



LOWER GREEN RIVER CORRIDOR FLOOD HAZARD MANAGEMENT PLAN

Draft Programmatic Environmental Impact Statement

Volume II

Glossary



GLOSSARY

A

Allochthonous

In ecology, allochthonous material is something imported into an ecosystem. In streams leaves that fall or are washed into the water and branches and trees that topple into the stream are considered allochthonous material.

Alluvial fan

An alluvial fan is an accumulation of sediments that fans outwards from a concentrated source, such as a narrow canyon emerging from a long, steep slope (escarpment). Alluvial fans typically form where flow emerges from a confined channel and is free to spread out and infiltrate the surface. This reduces the carrying capacity of the flow and results in deposition of sediments.

Aquatic ecosystem

An *ecosystem* is a community of organisms that live and interact within a particular environment. In an *aquatic ecosystem*, that environment is water, and all the plants and animals in the system live either in, on, or around water. The specific setting and type of water, such as a freshwater lake or saltwater marsh, determines which animals and plants live there. The two main types of aquatic ecosystems are marine and freshwater. Freshwater ecosystems may be lentic (slow moving water, including pools, ponds, and lakes), lotic (faster-moving water, for example streams and rivers), and wetland (areas where the soil is saturated or inundated for at least part of the time).

Areal extent

Areal extent means of or relating to the size of a bounded surface or two-dimensional space. For example, the areal extent of a woodland would be the area covered with trees.

B

Best management practices (BMPs)

The term “best management practices” was introduced and defined by the U.S. EPA as a practice or a combination of practices that is an effective, practicable means of preventing or reducing the amount of pollution generated by stormwater runoff. Such practices can include technological, economic, and institutional considerations to prevent or reduce the amount of pollution generated by nonpoint sources to levels compatible with water quality goals. The term is now used for subjects other than water quality to refer to measures that can reduce or prevent impacts, often during construction.

Biological opinion

Under Section 7 of the Endangered Species Act (ESA), federal agencies must consult with NOAA Fisheries on activities that may affect ESA-listed species. These inter-agency consultations are designed to assist federal agencies in fulfilling their duty to ensure that their actions do not jeopardize the continued existence of a species or destroy or adversely modify designated critical habitat.

Biotic Ligand Model

The Biotic Ligand Model (BLM) is a tool used in aquatic toxicology that examines the bioavailability of metals in the aquatic environment and the affinity of these metals to accumulate on gill surfaces of organisms. BLM depends on the site-specific water quality, including parameters such as pH, hardness, and dissolved organic carbon.

Breach

A breach occurs when erosion of an embankment, levee, or flood wall allows water to move over or through it.

C

Channel migration

Channel migration is a natural geologic process. The term describes how a stream or river channel moves over time. Streams and rivers may change course or migrate for a variety of reasons; examples include erosion and deposition of sediments that alter geology, stream/river boundaries, shape, and functionality.

Concrete T-wall

T-WALL® is a gravity retaining wall system that consists of modular precast concrete units and select backfill. The system is used for grade separation on highway, bridge, railroad, water, commercial applications, and more.

Cross section

A cross section is a line developed from topographic information across a floodplain where a potential flood elevation has been established. Cross sections are used as representative locations along a stream within a floodplain.

D

[None]

E

Estuary

An estuary is the part of a river where it meets a tidal waterbody. The Duwamish Waterway is the estuary for the Green/Duwamish River.

F

Factor of safety (FOS)

Factor of safety is an engineering term used to express how much stronger a system is than it has to be for an intended load. Safety factors are often calculated rather than measured because comprehensive testing is impractical on many projects, such as bridges and buildings, but the structure's ability to carry a load must be determined to a reasonable accuracy. Many systems are intentionally built stronger than needed for normal usage to allow for emergency situations, unexpected loads, misuse, or degradation.

Flood Hazard Certification

King County requires project proponents (Section 21A.24.250, King County Code; Section 4.4.2, King County Surface Water Design Manual) to identify the type and location of potential flood hazards on a project parcel and identify study requirements. The potential flood risk determines the required level of analysis

Flood insurance rate map (FIRM)

FEMA produces these official maps that show delineated floodplains, special flood hazard areas, base flood elevations, and risk premium zones. FIRMs are used to determine flood insurance requirements.

Floodway

Floodways are defined as the channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than 1 foot.

G

[None]

H

Habitat assessment

A habitat assessment identifies and assesses the elements of a stream or river's habitat. By observing stream characteristics and major physical attributes, habitat conditions can be ranked.

