Glossary of terms

Allotment Drainage	A system of field gullies, manhole chambers and underground pipes constructed within private property to convey flows through and from allotments.
Annual exceedance probability (AEP)	The probability of exceedance of a given discharge within a period of one year. AEP is generally expressed as 1 in Y [years]. The terminology of AEP is generally used where the data and procedures are based on annual series analysis.
Average Recurrence Interval (ARI)	The average or expected value of the period between exceedances of a given discharge. ARI is generally expressed as Y years. The terminology of ARI is generally used where the data and procedures are based on partial series analysis.
Bankfull Discharge	The channel flow rate that exists when the water is at the elevation of the channel bank above which water begins to spill out onto the floodplain. The identification of bankfull elevation is described in ARR (1998) Book 4, Section 2.11.3.
Backwater Curve Analysis	A procedure for determining water surface levels in open channels under gradually varied flow conditions.
Bio-Retention System	A well-vegetated, retention cell or pond designed to enhance water filtration through a specially prepared sub-surface sand filter. Bio-retention cells may be incorporated into grass or vegetated swales or may be a stand-alone treatment system. The system incorporates vegetation with medium-term stormwater retention and sub-surface filtration/infiltration. Also known as bio-filtration systems or biofilters.
Building	A habitable room; retail or commercial space; factory or warehouse; basement providing car parking space, building services or equipment; or enclosed car park or enclosed garage.
Bypass Flow	That portion of the flow on a road or in a channel which is not collected by a gully inlet or field inlet, and which is redirected out of the system or to another inlet in the system.
Channel Freeboard	Vertical distance between the design water surface elevation in an open channel and the level of the top of the channel bank.

Climate Change	Changes in the earth's climatic conditions as a result of natural and human activities.
Coastal Management Area	The area of land covering: • 40 metres landward from MHWS where there is no approved revetment wall; and • 10 metres landward from the seaward edge of an approved revetment wall. It is noted that State Marine Parks generally extend to HAT.
Coefficient of Runoff	A dimensionless coefficient, used in the Rational Method for the calculation of the peak rate of storm runoff.
Consequence	Outcome or impact of an event.
Constructed Wetlands	A shallow pool of water, characterised by extensive areas of emergent aquatic plants/macrophytes, designed to support a diverse range of micro-organisms and plants associated with the breakdown of organic material and trapping of nutrients. Wetlands may be designed as permanent wet basins (perennial), or ephemeral systems.
Critical Depth	The depth occurring in a channel or part full conduit at a condition of flow between subcritical and supercritical flow, such that the specific energy is a minimum for the particular flow per unit width.
Critical Flow	The condition of flow in a section of a channel or part full conduit when the flow is at critical depth.
Critical Velocity	The average velocity of flow in a section of a channel or part full conduit when the flow is at critical depth.
Cross Drainage	A system of pipes or culverts which convey storm flows transversely across or under a roadway.
Defined Flood Event	The flood event adopted by a local government for the management of development in a particular locality. It defines the natural hazard management (flood) area. It does not define the extent of flood-prone land.
Detention Basin	A large, open, free draining basin that temporarily "detains" collected stormwater runoff. These basins are normally maintained in a dry condition between storm events.
Development Category	Refers to the land use within a catchment. A specific "fraction impervious" and drainage design standard is usually defined for a given development category.
Drainage Catchment	The area of land contributing stormwater runoff to

	the point under consideration.
Drainage System	A system of gully inlets, pipes, overland flow paths, open channels, culverts and detention basins used to convey runoff to its receiving waters.
Enclosed GPTs	A fully enclosed trash rack and/or sediment collection sump usually located at or near the end of a stormwater pipe.
Exfiltration Systems	Large underground stormwater detention tanks/pit from where stormwater is allowed to infiltrate into the surrounding soil. An infiltration trench is just one type of exfiltration system.
Extended Detention	A stormwater detention basin or tank designed to drain over a period of "days" rather than "hours" to enhance its pollution retention and solar treatment while minimising the adverse effects of coincident flooding downstream of the basin.
Extreme Flood	The rare flood event for which the performance of a detention basin or similar structure should be checked in order to assess the economic and social risk that could be associated with overtopping or failure of that structure.
Filter Basin	Large excavated stormwater retention basin incorporating a sand filter bed. Filter systems primarily drain to surface waters or a piped drainage system, rather than rely on soil infiltration.
Filter Strips	Grassed slopes with an even-gradient across the slope used to filter and infiltrate "sheet" flow. They must be absent of any drainage depressions that may concentrate flow. Also known as buffer zones. They differ significantly from the "Grassed Filter Strips" used in construction-site sediment control.
Floating Boom	A floating boom with mesh skirt anchored across a permanently wet channel, creek or river. Originally designed as an oil slick retention device, the boom collects floating or partially submerged objects.
Floating GPT	A partial channel-width floating boom directing floating litter and debris into a floating pollutant retention cage.
Flood	The temporary inundation of land by expanses of water that overtop the natural or artificial banks of a watercourse, including a drainage channel, stream, creek, river, estuary, lake or dam, and any associated water holding structures.

