



CITY OF KIRKLAND

Department of Public Works

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MEMORANDUM

To: Kurt Triplett, City Manager

From: Kelli Jones, Surface Water Engineer
Jenny Gaus, Surface Water Engineering Supervisor
Kathy Brown, Public Works Director

Date: October 11, 2016

Subject: Surface Water Ordinance for Adoption of New Surface Water Design Manual

RECOMMENDATION:

It is recommended that Council:

- Provide input on the attached ordinance relating to the surface water design requirements, Kirkland Municipal Code (KMC) Title 15, Water and Sewage.
- Direct staff on which alternative Addendum to the 2016 King County Surface Water Design Manual Policy (Attachment A and Attachment B) to include in the Public Works Pre-Approved Plans and Policies.

BACKGROUND AND DISCUSSION:

1. Introduction

Staff provided background on the City's surface water design requirements at the [July 5th regular Council meeting](#) and [September 20th study session](#). In short, the City must adopt updated surface water design requirements by December 31, 2016 in order to comply with the National Pollutant Discharge Elimination System Phase II Municipal Stormwater Permit (NPDES Permit). The updated requirements emphasize use of Low Impact Development (LID) facilities, which help to reduce the flow and toxicity of stormwater. Use of LID complements other city efforts to manage stormwater for environmental and regulatory compliance purposes. The new surface water requirements will increase development costs for most private and public projects. Cost implications will vary by type and location of project.

Below is a summary of Council direction received in the September 20th Study Session:

- Continue to include flood reduction and conveyance requirements, though these are not specifically required per the NPDES Permit.
- Adopt the King County package to comply with the Permit. This package includes:
 - [2016 King County Surface Water Design Manual](#) (KCSWDM);
 - [2016 King County Stormwater Pollution Prevention Manual](#);
 - The City of Kirkland Addendum to the 2016 KCSWDM (Addendum), which includes implementation details specific to the City, including whether flow control facilities are required for projects with less than 10,000 square feet of proposed impervious. (Please see discussion of the Addendum below.);
 - Cross-reference of KMC to match King County Code Chapter [9.04](#), [9.12](#) and [16.82](#);

- Return to Public Works/Parks/Human Services and Planning and Economic Development Council committees in 2017 with additional information concerning options for a potential fee-in-lieu program;
- Conduct a study to examine the difference between Ecology and King County packages, and to develop tools and resources to help with implementation of LID;
- Explore education and outreach needs and opportunities associated with low impact development facilities that are constructed on residential properties.

The remainder of this memo details code changes required to adopt the King County package, including a description of information that will be contained in the Addendum and a summary of changes to the KMC.

2. Kirkland Addendum to the 2016 KCSWDM

The Kirkland Addendum is a policy that is a part of the Public Works Pre-Approved Plans and Policies (Pre-Approved Plans). The Public Works Director has the authority to revise Pre-Approved Plans. Past practice has been to present the Addendum to Council as part of significant updates to surface water design requirements (i.e., upon adoption of a new surface water design manual) because the Addendum can contain policy decisions on which staff are seeking Council direction (such as detention tank requirements for small projects). The Pre-Approved Plans are updated annually and future changes to the Addendum will continue to be approved by the Public Works Director.

The Kirkland Addendum includes implementation details that are specific to Kirkland, as well as clarifications on intent of the 2016 KCSWDM. Examples include, but are not limited to, the following:

1. Implementation details regarding what is required for a storm water permit submittal under certain drainage review types;
2. Clarification on how to determine level of drainage review compared to determining the size of a flow control facility (tanks or vaults);
3. Implementation details regarding offsite analysis, specifically offsite water quality problems;
4. Additional alternatives for water quality treatment, remaining consistent with the 2014 Ecology Manual;
5. Clarification of soil infiltration testing requirements.

3. Alternatives for the Kirkland Addendum to the 2016 KCSWDM

Since the Study Session on September 20th, staff has heard additional concerns from Council members regarding the flow control facilities for small projects, such as two-lot short plats. To provide Council with options for addressing these concerns, staff has created two alternative addendums (Attachment A and Attachment B).

- Attachment A: Adopts the 2016 KCSWDM with the implementation and clarification details explained above. Small projects, such as two-lot short plats (approximately 7,000 square feet to 10,000 square feet of proposed impervious) would be required to provide flow control facilities.
- Attachment B: Adopts the 2016 KCSWDM with an additional implementation detail regarding flow control requirements for the small projects. Small projects (approximately 7,000 square feet to 10,000 square feet of proposed impervious) would be exempt from providing flow control facilities.

As mentioned during the study session, there are costs and benefits to consider when deciding whether to require flow control facilities for these smaller projects. If flow control facilities are required:

- Flow control volume created by these smaller projects would protect downstream infrastructure and stream habitat.
- The need to provide stormwater facilities will increase development costs for these small developments
- Additional maintenance and inspection by the City will be required. Under current city policy, these facilities would be maintained by the city crews. Facilities would need to be tracked in the maintenance management system, inspected once per year, and would need to be cleaned on a regular basis (probably once every 4 years based on data for similar facilities that already exist in the City).
- Approximately 10-15 of these small facilities would be added to the City storm system each year (if rates of development are similar to 2015).

If flow control facilities are not required:

- It is possible that there will be increased flooding downstream of newly developed areas if flow control is not provided and downstream pipes are under-capacity.
- The City may be tasked with providing this volume at a later date, which could cost 2 – 3 times more than building these facilities now because City of the need to acquire land, and delay would result in cost inflation.
- Regional facilities to replace the flow control volume of these facilities (and beyond) may be challenging to site because these small projects are scattered throughout the City, and because the timing of specific development projects is unknown.

Staff recommends adoption of Attachment A because this provides the highest degree of protection for downstream resources and reduces the risk of flooding. Recognizing the policy considerations related to these small-sized development, and concerns raised by Council members, staff is seeking Council final direction on this matter. The Council-preferred alternative will be incorporated into the Pre-Approved Plans.

Whichever Addendum option Council chooses, the study described below would analyze the differences between the manuals, including the Addendum, and a policy change could be made at a later date.

4. Changes to KMC 15.04 and 15.52

To meet NPDES requirements, minor changes are proposed to Chapter 15.04 and 15.52 of the KMC to reflect the adoption of the King County package. The number of changes are large, but many changes were housekeeping changes to clarify current practices and standards. The following is a summary of changes that are proposed to the KMC:

1. Alter language to adopt the King County package.
2. Clarify language to determine when a drainage review is required.
3. Delete definitions that are reflected in the 2016 KCSWDM, such as new impervious area and water quality treatment facility to remain consistent with the new requirements.
4. Update references to current document titles (such as the Pre-approved Plans).
5. Update language to remain consistent across the surface water code.
6. Clarify maintenance responsibility – note that flow control BMPS (low impact development) facilities on private property are to be maintained by the property owner.

7. Clarify language on the City's right to enter residential and nonresidential properties for inspection and maintenance of drainage facilities.

5. Outreach Process

Surface water staff have been working on coordination and outreach since February 2016 with both internal staff, the public and the development community. Future outreach efforts will include a second public open house in combination with the LID Code Review on October 24th, training for internal staff, and handouts such as templates, flow charts and policies to help the development community understand the new requirements.

King County is providing staff training in October/November 2016. King County is planning on providing additional training for the development community before the end of the year. Surface water staff will work on additional training for all internal staff affected by the update and additional training for review staff.

From the study session, Council had concerns about notification to the public, especially residents, who will be responsible for maintenance of LID facilities on their property. Per Council concerns, surface water staff will explore education and outreach needs and opportunities associated with low impact development facilities that are constructed on residential properties.

6. Study of King County package

The King County and Ecology packages are both new. Staff have spent considerable effort running sample projects through both packages, but will not truly start to see the full range differences unless project comparisons are continued as actual projects are reviewed. In addition, there may be tools and implementation methods that would streamline the design and review process for both private development and CIP projects in Kirkland. Therefore staff are proposing to conduct a study over the next two years that may include the following:

- LID feasibility tools: investigate whether groundwater and geologic maps can be used to inform LID feasibility in certain areas of the city, and whether calculators or other tools could help to streamline the process.
- Special zoning districts and other ways of implementing LID on a watershed or regional basis: Investigate whether this would help to control the type and location of LID facilities in a way that would be beneficial for city maintenance costs and for our watersheds.
- Evaluation of flow control sizing under both manuals: Investigate the type and number of projects that are impacted by sizing and threshold differences between the manuals, and investigate whether further changes to the King County package should be considered.

This study is being proposed as a service package as part of the 2017-2018 budget process.

7. Next Steps

With the updates to the KMC, the City will remain in compliance with the NPDES Permit. The effective date of the ordinance is January 1, 2017. Staff will use the time between adoption and the effective date to provide and attend training, and to update the Pre-Approved Plans with details and policies associated with the King County package. Service packages are being proposed as part of the 2017-2018 budget for staff and consultant resources associated with the King County package.

Attachment A – Alternative 1: Draft Kirkland Addendum to the 2016 KCSWDM (flow control for small projects)

Attachment B – Alternative 2: Draft Kirkland Addendum to the 2016 KCSWDM (no flow control for small projects)



Addendum to the 2016 King County Surface Water Design Manual

Effective date: January 1, 2017

Introduction

This addendum to the 2016 King County Surface Water Design Manual (KCSWDM) applies to development and redevelopment proposals within the City of Kirkland. The KCSWDM has adopted requirements of the Clean Water Act, the Endangered Species Act, and the State Growth Management Act. This addendum includes minor revisions to the KCSWDM to address the differences between King County's and the City's organization and processes. No major substantive changes have been made to the KCSWDM in order to maintain equivalency in review requirements and level of protection provided by the manual. It is the City of Kirkland's intent to maintain equivalency with the 2012 Ecology Stormwater Management Manual for Western WA, as amended in 2014 (Ecology Manual).

Addendum Organization

The information presented in this addendum is organized as follows:

I. Terminology: At times King County and the City of Kirkland use different terminology to describe or to refer to equivalent subject matter. This section identifies these terms and the City of Kirkland's equivalent terminology.

II. Key Revisions: This section specifically identifies the minor revisions the City has made to the KCSWDM.

III. Code Reference Tables: King County code is referenced in many places throughout the KCSWDM. This section identifies these county code references and states the equivalent city code where applicable.

IV. Mapping: The City of Kirkland equivalents to the Flow Control Applications map, Landslide Hazard Drainage Areas map, and Sensitive/Critical Areas map are available online at:

http://www.kirklandwa.gov/depart/Information_Technology/GIS.htm

V. Reference Materials: This section identifies which reference materials provided in the KCSWDM are applicable and which are not. It also identifies equivalent City of Kirkland reference materials available.

Note: Clarifications and interpretations to the KCSWDM or this addendum are documented and made available through City Regulatory Code and the Public Works Pre-Approved Plans.

I. Terminology

At times King County and the City of Kirkland use different terminology to describe or to refer to equivalent subject matter. This section identifies these terms and the City of Kirkland's equivalent terminology.

