

Glossary

**DRAFT
SUPPLEMENTAL
ENVIRONMENTAL
IMPACT STATEMENT**

**Brightwater
Regional Wastewater
Treatment System**

Glossary

acceleration	The rate of increase in velocity; that is, how much the velocity changes as a function of time.
activated sludge process	See conventional activated sludge .
active fault	A fault that is likely to have another earthquake sometime in the future. While definitions for active faults vary, the USGS has defined active faults as those that have moved in the last 10,000 years.
adsorption	The adhesion of a substance to the surface of a solid or a liquid.
aeration	The promotion of contact between air and wastewater by bubbling air or oxygen through the wastewater.
aerobic	Living or occurring only in the presence of oxygen.
aeromagnetic survey	Measurements of the Earth's magnetic field gathered from aircraft. Magnetometers towed by an airplane or helicopter can measure the intensity of the Earth's magnetic field. The differences between actual measurements and theoretical values indicate anomalies in the magnetic field, which in turn represent changes in rock or sediment type or in thickness of rock or sediment.
aggregate	To come together or collect into a mass or whole.
algae	Simple rootless plants that contain chlorophyll. Algae blooms, or sudden growth spurts, can adversely affect water quality.
alluvium	Materials that have been transported by a stream or river and then deposited, including unconsolidated clay, silt, sand, gravel, or a combination of these materials. Commonly referred to as alluvial deposits.
Alquist-Priolo Earthquake Fault Zoning Act	An act passed in California in 1972 to prevent the construction of buildings used for human occupancy on the surface trace of active faults . The Act requires the State Geologist to establish regulatory zones (known as Earthquake Fault Zones) around the surface traces of active faults and to issue appropriate maps. Before a project can be permitted, cities and counties must conduct a geologic investigation. If an active fault is found, a structure for human occupancy cannot be placed over the trace of the fault and must be set back from the fault (generally 50 feet).
alum	A common for commercial-grade aluminum sulfate . In wastewater treatment, alum is used as a coagulant for suspended solids removal or biosolids dewatering.
aluminum sulfate	A chemical manufactured by combining a mineral known as bauxite with sulfuric acid. See alum .

ambient air quality	The quality of the portion of the atmosphere external to buildings to which the general public has access.
anadromous	Refers to fish, such as salmon, that migrate up rivers from the sea to breed in fresh water.
anaerobic	An environment that lacks the presence of atmospheric or dissolved oxygen .
anaerobic digestion	The decomposition of organic matter in wastewater solids into methane and carbon dioxide by microorganisms in the absence of oxygen.
anomaly (geology)	Data that would suggest differing geologic conditions or differing measurements over a short distance.
aquifer	Permeable rock or soil that is capable of yielding significant quantities of water to wells. The saturated portion of an aquifer is referred to as the zone of saturation . An unconfined aquifer is one in which the water table defines the upper water limit. A confined aquifer is sealed above and below by impermeable material. A perched aquifer is an unconfined groundwater body supported by a small impermeable or slowly permeable unit.
average dry-weather flow (ADWF)	The average non-storm related wastewater flow between May and October. Composed of the average base flow and the average infiltration/inflow (I/I) .
average wet-weather flow (AWWF)	The average flow between November and April on days when no rainfall has occurred on the previous day. Composed of the average base flow and the average infiltration/inflow (I/I) .
bacteria	Single-cell or non-cellular microorganisms that lack chlorophyll. Some cause disease; others aid in pollution control by breaking down organic matter in air and water.
ballasted sedimentation	A primary treatment process used instead of conventional primary clarifiers in which a combination of coagulants and polymers is added to the wastewater to promote aggregation and settling of suspended solids . Ballasted sedimentation removes a higher rate of solids and BOD than conventional clarifiers.
base flow	Wastewater flow (not including inflow and infiltration) originating from residential, commercial, and industrial sources. Base flow can also refer to the portion of streamflow contributed by groundwater as opposed to runoff.
benthic/benthos	Organisms attached to, resting on, or living in the bottom sediment of a water body.
bioaccumulation	The accumulation of chemicals and nutrients in organisms.
biochemical oxygen demand (BOD)	The quantity of oxygen used in the breakdown of organic matter in water or wastewater. (BOD ₅ is the biochemical oxygen demand after 5 days.)

