CITY UTILITIES
DESIGN STANDARDS MANUAL

Book 2
Stormwater (SW)
SW1 Acronyms and Definitions

September 2017

SW1.01 Purpose

The purpose of this Chapter is to define acronyms and terms used throughout the Stormwater Book of the Design Standards Manual. This Chapter covers the intent and meaning of the referenced acronyms and terms.

SW1.02 Acronyms

ANSI	American National Standards Institute
ASTM	ASTM International (formerly American Society of Testing and Materials)
BFE	Base Flood Elevation
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980 (commonly known as Superfund)
CFS	Cubic Feet per Second
CMP	Corrugated Metal Pipe
CN	Curve Number
CSI	Construction Specifications Institute
CUE	City Utilities Engineering
DIP	Ductile Iron Pipe
DPS	Department of Planning Services
DVS	Development Services
EGL	Energy Grade Line
FEMA	Federal Emergency Management Agency
FFE	Finished Floor Elevation
FHWA	Federal Highway Administration
FPG	Flood Protection Grade
GI	Green Infrastructure
GIS	Geographic Information System
GISSD	Green Infrastructure Supplemental Stormwater Document
GPS	Global Positioning System
HEC-RAS	Hydraulic Engineering Centers River Analysis System
HDPE	High Density Polyethylene
HEP	Horizontal Elliptical Pipe
HGL	Hydraulic Grade Line
IAC	Indiana Administrative Code

IDEM	Indiana Department of Environmental Management
IDF	Intensity-Duration-Frequency
IDNR	Indiana Department of Natural Resources
INDOT	Indiana Department of Transportation
LID	Low Impact Development
LS	Registered Land Surveyor
MF04	Master Format 2004
MMM	Micro-Model Method
MS4	Municipal Separate Storm Sewer Systems
NASSCO	National Association of Sewer Service Companies
NAVD	North American Vertical Datum
NAVD88	North American Vertical Datum of 1988
NGVD29	National Geodetic Vertical Datum of 1929
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resources Conservation Service
OD	Outside Diameter
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
PACP	Pipeline Assessment Certification Program
PDF	Portable Document Format
PE	Professional Engineer
PC-SWPPP	Post-construction Stormwater Pollution Prevention Plan
PP	Poly Propylene
PSA	Professional Services Agreement
PSI	Pounds per Square Inch
PVC	Polyvinyl Chloride
RCP	Reinforced Concrete Pipe
ROW	Right-of-Way
RPR	Resident Project Representative
SCS	Soil Conservation Science or Soil Conservation Service
SMP	Stormwater Management Plan

SQU	Stormwater Quality Unit
SW	Stormwater
SWPPP	Stormwater Pollution Prevention Plan
SWQMP	Stormwater Quality Management Plan
TBM	Temporary Bench Mark
TCP	Temporary Project Control Points
TR	Technical Release
TSS	Total Suspended Solids
USACE	United States Army Corps of Engineers
USCS	Unified Soil Classification System
VEP	Vertical Elliptical Pipe
WQr	Water Quality Rate
WQv	Water Quality Volume

SW1.03 Definitions

Armor	A surface treatment to protect a slope from erosive energies**.**
Backfill	Earth and/or other material used to replace material removed from trenches or other excavations during construction activities. The backfill lies above the pipe bedding.
Base Flood Elevation	The water surface elevation for the 1% annual chance storm event (100-year).
Biofilter	A vegetated pretreatment area where plants slow runoff and remove some of the larger particles and debris.
Bioretention	An engineered landscape feature appearing as shallow depressions and vegetated with plant species adapted to occasional inundation.
Bioswale	An engineered swale designed to remove silt and other pollutants by retaining or maximizing the travel time of stormwater runoff during smaller rainfall events for water quality and conveying the runoff during larger rainfall events to a stormwater storage feature. The swale needs to be vegetated with species that tolerate inundation for extended periods. Also referred to as water quality swale.
Book	Organizational grouping of utility design standards by topic. These Books consist of General Requirements, CADD, Stormwater, Sanitary Sewer, Water and Materials.
City	The City of Fort Wayne, Indiana.

