

Lakehead Source Protection Area Watershed Characterization Report Glossary

Ablation – the processes by which a glacier decays; the zone of ablation is the part of a glacier where melting exceeds accumulation of snow and ice.

Absorption – the process by which liquid is dissolved or mixed with other substances.

Acid Rock – an igneous rock containing at least 66 percent silica.

Accepted Engineering Principles - those current coastal and hydraulic engineering principles, methods and procedures that would be judged by a peer group of qualified engineers (by virtue of their training and experience), as being reasonable for the scale and type of project being considered, the sensitivity of the location, and the potential threats to life and property.

Accepted Geotechnical Principles - those current geotechnical engineering principles, methods and procedures that would be judged by a peer group of qualified engineers (by virtue of their training and experience), as being reasonable for the scale and type of project being considered, the sensitivity of the location, and the potential threats to life and property.

Accepted Scientific Principles - those current principles, methods and procedures, which are used and applied in disciplines such as geology, geomorphology, hydrology, botany and zoology, and would be judged by a peer group of qualified specialists and practitioners (by virtue of their training and experience), as being reasonable for the scale and type of project being considered, the sensitivity of the location, and the potential threats to life and property.

Adverse Environmental Impacts - those physical, biological and environmental changes which are of long-term duration, where the rate of recovery is low, where there is a high potential for direct and/or indirect effects and/or where the areas is considered to be critical habitat or of critical significance to the protection, management and enhancement of the ecosystem.

Aeolian – pertaining to the erosive and transporting action of the wind, or to sediments that have been transported and deposited by wind action.

Aggregate - refers to gravel which is any loose rock that is at least two millimeters in its smallest dimension, and no more than 75 millimetres. Sometimes gravel is restricted to rock in the 2-4 millimeter range, with pebble being reserved for rock 4-75 millimetres. The next smaller size class in geology is sand, which is 0.063 millimetres to two millimetres in size. The next larger size is cobble, which is 75 millimetres to 256 millimetres.

Agricultural land - is the land base upon which agriculture is practiced.

Algal Bloom – refers to rapid growth of small aquatic plants on the surface of lakes and rivers, usually as a result of excessive nutrients.

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Alluvium/Alluvial Sediments – sediments consisting of silt, sand, clay, and gravel in varying proportions that are deposited by flowing water.

Alteration to a Watercourse - any watercourse, whether flowing all year or not, requires Conservation Authority permit to be altered. Typical alterations include bridge or culvert installations, channelization and diversion.

Amphiboles – rock forming minerals of complex composition. Hydrous silicates, usually with aluminum, calcium, iron and magnesium.

Andalusite - is a polymorph with two other minerals; kyanite and sillimanite, from the silicate family. A polymorph is a mineral that shares the same chemistry but a different crystal structure with another, or other, minerals. A unique variety of andalusite is called "chiastolite". It contains black or brown clay and / or carbonaceous material included in the crystal. These inclusions are arranged in regular symmetrical shapes.

Animal Husbandry - animal husbandry is the agricultural practice of breeding and raising livestock. The science of animal husbandry, called animal science, is taught in many universities and colleges around the world.

Anthracite-Sand Filtration - filter sand used to separate suspended matter from the water. Anthracite is a type of “hard” coal, with a high percentage of fixed carbon.

Anthropogenic - influenced by human activity or of human origin.

Aphotic Zone - the depth of a waterbody that is not exposed to sunlight. The depth of the aphotic zone can be greatly affected by such things as turbidity and the season of the year. The benthic layer is located here. The aphotic zone generally underlies the photic zone, which is that portion of the waterbody directly affected by sunlight.

Apiary - a place where honey bees are kept, usually for the purpose of breeding and honey production, but sometimes to aid the pollination of seed and fruit crops.

Aquifer - a water-bearing layer (or several layers) of rock or sediment capable of yielding supplies of water; typically is unconsolidated deposits or sandstone, limestone or granite; and can be classified as confined or unconfined.

Aquifer System - a group of two or more aquifers that are separated by aquitards or aquicludes.

Aquifuge - a geologic formation which has no interconnected openings and cannot hold or transmit water.

Aquitard - a confining bed and/or formation composed of rock or sediment that retards but does not prevent the flow of water to or from an adjacent aquifer. It does not readily yield water to wells or springs, but stores ground water.

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Archean Volcanics - older Precambrian rocks formed from ancient volcanic activity.

Area Of Influence Of A Well – The area covered by the drawdown curves of a given well or combination of wells at a particular time when pumped.

Aromatic Hydrocarbons – the major group of cyclic petroleum hydrocarbons such as benzene and toluene that are moderately soluble in water and are generally highly toxic to aquatic organisms.

Artesian Aquifer - an aquifer that contains water under pressure results in a hydrostatic head which stands above the local water table or above the ground level. For artesian conditions to exist, an aquifer must be overlain by a confining material and receive a supply of water.

Artesian Well - an artesian aquifer that will flow upwards out of a well without the need for pumping.

Assimilative Capacity – the capacity of a body of water to receive waste waters or toxic materials without deleterious effects and without damage to aquatic life or humans who consume the water.

Attenuation - the soil's ability to lessen the amount of, or reduce the severity of groundwater contamination. During attenuation, the soil holds essential plant nutrients for uptake by agronomic crops, immobilizes metals that might be contained in municipal sewage sludge, or removes bacteria contained in animal or human wastes.

Attenuation Zone Boundary - zone of reduction, or of less density.

Average Annual Recession Rate - refers to the average annual linear landward retreat of a shoreline or river bank.

Bankfull Discharge - the formative flow of water that characterizes the morphology (shape) of a fluvial channel. In a single channel stream, bankfull is the discharge which just fills the channel without flowing onto the floodplain.

Barbel - A whisker-like sense organ of certain fishes, including catfish and carp. These fish use their barbels to "feel" along the bottom for food.

Baseflow - the sustained flow (amount of water) in a stream that comes from groundwater discharge or seepage. Groundwater flows underground until the water table intersects the land surface and the flowing water becomes surface water in the form of springs, streams/streams, lakes and wetlands. Baseflow is the continual contribution of groundwater to watercourses and is important for maintaining flow in streams and rivers between rainstorms and in winter conditions.

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Basin - the area drained by a river or a watershed with a common outlet.

Batholith – a very large mass of igneous rock (e.g. granite) formed deep within the earth.

Beach - a geological formation consisting of loose rock particles such as sand, gravel, shingle, pebbles, cobble, or even shell along the shoreline of a body of water.

Bedrock - solid or fractured rock usually underlying unconsolidated geologic materials; bedrock may be exposed at the land surface.

Benthic Region – the bottom of a body of water, supporting the benthos.

Benthos – the plant and animal life whose habitat is the bottom of a body of water.

Berm - a narrow shelf or ledge typically at the bottom of a slope to reinforce and stabilize it against slumping and erosion.

Best Management Practices (BMPs) - structural, non-structural and managerial techniques that are recognized to be the most effective and practical means to control non-point source pollutants yet are compatible with the productive use of the resource to which they are applied. BMPs are used in both urban and agricultural areas.

Biochemical Oxygen Demand (BOD) – is a measure of the quantity of oxygen used by micro-organisms (e.g. aerobic bacteria) in the decomposition (oxidation) of organic solids.

Biodegradation - decomposition of a substance into more elementary compounds by the action of micro-organisms such as bacteria.

Bluff (Great Lakes-St. Lawrence River system and large inland lakes) - those actions of the shoreline formed in non-cohesive or cohesive sediments where the land rises steeply away from the water such that the elevation of the top of the slope above the base or toe of the slope is greater than two metres and the average slope angle exceeds 1:3 (=18 degrees).

Biosphere - all living organisms (plant and animal life).

Biotransformation - conversion of a substance into other compounds by organisms; includes biodegradation.

Bog – peatland with the watertable at or near the surface. The surface of the bog may often be raised above the surrounding terrain. Bogs are isolated from mineral-rich soil waters therefore, nutrient input is from atmospheric deposition. They are strongly acidic and nutrient poor. Peat is usually greater than 40 centimetres deep. Groundcover is usually moss, *Sphagnum spp.* and ericaceous shrubs and may be treed or treeless.

Bored Well - A well drilled with a large truck-mounted boring auger, usually 3658 millimetres or more in diameter and seldom deeper than 30 metres.

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Boulder – a sedimentary rock fragment that is usually rounded and has a diameter over 256 millimetres.

Calcareous – soil, chalky in appearance, containing calcium carbonate or magnesium carbonate

Calcite – a vein and rock-forming mineral having the composition of calcium carbonate.