Heat island

Heat islands are urbanized areas that experience higher temperatures than outlying areas because natural land cover is replaced with dense concentrations of pavement, buildings, and other surfaces that absorb and re-emit the sun's heat.

Hydrograph

A hydrograph is a graph showing stage, discharge, velocity, or other properties of water flow with respect to time. When the stage is plotted against time, the graph is called a stage hydrograph (the form of a stream gage record).

Hydrology

Hydrology refers to the movement of water of water. It includes both surface water and groundwater.

Hydrophilic plants

Hydrophilic plants grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content (i.e., plants typically found in wet habitats).

Hyporheic Zone

The hyporheic zone is the region of sediment and porous space beneath and alongside a streambed where shallow groundwater and surface water mix.

I

Inflow

Inflow is the water entering another body of water. It can also refer to the measure of average volume of incoming water per unit time.

Interstitial spaces

The spaces between individual sand grains in the soil or aquatic sediments.

J

[None]

K

[None]

L

Larva

A larva is the immature stage of insects that mature through metamorphosis. Larva are usually wormlike in appearance and have no resemblance to the adult they will become.

Levee prism

The levee prism is a cross-section of a levee with a top elevation equal to the design top of the levee and slope projections that extend downward to the base.

Level of service (LOS)

Level of service describes the minimum level of performance of a facility or service and is often expressed as a rating.

Local inflows

Local Inflows are lateral flows into a river other than flows from upstream. In the context of the Lower Green River study, they are lateral flows into the Green River between Howard Hanson Dam (HHD) and Auburn, and do not include releases from HHD.

M

Macroinvertebrate

Aquatic macroinvertebrates are insects in their nymph and larval stages, snails, worms, crayfish, and clams that spend at least part of their lives in water. They play a large role in freshwater ecosystems by recycling nutrients, as well as providing food for other species.

N

Natural riverine processes

Streams and rivers carry water and sediment from high elevations to downstream lakes, estuaries, and eventually oceans. They also provide habitat for fish, amphibians, insects, mollusks, and plants.

Nymph

In biology, a nymph is the immature form of some invertebrates, particularly insects, which undergoes gradual metamorphosis before reaching its adult stage. As opposed to larva, a nymph's overall form resembles that of the adult, except for a lack of wings. (See also "larva").

O

Off-channel rearing habitat

Off-channel rearing habitats are bodies of water adjacent and connected to the main river channel at summer discharge levels. The construction of off-channel habitat—also called "refugia"—for juvenile salmonids provides the structurally complex habitat they need to survive and thrive during high winter flows. Side channels and wetland complexes are constructed to connect the floodplain at lower flows. (See also "refugia" and "river channel").

Over-steepened slope

An over-steepened slope is steeper than normal or than what would be stable. Slope fail occurs when gravitational forces exceed the strength of the rock or soil that comprises the slope.

Overtopping

Overtopping is the rising of water over the top of a flood management structure.

P

[None]

Q

[None]

R

Radiative forcing

Radiative forcing describes the situation when the amount of energy that enters the Earth's atmosphere through solar radiation is different from the amount of energy that leaves it as heat in the form of infrared radiation.

Reach

A reach is any length of a stream or river. The term is used when referring to a small section of a stream or river rather than its entire length.

S

Schema

A schema (plural, schemata) is a technical representation of a planar theory in the form of an outline or a model.

Scour protection

Scour protection measures prevent loss of soil or other submerged material by using steel sheet pilings, revetment, riprap, brushwood, or a combination of these measures depending on the site.

Sheet pile I-wall

An I-wall is a series of steel-reinforced concrete panels shaped like an I and often found atop levees, along canals or other water bodies. They are built above metal sheet piles that are driven into the ground, both for stability and to cut off the flow of water beneath the wall.

Shoreline mile

A shoreline mile is a measure of the land along the edge of a sea, lake, or wide river. (See also "river mile").

T

Thalweg

A thalweg is a line connecting the lowest points of a valley or a river.

Total maximum daily load (TMDL)

Total maximum daily load is a regulatory term used in the U.S. Clean Water Act. It is the calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant.

U

[None]

V

[None]

W

[None]

X

[None]

Y

[None]

Z

Zero rise

Zero rise, or “no rise”, means no increase in flood elevations and it is a type of certification for 100-year floodway areas. The certification must be supported by technical data and signed by a registered professional engineer.