biogas	See digester gas .
biological treatment process	Any secondary treatment process that uses microorganisms to break down organic materials in wastewater .
biosolids	Municipal sewage sludge that is treated to meet standards for land application.
boring	A hole drilled or augured into the ground in which soil and/or rock is retrieved at selected intervals for use in classifying the engineering characteristics and geologic origins of the underlying materials..
Brightwater System	The combined components necessary to operate and maintain the Brightwater Treatment Plant—including the plant itself, pipelines, pump stations, odor control facilities, ventilation equipment, tunnel access, and outfall.
bypass	A diversion of flow around all or part of the treatment plant in emergencies.
chemically enhanced primary clarification	The addition of metal salts (ferric chloride) and possibly polymers to primary clarifiers to improve solids removal efficiencies.
citric acid	An organic acid naturally found in many plants and animals, including humans. Citric acid in liquid form (50-percent solution) will be used to clean the membranes at the Brightwater Treatment Plant. Citric acid is not considered hazardous in its liquid form.
clarification	The process of removing the solids from wastewater . Typically, the solids are allowed to settle in clarifiers , often aided by centrifugal action and chemically induced coagulation in the wastewater.
clarifier	A settling tank where wastewater is held to allow solids to sink and be removed from the wastewater. Primary clarifiers are used in primary treatment ; secondary clarifiers are used as the final step in secondary treatment , prior to disinfection and discharge. Also referred to as a sedimentation tank.
Code of Federal Regulations (CFR)	A codification of the general and permanent rules published in the Federal Registrar by the executive departments and agencies of the federal government.
coliform bacteria (fecal coliform)	Bacteria found in the intestinal tracts of mammals. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces. These organisms may also indicate the presence of pathogens that are harmful to humans.
combined sewers	A conveyance system designed to carry both wastewater and stormwater .

combined sewer overflow(CSO)	An overflow of combined sewers into surface waters when flows in the system exceed the capacity of the wastewater conveyance system. King County categorizes its CSO locations as either controlled or uncontrolled. Controlled CSO locations meet the Washington State Department of Ecology requirement that allows for no more than one untreated discharge per year.
comprehensive plan	A legal document required under the Washington State Growth Management Act to be adopted by local officials, establishing policies and procedures that guide the future physical development of the community.
concurrency	Provision of public services and facilities at levels that keep up with the increased demand of the forecasted growth.
conditional use permit (CUP)	A permit that allows a city or county to consider and approve designated uses not ordinarily allowed within a zoning district, subject to specified conditions.
constituents of concern	Constituents potentially found in wastewater , biosolids , or contaminated soils that could pose an environmental risk; also chemicals and gases used or produced by the wastewater treatment process that could pose a health or safety risk.
conventional activated sludge (CAS) process	A biological secondary treatment process in which a mixture of wastewater and microorganisms is agitated and aerated to encourage the microorganisms to grow and feed on the organic matter in the wastewater. The activated sludge, made up primarily of microorganisms, is subsequently separated from the wastewater by clarification and is either recycled to the head of the aeration process (return activated sludge) or routed to the solids handling systems (waste activated sludge). Secondary treatment at the Brightwater Treatment Plant would consist of activated sludge in combination with membrane bioreactors for the clarification step.
conveyance system	A system, consisting of trunks, interceptors, force mains, pump stations , and other facilities, that moves wastewater from one place to another.
Cottage Lake Lineament	A lineament about 1 to 2 km east of the Route 9 site that was identified through LiDAR imagery and aeromagnetic surveying and was confirmed in field investigations.
critical areas	Wetlands ; streams; areas with a critical recharging effect on aquifers used for drinking water supply; fish and wildlife habitat conservation areas; frequently flooded areas; and geologically hazardous areas.
crust	The Earth's outermost layer. The crust is typically about 25 miles thick beneath continents and about 3 miles thick beneath oceans. It is relatively light and brittle compared to the underlying mantle.

CSO treatment plant	A primary wastewater treatment plant designed to treat combined wastewater and stormwater for peak flows that exceed 2.5 times the average wet-weather flow. CSO treatment plants operate intermittently, unlike most wastewater treatment plants which operate continuously. King County has two such plants: Alki and Carkeek.
culvert	A closed channel or conduit for passage of drainage waters under a highway, railroad, canal, or other structure.
decomposition	The breakdown of organic matter by bacteria and/or environmental processes that change the chemical makeup and physical appearances of materials.
deformation	A change in the original shape of a material. Deformation from earthquakes is caused by stress and strain.
detention	The process of collecting and holding back stormwater for delayed release to receiving water .
detritus	Unconsolidated sediments comprised of both inorganic and dead and decaying organic material. Also inorganic material derived from the mechanical breakdown of rock and soil by the processes of weathering and erosion.
dewatering	The removal of groundwater to reduce the flow rate or diminish pressure. Dewatering is usually done to improve conditions in surface excavations and to facilitate construction work. Can also refer to removing water from a basin, tank, reservoir, or other storage unit, or from solid material such as the solids that are a byproduct of wastewater treatment.
differential settlement	Unequal settling of material and soil beneath building or structure foundations as a result of differing soil or loading conditions. Excessive differential settlement may cause distress and cracking of structures.
diffuser	The device at the end of an outfall pipe that distributes effluent into the receiving water so that maximum dilution is achieved.
digestion	The decomposition by microorganisms of organic matter in wastewater solids . Digestion can take place in either aerobic or anaerobic conditions.
digester gas	A gas generated when bacteria degrade biological material in the absence of oxygen during anaerobic digestion . Digester gas (also called biogas) is a mixture of methane and carbon dioxide.