- **Critical Drainage Area (CDA).** This definition does not apply in the City of Kirkland.
- **Department of Permitting and Environmental Review (DPER).** All references to DPER conducting drainage reviews or determinations shall refer to City of Kirkland Development Services.
- **Department of Natural Resources and Parks (DNRP).** All references to DNRP shall refer to City of Kirkland Parks, Planning and Community Development and/or Public Works Departments.
- **Director.** All references to the Director shall refer to the City of Kirkland Public Works Director.
- **King County.** All references to King County shall refer to the City of Kirkland (COK).
- **King County Code (KCC).** All references to the KCC shall refer to the City of Kirkland Municipal Code (KMC). Check code reference table for equivalent code sections.
- **King County Designated/Identified Water Quality Problem.** This determination is made on a case-by-case basis in the City of Kirkland.
- **King County Road Standards.** All references to the King County Road Standards shall refer to the City of Kirkland Public Works Pre-Approved Plans.
- **Overflow Pipe:** A pipe shall be considered an overflow if sufficient storage is provided below the invert of the pipe to meet flow control BMP requirements. In these situations, the flow control BMP will be allowed the credit associated with the BMP. Per the new impervious surface definition in the 2016 KCSWDM, if the pipe is used as an underdrain, the area will be counted as new or replaced impervious surface area.
- **Project Size.** The project size is based on the parcel(s) and/or right-of-way included in the project scope. It will be assumed the area disturbed by development will encompass the entire parcel(s) and right-of-way, unless there is an easement, defined stream/wetland and buffer, NGPE, or other condition which limits the amount of developable area.
- **Sensitive Area Folio.** Refer to City of Kirkland Sensitive Areas Map at: http://www.kirklandwa.gov/depart/Information_Technology/GIS.htm
- **Water and Land Resources (WLR) Division.** All references to the WLR Division shall refer to the City of Kirkland Surface Water Management Group.
- **Zoning Classifications: Where the KCSWDM references Agricultural (A) Zoning, Forest (F) Zoning, or Rural (R) Zoning.** These zoning classifications are intended for areas outside of the Urban Growth Boundary, therefore the City of Kirkland contains no equivalent zoning. Refer to city zoning maps to determine which zoning classifications apply to your project. The City of Kirkland Land Use Map can be found at: http://www.kirklandwa.gov/depart/Information_Technology/GIS.htm

II. Key Revisions

This section includes minor revisions and clarifications to the 2016 KCSWDM to address the differences between King County's and the City of Kirkland's organization and processes, as well as to ensure equivalency with the 2014 Ecology Manual. Unless specifically noted as a clarification, the items below are minor revisions.

Chapter 1: Drainage Review and Requirements

Applies with the revisions stated below:

If a project uses multi-family zoning and density, then multi-family stormwater requirements apply to the entire project even if the project includes detached single family homes.

1.1 Drainage Review

Criteria for review levels are defined in the COK Public Works Pre-Approved Plans, Policies D-2 and D-3. Drainage review levels used in the City of Kirkland are listed below:

- Basic drainage review
- Simplified drainage review
- Targeted drainage review
- Full drainage review

When determining the level of drainage review, the following items apply:

- Clarification: Areas that change from existing gravel to paved surface will be counted as new impervious surface area, not replaced impervious area.
- Clarification: Flow control BMPs cannot be used to reduce the level of drainage review, but can be used to reduce the amount of flow control required. For example, proposed driveways and roads will always be counted as fully impervious for the drainage review level, but permeable pavement can be used to meet flow control requirements.

1.2 Core Requirements

1.2.2 Core Requirement #2: Offsite Analysis

1.2.2.1 Downstream Analysis

Exclude the section titled Downstream Water Quality Problems Requiring Special Attention. Water quality problems in the City of Kirkland are addressed through educational programs and source control.

1.2.2.1.1 Downstream Drainage Problems Requiring Special Attention

For item 4, Potential Impacts to Wetland Hydrology problem, refer to COK Public Works Pre-Approved Plans, Policy D-13, to determine the level of review needed for the wetland, reporting information required, and potential modelling to determine impacts.

1.2.3 Core Requirement #3: Flow Control

Clarification: Historic (forested) conditions will be used for pre-developed runoff modeling of all projects in Level 2 flow control areas.

A City of Kirkland flow control map is located at:

http://www.kirklandwa.gov/depart/Information_Technology/GIS.htm

The City will accept non-infiltrating bioretention (planter boxes) for Basic Flow Control (Level 1), provided the design meets the criteria set forth in the City of Seattle Stormwater Manual, Volume 3, Section 5.8.2). The hydraulic restriction layer for planters shall be made of concrete. The planters shall contain plants from the Seattle Green Factor Plant List.

Projects triggering a Full Project Drainage Review proposing infiltration/bioretention facilities or pervious pavement to meet Level 1 or 2 flow control or for onsite flow control BMPs require a soils report per COK Pre-Approved Plans, Policy D-8.

1.2.3.1 Area-Specific Flow Control Facility Requirement

Regarding Exceptions to Flow Control Requirements in both Basic (#1) and Conservation (#2) Flow Control Areas, flow control can be waived if a project generates less than a 0.15 cfs increase in 100-yr peak flows using a 15-minute time step. The intent to still allow the 0.10 cfs increase at the 100-yr peak flow with a 1-hour time step were for areas that do not include a 15-minute time step in the approved model. All areas in Kirkland have a 15-minute time step, and therefore must use 15-minute time step for the exception.

Clarification: Only BMPs listed on Table 1.2.9.A (page 1-95) can be used on a project to meet the 0.15 cfs limit unless otherwise approved through the adjustment process, Policy D-11. For example, products like infiltrator chambers are not equivalent to gravel filled infiltration trenches in Appendix C and shall submit an adjustment to the manual per Policy D-11 in the COK Public Works Pre-Approved Plans to show equivalence.

Clarification: To meet the requirements of the 0.15 cfs exception, total pre-developed and post-developed areas must match.

Clarification: Regarding Target Surfaces in Conservation Flow Control Areas to be mitigated, vegetated areas in easements and/or tracts must be modeled from forested in the pre-developed condition to lawn in the developed condition, unless the area is placed in a tract or easement that will preserve the native vegetation during and after construction.

Clarification: Threshold and modeling calculations of pervious and impervious areas, turf areas, including lawn or synthetic turf, that do not have an underdrain are considered 100% pervious. Areas that have an underdrain are considered 100% impervious.

1.2.4 Core Requirement #4: Conveyance System

1.2.4.3 Conveyance System Implementation Requirements

G. Spill Control

City of Kirkland will only require spill control requirements on commercial and multifamily projects that do not require flow control. Single family residential will install a tee/turn down elbow per (COK D.13).

1.2.6 Core Requirement #6: Maintenance and Operations

Refer to KMC 15.52.070 for City Acceptance of new drainage facilities.

If the project proposes a propriety system not covered in the 2016 KCSWDM, the applicant shall submit and adjustment to the manual per Policy D-11 in the COK Public

Works Pre-Approved Plans. The adjustment should include inspection and maintenance standards, including frequency of inspections and a log of maintenance activity.

1.2.7 Core Requirement #7: Financial Guarantees and Liability

This section is replaced by KMC 15.52.080, Bonds.

1.2.8 Core Requirement #8: Water Quality

1.2.8.1 A. Basic WQ Treatment Areas

Reductions of water quality treatment level from Enhanced to Basic, Exception #4, is not allowed in the City of Kirkland. Projects in Kirkland cannot reduce the level of required water quality treatment by prohibiting the use of leachable metals on the property.

For a bioretention to meet enhanced basic water quality treatment, it must be designed, using an approved continuous runoff model, to infiltrate 91% of the influent runoff, consistent with the 2014 Ecology Manual, and designed with no underdrain and designed per 2014 Ecology Manual BMP T7.30.

The City will accept all water quality treatment facility-types identified in the 2014 Ecology Manual, with the following additions and alterations:

- Emerging technologies will be considered on a case-by-case basis, via adjustment process, Policy D-11 in the COK Public Works Pre-Approved Plans, provided the product has received a level of use designation from WA State Dept. of Ecology (see the following website):

<http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>

1.2.8.1 B. Sensitive Lake WQ Treatment Areas

This section does not apply to the City of Kirkland.

1.2.8.1 C. Sphagnum Bog WQ Treatment Areas

This section does not apply to the City of Kirkland.

1.2.9 Core Requirement #9: Flow Control BMPs

1.2.9.1 Flow Control BMP Requirements Overview

A. Target Surfaces

If a project or threshold discharge area of a project meets the Direct Discharge Exemption per Section 1.2.3.1, soil amendment is required for new pervious areas and flow control BMPs need to be evaluated in the following order for impervious areas:

1. Full Infiltration
2. Basic Dispersion

If basic dispersion is found to be a feasible BMP, limited infiltration, bioretention and/or permeable pavement may be used instead of basic dispersion to meet the flow control BMP requirement. If basic dispersion is found to be infeasible, perforated pipe connection is not required in the City and the flow control BMP requirement is considered met.

1.2.9.2 Individual Lot BMP Requirements

To meet Requirement #3, mitigating impervious surface to the maximum extent feasible, in the public right-of-way for both Small Lot BMP Requirements and

Large Lot BMP Requirements, the BMPs must be evaluated in the order listed in the King County Manual:

1. Full Infiltration
2. Limited Infiltration or Bioretention
3. Permeable Pavement

Requirement #5, implementation of Reduced Impervious Surface Credit and Native Growth Retention Credit, for both Small Lot BMP Requirements and Large Lot BMP Requirements is not required in the City of Kirkland. King County has high lot coverage so the reduction of 10% lot coverage to meet the flow control BMP requirement is achievable. The City of Kirkland justifies meeting this requirement for implementation with an already lower lot coverage than King County (typically 70% lot coverage in King County compared to 50% lot coverage in Kirkland).

Requirement #7, installation of perforated pipe connection, is not required in the City of Kirkland. If the applicant has reached this level, it is viewed that LID is infeasible on the site and do not want to introduce additional water into the ground.

1.2.9.2.3 Large Rural Lot BMP Requirements

This section does not apply to the City of Kirkland.

1.2.9.4.1 Use of Credit by Subdivision Projects

A. Subdivision Implementation of BMPs within Road Right-of-Way Item #3: If the road right-of-way will be maintained by the City of Kirkland, the flow control BMPs must be approved by the public works department. Refer to section 1.2.9.2, Requirement #3, in the Addendum for the order of BMP evaluation in the right-of-way.

1.3.1 Special Requirement #1: Other Adopted Area-Specific Requirements

Projects located in the Holmes Point Area must also comply with lot coverage and other standards included in the Kirkland Zoning Code, *Chapter 70 – Holmes Point Overlay Zone*.

1.3.3 Special Requirement #3: Flood Protection Facilities

This section does not apply to the City of Kirkland.

1.4 Adjustment Process

Refer to the Surface Water Adjustment Process defined in COK Public Works Pre-Approved Plans, Policy D-11.