City Utilities The department of the City of Fort Wayne that manages the stormwater, wastewater and water utilities

City Utilities Engineering The division within City Utilities that develops City Utility Engineering Standards, manages City Utilities Projects, and performs planning and system analysis for the stormwater, wastewater and water utilities.

City Utilities Projects Publicly funded projects that improve the stormwater, wastewater, and water utilities and are under direction of City Utilities Engineering.

City Utilities Design Standards Manual A document that provides guidance and requirements for the planning, design, and construction of stormwater, wastewater, and water utility infrastructure.

Combined or Combination Sewer A sewer which carries storm, surface, and groundwater runoff as well as wastewater.

Culvert An open-ended stormwater pipe or structure that is dependent on hydraulic head for performance. Typically, a culvert conveys runoff under a road, berm or railway.

Design Storm The precipitation pattern used to represent conditions in a given area for the design of hydraulic systems.

Detention The process of temporarily storing runoff within a watershed for the purpose of reducing the peak discharge during larger rainfall events.

Detention Basin A surface stormwater detention facility.

Detention Facility A facility that stores stormwater and releases it at a controlled rate into a stormwater conveyance system.

Development Services (DVS) The division within the department of City Utilities that oversees non-capital projects.

Easement A right to occupy, access or otherwise utilize the real property of another for a specifically defined use.

Emergency Overflow (Spillway) An engineered outfall or spillway that provides a nondestructive release point if a basin exceeds its design capacity.

Engineer The design professional licensed by the state and ultimately responsible for the design of a project.

Evapotranspiration The natural processes that releases moisture into the atmosphere by way of evaporation and plant transpiration.

Flood Protection Grade The base flood elevation plus 2 feet.

Forebay A pool of water used to collect sediment and debris before the stormwater reaches a detention basin or green infrastructure facility.

Freeboard	An additional depth regarded as a safety factor between the peak design water elevation and the top of a basin's berm.
Gradually-Varied Flow	Non-uniform flows in which the depth and velocity change gradually in the direction of flow.
Green Infrastructure	Engineered features that utilize the natural processes provided by vegetation and soils to manage the quantity and quality of stormwater runoff.
Hydrograph	Graph of the time distribution of runoff from a watershed.
Hydrograph Method	A method of calculating runoff and discharges based on a mathematical simulation, also referred to as the SCS or TR20 method.
Infiltration	The natural process of water entering and traveling through the soil.
Inlet	A structure designed to allow runoff to enter the stormwater system.
Inline Stormwater Detention	A stormwater storage area created within the limits of an open channel or other stormwater conveyance system.
Invasive Species	An alien plant or animal that dominates an area and eliminates the biodiversity provided by native species.
Land Disturbing Activities	The clearing, grading, excavation and/or filling associated with the construction of infrastructure and/or site construction projects.
Leveler	A structure or grading feature used to insure surface water enters an area as sheet flow.
Low Impact Development	Land development that utilizes natural processes and minimizes impervious surfaces to manage stormwater as close to its source as possible and treats stormwater as a resource rather than a waste product
Maintenance Ledge	A relatively flat surface to allow maintenance vehicles access around basins and green infrastructure.
Manhole	Confined space that provides access to a sewer.
Micro Model	A hydrograph modeling technique that incorporates the detention volumes of each green infrastructure feature as interconnected basins.
Micro Pool	A small wet pool near the outfall of a green infrastructure feature.
Micro Watershed	The watershed associated with an individual green infrastructure feature as it relates to utilizing a micro model.
Minimum Flood Protection Grade	The base flood elevation plus 2 feet.

MS4 Conveyances Stormwater management system that is located inside the Fort Wayne City limits.

New Development Construction of roads, house and/or other structures and related infrastructure on vacant or nearly vacant land.

Non-Structural BMP Practices that control and reduce pollutants at their source without the use of a proprietary SQU.

Operations and Maintenance Manual Documents that identify the post-construction SWPPP features with instructions for the inspection and maintenance of the features.

Outlet The point where stormwater discharges from the area of interest.

Owner Any individual, partnership, firm, corporation or other entity that is initiating and financially responsible for a project.

Parking Lot Detention Stormwater storage that intentionally inundates a portion of a site's impervious parking surface.

