Appendix A

Glossary

Glossary of Terms

100-year flood – A large, but infrequent, flood event that has a 1% chance of occurring in any given year (occurs, on average, once every 100 years).

100-year floodplain – Areas adjacent to a stream or river that are subject to flooding during a storm event that has a 1% likelihood of occurrence in any given year (occurs, on average, once every 100 years). Most municipalities require a floodplain development permit for new development within areas mapped as the 100-year floodplain.

aggradation (aggrading) – The general and progressive buildup of a streambed due to sediment deposition. Aggradation occurs when the channel is supplied with more sediment load than it is capable of transporting.

avulsion – an abrupt change in the course of a stream, as by a stream breaking through a meander or natural levee or by a change in current when a stream deserts its old channel for a new one.

alluvial fan – A fan-shaped deposit of material at the place where a stream issues from a steep valley onto a plain or broad valley with a low slope.

bankfull – The full capacity of the stream channel to the top of the bank on either side. The bankfull discharge is the flow at which water first overtops the banks onto the floodplain, which occurs, on average, every 1.2 to 2.0 years. Bankfull flow is largely responsible for the shape of the stream channel and is sometimes called the channel forming flow.

base flow – The portion of stream flow that comes from groundwater seepage into the channel; constitutes the natural dry weather flow in the stream.

bedload – Sediment that is transported in a stream by rolling, sliding, or jumping on or near the streambed.

berm – A mound of earth or other materials, usually linear, constructed along a stream, road or other area. Berms are often constructed to protect land from flooding or eroding, or to control water drainage. Some berms are constructed as a byproduct of a stream management practice whereby streambed sediment is pushed out of the channel and mounded on (and along the length of) the streambank – these berms are frequently breached by the stream and should not be relied on for flood control. Streamside berms often interfere with other stream processes such as floodplain function, and can exacerbate flood-related erosion or stream instability.

braided channel (braided stream) – Branching and rejoining repeatedly to form an intricate pattern or network of small interlacing stream channels. A stream that has flow in several channels, which successively meet and divide. Braiding occurs when sediment is deposited within the channel area.

buffer – See riparian buffer.

channel – A natural or artificial watercourse with a definite bed and banks that conveys continuously or periodically flowing water.

channelization – Straightening or deepening of a natural stream channel.

check dam – A low dam constructed across a channel to decrease the stream flow velocity (by reducing the channel gradient), minimize channel scour, and promote sediment deposition.

culvert – A pipe or closed conduit for the free passage of surface drainage water. Culverts are typically used by highway departments to control water running along and under the road, and to provide a crossing point for water from roadside drainage ditches to the stream, as well as for routing tributary streams under the roads. Landowners also use culverts to route roadside drainage ditch water under their driveways.

debris – Floating or submerged material, such as logs, vegetation, or trash, transported by a stream.

degradation (degrading or down cutting) – The general and progressive lowering of a channel due to downward erosion of the streambed over a relatively long channel length. A degrading stream may have high, unstable banks and be disconnected from its floodplain.

dike (levee) – An embankment to confine or control water, often built along the banks of a river or stream to contain over bank flow and prevent inundation of floodplain development.

discharge (stream flow) – The rate of flow passing a fixed point in a stream, expressed as a volume of water per unit time, usually cubic feet per second (cfs).

dynamic equilibrium – A stream system that has achieved a balance in transporting its water and sediment loads over time without aggrading (building up), degrading (cutting down), or migrating laterally (eroding its banks and changing course). A stream in dynamic equilibrium resists flood damage, resists erosion, and provides beneficial aquatic habitat.

erosion – The detachment and movement of soil or rock fragments by water, wind, ice, or other geological agents. In streams, erosion is a natural process that can be accelerated by poor stream management practices.

floodplain (see also 100-year floodplain) – Any flat or nearly flat lowland bordering a stream that is periodically inundated by water during floods. The floodplain acts to reduce the velocity of floodwaters, increase infiltration, reduce streambank erosion, and

encourage deposition of sediment. Vegetation on floodplains greatly improves these functions.

floodway – That portion of the floodplain required to store and discharge floodwaters without causing potentially damaging increases in flood heights and velocities.

grade (gradient) – The slope of a stream, measured along the length of the stream channel.

grade stabilization (grade control) – The use of hard structures in a channel to prevent headcutting or degradation (lowering of the channel grade).

gravel bar (see also point bar) – An elevated deposit of gravel located within a stream channel and lacking permanent vegetation.

groundwater – Water beneath the earth's surface, found at varying depths, where every space between soil or rock particles is filled with water.

headcut – A marked change in the slope of a streambed, as in a "step" or waterfall, that is unprotected or of greater height than the stream can maintain. Increased potential for erosion at this location causes the headcut to move upstream, eventually reaching an equilibrium slope.

hydraulics – The applied science that deals with the behavior and flow of liquids. When used in reference to a stream, hydraulics refers to the processes by which water flows within the channel.

hydrologic cycle – The global circulation of water in the air, on land, and in the sea.

hydrology – The science that deals with the occurrence and movement of water in the atmosphere, upon the surface, and beneath the land areas of the earth. In reference to a particular stream, the hydrology is the amount and timing of water flow into the stream.

impervious – Those surfaces that cannot effectively infiltrate rainfall and snow melt (e.g. rooftops, pavement, sidewalks, driveways, etc.). Impervious cover causes an increase in the volume of surface runoff.

