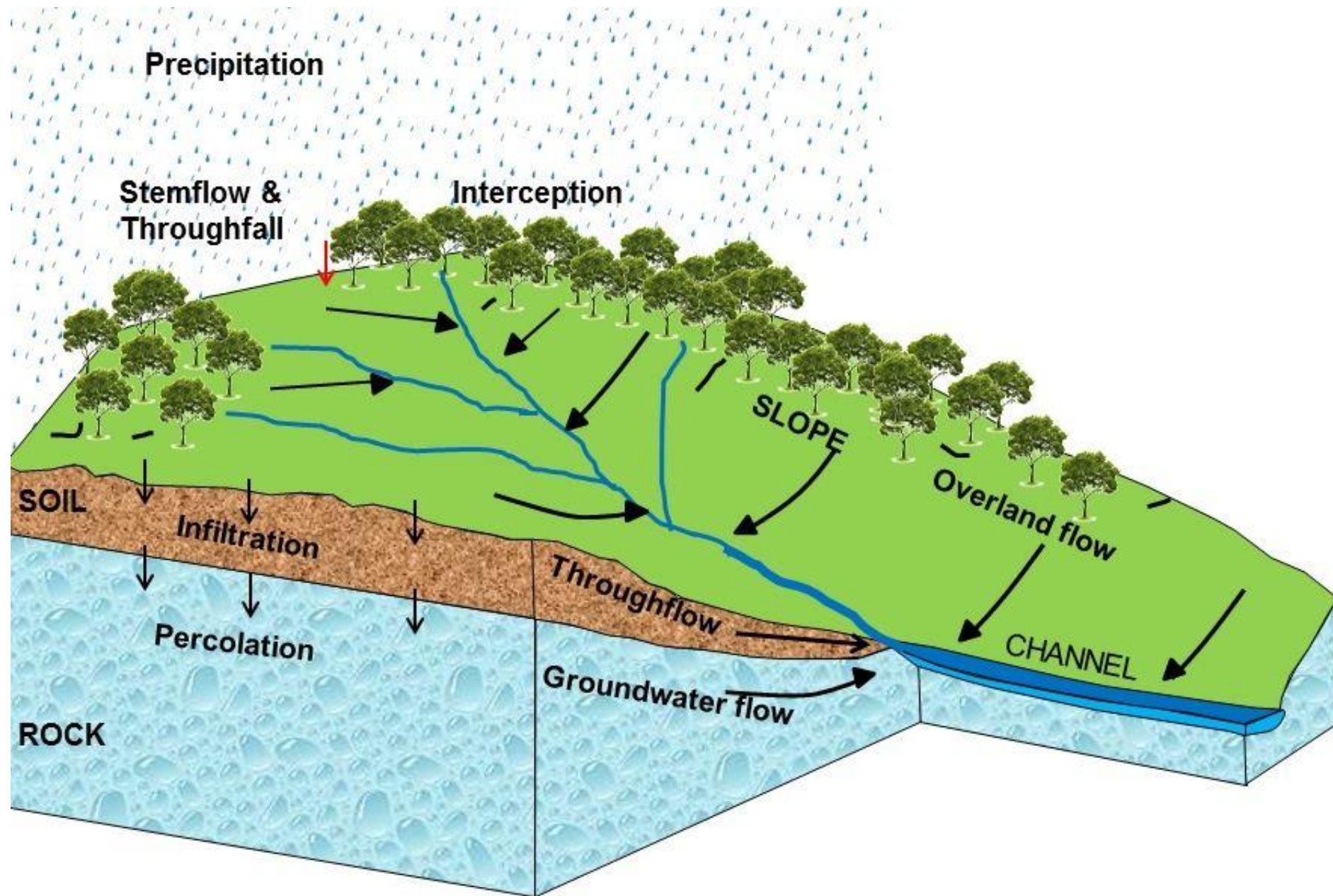
