BOARD OF COUNTY COMMISSIONERS
COUNTY OF KITTITAS
STATE OF WASHINGTON

ORDINANCE

NO. 95 - 2

ADOPTING KITTITAS COUNTY STORM WATER MANAGEMENT STANDARDS AND GUIDELINES AND ADDING CHAPTER 12.70 TO THE KITTITAS COUNTY CODE

WHEREAS: The Kittitas County Code does not adequately provide standards for storm water management and guidelines, and

WHEREAS: The Board of Kittitas County Commissioners did hold a public hearing on Tuesday, January 24, 1995, at 9:30 a.m. to hear public testimony regarding adopting storm water management and guidelines and adding Chapter 12.70 to the Kittitas County Code.

NOW, THEREFORE BE IT ORDAINED That the Board of County Commissioners after due deliberation and in the best interest of the public, does hereby approve the following addition to the Kittitas County Code as follows:

ADDING under Title 12 "Roads and Bridges"
Chapter 12.70 "STORM WATER MANAGEMENT STANDARDS AND GUIDELINES"

Sections:

12.70.010 Purpose.

Kittitas County has found that future storm water drainage problems may be reduced or avoided if future developers, both private and public, provide for storm and surface water drainage of their respective properties. Storm Water Management Standards and Guidelines are set forth to protect life and property from loss and damage by flooding, to protect streams, creeks, and lakes from pollution and excessive flows.

The following Storm Water Management Standards and Guidelines are intended to reduce and prevent adverse storm water impacts. They represent the minimum design standards for the construction of storm water facilities and stream channel improvements within Kittitas County. Compliance with these standards does not relieve the designer, owner or developer of the responsibility to apply conservative and sound professional judgment to protect the health, safety and welfare of the general public. Special site conditions and environmental constraints and considerations may require a greater level of protection than would normally be required under these standards.

12.70.020 **Definitions.**

"Biofiltration": Vegetative devises used to reduce water velocity to filter out suspended solids and related pollutants.

"Detention Facilities": Water control structures or devises that restrict flow and provide temporary storage.

"Hydraulics": The physical science and technology of static and dynamic behavior of fluid such as water.

"Hydrology": The scientific study of the properties, distribution and affects of water with the atmosphere, earth surfaces and in soils and rocks.

"Infiltration": The passage of water through the soil surface and lower profile.

"Impervious Surfaces": Any surface which cannot be effectively penetrated by water such as asphalt, roof tops and compacted soils.

"One Hundred Year Discharge": The volume of water measured in cubic feet per second (CFS) released from a stream or structure from a 100 year storm event.

"Retention Facilities": Water control structures or devices that hold and store water.

"Storm water": Rain that flows off the surface of the land without entering the soil.

"Twenty Four Hour Storm": A rain storm measured in terms of a 24 hour duration.

"'X' Year Storm": A storm representing an intensity of magnitude that could recur as follows:

Storm	Average Recurrence During 100 Years
2-Year	50 times
10-Year	10 times
25-Year	4 times
50-Year	2 times
100-Year	1 time

12.70.030 **When Storm Water Plan or Storm Water Review is Required.**

All development proposals will be evaluated based on location, size, existing runoff conditions, topography and nearest downstream tributary. Storm water plans will be required for those development proposals which demonstrate a potential for significant storm water impacts. Specific review requirements will be addressed under Administrative Rules.

12.70.040 **When Plans Are Not Required.**

The following development actions are exempted from a storm water review except in extreme circumstances where significant impacts are anticipated.

A. Residential Building Permits
B. Zoning Variances

Any appeal of the Director's determination of the applicability of drainage plan requirements shall be to the Board of Kittitas County Commissioners as provided in Section 12.70.130.

12.70.050 **General Requirements.**

All persons proposing land development and/or approvals as outlined in Section 12.70.030 shall provide a storm water plan for surface water flows entering, flowing within and leaving the subject property. The plan is to conform to the following standards and requirements:

A. The Kittitas County Director of Public Works may require plans for storm drainage and detention facilities to be prepared by a registered Civil Engineer currently licensed by the State of Washington and qualified by experience and education in the field of hydraulics, hydrology, or a closely related field. Storm water plans or revisions to any approved plan shall be reviewed and approved by the Public Works Department prior to any construction.

B. On-site storm water improvements must be sufficient to mitigate impacts due to flooding, erosion, sedimentation or pollution.

C. All drainage system elements must provide for adequate maintenance and accessibility at all times. Storm water facilities shall be designed to eliminate interference from underground utilities and from conditions which exceed design loads for any pipe or other structural element.

