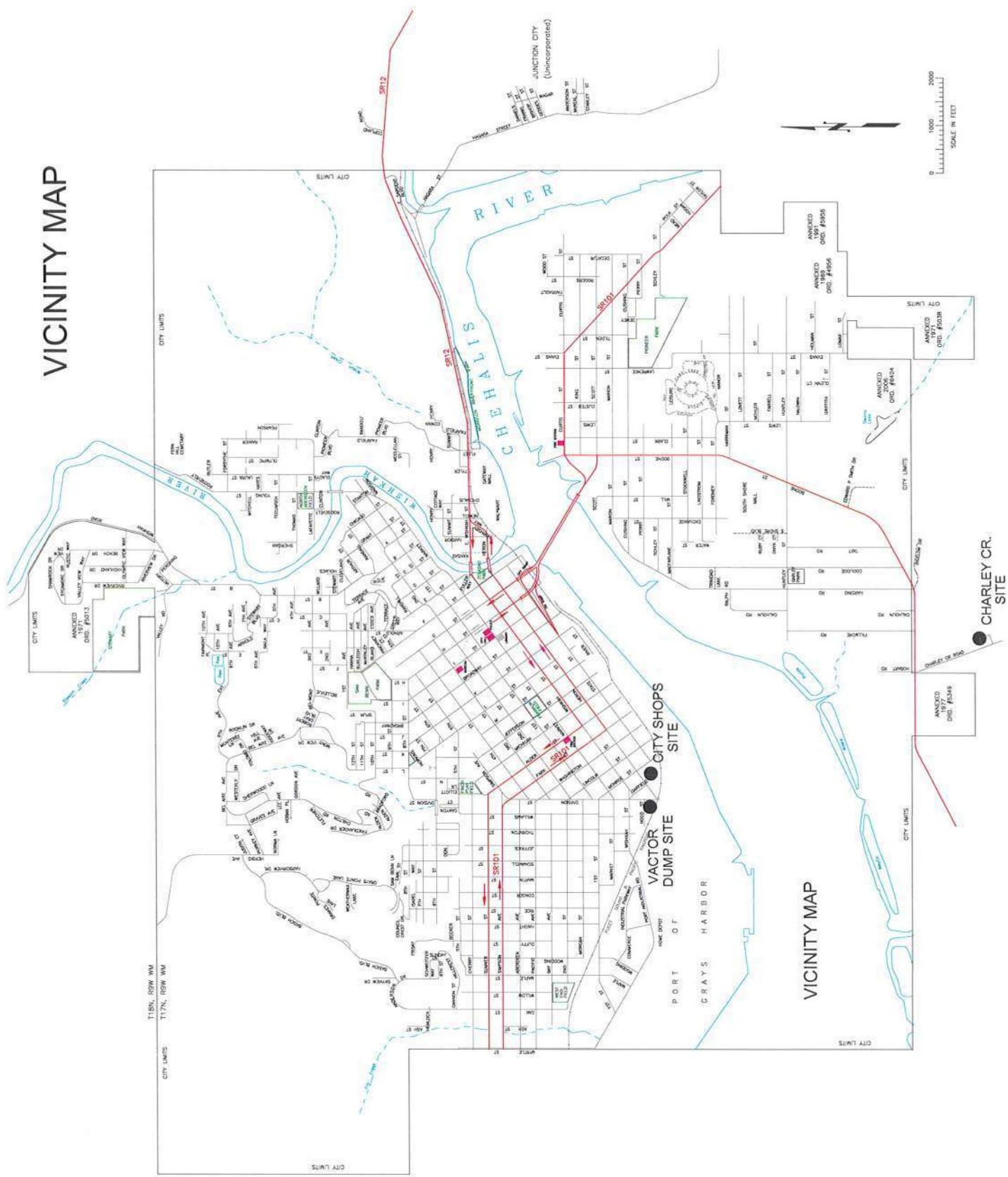


Figure A.3 – Site Map – Vactor Solids Facility

FIGURE A.2



VICINITY MAP



APPENDIX B – FACILITY POLLUTION PREVENTION BMPs

The BMPs listed below are from the Washington State Department of Ecology's 2005 Stormwater Management Manual for Western Washington (SWMMWW), Volume IV, Chapter 2. The BMPs listed below are applicable to the City of Aberdeen Public Works Operations or Vactor Solids facilities. The BMP numbers are assigned by the corresponding page from the 2005 SWMMWW.

BMPs for Fueling At Dedicated Stations

Description of Pollutant Sources: A fueling station is a facility dedicated to the transfer of fuels from a stationary pumping station to mobile vehicles or equipment. It includes above or under-ground fuel storage facilities. In addition to general service gas stations, fueling may also occur at 24-hour convenience stores, construction sites, warehouses, car washes, manufacturing establishments, port facilities, and businesses with fleet vehicles. Typically, stormwater contamination at fueling stations is caused by leaks/spills of fuels, lube oils, radiator coolants, and vehicle washwater.

Pollutant Control Approach: New or substantially remodeled* fueling stations must be constructed on an impervious concrete pad under a roof to keep out rainfall and stormwater run-on. A treatment BMP must be used for contaminated stormwater and wastewaters in the fueling containment area.

** Substantial remodeling includes replacing the canopy, or relocating or adding one or more fuel dispensers in such a way that the Portland cement concrete (or equivalent) paving in the fueling area is modified.*

For new or substantially remodeled Fueling Stations:

Applicable Operational BMPs:

- Prepare an emergency spill response and cleanup plan (per BMPs for Spills of Oil and Hazardous Substances) and have designated trained person(s) available either on site or on call at all times to promptly and properly implement that plan and immediately cleanup all spills. Keep suitable cleanup materials, such as dry adsorbent materials, on site to allow prompt cleanup of a spill.
- Train employees on the proper use of fuel dispensers. Post signs in accordance with the Uniform Fire Code (UFC). Post “No Topping Off” signs (topping off gas tanks causes spillage and vents gas fumes to the air). Make sure that the automatic shutoff on the fuel nozzle is functioning properly.
- The person conducting the fuel transfer must be present at the fueling pump during fuel transfer, particularly at unattended or self-serve stations.
- Keep drained oil filters in a suitable container or drum.

Applicable Structural Source Control BMPs:

- Design the fueling island to control spills (dead-end sump or spill control separator in compliance with the UFC), and to treat collected stormwater and/or wastewater to required levels. Slope the concrete containment pad around the fueling island toward drains; either trench drains, catch basins and/or a dead-end sump. The slope of the drains shall not be less than 1 percent (Section 7901.8 of the UFC). Drains to

treatment shall have a shutoff valve, which must be closed in the event of a spill. The spill control sump must be sized in compliance with Section 7901.8 of the UFC; or

- Design the fueling island as a spill containment pad with a sill or berm raised to a minimum of four inches (Section 7901.8 of the UFC) to prevent the runoff of spilled liquids and to prevent run-on of stormwater from the surrounding area. Raised sills are not required at the open-grate trenches that connect to an approved drainage-control system.
- The fueling pad must be paved with Portland cement concrete, or equivalent. Asphalt is not considered an equivalent material.
- The fueling island must have a roof or canopy to prevent the direct entry of precipitation onto the spill containment pad (see Figure 2.1). The roof or canopy should, at a minimum, cover the spill containment pad (within the grade break or fuel dispensing area) and preferably extend several additional feet to reduce the introduction of windblown rain. Convey all roof drains to storm drains outside the fueling containment area.

