CITY OF SAMMAMISH
SAMMAMISH ADDENDUM TO THE
2016 KING COUNTY SURFACE WATER DESIGN MANUAL
Revised 9/25/2019

PREFACE – How to Use this Document

General Introduction

The City of Sammamish has adopted the 2016 King County Surface Water Design Manual (2016 KCSWDM) in order to be in compliance with the Washington State Department of Ecology Phase II Municipal Stormwater permit. This Addendum to the 2016 KCSWDM defines how the requirements of the KCSWDM are to be implemented within the City of Sammamish. The Addendum specifies all changes, additions, and deletions to the 2016 KCSWDM to make it appropriate for use within the City of Sammamish. The 2016 KCSWDM along with this Addendum define the drainage requirements for development and redevelopment projects within the City.

Purpose of and Need for the Addendum

The City has been issued a Phase II Municipal Stormwater Permit (Permit) effective August 1, 2013. The Permit was issued under the National Pollutant Discharge System (NPDES), as administered by the Washington State Department of Ecology (Ecology) within Washington State. The Permit specifies minimum requirements and technical thresholds for stormwater mitigation needed for construction sites, new developments, and redevelopments.

The City of Sammamish has previously relied upon the earlier versions of the KCSWDM to guide stormwater standards within the City. King County recently updated its manual to be consistent with the 2012 Ecology manual. Ecology has deemed the 2016 KCSWDM and associated requirements to be equivalent to the 2012 Ecology Manual. By adopting the 2016 KCSWDM and addressing the associated requirements, the City will be in compliance with the NPDES requirements that rely on the Ecology manual or approved equivalent.

The purpose of this Addendum is to tailor the 2016 KCSWDM to meet the unique conditions within the City, and be consistent with the City's codes, organization and processes. No substantive changes have been made to the 2016 KCSWDM in order to maintain equivalency in requirements and the level of protection provided by the 2016 KCSWDM.

Relationship of the KCSWDM and the City of Sammamish Development Code to Low Impact Development (LID)

The City of Sammamish recently adopted development code amendments that encourage Low Impact Development (LID) principles to reduce impervious surfaces, retain native vegetation, and reduce runoff from developed sites. The 2016 KCSWDM requires on site flow control best management practices (BMPs) to mitigate the impacts of storm and surface water runoff generated by new impervious surfaces, new pervious surfaces, existing impervious surfaces, and replaced impervious surfaces. Flow control BMPs are methods to disperse, infiltrate, or otherwise reduce or prevent development related increases in runoff at or near the sources of those increases. The 2016 KCSWDM provides specific design guidance for implementation of the LID measures encouraged in the City's development code. As a result, the 2016 KCSWDM and the City of Sammamish development code complement each other.

How to Use this Document

This Addendum shall be used in coordination with the 2016 KCSWDM for the following:

- To translate specific wording or reference from King County to the City.
- To cross-reference City ordinances and City maps in lieu of King County ordinances and maps.
- To provide a linkage or reference to other City requirements such as more restrictive requirements outlined in basin plans and the City's Critical Areas Ordinances.
- To provide exceptions and additions to the KCSWDM.

The 2016 KCSWDM shall be used in its entirety except as directed in this Addendum. Exceptions and additions to the 2016 KCSWDM are organized and referenced by chapter and section in the same manner as the 2016 KCSWDM. Some global changes are provided in this preface, which shall be applied throughout the entire 2016 KCSWDM. The user shall override the maps and references to other documents as indicated within this Addendum.

Addendum Organization

The information presented in this Addendum is organized as follows:

- **Preface – How to use this Document:** This preface provides instructions for using the City of Sammamish's Addendum to the 2016 KCSWDM. It also defines terms in the 2016 KCSWDM that are used differently for the City of Sammamish; City departments that are equivalent to county departments referred to in the 2016 KCSWDM; and designations from the 2016 KCSWDM that do not apply to proposals in the City of Sammamish.

- **Chapter 1 – Drainage Review and Requirements:** The City of Sammamish has made several changes to Chapter 1 of the 2016 KCSWDM. This Addendum provides replacement and supplemental text for specific sections of Chapter 1. Apart from these changes, the King County version of Chapter 1 applies to proposals in the City of Sammamish.

- **Chapter 2 – Drainage Plan Submittal**: The City of Sammamish has made minor changes to Chapter 2 of the 2016 KCSWDM. Section 2.4.2 has been modified to include an additional

requirement for the inspection of installed LID BMPs. The King County version of Chapter 2 applies to proposals in the City of Sammamish, except that the applicant shall refer to the City of Sammamish documents for technical submittal requirements, project plan requirements, and as-built requirements.

- **Chapter 3 – Hydrologic Analysis and Design**: The City of Sammamish has made no changes to Chapter 3 of the 2016 KCSWDM. The King County version of Chapter 3 applies to proposals in the City of Sammamish.

- **Chapter 4 – Conveyance System Analysis and Design**: The City of Sammamish has made minor changes to Chapter 4 of the 2016 KCSWDM. More stringent requirements for allowable pipe materials, deflection, maximum distance between structures, and other requirements are listed in the City of Sammamish Addendum. Apart from these changes, the King County version of Chapter 4 applies to proposals in the City of Sammamish.

- **Chapter 5 – Flow Control Design**: The City of Sammamish has made very minor changes to Chapter 5 of the 2016 KCSWDM. This addendum to Chapter 5 provides replacement text for the sections that are changed. Design criteria for ponds have been added/modified to address pond aesthetics. Apart from these changes, the King County version of Chapter 5 applies to proposals in the City of Sammamish.

  The City of Sammamish has adopted a Low Impact Development Ordinance that encourages the use of LID site planning techniques within the City. LID site planning techniques can help to reduce the size of flow control facilities required in the 2016 KCSWDM.

- **Chapter 6 – Water Quality Design**: The City of Sammamish has made minor changes to Chapter 6 of the 2016 KCSWDM. This addendum to Chapter 6 provides replacement text for the sections that are changed. Apart from these changes, the King County version of Chapter 6 applies to proposals in the City of Sammamish.

  The City of Sammamish amends Chapter 6 of the 2016 KCSWDM to allow for bioretention to be utilized as a pretreatment facility.

  The City of Sammamish requires higher levels of phosphorus removal for areas that drain to Beaver Lake and Pine Lake. The 2016 KCSWDM Addendum identifies the procedures to follow and the areas that are involved in higher levels of phosphorus removals.

- **Definitions:** The City of Sammamish has made changes to the definitions section of the 2016 KCSWDM. This Addendum to the Definitions section provides replacement text for the definitions that are changed. Apart from these changes, the King County version of the Definitions Section applies to proposals in the City of Sammamish.

- **Appendices:** Appendices A, B, C, and D apply to proposals in the City of Sammamish.

- **References:** King County Reference sections 2, 3, 4B, 7C, 9, and 10 do not apply to the City of Sammamish. King County Reference sections 7B, 8F, 8G, 8I, 8J, 8K, 8L, 8M, 8N, 8O, 8P, 8Q have been replaced by a City of Sammamish reference. The King County version of Reference section 1, 4A, 4C, 4D, 5, 6, 7A and 8A through 8E, 8I, 11 apply to proposals in the

City of Sammamish.

City Equivalents for County Agencies

Unless the context requires otherwise, any reference to "County", "King County", or county department, shall refer to the City of Sammamish and any reference to county staff shall refer to the City Manager or designee, unless specifically referring to the Department of Community Development (DCD).

City Equivalents for County Ordinances

For proposals in the City of Sammamish, all reference in the KCSWDM to the following ordinances or municipal codes shall be replaced by reference as indicated in the following table.

King County Code (KCC)	Description	Sammamish Municipal Code (SMC)	Description
KCC 16.82	Clearing and Grading	SMC 16.15	Clearing and Grading
KCC 21A.14	Development Standards Design Requirements	SMC 21A.25	Development Standards – Density and Dimensions
KCC 21A.24	Critical Areas	SMC 21A.50	Development Code – Environmentally Critical Areas
KCC 21A.06	Technical Terms and Land Use Definitions	SMC 21A.15	Definitions
KCC 20.14	Basin Plans	SMC 24.20	Interim Comprehensive Plan – Basin Plans
KCC 25	Shoreline Management	SMC 25	Shoreline Management
KCC 9	Surface Water Management	SMC 13 SMC 15.10	Surface Water Management Flood Damage Prevention

In general, references to the King County Critical Areas Ordinance (KCC 21A) are to be replaced by reference to the Sammamish Municipal Code (SMC 21A), particularly, chapter SMC 21A.50, Environmentally Critical Areas. Definitions for critical areas terminology may be found in SMC 21A.15. The following table provides additional detail on critical areas.