Flood water	Those waters causing land to flood.
Floodplain	A floodplain is defined as the extent of land inundated by the Probable Maximum Flood.
Floodway	That part of the floodplain specifically designed to carry flood flows and ideally capable of containing the "Defined Flood Event".
Fraction Impervious	That part of a catchment which is impervious, expressed as a decimal or percentage.
Freeboard	The difference in height between the calculated water surface elevation and the top, obvert, crest of a structure or the floor level of a building, provided for the purpose of ensuring a safety margin above the calculated design water elevation. (See also Channel Freeboard).
Frequency Factor	A factor which is multiplied by the coefficient of runoff for the 10 year ARI to determine the coefficient of runoff for the design ARI, for the location being considered.
Friction Slope	Sometimes referred to as the hydraulic gradient or pressure gradient and is the slope of the line representing the pressure head, or piezometric head in a pipeline.
Grass Swale	Shallow, low-gradient, grass-lined overland flow path used primarily for stormwater treatment.
Grate Inlet Screen	Typically a coarse screen placed across the face of a roadside kerb inlet to filter gross pollutants from stormwater. Pollutants are retained on the screen for later collection usually by a street sweeper.
Half-Bankfull Discharge	The channel flow rate that exists when the water level is midway between the channel invert and the elevation of the channel bank above which water begins to spill out onto the floodplain.
Hazard	A source of potential harm.
Head Loss Coefficient	A dimensionless coefficient which, when multiplied by the velocity head in the outlet pipe, gives the difference in hydraulic grade level between inlet and outlet pipe. It may be positive (indicating that the H.G.L. rises upstream) or negative (indicating that the H.G.L. is less upstream).
High Level Basin Outlet	The outlet of a detention or retention storage system provided for discharges that exceed the capacity of the low level outlet.

Hydraulic Design	The component of drainage design that involves the determination of velocities, heads and water levels as storm runoff passes through the drainage system.
Hydraulic Grade Line	A line representing the pressure head along a pipeline, corresponding to the effective (free) water surface elevation in the piped portions of the stormwater drainage system.
Hydraulic Gradient	The slope of the hydraulic grade line - see also Friction Slope.
Hydraulic Radius	The ratio A/P, A being the cross-sectional area and P the wetted perimeter – that is, the length of the line of contact (on the cross section) between the water and the channel boundary.
Hydrologic Design	The component of drainage design that involves determination of stormwater runoff, either discharge or volume.
Impervious Surface (Impervious Area)	A surface or area within a drainage catchment where the majority of rainfall will become runoff i.e. no infiltration e.g. roadways, car parks, roofs etc.
Infiltration Basin	Large, excavated basins designed to retain storm flows, allowing infiltration and evaporation.
Infiltration Trench	An excavated pit filled with uniform gravel or rock into which runoff is directed for short to medium-term detention before finally infiltrating into the surrounding soil. The surface of the trench is usually vegetated.
Intensity-Frequency-Duration Data (I.F.D.)	Basic rainfall data used in the calculation of rainfall runoff rates.
Integrated Catchment Management (ICM)	Managing natural resources within a "whole of system" approach. In a stormwater context, this requires a whole of catchment approach incorporating the total water cycle. Consideration is given to all associated land and water processes and values.
Junction Structure	A manhole, pit or chamber constructed at the junction of two or more pipes, or at a change of grade.
Land Use (Development Category)	The particular use or uses (actual or allowable) of land within a catchment.