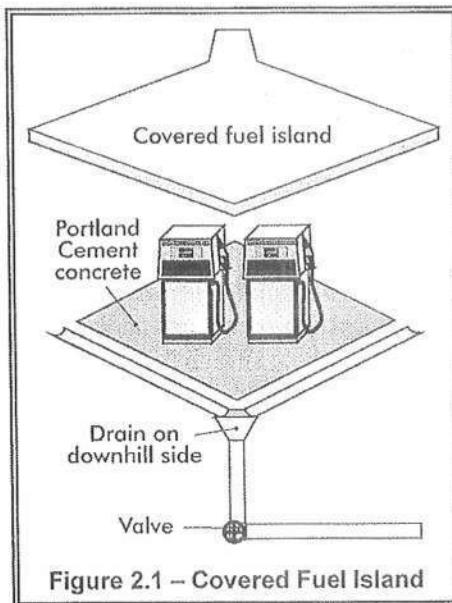


Figure 2.1 – Covered Fuel Island

- Stormwater collected on the fuel island containment pad must be conveyed to a sanitary sewer system, if approved by the sanitary authority; or to an approved treatment system such as an oil/water separator and a basic treatment BMP. (Basic treatment BMPs are listed in Volume V and include media filters and biofilters) Discharges from treatment systems to storm drains or surface water or to the ground must not display ongoing or recurring visible sheen and must not contain greater than a significant amount of oil and grease.

- Alternatively, stormwater collected on the fuel island containment pad may be collected and held for proper off site disposal.
- Conveyance of any fuel-contaminated stormwater to a sanitary sewer must be approved by the local sewer authority and must comply with pretreatment regulations (WAC 173-216-060). These regulations prohibit discharges that could "cause fire or explosion. An explosive or flammable mixture is defined under state and federal pretreatment regulations, based on a flash point determination of the mixture. If contaminated stormwater is determined not to be explosive, then it could be conveyed to a sanitary sewer system.
- Transfer the fuel from the delivery tank trucks to the fuel storage tank in impervious contained areas and ensure that appropriate overflow protection is used. Alternatively, cover nearby storm drains during the filling process and use drip pans under all hose connections.

Additional BMP for Vehicles 10 feet in height or greater

A roof or canopy may not be practicable at fueling stations that regularly fuel vehicles that are 10 feet in height or greater, particularly at industrial or WSDOT sites. At those types of fueling facilities, the following BMPs apply, as well as the applicable BMPs and fire prevention (UFC requirements) of this BMP for fueling stations:

- If a roof or canopy is impractical the concrete fueling pad must be equipped with emergency spill control, which includes a shutoff valve for the drainage from the fueling area. The valve must be closed in the event of a spill. An electronically actuated valve is preferred to minimize the time lapse between spill and containment. Spills must be cleaned up and disposed off-site in accordance with BMPs for Spills of Oil and Hazardous Substances.
- The valve may be opened to convey contaminated stormwater to a sanitary sewer, if approved by the sewer authority, or to oil removal treatment such as an API or CP oil/water separator, catchbasin insert, or equivalent treatment, and then to a basic treatment BMP. Discharges from treatment systems to storm drains or surface water or to the ground must not display ongoing or recurring visible sheen and must not contain greater than a significant amount of oil and grease.

An explosive or flammable mixture is defined under state and federal pretreatment regulations, based on a flash point determination of the mixture. If contaminated stormwater is determined not to be explosive or) then it could be conveyed to a sanitary sewer system.

BMPs for Landscaping and Lawn/Vegetation Management

Description of Pollutant Sources: Landscaping can include grading, soil transfer, vegetation removal, pesticide and fertilizer applications, and watering. Stormwater contaminants include toxic organic compounds, heavy metals, oils, total suspended solids, coliform bacteria, fertilizers, and pesticides.

Lawn and vegetation management can include control of objectionable weeds, insects, mold, bacteria and other pests with chemical pesticides and is conducted commercially at commercial, industrial, and residential sites. Examples include weed control on golf course lawns, access roads, and utility corridors and during landscaping; sap stain and insect control on lumber and logs; rooftop moss removal; killing nuisance rodents; fungicide application to patio decks, and residential lawn/plant care. Toxic pesticides such as pentachlorophenol, carbamates, and organometallics can be released to the environment by leaching and dripping from treated parts, container leaks, product misuse, and outside storage of pesticide contaminated materials and equipment. Poor management of the vegetation and poor application of pesticides or fertilizers can cause appreciable stormwater contamination.

Pollutant Control Approach: Control of fertilizer and pesticide applications, soil erosion, and site debris to prevent contamination of stormwater.

Develop and implement an Integrated Pest Management Plan (IPM) and use pesticides only as a last resort. If pesticides/herbicides are used they must be carefully applied in accordance with label instructions on U.S. Environmental Protection Agency (EPA) registered materials. Maintain appropriate vegetation, with proper fertilizer application where practicable, to control erosion and the discharge of stormwater pollutants. Where practicable grow plant species appropriate for the site, or adjust the soil properties of the subject site to grow desired plant species.

Applicable Operational BMPs for Landscaping:

- Install engineered soil/landscape systems to improve the infiltration and regulation of stormwater in landscaped areas.
- Do not dispose of collected vegetation into waterways or storm drainage systems.

Recommended Additional Operational BMPs for Landscaping:

- Conduct mulch-mowing whenever practicable
- Dispose of grass clippings, leaves, sticks, or other collected vegetation, by composting, if feasible.

- Use mulch or other erosion control measures when soils are exposed for more than one week during the dry season or two days during the rainy season.
- If oil or other chemicals are handled, store and maintain appropriate oil and chemical spill cleanup materials in readily accessible locations. Ensure that employees are familiar with proper spill cleanup procedures.
- Till fertilizers into the soil rather than dumping or broadcasting onto the surface. Determine the proper fertilizer application for the types of soil and vegetation encountered.
- Till a topsoil mix or composted organic material into the soil to create a well-mixed transition layer that encourages deeper root systems and drought-resistant plants.
- Use manual and/or mechanical methods of vegetation removal rather than applying herbicides, where practical.

Applicable Operational BMPs for the Use of Pesticides:

- Develop and implement an IPM (See section on IPM at end of BMP) and use pesticides only as a last resort.
- Implement a pesticide-use plan and include at a minimum: a list of selected pesticides and their specific uses; brands, formulations, application methods and quantities to be used; equipment use and maintenance procedures; safety, storage, and disposal methods; and monitoring, record keeping, and public notice procedures. All procedures shall conform to the requirements of Chapter 17.21 RCW and Chapter 16-228 WAC (Appendix IV-D R.7).
- Choose the least toxic pesticide available that is capable of reducing the infestation to acceptable levels. The pesticide should readily degrade in the environment and/or have properties that strongly bind it to the soil. Any pest control used should be conducted at the life stage when the pest is most vulnerable. For example, if it is necessary to use a Bacillus thuringiensis application to control tent caterpillars, it must be applied before the caterpillars cocoon or it will be ineffective. Any method used should be site-specific and not used wholesale over a wide area.
- Apply the pesticide according to label directions. Under no conditions shall pesticides be applied in quantities that exceed manufacturer's instructions.
- Mix the pesticides and clean the application equipment in an area where accidental spills will not enter surface or ground waters, and will not contaminate the soil.

- Store pesticides in enclosed areas or in covered impervious containment. Ensure that pesticide contaminated stormwater or spills/leaks of pesticides are not discharged to storm drains. Do not hose down the paved areas to a storm drain or conveyance ditch. Store and maintain appropriate spill cleanup materials in a location known to all near the storage area.
- Clean up any spilled pesticides and ensure that the pesticide contaminated waste materials are kept in designated covered and contained areas.
- The pesticide application equipment must be capable of immediate shutoff in the event of an emergency.
- Do not spray pesticides within 100 feet of open waters including wetlands, ponds, and streams, sloughs and any drainage ditch or channel that leads to open water except when approved by Ecology or the local jurisdiction. All sensitive areas including wells, creeks and wetlands must be flagged prior to spraying.
- As required by the local government or by Ecology, complete public posting of the area to be sprayed prior to the application.
- Spray applications should only be conducted during weather conditions as specified in the label direction and applicable local and state regulations. Do not apply during rain or immediately before expected rain.

Recommended Additional Operational BMPs for the use of pesticides:

- Consider alternatives to the use of pesticides such as covering or harvesting weeds, substitute vegetative growth, and manual weed control/moss removal.
- Consider the use of soil amendments, such as compost, that are known to control some common diseases in plants, such as Pythium root rot, ashy stem blight, and parasitic nematodes. The following are three possible mechanisms for disease control by compost addition (USEPA Publication 530-F-9-044):
 1. Successful competition for nutrients by antibiotic production;
 2. Successful predation against pathogens by beneficial microorganism; and
 3. Activation of disease-resistant genes in plants by composts.

