INVER GROVE HEIGHTS
Northwest Area

Appendix C

Acronyms, Symbols, and Glossary

Northwest Area (NWA)
Inver Grove Heights Stormwater Manual

Acronyms, Symbols, and Glossary

Appendix C

Contents

I. Acronyms

BMP – best management practice

BWSR – Board of Water and Soil Resources

cfs – cubic feet per second

CGP – construction general permit

CMP – corrugated metal pipe

CN – curve number

C/O – commercial/office

CWP – Center for Watershed Protection

DA – drainage area

DNR – Minnesota Department of Natural Resources

du – dwelling units

ED – extended detention

EOR – Emmons and Olivier Resources, Inc.

EPA – U.S. Environmental Protection Agency

FEMA – Federal Emergency Management Agency

fps – feet per second

GP – Minnesota Construction General Permit (2003)

GW – ground water

HDR – high density residential

HSG – hydrologic soil group

HS – hotspot

I&M – inspection and maintenance

IPM - integrated pest management

LDR – low density residential

LGU – local governmental unit

LID – low impact development

MDH – Minnesota Department of Health

MDR – medium density residential

MGS - Minnesota Geological Survey

MMCD - Metropolitan Mosquito Control District

Mn/DOT – the Minnesota (state) Department of Transportation.

MPCA – Minnesota Pollution Control Agency

M.S. - Minnesota Statutes

MS4 – Municipal Separate Storm Sewer System under the Phase II NPDES program

NaCl – sodium chloride or common table salt used for roadway deicing.

NFIP – National Flood Insurance Program

NOAA – National Oceanic and Atmospheric Administration

NPDES – National Pollutant Discharge Elimination System

NRCS – U.S. Department of Agriculture, Natural Resource and Conservation Service (formerly the SCS – Soil Conservation Service)

NWI– National Wetlands Inventory

NWL – normal water level

NWS – National Weather Service

NURP – Nationwide Urban Runoff Program

O&M – operation and maintenance

OHWL – ordinary high water level

P – phosphorus

P–8 – Program for Predicting Polluting Particle Passage through Pits, Puddles and Ponds

PSH – Potential stormwater hotspot

PWI – Public Waters Inventory

RCP – reinforced concrete pipe

ROW – right of way

SD – separation distance

SCS – Soil Conservation Service (now the Natural Resource and Conservation Service)

SDWA – Safe Drinking Water Act

Sol P – soluable phosphorus

SFR – single family residential (land use)

SIC – Standard Industrial Classification

SPT – standard penetration test

SW – surface water

SWCD – Soil and Water Conservation District

SWMM – Storm Water Management Model

SWPPP – storm water pollution prevention plan/program

TDS – total dissolved solids

TMDL – total maximum daily load

TN – total nitrogen

TP – total phosphorus

TP–40 – Technical Publication 40

TR–20 – Technical Release Number 20: Computer Program for Project Formulation Hydrology

TR–55 – Technical Release Number 55: Urban Unit Hydrology for Small Watersheds

TSS – total suspended solids

TURM – Thermal Urban Runoff Model

USACE – United States Army Corps of Engineers

U.S.C. - United States Code

VCS -- volume control standard

WCA– Minnesota Wetland Conservation Act

WD – Watershed District

WLF – water level fluctuation

WMO – Water Management Organization

WNV - West Nile Virus

WQ – water quality

WSEL – water surface elevation

II. Symbols

A = average basin area

A_i = effective infiltration area at half the volume of the practice

A_f = surface area of filter bed (ft^2)

As = sedimentation basin surface area (ft^2)

A_{VCS} = orifice area

C = discharge coefficient

C = orifice coefficient (0.6 is typically used, but may not apply in all cases)

d_f = filter bed depth (ft)

d_f = filter bed depth (ft)

D = maximum depth of practice

E = trap efficiency

$E_{PermPool}$ = elevation of the permanent pool (the invert of the VCS orifice).