Calibration - the process whereby a numerical model is adjusted so that the calculated and observed parameters converge. When a numerical model is calibrated, the process is complete.

Capillary Action – the movement of water in the interstices of a porous medium due to capillary forces.

Capillary Forces - the forces between water molecules and the clay (or any soil particle) surfaces. Capillary flow refers to water that moves in response to differences in capillary forces. It includes all water between Soil Moisture Tension = zero and dry air.

Capillary Fringe - saturated zone immediately above the water table where saturation is maintained by capillary tension exerted within soil pores.

Capture Zone - a term used to represent an area where water originates and moves to a water well. Typically, capture zones are a two dimensional representation of a three dimensional space.

Carbonate –a compound(s) containing CO_3^{2-} , also known as a salt of carbonic acid. When heated, yields the gas carbon dioxide (calcite, dolomite and siderite are examples of carbonates).

Carbonate Rock – a rock made up largely of carbonate minerals.

Chalcopyrite – an ore mineral of copper, the chemical formula for which is CuFeS_2 .

Channel Capacity - the ability of a watercourse at a given cross-section to convey flows of water, or how much water can be carried at a particular place; floods occur when the channel capacity is exceeded.

Channel Configuration - the type or morphology of a river or stream channel as determined by the interaction of a number of channel related factors, including width, depth, shape, slope and pattern.

Channel Improvements - the improvement of the flow characteristics of a channel by clearing, excavation, realignment, lining, or other means, in order to increase its capacity to carry water.

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Channelization - the smooth realignment and regarding of a creek or stream bed; implies modification of the watercourse to increase channel capacity; channelized banks are usually reinforced with stone, concrete or rip-rap.

Chert – when qualifying as mineral, a chert is considered a cryptocrystalline type of quartz whose matrix is indiscernible under the microscope. As a rock, cherts are a silicon-based and have different colors made of micro-organisms or precipitated silica grains.

Chert-Carbonate – a sedimentary rock in which layers of carbonate minerals alternate with layers of chert.

Chlorine Disinfection - The destruction or elimination of disease carrying micro-organisms through the use of a chlorinated solution.

Chlorite – a rock-forming mineral, usually greenish in colour and platy (like mica). A hydrous silicate of aluminium, iron and magnesium.

Cliff (Great Lakes-St. Lawrence River System and Large Inland Lakes) - those sections of the shoreline normally formed in bedrock where the land rises steeply away from the water such that the elevation of the top of the slope above the base or toe of the slope is greater than two metres and the average slope angle exceeds 1:3 (=18 degrees).

Coagulation-Flocculation - a term used to describe a process where water is purified at a water treatment plant.

Colluvium/Colluvial –loose bodies of sediment that have been deposited or built up at the bottom of a low grade slope or against a barrier on that slope, transported by gravity.

Coliforms - bacteria found only in human and animal wastes; presence in a river may indicate pollution by sewage or farmyard runoff.

Condensation - the process by which water or other liquids change from gas vapour to a liquid; process that occurs when water droplets form on surfaces or around the nuclei of a particle.

Cone of Depression - the zone (around a well in an unconfined aquifer) that is normally saturated but becomes unsaturated as a well is pumped; an area where the water table dips down forming a "V" or cone shape due to a pumping well.

Confined Aquifer (artesian aquifer) – an aquifer holding water under pressure by a layer above it that does not allow water to pass through. Due to pressure, the water level of a well in a confined aquifer will rise above the top of the aquifer.

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Confining Layer (aquitard) – a layer of geologic material with little to no permeability or hydraulic conductivity that functions as a container for an aquifer. Water does not rapidly pass through this layer or the rate of movement is extremely slow.

Conglomerate – (also referred to as Puddingstone). The hard compacted equivalent of a sedimentary deposit, made up of pebbles and boulders in a matrix of sand, silt or clay.

Conifer - cone-bearing trees having needles or scale-like leaves, usually evergreen (pine spruce and firs, etc.) and producing wood known commercially as softwoods.

Conservation - the wise use of natural resources.

Conservation Lands - lands which are considered to be regionally significant, such as valleys, or environmentally sensitive areas and are best managed by a public agency to retain their natural characteristics.

Conservation Authority - a natural resource management agency composed of local municipal representatives, having jurisdiction over a watershed.

Conservation Strategy - an overall policy and development statement covering all aspects of a Conservation Authority's work; updated regularly.

Consumptive Use - refers to the portion of water withdrawn or withheld from the water source and assumed to be lost or otherwise not returned to the water source due to evaporation, incorporation into products, or other processes.

Contaminant (pollutant) – an undesirable substance that makes water unfit for a given use when found in sufficient concentration.

Contaminant Plume - a term used to describe a mass of contamination moving underground.

Control Structure – a structure that serves to control the flow of water, generally a dam or berm.

Critical Flood Depth and Velocity - a maximum depth and velocity of flooding water in a floodplain such that further increases in depth and/or velocity may result in threats to life and property damage.

Cubic Feet per Second (cfs) - the volume of water in cubic feet (one foot x one foot x one foot) that passes a given point in one second of time; U.S. Geological Survey uses this measurement in reporting stream flow values. Cubic meters per second are commonly used in countries employing the metric system.

Cumec – a short form for Cubic meters per second.

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DDE (dichlorodiphenyldichloroethylene) and DDD (dichlorodiphenyldichloroethane) - are chemicals similar to DDT. Both are metabolites of DDT. DDE has no commercial use. DDD was used to kill pests, but its use as a pesticide has since been banned in North America. One form of DDD has been used medically to treat cancer of the adrenal gland.

DDT (dichlorodiphenyltrichloroethane) - is a pesticide once widely used to control insects in agriculture and insects that carry diseases such as malaria. DDT is a white, crystalline solid with no odour or taste. Since the 1970's, use of DDT as a pesticide has been banned in North America.

Dam – structure used to hold back water.

Delta - a low, nearly flat accumulation of sediment deposited at the mouth of a river or stream, commonly triangular or fan-shaped.

Deltaic - an alluvial deposit formed where a stream or river drops its sediment load upon entering a quieter body of water.

Deltaic or Stratified Drift Deposits - all drift deposits originate as an accumulation of glacial material. Deltaic drift deposits originate as an alluvial deposit, usually triangular in shape, at the mouth of a river. Stratified drift exhibits both "... sorting and stratification, implying deposition from a fluid medium such as water and air". An alluvial deposit formed where a stream or river drops its sediment load upon entering a quieter body of water.

Dendritic - ("treelike"), resembles the pattern of branches and twigs that you can see in any deciduous tree, such as a maple or an elm. This pattern develops when streams flow over rocks that are fairly uniform in their resistance to erosion. Because streams can cut as easily in one place as another, their actual network pattern is the result of random flow.

Detritus - any disintegrated material, such as rock fragments or organic debris, accumulating in pond water or on mud or soil.

Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation - a set of provincially-approved laws administered by the Conservation Authority which restrict the filling, construction of building or alterations to the waterways within the identified flood plain.

Diabase – a slightly metamorphosed medium-grained basic igneous rock having the composition of gabbro and usually characterized by the presence of lath-shaped feldspar crystals.

Dike (Dyke) – a tabular mass of igneous rock extending obliquely or transversely across older rocks. Can also be a manmade structure, either a wall or earth mound built around a low-lying area to prevent flooding.

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Discharge - the flow of surface water in a stream or canal, or the outflow of groundwater to a well, ditch or spring. It is the volume of water in cubic metres per second (m³/s) running down a watercourse.

Discharge Area - an area where groundwater emerges at the surface; an area where upward pressure or hydraulic head moves groundwater towards the surface to escape as a spring, seep, or base flow of a stream.

Disposal Well - means a well used for the disposal of waste into a subsurface stratum.

Dissolved Oxygen – (DO or DOC) The amount of oxygen that is dissolved in a liquid, usually represented in Parts Per Million (PPM). Oxygen is absorbed from the atmosphere and from the result of photosynthesis. Dissolved oxygen content/concentration (DOC) is related to the temperature and density of the water. A stream with running water will contain more dissolved oxygen than still water. Cold water holds more oxygen than warm water.

Diversion – a redirection of water from one drainage or watercourse to another.

Dolomite – a vein and rock-forming mineral having the composition of calcium, magnesium and carbonate. Also a sedimentary rock made up largely of the mineral dolomite.