Installing an amended soil/landscape system can preserve both the plant system and the soil system more effectively. This type of approach provides a soil/landscape system with adequate depth, permeability, and organic matter to sustain itself and continue working as an effective stormwater infiltration system and a sustainable nutrient cycle.

- Once a pesticide is applied, its effectiveness should be evaluated for possible improvement. Records should be kept showing the applicability and inapplicability of the pesticides considered.
- An annual evaluation procedure should be developed including a review of the effectiveness of pesticide applications, impact on buffers and sensitive areas (including potable wells), public concerns, and recent toxicological information on pesticides used/proposed for use. If individual or public potable wells are located in the proximity of commercial pesticide applications contact the regional Ecology hydrogeologist to determine if additional pesticide application control measures are necessary.
- Rinseate from equipment cleaning and/or triple-rinsing of pesticide containers should be used as product or recycled into product.
- The application equipment used should be capable of immediate shutoff in the event of an emergency.

For more information, contact the WSU Extension Home-Assist Program, (253) 445-4556, or Bio-Integral Resource Center (BIRC), P.O. Box 7414, Berkeley, CA 94707, or the Washington Department of Ecology to obtain "Hazardous Waste Pesticides" (Publication #89-41); and/or EPA to obtain a publication entitled "Suspended, Canceled and Restricted Pesticides" which lists all restricted pesticides and the specific uses that are allowed. Valuable information from these sources may also be available on the internet.

Applicable Operational BMPs for Vegetation Management:

- Use at least an eight-inch "topsoil" layer with at least 8 percent organic matter to provide a sufficient vegetation-growing medium. Amending existing landscapes and turf systems by increasing the percent organic matter and depth of topsoil can substantially improve the permeability of the soil, the disease and drought resistance of the vegetation, and reduce fertilizer demand. This reduces the demand for fertilizers, herbicides, and pesticides. Organic matter is the least water-soluble form of nutrients that can be added to the soil. Composted organic matter generally releases only between 2 and 10 percent of its total nitrogen annually, and this release corresponds closely to the plant growth cycle. If natural plant debris and mulch are returned to the soil, this system can continue recycling nutrients indefinitely.
- Select the appropriate turfgrass mixture for your climate and soil type. Certain tall fescues and rye grasses resist insect attack because the symbiotic endophytic fungi found naturally in their tissues repel or kill common leaf and stem-eating lawn insects. They do not, however, repel root-feeding lawn pests such as Crane Fly larvae, and are toxic to ruminants such as cattle and sheep. The fungus causes no known

adverse effects to the host plant or to humans. Endophytic grasses are commercially available and can be used in areas such as parks or golf courses where grazing does not occur. The local Cooperative Extension office can offer advice on which types of grass are best suited to the area and soil type.

- Use the following seeding and planting BMPs, or equivalent BMPs to obtain information on grass mixtures, temporary and permanent seeding procedures, maintenance of a recently planted area, and fertilizer application rates: Temporary Seeding, Mulching and Matting, Clear Plastic Covering, Permanent Seeding and Planting, and Sodding as described in Volume II).
- Selection of desired plant species can be made by adjusting the soil properties of the subject site. For example, a constructed wetland can be designed to resist the invasion of reed canary grass by layering specific strata of organic matters (e.g., compost forest product residuals) and creating a mildly acidic pH and carbon-rich soil medium. Consult a soil restoration specialist for site-specific conditions.
- Aerate lawns regularly in areas of heavy use where the soil tends to become compacted. Aeration should be conducted while the grasses in the lawn are growing most vigorously. Remove layers of thatch greater than $\frac{3}{4}$ -inch deep.
- Mowing is a stress-creating activity for turfgrass. When grass is mowed too short its productivity is decreased and there is less growth of roots and rhizomes. The turf becomes less tolerant of environmental stresses, more disease prone and more reliant on outside means such as pesticides, fertilizers and irrigation to remain healthy. Set the mowing height at the highest acceptable level and mow at times and intervals designed to minimize stress on the turf. Generally mowing only 1/3 of the grass blade height will prevent stressing the turf.

Irrigation:

- The depth from which a plant normally extracts water depends on the rooting depth of the plant. Appropriately irrigated lawn grasses normally root in the top 6 to 12 inches of soil; lawns irrigated on a daily basis often root only in the top 1 inch of soil. Improper irrigation can encourage pest problems, leach nutrients, and make a lawn completely dependent on artificial watering. The amount of water applied depends on the normal rooting depth of the turfgrass species used, the available water holding capacity of the soil, and the efficiency of the irrigation system. Consult with the local water utility, Conservation District, or Cooperative Extension office to help determine optimum irrigation practices.

Fertilizer Management:

- Turfgrass is most responsive to nitrogen fertilization, followed by potassium and phosphorus. Fertilization needs vary by site depending on plant, soil and climatic conditions. Evaluation of soil nutrient levels through regular testing ensures the best possible efficiency and economy of fertilization. For details on soils testing, contact the local Conservation District or Cooperative Extension Service.
- Fertilizers should be applied in amounts appropriate for the target vegetation and at the time of year that minimizes losses to surface and ground waters. Do not fertilize during a drought or when the soil is dry. Alternatively, do not apply fertilizers within three days prior to predicted rainfall. The longer the period between fertilizer application and either rainfall or irrigation, the less fertilizer runoff occurs.
- Use slow release fertilizers such as methylene urea, IDBU, or resin coated fertilizers when appropriate, generally in the spring. Use of slow release fertilizers is especially important in areas with sandy or gravelly soils.
- Time the fertilizer application to periods of maximum plant uptake. Generally fall and spring applications are recommended, although WSU turf specialists recommend four fertilizer applications per year.
- Properly trained persons should apply all fertilizers. At commercial and industrial facilities fertilizers should not be applied to grass swales, filter strips, or buffer areas that drain to sensitive water bodies unless approved by the local jurisdiction.

Integrated Pest Management

An IPM program might consist of the following steps:

Step 1: Correctly identify problem pests and understand their life cycle

Step 2: Establish tolerance thresholds for pests.

Step 3: Monitor to detect and prevent pest problems.

Step 4: Modify the maintenance program to promote healthy plants and discourage pests.

Step 5: Use cultural, physical, mechanical, or biological controls first if pests exceed the tolerance thresholds.

Step 6: Evaluate and record the effectiveness of the control and modify maintenance practices to support lawn or landscape recovery and prevent recurrence.

For an elaboration of these steps refer to Appendix IV-F.

BMPs for Loading and Unloading Areas for Liquid or Solid Material

Description of Pollutant Sources: Loading/unloading of liquid and solid materials at industrial and commercial facilities are typically conducted at shipping and receiving, outside storage, fueling areas, etc. Materials transferred can include products, raw materials, intermediate products, waste materials, fuels, scrap metals, etc. Leaks and spills of fuels, oils, powders, organics, heavy metals, salts, acids, alkalis, etc. during transfer are potential causes of stormwater contamination. Spills from hydraulic line breaks are a common problem at loading docks.

Pollutant Control Approach: Cover and contain the loading/ unloading area where necessary to prevent run-on of stormwater and runoff of contaminated stormwater.

Applicable Operational BMPs:

At All Loading/ Unloading Areas:

- A significant amount of debris can accumulate at outside, uncovered loading/unloading areas. Sweep these surfaces frequently to remove material that could otherwise be washed off by stormwater. Sweep outside areas that are covered for a period of time by containers, logs, or other material after the areas are cleared.
- Place drip pans, or other appropriate temporary containment device, at locations where leaks or spills may occur such as hose connections, hose reels and filler nozzles. Drip pans shall always be used when making and breaking connections (see Figure 2.2). Check loading/unloading equipment such as valves, pumps, flanges, and connections regularly for leaks and repair as needed.