discharge—direct or indirect	The release of treated or untreated wastewater into the environment. A direct discharge of wastewater flows into surface waters. An indirect discharge of wastewater enters a sewer system. Also used to describe water from a groundwater dewatering operation that enters surface water (direct) or a storm sewer (indirect) or to describe stormwater discharged to surface water.
disinfection	Destruction of pathogens . Wastewater treatment plants often use ultraviolet light or chemicals to disinfect effluent .
displacement	The amount that any point affected by an earthquake has moved from where it was before the earthquake. Usually used to refer to movements across a zone of faulting.
dissolved oxygen (DO)	A measure of the amount of oxygen available for biochemical activity in a given amount of water. Adequate levels of DO are needed to support aquatic life.
dissolved solids	Disintegrated organic and inorganic material contained in water. Excessive amounts make water unfit to drink or use in industrial processes.
diversity	The general relationship between the number of species and the number of individuals in a biological community.
dip	The angle between a geologic surface—for example, a fault plane —and the horizontal. The direction of dip can be thought of as the direction a ball, if placed on the tilted surface, would roll. Thus, a ball placed on a north-dipping fault plane would roll northward.
earthquake	Sudden slip on a fault. Also defined as the ground shaking and radiated seismic energy caused by the slip, volcanic or magmatic activity, or other sudden stress changes in the earth.
effluent	Treated wastewater that leaves the treatment plant.
emergency flow management system	A five-part system developed for the Brightwater System to prevent overflows of untreated wastewater that could potentially occur during rare combinations of extreme circumstances, including extremely heavy storms and multiple equipment and power failures.
Endangered Species Act of 1973, as amended (ESA)	Federal statute that provides protection for species of fish, wildlife, and plants that are listed as threatened or endangered.

environmental impact statement (EIS)	A document that discusses the probable significant adverse environmental impacts of a development project or a planning proposal, discusses reasonable mitigation of identified impacts, and evaluates alternatives to the project and/or proposal. EISs are required under certain circumstances by the National Environmental Policy Act (NEPA) and/or Washington State Environmental Policy Act (SEPA).
erosion	The wearing away of land surfaces by wind or water. Also usually includes transportation of loosened soil and/or rocks.
essential public facility (EPF)	A facility that is an essential element of the public infrastructure that is typically difficult to site. Examples of EPFs include, but are not limited to, a wastewater treatment plant, airport, solid waste handling facility, correctional facility, mental health home, or group home. Under Washington state's Growth Management Act , no local comprehensive plan or development regulation may preclude the siting of EPFs.
expansion phase	The second phase of implementation of the Brightwater System in which the capacity of the 36-mgd treatment plant would be expanded to 54 mgd in 2040.
exposure pathway	The way in which a person or animal may come into contact with a hazardous substance, whether it is a chemical or some other harmful substance. Three basic exposure pathways are inhalation, ingestion, and direct contact.
Facilities Plan	Describes the existing and future wastewater service needs of north King County and south Snohomish County and the development of a system of treatment, conveyance, effluent management facilities to meet these needs (Brightwater System). The Facilities Plan for the Brightwater System is being prepared under the Washington State Department of Ecology requirements for Engineering Reports (WAC 173-240-060) and 40 CFR Part 35.
fault	A fracture along which the blocks of the Earth's crust on either side have moved relative to one another parallel to the fracture.
faulting	The fracturing and displacement of rock or sedimentary strata along a fault plane caused by either tension or compression.
fault plane	The planar (flat) surface along which there is slip during an earthquake.
fault scarp	A line of cliffs or topographic steps caused by surface rupture during an earthquake.
fault splay	Divergent small faults that are part of a larger fault system.
fault strand or fault trace	An individual fault or a set of parallel or subparallel faults of a fault zone.

fecal coliform	A group of bacteria that are passed through the fecal excrement of humans, livestock, and wildlife.
ferric and ferrous chloride	Corrosive chemicals that promote sedimentation of liquid sulfides and other suspended solids in wastewater . Used at treatment plants and conveyance lines for odor control or to improve solids settleability.
fill	Soil and/or rock material used to raise the level of a low area or to make an embankment.
flocculant	Water-soluble organic agent that is used alone or in conjunction with inorganic coagulants, such as aluminum or iron salts, to encourage solids present in water or wastewater to form large, dense floc particles that settle rapidly.
fluvial	Of, relating to, or inhabiting a river or stream, or produced by the action of a river or stream. Fluvial deposits are sediments deposited by the flowing water of a stream.
footprint	The area that a building or other structure will occupy, as shown on a map, photo, or plans.
force main	A pipeline that transports wastewater under pressure.
fry	A small fish, especially a young recently hatched fish.
fugitive dust emission	Dust that is distributed over a wide area and is not confined to a specific discharge point.
geophysical survey	Use of physical measurements and mathematical models to explore and analyze the structure and dynamics of the solid Earth and similar bodies and their fluid compounds. Involves use of non-invasive techniques such as a ground-penetrating radar, magnetometry, or measurements of electrical conductivity.
grading	The changing of the ground's slope to a different one, typically during construction using heavy equipment.
gravity belt thickener (GBT)	A piece of equipment used in wastewater treatment to thicken the solids collected during treatment. Water is released as the solids travel across a drainage belt.
gravitational acceleration	Acceleration caused by gravity. Units are express as a fraction of gravity (g) where 1 g = 32.2 ft/sec/sec.
gravity sewer	A sloping sewer pipe in which wastewater can flow on descending gradients and where no pumping is required.