Dolostone - a sedimentary carbonate rock that contains a high percentage of the mineral dolomite. It is usually referred to as dolomite rock or as magnesium limestone. Most dolostone formed as a magnesium replacement of limestone or lime mud prior to lithification. It is resistant to erosion and can either contain bedded layers or be unbedded. It is less soluble than limestone in weakly acidic groundwater, but it can still develop solution features over time. The term dolostone was introduced to avoid confusion with the mineral dolomite.

Downgradient - a term used in hydrogeology to describe a point at a lower hydraulic head.

Drainage Area – the area which supplies water to a particular point.

Drainage Basin - the area of land, surrounded by divides, that provides runoff to a fluvial network that converges to a single channel or lake at the outlet.

Drainage Water - water which has been collected by a gravity drainage or dewatering system.

Drainage Well - a pumped well in order to lower the water table; a vertical shaft to a permeable substratum into which surface and subsurface drainage is channeled.

Drawdown – a lowering of the water level of a lake or reservoir.

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Drilled Well - a well usually 10 inches or less in diameter, drilled with a drilling rig and cased with steel or plastic pipe. Drilled wells can be of varying depth.

Drought - drought is a complex term that has various definitions, depending on individual perceptions. For the purposes of low water management, drought is defined as weather and low water conditions characterized by one or more of the following:

a) below normal precipitation for an extended period of time (for instance three months or more), potentially combined with high rates of evaporation that result in lower lake levels, streamflows or baseflow, or reduced soil moisture or groundwater storage

b) streamflows at the minimum required to sustain aquatic life while only meeting high priority demands for water, water wells becoming dry, surface water in storage allocated to maintain minimum streamflows.

c) socio-economic effects occurring on individual properties and extending to larger areas of a watershed or beyond.

As larger areas are affected and as low water and precipitation conditions worsen, the effects usually become more severe.

Drumlin - eelongated mound of glacial sediment deposited parallel to ice flow.

Dug Well - a large diameter well dug by hand or by an auguring machine, usually old and often cased by concrete or hand-laid bricks.

Dynamic Balance or Nature - a system that is continuously altering itself to adjust to constant changes of its component parts.

Easement - a legal right to cross over and work on someone else's property for a specific purpose.

Ecology - an interdependent community of plants and animals living in a recognizable area; humans are a major part of most Ontario ecosystems.

Ecosystem Approach - a holistic way of planning and managing natural resources; it means that the consequences of an action (including the cumulative effect on many small actions) on all other parts of the ecosystem will be considered and evaluated before the action is undertaken.

Effective precipitation - the part of precipitation which produces runoff; a weighted average of current and past precipitation correlating with runoff. It is also that part of the precipitation falling on an irrigated area which is effective in meeting the requirements of consumptive use.

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Effluent -the discharge of a pollutant in a liquid form, often from a pipe into a stream or river.

End Moraine (Terminal Moraine) – a linear, slightly curved ridge of rocky debris deposited at the front end, or snout, of a glacier. It represents the furthest point of advance of a glacier, being formed when deposited material (till), which was pushed ahead of the snout as it advanced, became left behind as the glacier retreated.

Environmentally Sound - refers to those principles, methods and procedures involved in addressing the protection, management and enhancement of an ecosystem which are used in disciplines such as geology, geomorphology, hydrology, botany and zoology.

Erosion - a physical process causing the deterioration and transport of soil surfaces and river channel materials by the force of flowing water or wind, ice or other geological agents, including such processes as gravitational creep. Geological erosion is natural occurring erosion over long periods of time.

Equipotential - a series of points of equal hydraulic head or elevation.

Era – a division of geological time of the highest order.

Esker - a ridge of glacial sediment deposited by a stream flowing in and under a melting glacier.

Euphotic Zone – the lighted region of a body of water that extends vertically from the water surface to the depth at which photosynthesis fails to occur because of insufficient light penetration.

Eutrophication – a means of aging lakes whereby aquatic plants are abundant and waters are deficient in oxygen. The process is usually accelerated by enrichment of waters with surface runoff containing nitrogen and phosphorus.

Eutrophic Lakes – lakes that are rich in nutrients and organic materials, therefore highly productive for plant growth. These lakes are often shallow and seasonally deficient in oxygen in the hypolimnion.

Evaporation - the process by which water or other liquids change from liquids to a gas vapour; evaporation can return infiltrated water to the atmosphere from upper soil layers before it reaches groundwater or surface water, and occur from leaf surfaces (interception), water bodies (lakes, streams, wetlands, oceans), small puddled depressions in the landscape.

Evapotranspiration – the combined loss of water from a given area and during a specific period of time by evaporation from the soil surface and by transpiration from plants.

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Factor of Safety - the ratio of resistance or strength of a material or structure to the applied load. In geotechnical engineering, it refers to the ratio of the available shear strength to shear stress on the critical failure surface.

Feldspar – common rock-forming minerals (e.g. orthoclase, microcline, plagioclase). Aluminum silicates of one or more of calcium, sodium and potassium.

Felsic - a term used to describe a characteristically light-coloured silicate mineral such as quartz or feldspar.

Fen – peatland with the watertable at or just above the surface. Very slow internal drainage by seepage usually enriched by nutrients from upslope mineral water, therefore more nutrient- and oxygen-rich than bogs. Peat substrate is usually greater than 40 centimetres deep. Can sometimes be a floating mat, with vegetation consisting sedges, mosses, shrubs and sometimes a sparse tree layer.

Fibric – the least decomposed of all organic materials, usually with a large amount of well-preserved organic fibre that can be identified as to its biological origin.

Field Capacity - the capacity of soil to hold water at atmospheric pressure. It is measured by soil scientists as the ratio of the weight of water retained by the soil to the weight of the dry soil.

Fill - rubble, earth, rocks or other imported material that is used to raise or alter the existing elevation.

Fill Line – now referred to as the Approximate Regulated Area as noted in the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation. It is a line that may take into account the flood line and any characteristic of the adjacent lands which makes them inappropriate for traditional development (e.g. unstable slopes or soils, environmentally sensitive areas, unique habitats, etc.).

Filtering - the soil's ability to attenuate substances which includes retaining chemicals or dissolved substances on the soil particle surface, transforming chemicals through microbial biological processing, retarding movement, as well as capturing solid particles.

Floating Mat – a mat of peat held together by roots and rhizomes underlain by loose peat, fluid or water.

Flood - a flood is an overflow or inundation that comes from a river or other body of water and causes or threatens damage. It can be any relatively high streamflow overtopping the natural or artificial banks in any reach of a stream. It is also a relatively high flow as measured by either gauge height or discharge quantity.

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Flood Allowance – the upper portion of an absolute operating range that would be used if water were abnormally high. This would normally go up to the maximum legislated elevation of the lake.

Flood Damage Reduction - any combination of structural and non-structural additions, changes or adjustments to existing flood vulnerable structures which reduce or eliminate flood damage.

Floodplain - a strip of relatively level land bordering a stream or river. It is built of sediment carried by the stream and dropped when the water has flooded the area. It is called a water floodplain if it is overflowed in times of high water, or a fossil floodplain if it is beyond the reach of the highest flood.

Flood-proofing - the installation of structural or other adjustments to properties subject to flooding in order to reduce flood damages.

Flood Risk - the probability of a flood event occurring.

Flood Warning System - a service provided by Conservation Authorities to member municipalities forewarning of potential flooding situations.

Floodway - the channel of a river and those parts of the adjacent floodplain which are required to carry and discharge flood water.

Flow - the volumetric rate of water discharged from a source, given in volume with respect to time. Measured in cubic metres per second (m³/s); see also “discharge”.

Flow Line - The general path that a particle of water follows under laminar flow conditions. Line indicating the direction followed by groundwater toward points of discharge. Flow lines generally are considered perpendicular to equipotential lines.

Flow Regime - refers to the basin’s flow magnitude and duration given a particular precipitation event (amount and intensity) and also the frequency of the events. Given the temporal component of frequency, a basin’s flow regime would encompass baseflow, low magnitude (high frequency events) and high magnitude (low frequency events).

Flow System - groundwater flow from the recharge area to a discharge area; three levels of regional, intermediate, and local. In a regional flow system, the recharge area is at the basin or watershed divide and the discharge area is at a river in the valley bottom. In a local flow system, the recharge area is at a topographical high spot and the discharge area is at a nearby topographical low spot.

Fluvial - pertaining to rivers and streams or to features produced by the actions of rivers and streams.

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Food Chain - the passing of nutrients and energy through an ecosystem by animals eating other animals and plants.

Forage - herbaceous plants or plant parts fed to domestic animals.

Forebay – impoundment immediately upstream from a dam or waterpower facility. See also: Headpond.

