Erosion & Sediment Control Standard Terminology for the Stormwater Industry

This glossary is intended to provide standard definitions of commonly occurring erosion and sediment control practices and terms. Standard terms and definitions will provide a consistent reference for design standards and manuals, and ease communication within the erosion and sediment control industry.

A

Allowable Shear Stress: *see Permissible Shear Stress.*

Antecedent Soil Moisture Content: water content present in the upper soil layer in a catchment prior to a rainfall event.

B

Best Management Practice (BMP): a collection of communication, structural, nonstructural, and management controls that when properly designed, installed, inspected, and maintained provide effective erosion, sediment, and pollution reduction for design storm rainfall events. *See Stormwater Control Measure (SCM).*

Bioswale: vegetated swale designed to capture, treat, and infiltrate stormwater runoff and convey excess runoff

Buffer: an area or strip where construction activities are limited or restricted.

Buffer (Natural): an area, strip, or plot of dense undisturbed vegetation, surrounding surface waters where construction activities are limited or restricted, and which are for the primary purpose of protecting water quality and maintaining a healthy aquatic ecosystem in the receiving surface waters.

Buffer Zone: a strip of plants downslope and adjacent to land-disturbing sites, or bordering streams, lakes, and wetlands. A Buffer Zone can provide streambank stability, reduces scour erosion, reduces storm runoff velocities and filters sediment in stormwater.

C

Cellular Confinement: a permanent soil stabilization technique that employs commercially available products formed into a three-dimensional matrix flexible enough to conform to surface irregularities. Cells may be filled with soil, sand, gravel, or concrete.

Check Dam: a barrier constructed across a conveyance to impound water for the purpose of velocity reduction by flattening the flow gradient and reducing shear stress within the channel. Benefits can include reduction in channel erosion and promotes capture of coarse sediment particles. Check dams are typically constructed of porous materials such as rock or riprap, wattles, silt fence, sandbags, logs, or other natural materials or manufactured products.

Clay: defined by the USDA as a soil textural class (category) that contains 40% or more clay particles, less than 45% sand soil particles and less than 40% silt soil particles. Textural classification may vary by soil classification system.

Clay Particles: defined by the USDA as particles of soil materials less than 0.002 mm in diameter. Particle size may vary by soil classification system.

Compost: a mixture that consists largely of decayed organic matter and is used for fertilizing and conditioning land.

Concrete Washout: a leak-proof container or sump used to collect and retain unused concrete and concrete equipment wash water.

Construction Exit Pad: a stone pad, manufactured product, or mechanical system intended to minimize the amount of soil tracked off a construction site.

Construction Phasing: segmenting development of a large construction site to reduce the area of disturbance at a given time.

Construction Sequencing: a construction schedule used to avoid conflicts and/or ensure desired performance of BMPs.

Critical Shear Stress: shear stress required to mobilize soil due to flow or wind.

Curve Number: an empirical parameter used in hydrology for predicting direct runoff or retention from rainfall excess, which is based on the area's hydrologic soil group, land use, treatment, and hydrologic condition. CNs range from 30 to 100; lower numbers indicate low runoff potential while higher numbers indicate increasing runoff potential

D

Detention: the process of temporarily storing and controlling stormwater runoff discharge (aka Attenuation).

Detention Pond: a stormwater control measure for temporary storage of surface runoff that controls peak discharge rates, provides gravitational settling of suspended particles, and releases stored water at a controlled rate.

Dewatering Bag: A manufactured geotextile or permeable fabric bag designed to effectively remove sediment from stormwater runoff generated on construction sites from stormwater conveyances, dewatering, and excavation operations.

Ditch Check: *see check dam.*

Drawdown time: specified time or range of time required to lower the water surface of a basin or impoundment from one volume or elevation to another volume or elevation.

Dune Vegetation Planting: the establishment of perennial vegetation on dunes from seed or vegetative material.

E

Effective Shear Stress: shear stress acting on soil surface that has not been dissipated by vegetation or other stabilization practice.

Erosion: the process of detachment and transport of soil particles by water, wind, gravity, ice, or other natural forces.

Erosion Control: the practice of minimizing detrimental erosion of soil.

Erosion Control Blanket: temporary rolled erosion control product (RECP) composed of processed natural or polymer fibers bound together to form a continuous matrix to provide erosion control and facilitate vegetation establishment.

F

Fertilizer: materials that provide essential nutrients (chemical elements) for growth and maintenance of plants, which does not include lime and other non-nutrient soil amendments.

Filter Strip: a width of vegetation that provides infiltration, can intercept some sediment and other pollutants, and reduces stormwater velocity.

Filtration: allowing water to pass through a media to remove targeted constituents.

Flocculant: chemical that facilitates the aggregation of fine suspended soil particles to produce large flocs that can quickly settle out of suspension.

Forebay: an impoundment upstream of detention-based practices intended to slow flow velocity, facilitate sedimentation, and capture larger soil particles.