E_{vcs} = the VCS pool elevation

g = gravitational acceleration.

h_f = average height of water above filter bed (ft)

hs = height in sedimentation chamber

h_{temp} = temporary storage height

i = infiltration rate

k = coefficient of permeability of filter media

n = porosity of filter media

Qo = discharge rate of outflow

Q_{wq} = water quality discharge rate

RCS = Rate Control Standard

t = maximum drawdown time (48 hours)

t_f = design filter bed drain time

t_f = design filter bed drain time (days)

t_{RCS} = intended RCS detention time

t_{VCS} = intended VCS detention time

V = design volume for infiltration basin and underground infiltration system

VCS = volume control standard

Vf = water volume within filter bed

Vf_{temp} = temporary storage volume above the filter bed

Vs = volume within sediment chamber

V_T = design volume for infiltration trenches and dry wells

Vw = wet pool storage volume

V_w = design volume

w = particle settling velocity

III. Glossary

A – B – C – D – E – F – G – H – I – J – K – L – M – N – O – P – Q – R – S – T – U – V – W – XYZ

A

access and egress control — reinforced or rocked entrance and exit points to the site to deter tracking of sediment off the site onto adjacent streets

adsorption — the adhesion of an extremely thin layer of molecules to the surfaces of solid bodies or liquids with which they are in contact

aggrade — the build up of sediment or eroded material

anaerobic condition — operating in a system where there is the absence of free oxygen available for biologic use.

animal waste management — practices and procedures which prevent the movement of animal wastes or byproducts from feeding or holding areas into the wider environment.

annual load — quantity of pollutants, sediment, or nutrients carried by a water body over the period of a year

antecedent soil moisture — the water content held by a soil before a storm event. This has an effect on the amount of water that will runoff due to that event.

atmospheric controls — reducing or removing wind erosion, dust, or statutory emissions regulations

B

baffle weir — A structure used in measuring the rate of flow fitted with a grating or plate across a channel or pipe which makes the flow more uniform in different parts of the cross section of the stream.

bankfull — flow in a stream or river where the water level is to the top of its bank. This is considered to be the channel forming flow and has a recurrence interval of around 2.5–years.

bank stabilization — activities undertaken to shore up or ensure the integrity of a stream or river bank and protect it from erosion and slumping.

base flow — the flow coming from ground water inputs to a stream or river system

basin — a depression in the surface of the land that holds water

bed load — the sand, gravel or rocks which are transported along the stream bottom by traction, rolling, sliding or saltation

Best Management Practice (BMP) — one of many different structural or non–structural methods used to treat runoff, including such diverse measures as ponding, street sweeping, filtration through a rain garden and infiltration to a gravel trench.

better site design (BSD) — the application of non–structural practices at residential and commercial sites to reduce impervious cover, conserve natural areas, and use pervious areas to more effectively treat stormwater runoff.

biological additives products which are formulated with specialized bacteria, enzymes, or other living components that can be added to boost pollution treatment efficiencies, eg. chitosan

biological oxygen demand(BOD) a measure of the amount of oxygen required to biologically degrade organic matter in the water.

bioretention a soil and plant–based stormwater management best management practice (BMP) used to filter runoff

bounce water level fluctuations due to topography, soils, and runoff inputs during and after precipitation events.

buffers a vegetative setback between development and streams, lakes, and wetlands whose aim is to physically protect and separate the resource from future disturbance or encroachment.

C

catch basin an inlet to the storm drain system that typically includes a grate or curb inlet.

catch basin insert devices that attach to the entrance of a catch basin or mount inside the catch basin. They are designed to improve stormwater quality by either preventing debris and pollutants from entering the basin, or by retaining or treating the water in the basin.

channel protection actions taken to prevent habitat degradation and erosion that may cause downstream enlargement and incision in urban streams due to increased frequency of bankfull and sub–bankfull stormwater flows.

chemical controls includes such activities as salt management, fertilizer/pesticide management, and spill prevention and containment

chemical oxygen demand The quantity of oxygen used in biological and non–biological oxidation of materials in water; a measure of water quality.