Peak Release Rate The maximum flow rate that can be discharged from a site for a given storm event.

Permit Clearance to perform specific work under specific conditions at specific locations.

Porous Pavement A specially designed pavement system that allows water to infiltrate through the surface and into the subbase.

Post-Construction Stormwater Pollution Prevention Plan Calculations, reports, drawings and O&M manuals that define how the stormwater quality imperative will be achieved and maintained on the site after construction activities are complete.

Primary Outfall The structure that controls the discharge rate of stormwater from a detention facility associated with the on-site flows or the smaller storm events.

Private Stormwater System A system owned, operated, and maintained by a private entity.

Proprietary SQU A patented stormwater structure that is used to achieve the stormwater quality imperative by collecting the pollutants within the structure.

Rainwater Harvesting The collection and temporary storage of runoff for future on-site use.

Rainfall Intensity The measure of the amount of rain that falls over time.

Redevelopment The construction of roads, house and/or other structures and infrastructure on land where previous impervious improvements are removed or are partially removed.

Reduced Runoff Method A design and calculation method for sizing the stormwater quality features and detention facilities to contain the first 1-inch rainfall on-site with a zero discharge.

Retention Any stormwater practice or feature that retains stormwater on-site and releases it only through evapotranspiration or infiltration.

Retention Facility A structure that retains stormwater on-site and releases the stormwater through evapotranspiration or infiltration and does not discharge the stormwater off-site.

Safety Ledge A plateau around the perimeter of a wet basin that is 12 inches to 18 inches below the normal water's surface.

Secondary Outfall The release outfall of a basin that is associated with the off-site flows that are being routed through a basin or the auxiliary release from a basin when two-stage outfalls are utilized for larger storm events.

Springline The horizontal centerline of a conduit or sewer pipe

Standards Fort Wayne City Utilities Design Standards Manual. The requirements for the design and construction of utilities within Fort Wayne's jurisdiction.

Storm Sewer A pipe that conveys stormwater.

Stormwater Any flow resulting from any form of natural precipitation.

Stormwater Basin Control Structure The structure that releases the runoff from a stormwater detention facility at a defined rate.

Stormwater Management Plan The calculations, reports and drawings that define how stormwater will be collected, treated for water quality, stored and released from a development.

Stormwater Management Report A report that includes a narrative that explains how stormwater run-off will be collected, treated, stored and released. It will also include the appropriate calculations.

Stormwater Pretreatment A component of a stormwater quality plan that captures larger particles and debris before the stormwater enters a green infrastructure feature.

Stormwater Quality Imperative The stormwater quality goals defined in these standards.

Stormwater Quality Unit A pre-constructed structure that is used to achieve the stormwater quality imperative by collecting pollutants within the structure.

Stormwater Quality Volume The volume of runoff to be retained in a green infrastructure feature to achieve the stormwater quality imperative.

Stormwater System	All of the structures and features associated with the collection, conveyance, storage and water quality treatment of stormwater.
Surcharge	The overloading of a stormwater conveyance to a point at which stormwater is backing up and possibly discharging at the lowest opening of the stormwater system.
Swale	An overland open channel designed to convey minor quantities of run-off as concentrated flow at shallow depths.
Time of Concentration	The time needed for runoff to flow from the most hydrodynamically remote point in a watershed to the watershed outfall.
Total Suspended Solids	The soil and other particles found in stormwater runoff that is associated with water quality. These particles are typically a function of the runoff's velocity.
Underground Detention	Subsurface structures for the sole purpose of storing stormwater.
Volume Based Method	A design and calculation method for sizing "end of pipe" stormwater quality features to achieve the stormwater quality imperative.
Water Quality Swale	An engineered swale with specific vegetation that will retain stormwater runoff during smaller rainfall events for water quality, and convey the runoff during larger rainfall events to a stormwater storage feature. Also referred to as bioswale.
Watershed	A drainage area or region consisting of all the land from an identified, delineated or circumscribed drainage divide draining to a single identified drainage outlet or stream mouth.
Wetland	A land area that is saturated with water for an extended period such that the soils develop hydric soil characteristics that favor the growth of hygrophyte plant species.
Work	All the activities to be done under a permit, in accordance with the approved plans and specifications.