King County Code (KCC)	Description	Sammamish Municipal Code (SMC)	Description
Title 2	Administration	20	Administrative Procedures, Environmental Policy
21A.24.230	Flood hazard area	21A.50.230 15.10	Frequently flooded areas Flood Damage prevention
21A.24.311 – 21A.24.314	Critical Aquifer recharge area	21A.50.280 21A.15.253	Critical aquifer recharge areas – Development standards and permitted alterations Definition
21A.24.220	Erosion hazard area	21A.50.220 21A.50.225 21A.15.415 21A.15.417	Erosion hazard areas – Development standards and permitted alterations. Erosion hazards near sensitive water bodies – Special district overlay. Definition Erosion hazard areas Definition Erosion hazards near sensitive water body overlay
21A.24.280	Landslide hazard area / Landslide hazard drainage area	21A.50.260 21A.15.680	Landslide hazard area – Development standards and permitted alterations Definition
21A.24.290	Seismic hazard areas	21A.50.270 21A.15.1045	Seismic hazard area – Development standards and permitted alterations Definition
21A.24.310	Steep slope hazard areas	21A.15.1230 21A.15.1230	Definition. Steep slope hazard areas now included as part of landslide hazard areas. Definition

King County Code (KCC)	Description	Sammamish Municipal Code (SMC)	Description
21A.24.318 – 21A.24.345	Wetlands areas	21A.50.290 – 21A.15.1415	Wetlands - Development standards and permitted alterations Definition
21A.24.355 – 21A.24.381	Aquatic Areas	21A.50.330 – 21A.50.350	Streams
21A.24.382 - 21A.24.388	Wildlife habitat conservation areas	21A.15.468 21A.50	Wildlife habitat conservation areas

City Equivalents for County Maps

For proposals in the City of Sammamish, all reference in the 2016 KCSWDM to the following maps shall be replaced by reference as indicated in the following table.

King County Map or Designation	City of Sammamish Map*
Flow Control Applications Map	Flow Control Applications Map. Map included in Sammamish Addendum
Landslide Hazard Drainage Areas Map	Landslide Hazard Drainage Area Map. Map included in Sammamish Addendum
Water Quality Applications Map	Water Quality Applications Map. Map included in Sammamish Addendum
Erosion Hazard Near Sensitive Water Bodies Map	Erosion Hazard Near Sensitive Water Bodies Map Map included in Sammamish Addendum
Flood Hazard Area as defined in KCC 21A.06	Environmentally Sensitive Areas Map Frequently flooded areas include all areas of special flood hazards within the jurisdiction of the City of Sammamish as defined in SMC 21A.15.532 and as shown on the Environmentally Sensitive Areas Map.
Erosion Hazard Area	Definition provided in SMC 21A.15.415
Landslide Hazard Area	Definition provided in SMC 21A.15.680
Critical Aquifer Recharge Area	Definition provided in SMC 21A.5015.280253

City Equivalents for County Plans or Studies

In general, references to county-approved plans or studies in the 2016 KCSWDM are to be replaced by reference to appropriate City-approved plans or studies. If comparable City- approved plans or studies do not exist, then references to County-approved plans or studies shall be retained for proposals in the City of Sammamish.

County Designations that do not Apply in the City

The following designations are used in the 2016 KCSWDM but are not currently used in the City of Sammamish; any reference in the 2016 KCSWDM to the existence of areas with these designation or thresholds or requirements for such areas is to be disregarded for proposals in the City of Sammamish:

- **Agricultural Project**
- **Coal Mine Hazard Area**
- **Forest Production Zone Area**
- **Master Drainage Plans (MDPs)**
- **Rural Residential Development**
- **Sensitive Area Folio -** refer to City of Sammamish Sensitive Areas Maps at http://www.sammamish.us/departments/publicworks/Maps.aspx#
- **Stormwater Compliance Plans (SWCPs)**
- **Urban Planned Development**
- **Zoning Classifications:** The 2016 KCSWDM references to Agricultural (A) Zoning, Forest (F) Zoning, or Rural (R) Zoning are intended for areas outside of the Urban Growth Boundary; therefore, the City of Sammamish contains no equivalent zoning. Project proponents should refer to City zoning maps to determine which zoning classifications apply to their projects.

CHAPTER 1 – Drainage Review and Requirements

The City of Sammamish has made several minor changes to Chapter 1 of the 2016 KCSWDM. This chapter provides replacement and supplemental text for specific sections of Chapter 1. Apart from these changes, the King County version of Chapter 1 applies for proposals in the City of Sammamish. The City's changes to the County document are as follows:

- **Key Terms and Definitions (page 1-1 of the 2016 KCSWDM) —** Replace all references to KCC 21A with SMC 21A. In addition, the following changes to specific terms apply:

Term (page)	Action
Critical aquifer recharge area (p 1-2)	*Replace as follows per SMC 21A.15.253:* "Critical aquifer recharge areas" means those areas in the City of Sammamish with a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2). CARAs have prevailing geologic conditions associated with infiltration rates that create a high potential for contamination of groundwater resources or contribute significantly to the replenishment of groundwater. CARAs shall be classified based on the following criteria: (1) Class 1 CARAs include those areas located within the mapped one- or five-year capture zone of a wellhead protection area. (2) Class 2 CARAs include those areas located within the mapped 10-year capture zone of a wellhead protection area. (3) Class 3 CARAs include those areas outside wellhead protection areas that are identified as high aquifer recharge potential areas based on characteristics of surficial geology and soil types. (Ord. O2013-350 § 1 (Att. A); Ord. O2005-193 § 2) Critical aquifer recharge areas are regulated in SMC 21A.50.280 Critical aquifer recharge areas – Development standards. Also mapped. See City's website
Critical Drainage Area (p 1-2)	Replace as follows per SMC 13.10.125: "Critical drainage area" means an area that requires more restrictive regulation than citywide standards afford in order to mitigate water quality, flooding, severe erosion, or landslide problems that result from the cumulative impacts of development and urbanization. Critical drainage areas include areas that drain to Pine Lake and Beaver Lake and all landslide hazard drainage areas as mapped or as determined by the City. Site specific evaluation shall be made to assess all areas. Critical drainage areas are defined in SMC 13.10.125 and are regulated in SMC 13.20 and SMC 21A.50.355 Lake management areas – Special District overlay.

Term (page)	Action
Erosion hazard area (p 1-3)	*Replace as follows per SMC 21A.15.415:* "Erosion hazard area" is the critical area designation that is applied to areas underlain by soils that are subject to severe erosion when disturbed. See the "Definitions" section for more details. Erosion hazard areas are regulated in SMC 21A.50.220 Erosion hazard areas – Development standards and permitted alterations.
Flood Hazard Area (p 1-3)	*Replace as follows per SMC 15 Flood Damage Prevention:* SMC 15 shall be the basis for establishing the areas of special flood hazard.
Landslide Hazard Area (p 1-5)	*Replace as follows per SMC 21A 15.680:* "Landslide hazard area" is the critical designation that is applied to areas potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors. See the "Definitions" section for more details. Landslide hazard areas are regulated in SMC 21A.50.260 Landslide hazard areas – Development standards and permitted alterations.
Landslide Hazard Drainage Area (p 1-5)	*Replace as follows:* "Landslide hazard drainage area" is a critical drainage area and are areas where overland flows pose a significant threat to health and safety because of their close proximity to a landslide hazard area as defined by SMC 21A.15.680. Landslide hazard areas are also considered landslide hazard drainage areas. Mapped landslide hazard drainage areas are approximate. Public Works may determine that areas not mapped as landslide hazard drainage areas may meet this definition. Landslide Hazard Drainage Areas are defined in SMC 13.10.365 and are regulated as Critical Drainage Areas.

- **Section 1.1.1 PROJECTS REQUIRING DRAINAGE REVIEW (page 1-12 of the 2016 KCSWDM) —** Delete numbers 1 through 6 and replace with the following:

Projects as listed in SMC 13.20.020.

City of Sammamish Permits and Approvals
Construction Permits Right of Way Permit Site Development Permits Conditional Use Permits Clear and Grade Permit Shoreline Management Substantial Development Permits Short Subdivision Developments (Short Plat) Subdivision Developments (Plats) Commercial Site Development Permit (CSDP) Unified Zone Development Permit (UZDP) Plat Alterations
Notes: See SMC 20.05 – PROCEDURES FOR LAND USE PERMIT APPLICATIONS, PUBLIC NOTICE, HEARINGS, AND APPEALS for additional information.