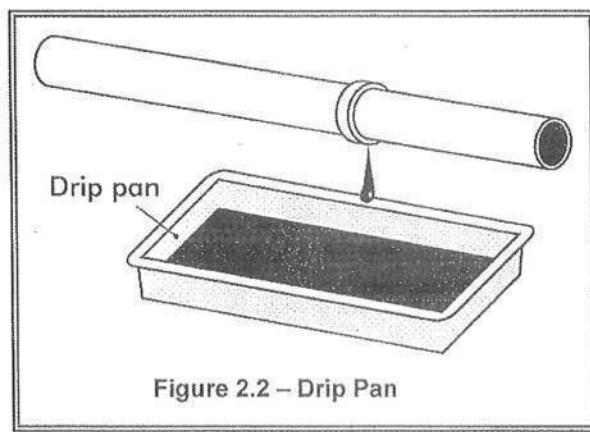


Figure 2.2 – Drip Pan

At Tanker Truck and Rail Transfer Areas to Above/Below-ground Storage Tanks:

- To minimize the risk of accidental spillage, prepare an "Operations Plan" that describes procedures for loading/unloading. Train the employees, especially fork lift operators, in its execution and post it or otherwise have it readily available to employees.
- Report spills of reportable quantities to Ecology (refer to Section 2.1 for telephone numbers of Ecology Regional Offices).
- Prepare and implement an Emergency Spill Cleanup Plan for the facility (BMP Spills of Oil and Hazardous Substances) which includes the following BMPs:
 - Ensure the clean up of liquid/solid spills in the loading/ unloading area immediately, if a significant spill occurs, and, upon completion of the loading/unloading activity, or, at the end of the working day.
 - Retain and maintain an appropriate oil spill cleanup kit on-site for rapid cleanup of material spills. (See BMP Spills of Oil and Hazardous Substances).
 - Ensure that an employee trained in spill containment and cleanup is present during loading/unloading.

At Rail Transfer Areas to Above/below-ground Storage Tanks: Install a drip pan system as illustrated (see Figure 2.3) within the rails to collect spills/leaks from tank cars and hose connections, hose reels, and filler nozzles.

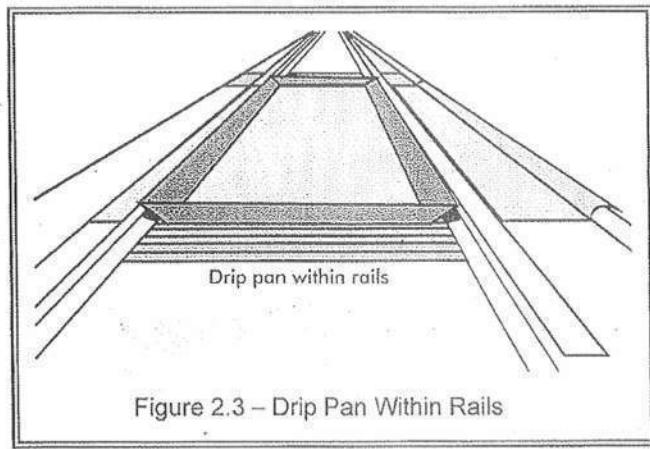


Figure 2.3 – Drip Pan Within Rails

Loading/Unloading from/to Marine Vessels: Facilities and procedures for the loading or unloading of petroleum products must comply with Coast Guard requirements specified in Appendix IV-D R.5.

Transfer of Small Quantities from Tanks and Containers: Refer to BMPs Storage of Liquids in Permanent Above-Ground Tanks, and Storage of Liquid, Food Waste, or Dangerous Waste Containers, for requirements on the transfer of small quantities from tanks and containers, respectively.

Applicable Structural Source Control BMPs:

At All Loading/ Unloading Areas:

- Consistent with Uniform Fire Code requirements (Appendix IV-D R.2) and to the extent practicable, conduct unloading or loading of solids and liquids in a manufacturing building, under a roof, or lean-to, or other appropriate cover.
- Berm, dike, and/or slope the loading/unloading area to prevent run-on of stormwater and to prevent the runoff or loss of any spilled material from the area.
- Large loading areas frequently are not curbed along the shoreline. As a result, stormwater passes directly off the paved surface into surface water. Place curbs along the edge, or slope the edge such that the stormwater can flow to an internal storm drain system that leads to an approved treatment BMP.
- Pave and slope loading/unloading areas to prevent the pooling of water. The use of catch basins and drain lines within the interior of the paved area must be minimized as they will frequently be covered by material, or they should be placed in designated "alleyways" that are not covered by material, containers or equipment.

Recommended Structural Source Control BMP: For the transfer of pollutant liquids in areas that cannot contain a catastrophic spill, install an automatic shutoff system in case of unanticipated off-loading interruption (e.g. coupling break, hose rupture, overfill, etc.).

At Loading and Unloading Docks:

- Install/maintain overhangs, or door skirts that enclose the trailer end (see Figures 2.4 and 2.5) to prevent contact with rainwater.
- Design the loading/unloading area with berms, sloping, etc. to prevent the run-on of stormwater.
- Retain on-site the necessary materials for rapid cleanup of spills.

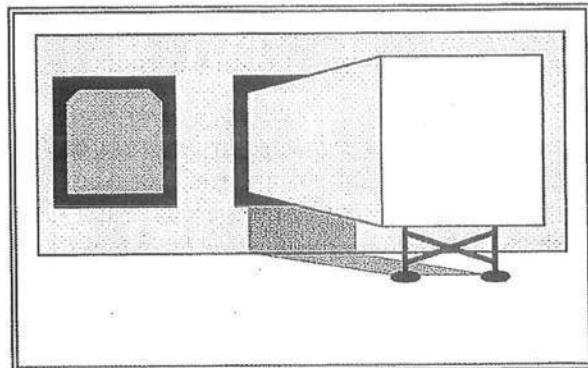


Figure 2.4 – Loading Dock with Door Skirt

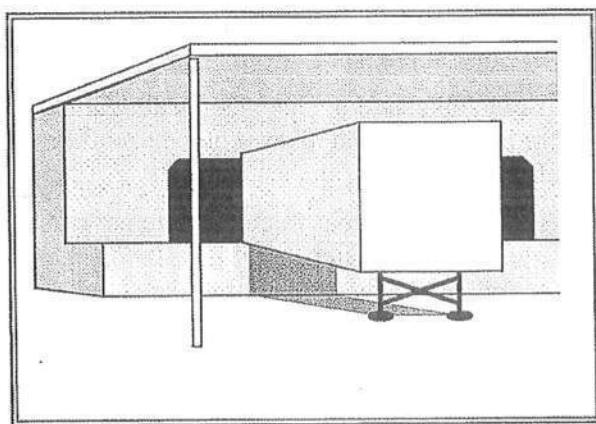


Figure 2.5 – Loading Dock with Overhang

At Tanker Truck Transfer Areas to Above/Below-Ground Storage Tanks:

- Pave the area on which the transfer takes place. If any transferred liquid, such as gasoline, is reactive with asphalt pave the area with Portland cement concrete.
- Slope, berm, or dike the transfer area to a dead-end sump, spill containment sump, a spill control (SC) oil/water separator, or other spill control device. The minimum spill retention time should be 15 minutes at the greater flow rate of the highest fuel dispenser nozzle through-put rate, or the peak flow rate of the 6-month, 24-hour storm event over the surface of the containment pad, whichever is greater. The volume of the spill containment sump should be a minimum of 50 gallons with an adequate grit sedimentation volume.

BMPs for Maintenance and Repair of Vehicles and Equipment

Description of Pollutant Sources: Pollutant sources include parts/vehicle cleaning, spills/leaks of fuel and other liquids, replacement of liquids, outdoor storage of batteries/liquids/parts, and vehicle parking.

Pollutant Control Approach: Control of leaks and spills of fluids using good housekeeping and cover and containment BMPs.