chemical treatment removal of pollutant from the water column via chemical means, eg. Ferric chloride, alum, polyacrylamides

cistern a technique which captures and temporarily stores rooftop runoff at confined sites, gradually releasing it over pervious areas.

cluster design a reduction of average lot size within a residential development in exchange for greater conservation of natural areas.

coincident peaks upstream peak discharge arriving at the same time a downstream structure releases its peak discharge thus increasing the total discharge well above what it was on the pre-development hydrograph.

cold climate sizing sizing of stormwater practices to accommodate snowmelt. This is larger than rainfall–based criteria sizing in Minnesota since snowfall represents more than 10% of the annual precipitation.

computable pollutant a pollutant for which enough runoff concentration and BMP performance data is available to perform a site–based pollutant load calculation documenting no increase in loading.

conservation easement a restriction placed on a piece of property to protect the resources associated with the parcel. The easement is either voluntarily sold or donated by the landowner, and constitutes a legally binding agreement that prohibits certain types of development from taking place on the land.

construction sequencing	a specified work schedule that coordinates the timing of land–disturbing activities and the installation of erosion–protection and sedimentation–control measures
conveyance	a structure or feature used for transferring water from one location to another
curb and gutter system	edging along the side of streets meant to quickly convey stormwater runoff from the street and adjacent areas into the stormwater system
curve number	an index combining hydrologic soil group, land use factors, treatment, and hydrologic condition. Used in a method developed by the SCS to determine the approximate amount of runoff from a rainfall event in a particular area

D

dead storage	the permanent storage volume of a pond
degrade	downcutting where softer material is present in a stream channel
densimetric stratification	impairment of vertical mixing and oxygenation of bottom water layers
design storm	streamflow from a storm event used as a standard for which performance of stormwater management practices are measured.
detention time	the theoretical calculated time that a small amount of water is held in a settling basin.
disconnection	technique to spread runoff generated from rooftops or impervious surfaces into adjacent pervious areas where it can be filtered and infiltrated.
drainageway	a course or channel along which water moves in draining an area
dry pond	a water bearing stormwater management facility that controls peak runoff flows to receiving bodies such as rivers and streams which is typically free of water during dry periods, but filled during times of rainfall
dry well	a deep covered hole acting as an underground storage facility for stormwater until it seeps into the surrounding soil.

E

elution	washing out of ions in solution from a snowpack
erosion	the wearing down or washing away of the soil and land surface by the action of water, wind or ice
erosion control	any efforts to prevent the wearing or washing away of the soil or land surface
erosion control blanket	a natural or geotextile mat placed in areas susceptible to erosion to hold the soil in place until it can be permanently stabilized through vegetation or armoring
eutrophic	an environment which has an excessive concentration of nutrients
evaporation	the process of changing from a liquid state into a gas

evapotranspiration	loss of water to the atmosphere as a result of the joint processes of evaporation and transpiration through vegetation
event–based load	quantity of pollutants, sediment, or nutrients carried by a water body for particular magnitude storm events
exfiltration	uncontrolled outward leakage through cracks and interstices
extensive green roof	xeriscape type plantings in shallow, draughty growing medium typically on urban rooftops
extreme event	an 100–year, 24–hour rain event or an 100–year, 10–day snowmelt event or greater
extreme flood control	for the 100–year, 24–hour or larger events, to maintain the boundaries of the pre-development 100–year floodplain, reduce flooding risks to life, reduce property damage, and protect the physical integrity of the stormwater management practices.