- **Figure 1.1.2.A FLOW CHART FOR DETERMINING TYPE OF DRAINAGE REVIEW REQUIRED (page 1-14 of the 2016 KCSWDM) —** Amending Figure 1.1.2.A such that the first box reads:

  Is the project a **single family residential project** that meets any one of the criteria for drainage review as listed in SMC 13.20.020 AND meets one of the following criteria:

- **Table 1.1.2.A REQUIREMENTS APPLIED UNDER EACH DRAINAGE REVIEW TYPE (page 1-15 of the 2016 KCSWDM) —** Amending Table 1.1.2.A such that the first box reads:

  Single family residential projects and **agricultural projects** that results in ≥2,000 sf of **new** plus **replaced impervious surface** or ≥7,000 sf of **land disturbing activity** but do not exceed the new plus replaced PGIS, new PGPS, and **new pervious surface** thresholds specified in Sec. 1.1.2.1; OR is an agricultural project that qualifies for the "Impervious Surface Percentage Exemption For Agricultural Projects"; OR is a project that results in 500 square feet or more of new impervious surface in a landslide hazard drainage area.

- **Section 1.1.2.1 SIMPLIFIED DRAINAGE REVIEW (page 1-16 of the 2016 KCSWDM) —** Amending paragraph four under the title "Threshold" such that it reads as the following:

  Simplified Drainage Review is required for any ***single family residential project*** or ***agricultural project*** that will result in 2,000 square feet8 or more of ***new impervious surface***, ***replaced impervious surface***, or ***new*** plus ***replaced impervious surface***, or 7,000 square feet or more of ***land disturbing activity***, OR is a project that results in 500 square feet or more of new impervious surface in a landslide hazard drainage area, AND meets one of the following criteria:

- **Section 1.2 CORE REQUIREMENTS, Downstream Water Quality Problems Requiring Special Attention (page 1-30 of the 2016 KCSWDM) —** The following supplemental information is added to this section:

The 2016 KCSWDM recognizes water quality problems requiring special mitigation measures to protect receiving waters. A water quality problem is defined as a problem documented by the state to exceed the state's numeric water quality standard. The 2016 KCSWDM references Category 2, 4, and 5 water quality problems as requiring special attention. Within the City of Sammamish, the following water quality problems are currently listed by the Department of Ecology, based on the 2015 Water Quality Assessment, approved by the U.S. Environmental Protection Agency on July 22, 2016. The latest designated impaired waterbodies can be viewed at http://www.ecy.wa.gov/programs/wq/303d/currentassessmt.html.

Impaired Water Body	Parameter	Category*
Lake Sammamish	Dissolved oxygen, polychlorinated biphenyls (PCBs), bioassessment	5
Lake Sammamish	Total phosphorus, 2,3,7,8-TCDD TEQ, sediment bioassay	2
Pine Lake Creek	Dissolved oxygen, temperature, bacteria	5
Pine Lake Creek	Mercury	2
Pine Lake	Bacteria	2
Laughing Jacobs Creek	Bacteria, bioassessment, temperature, dissolved oxygen	5
Evans Creek	Temperature	4a
Eden Creek**	Bioassessment, temperature, bacteria	5
Eden Creek**	Copper, dissolved oxygen	2
Ebright Creek	Bioassessment	5
Ebright Creek	Dissolved oxygen, mercury	2
Beaver Lake No. 2	Total phosphorus	5

* Definition of Categories for impaired waterbodies:
  - Category 2: Waters of concern, some evidence of water quality problem.
  - Category 4 (a and b): Polluted waters with a plan (TMDL) or pollution control program in place to address the problem.
  - Category 5: Polluted waters, a TMDL plan is required.

** Also known as George Davis Creek.

Projects that discharge to the impaired waterbodies identified above may be required to implement special treatment to address the water quality problem in accordance with the requirements outlined in Section 1.2.2.3, Water Quality Problem Impact Mitigation.

Studies and lake management plans have determined that Beaver and Pine Lakes within the City of Sammamish require a higher level of total phosphorus reduction than that currently required by the 2016 KCSWDM. For projects that drain to Beaver Lake or Pine Lake, Sensitive Lake Water Quality Treatment and 80% total phosphorus removal using All Known Available and Reasonable Technology (AKART) shall be provided.

The federal Clean Water Act requires that a Total Maximum Daily Load (TMDL) cleanup plan be developed for each of the waterbodies on the state's list of impaired waterbodies, known as the "303(d) list." The TMDL study identifies pollution problems in the watershed, and specifies how much pollution needs to be reduced or eliminated to achieve clean water.

Ecology has prepared TMDLs for fecal coliform bacteria, temperature and dissolved oxygen for the Bear-Evans watershed. Strategies identified in the TMDLs to address the water quality impairment in the Bear-Evans watershed are listed below. Development or redevelopment projects within the City of Sammamish that ultimately drain to Evans Creek should incorporate these actions as appropriate.

TMDL – Implementation Strategy for Fecal Coliform Bacteria in the Evans Creek Watershed

- Implement structural (as appropriate) and non-structural stormwater source control best management practices (BMPs).
- Restore riparian vegetation to help filter out stormwater pollutants.
- Properly manage domestic animal and livestock wastes.

TMDL – Implementation Strategy for Temperature and Dissolved Oxygen in the Evans Creek watershed

- Plant new and preserve existing trees in the riparian zone along lengths of the creeks.
- Investigate opportunities to enhance groundwater recharge.
- Restore and protect wetlands in areas that will benefit the stream and enhance habitat.
- Consider a water management strategy that recognizes the benefits of maintaining summer baseflows.
- Minimize human-caused sources of nutrients in the watershed.

Section 1.2.3.1 AREA-SPECIFIC FLOW CONTROL FACILITY REQUIREMENT

- Add new sections following IMPERVIOUS SURFACE PERCENTAGE EXEMPTION FOR AGRICULTURAL PROJECTS (page 1-42 of the 2016 KCSWDM)

    - MAINTENANCE EXEMPTIONS

      The following pavement maintenance practices are exempt:

      a) Pothole and square cut patching
      b) Overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage (overlaying permeable or pervious pavements with traditional (non-permeable) asphalt or pavement is not considered pavement maintenance)
      c) Shoulder grading
      d) Reshaping/regrading drainage systems
      e) Crack Sealing
      f) Resurfacing with in-kind material without expanding the road prism
      g) Pavement preservation activities that do not expand the road prism
      h) Vegetation maintenance
      i) Catch basin and pipe maintenance

j) Regrading/reshaping/resurfacing of existing ramps or sidewalks to meet ADA requirements
k) Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics.
l) Projects that do not impact the base course are exempt and are not considered "replaced impervious".

- MAINTENANCE NON-EXEMPTIONS

The following pavement maintenance practices are not exempt.

a) The practices subject to the Core Requirements that are triggered when the thresholds are met or exceeded. The extent to which the manual applies is explained for each circumstance.
b) Removing and replacing a paved surface and impacting the base course. If impervious surfaces are not expanded, Core Requirements #1, 5, 6, and 9 apply.

- **1.2.1 CORE REQUIREMENT #1: DISCHARGE AT THE NATURAL LOCATION**

  - Revise Section 1.2.1.2 Discharge Requirements (page 1-26 of the 2016 KCSWDM) as follows:

2. If a proposed project, or any ***natural discharge area*** within a project, is located within a ***Landslide Hazard Drainage Area*** and drains over the erodible soils of a ***landslide hazard area*** with slopes steeper than 15%, THEN a **tightline system must be provided** through the ***landslide hazard area*** to an acceptable discharge point. The tightline system must comply with the design requirements in Core Requirement #4 and in Section 4.2.2 unless otherwise approved by the Director of Public Works ("Public Works"). Drainage easements for this system must be secured from downstream property owners, and/or for any offsite system elements, and recorded prior to engineering plan approval.