Applicable Operational BMPs:

- Inspect for leaks all incoming vehicles, parts, and equipment stored temporarily outside.
- Use drip pans or containers under parts or vehicles that drip or that are likely to drip liquids, such as during dismantling of liquid containing parts or removal or transfer of liquids.
- Remove batteries and liquids from vehicles and equipment in designated areas designed to prevent stormwater contamination. Store cracked batteries in a covered non-leaking secondary containment system.
- Empty oil and fuel filters before disposal. Provide for proper disposal of waste oil and fuel.
- Do not pour/convey washwater, liquid waste, or other pollutant into storm drains or to surface water. Check with the local sanitary sewer authority for approval to convey to a sanitary sewer.
- Do not connect maintenance and repair shop floor drains to storm drains or to surface water. To allow for snowmelt during the winter a drainage trench with a sump for particulate collection can be installed and used only for draining the snowmelt and not for discharging any vehicular or shop pollutants.

Applicable Structural Source Control BMPs:

- Conduct all maintenance and repair of vehicles and equipment in a building, or other covered impervious containment area that is sloped to prevent run-on of uncontaminated stormwater and runoff of contaminated stormwater.
- The maintenance of refrigeration engines in refrigerated trailers may be conducted in the parking area with due caution to avoid the release of engine or refrigeration fluids to storm drains or surface water.
- Park large mobile equipment, such as log stackers, in a designated contained area.

For additional applicable BMPs refer to the following BMPs: Fueling at Dedicated Stations; Washing and Steam Cleaning Vehicle/Equipment/Building Structures; Loading and Unloading Areas for Liquid or Solid Material; Storage of Liquids in Permanent Above-Ground Tanks; Storage of Liquid, Food Waste, or Dangerous Waste Containers;

Note that a treatment BMP is applicable for contaminated stormwater.

Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products; Spills of Oil and Hazardous Substances; Illicit Connections to Storm Drains; and other BMPs provided in this chapter.

Applicable Treatment BMPs: Contaminated stormwater runoff from vehicle staging and maintenance areas must be conveyed to a sanitary sewer, if allowed by the local sewer authority, or to an API or CP oil and water separator followed by a basic treatment BMP (See Volume V), applicable filter, or other equivalent oil treatment system.

Recommended Additional Operational BMPs:

- Consider storing damaged vehicles inside a building or other covered containment, until all liquids are removed. Remove liquids from vehicles retired for scrap.
- Clean parts with aqueous detergent based solutions or non-chlorinated solvents such as kerosene or high flash mineral spirits, and/or use wire brushing or sand blasting whenever practicable. Avoid using toxic liquid cleaners such as methylene chloride, 1,1,1-trichloroethane, trichloroethylene or similar chlorinated solvents. Choose cleaning agents that can be recycled.
- Inspect all BMPs regularly, particularly after a significant storm. Identify and correct deficiencies to ensure that the BMPs are functioning as intended.
- Avoid hosing down work areas. Use dry methods for cleaning leaked fluids.
- Recycle greases, used oil, oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic fluids, transmission fluids, and engine oils (see Appendix IV-C).
- Do not mix dissimilar or incompatible waste liquids stored for recycling.

**BMPs for
Painting/Finishing/
Coating of
Vehicles/Boats/
Buildings/
Equipment**

Description of Pollutant Sources: Surface preparation and the application of paints, finishes and/or coatings to vehicles, boats, buildings, and/or equipment outdoors can be sources of pollutants. Potential pollutants include organic compounds, oils and greases, heavy metals, and suspended solids.

Pollutant Control Approach: Cover and contain painting and sanding operations and apply good housekeeping and preventive maintenance practices to prevent the contamination of stormwater with painting oversprays and grit from sanding.

Applicable Operational BMPs:

- Train employees in the careful application of paints, finishes, and coatings to reduce misuse and over spray. Use ground or drop cloths underneath outdoor painting, scraping, sandblasting work, and properly clean and temporarily store collected debris daily.
- Do not conduct spraying, blasting, or sanding activities over open water or where wind may blow paint into water.
- Wipe up spills with rags and other absorbent materials immediately. Do not hose down the area to a storm drain or receiving water or conveyance ditch to receiving water.
- On marine dock areas sweep rather than hose down debris. Collect any hose water generated and convey to appropriate treatment and disposal.
- Use a storm drain cover, filter fabric, or similarly effective runoff control device if dust, grit, washwater, or other pollutants may escape the work area and enter a catch basin. The containment device(s) must be in place at the beginning of the workday. Collect contaminated runoff and solids and properly dispose of such wastes before removing the containment device(s) at the end of the workday.
- Use a ground cloth, pail, drum, drip pan, tarpaulin, or other protective device for activities such as paint mixing and tool cleaning outside or where spills can contaminate stormwater.
- Properly dispose of all wastes and prevent all uncontrolled releases to the air, ground or water.
- Clean brushes and tools covered with non-water-based paints, finishes, or other materials in a manner that allows collection of used solvents (e.g., paint thinner, turpentine, xylol, etc.) for recycling or proper disposal.
- Store toxic materials under cover (tarp, etc.) during precipitation events and when not in use to prevent contact with stormwater.

Applicable Structural Source Control BMPs: Enclose and/or contain all work while using a spray gun or conducting sand blasting and in compliance with applicable air pollution control, OSHA, and WISHA requirements. Do not conduct outside spraying, grit blasting, or sanding activities during windy conditions which render containment ineffective.

Recommended Additional Operational BMPs:

- Clean paintbrushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain.
- Recycle paint, paint thinner, solvents, pressure washwater, and any other recyclable materials.
- Use efficient spray equipment such as electrostatic, air-atomized, high volume/low pressure, or gravity feed spray equipment.
- Purchase recycled paints, paint thinner, solvents, and other products if feasible.

BMPs for Parking and Storage of Vehicles and Equipment

Description of Pollutant Sources: Public and commercial parking lots such as retail store, fleet vehicle (including rent-a-car lots and car dealerships), equipment sale and rental parking lots, and parking lot driveways, can be sources of toxic hydrocarbons and other organic compounds, oils and greases, metals, and suspended solids caused by the parked vehicles.

Pollutant Control Approach: If the parking lot is a **high-use site** as defined below, provide appropriate oil removal equipment for the contaminated stormwater runoff.

Applicable Operational BMPs:

- If washing of a parking lot is conducted, discharge the washwater to a sanitary sewer, if allowed by the local sewer authority, or other approved wastewater treatment system, or collect it for off-site disposal.
- Do not hose down the area to a storm drain or to a receiving water. Sweep parking lots, storage areas, and driveways, regularly to collect dirt, waste, and debris.

Applicable Treatment BMPs: An oil removal system such as an API or CP oil and water separator, catch basin filter, or equivalent BMP, approved by the local jurisdiction, is applicable for parking lots meeting the threshold vehicle traffic intensity level of a *high-use site*.

Vehicle High-Use Sites

Establishments subject to a vehicle high-use intensity have been determined to be significant sources of oil contamination of stormwater. Examples of potential high use areas include customer parking lots at fast food stores, grocery stores, taverns, restaurants, large shopping malls, discount warehouse stores, quick-lube shops, and banks. If the PGIS for a high-use site exceeds 5,000 square feet in a threshold discharge area, and oil control BMP from the Oil Control Menu is necessary. A high-use site at a commercial or industrial establishment has one of the following characteristics: (Gaus/King County, 1994)

- Is subject to an expected average daily vehicle traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area; or
- Is subject to storage of a fleet of 25 or more diesel vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.).

BMPs for Storage of Liquid, Food Waste, or Dangerous Waste Containers

Description of Pollutant Sources: Steel and plastic drums with volumetric capacities of 55 gallons or less are typically used at industrial facilities for container storage of liquids and powders. The BMPs specified below apply to container(s) located outside a building used for temporary storage of accumulated food wastes, vegetable or animal grease, used oil, liquid feedstock or cleaning chemical, or Dangerous Wastes (liquid or solid) unless the business is permitted by Ecology to store the wastes (Appendix IV-D R.4). Leaks and spills of pollutant materials during handling and storage are the primary sources of pollutants. Oil and grease, acid/alkali pH, BOD, COD are potential pollutant constituents.