Chapter 2 Drainage Plan Submittal

Applies with the revisions stated below:

2.1 Plans Required for Drainage Review

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.2 Plans Required with Initial Permit

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.3 Drainage Review Plan Specifications

2.3.1.1 Technical Information Report

An Operation and Maintenance Manual is required for all privately maintained stormwater detention and water quality facilities, and is submitted as part of the permit application.

2.3.1.2 – Site Improvement Plan

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.3.1.3 – ESC Plan Section

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.3.1.4 – Stormwater Pollution Prevention and Spill (SWPPS) Plan

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-12.

2.3.2 – Projects in Targeted Drainage Review (TDR)

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.4 Plans Required After Drainage Review (pg 2-35)

Refer to the COK Public Works Pre-Approved Plans, policies G-7, D-2, and D-3.

Chapter 3 Hydrologic Analysis & Design

Applies with the revisions stated below:

Refer to Policy D-14, WWHM 2012 Guidance, for additional information on sizing requirements and inputs for WWHM 2012.

3.2.2.1 Generating Time Series Calculation of Impervious Area

For residential development, the assumed impervious coverage shall be the maximum impervious coverage permitted by zoning code, typically 50% lot coverage except for the Holmes Point Overlay Zone (not automatically 4,000sf as in the 2016KCSWDM). The assumed impervious can only be less if a covenant, sensitive area, or native growth protection easement exists.

If an existing house will remain during redevelopment, the following two options are available to address the storm drainage from that house/lot:

1. Evaluate the proposed lot as new/replaced impervious area at the required lot coverage as part of the subdivision drainage technical information report, OR
2. Remove the lot from calculations as non-targeted surfaces. If this method is taken, the existing home cannot be demolished and redeveloped within 5 years of the recording of the short plat. If the home is demolished and redeveloped within that time period, a storm drainage analysis must be provided for the entire subdivision including the lot at full lot coverage as part of the building permit. The following note must be included on the subdivision:

Redevelopment of Lot_: Since the home currently constructed on the existing parcel that is proposed to remain as Lot_ has not been evaluated as part of the storm drainage analysis, the existing home cannot be demolished and redeveloped within 5 years of the recording of this plat. If the home is

demolished and redeveloped within that time period, a storm drainage analysis must be provided for the entire subdivision including Lot_ at full impervious coverage.

3.3.2 Flow Control Design Using the Runoff File Method Evaluating Flow Control Performance

Clarification: If having difficulties meeting the lower part of the duration curve (50% of the 2-year to the 2-year), refer to footnote 10 in the 2016 KCSWDM.

Chapter 5 Flow Control Design

Applies with the revisions stated below:

5.2.1 General Requirements for Infiltration Facilities

For any soil investigation or reporting information, refer to COK Public Works Pre-Approved Plans, Policy D-8.

5.1 Detention Facilities

Use details located in the COK Public Works Pre-Approved Plans, if available.

5.1.4.1 Control Structures Design Criteria

A removable screen is required when the bottom orifice size is 1" or less. The screen shall be made from stainless steel mesh, 8 inch depth, and attached with a minimum of 3 stainless steel screws. The size of the mesh openings must be less than the orifice diameter (0.25 inch mesh typical).

5.1.5 Parking Lot Detention

Parking lot detention is not allowed in the City of Kirkland.

Chapter 6 Water Quality Design

Applies with the revisions stated below:

Use details located in the COK Public Works Pre-Approved Plans, if available.

6.1.2 Enhanced Basic Water Quality Menu

For a bioretention to meet enhanced basic water quality treatment, it must be designed, using an approved continuous runoff model, (WWHM 2012 or MGS Flood) to infiltrate 91% of the influent runoff without an underdrain and per Ecology Manual BMP T7.30.

Appendix A: Maintenance Requirements for Flow Control, Conveyance, and Water Quality Facilities

If the project proposes a propriety system not covered in the 2016 KCSWDM, the applicant shall submit and adjustment to the manual per Policy D-11 in the COK Public Works Pre-Approved Plans. The adjustment should include inspection and maintenance standards, including frequency of inspections and a log of maintenance activity.

Appendix B: Master Drainage Plan Objective, Criteria and Components, and Review Process

This Appendix does not apply to projects in the City of Kirkland.

Appendix C: Small project Drainage Requirements

Applies with the revisions stated below:

C.1.3 Application of Flow Control BMPs

For any soil investigation or reporting information, refer to COK Public Works Pre-Approved Plans, Policy D-8.

C.2.2.3 Use of Gravel Filled Trenches for Full Infiltration

Products like infiltrator chambers are not equivalent to gravel filled infiltration trenches in Appendix C. If the project would like to use proprietary items, the applicant shall submit an adjustment to the manual per Policy D-11 in the COK Public Works Pre-Approved Plans.

C.2.7.4 Permeable Pavers

Sand is not allowed in between or below permeable pavers in the City of Kirkland. No. 8 Aggregate shall be used in openings between pavers, and in the bedding course.

C.2.7.6 Grassed Modular Grid Pavement

Modular grid pavement with grass planted in the openings or in a thin layer of soil over the grid material cannot be used for single family residential driveways that are used on a daily basis in the City of Kirkland. Past performance shows the grass does not grow well when subject to vehicular traffic on a daily basis.

Appendix D: Construction Stormwater Pollution Prevention Standards

Use details located in the COK Public Works Pre-Approved Plans, if available.

D.2.4.2 Wet Season Requirements

Refer to ESC Notes in the COK Public Works Pre-Approved Plans.

III. Code Reference Tables

King County Code is referenced in many places throughout the KCSWDM. The following table identifies the county code references and states the equivalent City of Kirkland code where applicable (Kirkland Municipal Code is KMC and Kirkland Zoning Code is KZC). Policies are located in the Public Works (PW) Pre-Approved Plans.

King County Code Reference	Subject of Reference	COK Code/Policy Equivalent	Comment
KCC 2.98	Adoption procedures and Critical Drainage Areas	KZC Chapter 90	
Title 9	Surface Water Management	KMC 15.52	
KCC 9.04	Surface Water Run-off policy	KMC 15.52	
KCC 9.04.020	Definitions	KMC 15.04	
KCC 9.04.030	Drainage Review	PW Pre-Approved Plans	Policy D-2, D-3
KCC 9.04.050	Drainage Review-requirements	PW Pre-Approved Plans	Policy D-2, D-3
KCC 9.04.060	Critical drainage and/or erosion areas	KZC 85, KZC 90	
KCC 9.04.070	Engineering plans for the purposes of drainage review	KMC 15.52.050, KMC15.52.060 and PW Pre-Approved Plans	Policy D-2, D-3, D-11

KCC 9.04.090	Construction timing and final approval	KMC 15.52.060	Policy D-12
KCC 9.04.095	Vesting for lots in final short plats	KMC 22.20.370	
KCC 9.04.100	Liability Requirements	KMC 15.52.080	
KCC 9.04.115	Drainage Facilities accepted by King County	KMC 15.52.070	
KCC 9.04.120	Drainage Facilities NOT accepted by King County	KMC 15.52.070	
KCC 9.12.025	Prohibited discharges in the water quality section	KMC 15.52.090	Policy D-4
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The maps are available on the following website:

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This section identifies which reference materials provided in the 2016 KCSWDM are applicable and which are not. Reference materials that have been struck through (i.e., ~~struck through~~) are not applicable to projects in the City of Kirkland.

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 - ~~Q Leachable Metals Covenant~~
9. Interim Changes to Requirements
 - A Blanket Adjustments

- ~~B Administrative Changes~~
- ~~10. King County Identified Water Quality Problems~~
- 11. Materials
 - ~~A (VACANT)~~
 - ~~B (VACANT)~~
 - C Bioretention Soil Media Standard Specifications
 - ~~D (VACANT)~~
 - E Roofing Erodible or Leachable Materials
- ~~12. (VACANT)~~
- ~~13. (VACANT)~~
- 14. Supplemental Approved Facilities
 - A Approved Proprietary Facilities
 - B Approved Public Domain Facilities

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Addendum to the 2016 King County Surface Water Design Manual

Effective date: January 1, 2017

Introduction

This addendum to the 2016 King County Surface Water Design Manual (KCSWDM) applies to development and redevelopment proposals within the City of Kirkland. The KCSWDM has adopted requirements of the Clean Water Act, the Endangered Species Act, and the State Growth Management Act. This addendum includes minor revisions to the KCSWDM to address the differences between King County's and the City's organization and processes. No major substantive changes have been made to the KCSWDM in order to maintain equivalency in review requirements and level of protection provided by the manual. It is the City of Kirkland's intent to maintain equivalency with the 2012 Ecology Stormwater Management Manual for Western WA, as amended in 2014 (Ecology Manual).

Addendum Organization

The information presented in this addendum is organized as follows:

I. Terminology: At times King County and the City of Kirkland use different terminology to describe or to refer to equivalent subject matter. This section identifies these terms and the City of Kirkland's equivalent terminology.

II. Key Revisions: This section specifically identifies the minor revisions the City has made to the KCSWDM.

III. Code Reference Tables: King County code is referenced in many places throughout the KCSWDM. This section identifies these county code references and states the equivalent city code where applicable.

IV. Mapping: The City of Kirkland equivalents to the Flow Control Applications map, Landslide Hazard Drainage Areas map, and Sensitive/Critical Areas map are available online at:

http://www.kirklandwa.gov/depart/Information_Technology/GIS.htm

V. Reference Materials: This section identifies which reference materials provided in the KCSWDM are applicable and which are not. It also identifies equivalent City of Kirkland reference materials available.

Note: Clarifications and interpretations to the KCSWDM or this addendum are documented and made available through City Regulatory Code and the Public Works Pre-Approved Plans.

I. Terminology

At times King County and the City of Kirkland use different terminology to describe or to refer to equivalent subject matter. This section identifies these terms and the City of Kirkland's equivalent terminology.