D. The designer of any storm water element shall consider system reliability in terms of layout, specifications of materials and methods of installation.

E. The impact of a system failure should be analyzed both in terms of on-site and off-site effects. The impacts may be to adjacent properties or to elements of the public drainage system or other private systems.

F. No drainage originating inside of a building or structure shall be connected to the storm water or surface water systems.

G. Developer shall meet all other applicable laws for water quality prior to discharge to any wetland, stream, or lake.

H. Developers are encouraged to be innovative and give high priority to fish, wildlife, plant materials and related total resource management systems.

12.70.060 Basic Requirements.

A. Discharge at Natural Location: All surface and storm water runoff from a proposed development that would construct new or modify existing drainage facilities should be discharged at the natural location and not be diverted onto or away from the adjacent downstream property. Diversions may be allowed if it corrects an existing problem.

B. Tributary Area Analysis: Proposed developments should identify the upstream tributary drainage area and provide an analysis of the pre-existing drainage volume and quality and an analysis of the impact of the proposal on the drainage system.

C. Proposed projects must control the peak rate runoff to not exceed the pre-development peak rates for the site (existing condition). The methods of peak rate runoff control may include detention, retention and/or infiltration. On site bio-filtration in combination with infiltration systems is the preferred method for management of on-site storm water and shall be considered before transporting storm water off-site.

D. For all proposed developments requiring a drainage conveyance system, the conveyance system must be analyzed, designed and constructed to handle existing off-site tributary flows and on-site storm water flows caused by development of the project.

E. Developments involving clearing and grading and that propose new or to modify existing drainage facilities should include an erosion/sedimentation control plan providing measures to prevent sediment-laden runoff from leaving the site during construction. Erosion/sedimentation control may be achieved by structural control measures (sediment trap or pond), covers (mulch, sodding, plastic covering) and/or construction practices (filter fabric, quarry rock driveway pads).

F. Maintenance and operation of all private storm water facilities is the responsibility of the property owner or a properly formed homeowners association and shall be done in compliance with Kittitas County maintenance standards.

G. For the construction or modification of any storm water facility other than roadside ditches, the applicant shall be required to have a construction bond. The construction bond shall be posted prior to beginning construction. The bond shall be in an amount sufficient to cover the cost of work on or off the site.

12.70.070 Drafting Standards and Contents.

The storm water plan shall be prepared in conformance with Section 12.10.080.

A. Runoff Control

1. Developments shall be designed and constructed to provide control of the quality and quantity of storm water runoff both during and after construction. Erosion and sedimentation control plans shall be submitted and approved by the Public Works Department prior to the beginning of any construction. Peak discharge control and detention facilities shall be provided in accordance with the Development Standards. Biofiltration, oil/grease separation devices or other pollution control mechanisms are to be installed prior to occupancy and relapse of any performance securities held by the County.

2. The on-site drainage system including conveyance, flow restriction, detention, pollution control, and emergency overflow elements must be properly designed and sized to handle runoff from the site and conveyance through the site. The design should be carefully analyzed for potential problems, flow impediments, construction or maintenance difficulties, and potential erosion or other property damage.

3. Allowable Release Rates

   a. The peak discharge rate from the road right-of-way or from the total subdivided property shall not exceed 0.2 cfs per acre for site of 5.00 acres or less.

   b. For sites with tributary basins greater than 5 acres or sites less than 5 acres in area which are deemed to have significant impacts due to runoff quantity shall be limited to the pre-development peak runoff for a "two-year" storm. Peak runoff rate shall be computed using the Soil Conservation Service TR-55 method, modified Santa Barbara Urban Hydrograph Method or other approved models.

   c. Storm water detention facilities shall be provided to store all surface water runoff in excess of the allowable peak discharge in accord with provisions for "detention facilities" of these standards up to the "100-year" discharge or meet the design criteria in Item 7 under Detention Facilities.

4. Oil Separation Devices:

   Whenever paved parking is provided for more than 20 vehicles, or any paved parking or access roadway drains to an open waterway or stream, an oil/grease separation device shall be installed by the Developer. The device shall be constructed and installed consistent with current state of the art requirements. It shall be located at a point where it can be easily maintained and where it will intercept floating contaminants flowing off road surfaces, parking lots, and other sources of pollutants. Selection and sizing of oil separation device type shall be subject to approval of the Director of Public Works. The applicant should consider the use of vegetative or other natural filtration means. Effluent discharges from any oil removal treatment device to the storm sewer or surface water system shall be in compliance with State Department of Ecology regulations for discharge to storm drains or surface waters.