Pollutant Control Approach: Store containers in impervious containment under a roof or other appropriate cover, or in a building. For roll-containers (for example, dumpsters) that are picked up directly by the collection truck, a filet can be placed on both sides of the curb to facilitate moving the dumpster. If a storage area is to be used on-site for less than 30 days, a portable temporary secondary system like that shown in Figure 2.8 can be used in lieu of a permanent system as described above.

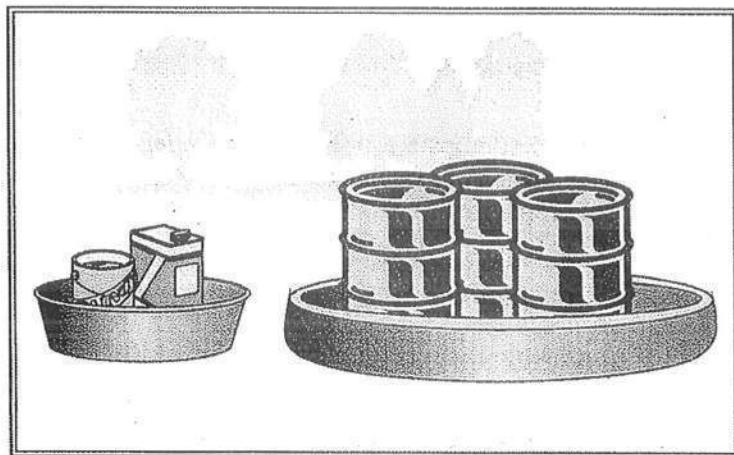


Figure 2.8 – Secondary Containment System

Applicable Operational BMPs:

- Place tight-fitting lids on all containers.
- Place drip pans beneath all mounted container taps and at all potential drip and spill locations during filling and unloading of containers.
- Inspect container storage areas regularly for corrosion, structural failure, spills, leaks, overfills, and failure of piping systems. Check containers daily for leaks/spills. Replace containers, and replace and tighten bungs in drums as needed.
- Businesses accumulating Dangerous Wastes that do not contain free liquids need only to store these wastes in a sloped designated area with

the containers elevated or otherwise protected from storm water run-on.

- Drums stored in an area where unauthorized persons may gain access must be secured in a manner that prevents accidental spillage, pilferage, or any unauthorized use (see Figure 2.9).

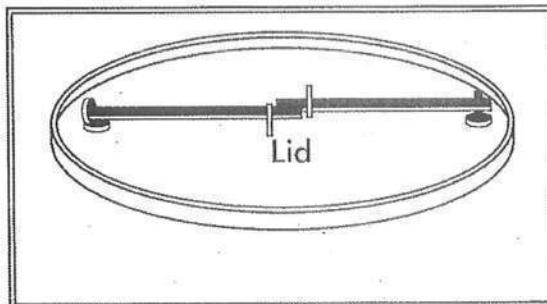


Figure 2.9 – Locking System for Drum Lid

- If the material is a Dangerous Waste, the business owner must comply with any additional Ecology requirements as specified in Appendix IV-D R.3.
- Storage of reactive, ignitable, or flammable liquids must comply with the Uniform Fire Code (Appendix IV-D R.2).
- Cover dumpsters, or keep them under cover such as a lean-to, to prevent the entry of stormwater. Replace or repair leaking garbage dumpsters.
- Drain dumpsters and/or dumpster pads to sanitary sewer. Keep dumpster lids closed. Install waterproof liners.

Applicable Structural Source Control BMPs:

- Keep containers with Dangerous Waste, food waste, or other potential pollutant liquids inside a building unless this is impracticable due to site constraints or Uniform Fire Code requirements.
- Store containers in a designated area, which is covered, bermed or diked, paved and impervious in order to contain leaks and spills (see Figure 2.10). The secondary containment shall be sloped to drain into a dead-end sump for the collection of leaks and small spills.
- For liquid wastes, surround the containers with a dike as illustrated in Figure 2.10. The dike must be of sufficient height to provide a volume of either 10 percent of the total enclosed container volume or 110 percent of the volume contained in the largest container, whichever is greater, or, if a single container, 110 percent of the volume of that container.

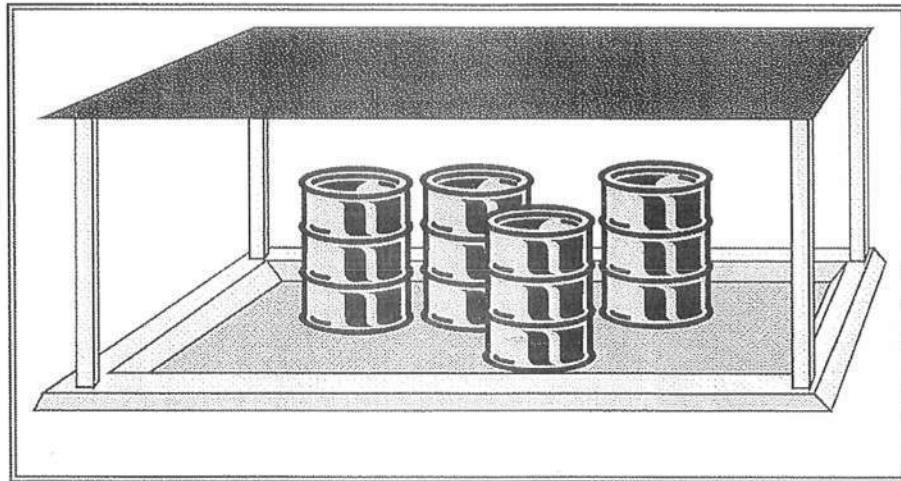


Figure 2.10 – Covered and Bermed Containment Area

- Where material is temporarily stored in drums, a containment system can be used as illustrated, in lieu of the above system (see Figure 2.8).
- Place containers mounted for direct removal of a liquid chemical for use by employees inside a containment area as described above. Use a drip pan during liquid transfer (see Figure 2.11).

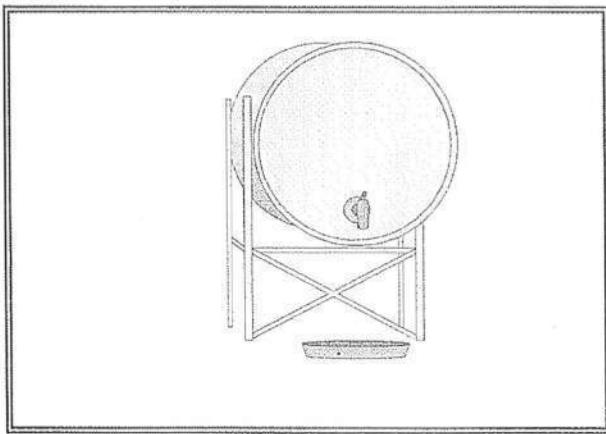


Figure 2.11 – Mounted Container - with drip pan

Applicable Treatment BMP:

Note that a treatment BMP is applicable for contaminated stormwater from drum storage areas.

- For contaminated stormwater in the containment area, connect the sump outlet to a sanitary sewer, if approved by the local Sewer Authority, or to appropriate treatment such as an API or CP oil/water separator, catch basin filter or other appropriate system (see Volume V). Equip the sump outlet with a normally closed valve to prevent the release of spilled or leaked liquids, especially flammables (compliance with Fire Codes), and dangerous liquids. This valve may be opened only for the conveyance of contaminated stormwater to treatment.
- Another option for discharge of contaminated stormwater is to pump it from a dead-end sump or catchment to a tank truck or other appropriate vehicle for off-site treatment and/or disposal.

BMPs for Storage or Transfer (Outside) of Solid Raw Materials, By-Products, or Finished Products

Description of Pollutant Sources: Solid raw materials, by-products, or products such as gravel, sand, salts, topsoil, compost, logs, sawdust, wood chips, lumber and other building materials, concrete, and metal products sometimes are typically stored outside in large piles, stacks, etc. at commercial or industrial establishments. Contact of outside bulk materials with stormwater can cause leachate, and erosion of the stored materials. Contaminants include TSS, BOD, organics, and dissolved salts (sodium, calcium, and magnesium chloride, etc).