- **Critical Drainage Area (CDA).** This definition does not apply in the City of Kirkland.
- **Department of Permitting and Environmental Review (DPER).** All references to DPER conducting drainage reviews or determinations shall refer to City of Kirkland Development Services.
- **Department of Natural Resources and Parks (DNRP).** All references to DNRP shall refer to City of Kirkland Parks, Planning and Community Development and/or Public Works Departments.
- **Director.** All references to the Director shall refer to the City of Kirkland Public Works Director.
- **King County.** All references to King County shall refer to the City of Kirkland (COK).
- **King County Code (KCC).** All references to the KCC shall refer to the City of Kirkland Municipal Code (KMC). Check code reference table for equivalent code sections.
- **King County Designated/Identified Water Quality Problem.** This determination is made on a case-by-case basis in the City of Kirkland.
- **King County Road Standards.** All references to the King County Road Standards shall refer to the City of Kirkland Public Works Pre-Approved Plans.
- **Overflow Pipe:** A pipe shall be considered an overflow if sufficient storage is provided below the invert of the pipe to meet flow control BMP requirements. In these situations, the flow control BMP will be allowed the credit associated with the BMP. Per the new impervious surface definition in the 2016 KCSWDM, if the pipe is used as an underdrain, the area will be counted as new or replaced impervious surface area.
- **Project Size.** The project size is based on the parcel(s) and/or right-of-way included in the project scope. It will be assumed the area disturbed by development will encompass the entire parcel(s) and right-of-way, unless there is an easement, defined stream/wetland and buffer, NGPE, or other condition which limits the amount of developable area.
- **Sensitive Area Folio.** Refer to City of Kirkland Sensitive Areas Map at: http://www.kirklandwa.gov/depart/Information_Technology/GIS.htm
- **Water and Land Resources (WLR) Division.** All references to the WLR Division shall refer to the City of Kirkland Surface Water Management Group.
- **Zoning Classifications: Where the KCSWDM references Agricultural (A) Zoning, Forest (F) Zoning, or Rural (R) Zoning.** These zoning classifications are intended for areas outside of the Urban Growth Boundary, therefore the City of Kirkland contains no equivalent zoning. Refer to city zoning maps to determine which zoning classifications apply to your project. The City of Kirkland Land Use Map can be found at: http://www.kirklandwa.gov/depart/Information_Technology/GIS.htm

II. Key Revisions

This section includes minor revisions and clarifications to the 2016 KCSWDM to address the differences between King County's and the City of Kirkland's organization and processes, as well as to ensure equivalency with the 2014 Ecology Manual. Unless specifically noted as a clarification, the items below are minor revisions.

Chapter 1: Drainage Review and Requirements

Applies with the revisions stated below:

If a project uses multi-family zoning and density, then multi-family stormwater requirements apply to the entire project even if the project includes detached single family homes.

1.1 Drainage Review

Criteria for review levels are defined in the COK Public Works Pre-Approved Plans, Policies D-2 and D-3. Drainage review levels used in the City of Kirkland are listed below:

- Basic drainage review
- Simplified drainage review
- Targeted drainage review
- Full drainage review

When determining the level of drainage review, the following items apply:

- Clarification: Areas that change from existing gravel to paved surface will be counted as new impervious surface area, not replaced impervious area.
- Clarification: Flow control BMPs cannot be used to reduce the level of drainage review, but can be used to reduce the amount of flow control required. For example, proposed driveways and roads will always be counted as fully impervious for the drainage review level, but permeable pavement can be used to meet flow control requirements.

1.2 Core Requirements

1.2.2 Core Requirement #2: Offsite Analysis

1.2.2.1 Downstream Analysis

Exclude the section titled Downstream Water Quality Problems Requiring Special Attention. Water quality problems in the City of Kirkland are addressed through educational programs and source control.

1.2.2.1.1 Downstream Drainage Problems Requiring Special Attention

For item 4, Potential Impacts to Wetland Hydrology problem, refer to COK Public Works Pre-Approved Plans, Policy D-13, to determine the level of review needed for the wetland, reporting information required, and potential modelling to determine impacts.

1.2.3 Core Requirement #3: Flow Control

Clarification: Historic (forested) conditions will be used for pre-developed runoff modeling of all projects in Level 2 flow control areas.

A City of Kirkland flow control map is located at:

http://www.kirklandwa.gov/depart/Information_Technology/GIS.htm

The City will accept non-infiltrating bioretention (planter boxes) for Basic Flow Control (Level 1), provided the design meets the criteria set forth in the City of Seattle Stormwater Manual, Volume 3, Section 5.8.2). The hydraulic restriction layer for planters shall be made of concrete. The planters shall contain plants from the Seattle Green Factor Plant List.

Projects triggering a Full Project Drainage Review proposing infiltration/bioretention facilities or pervious pavement to meet Level 1 or 2 flow control or for onsite flow control BMPs require a soils report per COK Pre-Approved Plans, Policy D-8.

1.2.3.1 Area-Specific Flow Control Facility Requirement

Regarding Exceptions to Flow Control Requirements in both Basic (#1) and Conservation (#2) Flow Control Areas, flow control can be waived if a project generates less than a 0.15 cfs increase in 100-yr peak flows using a 15-minute time step. The intent to still allow the 0.10 cfs increase at the 100-yr peak flow with a 1-hour time step were for areas that do not include a 15-minute time step in the approved model. All areas in Kirkland have a 15-minute time step, and therefore must use 15-minute time step for the exception.

Regarding Exceptions to Flow Control Requirements for Conservation (#2) Flow Control Areas, flow control will be waived for any threshold discharge area if:

- 1) A project generates no more than 0.15 cfs difference (using a 15 minute time step) in the 100-year peak flow event comparing between existing conditions to developed conditions, AND
- 2) The project does not propose more than 10,000 sf of target impervious surface as defined, beginning on page 1-45.

No flow control BMP credits can be used to meet this exception.

Clarification: Only BMPs listed on Table 1.2.9.A (page 1-95) can be used on a project to meet the 0.15 cfs limit unless otherwise approved through the adjustment process, Policy D-11. For example, products like infiltrator chambers are not equivalent to gravel filled infiltration trenches in Appendix C and shall submit an adjustment to the manual per Policy D-11 in the COK Public Works Pre-Approved Plans to show equivalence.

Clarification: To meet the requirements of the 0.15 cfs exception, total pre-developed and post-developed areas must match.

Clarification: Regarding Target Surfaces in Conservation Flow Control Areas to be mitigated, vegetated areas in easements and/or tracts must be modeled from forested in the pre-developed condition to lawn in the developed condition, unless the area is placed in a tract or easement that will preserve the native vegetation during and after construction.

Clarification: Threshold and modeling calculations of pervious and impervious areas, turf areas, including lawn or synthetic turf, that do not have an underdrain are considered 100% pervious. Areas that have an underdrain are considered 100% impervious.

1.2.4 Core Requirement #4: Conveyance System

1.2.4.3 Conveyance System Implementation Requirements

G. Spill Control

City of Kirkland will only require spill control requirements on commercial and multifamily projects that do not require flow control. Single family residential will install a tee/turn down elbow per (COK D.13).

1.2.6 Core Requirement #6: Maintenance and Operations

Refer to KMC 15.52.070 for City Acceptance of new drainage facilities.

If the project proposes a propriety system not covered in the 2016 KCSWDM, the applicant shall submit and adjustment to the manual per Policy D-11 in the COK Public Works Pre-Approved Plans. The adjustment should include inspection and maintenance standards, including frequency of inspections and a log of maintenance activity.

1.2.7 Core Requirement #7: Financial Guarantees and Liability

This section is replaced by KMC 15.52.080, Bonds.

1.2.8 Core Requirement #8: Water Quality

1.2.8.1 A. Basic WQ Treatment Areas

Reductions of water quality treatment level from Enhanced to Basic, Exception #4, is not allowed in the City of Kirkland. Projects in Kirkland cannot reduce the level of required water quality treatment by prohibiting the use of leachable metals on the property.

For a bioretention to meet enhanced basic water quality treatment, it must be designed, using an approved continuous runoff model, to infiltrate 91% of the influent runoff, consistent with the 2014 Ecology Manual, and designed with no underdrain and designed per 2014 Ecology Manual BMP T7.30.

The City will accept all water quality treatment facility-types identified in the 2014 Ecology Manual, with the following additions and alterations:

- Emerging technologies will be considered on a case-by-case basis, via adjustment process, Policy D-11 in the COK Public Works Pre-Approved Plans, provided the product has received a level of use designation from WA State Dept. of Ecology (see the following website):

<http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>

1.2.8.1 B. Sensitive Lake WQ Treatment Areas

This section does not apply to the City of Kirkland.

1.2.8.1 C. Sphagnum Bog WQ Treatment Areas

This section does not apply to the City of Kirkland.

1.2.9 Core Requirement #9: Flow Control BMPs

1.2.9.1 Flow Control BMP Requirements Overview

A. Target Surfaces

If a project or threshold discharge area of a project meets the Direct Discharge Exemption per Section 1.2.3.1, soil amendment is required for new pervious areas and flow control BMPs need to be evaluated in the following order for impervious areas:

1. Full Infiltration
2. Basic Dispersion

If basic dispersion is found to be a feasible BMP, limited infiltration, bioretention and/or permeable pavement may be used instead of basic dispersion to meet the flow control BMP requirement. If basic dispersion is found to be infeasible, perforated pipe connection is not required in the City and the flow control BMP requirement is considered met.

1.2.9.2 Individual Lot BMP Requirements

To meet Requirement #3, mitigating impervious surface to the maximum extent feasible, in the public right-of-way for both Small Lot BMP Requirements and Large Lot BMP Requirements, the BMPs must be evaluated in the order listed in the King County Manual:

1. Full Infiltration
2. Limited Infiltration or Bioretention
3. Permeable Pavement

Requirement #5, implementation of Reduced Impervious Surface Credit and Native Growth Retention Credit, for both Small Lot BMP Requirements and Large Lot BMP Requirements is not required in the City of Kirkland. King County has high lot coverage so the reduction of 10% lot coverage to meet the flow control BMP requirement is achievable. The City of Kirkland justifies meeting this requirement for implementation with an already lower lot coverage than King County (typically 70% lot coverage in King County compared to 50% lot coverage in Kirkland).

Requirement #7, installation of perforated pipe connection, is not required in the City of Kirkland. If the applicant has reached this level, it is viewed that LID is infeasible on the site and do not want to introduce additional water into the ground.

1.2.9.2.3 Large Rural Lot BMP Requirements

This section does not apply to the City of Kirkland.

1.2.9.4.1 Use of Credit by Subdivision Projects

A. Subdivision Implementation of BMPs within Road Right-of-Way Item #3: If the road right-of-way will be maintained by the City of Kirkland, the flow control BMPs must be approved by the public works department. Refer to section 1.2.9.2, Requirement #3, in the Addendum for the order of BMP evaluation in the right-of-way.

1.3.1 Special Requirement #1: Other Adopted Area-Specific Requirements

Projects located in the Holmes Point Area must also comply with lot coverage and other standards included in the Kirkland Zoning Code, *Chapter 70 – Holmes Point Overlay Zone*.

1.3.3 Special Requirement #3: Flood Protection Facilities

This section does not apply to the City of Kirkland.

1.4 Adjustment Process

Refer to the Surface Water Adjustment Process defined in COK Public Works Pre-Approved Plans, Policy D-11.

Chapter 2 Drainage Plan Submittal

Applies with the revisions stated below:

2.1 Plans Required for Drainage Review

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.2 Plans Required with Initial Permit

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.3 Drainage Review Plan Specifications

2.3.1.1 Technical Information Report

An Operation and Maintenance Manual is required for all privately maintained stormwater detention and water quality facilities, and is submitted as part of the permit application.

2.3.1.2 – Site Improvement Plan

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.3.1.3 – ESC Plan Section

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.3.1.4 – Stormwater Pollution Prevention and Spill (SWPPS) Plan

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-12.

2.3.2 – Projects in Targeted Drainage Review (TDR)

Refer to the COK Public Works Pre-Approved Plans, Policies G-7, D-2, and D-3.