Forest Management - the intelligent use and control of the forest and its products for a specific purpose; may be for wood production, wildlife habitat, maple syrup, nature trails or any combination of these uses and others.

Fossiliferous – containing fossils

Freshet - the occurrence of a water flow resulting from sudden rain or melting snow.

Fractures - cracks in bedrock that may result in high permeability values.

Fresh Water – water that contains less than 1,000 milligrams per litre (mg/L) of dissolved solids; generally more than 500 milligrams per litre is undesirable for drinking and many industrial uses.

Gabbro – a coarse textured igneous rock, having the same composition as basalt but occurring as dikes and sills.

Gabion Basket - a rectangular or cylindrical wire mesh cage filled with rock and used as a protecting apron, revetment, etc., against erosion

Gauging Station - the site on a stream, lake or canal where hydrologic data is collected.

Geology - the study of science dealing with the origin, history, materials and structure of the earth, together with the forces and process operating to produce change within and on the earth.

GIS (geographic information system) – an electronic map-based database management system which uses a spatial reference system for analysis and mapping purposes.

Glacial Drift – all material transported and deposited by glacial ice and glacial meltwater.

Glacial Lake - a lake created when glacial meltwaters are ponded in a basin scoured out by glacial ice, or from the damming of natural drainage by glacial materials such as till.

Glacial Outwash - well-sorted sand, or sand and gravel deposited by water melting from a glacier.

Glacial Till - nonsorted, nonstratified sediment deposited or transported by glacial

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activity.

Glaciofluvial – pertaining to rivers and streams flowing from, on or under melting glacial ice, or to sediments deposited by such rivers and streams.

Glaciolacustrine - a term used to describe fine-grained glacial materials deposited in glacial lake environments.

Gneiss – a type of rock containing bands rich in granular materials alternating with bands rich in platy or micaceous minerals.

Gradient - the rate of change of elevation between one section of a river and another section further downstream.

Granite – a coarse-textured igneous rock made up of quartz, feldspar, and one or both of mica and hornblende; usually found in batholiths. It is an acid rock with a high content of silica.

Great Lakes Basin - refers to the watershed of the Great Lakes and the St. Lawrence River upstream from Trois Rivieres, Quebec.

Great Lakes Basin Water Resources - refers to the Great Lakes and all other bodies of water (streams, rivers, lakes, connecting channels, tributary groundwater) within the Great Lakes Basin.

Greenstone – an altered or metamorphosed basic igneous rock, usually basalt, rich in greenish minerals such as chlorite and some amphiboles.

Grey Water - domestic wastewater other than that containing human excrete, such as sink drainage, washing machine discharge or bath water.

Greywacke – a variety of sandstone with tiny fragments of rock and rock minerals (quartz and feldspar), resulting from rapid erosion and sedimentation.

Groundwater - the water below the water table contained in void spaces (pore spaces between rock and soil particles, or bedrock fractures). Water occurring in the zone of saturation in an aquifer or soil.

Groundwater Basin - the underground area from which groundwater drains. The basins could be separated by geologic or hydrologic boundaries.

Groundwater Barrier - rock or artificial material with a relatively low permeability that occurs (or is placed) below ground surface, where it impedes the movement of groundwater and thus may cause a pronounced difference in the heads on opposite sides of the barrier.

Groundwater Divide - the boundary between two adjacent groundwater basins, which is

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represented by a high point in the water table.

Groundwater Flow - the rate of groundwater movement through the subsurface

Groundwater Recharge – Inflow of water to a ground water reservoir from the surface. Infiltration of precipitation and its movement to the water table is one form of natural recharge

Groundwater Reservoir - an aquifer or aquifer system in which groundwater is stored. The water may be placed in the aquifer by artificial or natural means.

Groundwater Storage - the storage of water in groundwater reservoirs.

Groundwater Vulnerability - the probability of contaminants propagating to a specified region in the groundwater system after introduction at some location above the uppermost aquifer.

Habitat Improvement - the purposeful alteration of the land and vegetation to encourage wildlife use of an area.

Hardness - a characteristic of water that contains various dissolved salts, calcium, magnesium and iron (e.g. bicarbonates, sulfates, chlorides and nitrates).

Hazard Lands - areas designated unsuitable for commercial or residential development because of some natural limitation such as flooding, unstable soil or high ground water levels.

Headpond – impoundment immediately upstream from a dam or waterpower facility. See also: Forebay.

Headwater – the source of a river or water immediately upstream of a structure. The source waters of a stream or river.

Herbicide - chemicals used to kill undesirable vegetation.

herpetofauna, or "herps," – are amphibians and reptiles.

High Magnitude - an event that is of great importance in terms of its impacts

Hornblende – a variety of amphibole, dark green or black in colour.

Hornblende Schist – a schistose or foliated metamorphic rock having a high content of hornblende.

Humic – highly decomposed organic material with small amounts of vegetative fibres present, which can be identified as to their biological origin.

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Humification - the soil forming process that transforms plant tissues into organic matter, on or in soil.

Hummocky - landscape terrain that is characterized by numerous small hills and ridges. Frequently found at the edges of glaciers or in areas of landslide deposits or glacial deposition.

Hydraulic Conductivity - the term used to describe the rate at which water moves through a medium; a controlling factor on the rate at which water can move through a permeable medium.

Hydraulic Flow - the flow of water in a channel as determined by such variables as velocity, discharge, channel roughness and shear stress.

Hydraulic Gradient - rate of change of pressure head per unit of distance of flow at a given point and in a given direction.

Hydraulic Head (Head) - the energy that causes groundwater to flow; the total mechanical energy per unit weight; the sum of the elevation head and the pressure head.

Hydrodynamic Parameters - of or relating to the force or pressure of water or other fluids.

Hydrogeologic Conditions - conditions stemming from the interaction of groundwater and the surrounding soil and rock.

Hydrogeologic Cycle - the circulation of water in and on the earth and through the earth's atmosphere through evaporation, condensation, precipitation, runoff, groundwater storage and seepage and re- evaporation into the atmosphere.

Hydrogeologist - a person who works and studies with groundwater.

Hydrogeology - the study of the interrelationships of geologic materials and processes with water with particular emphasis on the chemistry and movement of water.

Hydrologic Cycle - the cycle of water movement from the atmosphere to the earth and return to the atmosphere through various stages, such as precipitation, interception, runoff, infiltration, percolation, storage, evaporation, and transpiration.

Hydrology - Scientific study of the properties, distribution and effects of water on the Earth's surface, in the soil, underlying rocks and in the atmosphere.

Hydropower - power produced by falling water.

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Hydrosphere - water held in oceans, river, lakes, glaciers, groundwater, plants, animals, soil and air.

Hydrostratigraphic – a term used to describe a geological unit with similar hydrogeological parameters.

HYMO – a computer model that computes runoff and soil loss from precipitation and basin characteristics.

Hypolimnion – the lowermost, non-circulating layer of water in a thermally stratified lake.

Ice Monitoring - a system of measuring and recording the type, thickness and condition of ice and snow cover on local rivers; carried out regularly at pre-determined stations to gather data on ice jamming and ice jam forecasting.

Igneous - rocks produced under intense heat associated with volcanic activity.

Igneous Rock – a rock formed by the crystallization of molten or partially molten, matter or magma.

Impermeable - not allowing water to pass through.

Impervious - a term denoting the resistance to penetration by water or plant roots.

Impoundment - a body of water, such as a pond, confined by a dam, dyke, floodgate or other barrier. It is used to collect and store water for future use or treatment.

Indicator Graph - plot of monthly values of streamflow or precipitation vs. time at a station that has been designated as an indicator of conditions in that geographical location.

Infiltration - the process of water moving from the ground surface vertically downward into the soil.

Infiltration Capacity - the maximum rate at which a given soil in a given condition can absorb rain as it falls.

Infiltration Rate - the quantity of water that enters the soil surface in a specified time interval. Often expressed in volume of water per unit of soil surface area per unit of time (eg. centimetres per hour, cm/hr).

Inflow – the water that flows into a lake, reservoir or forebay.

Input Parameters - a term used in groundwater modelling to describe a number of physical parameters used to generate the numerical model.

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Integrated Resource Management – management of natural resources (water, trees, soil, wildlife) in a comprehensive, co-ordinated, cost-effective way; usually done on a watershed basis with the goal of ensuring that the resource base does not deteriorate.

Interbedded Argillites - argillite is a type of rock having a higher degree of induration (cementation of hardness) than mudstone but less than shale.