- **Section 1.2.8 CORE REQUIREMENT #8: WATER QUALITY**

  - Add the following new maintenance exemptions and non-exemptions under the section EXEMPTIONS FROM CORE REQUIREMENT #8 (page 1-69 of the 2016 KCSWDM)

4. MAINTENANCE EXEMPTIONS
   The following pavement maintenance practices are exempt:

   a) Pothole and square cut patching

b) Overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage (overlaying permeable or pervious pavements with traditional (non-permeable) asphalt or pavement is not considered pavement maintenance)
c) Shoulder grading
d) Reshaping/regrading drainage systems
e) Crack Sealing
f) Resurfacing with in-kind material without expanding the road prism
g) Pavement preservation activities that do not expand the road prism
h) Vegetation maintenance
i) Catch basin and pipe maintenance
j) Regrading/reshaping/resurfacing of existing ramps or sidewalks to meet ADA requirements
k) Underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics.
l) Projects that do not impact the base course are exempt and are not considered "replaced impervious".

5. MAINTENANCE NON-EXEMPTIONS
The following pavement maintenance practices are not exempt.

a) The practices subject to the Core Requirements that are triggered when the thresholds are met or exceeded. The extent to which the manual applies is explained for each circumstance.
b) Removing and replacing a paved surface and impacting the base course. If impervious surfaces are not expanded, Core Requirements #1, 5, 6, and 9 apply.

- **1.2.9 CORE REQUIREMENT #9: FLOW CONTROL BMPS**

  - Revise section 1.2.9.4.1 USE OF CREDITS BY SUBDIVISION PROJECTS (p 1-97 through p 1-98) as follows:

If a proposed project is a *subdivision project*,[50] implementation of flow control BMPs for plat infrastructure improvements (e.g. road, sidewalk, or other non-lot improvements) is required concurrent with the subdivision improvements. Flow control BMPs shall be constructed and completely operational prior to recording of final plat or binding site plan.

In order to receive the modeling credits (noted above) for flow control BMPs required for plat infrastructure improvements (e.g. road, sidewalk, or other non-lot improvements), and/or for individual lot BMPs where the applicant elects to implement or make provision for implementation of individual lot BMPs as part of the subdivision project, the following requirements must be met depending on where the

BMPs are located on the ***site***.

C. Subdivision Implementation of BMPs on Individual Lots

These are flow control BMPs installed on a subdivision's proposed lots as part of the subdivision project. For example, the subdivision developer may elect to pre-install some or all of the flow control BMPs required by the individual lot BMP requirements in Section 1.2.9.2. To receive credits for these BMPs, the subdivision project must meet all of the following requirements:

(1) The flow control BMPs must be installed and implemented in accordance with the individual lot BMP requirements in Section 1.2.9.2. This includes recording a **declaration of covenant and grant of easement** for each lot with BMPs as specified in Implementation Requirement 3 of Section 1.2.9.2.4.

(2) BMPs to be installed on individual lots as part of the subdivision project must be shown on the **site improvement plans** submitted with the engineering plans for the proposed project as specified in Section 2.3.1.2.

(3) Flow control BMPs shall be constructed and completely operational prior to recording of final plat or binding site plan.

- **Section 1.3.1 SPECIAL REQUIREMENT #1: OTHER ADOPTED AREA- SPECIFIC REQUIREMENTS (page 1-99 of the 2016 KCSWDM) —** Replace the table in Section 1.3.1 on page 1-100 with the following:

Threshold	Requirement
If a proposed project is in a basin plan or lake management plan…	THEN the proposed project shall comply as codified by the City of Sammamish Municipal Code.

CHAPTER 2 – Drainage Plan Submittal

The City of Sammamish has added supplemental information and made minor changes to Chapter 2 of the 2016 KCSWDM, as described below. Apart from this information, project proponents should refer to the county document for guidance on drainage plan submittal. All submittal reviews shall be conducted by the Department of Community Development (DCD).

Supplemental Information

As part of our Surface Water Design Manual the applicant shall refer to the following documents for Project Plans and As-Builts.

1. Site Development Permit – Technical Submittal Requirements. This document is provided on the city website.
2. The applicant shall use the *City of Sammamish Standard Development Project Close-out (M/D Period) PW Administration Items Requirements/Checklist* form (available from the City of Sammamish Department of Community Development as a guide to assembling a *First Submittal Intake* package.

Section 2.4.2 FINAL CORRECTED PLAN SUBMITTAL (page 2-39 of the 2016 KCSWDM)
— Replace Section 2.4.2 in entirety as follows:

The applicant shall use the *City of Sammamish Standard Development Project Close-out (M/D Period) PW Administration Items Requirements/Checklist* form (available from DCD) as a guide to assembling a *Second Submittal Intake* package for project closeout.

During the course of construction, special inspections are required for LID and Flow Control BMPs. Once construction is completed, a qualified professional shall provide a signed letter verifying that the BMPs have been inspected, installed correctly, and are functioning as designed. Any as-built deviations from the design shall be explained clearly in the letter.

CHAPTER 3 – Hydrologic Analysis and Design

The City of Sammamish has made no changes to Chapter 3 of the 2016 KCSWDM. Project proponents should refer to the county document for guidance on hydrologic analysis and design.

CHAPTER 4 – Conveyance System Analysis and Design

The City of Sammamish has made minor changes to Chapter 4 of the 2016 KCSWDM. The following stricter requirements apply as applicable in this chapter:

1. Allowed Pipe Types:

Corrugated polyethylene (CPE) pipe, Polypropylene (PP) pipe, and Polyvinyl chloride (PVC) pipe are deleted and shall be replaced with the following allowed pipe and criteria:

WSDOT Section 9-05.24 Polypropylene Culvert Pipe, Polypropylene Storm Sewer Pipe, and Polypropylene Sanitary Sewer Pipe

All joints for polypropylene pipe shall be made with a bell/bell or bell and spigot coupling and shall conform to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477. All gaskets shall be factory installed on the pipe in accordance with the manufacturer's recommendations.

Qualification for each manufacturer of polypropylene storm sewer pipe requires joint system conformance to ASTM D 3212 using elastomeric gaskets conforming to ASTM F 477 and a formal quality control plan for each plant proposed for consideration.

A Manufacturer's Certificate of Compliance shall be required and shall accompany the materials delivered to the project. The certificate shall clearly identify production lots for all materials represented. The Contracting Agency may conduct verification tests of pipe stiffness or other properties it deems appropriate.

WSDOT Section 9-05.24(1) Polypropylene Culvert Pipe and Storm Sewer Pipe

Polypropylene culvert and storm sewer pipe shall conform to the following requirements:

- For dual wall pipe sizes up to 30 inches: ASTM F2736.
- For triple wall pipe sizes from 30 to 60 inches: ASTM F2764.
- For dual wall profile pipe sizes 36 to 60 inches: AASHTO MP 21, Type S or Type D.
- Fittings shall be factory welded, injection molded or PVC.

(Corrugated polyethylene drainage pipe CPEP pipe will not be allowed as it does not meet minimum standards).

2. Acceptable Pipe Sizes:

12-inch is the minimum diameter pipe to be maintained by the City.

3. **Storm Drain Markers:**

   Storm drain markers are required at every catch basin. Markers are to be placed in locations approved by Public Works.

4. **Pipe Slope:**

   Minimum pipe slope shall be 0.5%

5. **Storm Testing:**

   All storm system shall be jetted, cleaned, and televisioned prior to final acceptance into City maintenance.

6. **Structure Locations and Appurtenances:**

   Maximum pipe run between structures shall be 300-ft. For maintenance of structures, a truck turnaround shall be provided. Maximum distance between maintenance vehicle access and drainage structure shall be 150-ft. Structures located in non-pavement areas shall include 2-ft wide asphalt ring around structure lid.

7. **Pipe Deflections:**

   Once backfill is complete, the line and grade at pipe flow line leaving standing water greater than ½-inch in depth shall not be accepted and must be repaired prior to acceptance by the City.

8. **Pipe Anchors:**

   Pipe anchor shall include 1" PVC pipe to be installed through the concrete anchor below the pipe to allow passing of ground water.

9. **Drainage Structures:**

   The most updated WSDOT Standard Plans Section B shall be used to determine acceptable design standards.

10. **Drainage Structures Ladders:**

    Ladders required within drainage structures shall not block inlet or outlet pipes and must be accessible from structure opening. Refer to WSDOT Standard Plans for details and specifications.

11. **Submerged and Surcharged Pipe:**

    The 100-year design elevation of downstream stormwater facilities such as stormwater ponds or vaults shall be at or below all pipe inverts. Exception to this standard is the pipe from the first catch basin just upstream of the stormwater facility may be submerged to allow pipe inlet to facility to be submerged.

CHAPTER 5 – Flow Control Design

The City of Sammamish has added supplemental information and made several minor changes to Chapter 5 of the 2016 KCSWDM, as described below. Apart from this information, project proponents should refer to the county document for guidance on flow control design.