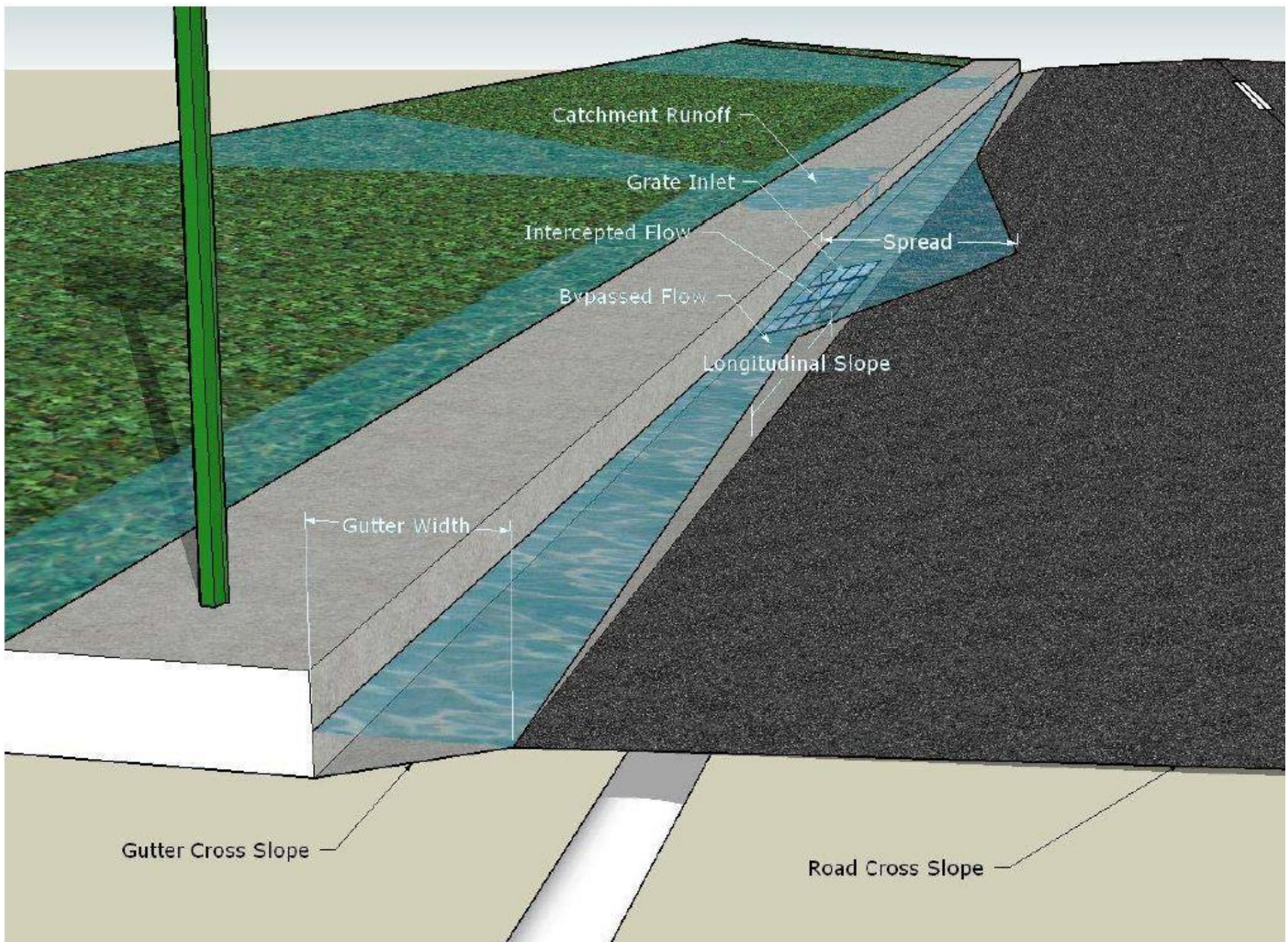
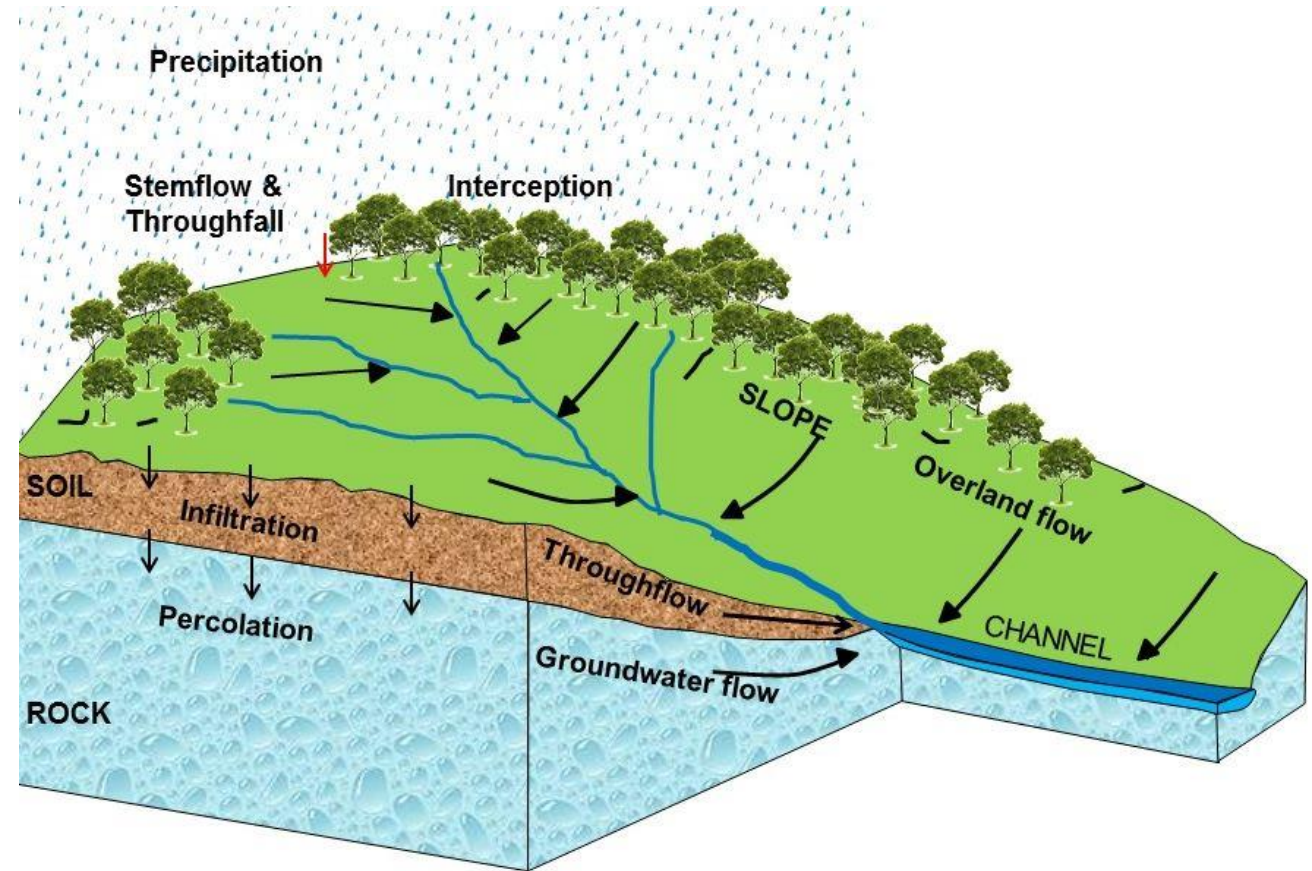