G

Gabion: semi-flexible and permeable wire baskets typically filled with cobble or boulder-sized rock commonly used for erosion control of slopes and channels.

Geotextile: permeable fabrics which, when used in association with soil, have the ability to separate, filter, reinforce, protect, or drain.

Grass Swale: a swale with established permanent grasses used for water quality or to convey stormwater runoff, which does not rely on the permeability of the soil as a pollutant removal mechanism.

Gully Erosion: A channel deeper than a rill formed by the action of concentrated flow exceeding the allowable shear stress of the soil.

H

Hydraulic Erosion Control Products (HECPs): a water-based mixture of materials that may include: mulch, seed, fertilizer, soil amendments, tackifiers, and polymers that are applied to provide soil stabilization.

Hydraulic Growth Medium: hydraulically applied media that promotes the establishment of vegetation where topsoil is absent or deficient and may provide erosion protection.

Hydrologic Soil Group: One of four groups (i.e., A, B, C, and D) assigned to soils according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

Hydromulching: hydraulic application of mechanically abraded and thematically treated organic material, a rewetable soil binder and soil ameliorants in a slurry form over topsoil to protect the soil surface from raindrop splash erosion.

Hydraulic Growth Medium: Mechanically abraded and thematically treated organic material applied hydraulically in multiple layers with cross-linking non-rewetable hydrocolloid binders, various biological inoculants, and fertilizers, used as a topsoil replacement.

Hydroseeding: process where seed and any combination of fertilizer, lime, biostimulants, moisture retention polymers, tackifiers, and other additives are combined with water and a hydroseeding mulch to form a slurry that is sprayed onto the ground to establish vegetation and control erosion.

I

Impervious: preventing fluid to pass through.

Infiltration: entry of water into soil or matrix.

Infiltration Swale: swale designed to capture, detain, and treat a design stormwater volume and convey excess runoff.

Inlet Protection: temporary practice installed around, above, or within a storm drain to minimize the conveyance of sediment.

Inorganic: compounds not derived from living matter or not containing carbon.

Interrill Erosion: removal of soil particles in areas between rills due to splash erosion and overland flow.

J

K

L

Level Spreader: a structure or berm designed to slow and evenly spread concentrated runoff and release it uniformly as sheet flow across its entire width onto a stabilized area.

M

Mulch: a natural or artificial layer of plant residue or other materials covering the land surface which conserves moisture, holds soil in place, aids in establishing vegetation, and minimizes temperature fluctuations.

N

Nature-Based Solutions: sustainable planning, design, environmental management and engineering practices that incoporate natural features or processes into the built environment to promote adaptation and resilience.

Nephelometer: an instrument for measuring the amount of light scattered from suspended materials in a liquid sample.

Nephelometric Turbidity Units (NTUs): a unit used to measure turbidity of a liquid.

O

Organic: compounds that are derived from living matter and contain carbon.

Outfall: location where water discharges offsite from a pipe, stream, drain, or other conveyance.

Outlet Protection: device or material placed at pipe outlets, to minimize turbulent forces, prevent scour, and stabilize the area.

P

Permanent Seeding: the establishment of perennial vegetation from seed.

Permissible Shear Stress: the force required to initiate movement of soil particles.

Porous Baffle: a pervious barrier installed in a sediment basin perpendicular to the flow path to redistribute energy, reduce turbulence, spread flow across the width, and establish laminar flow, for the purpose of promoting the settling of suspended solids.

Preservation of Vegetation: the avoidance of an area during land disturbing and construction activity to prevent injury to desirable plants in the planned landscape.

Q

R

Rainfall Depth: total depth of rain in a given period of time.

Rainfall Distribution: quantity of rainfall in successive time increments over an event's duration.

Rainfall Duration: a period of time in which continuous rainfall occurs within a drainage area.

Rainfall Intensity: rate at which rain falls over a given interval of time, expressed in units of depth per time.

Rainfall Event: rainfall depth distributed over time according to a temporal rainfall distribution, typically referred to by its return period, such as 10-yr, 24-hr.

Rapidly Settleable Solids: sand-sized soil particles that settle quickly.

Receiving Water: an ocean, stream, river, pond, lake or other body of water into which stormwater runoff is discharged.

Retention: the process of retaining or impounding stormwater runoff on-site to infiltrate, evapotranspirate, or reuse over time.

Retention Pond: a stormwater control measure that includes a designed permanent storage of surface runoff that controls peak discharge rates, provides gravitational settling of suspended particles, and releases excess volume at a controlled rate.

Rill Erosion: process of soil detachment due to overland flow resulting in small channels on a slope.

Rolled Erosion Control Product: a temporary degradable or long-term non-degradable material manufactured or fabricated into rolls designed to reduce soil erosion and assist in the growth, establishment, and protection of vegetation.

Runoff: precipitation that is not infiltrated or intercepted within a watershed that flows over a surface, in open channels, and/or in stormwater conveyance systems.