Interception Loss - precipitation that is intercepted by trees, vegetation, and / or buildings and evaporates quickly back into the atmosphere before reaching the ground.

Interflow (subsurface stormflow) - water that travels laterally or horizontally through the zone of aeration (vadose zone) during or immediately after a precipitation event and discharges into a stream or other body of water.

Interlobate Moraine - if large glaciers and continental ice sheets advance irregularly so that their margins are lobate, when the margins retreat by melting the resulting terminal moraines of boulders, clay and sand simulate the original interlobate shape of the glacier or glaciers, therefore such moraines are called interlobate moraine.

Intermediate Facility – generating station that operates as a peaking facility when river flows and available storage permit, otherwise it operates as a run-of-the-river system.

Intrinsic Susceptibility - intrinsic susceptibility, in its simplest form, is a measure of the natural protection of an aquifer from overlying layers with low permeability.

Irrigation - the controlled application of water for agricultural purposes through man-made systems to supply water requirements not satisfied by rainfall.

Irrigation Return Flow – the part of artificially applied water that is not consumed by evapotranspiration and that migrates to an aquifer or surface water body.

Kame - steep-sided hill of stratified glacial drift. Distinguished from a drumlin by lack of unique shape and by stratification.

Kame-like - like a conical hill or short irregular ridge of gravel or sand deposited in contact with glacial ice

Karst Formations - karst formations are limestone regions where underground drainage has formed cavities and passages that cave in, causing craters on the surface. The name comes from the karst, a limestone region along the northern Adriatic coast in the former Yugoslavia.

Kyanite is a polymorph with two other minerals; andalusite and sillimanite, from the silicate family. A polymorph is a mineral that shares the same chemistry but a different crystal structure with another, or other, minerals. Kyanite is an attractive mineral that has a

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near sapphire like blue color in some especially nice specimens. Kyanite has a unique characteristic in that it has a wide variation in hardness, in the same crystal.

Lacustrine – pertaining to lakes, or to sediments that have either settled from suspension in standing bodies of fresh water or have accumulated at their margins through wave action.

Lagoon - water impoundment in which organic wastes are stored or stabilized, or both.

Lakeward - a perspective from the land towards the lake or river.

Landbase - a general term for the environment of the earth not covered completely by water, often referring to a geographic area with common characteristics or defined boundaries.

Landward - a perspective from the lake or river towards the land.

Largest Amplitude Meander - the meander with the largest measured amplitude in a meandering reach. Amplitude is measured mid-channel to mid-channel and is the horizontal distance perpendicular to the longitudinal axis between two bends in the fluvial system.

Late Wisconsinan Age - the later portion of the Wisconsin, which is the last of four classical glacial stages (Kansan, Nebraskan, Illinoian) in the Pleistocene of North America.

Leachate - liquid formed by water percolating through soil or soluble waste as in a landfill.

Leachate Impacted - area affected by leachate contamination.

Leaching - the downward transport of dissolved or suspended minerals, fertilizers and other substances by water passing through a soil or other permeable material.

Lepidolite- an uncommon mica. Lepidolite is an ore of lithium and forms in granitic masses that contain a substantial amount of lithium. The lithium content in lepidolite varies greatly.

Limestone – a sedimentary rock made up largely of the carbonate mineral calcite.

Limnetic zone - the open water area away from the shore of a lake or pond. In this zone, there is less light penetration and fewer producers.

Lithification - lithification includes all the processes which convert unconsolidated sediments into solid sedimentary rocks. Essentially, lithification is a process of porosity destruction through compaction and cementation.

Lithologic - the composition and physical features of rocks.

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Littoral - along and close to the shore, particularly describing aquatic plants, animals, currents and water deposits.

Littoral Cell - a self-contained shoreline sediment system that has no movement of sediment across its boundaries. The alongshore limits are defined by natural formations or artificial barriers where the net sediment movement changes direction or becomes zero.

Loam - a rich soil containing sand, silt, and clay.

Lotic - pertaining to flowing waters, such as streams and rivers.

Low Flow Augmentation - increasing low flows by releasing stored water to a stream; usually done during dry late summer weather to keep the water level in a river up to an acceptable level for other uses.

Low Plain (Great Lakes-St. Lawrence River System and Large Inland Lakes) - those sections of the shoreline formed in non-cohesive or cohesive sediments where the land rises gently away from the water.

Luvizols - an order of soils that have a clay accumulation in the B horizon. These soils develop under forests or forest-grassland transition areas in a cool climate.

Mafic - term used to describe a characteristically dark-coloured subsilicic mineral, usually contrasted to felsic.

Magma – a hot mass of molten, or partially molten, rock constituents, formed at high temperatures within the earth.

Manganese - A gray-white or silvery brittle, metallic, element which resembles iron but is not magnetic. It is found abundantly in the ores pyrolusite, manganite, and rhodochrosite and in nodules on the ocean floor. Manganese is alloyed with iron to form ferromanganese, which is used to increase strength, hardness, and wear resistance of steel.

Marsh – standing or slow-moving water with emergent plant cover greater than 25%. Permanently flooded, intermittently exposed, or seasonally flooded. Nutrient-rich water generally remains within rooting zone for most of the growing season. Substrate is mineral soil or well-decomposed sedimentary organic material, often held together by a root mat. See also: **Open Water Marsh**

Mass Balance - a term used to describe a process of inputs and outputs, which must equal in quantity.

Maximum Acceptable Concentration (MAC) - the term used for limits applied to substances above which there are known or suspected adverse health effects.

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Meandering System - a dynamic system where semi-circular curves or bends develop in a fluvial system resulting from erosion of a sediment on the outer-bank and deposition of sediment on the inner-bank of the curves or bends. Erosion and deposition processes are themselves dynamic in response to channel configuration, hydraulic flow and sediment yield.

Meteorology - the science of the atmosphere; the study of atmospheric phenomena.

Mesa – a flat-topped hill bounded on one or more sides by steep cliffs.

Mesic – organic material in an intermediate stage of decomposition. It contains intermediate amounts of organic fibre that can be identified as to their biological origin.

Metamorphic Rock - a rock that has undergone chemical or structural changes. Heat, pressure, or a chemical reaction may cause such changes.

Metamorphism -the process by which conditions within the Earth, below the zone of diagenesis, alter the mineral content, chemical composition, and structure of solid rock without melting it. Igneous, sedimentary, and metamorphic rocks may all undergo metamorphism. This gives rise to the terms metavolcanic, Metasedimentary, etc.

Metasedimentary - partly metamorphosed sedimentary rock.

Metavolcanics - partly metamorphosed volcanic rocks.

Mica – a rock forming mineral that slits into thin sheets.

Micrograms per Litre (ug/l) - a measure of the amount of dissolved solids in a solution in terms of micrograms of solid per litre of solution; Equivalent to part per billion in water or $1\mu\text{g}/\text{l}=1\text{ppb}$.

Migmatite - is the same material as gneiss, but it has been brought to melting or near-melting so that the veins and layers of minerals became warped. In many cases the darker rock has been intruded by veins of lighter rock consisting of quartz and feldspar. This rock is classified as metamorphic.

Milligrams per Litre (mg/l) - a measure of the amount of dissolved solids in a solution in terms of milligrams of solid per litre of solution; Equivalent to part per million in water or one milligram per litre equals one part per million.

Minerotrophic – referring to wetlands that receive nutrients from mineral groundwater in addition to precipitation by flowing or percolating water, indicating that nutrients are brought to the peat by water that has previously extracted them from a mineral soil.

Minimum Streamflow - the specific amount of water reserved to support aquatic life, minimize pollution and support recreational use.

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Model Domain - the boundaries of a numerical model.

Moisture - water diffused in the atmosphere or the ground.

Monitoring Well - a non-pumping well, generally of small diameter, that is used to measure the elevation of a water table or water quality. A piezometer is one type of monitoring well.

Moraine - an accumulation of earth and stones carried by a glacier which is usually deposited into a high point like a ridge.

Morphoedaphic Index (MEI) – the ratio of dissolved solids (measured as total dissolved solids, alkalinity, or conductivity) to mean lake depth; Morphoedaphic Index has been used to predict the total fish production, phytoplankton standing crop and total phosphorus concentration of lakes not subject to cultural eutrophication.

Multi-Variant Analysis - a statistical analysis technique in which multiple variables are analyzed separately to determine the contribution made by each variable to an observed result.

Municipal Well (Public or Community Well) - a pumping well that serves five or more residences.

Natural Flow – the rate of water movement past a specified point on a natural stream. The flow comes from a drainage area in which there has been no stream diversion caused by storage, import, export, return flow, or change in consumptive use caused by man-controlled modifications to land use. Natural flow rarely occurs in a developed area.

