

LEAVENWORTH STORMWATER MANAGEMENT GUIDELINES

Design of all stormwater management facilities, including but not limited to, all Core Elements (CE) noted below, shall be prepared by a professional engineer licensed in the State of Washington in conformance with the following, as applicable.

- Stormwater Management Manual for Eastern Washington (SMMEW), Ecology, 2019,
- Stormwater Infrastructure Hydrology / Hydraulic Preliminary Analysis, Leavenworth, Mar 2016,
- Regional Stormwater / Wetland Management Master Plan, Leavenworth, Aug 2016,
- City of Leavenworth code.

Unless otherwise noted below in the CE's, all references are from the SMMEW 2019. Core Element 8 Local Requirements are addressed where applicable.

Definition

The City stormwater network consists of four (4) drainage basins each with an independent conveyance system and permitted outfall to the Wenatchee River, i.e. Downtown East, Downtown West, Ski Hill, and Alpensee Strasse. A project which discharges to any one of these conveyance systems is considered to be a discharge to surface water. See the City Engineer for the basin location of your project.

Policy

Applicable thresholds for stormwater management impacts shall be evaluated at the time of permitting.

- All development shall comply with CE 1 – 4,
- When runoff treatment thresholds are met, all development shall comply with CE 5 & 7,
- When flow control thresholds are met, all development shall comply with CE 6 & 7.

Project Type

Report: Document the project type in the introduction (select one).

- New Development, see 2.5 and fig. 2.1, **or**
- Redevelopment, see 2.6 and fig. 2.2, **or**
- Single Family Residential (SFR), a building permit for an SFR whose location is not tributary to an approved stormwater management system.

CORE ELEMENT #1: PREPARATION OF A STORMWATER SITE PLAN / REPORT

General

- Submit, as applicable, Plans, Specifications, Details, Standard Plans, and Report.
- Analysis method: SBUH (no exceptions). Rational method analysis **will not be accepted.**

Precipitation

- Distributions: Region 1 - 36 hour and Short Duration - 3 hour (no exceptions). Use of the Type 1A distribution, modified or not, is not allowed.
- Antecedent Moisture Condition (AMC): Region 1 antecedent precipitation prior to regional storm **required adjustment** = 28% per table 4.4 (no exceptions).

Table 1: Precipitation Distributions / Depths per Return Interval

Distribution	6 month (WQ)	2 year	10 year	25 year	100 year
*SCS 24 hour	**1.05"	1.50"	2.25"	2.5"	3.25"
***Region 1	1.22"	1.74"	2.61"	2.90"	3.77"
****Short Duration	0.40"	-	0.83"	1.01"	1.35"

*For informational purposes only - Not to be used for analysis

**SCS 2 year 24 hour precipitation depth multiplied by C_{WQS} from Table 4.5, i.e. 1.50" x 0.70

***SCS 24 hour precipitation depths multiplied by 1.16 from Table 4.6 for all return intervals

****2 year 2 hour precipitation depth multiplied by 1.06 x C_{SDS} from Table 4.7 for 24.22" Annual Precipitation for all return intervals, i.e. 0.55" x 1.06 x C_{SDS}

CORE ELEMENT #2: CONSTRUCTION STORMWATER POLLUTION PREVENTION

Submit a Temporary Erosion and Sedimentation Control Plan (TESC) **or** Stormwater Pollution Prevention Plan (SWPPP). If providing a SWPPP, submit plan sheets/details/standard plans only depicting the TESC.

Ecology Regulations

The City will not accept, review, or approve any Ecology required documents. It is the applicants sole responsibility to determine whether the project meets Ecology permit thresholds, provide administration for, and maintain compliance with said permit, including but not limited to:

- Ecology Construction Stormwater Permit / Stormwater Pollution Prevention Plan (SWPPP),
- Ecology Underground Injection Control.

CORE ELEMENT #3: SOURCE CONTROL OF POLLUTION

Report: Identify and insert all appropriate chapter 8 source control BMPs in an appendix.

CORE ELEMENT #4: PRESERVATION OF NATURAL DRAINAGE SYSTEMS

Report: Include a brief statement regarding how the project will mimic or conform to its predeveloped natural drainage condition(s) and discharge location(s).

CORE ELEMENT #5: RUNOFF TREATMENT

Table 2: CE 8 Local Requirements – WQ Performance Standards

	Volume Based BMP (cf)	Rate Based BMP *Upstream of Flow Control (cfs)	Rate Based BMP *Downstream of Flow Control (cfs)
Rainfall Distribution	Region 1	Short Duration	Short Duration
Design Storm	6 month	6 month	2 year release rate

*"upstream" and "downstream" are intended to describe treatment relative to the location of a detention facility

Report: Define each of the following:

- PGIS (sf), and NPGIS (sf),
- ADT (trip ends) via project TIA **or** forecast from ITE Trip Generation Manual,
- Category: Low-use, or Moderate-use, or High-use. See chapter 8 glossary.