Supplemental Information

The City of Sammamish has identified specific areas where the Conservation Flow Control (Level 2) and Flood Problem Flow Control (Level 3) flow control standards described in the 2016 KCSWDM are to be applied within the City. Locations are shown on the City of Sammamish Flow Control Applications map accompanying this Addendum.

The King County Basic Flow Control (Level 1) standard does not apply within the City. There may, however, be circumstances where the Basic Flow Control standard can be applied. The 2016 KCSWDM defines the Basic Flow Control Standard as being appropriate for areas that drain to a closed conveyance system that discharges to a waterbody designated as a major receiving water. Lake Sammamish is designated a major receiving water. Developments that drain to closed drainage systems discharging directly to Lake Sammamish could, by definition, be eligible for the Basic Flow Control Standard. This would be the case where runoff from a new or redevelopment project area discharges to an existing downstream drainage system where downstream capacity issues are likely with an increase in runoff to the system.

Changes to 2016 KCSWDM

- **Section 5.1.1.1 DESIGN CRITERIA, Side Slopes (page 5-4 of the 2016 KCSWDM) —** Amend criteria 2, 3, and 4 to read as follows:

  Intent. The design of stormwater ponds and vaults are intended to be attractive site amenities. Open ponds are intended to appear like natural ponds. The physical appearance of vault walls are also intended to be minimized. To achieve the design of ponds and vaults that are more aesthetically compatible with adjacent land uses, standards have been established related to the slope of perimeter side slopes, curvilinear design, and the introduction of active and passive recreational elements. The Director may approve designs that do not meet the numeric standards below, provided the intent of the proposed design is equal to or better than the design that would accrue through strict adherence to these standards (refer to back pages of Sammamish Addendum for illustrations of intent).

  1) Up to 25% of the pond perimeter interior and exterior side slopes may be steeper than 3H:1V, if analyzed by a geotechnical engineer for stability and approved by the City.

  2) Pond may contain vertical interior and exterior retaining walls, provided:

(a) They are constructed of reinforced concrete per Section 5.1.3 (p. 5-22) and the visible surface has an attractive pattern/finish;

(b) A safety handrail is provided meeting SMC Chapter 16 along the top of the wall, is not a cyclone or chain link fence, and is clearly recorded and documented that maintenance and repair is not the responsibility of the City;

(c) At least 75% of the pond interior and exterior perimeter will be a vegetated soil slope not steeper than 3H:1V; and

(d) The design is stamped by a licensed structural engineer.

3) For privately owned and maintained facilities**,** no more than 25% of the pond interior and exterior perimeter may be retaining walls, and building foundations may serve as one or more of the pond walls.

4) Pond interior berms shall be earthen and contain no steeper than 2:1 side slopes. The perimeter of the pond must be designed such that it is curvilinear in design with minimum radius of 25-ft and a maximum radius of 100-ft. Intent: To create a pond that does not appear manmade (not appearing rectangular in shape).

- **Section 5.1.1.1 DESIGN CRITERIA, Embankments (page 5-4 of the 2016 KCSWDM)** Amend criteria 1 to read as follows:

1) Pond berm embankments higher than 6 feet shall require design by a geotechnical engineer. Pond embankments adjacent to property lines shall be no higher than 6 feet, unless mitigated and approved by the Director. The embankment height measurement includes the freeboard and is measured from the toe of the slope of the top of the embankment. Mitigation measures for exceeding the 6 foot height restriction for berms adjacent to property lines may include:
    - Designed and analyzed by a geotechnical engineer or licensed structural engineer
    - The toe of embankment slope shall be setback at least 10 feet from the property line
    - 10-ft of Type I landscaping shall be provided between toe of berm and property line to provide landscape screening.

- **Section 5.1.1.1 DESIGN CRITERIA, Setbacks (page 5-7 of the 2016 KCSWDM) —** Amend to include the following criteria after criteria 5 to read as follows:

6) For pond berm embankments higher than 6 feet, the toe of the exterior slope shall be setback 10 feet or more to the tract or from the property line.

- **Section 5.1.1.1 DESIGN CRITERIA, Landscaping (page 5-8 of the 2016 KCSWDM)** – Amend to include the following criteria:

  1) The opening sentence is modified to read "Landscaping for aesthetic purposes is required."

  2) Ponds shall include trails or paths that encourage passive recreation in connection with stormwater facilities. Connect stormwater paths to off-site trail systems where feasible. Trails within tracts of City-maintained ponds in residential subdivision developments shall be designated "to be maintained by the homeowner's association". Trails or paths that provide passive recreation may be credited for up to 100 percent of the onsite recreation space requirement for projects that are required to provide onsite recreational space per SMC 21A.30.140 and SMC 21B.30.090. See Section 5.1.1.1, DESIGN CRITERIA, Detention Ponds in Recreation Tracts.

  3) Table 5.1.1.A should be expanded to include but not limited to the following:

     - Amended Plant List Examples: SMALL TREES AND SHRUBS WITH FIBROUS ROOTS

       Small Trees/ High Shrubs

Botanical	**Common**
Acer circinatum	Vine maple
Arbutus unedo	Strawberry Tree
Amalanchier x grandiflora	Serviceberry
Cornus sericea	Red twig dogwood
Corylus cornuta	Filbert
Morella californica	California Wax Myrtle
Holodiscus discolor	Oceanspray
Physocarpus opulifolius	Ninebark
Pinus contora var contorta	Shore pine
Ribes aureum	
Ribes sanguineum 'King Edward VII'	Red-flowering current
Sambucus nigra	Black elderberry
Vaccinium spp.	Blueberry

Low Shrubs / Ornamental Grasses/ Perennial / Groundcover / Bulbs

Botanical	**Common**
Achillea millefolium	Western yarrow
Arctostaphylos uva-ursi	Kinnikinnick
Aster oblongifolius 'October Skies'	Aromatic aster
Cammasia quamash	Camas Lily
Cornus sericea	Dwarf red-twig dogwood
Festuca idahoensis	Idaho fescue
Fragaria chiloensis 'Lipstick'	Coastal strawberry
Gaultheria shallon	Salal
Helianthemum nummularium	Sunrose
Helictotrichon sempervirens	Blue oat grass
Iris tenax	Tough-leaf iris
Mahonia aquifolium	Oregon grape-holly
Lonicera pileata	Boxleaf honeysuckle
Lonicera involucrata	Twinberry
Mahonia nervosa	Cascade Oregon grape
Mahonia repens	Creeping mahonia
Narcissus sp.	Daffodil
Nassella tennuissima (formerly stipa)	Mexican feather grass
Pennisetum alopecuroides	Fountain grass
Philadelphus lewisii	Mock-orange
Pinus mugo pumilio	Mugho Pine
Polysticum munitum	Sword fern
Potentilla gracilis	Graceful cinquefoil
Prunus laurocerasus 'Mt. Vernon'	Mt. Vernon Dwarf Laurel
Rosa gymnocarpa	Baldhip rose
Rosa 'Hansa'	Double pink old-fashioned rose
Rosemarinus officinalis	Rosemary
Rhododendron 'PJM' hybrids	PJM Hybrid Rhododendrons
Rudbeckia fulgida var. sullivantii	
Salvia 'May Night'	
Solidago rugosa	Goldenrod
Spiraea japonica	Japanese spireae
Vaccinium ovatum	Evergreen huckleberry

- **Section 5.1.1.1 DESIGN CRITERIA, Detention Ponds in Recreational Tracts (page 5-11 of the 2016 KCSWDM)** – Amend section to read as follows:

  Projects required to provide onsite recreational space or landscaped open space per SMC 21A.30.140 and SMC 21B.30.090 may combine the detention pond tract with the recreation

space tract or landscaped area to receive up to a 100% reduction in required onsite recreational space, less any recreation facilities required pursuant to SMC 21A.30.160. To receive up to the 100% credit, the following criteria must be met as required by SMC 21A.30.140(4) and SMC 21B.30.100(4):