ground magnetic survey	Equivalent to an aeromagnetic survey except that it is performed at the ground surface. Ground magnetic measurements are usually made with portable instruments at regular intervals along more or less straight and parallel lines that cover the survey area. The resulting data provide an indication of anomalies closer to the ground surface than the aeromagnetic survey, thereby allowing the survey to focus on features that have been inferred from, for example, aeromagnetic or LiDAR surveys.
ground motion	See ground shaking .
ground shaking	The temporary vibratory movement of the earth's surface from earthquakes or explosions. Ground shaking is produced by seismic waves that are generated by sudden slip on a fault or sudden pressure at the explosive source and that travel through the Earth and along its surface. Quantification of ground shaking that occurs during earthquakes may be expressed in terms of acceleration , velocity, and displacement .
groundwater	Water that infiltrates into the earth and is stored in the soil and rock within the zone of saturation below the earth's surface. Groundwater is created by rain, which soaks into the ground and flows down until it is collected at a point where the ground is not permeable. Groundwater then usually flows laterally toward a river, lake, or ocean.
groundwater table	The upper limit in the soil of underlying material permanently saturated with water.
Growth Management Act (GMA)	A Washington state law (Chapter 36.70A RCW), guided by procedural criteria and adopted by the Washington State Department of Community Development, that provides a legal framework and guidance for the preparation of comprehensive plans, development regulations, and other land use planning for local governments.
habitat	The area or environment where an organism or ecological community normally lives or occurs.
headworks	The part of a wastewater treatment plant where preliminary treatment occurs.
Holocene epoch	The Holocene epoch includes most of the time since the end of the most recent ice age (regarded in the central Puget Sound region as the last 16,000 calendar years).
hydrocarbon	Any organic compound, such as methane , that contains only hydrogen and carbon.

hydrogen sulfide (H₂S)	A gas produced in sewers and digesters by anaerobic decomposition . Is detectable in low concentrations by its characteristic "rotten egg" odor, deadens the sense of smell in higher concentrations or after prolonged exposure, and damages the human nervous system from high exposure. Also converts to an acid when exposed to water and corrodes unprotected wastewater pipelines.
hydrologic cycle	The cycle of the Earth's water supply from the atmosphere to the Earth and back, including precipitation, transpiration, evaporation, runoff, infiltration, and storage in water bodies and groundwater .
hypoxia/hypoxic waters	Waters with dissolved oxygen concentrations of less than 2 ppm, the level generally accepted as the minimum required for most aquatic life to survive and reproduce.
infiltration	The water that enters a wastewater conveyance system from the ground through means such as corroded or broken pipes, pipe joints, pipe connections from storm sewers or combined sewers , catch basins, and surface runoff.
infiltration/inflow (I/I)	The total quantity of water from both infiltration and inflow without distinguishing the source.
inflow	The water discharged into a wastewater system from sources such as roof leaders, yard and area drains, foundation drains, cooling water discharges, drains from springs and swampy areas, manhole covers, cross connections from storm sewers and combined sewers , catch basins, surface runoff, and street wash waters.
influent	Water, wastewater , or other liquid flowing into a reservoir, basin, or treatment plant.
initial phase	The first phase of implementation of the Brightwater System in which the treatment plant would be constructed to treat 36 mgd in 2010.
interceptor sewer	Large pipelines that collect the flows from trunk sewers and carry them to the wastewater treatment plant.
level of service (LOS)	A measure of the effect of a number of factors on traffic flows. LOS is a function of volume and composition of traffic and speeds attained on any specific roadway, and is defined as LOS A through F. LOS A is unencumbered free flow, B is good flow with little delay, C is stable flow with frequent delay, D is congested flow with long delay, E is unstable flow with continuous backup, and F is forced flow with extensive backup. Traditionally, traffic facilities are designed to operate at LOS C. Under the Washington state Growth Management Act , local jurisdictions are required to adopt an LOS standard in the transportation area and may also set LOS standards in other public areas, such as parks and schools.