Treatment Exemption from all CE's when discharge is to:

- BMP F6.42 Full Dispersion, **or**
- UIC well per 1.4.6 and 5.6 **provided** oil treatment is not required, and has a satisfactory vadose zone treatment capacity **or** uses a structural treatment BMP.

Report: Document how each target pollutant treatment below is either exempt or required via 2.7.6 and fig 2.3.

Basic Treatment

Exemptions:

- All NPGIS surface runoff, **unless** mixed with PGIS,
- Site discharges to surface water with a total PGIS < 5,000 sf, and is not subject to handling of materials defined by RCW 70.105.010 or RCW 70.136.020.

Thresholds - Projects that:

- create > 5,000 sf of PGIS, **or**
- create > 5,000 sf of PGIS **and** discharge to surface water, **or**
- discharge to a UIC, **where** the vadose zone does not provide adequate treatment capacity.

Metals Treatment

Exemptions when discharge is:

- to a non-fish bearing stream, **or**
- to a surface water, **or**
- to the subsurface, **or**
- from a restricted residential and employee only parking area, unless subject to through traffic, **or**
- to a category 4 wetland (may be subject to additional limitations), see p. 95.

Thresholds:

- All moderate-use / high-use sites,
- Sites which discharge to a non-exempt surface water **and** meet any one of the p. 91 land use descriptions.

Oil Treatment

Exemptions:

- Low and moderate use sites.

Thresholds

- All high use / high ADT sites.

Phosphorus Treatment

No Exemptions. The Wenatchee River (adjacent and downstream) has a current Ecology Water Quality Improvement project for Phosphorus (Dissolved Oxygen and pH). All projects shall either 1) record documentation demonstrating compliance with this phosphorus reduction requirement, or 2) demonstrate a zero site discharge for the performance standards.

Report: Provide the following minimum BMP supporting documentation.

Applicable BMP design approach:

- Volume based: Method 1 Region 1 - 6 month storm, **or**
- Rate based: Method 1 Short Duration - 6 month storm.

Applicable BMP bypass approach:

- Off line, **or**
- On-line: submit velocity (< 2 fps) **or** shear stress analysis of conveyance through selected BMP via the Short Duration 25 year storm.

For each proposed BMP, the applicable supporting chapter 5 excerpts, figures, and tables:

- 5.2 Selection process including other selection factors, and cold weather considerations, **and**
- 5.3 General requirements, **and**
- 5.4 Infiltration criteria including reference number and name of each selected BMP, e.g. BMP T5.20 Infiltration Trench.

CORE ELEMENT #6: FLOW CONTROL

CE 8 Local Requirements - Performance Standard

The site predeveloped (condition of ground surface or land use, immediately preceding application) peak flow discharge rate for the Region 1 36 hour storm via the 2, 10, and 25 year events shall be maintained. No alternative precipitation distribution are allowed.

Report: If applicable, document how flow control is exempt via 2.7.6 and fig 2.3.

Exemptions when the project:

- creates < 10,000 sf of impervious surface (new or redevelopment), ***or***
- is located in any Commercial zone ***and*** is located within the:
 - Downtown East drainage basin, ***or***
 - Downtown West drainage basin, south of Whitman Street ***with*** frontage on SR2, ***or***
 - Ski Hill drainage basin, south of Whitman Street, east of Ski Hill drive, ***with*** frontage on SR2.

Exemptions when the project discharges:

- directly to an approved UIC, ***or***
- directly to surface water (see definition above), provided that it can demonstrate a negligible conveyance network increase of either the peak flow rate, surcharging, or flooding, ***or***
- via a dispersion BMP of the post developed 25 year storm volume on property under functional control of proponent, ***or***,
- to a non-fish bearing irrigation return (other limitations may apply), ***or***
- to a wetland with no outlet (other limitations may apply), ***or***
- to a "stream" which only flows via the 2 year Region 1 storm, and does not discharge to non-exempt surface water.

Report: Provide the following minimum BMP supporting documentation, as applicable.

Detention BMP: the applicable supporting 6.2 excerpts, figures, and tables:

- Detention Pond / Tank / Vault or Rainwater Harvesting general criteria and design procedure, ***and if applicable***
- Control Structure general criteria and design procedure.

Infiltration BMP: the applicable supporting 6.3 excerpts, figures, and tables:

- General criteria, and cold climate considerations, ***and***
- Infiltration BMP specific general criteria and design procedure, ***or***
- Bioretention, ***or***
- Permeable Pavement specific general criteria and design procedure.

Evaporation BMP: the applicable supporting 6.4 excerpts, figures, and tables supporting:

- Runoff volume determination and other design considerations.

Dispersion BMP: the applicable supporting 6.5 excerpts, figures, and tables supporting:

- Application, limitations, cold/arid/semiarid climate considerations, ***and***
- Dispersion BMP specific applications and limitations, general criteria and design procedure.

CORE ELEMENT #7: OPERATIONS AND MAINTENANCE

Report: Identify and insert all appropriate Appendix 5-A and 6-A O&M BMPs in an appendix. Include a statement that operation and maintenance of all private stormwater facilities (outside of the public right-of-way) shall be privately owned, operated ,and maintained by the property owner(s).