

# NO. 2 CANYON LANDOWNERS HANDBOOK



Prepared for Chelan County Flood Control Zone District  
By Tetra Tech and Perteeet Inc.



# INTRODUCTION

The purpose of this No. 2 Canyon Landowners Handbook is to provide an educational resource to landowners that empowers them to understand their properties within the context of the larger watershed, the associated risks, and how to responsibly live with and maintain a drainage channel that passes through or adjacent to their land.

About 70-percent of the No. 2 Canyon drain is located on private land. Other sections of the channel are on land owned by the Forest Service or within county and city roadways. Because the majority of the drainage is on private property, it is important that residents understand their flood risk, how to prepare their properties for flood events, and how to ensure that the drainage maintains adequate capacity.



## **This handbook provides landowners information on:**

- Flood risks
- What streamside and floodplain activities are regulated
- What you can and cannot do along the drain and within the floodplain
- Best practices for streamside and floodplain landowners
- When and who to ask for help

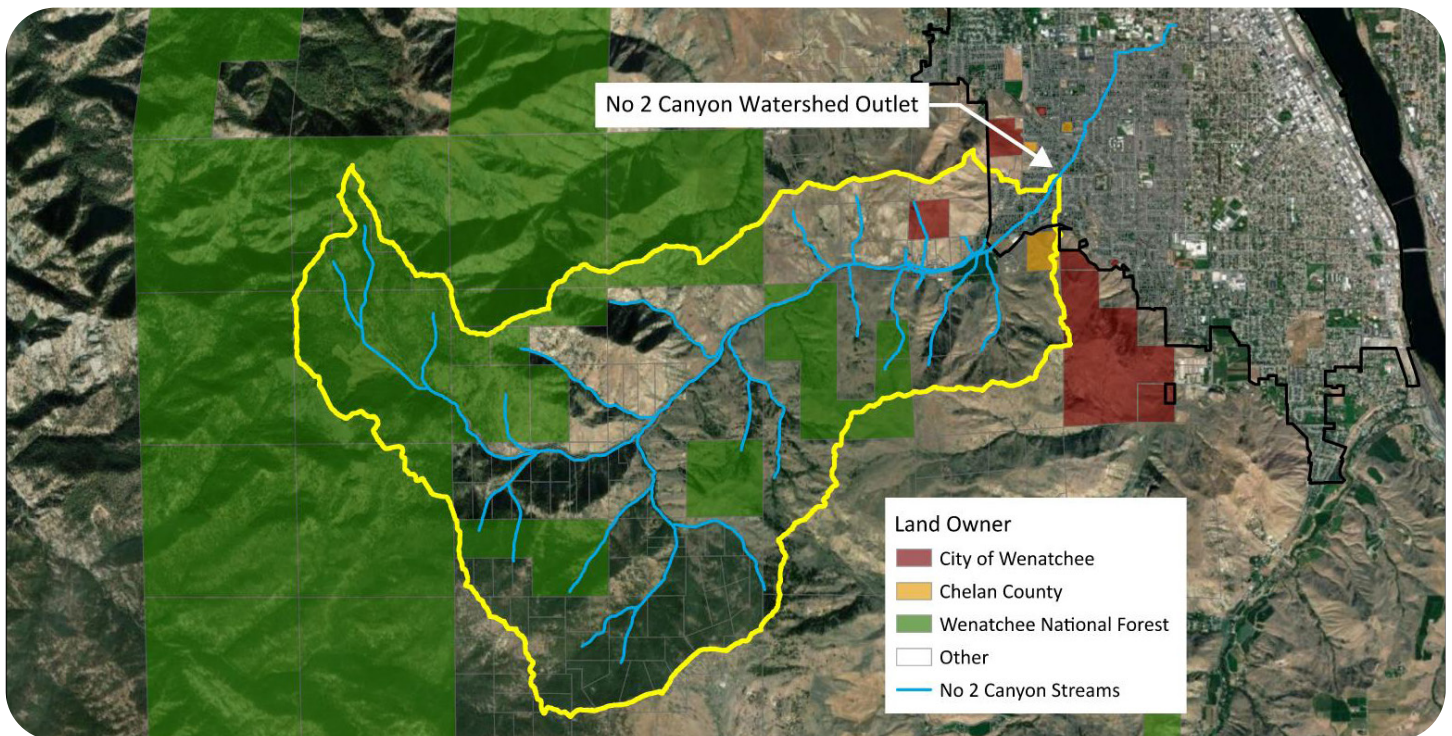


