

SwinOSD: A computer tool for designing onsite detention basin(Article)

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Abstract

A computer tool was developed to calculate sizing requirements of onsite detention (OSD) basins. The tool reads design rainfall and temporal pattern from pre-populated spreadsheets, which are linked with the tool. The tool calculates OSD storage required from the calculated runoff time-series (for a particular time period) and user-provided permissible site discharge (PSD). The tool also calculates maximum storage required considering worst temporal pattern of rainfall for a conservative design. It also calculates average storage volume required taking averages of calculated storages based on all the temporal patterns. Eventually, for a selected water height, the tool calculates required orifice diameter to maintain a given PSD. The tool calculated storage requirements were compared with the widely used urban drainage model, DRAINS. For all the selected scenarios, the DRAINS simulated storage-depth curves show that the developed tool calculated results are compatible with DRAINS calculations under the same scenario. © 2021 Inderscience Enterprises Ltd.. All rights reserved.

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