incised stream – A stream in which degradation (erosion of the streambed) has caused deepening of the channel to a point where the stream is no longer connected to its floodplain.

infiltration – The process of water percolating into the soil.

instability (unstable) – An imbalance in a stream's capacity to transport sediment and maintain its channel shape, pattern, and profile.

intermittent stream – A stream or portion of a stream that flows in a well-defined channel during the wet seasons of the year, but not the entire year.

invasive plant – A species of plant that is not native to a region and has the ability to compete with and replace native species in natural habitats. Invasive plants present a threat when they alter the ecology of a native plant community.

levee – See dike.

meander – Refers to both the winding pattern of a stream ("meander bends") and to the process by which a stream curves as it passes through the landscape (a "meandering stream"). A meandering stream channel generally exhibits a characteristic process of bank erosion and point bar deposition associated with systematically shifting meanders.

National Flood Insurance Program – Federal program that makes available subsidized flood insurance in those jurisdictions within which the local government regulates development in identified flood hazard areas. Local regulations must be at least as stringent as federal standards.

natural stream design – A stream restoration method that uses data collection, modeling techniques, and stable or reference channels in the design of ideal channel configurations.

nutrients – Essential chemicals, including nitrogen and phosphorous, that are needed by plants and animals for growth. Excessive amounts of nutrients can lead to degradation of water quality and algal blooms.

pattern (of a stream channel) – The shape of a stream as seen from above or on a map.

peak flow – The maximum stream flow from a given storm condition at a specific location.

point bar – A stream deposition feature usually found on the inside of a bend; consists of sand, gravel, or other sediment and lacks permanent vegetation.

pool – A stream feature in which water is deeper and slower than in adjacent areas. Pools typically alternate with riffles along the length of a stream channel.

potential energy – Energy that results from gravitational pull on an object. The potential energy in a stream is equal to the weight of water times the elevation of a specified point relative to the mouth of the stream.

profile – The shape of a stream drawn along the length of its channel to show both the streambed and the water surface.

riffle – A stream feature in which water flow is shallow and rapid compared to adjacent areas. Riffles typically alternate with pools along the length of a stream channel.

riparian – The area of land along a stream channel and within the valley walls where vegetation and other land uses directly influence stream processes.

riparian buffer (or stream buffer) – Zone of variable width along the banks a stream that provides a protective natural area along the stream corridor.

riparian rights – The rights of an owner whose land abuts water.

riprap – Broken rock placed on a streambank or other surface to protect against scouring and erosion.

rock vanes – Rock structures built below the water level to control the direction of flow within a stream.

root wad – Streambank stabilization technique in which a one or more tree trunk is embedded in the streambank with the root mass facing the flow to dissipate energy.

roughness (hydraulic roughness) – In a stream, roughness refers to the frictional resistance to flow.

runoff – See surface runoff.

scour – The process by which the erosive action of flowing water removes material from the bed or banks of a stream.

sediment – Solid material, both mineral and organic, that is being transported or has been moved by air, water, gravity, or ice from its site of origin (streambank or hillside) to the place of deposition (in the stream channel or on the floodplain).

stable (see also dynamic equilibrium) – Although no stream is truly stable in the sense that it doesn't change over time, a stream may be described as stable if it is in dynamic equilibrium, with no appreciable change from year to year.

storm flow – The portion of stream flow that comes from surface runoff and constitutes the main component of high stream flows during rainy weather.

storm hydrograph – A graph of stream discharge against time for a single storm event.

stormwater – Surface runoff; generally referred to as stormwater when the surface runoff is from developed areas.

stormwater management – The use of structural or non-structural practices that are designed to reduce stormwater runoff and mitigate its adverse impacts on property, natural resources, and the environment. Structural practices involve construction of systems that provide short-term storage and treatment of stormwater runoff. Non-

structural techniques use natural measures to reduce pollution levels, do not require extensive construction efforts, and/ or promote pollutant reduction by eliminating the pollutant source.

stream – A natural watercourse with a definite bed and banks that conducts continuously or periodically flowing water.

streambed (bed) – The bottom of a stream channel bounded by banks.

streambank (bank) – The sides of a stream channel between which the flow is normally confined.

stream restoration – The process of converting an unstable, altered, or degraded stream corridor, including the adjacent riparian zone and flood-prone areas to its natural stable condition considering recent and future watershed conditions.

stream stabilization – The in-place stabilization of a severely eroding streambank and/or streambed. Although stabilization techniques address the immediate problem, they may not restore the system's dynamic equilibrium.

surface runoff (see also stormwater) – The portion of precipitation or snow melt that reaches the stream channel by flowing over the land surface.

transpiration – The process by which water taken up by plants is returned to the atmosphere by evaporation from leaves.

tributary – A stream that feeds into another stream; usually the tributary is smaller in size than the main stream.

velocity – In streams, the speed at which water is flowing, usually measured in feet per second.

watershed – A unit of land on which all the water that falls (or emanates from springs) collects by gravity and runs off via a common outlet (stream).

wetland – An area that is permanently or periodically saturated by water with vegetation adapted for life under those soil conditions, such as swamps, bogs, fens, and marshes.

This glossary has been sampled from "Stream Processes – A Guide to Living in Harmony with Streams" as published by the Chemung County Soil & Water Conservation District in August 2006, and has been modified to fit the purpose of this document.