# NO. 2 CANYON WATERSHED

A watershed, also known as a drainage basin or catchment area, refers to a geographic region or area of land that is bounded by higher elevations, such as hills or mountains. The watershed collects and channels water through a network of rivers, streams, and creeks that drains into a larger river, a lake, or the ocean. In a watershed, all rainfall and runoff within its boundaries ultimately drains into a single water body.

The No. 2 Canyon watershed is about 10 square miles (6,400 acres) upstream of City limits and ranges in elevation from 1,000 feet near the mouth of the canyon to 4,600 feet in the headwaters.

The upper parts of the basin are vegetated with coniferous trees including Douglas fir, Western red cedar, Ponderosa pine, and Grand fir. Lower parts of the basin are mostly vegetated by sagebrush, shrubs, and grasses. The upstream end of the channel starts in the Wenatchee National Forest and flows about 6 miles through the canyon into the City. After the drain enters the City, it flows for 3 miles through a series of pipes, culverts, and open channels until it drains into the Columbia River.



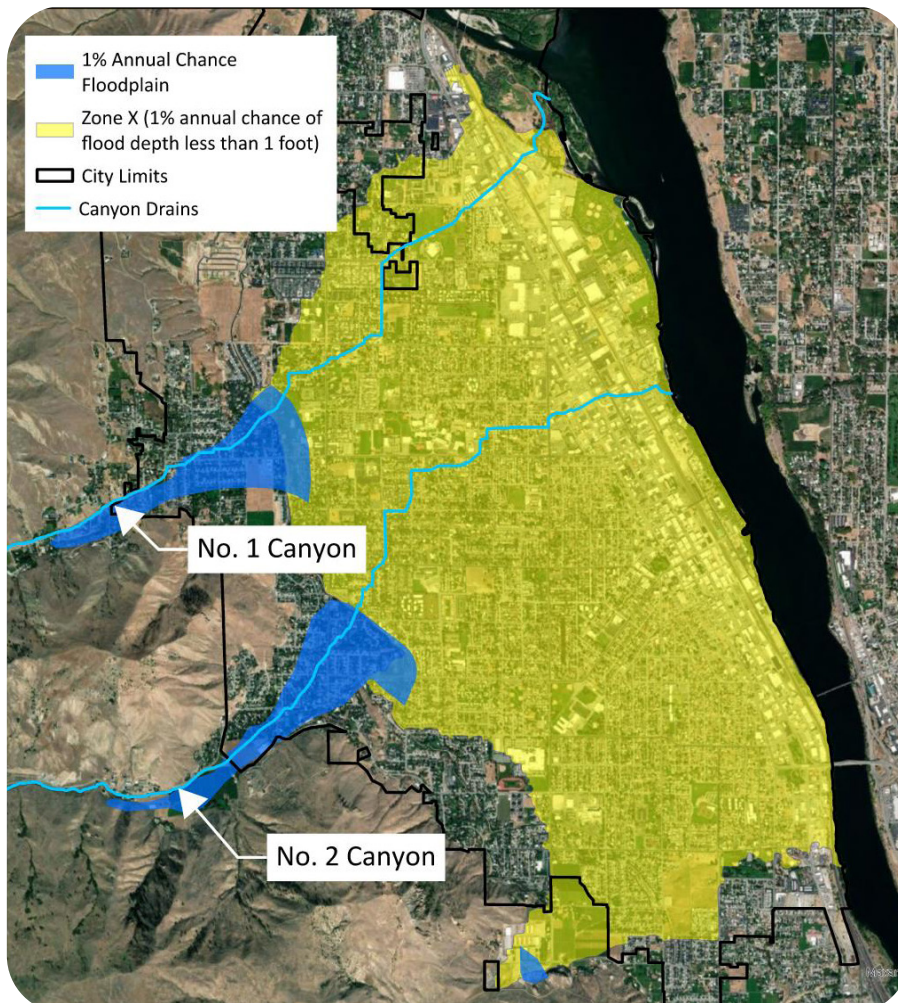


# FLOODING

The majority of floods along the No. 2 Canyon drain are due to intense thunderstorms with rain that falls within the No. 2 Canyon watershed. According to historical records, two of the largest floods occurred in 1902 and 1957. The largest flood in the recent past occurred in 2013.