Pollutant Control Approach: Provide impervious containment with berms, dikes, etc. and/or cover to prevent run-on and discharge of leachate pollutant(s) and TSS.

Applicable Operational BMP: Do not hose down the contained stockpile area to a storm drain or a conveyance to a storm drain or to a receiving water.

Applicable Structural Source Control BMP Options: Choose one or more of the source control BMP options listed below for stockpiles greater than 5 cubic yards of erodible or water soluble materials such as soil, road deicing salts, compost, unwashed sand and gravel, sawdust, etc. Also included are outside storage areas for solid materials such as logs, bark, lumber, metal products, etc.

- Store in a building or paved and bermed covered area as shown in Figure 2.13, or;

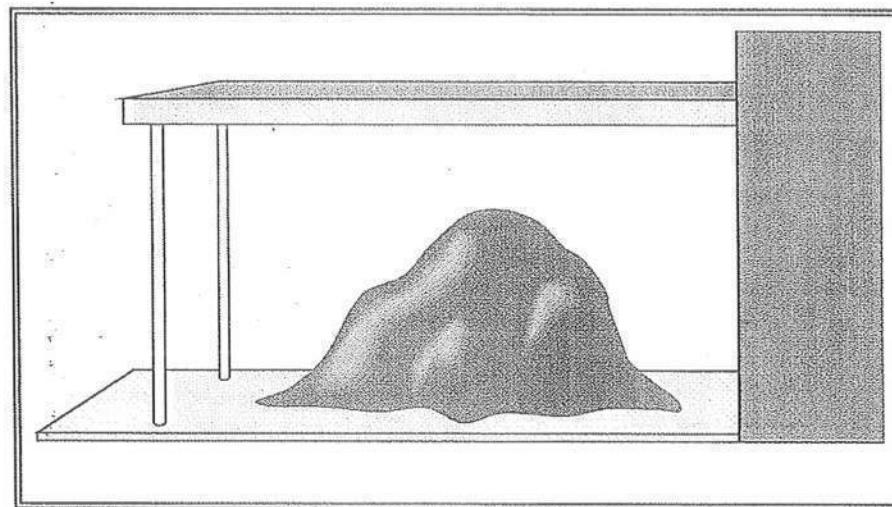


Figure 2.13 – Covered Storage Area for Bulk Solids (include berm if needed)

- Place temporary plastic sheeting (polyethylene, polypropylene, hypalon, or equivalent) over the material as illustrated (see Figure 2.14), or;

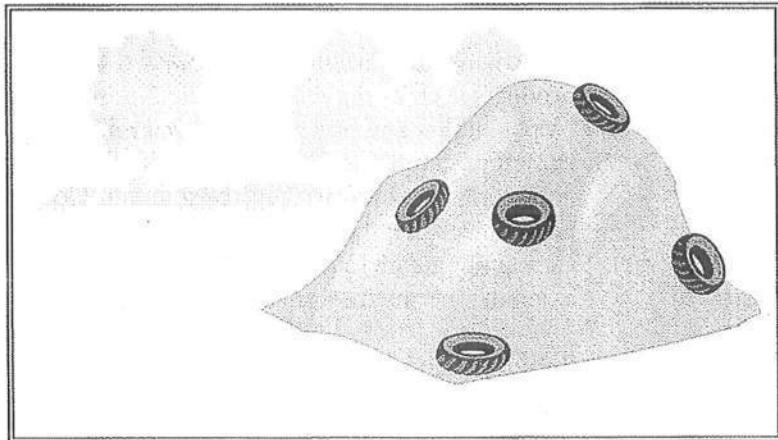


Figure 2.14 – Material Covered with Plastic Sheeting

- Pave the area and install a stormwater drainage system. Place curbs or berms along the perimeter of the area to prevent the run-on of uncontaminated stormwater and to collect and convey runoff to treatment.
- Slope the paved area in a manner that minimizes the contact between stormwater (e.g., pooling) and leachable materials in compost, logs, bark, wood chips, etc.
- For large stockpiles that cannot be covered, implement containment practices at the perimeter of the site and at any catch basins as needed to prevent erosion and discharge of the stockpiled material offsite or to a storm drain. Ensure that contaminated stormwater is not discharged directly to catch basins without conveying through a treatment BMP.

Applicable Treatment BMP: Convey contaminated stormwater from the stockpile area to a wet pond, wet vault, settling basin, media filter, or other appropriate treatment system depending on the contamination.

Recommended Additional Operational BMPs:

- Maintain drainage areas in and around storage of solid materials with a minimum slope of 1.5 percent to prevent pooling and minimize leachate formation. Areas should be sloped to drain stormwater to the perimeter where it can be collected, or to internal drainage “alleyways” where material is not stockpiled.
- Sweep paved storage areas regularly for collection and disposal of loose solid materials.
- If and when feasible, collect and recycle water-soluble materials (leachates) to the stockpile.
- Stock cleanup materials, such as brooms, dustpans, and vacuum sweepers near the storage area.

**BMPs for
Washing and
Steam Cleaning
Vehicles/
Equipment/
Building
Structures**

Description of Pollutant Sources: Vehicles, aircraft, vessels, and transportation, restaurant cooking, carpet cleaning, and industrial equipment, and large buildings may be commercially cleaned with low or high pressure water or steam. This includes frequent "charity" car washes at gas stations and commercial parking lots. The cleaning can include hand washing, scrubbing, sanding, etc. Washwater from cleaning activities can contain oil and grease, suspended solids, heavy metals, soluble organics, soaps, and detergents that can contaminate stormwater.

Pollutant Control Approach: The preferred approach is to cover and/or contain the cleaning activity, or conduct the activity inside a building, to separate the uncontaminated stormwater from the pollutant sources. Washwater must be conveyed to a sanitary sewer after approval by the local sewer authority, temporarily stored before proper disposal, or recycled, with no discharge to the ground, to a storm drain, or to surface water. Washwater may be discharged to the ground after proper treatment in accordance with *Ecology guidance WQ-95-056, "Vehicle and Equipment Washwater Discharges," June 1995*. The quality of any discharge to the ground after proper treatment must comply with Ecology's Ground Water Quality Standards, Chapter 173-200 WAC. Contact the local Ecology Regional Office for an NPDES Permit application for discharge of washwater to surface water or to a storm drain after on-site treatment.

Applicable Structural Source Control BMPs: Conduct vehicle/equipment washing in one of the following locations:

- At a commercial washing facility in which the washing occurs in an enclosure and drains to the sanitary sewer, or
- In a building constructed specifically for washing of vehicles and equipment, which drains to a sanitary sewer.

Conduct outside washing operation in a designated wash area with the following features:

- In a paved area, constructed as a spill containment pad to prevent the run-on of stormwater from adjacent areas. Slope the spill containment area so that washwater is collected in a containment pad drain system with perimeter drains, trench drains or catchment drains. Size the containment pad to extend out a minimum of four feet on all sides of the vehicles and/or equipment being washed.
- Convey the washwater to a sump (like a grit separator) and then to a sanitary sewer (if allowed by the local Sewer Authority), or other appropriate wastewater treatment or recycle system. An NPDES permit may be required for any washwater discharge to a storm drain or receiving water after treatment. Contact the Ecology regional office for NPDES Permit requirements.

Note that the purpose of the valve is to convey only washwater and contaminated stormwater to a treatment system.