1. The proposed stormwater tract must be dedicated or reserved as a part of a recreational space tract.
2. To receive a 50% credit, the stormwater pond must meet all standards for typical ponds unless modified by the following additional requirements:
    a. Side slopes shall not exceed 33 percent unless they are existing, natural, and covered with vegetation. *Intent: To create ponds that are natural in appearance.*
    b. A bypass system or an emergency overflow pathway shall be designed to handle flow exceeding the facility design and located so that it does not pass through active recreation areas or present a safety hazard.
    c. The area surrounding the stormwater pond shall be landscaped in a manner to enhance passive recreational opportunities, including a trail or pathway around the pond perimeter. *Intent: To create opportunities for passive recreation or wildlife viewing.*
    d. The stormwater pond shall be designed so that it does not require fencing per the fencing requirements in Chapter 5 of 2016 KCSWDM (page 5-6).
    e. Split rail fencing (3 ft. minimum height) is required around the pond at the emergency overflow elevation of the pond or higher. Wire mesh backing of the fence is encouraged, but not required. *Intent: To preserve the functional integrity of the pond while allowing view of facility.*
3. To receive a 100% credit, the stormwater pond must meet all the additional requirements in criteria 2 above, and provide three or more of the following amenities;
    a. Provide seating using walls, benches and/or tables and chairs that view the stormwater pond. *Intent: To provide opportunities within the stormwater tract to linger and interact with the stormwater facility.*
    b. Create overlook or destination points using decks or platform with views of the stormwater system. *Intent: To provide opportunities to view the stormwater facility and wildlife*.
    c. Provide vertical planes (using stairs, platforms, etc.) that allow stormwater to be interacted with and viewed from different levels. *Intent: To provide visual interest and provide ways to interact with the stormwater facility, such as climbing down to the stormwater facility or viewing from above.*
    d. Provide interpretive signage describing the stormwater feature, or the landscape features (such as highlighting the pollinator benefits of plantings incorporated into the stormwater tract). Intent: To provide education opportunities associated with the stormwater facility.
    e. Stack horizontal and vertical planes to create features such as pools and

waterfalls. Intent: To exploit visual interest of stormwater flowing over surfaces, plunging down planes, or falling over edges.

f. Provide a fountain feature near the pond center. Intent: To provide visual interest through continuous water movement.

g. Provide at least one fitness station located near the pond accessible via a trail or pathway. Intent: To provide active recreation opportunities and encourage the use of the stormwater tract for recreation.

4. Where a tract is jointly used for recreational space and Sammamish maintained drainage facilities, the City shall only hold responsibility for maintenance of the drainage facilities, and an access easement shall be provided for that purpose. All recreational features such as, but not limited to, landscaping, trails, fences, benches, etc., shall be the responsibility of the Homeowner's Association or jointly by all property owners within the platted development. Recorded documentation of maintenance responsibilities shall be provided.

- **Section 5.1.1.1 DESIGN CRITERIA, Detention Ponds in Open Space (page 5-12 of the 2016 KCSWDM) —** This section does not apply. City of Sammamish does not require this signage.

- **Section 5.1.1.1 DESIGN CRITERIA, Figure 5.1.1.D Stormwater Facility Signs (page 5-16 of the 2016 KCSWDM) —** Replace references to King County and the King County logo with City of Sammamish and the City of Sammamish logo, respectively. Also, replace the sign detail with the Sammamish Stormwater Facility sign detail.

- **Section 5.1.3.1 DESIGN CRITERIA, Setbacks (page 5-23 of the 2016 KCSWDM)** – Add the following sentence at the end of the paragraph that begins "Setbacks to tract/easement lines for vaults…":

  Where vaults are permitted within required setbacks, pursuant to SMC 21A.25.090, the maximum height of exposed vault walls shall be 6 feet measured from the lowest exposed elevation of the vault. An exception to this shall exist where the exposed vault wall is a building foundation wall which shall be limited to the maximum height for structures of the underlying zoning district. Building setbacks for any vault wall exposure shall be minimum 10-ft and shall provide landscape screening consistent with SMC 21A.35.055.

The City of Sammamish has added supplemental information and made minor changes to Chapter 6 of the 2016 KCSWDM, as described below. Apart from this information, project proponents should refer to the county document for guidance on water quality design.

Supplemental Information

The City of Sammamish adopts the BMPs and water quality treatment menus in the 2016 KCSWDM. Special treatment requirements for runoff draining to impaired waterbodies are addressed in Chapter 1. An exception to the 2016 KCSWDM is the treatment requirement for runoff discharging to lakes designated to receive a higher level of total phosphorus removal. The Sensitive Lake Protection Menu in the 2016 KCSWDM has a treatment goal of 50 percent reduction of annual average total phosphorus (TP), assuming typical pollutant concentrations in urban runoff. Lake management plans and studies have determined that Beaver Lake and Pine Lake require higher levels of phosphorus removal to protect the lakes from eutrophication brought about by development. Within these areas, a treatment goal of 80 percent reduction of TP is required. Areas requiring the higher level of TP reduction are shown on the Water Quality Treatment Application map accompanying this Addendum. Proponents for projects within these areas shall work with the City to determine the appropriate measures to be taken to achieve the 80 percent TP reduction goal.

Change to 2016 KCSWDM

- **Section 6.4.1.2 DESIGN CRITERIA, Figure 6.4.1.B Waterfowl Sign (page 6-85 of the 2016 KCSWDM) —** This section does not apply. City of Sammamish does not require this signage. The City of Sammamish allows bioretention to be used for pretreatment. The bioretention system shall be designed per the requirements in the 2012 Stormwater Management Manual for Western Washington (Ecology Manual).

The City of Sammamish has made the following changes to the Definitions Section of the 2016 KCSWDM. Project proponents should refer to the county document for other definitions.

Term (page)	Action
Critical aquifer recharge area (p 5 of KCSWDM ***Definitions***)	*Replace as follows (from SMC 21A.15.253)*: ***Critical aquifer recharge areas*** (CARAs) means those areas in the City of Sammamish with a critical recharging effect on aquifers used for potable water as defined by WAC 365-190-030(2). CARAs have prevailing geologic conditions associated with infiltration rates that create a high potential for contamination of groundwater resources or contribute significantly to the replenishment of groundwater. CARAs shall be classified based on the following criteria: (1) Class 1 CARAs include those areas located within the mapped one- or five-year capture zone of a wellhead protection area. (2) Class 2 CARAs include those areas located within the mapped 10-year capture zone of a wellhead protection area. (3) Class 3 CARAs include those areas outside wellhead protection areas that are identified as high aquifer recharge potential areas based on characteristics of surficial geology and soil types. (Ord. O2005-193 § 2)
Erosion hazard area (p 9 of KCSWDM ***Definitions***)	*Replace as follows (from SMC 21A.15.415)*: ***Erosion hazard areas*** mean those areas in the City underlain by soils that are subject to severe erosion when disturbed. Such soils include, but are not limited to, those classified as having a severe or very severe erosion hazard according to the USDA Soil Conservation Service, the 1973 King County Soils Survey or any subsequent revisions or addition by or to these sources. These soils include the following when they occur on slopes 15 percent or steeper: (1) The Alderwood gravely sandy loam (AgD); (2) The Alderwood and Kitsap soils (AkF); (3) The Beausite gravely sandy loam (BeD and BeF); (4) The Everett gravelly sandy loam (EvD); (5) The Kitsap silt loam (KpD); (6) The Ovall gravely loam (OvD and OvF); (7) The Ragnar fine sandy loam (RaD); and (8) The Ragnar-Indianola Association (RdE). (Ord. O2005-193 § 2; Ord. O2003-132 § 10)
Flood hazard area (p 1-10 of KCSWDM	*Replace as follows (per SMC 21A.15.680)*: ***Flood hazard areas*** means those areas in the City of Sammamish subject to inundation by the base flood and those areas subject to risk from channel relocation or stream meander including, but not limited to, streams, lakes,