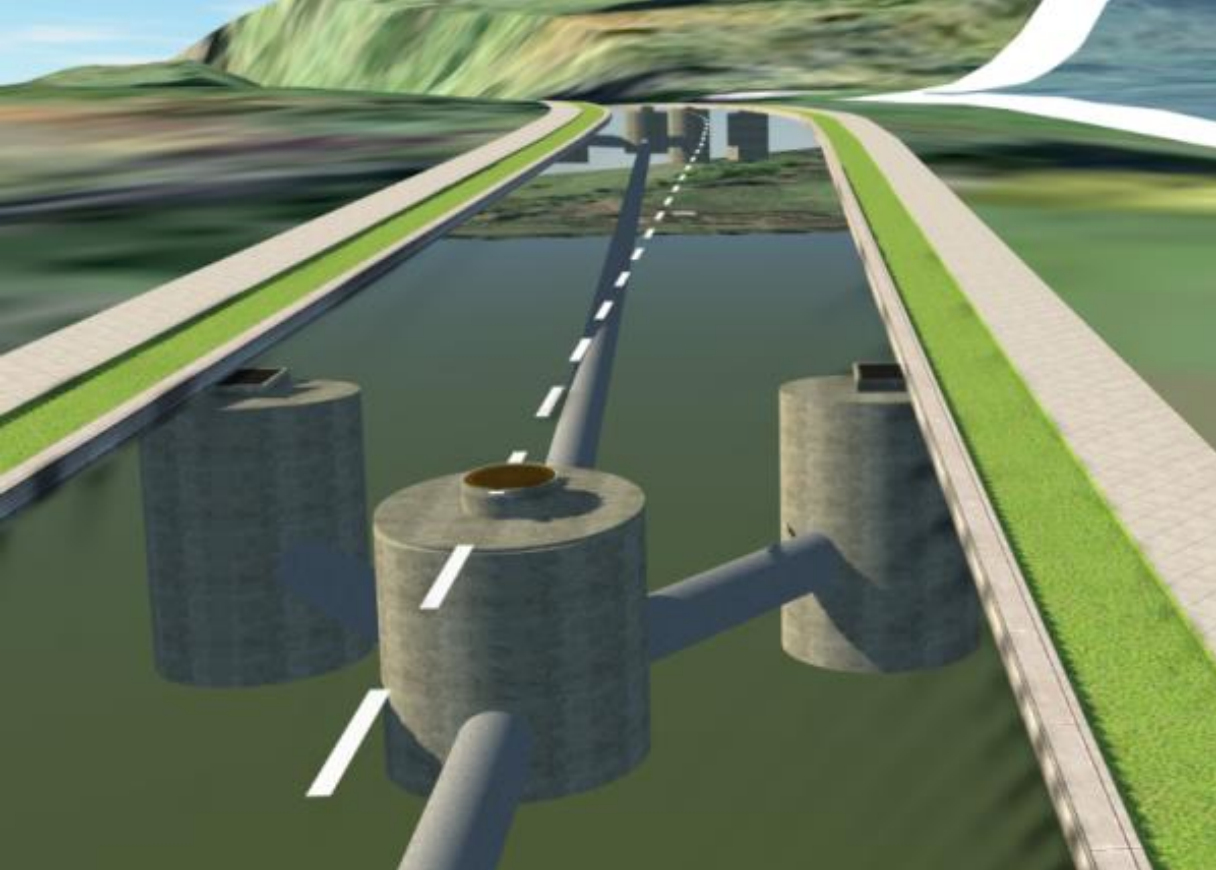