2.4 Plans Required After Drainage Review (pg 2-35)

Refer to the COK Public Works Pre-Approved Plans, policies G-7, D-2, and D-3.

Chapter 3 Hydrologic Analysis & Design

Applies with the revisions stated below:

Refer to Policy D-14, WWHM 2012 Guidance, for additional information on sizing requirements and inputs for WWHM 2012.

3.2.2.1 Generating Time Series

Calculation of Impervious Area

For residential development, the assumed impervious coverage shall be the maximum impervious coverage permitted by zoning code, typically 50% lot coverage except for the Holmes Point Overlay Zone (not automatically 4,000sf as in the 2016KCSWDM). The assumed impervious can only be less if a covenant, sensitive area, or native growth protection easement exists.

If an existing house will remain during redevelopment, the following two options are available to address the storm drainage from that house/lot:

1. Evaluate the proposed lot as new/replaced impervious area at the required lot coverage as part of the subdivision drainage technical information report, OR

2. Remove the lot from calculations as non-targeted surfaces. If this method is taken, the existing home cannot be demolished and redeveloped within 5 years of the recording of the short plat. If the home is demolished and redeveloped within that time period, a storm drainage analysis must be provided for the entire subdivision including the lot at full lot coverage as part of the building permit. The following note must be included on the subdivision:

Redevelopment of Lot_: Since the home currently constructed on the existing parcel that is proposed to remain as Lot_ has not been evaluated as part of the storm drainage analysis, the existing home cannot be demolished and redeveloped within 5 years of the recording of this plat. If the home is demolished and redeveloped within that time period, a storm drainage analysis must be provided for the entire subdivision including Lot_ at full impervious coverage.

3.3.2 Flow Control Design Using the Runoff File Method Evaluating Flow Control Performance

Clarification: If having difficulties meeting the lower part of the duration curve (50% of the 2-year to the 2-year), refer to footnote 10 in the 2016 KCSWDM.

Chapter 5 Flow Control Design

Applies with the revisions stated below:

5.2.1 General Requirements for Infiltration Facilities

For any soil investigation or reporting information, refer to COK Public Works Pre-Approved Plans, Policy D-8.

5.1 Detention Facilities

Use details located in the COK Public Works Pre-Approved Plans, if available.

5.1.4.1 Control Structures Design Criteria

A removable screen is required when the bottom orifice size is 1" or less. The screen shall be made from stainless steel mesh, 8 inch depth, and attached with a minimum of 3 stainless steel screws. The size of the mesh openings must be less than the orifice diameter (0.25 inch mesh typical).

5.1.5 Parking Lot Detention

Parking lot detention is not allowed in the City of Kirkland.

Chapter 6 Water Quality Design

Applies with the revisions stated below:

Use details located in the COK Public Works Pre-Approved Plans, if available.

6.1.2 Enhanced Basic Water Quality Menu

For a bioretention to meet enhanced basic water quality treatment, it must be designed, using an approved continuous runoff model, (WWHM 2012 or MGS Flood) to infiltrate 91% of the influent runoff without an underdrain and per Ecology Manual BMP T7.30.

Appendix A: Maintenance Requirements for Flow Control, Conveyance, and Water Quality Facilities

If the project proposes a propriety system not covered in the 2016 KCSWDM, the applicant shall submit and adjustment to the manual per Policy D-11 in the COK Public Works Pre-Approved Plans. The adjustment should include inspection and maintenance standards, including frequency of inspections and a log of maintenance activity.

Appendix B: Master Drainage Plan Objective, Criteria and Components, and Review Process

This Appendix does not apply to projects in the City of Kirkland.

Appendix C: Small project Drainage Requirements

Applies with the revisions stated below:

C.1.3 Application of Flow Control BMPs

For any soil investigation or reporting information, refer to COK Public Works Pre-Approved Plans, Policy D-8.

C.2.2.3 Use of Gravel Filled Trenches for Full Infiltration

Products like infiltrator chambers are not equivalent to gravel filled infiltration trenches in Appendix C. If the project would like to use proprietary items, the applicant shall submit an adjustment to the manual per Policy D-11 in the COK Public Works Pre-Approved Plans.

C.2.7.4 Permeable Pavers

Sand is not allowed in between or below permeable pavers in the City of Kirkland. No. 8 Aggregate shall be used in openings between pavers, and in the bedding course.

C.2.7.6 Grassed Modular Grid Pavement

Modular grid pavement with grass planted in the openings or in a thin layer of soil over the grid material cannot be used for single family residential driveways that are used on a daily basis in the City of Kirkland. Past performance shows the grass does not grow well when subject to vehicular traffic on a daily basis.

Appendix D: Construction Stormwater Pollution Prevention Standards

Use details located in the COK Public Works Pre-Approved Plans, if available.

D.2.4.2 Wet Season Requirements

Refer to ESC Notes in the COK Public Works Pre-Approved Plans.

III. Code Reference Tables

King County Code is referenced in many places throughout the KCSWDM. The following table identifies the county code references and states the equivalent City of Kirkland code where applicable (Kirkland Municipal Code is KMC and Kirkland Zoning Code is KZC). Policies are located in the Public Works (PW) Pre-Approved Plans.

King County Code Reference	Subject of Reference	COK Code/Policy Equivalent	Comment
KCC 2.98	Adoption procedures and Critical Drainage Areas	KZC Chapter 90	
Title 9	Surface Water Management	KMC 15.52	
KCC 9.04	Surface Water Run-off policy	KMC 15.52	

KCC 9.04.020	Definitions	KMC 15.04	
KCC 9.04.030	Drainage Review	PW Pre-Approved Plans	Policy D-2, D-3
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KCC 9.04.060	Critical drainage and/or erosion areas	KZC 85, KZC 90	
KCC 9.04.070	Engineering plans for the purposes of drainage review	KMC 15.52.050, KMC15.52.060 and PW Pre-Approved Plans	Policy D-2, D-3, D-11
KCC 9.04.090	Construction timing and final approval	KMC 15.52.060	Policy D-12
KCC 9.04.095	Vesting for lots in final short plats	KMC 22.20.370	
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- ~~L Drainage Easement~~
- ~~M Flow Control BMP Covenant and BMP Maintenance Instructions (Recordable format)~~
- ~~N Impervious Surface Limit Covenant~~
- ~~O Clearing Limit Covenant~~
- ~~P River Protection Easement~~
- ~~Q Leachable Metals Covenant~~
- ~~9. Interim Changes to Requirements~~
 - ~~A Blanket Adjustments~~
 - ~~B Administrative Changes~~
- ~~10. King County Identified Water Quality Problems~~
- ~~11. Materials~~
 - ~~A (VACANT)~~
 - ~~B (VACANT)~~
 - ~~C Bioretention Soil Media Standard Specifications~~
 - ~~D (VACANT)~~
 - ~~E Roofing Erodible or Leachable Materials~~
- ~~12. (VACANT)~~
- ~~13. (VACANT)~~
- ~~14. Supplemental Approved Facilities~~
 - ~~A Approved Proprietary Facilities~~
 - ~~B Approved Public Domain Facilities~~

DRAFT

ORDINANCE O-4538

AN ORDINANCE OF THE CITY OF KIRKLAND RELATING TO STORM AND SURFACE WATER MANAGEMENT OF DEVELOPMENT ACTIVITIES.

The City Council of the City of Kirkland do ordain as follows:

Section 1. Kirkland Municipal Code Section 15.04.010 is amended to read as follows:

15.04.010 Definitions.

(a) The definitions contained in this chapter and in the 2016 King County Surface Water Design Manual, the 2016 King County Stormwater Pollution Prevention Manual and the pre-approved plans and policies, which includes the City of Kirkland Addendum to the 2016 King County Surface Water Design Manual Article III of Volume I of the 2005 Stormwater Management Manual for Western Washington, herein incorporated by reference, apply throughout this title, unless from context another meaning is clearly intended.

(b) These definitions include, but are not limited to, the following definitions from the 2016 King County Surface Water Design Manual:

(1) Drainage facility. "Drainage facility" means a constructed or engineered feature that collects, conveys, stores, treats, or otherwise manages storm water runoff or surface water. "Drainage facility" includes, but is not limited to, a constructed or engineered stream, lake, wetland, or closed depression, or a pipe, channel, ditch, gutter, flow control facility, flow control BMP, water quality facility, erosion and sediment control facility, and any other structure and appurtenance that provides for drainage.

(2) Flow control facility. "Flow control facility" means a drainage facility designed to mitigate the impacts of increased storm water runoff generated by site development in accordance with the drainage requirements in Kirkland Municipal Code Chapter 15.52. Flow control facilities are designed either, to hold water for a considerable length of time and then release it by evaporation, plant transpiration, or infiltration into the ground, or to hold runoff for a short period of time and then release it to the conveyance system.

(3) Flow control BMP. "Flow control BMP" means a small scale drainage facility or feature that is part of a development site strategy to use processes such as infiltration, dispersion, storage, evaporation, transpiration, forest retention, and reduced impervious surface footprint to mimic pre-developed hydrology and minimize storm water runoff.

(4) Water quality facility. "Water quality facility" means a drainage facility designed to mitigate the impacts of increased pollutants in storm water runoff generated by site development. A water quality facility uses processes that include but are not limited to settling, filtration, adsorption, and absorption to decrease pollutant concentrations and loadings in storm water runoff.

(c) In the event of conflict, the definitions in the City of Kirkland Addendum to the 2016 King County Surface Water Design Manual will control. The city engineer shall at all times keep on file with the city

47 clerk, for reference by the general public, not less than three copies of
48 the Manual as herein adopted by reference.

49
50 Section 2. Kirkland Municipal Code Section 15.04.176 is
51 repealed.

52
53 Section 3. Kirkland Municipal Code Section 15.04.178 is
54 amended to read as follows:

55
56 **15.04.178 Nonresidential drainage storm water facilities.**
57 "Nonresidential ~~drainage storm water~~ facilities" means ~~storm water~~
58 ~~detention or water quality~~ drainage facilities that are located on private
59 property and which are not contained in tracts or easements dedicated
60 to the city. These facilities do not serve public streets, but rather serve
61 only buildings, parking lots, and other amenities associated with the
62 privately owned development. Multifamily developments such as
63 condominiums and apartments are considered nonresidential for the
64 purposes of this title.

65
66 Section 4. Kirkland Municipal Code Chapter 15.04 is amended
67 to include a new section 15.04.226 to read as follows:

68
69 **15.04.226 Pre-approved plans and policies (or, pre-approved**
70 **plans).**
71 "Pre-approved plans and policies" means those engineering plans and
72 policies approved by the public works director for all street and utility
73 improvements constructed within the city of Kirkland. The pre-
74 approved plans are available for public inspection in the Public Works
75 Department during regular business hours or online at
76 www.kirklandwa.gov.