Nephelene syenite – a holocrystalline plutonic rock that consists largely of nepheline and alkali feldspar. The rocks are mostly pale colored, grey or pink, and in general appearance they are not unlike granites, but dark green varieties are also known.

Nitrate (NO₃) - a chemical formed when nitrogen from ammonia (NH₃), ammonium (NH₄) and other nitrogen sources combined with oxygenated water. An important plant nutrient and type of inorganic fertilizer (most highly oxidized phase in the nitrogen cycle). In water, the major sources of nitrates are septic tanks, feed lots and fertilizers.

Nitrite (NO₂) - product in the first step of the two-step process of conversion of ammonium (NH₄) to nitrate (NO₃).

Non-Point Source Pollution - Pollution of the water from numerous locations that are hard to identify as point source, like agricultural activities, urban runoff, and atmospheric deposition.

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Normal Operating Range – this is a specified range that lake elevations would be regulated during typical conditions.

Nutrients - chemicals (particularly phosphorus) which stimulate the growth of aquatic plants; the nutrients act as fertilizers and contribute to heavy weed growth and algae blooms.

Official Plan - a land use policy document adopted by a municipality to guide the wise and logical development of its area for the benefit of its citizens.

Oligotrophic Lakes – deep lakes that have a low supply of nutrients, thus they support very little organic production. Dissolved oxygen at or near saturation throughout the lake during all seasons of the year.

Ombrotrophic – referring to areas that are entirely dependant on nutrients from rain.

Organic Compounds - natural or synthetic substances based on carbon.

Open Water Marsh – standing or flowing water with emergent plant cover less than 25%. Submergent and/or floating-leaved plant cover normally greater than 25%, but includes sites with lower submergent cover and sparse emergents. Permanently flooded or intermittently exposed. Includes shallow lakeshores, ponds, pools, oxbows and channels. Distinguished from deep water aquatic systems by mid-summer water depths of less than two metres.

Organic Soil – soil materials that have developed predominately from organic deposition (i.e. containing >17 percent organic carbon or approximately 30 percent organic matter by weight).

Orthophoto Mapping - the ortho process corrects for distortions caused by the terrain, the orientation of the airplane and the camera lens. In simplest terms, an ortho image is like a photo that has been draped over the ground like spreading a blanket over an uneven surface.

Outflow – the flow out of or through a waterpower facility, control structure, pond, reservoir or lake.

Outwash - sediments deposited by glacial meltwater creating stratified layers of gravel, sand and fines. The terms fluvial and outwash are used interchangeably.

Outwash Sand - sand drift, which becomes deposited by melt-water streams.

Overburden - any loose unconsolidated material, which rests upon solid rock.

Overburden - used to describe the soil and other material that lies above a specific geologic feature.

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Over-Withdrawal - Withdrawal of groundwater over a period of time that exceeds the recharge rate of the supply aquifer .

Oxbow – a crescent-shaped lake or slough formed in an abandoned stream bend that has become separate from the main stream by a change in its course.

Part Per Billion (ppb) - a measure of the amount of dissolved matter in a solution in terms of a ratio between the number of parts of matter to a billion parts of total volume; Equivalent to microgram per litre in water or one part per billion = one microgram per litre ($\mu\text{g/l}$).

Part Per Million (ppm) - a measure of the amount of dissolved matter in a solution in terms of a ratio between the number of parts of matter to a million parts of total volume; Equivalent to milligram per litre in water or one part per million = one milligram per litre.

Parthenogenesis (parthenogenically) - in biology, a form of reproduction in which the ovum develops into a new individual without fertilization.

Peak Flow - the greatest rate of flow of water (highest recorded level) in a river within a defined time interval (e.g. annual peak flow, daily peak flow).

Peatland – generic term to include all types of peat-covered terrain. Many peatlands are a complex of swamps, bogs, and fens, sometimes called a “mire complex”.

Perched Aquifer - a saturated zone within the zone of aeration that overlies a confining layer; a perched aquifer is above the main water table.

Percolation - the actual movement of subsurface water either horizontally or vertically; lateral movement of water in the soil subsurface toward nearby surface drainage feature (e.g. stream) or vertical movement through the soil to groundwater zone, a depth below the root zone.

Permeability - the property or capacity of a soil or rock for transmitting a fluid, usually water; the rate at which a fluid can move through a medium. The definition only considers the properties of the soil or rock, not the fluid. See also hydraulic conductivity.

Pesticides - chemicals including insecticides, fungicides, and herbicides that are used to kill living organisms.

Petalite also known as castorite, is a lithium aluminum tectosilicate mineral which is a member of the feldspathoid group. Occurring in lithium-bearing pegmatites with spodumene, lepidolite, and tourmaline. Petalite is an important ore of lithium. It occurs as colorless, grey, yellow, yellow grey, to white tabular crystals and columnar masses.

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Petrification - used to describe the replacement of organic material by minerals in the formation of fossils.

pH - a numerical measure of acidity, or hydrogen ion activity used to express acidity or alkalinity. Neutral value is pH 7.0, values below pH 7.0 are acid, and above pH 7.0 are alkaline.

Physiography - the study of the landforms – form and process.

Piezometer - a type of monitoring well that is used to measure the height of a column of fluid which is open only at the top and bottom of its casing.

Piezometric Surface - The imaginary surface that coincides with the head of the water in an aquifer.

Piping - the internal erosion and carrying away of fine material from within a soil as the result of a flow of water. It refers to the pipe-shaped discharge channel left by erosion which starts at the point of exit of a flow line which exits on the ground surface; typically beneath embankments or on slopes where perched groundwater may seep out.

Placer Mining - the extraction of non-aggregate minerals from sand and gravel, soil or other loose, unconsolidated surface materials.

Plume - an underground pattern of contaminant concentrations created by the movement of groundwater beneath a contaminant source. Contaminants spread mostly laterally in the direction of groundwater movement. The spill/source site is the highest concentration, and the concentration decreases away from the source.

Pluton - an intrusive rock, as distinguished from the pre-existing rock that surrounds it.

Plutonic rock - an intrusive rock formed inside the earth.

Podzols - podzolic soils have lower, iron-enriched subsoil where weathered materials accumulate. They may have an upper bleached horizon from which minerals have been leached. They occur on acid soils and have a well-developed organic layer.

Point-Source Pollution - pollution from a distinct source that is easy to identify.

Pollution Plume - an underground pattern of contaminant concentrations created by the movement of groundwater beneath a contaminant source. Contaminants spread mostly laterally in the direction of groundwater movement. The spill/source site is the highest concentration, and the concentration decreases away from the source. An area of a stream or aquifer containing degraded water resulting from migration of a pollutant.

Polymer - compound whose matrix is an accumulation of millions of identical, interwoven patterns of molecules.

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Porosity - the ratio of the volume of void or air spaces in a rock or sediment to the total volume of the rock or sediment.

Potable Water - water that is safe for drinking.

Potentiometric Contour - elevation at the potentiometric surface.

Potentiometric Surface - an imaginary surface that represents the level to which water rises in wells in a confined aquifer (similar to the water table of an unconfined aquifer).

Profundal zone - the part of a water body below the depth to which sunlight penetration can support aquatic plants.

Promontory - area of high land jutting out into the water

Precambrian Era - an informal name for the eons of the geologic timescale that came before the current Phanerozoic eon. It spans from the formation of Earth around 4500 million years ago (Ma) to the evolution of abundant macroscopic hard-shelled fossils, which marked the beginning of the Cambrian, the first period of the first era of the Phanerozoic eon, some 542 million years ago.

Precambrian Shield - rocks formed during the Precambrian era of earth's history, which have become exposed to the surface in what are called shield areas.

Precipitation - moisture falling from the atmosphere in the form of rain, snow, sleet or hail.

Principal Aquifer - the aquifer in a given area that is the important economic source of water to wells for drinking, irrigation, etc.

Private Well - a pumping well that serves one home or is maintained by a private owner.

Pukaskwa Pits - dish-shaped hollows in the ground created by the Paleo Indians.

Pulse Crops – crops grown for food for human animal consumption and include field beans, field peas, lentils, soybeans and fababeans.

Quality Assurance - the procedural and operational framework used by modelers to assure technically and scientifically adequate execution of the tasks included in the study to assure that all analysis is reproducible and defensible.

Quaternary Geology - study of all geologic activity and events, which took place during the Quaternary geologic period (the last 1.8 million years).

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Rain Gauge - any instrument used for recording and measuring time, distribution and the amount of rainfall .