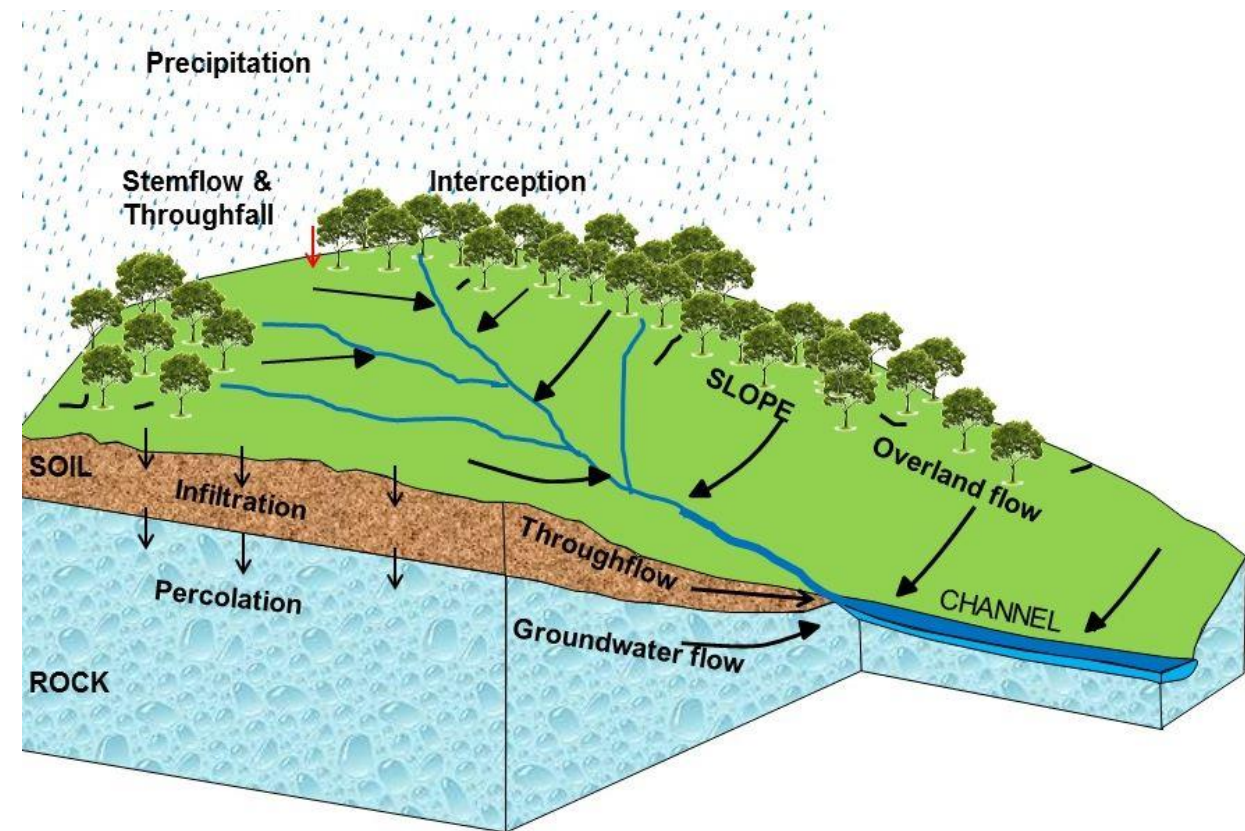