77
78 Section 5. Kirkland Municipal Code Section 15.04.238 is
79 amended to read as follows:

80
81 **15.04.238 Residential drainage storm water facilities.**
82 "Residential ~~storm water~~ facilities" means ~~storm water detention or~~
83 ~~water quality~~ facilities that are either in the public right of way or that
84 are in a tract or easement dedicated to the city. These facilities usually
85 serve public streets and single family residences. "Residential drainage
86 facilities" means drainage facilities that serve single family residential
87 development including public improvements.

88
89 Section 6. Kirkland Municipal Code Section 15.04.340 is
90 amended to read as follows:

91
92 **15.04.340 Standard plans and specifications.**
93 "Standard plans and specifications" ~~refers to pre-approved plans and~~
94 ~~policies as set forth in Kirkland Municipal Code Section 15.04.226.~~
95 ~~means those rules, regulations, policies and amendments thereto issued~~
96 ~~by the city engineer, including water systems, sewer systems, storm~~
97 ~~drainage systems, road construction and street improvements, traffic~~
98 ~~control, and erosion control pursuant to Section 15.28.290.~~
99

100 Section 7. Kirkland Municipal Code Section 15.04.365 is deleted.

101

102 Section 8. Kirkland Municipal Code Section 15.52.030 is
103 amended to read as follows:

104

105 **15.52.030 Comprehensive drainage and storm sewer plan.**

106 A comprehensive drainage and storm sewer plan shall be developed by
107 the city for review and adoption by the city council. Such a plan may
108 include basin-specific or city-wide recommendations for regulations,
109 procedures, and programs. Such regulations, procedures and programs
110 may include but are not limited to capital projects, public education and
111 enforcement activities, operation and maintenance of city storm and
112 surface water facilities, and land use management regulations to be
113 recommended for adoption by ordinance for managing surface and
114 storm water management facilities. Once adopted by the city council,
115 elements of the comprehensive drainage and storm sewer plan
116 pertaining to new development and redevelopment projects shall be
117 incorporated into the ~~standard~~ pre-approved plans.

118

119 Section 9. Kirkland Municipal Code Section 15.52.050 is
120 amended to read as follows:

121

122 **15.52.050 Applicability—~~Storm water plan~~ Drainage review**
123 **required.**

124 (a) Drainage review is required when any proposed project is subject
125 to a City of Kirkland development permit or approval and:

126 (1) Would result in five hundred square feet or more of new impervious
127 surface, replaced impervious surface or new plus replaced
128 impervious surface; or

129 (2) Would involve seven thousand square feet or more of land disturbing
130 activity; or

131 (3) Would construct or modify a drainage pipe or ditch that is twelve
132 inches or more in size or depth or receives storm water runoff or
133 surface water from a drainage pipe or ditch that is twelve inches or
134 more in size and depth; or

135 (4) Contains or is adjacent to a frequently flooded area as defined in
136 KZC Chapter 90.100; or

137 (5) Is located within a sensitive area; or

138 (6) Is a redevelopment project proposing one hundred thousand dollars
139 or more of improvements to an existing high-use site.

140 (b) The drainage review for any proposed project shall be scaled to the
141 scope of the project’s size, type of development, and potential for storm
142 water impacts to surface water and groundwater. The public works
143 director or designee will determine which one of the following drainage
144 reviews as specified in the pre-approved plans applies:

145 (1) Basic drainage review;

146 (2) Simplified drainage review;

147 (3) Targeted drainage review;

148 (4) Full drainage review.

149 ~~All developers taking any of the following actions or applying for any of~~
150 ~~the following permits and/or approvals will be required to submit for~~
151 ~~approval a storm water plan with their application and/or request,~~
152 ~~unless exempted by the city engineer or his designee. The storm water~~
153 ~~plan shall include those items designated in the public works standard~~

- 154 plans. Work on the site can only be allowed after approval of the storm
- 155 water plan.
- 156 (1) ~~Creation or alteration of new or additional impervious surfaces;~~
- 157 (2) ~~New development;~~
- 158 (3) ~~Redevelopment;~~
- 159 (4) ~~Building permit;~~
- 160 (5) ~~Subdivision approval;~~
- 161 (6) ~~Short subdivision approval;~~
- 162 (7) ~~Commercial, industrial, or multifamily site plan approval;~~
- 163 (8) ~~Planned unit development;~~
- 164 (9) ~~Development within or adjacent to critical areas;~~
- 165 (10) ~~Rezoning;~~
- 166 (11) ~~Conditional use permit;~~
- 167 (12) ~~Substantial development permit required under Chapter~~
- 168 ~~90.58 RCW (Shoreline Management Act);~~
- 169 (13) ~~Land surface modification permit.~~

170
 171 Section 10. Kirkland Municipal Code Section 15.52.060 is
 172 amended to read as follows:

173
 174 **15.52.060 Design and construction standards and**
 175 **requirements.**

176 (a) ~~The standard plans as defined in Section 15.04.340 shall include~~
 177 ~~requirements for temporary erosion control measures, storm water~~
 178 ~~detention, water quality treatment and storm water conveyance~~
 179 ~~facilities that must be provided by all new development and~~
 180 ~~redevelopment projects. The design and construction standards~~
 181 ~~and requirements shall meet or exceed the thresholds, definitions,~~
 182 ~~minimum requirements, and exceptions/variances criteria found in~~
 183 ~~Appendix I of the Western Washington Phase II Municipal Stormwater~~
 184 ~~Permit. To meet these criteria, the following are adopted:~~

- 185
- 186 (1) ~~The 2016 2009 King County Surface Water Design Manual,and;~~
- 187 (2) ~~The 2016 King County Stormwater Pollution Prevention Manual;~~
- 188 (3) ~~The the city's pre-approved plans and policies which include the~~
 189 ~~City of Kirkland Addendum to the 2016 2009 King County~~
 190 ~~Surface Water Design Manual as presently written or hereafter~~
 191 ~~amended.~~

192 (b) Unless otherwise provided, it shall be the developer's and property
 193 owner's responsibility to design, construct, and maintain a system which
 194 complies with the standards and minimum requirements as set forth in
 195 the ~~standard~~ pre-approved plans.

196 (c) In addition to providing ~~storm water quality treatment~~ drainage
 197 facilities as required in this section and as outlined in the standard ~~pre-~~
 198 ~~approved plans, the developer, and/or property owner, and/or business~~
 199 ~~owner/operator shall provide source control best management practices~~
 200 ~~as described in the 2016 King County Stormwater Pollution Prevention~~
 201 ~~Manual Volume IV of the 2005 Stormwater Management Manual for~~
 202 ~~Western Washington, such as structures and/or a manual of practices~~
 203 ~~designed to treat or prevent storm water pollution arising from specific~~
 204 ~~activities expected to occur on the site. Examples of such specific~~
 205 ~~activities include, but are not limited to, carwashing at multifamily~~
 206 ~~residential sites and oil storage at auto repair businesses.~~

207 ~~(d) Privately maintained storm water structures are not allowed within~~
 208 ~~the public right of way, except on a case by case basis with approval~~
 209 ~~from the public works director.~~

210 ~~(e-d)~~ The city will inspect all permanent drainage storm water facilities
 211 prior to final approval of the relevant permit. All facilities must be clean
 212 and fully operational before the city will grant final approval of the
 213 permit. A performance bond may not be used to obtain final approval
 214 of the permit prior to completing the storm water drainage facilities
 215 required under this chapter.

216 (e) Prior to final approval of the drainage facilities, the property owner
 217 of all drainage facilities shall submit an irrevocable license to enter the
 218 property for the purposes of inspection. The following language must
 219 be included in the irrevocable license to enter:

220 (1) A statement that the property owner is to be responsible for the
 221 maintenance of drainage facilities on the property;

222 (2) A statement granting the public works director or designee the
 223 right to enter the property for the purposes of inspecting the drainage
 224 facilities; and

225 (3) A statement that the public works director shall have the authority
 226 to order repair or cleaning of the drainage facilities if the owner does
 227 not take action to conduct this work or if the site poses a threat to public
 228 health and safety.

229 (f) Adjustment Process. Any developer proposing to adjust the
 230 requirements for, or alter design of, a system required as set forth in
 231 the ~~standard pre-approved~~ plans must follow the adjustment process as
 232 set forth in the ~~standard pre-approved~~ plans.

233 (g) Other Permits and Requirements. It is recognized that other city,
 234 county, state, and federal permits may be required for the proposed
 235 action. Further, compliance with the provisions of this chapter when
 236 developing and/or improving land may not constitute compliance with
 237 these other jurisdictions' requirements. To the extent required by law,
 238 these other requirements must be met.

239
 240 Section 11. Kirkland Municipal Code Section 15.52.070 is
 241 amended to read as follows:

242
 243 **15.52.070 City acceptance of new storm-flow control facilities,**
 244 **flow control BMPs and/or water quality facilities.**

245 (a) City Acceptance of New Residential Flow Control and/or Water
 246 Quality Facilities. The city will release the maintenance bond and accept
 247 for maintenance new residential ~~storm~~ flow control and/or water quality
 248 facilities constructed under an accepted permit as ~~listed~~ noted in Section
 249 15.52.050 that meet the following conditions:

250 (1) An inspection by the public works director or designee has
 251 determined that the storm flow control and/or water quality facilities are
 252 functioning as designed;

253 (2) The storm flow control and/or water quality facilities have had at
 254 least two years of satisfactory operation and maintenance;

255 (3) The storm flow control and/or water quality facilities, as designed
 256 and constructed, conforms to the provisions of the chapter;

257 (4) All easements and tract dedications required by this chapter,
 258 entitling the city to properly access, operate and maintain the subject
 259 drainage flow control and/or water quality facility, have been recorded

260 with the King County recorder’s office, and a copy has been conveyed
261 to the city;

262 (5) Agreements between the property owner and maintenance
263 contractor, if required, have been submitted to and approved by the
264 city;

265 (6) For nonstandard drainage flow control and water quality facilities,
266 an operation and maintenance manual, including a schedule detailing
267 the suggested seasonal timing and frequency of maintenance, has been
268 submitted to and accepted by the city;

269 (7) A complete and accurate set of reproducible mylar as-builts,
270 computer files of plans as described in the pre-approved plans, and
271 microfiche of plans has been received and accepted by the city.

272 (b) City Acceptance of New Residential Flow Control BMPs. The city
273 will accept for maintenance new residential flow control BMPs
274 constructed under an accepted permit as listed in Section 15.52.050 that
275 meet the following conditions:

276 (1) The flow control BMPs are located within an easement or tract
277 dedicated to the city or within a public right-of-way;

278 (2) An inspection by the public works director or designee has
279 determined that the flow control BMPs are functioning as designed;

280 (3) The flow control BMPs have had at least two years of satisfactory
281 operation and maintenance;

282 (4) The flow control BMPs, as designed and constructed, conform to the
283 provisions of this chapter;

284 (5) For nonstandard flow control BMPs, an operation and
285 maintenance manual, including a schedule detailing the suggested
286 seasonal timing and frequency of maintenance, has been submitted to
287 and accepted by the city;

288 (6) A complete and accurate set of reproducible plans as described in
289 the pre-approved plans has been received and accepted by the city;

290 (7) The city’s maintenance of the flow control BMPs will be limited
291 to their functionality. All other maintenance shall remain the
292 responsibility of the adjacent owners.