   a. Oil separators discharging to a storm water system or directly to a waterway require approval from the Department of Ecology.

   b. All storm water must enter the separator through an inlet pipe, unless the separator is an integral part of an approved catch basin.

   c. The property owner assumes full responsibility and liability for proper maintenance and operation of the oil separator, unless the separator is a part of a publicly-operated drainage system.

   d. Access to the separator shall be maintained for inspection at all times.

   e. Oil accumulation in the oil separator compartment shall not exceed three inches at any time.

   f. Following oil removal the separator shall be backfilled with clean water to prevent oil carry-over to clear well.

g. Waste oil accumulations removed from the separator shall be disposed of in an acceptable manner and shall not be disposed or discharged to the ground water, storm drains, or streams.

h. Design of an oil separator facility shall be based upon flows from an approved detention system over the area contributory to the oil separator and provision of one hour retention time in the oil separator at that flow. In addition the oil separator must be designed with a depth to width ratio of between 0.3 and 0.5.

5. Erosion and Siltation Control:

In addition to catch basins, measures such as suggested in Section 6-E of these standards should be provided as necessary during and after construction to prevent erosion and to prevent silt from being carried off-site and/or into receiving bodies of water.

B. Detention Facilities

1. All storm water runoff originally from and/or drainage to any proposed development shall be controlled and/or conveyed in accordance with all County standards and policies and as described in these standards. When existing conditions make storm water detention impossible for a portion of a site, in lieu of providing detention for such an area, at the discretion of the Director of Public Works, compensatory storage volume and reduction of allowable release rates may be provided on another portion of the site. In no case shall the runoff from the total site exceed the allowable release rate.

2. The storm water detention requirement may be waived at the discretion of the Director of Public Works when a direct discharge of "100 year" or greater capacity in conjunction with pollution control to a major receiving body such as Yakima, Teanaway and Columbia Rivers and Keechelus, Kachess and Cle Elum Lakes is provided. Said control or conveyance of storm water runoffs shall be shown on a drainage plan which shall be prepared by the developer's licensed engineer and shall be submitted for review and approval by the Public Works Department.

3. The storm water detention requirement may be waived at the discretion of the Public Works Director if the volume of storage calculated for that development is less than 250 cubic-feet and if the site has no environmental, hydraulic, or hydrologic constraints which must be mitigated by providing storage.

4. Prior occupancy of any single phase of a phased development, storm drainage facilities should be completed and operational to provide runoff control, detention, and water quality treatment for the phase for which occupancy is requested.

5. Storm water detention systems shall be designed to maximize reliability, ease of maintenance, and water quality of runoff and shall minimize hazards to persons or property (both on-site and off-site), nuisance values, and risk of failure.

6. Sufficient detention storage capacity shall be provided to store the excess runoff from the developed site during a storm event having a probability of occurrence commonly known as the "100-year storm". A non-erosive overflow path shall be provided from each detention facility to protect adjacent property from damage.

7. Detention basin performance shall be such that discharge from the development area meets the following criteria:

a. 50% of the predevelopment two-year peak release rate for the two-year developed design storm.

b. The predeveloped 25-year peak release rate for the 25-year development design storm.

8. Sizing: In calculating the storage volume provided, "dead storage" in wet ponds shall be excluded, i.e., that volume of water which must be assumed to be present in the detention system at the commencement of the design storm. Any volume at a level below that of the outfall invert must be presumed to be dead storage, e.g. catchments.

9. Permanent pond surface area should equal 2% of the catchment area for residential and 3% of the catchment for commercial. Volume should be equal to the volume generated from two-thirds of the 2-year, 24-hour storm.

10. Controlled Overflow Requirements: All detention storage facilities should include a provision for control of overflows, and suitable data shall be provided to support the design. Under no circumstances should the overflow be overland to public right-of-way or over private property not included as part of the development without a recorded easement.

11. Site, Soil and Infiltration Data Requirements for Calculating Effective Infiltration Rates to Reduce Storage Requirements.

a. General Data Requirements:

i. The proposed site should have favorable topography to preclude high runoff rates. Engineering calculations shall be included with any submittal to show that there will be no adverse impacts due to the reduced storage. Such adverse impacts may include but not be limited to, increased frequency of overflows.

ii. A log of the soils and infiltration test data should be submitted to reveal site soil conditions and infiltration rates.

iii. An adequate number of test holes should be located over the proposed site to substantiate representative conditions for the final layout of the development, and as a minimum condition, test holes shall be located in each area and at the elevation proposed for infiltration.

iv. Groundwater depth, location, flow and general characteristics shall be considered.

v. Impervious strata shall be at a depth greater than two feet below the bottom of the proposed infiltration area.

b. Soil Data Requirement: A soil log may be required to describe soil type and depth along with a site map showing the location of each test hole. Classification may be in general terms such as loose sand, sandy silt, clay hardpan, rock, etc. or classification may be in specific terms as described by the U.S. Department of Agricultural. The soil log should include the depth to ground water table.