LiDAR (light detection and ranging)	A technique that uses laser equipment to precisely measure the three-dimensional position of objects. A narrow laser beam penetrates through tree cover, allowing the production of accurate terrain maps even where forest cover largely obscures the ground surface.
lineament	A linear alignment of landforms, including streams, low ridges steps, cliffs, and ravines that may be the result of faulting, erosion, or glacial processes.
Lineament 4	A northwest trending topographic lineament in Snohomish County identified by USGS through aeromagnetic surveys and LiDAR mapping. The lineament is about 2 miles (3 km) long, follows the Bear Creek drainage, and crosses SR-522 about 0.6 mile (1 km) northeast of the intersection of SR-522 and SR-9.
Lineament X	A weak magnetic contrast identified by the U.S. Geological Survey through aeromagnetic surveys. The lineament is located in the extreme southeast portion of the Route 9 treatment plant site. The contrast trends northwesterly, roughly parallel to Lineament 4 and crosses the combined influent-effluent tunnel as it enters the site. For purposes of this worst-case analysis, it is assumed that this feature is an active fault .
liquefaction	The process in which poorly consolidated soil that is located below the water table loses its structural capacity and turns into a viscous fluid (relatively high resistance to flow) under earthquake ground shaking.
loading	The amount of material entering a wastewater system from all sources.
magnitude	Measurement on a logarithmic scale of the amount of energy released by an earthquake.
manhole	A vertical shaft covered by a lid at ground level that provides access for maintenance of an underground pipe.
marine water	Used in this Supplemental EIS to indicate a saltwater body.
marine biotoxins	Any poisonous compound produced by marine microorganisms that can be accumulated by shellfish.
marsh	See wetland .
maximum considered earthquake (MCE)	For most of the country, an earthquake ground shaking that is likely to occur at a building site once every 2,500 years.
maximum monthly flow	The maximum average daily flow projected to occur over a 30-day period during the planning horizon (year 2040 for the initial phase and year 2050 for expansion phase).
membrane bioreactor (MBR)	A biological process that uses microporous membranes to filter out particulate matter and bacteria, resulting in treated wastewater that is 7 to 10 times cleaner than wastewater treated with typical secondary treatment processes.

methane	A colorless, odorless, flammable gaseous hydrocarbon present in natural gas and formed by the decomposition of vegetable matter or produced artificially by heating carbon monoxide and hydrogen. A byproduct of solids digestion in wastewater treatment plants.
microorganisms	Microscopic organisms (bacteria, viruses, protozoans) that are not visible to the unaided eye. Some cause diseases in humans, animals, and plants; some are important because they are involved in breaking down and stabilizing wastewater and solid waste.
mitigation	The avoidance of an adverse impact by not taking a certain action or parts of an action; minimizing adverse impacts by limiting the degree or magnitude of the action and its implementation; rectifying an adverse impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating an adverse impact over time by preservation and maintenance operations during the life of the action; compensating for adverse impacts by replacing or providing substitute resources or environments.
mixing zone	A region defined by Washington State regulation (WAC 173-201A) that surrounds a discharge within which Water Quality Standards may be exceeded but is small enough not to interfere with beneficial uses. The acute and chronic mixing zones refer to the areas in which the acute and chronic Water Quality Standards may be violated.
National Environmental Policy Act (NEPA)	Federal legislation establishing national policy that environmental impacts will be evaluated as an integral part of any major federal action. Requires the preparation of an Environmental Impact Statement (EIS) for all major actions significantly affecting the quality of the human environment (42 U.S.C. 4321-4327).
National Pollutant Discharge Elimination System (NPDES)	Section 402 of the federal Clean Water Act . Prohibits discharge of pollutants from a point source into (navigable) surface waters of the United States unless a permit is issued by the Environmental Protection Agency, a state, or (where delegated) a tribal government on an Indian reservation. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington State Department of Ecology .
nearshore	The area that extends from the riparian zone through the intertidal (area within the tidal exchange) and subtidal (area below low tide) habitats.

No Action Alternative	One of four alternatives evaluated in the Brightwater EIS. The other three alternatives were evaluated as “action alternatives.” Under the No Action Alternative, King County would not build a third regional wastewater treatment plant. It would, however, continue to implement other programs and projects called for in the Regional Wastewater Services Plan .
North Mitigation Area	Approximately 43 acres located on the north end of the proposed Brightwater Treatment Plant site that would be used to provide enhanced salmon and forest habitat and public access areas.
NPDES permit	Permit issued under the National Pollutant Discharge Elimination System to regulate discharges from point sources to surface waters of the United States.
nutrient	Essential chemical needed by plants or animals for growth. Excessive amounts of nutrients, such as nitrogen and ammonia, can lead to degradation of water quality and algal blooms. Some nutrients can be toxic at high concentrations.
offshore	Waters extending beyond the nearshore area.
onshore	See riparian zone .
outfall	The final portion of a pipeline that carries treated wastewater from the treatment plant through riparian, nearshore, and offshore areas to discharge into receiving waters .
outwash	Stratified detritus (chiefly sand and gravel) removed or washed out from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of an active glacier.
pathogen	A microorganism that can cause disease in other organisms.
peak flow	The highest base flow and infiltration/inflow expected to enter a wastewater system during wet weather at a given frequency that the treatment plant is designed to accommodate.
peak ground acceleration (PGA)	The maximum acceleration experienced by a small particle attached to the earth during an earthquake. The irregular movement of the particle can be described by its position, its velocity, or its acceleration as a function of time.
perched aquifer	Groundwater that occurs above the regional water table and is separated from it by an unsaturated zone.
pH	A measure of acidity or alkalinity of a solution, numerically equal to 7 for neutral solutions, increasing with increasing alkalinity and decreasing with increasing acidity. The pH scale ranges from 0 to 14.
phytoplankton	Tiny plants such as algae that live in the water.
piezometer	An instrument for measuring fluid pressure in a pipe, tank, or soil.