293 ~~(b) City Acceptance of New Nonresidential Storm Water Facilities. The~~
294 ~~city will release the maintenance bond for new nonresidential storm~~
295 ~~water facilities that meet all except items (4) and (6) in subsection (a)~~
296 ~~of this section.~~

298 Section 12. Kirkland Municipal Code Section 15.04.080 is
299 amended to read as follows:

301 **15.52.080 Bonds and irrevocable license to enter.**

302 (a) Prior to commencing construction on any project required to
303 conduct a drainage review per Section 15.52.050 ~~disturbing greater than~~
304 ~~one thousand square feet of land area that meet conditions for a~~
305 ~~sensitive site as set forth in the standard plans,~~ the applicant must post
306 an erosion control a performance bond using the same procedures as
307 provided in Chapter 175 KZC. The nature of the bond must permit the
308 city to obtain the proceeds of the bond immediately upon request.

309 (1) The bond must be in an amount sufficient to cover the cost of
310 corrective work on or off the site performed specifically for the given
311 project. Before the city releases the bond, the applicant must do the
312 following:

- 313 (A) Construct drainage facilities required in per the development
- 314 permit storm water plan;
- 315 (B) Receive final approval of the drainage facilities storm water system
- 316 from the city of Kirkland; and
- 317 (C) Pay all required fees.
- 318 (2) All applicants shall post a maintenance bond using the same
- 319 procedures as provided in Chapter 175 KZC to ensure maintenance of
- 320 installed storm water drainage facilities for two years from the date of
- 321 final approval of the storm water drainage facilities. Before the city will
- 322 release the bond, the storm water drainage facilities must meet the
- 323 requirements of Section 15.52.070.
- 324 ~~(b) Prior to final approval of the storm water facilities, the property~~
- 325 ~~owner of all nonresidential storm water facilities shall submit, as~~
- 326 ~~described in Chapter 175 KZC, an irrevocable license to enter the~~
- 327 ~~property for the purposes of inspection. The following language must~~
- 328 ~~be included in the irrevocable license to enter:~~
- 329 ~~(1) A statement that the property owner is to be responsible for the~~
- 330 ~~maintenance of storm water facilities on the property;~~
- 331 ~~(2) A statement granting the director or designee the right to enter~~
- 332 ~~the property for the purposes of inspecting the storm water facilities;~~
- 333 ~~and~~
- 334 ~~(3) A statement that the director shall have the authority to order~~
- 335 ~~repair or cleaning of the storm water facilities if the owner does not take~~
- 336 ~~action to conduct this work or if the site poses a threat to public health~~
- 337 ~~and safety.~~

338

339 Section 13. Kirkland Municipal Code Section 15.52.090 is

340 amended to read as follows:

341

342 **15.52.090 Illicit discharges and connections.**

- 343 (a) Prohibition of Illicit Discharges. No person shall throw, drain, or
- 344 otherwise discharge, cause or allow others under its control to throw,
- 345 drain or otherwise discharge into the municipal storm drain system
- 346 and/or surface and ground waters any materials other than storm water.
- 347 Illicit discharges are prohibited and constitute a violation of this chapter.
- 348 Examples of prohibited contaminants include, but are not limited to, the
- 349 following:
- 350 (1) Trash or debris.
- 351 (2) Construction materials.
- 352 (3) Petroleum products including but not limited to oil, gasoline,
- 353 grease, fuel oil and heating oil.
- 354 (4) Antifreeze and other automotive products.
- 355 (5) Metals in either particulate or dissolved form.
- 356 (6) Flammable or explosive materials.
- 357 (7) Radioactive material.
- 358 (8) Batteries.
- 359 (9) Acids, alkalis, or bases.
- 360 (10) Paints, stains, resins, lacquers, or varnishes.
- 361 (11) Degreasers and/or solvents.
- 362 (12) Drain cleaners.
- 363 (13) Pesticides, herbicides, or fertilizers.
- 364 (14) Steam cleaning wastes.
- 365 (15) Soaps, detergents, or ammonia.
- 366 (16) Swimming pool or spa filter backwash.

- 367 (17) Chlorine, bromine, or other disinfectants.
368 (18) Heated water.
369 (19) Domestic animal wastes.
370 (20) Sewage.
371 (21) Recreational vehicle waste.
372 (22) Animal carcasses.
373 (23) Food wastes.
374 (24) Bark and other fibrous materials.
375 (25) Lawn clippings, leaves, or branches.
376 (26) Silt, sediment, concrete, cement or gravel.
377 (27) Dyes.
378 (28) Chemicals not normally found in uncontaminated water.
379 (29) Any other process-associated discharge except as otherwise
380 allowed in this section.
381 (30) Any hazardous material or waste not listed above.
382 (b) Allowable Discharges. The following types of discharges shall not
383 be considered illicit discharges for the purposes of this chapter unless
384 the public works director or designee determines that the type of
385 discharge, whether singly or in combination with others, is causing or is
386 likely to cause pollution of surface water or ground water:
387 (1) Diverted stream flows.
388 (2) Rising ground waters.
389 (3) Uncontaminated ground water infiltration – as defined in 40 CFR
390 35.2005(b)(20).
391 (4) Uncontaminated pumped ground water.
392 (5) Foundation drains.
393 (6) Air conditioning condensation.
394 (7) Irrigation water from agricultural sources that is commingled with
395 urban storm water.
396 (8) Springs.
397 (9) Uncontaminated water from crawl space pumps.
398 (10) Footing drains.
399 (11) Flows from riparian habitats and wetlands.
400 (12) Discharges from emergency fire fighting activities in accordance
401 with S2 Authorized Discharges.
402 (13) Non-storm water discharges authorized by another NPDES or
403 state waste discharge permit.
404 (c) Conditional Discharges. The following types of discharges shall not
405 be considered illicit discharges for the purpose of this chapter if they
406 meet the stated conditions, or unless the public works director or
407 designee determines that the type of discharge, whether singly or in
408 combination with others, is causing or is likely to cause pollution of
409 surface water or ground water:
410 (1) Potable water, including water from water line flushing,
411 hyperchlorinated water line flushing, fire hydrant system flushing, and
412 pipeline hydrostatic test water. Planned discharges shall be
413 dechlorinated to a total residual chlorine concentration of 0.1 ppm or
414 less, pH-adjusted, if necessary and in volumes and velocities controlled
415 to prevent resuspension of sediments in the storm water system.
416 (2) Lawn watering and other irrigation runoff are permitted but shall
417 be minimized.
418 (3) Dechlorinated swimming pool, spa and hot tub discharges. These
419 discharges shall be dechlorinated to a total residual chlorine
420 concentration of 0.1 ppm or less, pH-adjusted, and reoxygenized if

421 necessary and in volumes and velocities controlled to prevent
 422 resuspension of sediments in the storm water system. Discharges shall
 423 be thermally controlled to prevent an increase in temperature of the
 424 receiving water. Swimming pool cleaning wastewater and filter
 425 backwash shall not be discharged to the municipal separate storm sewer
 426 system ("MS4"), as defined in the most recent version of the Western
 427 Washington Phase II Municipal Stormwater Permit.

428 (4) Street and sidewalk wash water, water used to control dust, and
 429 routine external building wash down that does not use detergents are
 430 permitted if the amount of street wash and dust control water used is
 431 minimized. At active construction sites, street sweeping must be
 432 performed prior to washing the street.

433 (5) Non-storm water discharges covered by another NPDES permit;
 434 provided, that the discharger is in full compliance with all requirements
 435 of the permit, waiver, or order and other applicable laws and
 436 regulations; and provided, that written approval has been granted for
 437 any discharge to the storm drain system.

438 (d) Failure to Remove Pollutants from Private System. It shall be a
 439 violation of this chapter for any person who commits an illicit or
 440 conditional discharge in violation of this section to fail to remove the
 441 pollutants from a private system that enters the municipal storm system
 442 and/or surface and ground waters. In addition, it shall be a violation of
 443 this chapter for any property owner on whose property an illicit or
 444 conditional discharge occurs to fail to remove the pollutants from a
 445 private system that enters the municipal storm system.

446 (e) Prohibition of Illicit Connections.

447 (1) The construction, use, maintenance, or continued existence of
 448 illicit connections to the storm drain system are prohibited and
 449 constitute a violation of this chapter.

450 (2) This prohibition expressly includes, without limitation, illicit
 451 connections made in the past, regardless of whether the connection was
 452 permissible under law or practices applicable or prevailing at the time
 453 of connection.

454 (3) A person is considered to be in violation of this section if the
 455 person connects a line conveying sewage to the MS4, or allows such a
 456 connection to continue.

457 (f) Implementation of structural BMPs shall be required if operational
 458 BMPs are not effective at reducing or eliminating an illicit discharge.
 459 Guidance for design of structural BMPs is provided in the 2016 King
 460 County Stormwater Pollution Prevention Manual ~~Volume IV of the~~
 461 ~~Stormwater Management Manual for Western Washington~~, herein
 462 incorporated by reference.

463
 464 Section 14. Kirkland Municipal Code Section 15.52.100 is
 465 amended to read as follows:

466
 467 **15.52.100 Source control best management practices.**
 468 Any person causing or allowing discharge to a public drainage facility,
 469 natural drainage system, surface and storm water, or ground water shall
 470 control contamination in the discharge by implementing appropriate
 471 source control BMPs, as described in the 2016 King County Stormwater
 472 Pollution Prevention Manual ~~Volume IV of the 2005 Stormwater~~
 473 ~~Management Manual for Western Washington~~. Failure to implement
 474 such practices shall constitute a violation of this chapter. ~~Guidance on~~

475 ~~designing and implementing~~ Design requirements for BMPs are
 476 provided in the pre-approved ~~standard~~ plans.

477
 478 Section 15. Kirkland Municipal Code Section 15.52.120 is
 479 amended to read as follows:

480
 481 **15.52.120 Operation and maintenance of storm-water drainage**
 482 **facilities.**

483 (a) Standards for maintenance of ~~storm-water~~ drainage facilities
 484 existing on public or private property within the city of Kirkland are
 485 contained in Appendix A of the ~~2009~~ 2016 King County Surface Water
 486 Design Manual and the City of Kirkland Addendum to the ~~2009~~ 2016
 487 King County Surface Water Design Manual. ~~For facilities which do not~~
 488 ~~have maintenance standards, the property owner shall develop a~~
 489 ~~maintenance standard.~~ Any maintenance agreement submitted and
 490 approved by the city through the permit process shall supersede
 491 maintenance requirements contained in the ~~2009~~ 2016 King County
 492 Surface Water Design Manual and the City of Kirkland Addendum to the
 493 ~~2009~~ 2016 King County Surface Water Design Manual.