The Federal Emergency Management Agency (FEMA) has identified a floodplain for No. 2 Canyon with a 1% chance of occurring each year, also known as the 100-year floodplain. Any development on the portion of your property within the 1% annual chance floodplain must comply with floodplain regulations that will help to protect your property and/or downstream properties from flood damage. If your home is in the 1% annual chance floodplain, you may be required to purchase flood insurance by your mortgage lender.

Downstream of the 1% annual chance floodplain is a flood zone called "Zone X." Most of the City is within this flood zone. In Wenatchee, Zone X identifies areas that have a 1% chance of flooding every year with flood water less than 1-foot deep. Wenatchee is mapped as Zone X because the City is located on an alluvial fan and it is difficult to predict where floodwaters will flow.



The No. 2 Canyon floodplain boundary is based on a determination that every year there is a 1% chance that a flow of 2,200 cubic feet per second (cfs) will be equaled or exceeded at the mouth of the canyon. That is a lot of flood water! It is similar to the average wintertime flow in the Wenatchee River at Monitor, which averages from 1,900 cfs to 2,400 cfs between the months of December to March.

Did you know...During a 30-year mortgage, there is a 26% chance that homes within the 1% annual chance floodplain will experience a 100-year flood at least once!

# FIRES

The hills west of Wenatchee are prone to wildfires. In 2012, the Canyon Fire burned most of the No. 1 Canyon watershed and the northern side of the No. 2 Canyon watershed. The following year, both canyons experienced flooding and debris flows (water and sediment ranging in size from silts to boulder-sized material) after intense thunderstorms.

Fires can have significant effects on watershed runoff. Fires can remove vegetation, including trees and shrubs, and fires can have significant effects on rainfall runoff in a watershed. Fires remove vegetation, including trees, shrubs, and ground cover, that normally intercept and slow down rainfall runoff. The intense heat from fires can create a hard layer on the soil surface known as a hydrophobic layer. This layer repels water, which reduces the amount of rainfall that is absorbed into the soil, resulting in an increase in the amount of rainfall that runs off the hillside. With reduced vegetation and hydrophobic soils, the risk of flash flooding and debris flows can significantly increase following a fire, and often for years after while the vegetation regrows.

Thunderstorms, such as the storm that occurred in 2013 after the Canyon Fire, can rapidly result in flash flooding. Flash floods carry large volumes of water, sediment, and debris that can overwhelm channels and stormwater infrastructure causing dangerous conditions and damage to property. Flooding and debris flows can also cause road closures and lack of emergency access. It is important for property owners to maintain drainages and to always be prepared for floods.



Sleepy Hollow Fire – June 2015. Source: The Spokesman-Review, Spokane, WA.

# BEST PRACTICES

## — How do I maintain the drain on my property?

- Keep it clean! Keep the drain free of trash and debris to maintain the free flow of water.
- Do not put grass clippings, leaves, or other yard waste into the drain.
- Maintain vegetation around the drain to prevent the vegetation from overgrowing and choking or clogging the drain.
- If a portion of your property drains naturally into the drain, keep that portion of your land stabilized to prevent erosion on your property. You can stabilize your soils with grass, vegetation, or erosion control fabrics.
- Do not fill, block, divert, pipe, or alter the drain in any way without securing appropriate permits.

## — The drain passes through my yard. What can I do around the drain?

For homeowners who have landscaping or yard features near the drain, follow these guidelines to avoid increasing flood risk:

- Be sure you understand how the drainage operates before making improvements around it.
- Do not place rocks or other items in or near the drain that can reduce capacity or be washed downstream.
- Do not plant trees or bushes in the drain. As they grow, the vegetation may cause blockages or reduce drainage capacity. This may cause flooding when the drain is running full.
- Do not grade slopes near the drain. Grading can change how water runs off the slope and may erode the slope or cause instability. If you need to grade near the drain, call Cascadia Conservation District for technical support and guidance.