Large Detention Storage	A large detention or retention storage such as a lake, pond, basin or large car park designed or able to significantly reduce and attenuate the peak discharge from a catchment.
Lawful Point of Discharge	A point of discharge which is either under the control of a Local Authority or Statutory Authority, or at which discharge rights have been granted by registered easement in favour of the Local Authority or Statutory Authority, and at which discharge from a development will not create a worse situation for downstream property owners than that which existed prior to the development.
Likelihood	Probability or frequency of an event.
Litter Basket	An in-pipe litter and debris collection basket installed within junction pit of a piped stormwater drainage system.
Local Authority	Any local or regional external authority—whether government or non-government, including local governments and the State Government—that has a legal interest in the regulation or management of a given activity, or the land on which the activity is occurring, or is proposed to occur. Reference to "the local authority" shall also imply the plural.
Local Government	The local city or shire council with jurisdiction over the land in which the activity in question is occurring, or is proposed to occur.
Low Level Basin Outlet	The outlet of a detention/retention storage from which discharge will first occur (usually via a pipe).
Major Design Storm	The rainfall event for the ARI chosen for the design of the Major Drainage System.
Major Drainage System	That part of the overall drainage system which conveys flows greater than those conveyed by the Minor Drainage System and up to and including flows from the Major Design Storm.
Major Overland Flow Path	An overland flow path that drains water from more than one property, has no suitable flow bypass, and has a water depth in excess of 75mm during the major design storms; or is an overland flow path recognised as "significant" by the local government.
Major Road	A road whose primary function is to serve through traffic. These roads include Collector Roads, Sub-Arterial and Arterial Roads. Refer to Department of Main Roads or AustRoads for further definition.

Manning's Roughness Coefficient	A measure of the surface roughness of a conduit or channel to be applied in the Manning's equation.
Mini Wetland	Small, usually ephemeral wetlands, usually located adjacent stormwater outlets or in association with a landscaped area. Mini wetlands differ from bio-retention cells in that they may or may not incorporate stormwater retention (though it is preferred) and they do not rely on sub-surface filtration due to the typical long-term saturation of the clayey soil bed.
Minor Design Storm	The rainfall event for the ARI chosen for the design of the Minor Drainage System.
Minor Drainage System	That part of the overall drainage system which controls flows from the Minor Design Storm e.g. kerbs and channels, inlets, underground drainage etc. for the purpose of providing pedestrian safety and convenience, and vehicle access.
Minor Road	A road whose primary function is to provide access to abutting allotments. These roads include Residential Streets. Refer to Department of Main Roads (Access or Local Roads, max. 1000 vpd) or AustRoads for further definition.
Oil & Grit Separator	Generally a two or three chamber underground retention tank designed to remove hydrocarbons, floating pollutants, coarse sediment and grit. The first chamber is used for sedimentation and the collection of large debris. The second chamber is used for oil separation. The third chamber (if used) collects and disperses flow into the stormwater system.
On-Site Detention (OSD)	A relatively small open basin or enclosed stormwater tank fully contained within a single allotment or group-title allotment.
Open GPT	Combined sediment basin and trash rack usually located at the downstream end of a stormwater pipe or constructed drainage channel.
Outlet Litter Cage	Solid trash and litter collection cage attached to the outlet of a stormwater pipe which screens gross pollutants from stormwater holding the pollutants within the cage usually elevated above normal water level.

Overland Flow Path	Where a piped drainage system exists: it is the path where storm flows in excess of the capacity of the underground drainage system would flow. Where no piped drainage system or other form of defined watercourse exists: it is the path taken by surface runoff from higher parts of the catchment to a watercourse, channel or gully. It does not include a watercourse, channel or gully with well defined bed and banks.
Pervious Surface (Pervious Area)	A surface or area within a drainage catchment where some of the rainfall will infiltrate thus resulting in a reduced volume and rate of runoff e.g. grassed playing fields, lawns etc.
Pollution Containment System	Typically an open, non-draining pond designed to capture pollution spills from traffic accidents. The trapped pollution is usually pumped from the system and removed from the area in tankers for off-site treatment and disposal. Stormwater detention/retention systems may operate as Pollution Containment Systems if the outlet system is suitably designed to allow quick shut down (usually through the use of a gate or stop boards) by emergency services or maintenance personnel.
Pond (stormwater treatment)	Large, open water treatment ponds often incorporating a heavily vegetated macrophyte (wetland) area.
Porous Pavement	Formally constructed porous, light-traffic pavements that allow runoff to infiltrate into the underlying soil or a sub-surface drainage system.
Pressure Change Coefficient	Refer to Head Loss Coefficient.
Probable Maximum Flood	The theoretically greatest runoff event from a particular drainage basin.
Probable Maximum Precipitation	The theoretically greatest depth of precipitation for a given duration that is physically possible over a particular drainage basin.
Regulating Authority	Local Authority involved in the regulation of an industry or land use practice.