F

fen	a peat accumulating wetland that receives some drainage from surrounding mineral soils and usually supports marsh–like vegetation. Richer in nutrients and less acidic than bogs due to ground water inflows.
ferrocyanide	an anti–caking additive to road salt; when converted to its free cyanide form (FCN) becomes extremely toxic to aquatic life
filter bed	a sand or gravel bottomed treatment used to filter stormwater
filtration	a series of processes that physically removes particles from water
first flush	the majority of pollutants carried in urban runoff are carried in the first ½" of runoff from a site
floodplain	land adjacent to a waterbody which is inundated when the discharge exceeds the conveyance capacity of the normal channel. Often defined in a regulatory sense as the extent of the 100–year flood.
flow control	controlling the rate and volume of water leaving a site
forebay	an extra storage space or small basin located near the inlet to settle out incoming sediments before water moves on into a pond or detention area
freeze–thaw cycle	the alternation between freezing and thawing in the snowpack. This cycle changes the composition and characteristics of the snowpack and can effect its pollutant carrying ability and the amount of runoff generated
frequency curve	A derivative of the probability curve that expresses the relation between the frequency distribution plot, with the magnitude of the variables on one axis and the number of occurrences of each magnitude in a given period as the other
frost heave	a phenomenon in cold areas in which water that is trapped in soil or cracks in rocks alternately freezes and thaws. This causes the water to expand and contract which can cause significant movement and upheaval of the soil or rock

G

geomorphology	the study of the form and development of the landscape

gleyed	a blue–gray, sticky, compacted soil, usually indicative of saturated conditions
global warming	the progressive gradual rise of the Earth's surface temperature thought to be caused by the greenhouse effect, which may be responsible for changes in global climate patterns
grade breaks	point where the ground slope changes
grass channels	a natural open channel conveyance system which is preferable to curb and gutter where development density, soils, and slopes permit
green roof	a rooftop treatment practice where a thin planting media is established on roof surfaces and then planted with hardy, low–growing vegetation
ground water	water occupying the sub–surface saturated zone
ground water mounding	the localized rise in water table or potentiometric surface caused by the addition or injection of water
gully erosion	the widening, deepening and head cutting of small channels and waterways (rills) due to erosion by water or snowmelt, typified by channels one foot or more deep

H

head	the difference in elevation between two points in a body of water and the resulting pressure of the fluid at the lower point
high density residential	a high concentration of housing units in a specific area or on a specific property, typical of urban areas
hotspot	point source potential pollution generating land uses such as gas stations, chemical storage facilities, industrial facilities, etc
housekeeping (BMP)	any of a number of BMPs designed to keep pollutants from entering the waste stream by maintaining clean conditions, including street sweeping, litter pick–up and animal clean–up
hydrograph	graphical representation of stage or discharge at a point in a drainage as a function of time
hydrologic soils groups	an NRCS designation to give different soil types to reflect their relative surface permeability and infiltrative capability. Rankings for from high infiltration rates in Group A to very low infiltration rates in Group D
hydrology	the science dealing with the properties, distribution, and circulation of water
hydroperiod	the length of time an area is inundated or saturated by water

I

impaired waters	streams or lakes that do not meet their designated uses because of excess pollutants or identified stressors
impervious surface	a surface in the landscape that impedes the infiltration of rainfall and results in an increased volume of surface runoff
infiltration	flow of water from the land surface into the subsurface
industrial materials or activities	include but are not limited to material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products

inlet protection	preservation of the integrity and protection from the erosion of the area where water enters into a treatment area usually by vegetation or armoring
intensity–duration–frequency curves (IDF)	graphical representation of the intensity, duration, and frequency of a differing rainfalls over time
intensive green roof	rooftop systems including earth-bermed structures which ar reliant on rich, deep substrates and may include shrubs or trees
interflow	water that travels laterally or horizontally through the aeration zone during or immediately after a precipitation event and discharges into a stream or other body of water
interstitial water	water in the pore spaces of soil or rock
isopluvial	line on a map along which an equal percentage of the total annual precipitation falls in a given season or month

J

K

L

Landlocked Basin	a basin that does not discharge under back-to-back 100-year, 24-hour rainfall events.
lattice blocks	a form of pervious pavers consisting of interlocking components having an open space in the middle for vegetation or gravel
live storage	the portion of a storage basin or reservoir that is at or above the outlet and used for temporary water storage
low density residential	a low concentration of housing units in a specific area or on a specific property, typical of rural areas
low impact development (LID)	the application of non–structural practices at residential and commercial sites to reduce impervious cover, conserve natural areas, and use pervious areas to more effectively treat stormwater runoff