pile	A cylindrical steel or concrete column driven into the earth to support a building or other structure located over soft or compressible soil.
plume	A space in air, water, or soil that contains pollutants released from a point source .
point source	A stationary location or fixed facility from which pollutants are discharged or emitted. Also, any single identifiable source of pollution, such as a pipe or ditch. A discharge pipe from a wastewater treatment plant or factory is a point source.
polyaluminum chloride	An aluminum compound used as a flocculant for treating wastewater, potable water, and industrial water.
polymer	A natural or synthetic substance used as a conditioning aid to improve the thickening and dewatering characteristics of solids.
portal	A vertical shaft and staging area constructed and maintained for the purpose of tunneling.
predesign	The initial phase of a project design process. For the Brightwater project, this initial phase generally would include determination of alignments, layouts, and technology options.
preliminary treatment	The stage before primary treatment that physically removes pollutants, such as rocks, sticks, and grit, from wastewater through screening and settling processes.
pretreatment	The process used to reduce the amount of pollution in wastewater before it enters the conveyance system and treatment plant. Usually occurs at the source, such as an industrial plant.
primary treatment	A stage in wastewater treatment in which about 60 percent of the solids in the wastewater are removed, primarily by allowing the solids to settle via gravity in large tanks called clarifiers .
Probabilistic Seismic Hazard Analysis (PSHA)	An analysis that computes the probability of ground motion at a site by considering the estimated frequency of occurrence of earthquakes of differing magnitudes along specified faults and other source zones.
Puget Lowland	An elongated topographic and structural depression bordered by the Cascade mountains on the east and the Olympic mountains on the west.
pump station	For wastewater purposes, a structure that houses pumps and other equipment for lifting wastewater in pipes to higher elevations so that it can continue to flow by gravity.
receiving water	Any body of water where treated or untreated wastes are discharged.

reclaimed water	Effluent that receives advanced treatment (beyond secondary treatment) and is used for non-drinking purposes such as landscape irrigation, heating and cooling, and other industrial uses.
recurrence interval	The average time span between specified events such as the occurrence of an earthquake of a specified magnitude at a specific fault or of ground motions of a defined level at a specified site. Also called a return period.
Regional Wastewater Services Plan (RWSP)	A capital improvement program adopted by the King County Council in December 1999 to provide wastewater services to the King County Service Area through 2030.
regulator	A structure that controls the flow of wastewater from two or more input pipes to a single output. Regulators can be used to restrict or halt flow, thus causing wastewater to be stored in the conveyance system until the treatment plant can handle it. Also a person from a local, state, or federal agency who enforces regulations and issues permits.
return activated sludge (RAS)	Biomass produced in the activated sludge process that is recycled to the head of the process to promote more complete biological oxidation.
return period	See recurrence interval .
Revised Code of Washington (RCW)	A compilation of laws of the State of Washington published by the Statute Law Committee.
right-of-way	A public or private right to use linear portions of properties, typically for roadway, railway, or utility purposes. Rights-of-way may be established through deeds or easements.
riparian zone	A transition area between aquatic and terrestrial environments. The microclimate, soil, and vegetation are typically influenced by both surface water and groundwater .
Route 9–195th Street System	One of three action alternatives considered for the Brightwater System. The Route 9–195th Street System, which was the Preferred Alternative and was selected for implementation, includes a wastewater treatment plant at the Route 9 site in unincorporated Snohomish County. The system would also include a conveyance system with an influent tunnel extending underground from existing pipelines in Kenmore and Bothell to the treatment plant site and an effluent pipeline extending underground from the site primarily along NE 195th Street in King County to an outfall extending into Puget Sound from Point Wells west of the city of Shoreline.