494 (b) No person shall cause or permit any drainage facility on any public
 495 or private property to be obstructed, filled, graded, or used for disposal
 496 of debris. Any such activity constitutes a violation of this chapter.

497 (c) Any modification of an existing drainage facility must be approved
 498 and permitted by the city. Failure to obtain permits and approvals or to
 499 violate conditions thereof for any such alteration constitutes a violation
 500 of this chapter.

501 (d) The city will maintain all ~~elements of the storm~~ drainage facilities
 502 ~~system~~ beginning at the first catch-basin within the public right-of-way,
 503 and in easements or tracts dedicated to and accepted by the city. All
 504 other drainage facilities, including, but not limited to, residential or
 505 nonresidential storm-water flow control facilities, flow control BMPs
 506 and/or water quality facilities and roof downspout drains and driveway
 507 drains serving single-family residences, shall be maintained by the
 508 property owner.

509 (e) Maintenance of Residential or Nonresidential Storm-Water
 510 Drainage Facilities by Owners.

511 (1) Any person or persons holding title to a residential or
 512 nonresidential property for which storm-water containing drainage
 513 facilities have been required by the city of Kirkland shall be responsible
 514 for the continual operation, maintenance, and repair of said ~~storm~~
 515 ~~water~~ drainage facilities in accordance with the criteria set forth in
 516 Appendix A of the ~~2016~~ 2009 King County Surface Water Design Manual
 517 and the City of Kirkland Addendum to the ~~2016~~ 2009 King County
 518 Surface Water Design Manual. ~~For facilities which do not have~~
 519 ~~maintenance standards, the property owner shall develop a~~
 520 ~~maintenance standard.~~

521 (2) For residential or nonresidential storm-water drainage facilities,
 522 failure to meet the maintenance requirements specified in Appendix A
 523 of the ~~2016~~ 2009 King County Surface Water Design Manual and the City
 524 of Kirkland Addendum to the ~~2016~~ 2009 King County Surface Water
 525 Design Manual constitutes a violation of this chapter, and shall be
 526 enforced against the owner(s) of the subject property. ~~served by the~~
 527 ~~storm-water facility.~~

528 (f) City Acceptance of Existing Residential ~~Storm-Water~~ Drainage
 529 Facilities. The city may accept for maintenance those ~~storm-water~~
 530 drainage facilities serving residential developments existing prior to the
 531 effective date of the ordinance codified in this chapter that meet the
 532 following conditions:

533 (1) The ~~drainage~~~~storm-water~~ facilities serve more than one individual
 534 house or property;

535 (2) An inspection by the public works director or designee has
 536 determined that the ~~storm-water~~ drainage facilities are functioning as
 537 designed;

538 (3) The ~~drainage~~~~storm-water~~ facilities have had at least two years of
 539 satisfactory operation and maintenance, unless otherwise waived by the
 540 public works director;

541 (4) An inspection by the public works director or designee has
 542 determined that the ~~storm-water~~ drainage facilities are accessible for
 543 maintenance using existing city equipment;

544 (5) The person or persons holding title to the properties served by the
 545 ~~drainage~~~~storm-water~~ facilities must submit a petition containing the
 546 signatures of the title holders of more than fifty percent of the lots
 547 served by the ~~drainage~~~~storm-water~~ facilities requesting that the city
 548 maintain the ~~drainage~~~~storm-water~~ facilities;

549 (6) All easements entitling the city to properly access, operate and
 550 maintain the subject ~~drainage~~~~storm-water~~ facilities have been conveyed
 551 to the city and have been recorded with the King County recorder's
 552 office;

553 (7) The person or persons holding title to the properties served by the
 554 ~~drainage~~~~storm-water~~ facilities shows proof of the correction of any
 555 defects in the drainage facilities, including provision of maintenance
 556 access, as required by the public works director.

557 (g) Disposal of waste from maintenance activities shall be conducted
 558 in accordance with the Minimum Functional Standards for Solid Waste
 559 Handling, Chapter 173-304 WAC; guidelines published by the
 560 Washington State Department of Ecology for disposal of waste materials
 561 from storm water maintenance activities; and, where appropriate, the
 562 Dangerous Waste Regulations, Chapter 173-303 WAC.

563
 564 Section 16. Kirkland Municipal Code Section 15.52.130 is
 565 amended to read as follows:

566
 567 **15.52.130 Inspection and sampling.**

568 (a) Inspections for compliance with the provisions of this chapter shall
 569 be allowed as follows:

570 (1) Construction and Development Inspection. The public works
 571 director or designee shall have the right to enter onto the property
 572 ~~of access to~~ any site for which a development permit as listed in Section
 573 ~~15.52.050~~ has been issued, during regular business hours, or at any
 574 other time reasonable in the circumstances, for the purpose of review
 575 of erosion control practices and ~~drainage~~~~storm-water~~ facilities, and to
 576 insure compliance with the terms of such permit. ~~Applicants for any such~~
 577 ~~permit shall agree in writing, as a condition of issuance thereof, that~~
 578 ~~such access shall be permitted for such purposes.~~ Inspection procedures
 579 shall be as outlined in Section 15.52.130(b).

580 (2) Inspection for Cause. Whenever there is cause to believe that a
 581 violation of this chapter has been or is being committed, the public

582 works director or designee shall have the right to enter the property
583 authorized to inspect the property during regular business hours, and at
584 any other time reasonable in the circumstances. Inspection procedures
585 shall be as outlined in Section 15.52.130(b).

586 (3) Inspection for Maintenance and Source Control Best Management
587 Practices. The public works director or designee shall have the right to
588 enter the property to~~may inspect storm-water drainage~~ facilities in order
589 to ensure continued functioning of the drainage facilities for the
590 purposes for which they were constructed, and to ensure that
591 maintenance is being performed in accordance with the standards of
592 this chapter and any maintenance schedule adopted during the plan
593 review process for the property. The public works director or designee
594 also may enter the site for the purposes of observing source control best
595 management practices. The property owner or other person in control
596 of the site shall allow any authorized representative of the public works
597 director or designee access during regular business hours, or at any
598 other time reasonable in the circumstances, for the purpose of
599 inspection, sampling, and records examination.

600 (b) Inspection Procedure. Prior to making any inspections, the public
601 works director or designee shall present identification credentials, state
602 the reason for the inspection and request entry of the owner or other
603 person having charge or control of the property, if available, or as
604 provided below.

605 (1) If the property or any building or structure on the property is
606 unoccupied, the public works director or his designee shall first make a
607 reasonable effort to locate the owner or other person(s) having charge
608 or control of the property or portions of the property and request entry.

609 (2) If, after reasonable effort, the public works director or his
610 designee is unable to locate the owner or other person(s) having charge
611 or control of the property, and has reason to believe the condition of
612 the site or of the ~~storm-water drainage facilities system~~ creates an
613 imminent hazard to persons or property, the inspector may enter.

614 (c) Water sampling and analysis for determination of compliance with
615 this chapter shall be allowed as follows:

616 (1) Sample Collection. When the public works director or designee has
617 reason to believe that a violation exists or is occurring on a property,
618 the public works director shall have the authority to set up on the site
619 such devices as are necessary to conduct sampling, inspection,
620 compliance monitoring, or flow measuring operations.

621 (2) Sample Analysis. Analysis of samples collected during
622 investigation of potential violations shall be analyzed by a laboratory
623 certified by the State Department of Ecology as competent to perform
624 the required analysis using standard practices and procedures.

625 (3) Cost of Sample Collection and Analysis. If it is determined that a
626 violation of this chapter exists on the site, the owner of the property
627 shall pay the city's actual costs for collecting samples and for laboratory
628 analysis of those samples. If it is found that a violation does not exist,
629 the city will pay such charges.

630
631 Section 17. If any provision of this ordinance or its application
632 to any person or circumstance is held invalid, the remainder of the
633 ordinance or the application of the provision to other persons or
634 circumstances is not affected.

635

636 Section 18. This ordinance shall be in force and effect on
637 January 1, 2017, after its passage by the Kirkland City Council and
638 publication pursuant to Section 1.08.017, Kirkland Municipal Code in the
639 summary form attached to the original of this ordinance and by this
640 reference approved by the City Council.

641
642 Passed by majority vote of the Kirkland City Council in open
643 meeting this _____ day of _____, 2016.

644
645 Signed in authentication thereof this _____ day of
646 _____, 2016.

MAYOR

Attest:

City Clerk

Approved as to Form:

City Attorney

PUBLICATION SUMMARY
OF ORDINANCE O-4538

AN ORDINANCE OF THE CITY OF KIRKLAND RELATING TO STORM AND SURFACE WATER MANAGEMENT OF DEVELOPMENT ACTIVITIES AND AMENDING KIRKLAND MUNICIPAL CODE CHAPTERS 15.04 AND 15.52.

SECTION 1. Amends Section 15.04.010 of the Kirkland Municipal Code ("KMC") relating definitions.

SECTION 2. Repeals Section 15.04.176 of the KMC.

SECTION 3. Amends Section 15.04.178 of the KMC relating to the definition of nonresidential drainage facilities.

SECTION 4. Adds a new Section 15.04.226 of the KMC to include a new definition for pre-approved plans and policies.

SECTION 5. Amends Section 15.04.238 of the KMC relating to the definition of residential drainage facilities.

SECTION 6. Amends Section 15.04.340 of the KMC relating to the definition of standard plans and specifications.

SECTION 7. Repeals Section 15.04.365 of the KMC.

SECTION 8. Amends Section 15.52.030 of the KMC to relating to comprehensive drainage and storm sewer plan.

SECTION 9. Amends Section 15.52.050 of the KMC to define when a drainage review is required and types of drainage review that apply.

SECTION 10. Amends Section 15.52.060 of the KMC related to design and construction standards and requirements.

SECTION 11. Amends Section 15.52.070 of the KMC related to city acceptance of new drainage facilities.

SECTION 12. Amends Section 15.52.080 of the KMC related to bonds.

SECTION 13. Amends Section 15.52.090 of the KMC related to illicit discharges and connections and replacing the current pollution prevention manual with the 2016 King County Stormwater Pollution Prevention Manual.

SECTION 14. Amends Section 15.52.100 of the KMC related to source control best management practices and replacing the current pollution prevention manual with the 2016 King County Stormwater Pollution Prevention Manual.

SECTION 15. Amends Section 15.52.120 of the KMC related to operation and maintenance of drainage facilities.

SECTION 16. Amend Section 15.52.130 of the KMC to clarify the City's inspection and sampling procedures.

SECTION 17. Provides a severability clause for the ordinance.

SECTION 18. Authorizes publication of the ordinance by summary, which summary is approved by the City Council pursuant to Section 1.08.017 Kirkland Municipal Code and establishes the effective date as January 1, 2017.

The full text of this Ordinance will be mailed without charge to any person upon request made to the City Clerk for the City of Kirkland. The Ordinance was passed by the Kirkland City Council at its meeting on the _____ day of _____, 2016.

I certify that the foregoing is a summary of Ordinance _____ approved by the Kirkland City Council for summary publication.

City Clerk