M

media filters	filtration of stormwater through a variety of different filtering materials whose purpose is to remove pollution from runoff
medium density residential	a moderate concentration of housing units in a specific area or on a specific property, typical of suburban areas
mesotrophic	waters containing an intermediate level of nutrients and biological production
micropool	similar to wet ponds except there is a small micropool at the outlet to prevent resuspention of previously settled materials and prevents clogging of low–flow orifice
mobilization	the release and movement of bound chemicals, nutrients, or pollutants into the environment
mottled	soil marked with irregular brown and gray/black colors indicative of poor drainage and routine saturation cycles

municipal separate storm sewer systems (MS4) — A municipal separate storm sewer system is a conveyance or system of conveyances, owned or operated by a state, city, town, county, district, association, or other public body having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes that discharges to waters of the United States. There are three categories of regulated small MS4s: mandatory, discretionary and petition. MS4s are required to develop and implement a Stormwater Pollution Prevention Program (SWPPP which must cover six minimum control measures and identify best management practices (BMPs) and measurable goals associated with each of these minimum control measures.

N

native vegetation — plants that are adapted to and occur naturally in a specific location

natural area conservation — the identification and protection of natural resources and features that maintain the pre-development hydrology at a site by reducing runoff, promoting infiltration, and preventing soil erosion.

no exposure — all industrial materials or activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, or runoff

Noncomputable pollutant — a pollutant for which there is not enough runoff concentration and BMP performance data available to perform a site–based pollutant load calculation documenting no increase in loading

nonpoint source pollution — pollution that enters a water body from diffuse origins on the watershed and does not result from discernable, confined, or discrete conveyances

O

orifice — outlet

overbank flood protection — prevention of flood damage to conveyance systems and infrastructure and reduction of minor flooding caused by an increased frequency and magnitude of floods exceeding the bankful capacity of a channel and spilling out over the floodplain.

P

peak flow control — controlling the timing and magnitude of the largest flow either leaving the site or flowing through the watershed utilizing stormwater management techniques to avoid flooding and damage downstream.

perimeter control — activities or practices designed to contain sediments on a project site

permanent storage pool — the volume in a pond or reservoir below the lowest outlet level, designed for water quality purposes to settle out particles and nutrients

permeable paver — a range of products that enable some fraction of rainfall to be infiltrated into a sub–base underneath the paver

pollution load — the product of flow volume times pollutant concentration

pollution prevention practices pro–active activities and strategies instituted to avoid introducing pollution into the environment

pollutograph graphical representation of pollution at a point in a drainage as a function of time

pre–treatment processes used to reduce, eliminate, or alter pollutants before they are discharged into publicly owned sewage treatment systems

primary treatment the first stage of wastewater treatment, including removal of floating debris and solids by screening, skimming and sedimentation

proprietary devices stormwater treatment devices which are privately developed and owned

Q

quiescent periods periods of rest or inactivity

R

rain barrel a container used to collect and store rainwater that is usually placed below the downspout of a roof gutter. The collected water is used to water the landscape

rainfall distribution describes how the rain fell in a 24–hour period, ie. whether the precipitation occurred over a 1–hour period or over the entire 24–hour period

rainfall frequency spectrum describes the average frequency of the depth of precipitation events (adjusted for snowfall) that occur during a normal year

rain garden a landscaping feature that is planted with native perennial plants and is used to manage stormwater runoff from impervious surfaces such as roofs, sidewalks, and parking lots

rate control controlling the rate that stormwater is released from localized holding areas into larger conveyance systems

receiving water a body of water such as a stream, river, lake, or ocean, which receives stormwater and wastewater

recessional limb the portion of the hydrograph after the peak where flows are returning to lower or baseflow levels

recharge the addition of water to an aquifer by natural infiltration or artificial means

recurrence interval the inverse probability that a certain flow will occur. It represents a mean time interval based on the distribution of flows over a period of record