12.70.090 Review and Approval of Plan.

A. The storm water plan and supporting calculations will be reviewed by the Public Works Department using the Department's construction plan review procedures in coordination with all other County land development and/or permit review procedures. The County's review and approval of the storm water plan shall not relieve the applicant, owner and/or designer of liability for errors or omissions in the design of storm drainage facilities.

B. All storm water plans prepared in connection with any of the permits and/or approvals listed in Section 12.70.030 shall be submitted for review and approval to the Public Works Department.

C. Any applicant or property owner proposing an action that may require a storm drainage plan may request a preliminary review of the proposal by the Director and a determination of the need for a drainage plan pursuant to Section 12.70.030 and Section 12.70.040.

12.70.100 Bonds and Liability Insurance.

A. The construction of storm drainage facilities requires Financial Guarantees in accordance with Section 12.10.100.

B. The owner or person constructing the storm water facility shall maintain a liability policy during the construction period with policy limits of not less than $100,000.00 per individual; $300,000.00 per occurrence; $50,000.00 property damage. which shall name Kittitas County as an additional insured without cost to the County. Coverage shall be continued by the developer in the same amounts until such facilities are accepted by the County as provided in Section 12.70.120.

12.70.110 Standard Storm Water System Maintenance.

Maintenance of storm water facilities on private property shall be the responsibility of the owner(s), unless otherwise provided for under Section 12.70.120. This responsibility and the provision for maintenance shall be clearly stated on subdivision and short plat plans, property conveyance documents, and/or drainage improvement plans. In the event the owner(s) does not provide property maintenance and the Director of Public Works determines the storm water facility represents a public safety threat the Director will give 30-day notice to the owner(s) to correct the deficiencies. If the deficiencies are not corrected within 30-days the County may enter upon the property to perform the necessary maintenance at the owner(s) expense. This provision for access will be included as a provision of plat or plan approval.

12.70.120 County Assumption of Maintenance.

Upon petition of the Owner(s), Kittitas County with approval of the Kittitas County Board of Commissioners, may assume the maintenance of retention/detention facilities if all of the following conditions are met:

A. All of the requirements of Section 12.70.070 "Drafting Standards and Contents" and Section 12. 70.080 "Design Criteria" have been fully complied with;

B. The facilities have been inspected and approved by the Public Works Director;

C. All necessary easements entitling the County to properly maintain the facility have been conveyed to the County; and

D. It is recommended by the Public Works Director that the assumption of maintenance would be in the best interests of the County.

12.70.130 Appeal Procedure.

In the event of a determination by the Director that storm water plans are required, the applicant shall have the right to have the determination reviewed by the Kittitas County Board of Commissioners or the owner may make corrective provisions to the project as necessary. Denial by the Board shall leave the owner with the choice of correcting the project as suggested by the County or appeal through the judicial process.

12.70.140 Variances.

Variances from these Storm water Standards and Guidelines may be requested by the applicant in accordance with Section 12.10.090.

12.70.150 Retroactivity Relating to County Maintenance of Subdivision Facilities.

Any owner who has constructed retention/detention facilities prior to the adoption of these storm water standards and guidelines may petition for the County to assume maintenance of the constructed facilities. If it is determined to be in the overall interest of the general public, the County, upon approval by the Kittitas County Board of Commissioners may assume the maintenance of the constructed facilities provided all of the following conditions are met:

A. The owner shall demonstrate, to the Public Works Director's satisfaction, that approved plans and constructed facilities substantially comply with these storm water standards and guidelines,

B. The owner shall provide as-built plans, prepared to County standards, for all constructed facilities, and

C. The Director shall inspect the storm water facilities and approve and acknowledge that all conditions for accepting maintenance responsibility have been met.

ADOPTED this 24th day of January, 1995.

BOARD OF COUNTY COMMISSIONERS
KITTITAS COUNTY, WASHINGTON

Mary Seubert, Chairperson

Ray Owens, Vice-Chairperson

Donald E. Sorenson, Commissioner

ATTEST:

Anita J. Kazee, Clerk of the Board

Approved as to Form:
PROSECUTING ATTORNEY

Gregory L. Zempel
WSBA # 19125