safety relief point	A feature analyzed in the EIS as part of the Brightwater System for the discharge of untreated wastewater in the lower Sammamish River in extremely rare events when emergency flow management system measures are implemented and a threat of uncontrolled overflows still exists. This feature is no longer part of the Brightwater proposal.
salmonid	Of, belonging to, or characteristic of the family Salmonidae, which includes salmon, trout, and whitefish.
sanitary sewer	A pipeline that carries household, industrial, and commercial wastewater.
sanitary sewer overflow (SSO)	Untreated or partially treated overflows from a separated sewer in a wastewater conveyance system.
scarp	A line of cliffs or topographic steps produced by faulting , landsliding , or erosion .
Scenario A	One of three earthquake scenarios developed to analyze potential environmental impacts from damage to the Brightwater System resulting from an earthquake on or near the Route 9 treatment plant site. Under Scenario A, strong ground shaking would occur beneath the entire site as the result of a ground rupture on Lineament 4 . This scenario is considered the base case for the seismic analysis in this document.
Scenario B	One of three earthquake scenarios developed to analyze potential environmental impacts from damage to the Brightwater System resulting from an earthquake on or near the Route 9 treatment plant site. Under Scenario B, ground deformation would occur beneath the combined influent-effluent conveyance tunnel near the plant site, in addition to the strong ground shaking that would occur under Scenario A .
Scenario C	One of three earthquake scenarios developed to analyze potential environmental impacts from damage to the Brightwater System resulting from an earthquake on or near the Route 9 treatment plant site. Under Scenario C, ground deformation would occur beneath treatment plant structures, in addition to the strong ground shaking that would occur under Scenario A .
scrubber	An air pollution control device that uses a spray of water, chemicals, or activated carbon to trap pollutants in emissions.
Seattle Fault Zone	A 2- to 4-mile-wide, east-trending fault zone, comprised of at least four strands, that extends from the foothills of the Olympic Mountains to the foothills of the Cascade Range. The northern strand of the zone passes approximately through the Pioneer Square section of downtown Seattle, about 14 miles south of the southern edge of the South Whidbey Island Fault .

secondary treatment	A two-phase process that consists chiefly of clarification (primary treatment) followed by a biological process—with separate solids collection and treatment—and by secondary clarification, disinfection , and discharge through an outfall . A combination of primary and secondary treatment removes about 85 to 90 percent of the solids in the wastewater .
sediment	Loose, uncemented pieces of rock or minerals.
sedimentation	The processes of erosion, transportation, and deposition of sediment by water and air. These processes occur naturally but may be enhanced by human activities such as road and reservoir construction, logging, mining, and livestock grazing. Wastewater treatment: See clarification .
seismic	Pertaining to, characteristic of, or produced by earthquakes or earth vibrations from an event such as an explosion.
seismic moment	A measure of the energy of an earthquake , equal to the product of area of the fault involved in the earthquake, the average slip across the fault, and the degree of rigidity of the rocks surrounding the fault.
seismic refraction line	A line of acoustic or vibration measuring devices that are used as part of a seismic refraction survey.
seismic refraction survey	A non-destructive test that measures the travel time of compressional or shear waves through soil or rock. The wave travel times are used to compute shear or compressional wave velocities and the associated stiffness of the soil or rock. This method is also used to image subsurface strata with contrasting wave velocities. In this test, seismic waves are generated at the ground surface and travel down through the soil and along discontinuities or zones of contrasting velocities and are subsequently refracted back to the ground surface where the energy waves are recorded on geophones or recording devices placed at the ground surface.
seismic use groups	Three groups defined by the International Building Code for designing structures to withstand earthquake activity, according to the use of the structure. A structure assigned to Seismic Use Group I should be designed to prevent collapse and provide for life safety under the maximum considered earthquake ; Seismic Use Group III structures should be designed to be operational and provide for life safety. Structures designed under Seismic Use Group II should perform somewhere in between Groups I and III. Most Brightwater structures are assigned to Groups II and III.
sewage	See wastewater .

sewer	A pipe that carries wastewater and/or stormwater runoff from the source to a treatment plant or receiving water . Sanitary sewers carry household, industrial, and commercial wastewater. Storm sewers carry runoff from rain or snow. Combined sewers are used for both purposes.
shear wave (or S wave)	A seismic body wave that shakes the ground back and forth perpendicular to the direction the wave is moving.
shoreline	The area between the extreme high tide line and the riparian zone .
slip	The relative displacement of formerly adjacent points on opposite sides of a fault measured on the fault surface.
sludge	The untreated accumulated solids that have been separated from liquids during the wastewater treatment process.
sodium bisulfite	A type of salt used to dechlorinate treated wastewater prior to discharge.
sodium hydroxide	A highly reactive, corrosive liquid used to manage the pH in odor control facilities.
sodium hypochlorite	A liquid commonly used as household bleach and used at stronger concentrations to disinfect wastewater and to control odor at treatment plants and conveyance lines.
solids	The organic and inorganic material in wastewater that is removed during treatment.
South Treatment Plant	A King County regional wastewater treatment plant, located in the city of Renton.
South Whidbey Island Fault (SWIF)	A fault located on Whidbey Island in western Washington State. Northwest-southeast trending extensions of the SWIF on the mainland are being investigated.
split flow (or split stream)	A process in which average wet-weather flows receive secondary treatment using membrane bioreactor (MBR) technology, excess flows receive only primary treatment, and both flows are blended and disinfected prior to discharge.
State Environmental Policy Act (SEPA)	A Washington State law (Chapter 43.21C RCW) that requires state agencies and local governments to consider environmental impacts when making decisions regarding certain activities, such as development proposals over a certain size, and comprehensive plans. As part of this process, environmental impacts are documented and opportunities for public comment are provided.
storm drain	A system of gutters, pipes, or ditches used to carry stormwater from surrounding lands to streams, lakes, or other receiving water . Also refers to the end of the pipe where the stormwater is discharged.
storm sewer	A pipe (separated from sanitary sewers) that carries only stormwater runoff from buildings and land surfaces.