Release Nets	A litter collection net attached to a stormwater pipe outlet used to filter gross pollutants (excluding sediment) from stormwater. A release system allows the net to break free of the pipe outlet in the case of excessive hydraulic pressure caused by extreme flows or debris blockage of the net. A tether is used to secure the net to the outlet so that the released net and its captured pollutants do not wash downstream.
Retardation System	Any detention, extended detention or retention system, including on-site detention systems and rainwater tanks.
Retention Basin	A large, open, partially free draining basin designed to retain a portion of the storm runoff either for water quality treatment benefits, or to assist in reducing the effective volume of runoff. The free-draining portion of the basin may be designed to operate as a traditional detention or extended detention system.
Retention System	Any stormwater collection systems that "retains" stormwater runoff for water supply, replenishment of lake or wetland water, or as a long-term groundwater infiltration.
Risk	The chance of something happening that will have an impact on objectives. It is measured in terms of a combination of the consequences of an event and their likelihood.
Runoff	That part of rainfall which is not lost to infiltration, evaporation, transpiration or depression storage.
Sand Filter	Excavated pit or structure filled with a filter sand medium through which stormwater is allowed to pass. The filtered runoff is then collected by a drainage system and discharged. Filter systems primarily drain to surface waters or a piped drainage system, rather than rely on soil infiltration.
Sedimentation Basin	A permanent sediment collection basin as opposed to a temporary construction site "sediment basin". A tank or basin designed for low-velocity, low-turbulent flows suitable for settling coarse sediment particles from stormwater runoff.
Side Entry Pit Trap	Debris baskets placed within the collection pit of roadside gully inlets. The baskets are installed below the invert of the gutter.
Small Detention Storage	A small detention or retention storage such as a small car park or underground storage tank designed or able to reduce and attenuate the peak discharge from a catchment.

Specific Energy	The energy per unit weight of water at any section of a channel or part full conduit measured with respect to the invert or bottom of the channel or conduit.
Structural Soil	A surface soil profile which combines either synthetic or natural materials with in-situ soils to improve the strength or trafficability of the soil. Ongoing soil compaction is reduced which allows grassed surfaces to withstand light traffic.
Subcritical Flow	Flow in a channel or conduit which has a depth greater than the critical depth and a velocity less than the critical velocity.
Supercritical Flow	Flow in a channel or conduit which has a depth less than the critical depth and a velocity greater than the critical velocity.
Surcharge Outflow or Overflow	That portion of the flow which is forced out of a piped system at a kerb inlet, manhole or surcharge structure when the capacity of the downstream pipe system is exceeded.
Tidal Definitions:	
(a) Highest Astronomical Tide (HAT)	Highest tide level which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions.
(b) Lowest Astronomical Tide (LAT)	Lowest tide level which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions.
(c) Mean High Water Springs (MHWS)	The long term average of the heights of two successive high tides when the range of tide is greatest, at full moon and new moon.
(d) Mean Low Water Springs (MLWS)	The long term average of the heights of two successive low tides when the range of tide is greatest, at full moon and new moon.
(e) Mean High Water Neaps (MHWN)	The long term average of the heights of two successive high tides when the range of tide is the least, at the time of the first and last quarter of the moon.
(f) Mean Low Water Neaps (MLWN)	The long term average of the heights of two successive low tides when the range of tide is the least, at the time of the first and last quarter of the moon.
(g) Mean Sea Level (MSL)	The average level of the sea over a long period.

(h) Storm Surge	The increase in sea level occurring during a cyclone or severe storm resulting from the combined effect of reduced atmospheric pressure and the build up of water against the shore caused by onshore wind (wind stress).
(i) Wave Setup	The raising of sea level inside the surf zone resulting from the momentum flux of broken waves.
Transition Loss Coefficient	Coefficient associated with head losses at open channel transitions.
Trash Rack	A series of metal bars located across a stormwater channel or pipe to trap litter and debris. The bars may be vertical or horizontal depending on hydraulic and environmental requirements (eg. fish passage issues), and may or may not be inclined to the horizontal.
Treatment train	A series of water quality treatment systems through which contaminated water flows and is treated where the treatment systems vary in both the type of treatment (ie. settlement, filtration, infiltration, adsorption) and the standard of treatment (ie. the equivalent of primary, secondary and tertiary wastewater treatment standard).
Velocity Head	A measure of the kinetic energy of flow in a pipe or channel and equal to $(V^2/2g)$ where V is the average velocity of flow.
Volumetric Runoff Coefficient	The ratio of the volume of stormwater runoff to the volume of rainfall that produced the runoff. Different coefficients will be obtained when analysing single storm events compared to the assessment of the average annual runoff.
Water Sensitive Urban Design (WSUD)	A set of design elements and on-ground solutions that aim to minimise impacts on the water cycle from the built urban environment. It offers a simplified and integrated approach to land and water planning by dealing with the urban water cycle in a decentralised manner consistent with natural hydrological and ecological processes.
Water Surface Elevation (WSE)	The elevation of the water surface reached in a gully inlet, manhole or junction structure.
Water Surface Superelevation	The phenomenon where flow around a horizontal curve in an open channel is at a higher level at the outer edge than at the inner edge of the curve.