



Guiding Principles

The following is a summary of the guiding principles developed for design of single family development stormwater management plans in the District of West Vancouver.

District Goals and Objectives for Drainage Management

Land drainage designs that protect or replicate natural water balance (that mimic the balance of pre-development hydrological processes – interception, evapotranspiration, infiltration and runoff) are considered to be best management practices by the District.

Disruption of natural water balance through urban and suburban development will be avoided. Drainage design should achieve the following goals:

Goal #1 – Preserve, respect, incorporate and improve natural capital and habitat

- maintain a minimum setback from all streams and minimize alterations of fish and wildlife habitat;
- manage natural and built environments as integrated components of a healthy watershed;
- restore watercourses, where possible, to their most natural form;
- restore and maintain the natural shape and composition (geomorphology) of stream channels or ravines, biological indicator conditions and flow conditions (the hydro geometric regime).

Goal #2 – Maintain water balance through management of surface water and groundwater resources

- integrate land development within watersheds to prevent negative hydrological and water quality impacts;
- permit groundwater recharge and manage runoff release rates to minimize fluctuations in stream flows;
- consider the cumulative impacts of land development on the water balance.

Goal #3 – Reduce risk to persons and property

- provide both major and minor drainage protection for persons and property;
- control and limit the incidence of nuisance or damage related to surface ponding and flooding.

Goal #4 – Be responsible stewards of the environment and community values

- provide drainage services that enhance a developments aesthetics and allow it to proceed according to the community plan;
- protect the environment and cultural heritage sites;
- ensure that drainage services integrate multiple community objectives where possible;
- evaluate alternative designs across social, environmental and economic performance measures, including full life cycle cost analysis.

Limitations

This summary must be read and interpreted in combination with the complete version of the guidelines and relevant District bylaws. A complete version of the guidelines can be obtained on the District website.

This guide is intended for single family development only; for guidelines pertaining to development that is not single-family, refer to the District website.

In areas of geotechnical concern, a professional geotechnical engineer should be engaged by the applicant to review the feasibility of the proposed infiltration approach for disposal of runoff. Areas of geotechnical concern may include:

- lots close or adjacent to ravines;
- lots with geotechnically significant slopes or where the surface grade will be modified or controlled by retaining walls that require design by a professional geotechnical engineer;
- lots with surficial or near-surface bedrock; and
- lots with defined or potential geohazards such as unstable fills or slopes.

In areas where an Integrated Stormwater Management Plan (ISMP) has been completed, the ISMP will govern over this document in defining the on-lot stormwater management criteria if the ISMP criteria is more stringent than this guideline.

Stormwater Management Criteria

There are two design criteria required under the guidelines:

1. **Volumetric Capture:** development or re-development of a site shall include the necessary measures to retain on site the first 31mm of rainfall (also expressed as treating 75% of the average annual rainfall amount) that falls on the incremental increase in impervious surface area from the existing condition to the proposed condition.
2. **Detention Storage:** for the development or re-development of a site, there shall be no net increase in the rate of stormwater runoff from the site from the existing condition to the proposed condition.

Existing conditions are defined as state of the land prior to any alterations proposed or undertaken as part of a permit application. Existing conditions include mature forest cover, grass/gardens, and impervious and semi-impervious areas.

Note that for a previously undeveloped lot the criteria applies to all new impervious surfaces.

Preparation of SWMP

The submission shall include the list of items below.

1. **Drawings:** to be completed in accordance with the requirements of the submission listed above.
2. **Calculations:** provide detailed calculations in accordance with the guidelines.