Rainfall - the quantity of water that falls as rain only.

Reach (river and streams) - refers to a length of channel over which the channel characteristics are stable or similar. All geomorphological features and types of aquatic habitat should be proportionately represented in the section of the river or stream being assessed.

Recharge Area - an area in which water infiltrates and moves downward into the zone of saturation of an aquifer; area that replenishes groundwater.

Recharge Zone - the area of land, including caves, sinkholes, faults, fractures and other permeable features, that allows water to replenish an aquifer. This process occurs naturally when rainfall filters down through the soil or rock into an aquifer.

Refined Oil – is a product of distillation of crude oil into light or heavy components. Light refined oils include gasoline, kerosene, diesel oil and individual components such as benzene and toluene. Heavy refined oils include fuel oil Numbers 4 (heating oil), 5 and 6 (Bunker C).

Reforestation - the planting of trees, saplings or seedlings on land that has been cleared of trees in the past.

Regional Storm - A regional storm (or 100 year storm) is essentially a worst case scenario. The storm provides the peak or flood flow with one chance in one hundred of occurring in any given year. This storm is used to delineate flood plains and is the minimum design flood criteria standard in Ontario.

Regulated Area – is the area near a watercourse which is subject to Conservation Authority regulations (Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation).

Reservoir – a waterbody, either natural or artificial, for the storage, regulation and control of water. Large bodies of groundwater are called a groundwater reservoir or aquifer; water behind a dam is also called a reservoir of water

Retrogressive Failure - an unstable slope condition whereby an initial small slip in slope material results in subsequent successive segments of the slope to continue to fail, or slide, in a short period of time.

Return Frequency - the statistical chance that a certain event will reoccur at the stated rate; for example, the 1:10 year flood is the most serious flood expected in any ten year period, but not necessarily once every ten years (it could occur twice or more times in a

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row and then not reoccur for several years); more accurately the 1:10 year event has a 10 percent chance of occurring in any given year.

Riparian - Situated along the bank of a stream or other body of water.

Riparian Zone – the transitional zone between the forest and the water’s edge and is situated along the bank of a stream or other body of water and to prevent erosion or scouring of a structure or embankment.

Rip Rap - a layer of broken rock, cobbles, boulders, or fragments of sufficient size and thickness to resist the erosive forces of flowing water.

River - a natural stream of water of considerable volume.

River and Stream System - a system that includes all watercourses, rivers, streams and small inland lakes (lakes with a surface area of less than 100 square kilometres) that have a measurable and predictable response to a single runoff event.

River Basin - a term used to designate the area drained by a river and its tributaries.

Root Zone - the depth of soil penetrated by crop roots.

Runoff - the portion of precipitation which is not absorbed by the ground surface and finds its way into surface stream channels and becomes the flow of water from the land to oceans or interior basins by overland flow and stream channels.

Runoff-Direct - the sum of surface runoff and interflow.

Runoff-Surface (overland flow) - Precipitation that cannot be absorbed by the soil because the soil is already saturated with water (soil capacity); precipitation that exceeds infiltration; the portion of rain, snow melt, irrigation water, or other water that moves across the land surface and enters a wetland, stream, or other body of water (overland flow).

Runoff-Total - includes the sum of surface runoff (overland flow), baseflow, and interflow that moves across or through the land and enters a stream or other body of water.

Run-of-the-River Facility – generating station that generally has little forebay storage capacity and passes inflows through one or more turbines on a continuous basis. Any inflows that are greater than the station capacity must be passed through a spillway.

Salt Water Intrusion - the process by which an aquifer is over-drafted, creating a flow imbalance within an area that results in salt water encroaching into the fresh water supply.

Sandspit - a small sandy point of land or a narrow shoal projecting into a body of water from the shore.

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Saturation – occurs when all pore spaces in a soil are filled with water.

Scour - removal of soil material by waves and currents especially at the base or toe of a shore structure or bluff.

Sediment - transported and deposited particles derived from rocks, soil or biological material. Sediment is also referred to as the layer of soil, sand and minerals at the bottom of surface water, such as streams, lakes and rivers.

Sedimentation -silt and other suspended particles in a stream settling to the bottom. A natural river line process that creates point bars.

Sedimentary Peat – peat that is formed beneath a body of standing water. It is primarily derived from aquatic mosses, plant and algae. The material is slightly sticky, dark brown to black and is usually well decomposed (humic).

Seepage - the appearance and disappearance of water at the ground surface. Seepage designates the type of movement of water in saturated material. It is different from percolation, which is the predominant type of movement of water in unsaturated material.

Semi-Permeable - partially permeable.

Septic System-conventional (POWTS - private onsite wastewater treatment system) - used to treat household sewage and wastewater by allowing the solids to decompose and settle in a tank, then letting the liquid be siphoned to a drainage or tile field for absorption by the soil.

Setback Requirement - a distance measured inland from an edge of a slope or watercourse where construction is prohibited except for purpose of erosion, flood or pollution control.

Shoreline Sediment Compartment - a shoreline sediment system which encompasses two littoral cells supplying depositional material to a common sink zone.

Sillimanite - is one of three alumino-silicate polymorphs, the other two being andalusite and kyanite. A common variety of sillimanite is known as *fibrolite*, so named because the mineral appears like a bunch of fibres twisted together when viewed under thin section or even by the naked eye. Both the fibrous and traditional forms of sillimanite are common in metamorphosed sedimentary rocks.

Slope Stability - the ability of the slope to resist slumping or land sliding; generally, the steeper the slope the less stable it is, especially with a stream at the toe.

Slump - a failure and collapse of a slope causing massive land sliding to a lower level; a landslide.

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Snow Course - an established, standard course of stations where the water content of the average snowpack can be determined; used to forecast the spring flooding potential.

Snowfall - the amount of snow, hail, sleet or other precipitation occurring in solid form which reaches the earth's surface. It may be expressed in depth in inches after it falls, or in terms of inches or millimetres in depth of the equivalent amount of water.

Snowpack - the winter accumulation of snow on the ground surface.

Soil Moisture - water diffused in the soil and remaining as a measurable quantity, as the volume of water divided by the total volume.

Soil Moisture Storage - water diffused in the soil. It is found in the upper part of the zone of aeration from which water is discharged by transpiration from plants or by soil evaporation.

Source Area - an area of land which absorbs and transmits surface and groundwater into nearby streams.

Specific Conductance - a measure of conductivity of liquids.

Spodumene - occurs in lithium rich granites and pegmatites and is a pyroxene mineral consisting of lithium aluminum inosilicate and is a source of lithium. It occurs as colourless to yellowish, purplish or lilac kunzite yellowish-green or emerald-green hiddenite prismatic crystals, often of great size. Spodumene is derived from the Greek, meaning "burnt to ashes," owing to the opaque, ash-grey appearance of material refined for use in industry.

Spring - a place where groundwater naturally comes to the surface, resulting from the water table meeting the land surface.

Spring Runoff - snow melting in the spring causes water bodies to rise. This, in streams and rivers, is called "spring runoff".

Static Water Level - the water level in a well that is not being pumped or influenced by pumping.

Stem Flow - water that is intercepted by vegetation and then runs down plant stems or tree trunks to the soil surface.

Storm - a change in the ordinary conditions of the atmosphere, which may include any or all meteorological disturbances such as wind, rain, snow, hail or thunder.

Stormwater Management - planning for the effective discharge of stormwater without causing harmful effects on river levels or water quality.

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Stratigraphy - a branch of geology which studies of the formation, composition, sequence, and correlation of the stratified rocks as parts of the earth's crust.

Stream - a general term for a body of flowing water. In hydrology , the term is generally applied to the water flowing in a natural channel as distinct from a canal. More generally, it is applied to the water flowing in any channel, natural or artificial.

Some types of streams are:

1. Ephemeral: A stream which flows only in direct response to precipitation , and whose channel is at all times above the water table
2. Intermittent or seasonal: A stream which flows only at certain times of the year when it receives water from spring (s) or rainfall , or from surface sources such as melting snow.
3. Perennial: A stream which flows continuously.
4. Gaining: A stream or reach of a stream that receives water from the zone of saturation .
5. Insulated: A stream or reach of a stream that neither contributes water to the zone of saturation nor receives water from it.

Stream Flow - the discharge that occurs in a natural channel. The term streamflow is more general than runoff , as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Stream Gauge - a measuring device for water elevation at selected points; the water elevation is then changed into flow measurements by the use of a conversion table.

Sub-catchment - secondary or subordinate area for catching water, reservoir or basin developed for flood control or water management.