redevelopment any construction, alteration, or improvement that disturbs greater than or equal to 5,000 square feet of existing impervious cover performed on sites where the existing land use is commercial, industrial, institutional, or residential

removal rate the rate at which a pollutant is removed from the water column

retention the permanent or temporary storage of stormwater to prevent it from leaving the development site

retrofit	the introduction of a new or improved stormwater management element where it either never existed or did not operate effectively
return interval	the inverse probability that a certain flow will occur. It represents a mean time interval based on the distribution of flows over a period of record
rill erosion	an erosion process in which numerous small channels several inches deep are formed
riparian areas	areas adjacent to a water body acting as transition zones between terrestrial and aquatic systems
riser	a vertical assembly of pipe and fittings that generally distributes water upward
roof leader	a downspout or other conveyance for runoff that has been collected from roof tops routing stormwater down to the ground surface or to a sewer service
rooftop runoff storage	installation of practices to capture and temporarily store rooftop runoff at confined sites and gradually release it over pervious areas for use for irrigation
runoff	the portion of rainfall or snowmelt not immediately absorbed into the soil that drains or flows off the land and becomes surface flow
runoff volume minimization	reducing as much as possible the amount of water running off surfaces or leaving a site
runoff management	techniques, practices and strategies for dealing with runoff and minimizing its impact to the greater environment

S

secondary treatment	biological and mechanical processes that remove dissolved or suspended material from wastewater
sediment	any particulate matter that can be transported by fluid flow and which eventually is deposited as a layer of solid particles on the bed or bottom of a body of water
sediment control basins	a designed depression in the landscape utilized to settle out sediments from the water column before discharge into other drainages
sediment removal	the removal, usually by settling or filtering, of suspended sediments from the water column
sediment yield	The amount of sediment removed from a watershed over a specified period of time
settling	a technique to remove sediment from wastewater by slowing the water flow velocity allowing the sediments to sink to the bottom
silt curtain	a natural or synthetic fabric suspended by floats and weighted at the bottom which is stretched across a water feature and used to trap and retain sediments on site
silt fence	fence constructed of wood or steel supports and either natural (eg burlap) or synthetic fabric stretched across an area of non–concentrated flow during site development to trap and retain on–site sediment due to rainfall runoff

site constraints	conditions unique to the site that that serve to restrain, restrict, or prevent the implementation of proposed or desired design features
site reforestation	reforestation of existing turf or barren ground at the development site with the explicit goal of establishing a mature forest canopy or prairie condition that intercepts rainfall, and maximizes infiltration and evapotranspiration
skimmer	device used to take up or remove floating matter from the water's surface
slope stabilization	activities or techniques employed to maintain the integrity or stop the degradation of sloped areas
small storm hydrology	a less than 10–year event
snowmelt	the sudden release of accumulated snow and ice with the advent of warm weather
snowpack	a horizontally layered accumulation of snow from snowfall events which accumulates and persists through the winter and may be modified by meteorological conditions over time
soakaway pit	small, excavated pits, backfilled with aggregate, used to infiltrate good quality stormwater runoff, such as uncontaminated roof runoff
soil amendment	tilling and composting of new lawns and open spaces within a development site to recover soil porosity, bulk density, and reduce runoff
sorbent	material which extracts one or more materials from the water via absorption or adsorption
source water protection area	an identified area with restricted or modified land use practices designed to protect the public drinking water supply from the introduction of contaminants
spring snowmelt event	large amount of melting of the winter's accumulated snow over a short period of time (~2 weeks). Large flow volumes typical and may be the critical water quality design event
standpipe	a vertical pipe or reservoir for water used to secure a uniform pressure
stage	the height of a water surface above an established reference point
storm distribution	a measure of how the intensity of rainfall varies over a given period of time
stormwater	water that is generated by rainfall or snowmelt which causes runoff and is often routed into drain systems for treatment or conveyence
stormwater credits	activities that can be undertaken in order to reduce the sizing or requirements for stormwater management at a site
stormwater planter	self–contained landscaping areas which capture and temporarily store a fraction of rooftop runoff and filter it through the soil media