stormwater	The portion of precipitation that does not percolate into the ground or evaporate. Stormwater flows across the ground surface in channels or ditches, or flows within pipes.
stormweather plant	See CSO treatment plant .
subduction	The process in which two tectonic plates collide and one plate is pushed downward beneath the other plate. Faulting occurs in the process. The subducted plate usually moves in jerks, releasing vibratory energy and resulting in earthquakes .
subduction zone	An elongated region where two tectonic plates collide, resulting in one plate overriding the other.
sulfuric acid	A highly reactive, corrosive liquid used for pH control in odor control facilities.
surface water	Any water, including fresh water and salt water, on the surface of the earth.
suspended solids	Particles of organic or inorganic pollutants that float on the surface of, or are suspended in, wastewater and that cloud the water. Refers to sand, mud, and clay particles as well as solids in wastewater .
tectonic	Mountain-building processes and resulting structures that occur over large sections of the lithosphere.
tectonic plate	A large, thin, relatively rigid plate in the earth's crust and upper mantle that moves relative to other plates. Slip on faults that define the plate boundaries commonly results in earthquakes.
temperature inversion	Occurs when cold air is trapped under warm air, preventing vertical mixing in the atmosphere.
tensional forces	Forces that pull crustal rocks apart.
Trench 2a	An approximately 8-foot-deep, 140-foot-long trench dug across Lineament 4 in the North Mitigation Area of the Route 9 site to explore the origins of the lineament.
Trench 2b	An approximately 4-foot-deep, 70-foot-long trench dug across Lineament 4 east of the StockPot Building on the Route 9 site to explore the origins of the lineament.
trenching	The process of digging a deep furrow or ditch and examining subsurface features for evidence of past earthquake activity.
trunk	A pipeline that receives flow from many tributary pipes and serves a large territory. Also known as a main sewer.
turbidity	A measure of the amount of material suspended in water. Increasing the turbidity of the water decreases the amount of light that penetrates the water column . High levels of turbidity are harmful to aquatic life.

urban growth area (UGA)	Areas designated by counties in Washington state under the Growth Management Act within which urban growth is encouraged and outside of which growth can occur only if it is not urban in nature. Areas must be designated sufficient to accommodate projected growth for a 20-year period, and public services and utilities must be provided to serve the projected growth with the UGA.
volatile organic compounds (VOC)	Carbon-based chemical compounds that evaporate quickly (have a high vapor pressure) under atmospheric conditions.
volatilization	A change in a chemical's form from liquid to a vapor, facilitating its emission into the surrounding air.
Washington Administrative Code (WAC)	The codified regulations adopted by various Washington State agencies through the rule making process.
Washington State Department of Ecology (Ecology)	The state agency designated by the Environmental Protection Agency to be responsible for developing, implementing, and enforcing environmental protection laws and policies, including the Clean Water Act and the Shoreline Management Act. Ecology issues the NPDES permit , which allows a wastewater treatment plant to operate.
wasteload	The mass of a particular pollutant discharged to a receiving water .
wastewater	The water and wastes from homes and businesses that enter pipes and are transported to treatment plants for treatment and disposal.
water column	The open-water environment, as distinct from the bed or shore, that may be inhabited by swimming marine or freshwater organisms.
Water Quality Standards	Washington State standards that define what water will be used for, set levels to protect those uses, implement and enforce water treatment plans, and protect existing high quality waters.
water reclamation	The reuse of wastewater treated beyond the secondary level according to the Water Reclamation and Reuse Standards, issued in 1997 by the Washington State Departments of Health and Ecology. Four classes of reclaimed water were established based on the end uses of the reclaimed water. The Brightwater plant will produce Class A reclaimed water. Allowed end uses of Class A reclaimed water are irrigation of food and non-food crops and irrigation of open access areas, such as parks. The water could also be used for industrial cooling and process water and other non-drinking-water (non-potable) uses.
water table	The upper surface of the zone of saturation of groundwater .
weir	An obstruction in the wastewater flow that is used to measure or control flow.

Glossary

wetland	Land with saturated soils that are at least periodically inundated and that under normal conditions support vegetation suited to such environments. Wetlands include swamps, marshes, and bogs.
West Point Treatment Plant	A King County regional wastewater treatment plant, located in Seattle's Discovery Park.
zone of saturation	An underground layer in which every available space between the solid particles is filled with water.