Surface Water - water found in ponds, lakes, streams, rivers, and inland seas.

Sustainable Development - development that meets the needs of the present without compromising the ability of future generations to meet their own and future needs.

Swamp - wooded mineral wetland or peatland. Internal flow of water from margins or other mineral sources. Standing or gently flowing water in pools or channels; or subsurface flow. Water table may drop below the rooting zone of vegetation, creating aerated conditions at the surface. Substrate often woody, well decomposed peat, or a mixture of mineral and organic material. Vegetation deciduous or coniferous trees or shrubs, herbs and mosses.

Tailwater – water immediately downstream from a structure.

Tar sands (bituminous sands) – are a combination of clay, sand, water, and bitumen. Technically speaking, the bitumen is neither oil nor tar, but a semisolid, degraded from of oil. Tar sands are mined to extract the oil-like bitumen which is upgraded into synthetic crude oil or refined directly into petroleum products by specialized refineries.

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Terms of Reference - the specific job that is to be done spelled out in a set of grouped responsibilities.

Thornthwaite Method –a method to estimate soil water budget, based on air temperature, latitude and date.

Till - glacier deposits composed primarily of unsorted sand, silt, clay, and boulders laid down directly by the melting ice.

Time Lag - the time required for processes and control systems to respond to a signal or to reach a desired level. (Also referred to as lag time.)

Toe - the bottom of a slope often where it contacts a watercourse.

Topographic Divide - a high point in the land surface that provides a boundary between adjacent watersheds or basins.

Topography - the contour of the land surface; the configuration of the land surface including its relief and the position of its natural and man-made features

Toxic - a substance which is poisonous to an organism.

Toxicant - a harmful substance or agent that may injure an exposed organism.

Toxicity - the quality or degree of being poisonous or harmful to plant, animal or human life.

Toxic Pollutants - materials contaminating the environment that cause death, disease, birth defects in organisms that ingest or absorb them.

Toxin - a poisonous compound that causes certain diseases or health problems.

Toxic Substance - a chemical or mixture that may represent an unreasonable risk of injury to health or the environment.

Transpiration - the process by which plants take up water through their roots and then give off water vapour through their leaves (open stomata). This water then enters the atmosphere.

Tributary - any stream that contributes water to another water body.

Tuff - is the compacted and consolidated equivalent of ash (fine-grained debris) resulting from explosive volcanic discharge.

Turbidity - a measure of water cloudiness caused by suspended solids.

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Tussock – a thick tuft of sedge or other vegetation forming a small hummock of solid ground in a wetland.

Ultramafic rocks - are igneous rocks with very low silica content (less than 45%) and are composed of usually greater than 90 percent mafic minerals (dark coloured, high magnesium and iron content). Ultramafic rocks are typical of the Earth's mantle.

Unconfined Aquifer (watertable aquifer) - an aquifer with continuous layers of permeable soil and rock that extends from the land surface to the base of the aquifer. The water table forms the upper boundary of the aquifer and is directly affected by atmospheric pressure.

Undercutting - erosion of material at the foot of a cliff or bank.

Unstable Slopes - banks or sloping land with the potential for landslides or slumping due to steepness of the slope, erosion at the bottom, type of soil or proposed use of the land.

Varved – any form of repetitive layered sediment that was deposited within a one-year time period. This annual deposit may comprise paired contrasting laminations of alternately finer and coarser silt or clay, reflecting seasonal sedimentation (summer and winter) within the year.

Vaporization - the change of a substance from a liquid or solid state to a gaseous state.

Vertical Hydraulic Conductivity - vertical measure of the ratio of flow velocity to driving force for viscous flow under saturated conditions of a specified liquid in porous medium.

Vugs – small cavities inside rock that are formed when crystals form inside a rock matrix and are later removed through erosive processes, leaving behind voids. A common cause of vugs is minerals precipitating from solution in water, and then later being dissolved again by less saturated water. The inner surfaces of vugs are often coated with some of the mineral matter that formed them. Fine crystals are often found in vugs where the open space allows the free development of external crystal form. Goeodes are a common vug formed rock.

Washoff - storm water runoff at surface level.

Water Balance - the accounting of water input and output and change in storage of the various components of the hydrologic cycle .

Water Budgets - a summation of input, output, and net changes to a particular water resources system over a fixed period of time.

Water Control Structure - a man-made dam, weir or other structure used to regulate the natural flow of water.

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Watercourses - depressions formed by runoff moving over the surface of the earth; any natural course that carries water.

Water Cycle (Hydrologic Cycle) - the continuous circulation of water from the atmosphere to the earth and back to the atmosphere including condensation, precipitation, runoff, groundwater, evaporation, and transpiration.

Water Pollution - industrial and institutional waste, and other harmful or objectionable material in sufficient quantities to result in a measurable degradation of the water quality.

Water Quality - a term used to describe the chemical, physical and biological characteristics of water with respect to its suitability for a particular use.

Watershed - the land area from which surface water and groundwater drains into a stream system; the area of land that generates total runoff (surface flow, interflow, and baseflow) for a particular stream system. Also referred to as drainage area, basin or catchment area for a watercourse

Water-soluble Fraction (WSF) - the portion of an oil that is soluble in water under equilibrium conditions. The water-soluble fraction of petroleum hydrocarbons is composed mostly of aromatic hydrocarbons such as benzene or toluene.

Water Supply - any quantity of available water.

Water Table - the water surface in an unconfined aquifer; the level below which the pore spaces in the soil or rock are saturated with water; the upper surface of the zone of saturation.

Water Table Aquifer - an aquifer whose upper boundary is the water table; also known as an unconfined aquifer.

Water Table Contour - a line in a groundwater map that connects points of equal groundwater elevation.

Water Table Well - a well whose water is supplied by a water table or unconfined aquifer.

Weir - a small dam, often temporary and removable, which raises the water level upstream for aesthetic, recreational or industrial uses.

Well - a vertical bore hole in which a pipe-like structure is inserted into the ground in order to discharge (pump) water from an aquifer.

Wellhead - structure built above a well.

Well Yield - the volume of water that can be pumped from a well during a specific period.

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Wetland – land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation, and various kinds of biological activity which are adapted to a wet environment. This includes shallow waters less than 2 m deep. An area (including swamp, marsh, bog, prairie pothole, or similar area) having a predominance of hydric soils that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support and that under normal circumstances supports the anaerobic condition that supports the growth and regeneration of hydrophytic vegetation.

Wetland Complex – an area consisting of several kinds of wetlands potentially including open water marsh, marsh, swamp, bogs and fens.

White Paper - the term commonly applied to official documents presented by Ministers of the Crown which state and explain the government's proposed policy on a certain issue usually to provide opportunity for stakeholder consultations.

Windbreak - one or more rows of trees planted around buildings or fields to reduce the force of winds; rows are planted at right angles to the direction of the prevailing winds; an energy conservation measure.

Withdrawal - refers to removal or taking of water from surface water bodies or groundwater sources.

Winter Drawdown – the water level reduction in a lake or reservoir during the winter.

Wollastonite - is a common mineral in skarns or contact metamorphic rocks. Skarns can sometimes produce some wonderfully rare and exotic minerals with very unusual chemistries. Wollastonite forms from the interaction of limestones, that contain calcite with the silica, SiO₂, in hot magmas. This happens when hot magmas intrude into and/or around limestones or from limestones chunks that are broken off into the magma tubes under volcanoes and then blown out of them.

Yield - the quantity of water expressed either as a continuous rate of flow (cubic feet per second, etc.) or as a volume per unit of time. It can be controlled for a given use, or uses, from surface water or groundwater sources in a watershed .

Zone of Aeration (vadose zone or unsaturated zone) - the zone between the land surface and the water table in which the pore spaces between soil and rock particles contain water, air, and/or other gases.

Zone of Saturation (saturated zone) - the zone in which the pore spaces between soil and rock particles are completely filled with water. The watertable is the top of the zone of saturation. Water in the zone of saturation is called groundwater.

100-year Monthly Mean Lake Level (Great Lakes-St. Lawrence River system and large inland lakes) - the monthly mean lake level having a total probability of being

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equaled or exceeded during any year of one per cent. Monthly mean level refers to the average water level occurring during a month computed from a series of readings in each month.

100-year Wind Setup (Great Lakes-St. Lawrence River system and large inland lakes)

- The wind setup having a total probability of being equaled or exceeded during any year of one per cent. Wind setup refers to the vertical rise above the normal static water level on the leeward side of a body of water caused by wind stresses on the surface of the water.