stormwater pollution prevention plan (SWPPP)	a plan for preventing or minimizing pollution generated at construction sites
stormwater pollution prevention program (SWPPP)	a program that is required to be developed by MS4 communities to incorporate applicable best management practices, measureable goals and which must include the six minimum control measures
stormwater treatment train	a suite of stormwater management practices incorporating aspects of pollution prevention, volume control and water quality controls
streambank stabilization	activities or techniques employed to maintain the integrity or stop the degradation of streambanks due to erosion and sedimentation
sublimation	the process of transforming from a solid directly into a gas without passing through a liquid phase
subwatershed	a subdivision based on hydrology corresponding to a smaller drainage area within a larger watershed
swale	a wide, shallow, vegetated depression in the ground designed to channel drainage of water

T

Technical Publication 40 (TP–40)	U.S. Weather Bureau publication that is the standard reference for frequency analysis in Minnesota
Technical Release Number 20 (TR–20)	a single–event rainfall–runoff computer model developed by the U.S. Soil Conservation Service in 1964.
Technical Release Number 55 (TR–55)	a simplified procedure to calculate storm runoff, volume, peak rate of discharge, hydrographs and storage volumes developed by the U.S. Natural Resource Conservation Service in 1975
temporary construction sediment control techniques	practices employed on an active construction site to control movement of sediment within or off of the site until permanent vegetation or sediment controls can be established
thermal impact	the impact to streams and water bodies of stormwater runoff addition which are higher in temperature than the ambient stream or water body temperature. This causes stress or may result in the death of temperature–sensitive organisms such as trout
thermal protection	techniques and practices such as infiltration and shading which act to preserve and protect the ambient temperatures of streams and waterbodies from temperature–raising effects of stormwater runoff
total maximum daily load (TMDL)	the amount of a pollutant from both point and nonpoint sources that a waterbody can receive and still meet water quality standards
total phosphorus (TP)	a nutrient that can also be a contaminant because of its use by nuisance algae
total suspended solids (TSS)	a measure of the amount of particulate material in suspension in a water column

transpiration	the passage of water vapor into the atmosphere through the vascular system of plants
trash rack	a structural device used to prevent debris from entering a pipe spillway or other hydraulic structure
treatment	any method, technique, or practice used for management purposes
trench	a long steep–sided depression in the ground used for drainage or infiltration
turbidity	the cloudy appearance of water caused by the presence of suspended and colloidal matter

U

under drain	An underground drain or trench with openings through which the water may percolate from the soil or ground above
unified sizing criteria	statewide criteria for the sizing of stormwater management systems

V

vegetative filters	the removal of sediment, nutrients, or pollutants by plant structures
volume control	controlling the overall volume or amount of stormwater that is released from a site or localized holding area into the larger conveyance system

W

water balance	A hydrological formula used by scientists and land managers to determine water surpluses and deficits in a given area. Includes inputs such as precipitation; outputs such as evapotranspiration, infiltration, and runoff; and storage within the system
water quality sizing	tied to the volume of stormwater runoff
water quality volume	the permanent pool in a water detention pond
watershed	a topographically defined area within which all water drains to a particular point
weir	a spillover dam–like device used to measure or control water flow
wellhead protection area	an identified area with restricted or modified land use practices designed to protect the well supply area from the introduction of contaminants
wetland	land that is transitional between aquatic and terrestrial ecosystems and must: have a predominance of hydric soils, be inundated or saturated by surface water or ground water at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions, and under normal circumstances support a prevalence of hydrophytic vegetation. To be a wetland the area must meet wetland criteria for soils, vegetation, and hydrology as outlined in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual.
wetland systems	hydrologically interconnected series of wetlands which includes the interrelatedness of habitat, wetland functions, and biology

wet pond a permanent pool of water for treating incoming stormwater runoff

wet vault A wet vault is a vault stormwater management device with a permanent water pool, generally 3 to 5 feet deep

XYZ