Term (page)	Action
Definitions)	wetlands, and closed depressions. (Ord. O2003-132 § 10)
Frequently Flooded Area SMC 21A.50.230	*Add new definition as follows (from SMC 21A.50.230)*: (1) Frequently flooded areas include all areas of special flood hazards within the jurisdiction of the City of Sammamish. (a) The areas of special flood hazard are identified by the Federal Insurance Administration in a scientific and engineering report entitled "the Flood Insurance Study for King County," as amended, as stated in SMC 15.10.060. The flood insurance study is on file at Sammamish City Hall. The best available information for flood hazard area identification as outlined in SMC 15.10.130(2) shall be the basis for regulation until a new FIRM is issued that incorporates the data utilized under SMC 15.10.130(2). (b) The director may use additional flood information that is more restrictive or detailed than that provided in the Flood Insurance Study conducted by the Federal Emergency Management Agency (FEMA) to designate frequently flooded areas, including data on channel migration, historical data, high water marks, photographs of past flooding, location of restrictive floodways, maps showing future build-out conditions, maps that show riparian habitat areas, or similar information. (2) Development in frequently flooded areas shall be subject to the provisions in Chapter 15.10 SMC. (Ord. O2005-193 § 1; Ord. O99-29 § 1)
Landslide Hazard Area (page 15 of KCSWDM ***Definitions***)	*Replace as follows (per SMC 21A.15.680)*: ***Landslide hazard areas*** mean those areas in the City of Sammamish potentially subject to risk of mass movement due to a combination of geologic, topographic, and hydrologic factors. These areas are typically susceptible to landslides because of a combination of factors including: bedrock, soil, slope gradient, slope aspect, geologic structure, groundwater, or other factors. Landslide hazard areas include the following: (1) Areas of historic failures, such as:(a) Those areas delineated by the U.S. Department of Agriculture's Natural Resources Conservation Service as having a "severe" limitation for building site development; (b) Areas designated as quaternary slumps, earthflows, mudflows, or landslides on maps published by the U.S. Geological Survey or Department of Natural Resources; (2) Areas that have shown movement during the Holocene epoch, from 10,000 years ago to the present, or which are underlain by mass wastage debris from that epoch; (3) Any area with all three of the following characteristics: (a) Slopes steeper than 15 percent; and (b) Hillsides intersecting geologic contacts with a relatively permeable sediment overlying a relatively impermeable sediment or bedrock; and (c) Springs or groundwater seepage; (4) Areas with a slope of 40 percent or steeper and with a vertical relief of 10 or more feet except areas composed of consolidated rock. A slope is delineated by establishing its toe and top and measured by averaging the inclination over at least 10 feet of vertical relief; (5) Slopes that are parallel or subparallel to planes of weakness (such as bedding planes, joint systems, and fault planes) in subsurface materials;

Term (page)	Action
	(6) Slopes having gradients steeper than 80 percent subject to rock fall during seismic shaking; (7) Areas potentially unstable because of rapid stream incision, stream bank erosion or undercutting by wave action; and (8) Landslide hazard areas do not include those areas composed of slopes greater than 40 percent that were created from a previously non-landslide hazard area through legal grading activity and that are confirmed to be stable by a qualified professional. (Ord. O2005-193 § 2; Ord. O2003-132 § 10)
Landslide Hazard Drainage Area (page 15 of KCSWDM Definitions)	*Replace as follows:* "Landslide hazard drainage area" is a critical drainage area and are areas where overland flows pose a significant threat to health and safety because of their close proximity to a landslide hazard area as defined by SMC 21A.15.680. Mapped Landslide hazard drainage areas are approximate. Public Works may determine that areas not mapped as Landslide hazard drainage areas may meet this definition.

APPENDICES

The City of Sammamish has made the following changes to the Appendices section of the 2016 KCSWDM. Project proponents should refer to the county appendices where referenced below.

Appendix A: Maintenance Requirements for Flow Control, Conveyance, and WQ Facilities – The City of Sammamish has made no changes, and Appendix A applies in its entirety to the City of Sammamish.

Appendix B: Master Drainage Plan Objective, Criteria and Components, and Review Process – This appendix does not apply within the City of Sammamish.

Appendix C: Simplified Drainage Requirements – This is a separately bound document included with the KCSWDM and this appendix applies in its entirety to the City of Sammamish. Appendix C provides guidance for many of the low impact development (LID) techniques referenced in the City of Sammamish LID Ordinance.

Appendix D: Construction Stormwater Pollution Prevention (CSWPP) Standards – This is a separately bound document included with the KCSWDM and this appendix applies in its entirety to the City of Sammamish.

Table Ref-1 identifies which reference sections in the 2016 KCSWDM apply and those that do not apply to the City of Sammamish. Table Ref-2 lists additional City of Sammamish references that apply.

Table Ref-1. Applicability of KCSWDM References to projects in the City of Sammamish

No.	Description	Action
1	**KCC 9.04 Surface Water Runoff Policy**	This reference document applies. The King County surface water runoff policy, as adopted by reference in Chapter 9.04 KCC as adopted by SMC 13
2	**Adopted Critical Drainage Areas**	This reference document shall be deleted in entirety. Project proponents should refer to City codes, ordinances, and sensitive areas maps for description and requirements within sensitive areas.
3	**Other Adopted Area Specific Drainage Requirements**	This reference document shall be deleted in entirety. Project proponents should refer to City codes, ordinances, and sensitive areas maps for description and requirements within sensitive areas. The project proponent shall also work with the City on additional requirements that may apply to their project.
4	**Other Drainage Related Regulations and Guidelines** A. Grading Code Soil Amendment Standard B. Clearing & Grading Seasonal Limitations C. Landscape Management Plan Guidelines D. Shared Facility Maintenance Responsibility and Guidance	 A. Not applicable. See SMC 16.15. B. Not applicable. See SMC 16.15 and SMC 21A.50.220. C. Applicable. D. Applicable.
5	**Wetland Hydrology Protection Guidelines**	These guidelines apply.

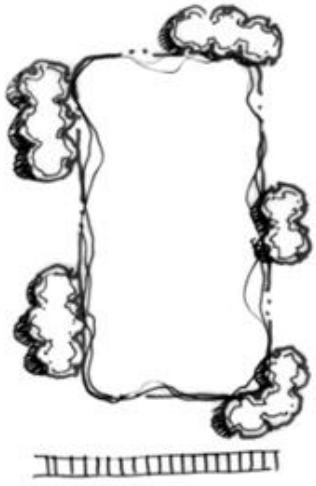
No.	Description	Action
6	**Hydrologic/Hydraulic Design Methods** A. Infiltration Rate Test B. Pond Geometry Equations C. Introduction to Level Pool Routing D. Supplemental Modeling Guidelines	This reference section is applicable.
7	**Engineering Plan Support** A. King County Standard Map Symbols B. Standard Plan Notes and Example Construction Sequence C. Storm Filter Facility Access and Cartridge Configuration	 A. Applicable. B. Replace with City's standard plan notes. Contact City for most current version of notes. C. Applicable.
8	**Forms and Worksheets** A. TIR Worksheet B. Offsite Analysis Drainage System Table C. Water Quality Facility Sizing Worksheets D. Flow Control and Water Quality Facility Summary Sheet and Sketch E. CSWPPP Worksheet Forms F. Adjustment Application Form and Process Guidelines G. Dedication and Indemnification Clause H. Bond Quantities Worksheet I. Maintenance and Defect Agreement J. Declaration of Covenant K. Drainage Release Covenant L. Drainage Easement M. Flow Control BMP Covenant (see replacement form name below). N. Impervious Surface Limit Covenant O. Clearing Limit Covenant P. River Protection Easement Q. Leachable Metals Covenant	 A. Applicable. B. Applicable. C. Applicable. D. Applicable. E. Applicable. F. Applicable, replace with COS updated form. G. Applicable, replace with COS updated form. H. Applicable. I. Applicable, replace with COS updated form. J. Applicable, replace with COS updated form. K. Applicable, replace with COS updated form. L. Applicable, replace with COS updated form. M. Applicable, replace with COS updated form. N. Applicable, replace with COS updated form. O. Applicable, replace with COS updated form. P. Applicable, replace with COS updated form. Q. Applicable, replace with COS updated form.
9	**Interim Changes to Requirements** A. Blanket Adjustments B. Administrative Changes	Applicable.
10	**King County Identified Water Quality Problems**	Delete in entirety

No.	Description	Action
11	**Materials** A. (VACANT) B. (VACANT) C. Bioretention Soil Media Standard Specifications D. (VACANT) E. Roofing Erodible or Leachable Materials	 A. Not applicable. B. Not applicable. C. Applicable. D. Not applicable. E. Applicable.
12	**(VACANT)**	Not applicable
13	**(VACANT)**	Not applicable
14	**Supplemental Approved Facilities** A. Approved Proprietary Facilities B. Approved Public Domain Facilities	 A. Applicable. B. Applicable.