S

Sand: a soil textural class that contains 85% or more of sand sized particles.

Sand Particles: soil materials larger than 0.05 mm (No. 200 sieve) in diameter up to 2.0 mm (No. 10 sieve).

Sediment: soil particles transported or deposited by the action of wind, water, gravity, or ice, as a product of erosion.

Sediment Barrier: temporary sediment control practice installed downstream of a disturbed area intended to remove large-sized suspended sediment from sheet flow runoff by facilitating settling and to a lesser extent filtration.

Sediment Basin: a temporary impoundment designed and constructed to capture stormwater runoff and soil particles.

Sediment Control: practices intended to capture suspended sediment through settling and/or filtration, minimizing the discharge of material from an eroding site.

Sediment Retention Fiber Roll: *see Wattle.*

Sediment Trap: temporary sump and berm used to intercept and detain sediment-laden flow and minimize it from discharging off-site. These practices are often larger than typical check dams, but smaller than sediment basins.

Settling: process of particles falling through a liquid via gravitational force.

Sedimentation: termination of settling process resulting in deposition.

Sediment Retention Fiber Roll: *see wattle.*

Settleable solids: soil particles that can settle out of suspension by gravity.

Shear Stress: measure of friction force along the surface of a channel or slope.

Soil Classification System - American Association of State Highway and Transportation Officials (AASHTO): a guide used for the classification of soils and soil-aggregate mixtures for highway construction purposes.

Soil Classification System - Unified Soil Classification System (USCS): a guide used in engineering and geology to describe the texture and grain size of a soil and describes soils by a two-letter symbol.

Soil Classification System – United States Department of Agriculture (USDA): a guide used in agriculture and other disciplines to describe textures and various features of landscapes using a hierarchy system related to soil formation.

Shrub, Vine, and Groundcover Planting: permanent vegetation often used in areas where establishing grass is difficult and mowing is not feasible.

Silt: a soil textural class (category) that contains 80% or more silt particles (0.05 to 0.002 mm diameter) and less than 12% clay soil particles (less than 0.002 mm diameter).

Silt Fence: a temporary practice consisting of geotextile material anchored into the soil and supported by posts.

Slope Drain: a flexible tubing or conduit designed to temporarily convey runoff down a slope.

Soil: The unconsolidated mineral or organic material on the immediate surface of the Earth that serves as a natural medium for the growth of land plants.

Sod: Grass and/or legumes held together by its root system and a thin layer of soil.

Sodding: transplanting sod to provide immediate ground cover.

Soil Series: the name of horizons (profiles or layers) of soils that are similar and used to distinguish one soil profile from another by characteristics including biological, chemical, and physical properties.

Soil Type: A term used prior to 1975 to describe a subdivision of a Soil Series that identified both the soil series and features associated with the series such as slope, stoniness, rock or outcrop. Replaced by the USDA with the term Soil Map Unit.

Soil Map Unit: A subdivision of a soil series with soil components or miscellaneous areas that differ in some respect from other soil map units with boundaries uniquely identified on a soil map.

Splash Erosion: detachment of soil particles due to the impact of raindrops.

Storm Event: see *Rainfall Event.*

Storm Frequency: the exceedance probability of a given depth of rainfall over a given duration typically expressed in return interval (years), such as a 10-yr, 24-hr storm event.

Stormwater Control Measure (SCM): technique, measure, or structural control that is used for a given set of conditions to manage the quantity and improve the quality of stormwater runoff.

Surface Dewatering: withdrawal of water at or near the water surface of a basin or impoundment.

Suspended Solids: soil particles which remain in suspension in water as a colloid or due to velocity of flowing water.

Swale: a shallow drainage way.

T

Tackifier: chemical or natural binder that immobilizes soil, straw, or other loose surface covers.

Temporary Seeding: the establishment of fast-growing annual vegetation from seed

Total Suspended Solids: A water quality metric determined through filtering used to quantify the mass of solids 2 microns or larger suspended in a given volume of water

Tree Planting: establishing trees on construction sites or other disturbed areas to stabilize a site.

Turbidity: a measure of the amount of light that is scattered and/or absorbed by suspended material in water commonly expressed in nephelometric turbidity units (NTUs).

Turbidity Curtain: an impermeable and flexible barrier supported by a flotation system and weighted along the bottom that promotes settling and contains suspended sediment in a water body

Turf: *see Sod*.

Turfing: *see Sodding.*

Turf Reinforcement Mat (TRM): a rolled erosion control product (RECP) used in areas of concentrated flow, steep slopes, stream banks, and shorelines, to impart immediate erosion protection, enhance vegetation establishment and provide long-term functionality by permanently reinforcing vegetation during and after maturation

U

Unsettleable Solids: soil particles that do not settle by the influence of gravity.

V

W

Wattle: tubular devices made from a permeable encasement containing flexible media typically used for impounding or diverting runoff.

X

Y

Z

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