## — Can I build a fence over or near the drain?

Fences can create some of the most serious flooding problems. Fences can block or redirect the flow of water, which could cause damage to your property or your neighbor's. Flood waters can easily push over a fence. Avoid constructing fences near or across the drainage.

## — How do I protect my property from flood damage?

Property owners can take many simple steps to reduce the impact of flooding on their property:

- Understand your risk. Are you in a 1% annual chance floodplain or in Zone X? Call the City or County for assistance.
- Purchase flood insurance. Most homeowners policies do not cover damage from flooding. Call your insurance agent for more information.
- Prepare a household emergency plan.
- Securely anchor yard items, such as sheds, to the ground so they are not swept away by flood waters.
- If flooding is imminent, move smaller yard items, such as toys, garbage cans, and grills, inside or to a location they cannot be swept away.

During a flood, do not walk or drive through flood waters. Flood waters can contain contaminants and hide hazards like sink holes. Just six inches of flowing water can knock you down, and one foot of water can sweep away your vehicle. Turn around, don't drown!



# CANYON DRAIN MAINTENANCE AND REGULATIONS

## — Do I need permits to work in the No. 2 Canyon Drain?

Yes, permits are required for work within the canyon drain. The drain is classified as waters of the state and maintenance, modifications, or repairs within the drain may require a Hydraulic Project Approval (HPA) from Washington Department of Fish and Wildlife. Work may also require a permit from the Army Corps of Engineers or local permits.

The permitting process is intended to ensure that you are not creating any new upstream or downstream hazards, and that construction is done in a manner that protects fish and aquatic habitat.

The City of Wenatchee and Chelan County have partnered with the Cascadia Conservation District as a resource for property owners wishing to maintain or modify the canyon drain on their property. Cascadia Conservation District has staff specializing in streamside maintenance and restoration who can assist you in navigating regulatory requirements. Prior to contacting the regulatory agencies or beginning work, property owners are encouraged to contact the Cascadia Conservation District.

Permits may be required during emergencies. In the event of an emergency, contact WDFW for a verbal HPA approval prior to beginning any work within or next to the drain.

## — Who is responsible for maintenance of the Canyon No. 2 Drain on or next to my property?

It is the responsibility of the individual landowner to maintain the portion of the drain on their property. The City of Wenatchee and Chelan County are responsible for the maintenance of the drain that is on City or County land and roads.

## — When do I need an engineer?

Some projects may require an engineer to help with the project design. These projects may include:

- Installing a new bridge or culvert that crosses the drain. Crossing designs may need to comply with the WDFW Water Crossing Design Guidelines and may need a permit from WDFW.
- Installing erosion control or stream bank protection.
- Grading in or around the drain.

These types of projects may also require local permits, such as a floodplain development permit, driveway permit, critical area permit, or a grading permit. Be sure to check with the City or County before starting your project.

## — Floodplain Permit and Regulations

All development within the 1% annual chance floodplain must comply with the City and County's floodplain regulations. Most development and construction activities will require a floodplain permit.

### Chelan County

Chapter 3.20 Flood Hazard Development in the Chelan County Code contains information on floodplain development regulations within the County.

<https://www.codepublishing.com/WA/Chelan County>

### City of Wenatchee

Chapter 2.05 Flood Hazard Prevention in the Wenatchee City Code contains information on floodplain development regulations within the City.

<https://www.codepublishing.com/WA/Wenatchee/>



## Contact/Links

### — Chelan County

- 509.667.6225
- <https://www.co.chelan.wa.us>

### — City of Wenatchee

- 509.888.6200
- <https://www.wenatcheewa.gov>

### — Cascadia Conservation District

- 509.436.1601
- <https://cascadiacd.org>
- [Info@cascadiacd.org](mailto:Info@cascadiacd.org)

### — Washington Department of Fish and Wildlife

- 509.754.4624
- <https://wdfw.wa.gov/>
- After hours emergency: 360.902.2537

### — US Army Corps of Engineers

- 208.433.4464
- <https://www.usace.army.mil/>
- After hours emergency: 206.200.9954