- The containment sump must have a positive control outlet valve for spill control with live containment volume, and oil/water separation. Size the minimum live storage volume to contain the maximum expected daily washwater flow plus the sludge storage volume below the outlet pipe. The outlet valve will be shut during the washing cycle to collect the washwater in the sump. The valve should remain shut for at least two hours following the washing operation to allow the oil and solids to separate before discharge to a sanitary sewer. (See Ecology Publication WQ-95-056)
- The inlet valve in the discharge pipe should be closed when washing is not occurring, thereby preventing the entry of uncontaminated stormwater into the pretreatment/ treatment system. The stormwater can then drain into the conveyance/discharge system outside of the wash pad (essentially bypasses the washwater treatment/conveyance system). Post signs to inform people of the operation and purpose of the valve. Clean the concrete pad thoroughly until there is no foam or visible sheen in the washwater prior to closing the inlet valve and allowing uncontaminated stormwater to overflow and drain off the pad. (See Figure 2.15)
- Collect the washwater from building structures and convey it to appropriate treatment such as a sanitary sewer system if it contains oils, soaps, or detergents, where feasible. If the washwater does not contain oils, soaps, or detergents then it could drain to soils that have sufficient natural attenuation capacity for dust and sediment.

Recommended Additional BMPs:

- The wash area should be well marked at gas stations, multi-family residences and any other business where non-employees wash vehicles.
- For uncovered wash pads, the positive control outlet valve may be manually operated, but a pneumatic or electric valve system is preferable. The valve may be on a timer circuit where it is opened upon completion of a wash cycle. The timer would then close the valve after the sump or separator is drained (Figure 2.15).
- Use phosphate-free biodegradable detergents when practicable.
- Consider recycling the washwater.

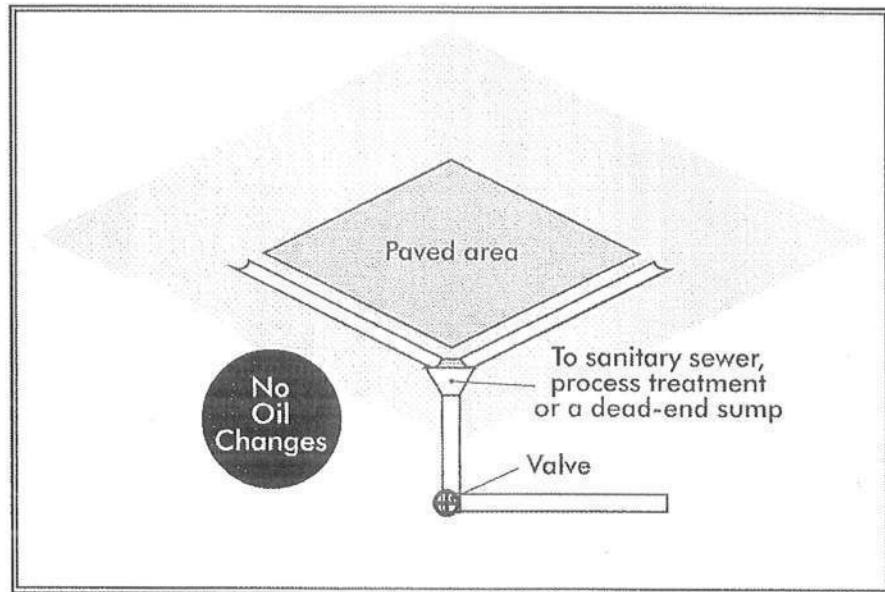


Figure 2.15 – Uncovered Wash Area

- Because soluble/emulsifiable detergents can be used in the wash medium, the selection of soaps and detergents and treatment BMPs should be considered carefully. Oil/water separators are ineffective in removing emulsified or water soluble detergents.

Exceptions

- At gas stations (for charity car washes) or commercial parking lots, where it is not possible to discharge the washwater to a sanitary sewer, a temporary plug or a temporary sump pump can be used at the storm drain to collect the washwater for off-site disposal such as to a nearby sanitary sewer.
- New and used car dealerships may wash vehicles in the parking stalls as long as a temporary plug system is used to collect the washwater for disposal as stated above, or an approved treatment system for the washwater is in place.

At industrial sites contact the local Ecology Regional Office for NPDES Permit requirements even if soaps, detergents, and/or other chemical cleaners are not used in washing trucks.

City of Aberdeen TMDL Summary

1. PURPOSE

To allow the COA to gather, track, and maintain consistent stormwater records for compliance with the NPDES Phase II Stormwater TMDL requirements.

2. TMDL Permit Requirements (2013-2019):

- a. Develop a public education and outreach involvement plan that targets the reduction of fecal coliform pollution by increasing public awareness and effecting behavior change. The plan includes stated goals, target audiences, messages, possible formats as well as distribution and evaluation methods. The plan shall be implemented prior to the expiration of the permit and include the following elements:
 - 1) Targeting of the residents of the three high priority water bodies identified in the 2007-2012 NPDES permit.
 - 2) Use mailings, door hangers or similar outreach tools.
 - 3) Reach 4th through 6th grade students.
- b. Design and implement a program which notifies residents, in a timely manner, when bacteria pollution that poses a public health concern reaches the MS4. (Completed 2015)
- c. Conduct two public education surveys gauging resident's knowledge of the sources of bacteria and prevention of bacteria pollution. One survey should measure the knowledge prior to outreach and the other their knowledge after outreach. (Completed 2015)
- d. Design and implement a Stream Team program to participate in stewardship activities. (Completed 2015)
- e. Install and maintain pet waste dispenser units and explanatory signage in public areas with dog use. (Completed 2015)
- f. Develop an inventory of sources that have potential for bacteria runoff. (Completed 2016)
Develop a targeted manure management educational plan for those facility owners delivering one presentation or letter annually.
- g. Implement a regulatory mechanism to control pet waste.
- h. Designate areas within the MS4 that discharge to points 501, 510 & 514 as high priority areas for illicit discharge detection and elimination efforts. (Completed 2015)
- i. Complete field screening prior to December 31, 2014, investigations must include activities for both the dry season (May through October) and the wet season (November through April)

(Completed 2015)

- j. Conduct twice monthly wet weather sampling of the discharge points 501, 510 & 514 to determine if specific discharges from Aberdeen MS4 exceed the water quality criteria for fecal coliform bacteria. (Completed 2016)

3. Activities to Date:

- i. The City of Aberdeen is in beginning of the fifth year of permit requirements. All permit requirements must be in compliance prior to expiration of the permit.
- ii. The TMDL Public Education, Outreach and Involvement plan was updated for 2018.
- iii. The City purchased 30 Dogipot pet stations and the supplies needed to operate them in 2014 and installed them in 2015. The Dogipots are still in operation.
- iv. The City reviewed commercial properties with the intent of developing an inventory of sources that have the potential for bacteria runoff. Two such sites were deemed to exist. The two sites are the Aberdeen PAWS organization and the City of Aberdeen Animal Control Building.
- v. Field Screening of all outfalls was preformed prior to December 31, 2015 deadline. Outfalls are inspected annually by City crews.
- vi. The City began its twice monthly wet weather sampling requirements at the pre-determined discharge points prior to the October 31, 2014 deadline and continued through 2016. All sample analysis is conducted by an accredited laboratory.
- vii. The City conducted a survey gauging resident's knowledge of the sources of bacteria and prevention of bacteria pollution. The survey took place through direct interaction with residents by City employees at the annual 4th of July Splash Festival, annual Chehalis River Festival, and the annual Aberdeen Art Walk. 237 surveys were conducted prior to fecal coliform bacteria pollution outreach began in order to gauge the pre-outreach understanding level.
- viii. Formed the Aberdeen Stream Team program for additional volunteer stewardship opportunities. Conducted three outreach activities in 2016 and 2017. Fry Creek community clean-up, and Alder Creek (2x) community clean-up. Events are typically attended by 30-40 volunteers.

4. Activities Planned for 2019

- i. Two community clean-ups (Alder Creek and Fry Creek), quarterly utility billing insert (fecal coliform/illicit discharge, landscape waste, erosion control/source control BMPs, low impact development), three community outreach events (City of Aberdeen Splash, Aberdeen Artwalk, and Chehalis Watershed Festival).
- ii. Continue to administer the City's public education and outreach plan to target the reduction of fecal coliform pollution by increasing public awareness and effecting behavior changes.
- iii. Continue twice monthly wet weather sampling of the discharge points 501, 510 & 514 to

determine if specific discharges from Aberdeen MS4 exceed the water quality criteria for fecal coliform bacteria.