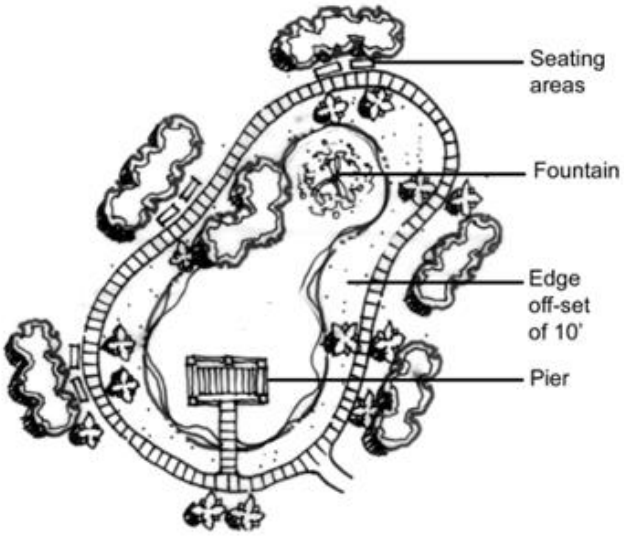
Table Ref-2. City of Sammamish References

No.	Description
1	**Area-Specific Drainage Requirements** A. Flow Control Applications Map B. Water Quality Applications Map C. Landslide Hazard Drainage Areas Map D. Erosion Hazard Near Sensitive Water Bodies

Stormwater Pond Design Intent



POOR POND DESIGN



GOOD POND DESIGN

Flow Control Map

Panhandle
Evans Creek
Mystic Lake
Inglewood
Allen Lake
Thompson
Beaver Lake
Patterson Creek
Pine Lake Creek
Laughing Jacobs
Monohon
North Fork Issaquah Creek
Lower Issaquah Creek
Lake Sammamish
Pine Lake
Allen Lake
Laughing Jacobs Lake
Yellow Lake
Beaver Lake

NE REDMOND-FALL CITY RD
NE 37TH WAY
EAST LAKE SAMMAMISH PKWY NE
SAHALEE WAY NE
NE 25TH WAY
205TH PL NE
220TH PL NE
NE 20TH WAY
244TH AVE NE
236TH AVE NE
NE 16TH ST
NE 14TH DR
NE 14TH ST
228TH AVE NE
216TH AVE NE
NE INGLEWOOD HILL RD
NE 8TH ST
E MAIN DR
LOUIS THOMPSON RD NE
SE 4TH ST
218TH AVE SE
SE 8TH ST
212TH AVE SE
SE 20TH ST
248TH AVE SE
WEST BEAVER LAKE DR SE
EAST BEAVER LAKE DR SE
SE 24TH ST
SE 28TH ST
SE 30TH ST
SE 32ND WAY
SE 32ND ST
SE DUTHIE HILL RD
SE ISSAQUAH-BEAVER LAKE RD
SE KLAHANIE BLVD
KLAHANIE DR SE
SE ISSAQUAH FALL CITY RD
SE 43RD WAY
EAST LAKE SAMMAMISH PKWY SE
212TH WAY SE
SE 24TH WAY
ISSAQUAH PINE LAKE RD SE
183RD AVE NE
0145
0163
George Davis Creek
Zackuse Creek
Ebright Creek
Pine Lake Creek
Kanim Creek
Many Springs Creek
Laughing Jacobs Creek
90

Conservation Flow Control (Level 2)
Flood Problem Flow Control (Level 3)
Drainage Basins
Sammamish City Limits
Streets - Public
Streets - Private

Basin boundaries expressed on this map are approximate, and will need to be verified during the Downstream Analysis to determine the approximate flow control standard.

N

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

0 0.25 0.5 0.75 1 Miles

City of Sammamish Washington

1_FlowControl.mxd 12-31-2015

Water Quality Map

Basic Water Quality Treatment Areas

Sensitive Lake Treatment Areas

Critical Drainage Areas: Sensitive Lake plus 80% Phosphorus Removal

Drainage Basins

Identified Sphagnum Bog Wetlands (EC27)

Sammamish City Limits

Streets - Public

Streets - Private

Basin boundaries expressed on this map are approximate, and will need to be verified during the Downstream Analysis to determine the approximate water quality standards.

N

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

0 0.25 0.5 0.75 1 Miles

City of Sammamish Washington

The information included on this map has been compiled from a variety of sources and is subject to change without notice.

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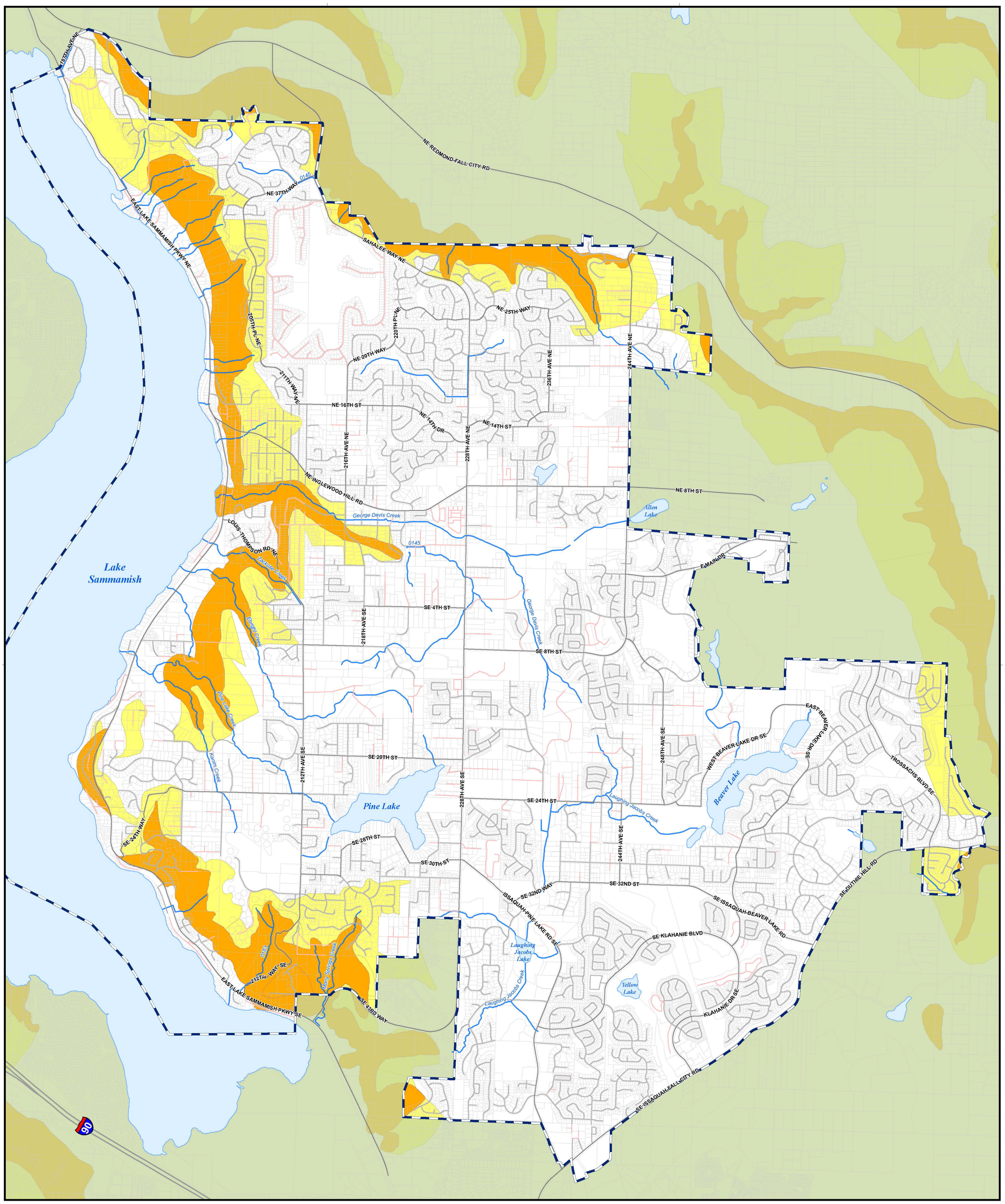
2_WaterQuality.mxd Revision Date: 8-26-2016



Landslide Hazard Area

Landslide Hazard Drainage

Sammamish City Limits

Streets - Public

Streets - Private

N

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

0 0.25 0.5 0.75 1 Miles

Landslide Drainage Hazards Map

City of Sammamish Washington

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LandslideHazardsDrainage.mxd 9-29-2016

Erosion Hazards Near Sensitive Water Bodies

Erosion Hazards Near Sensitive Water Bodies

Sammamish City Limits

Streets - Public

Streets - Private

Basin boundaries expressed on this map are approximate, and will need to be verified during the Downstream Analysis to determine the approximate flow control standard.

N

0 1,000 2,000 3,000 4,000 5,000 6,000 Feet

0 0.25 0.5 0.75 1 Miles

City of Sammamish Washington

4_ErosionHazardNearSensitiveWaterBodies.mxd Revision Date: 12-31-2015