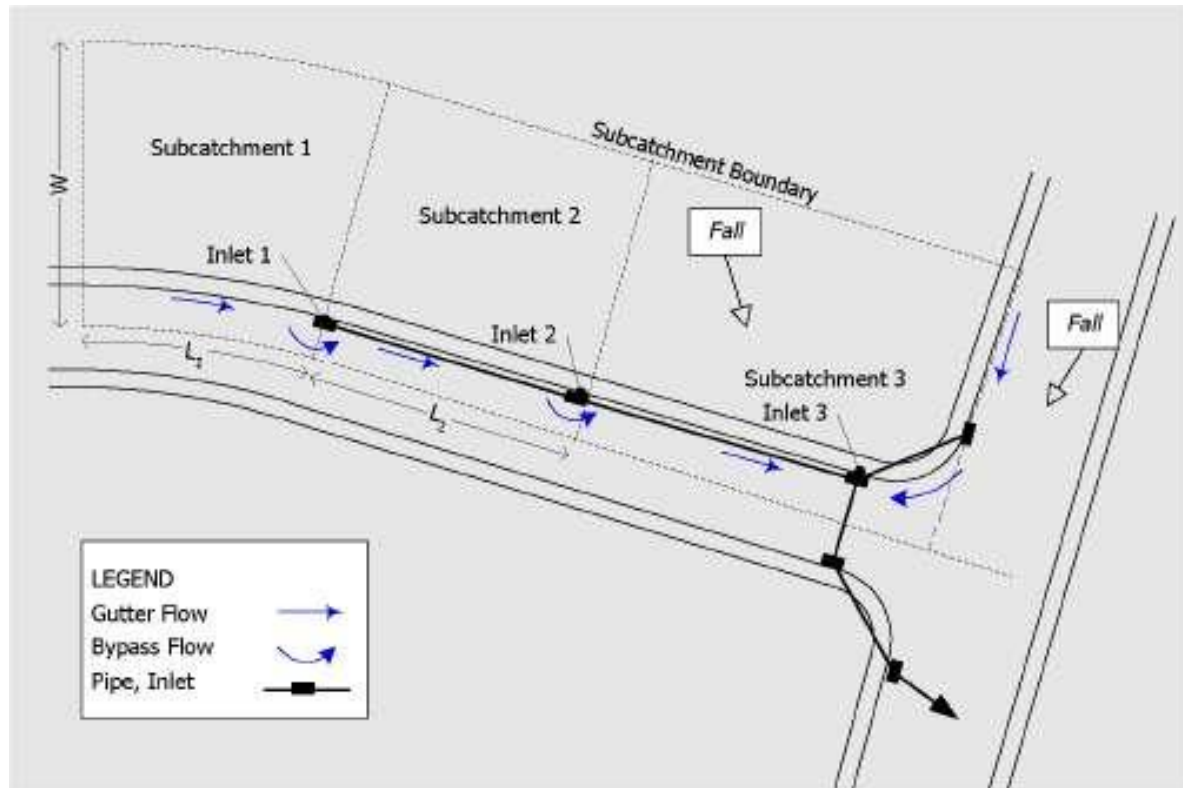
Infrastructure

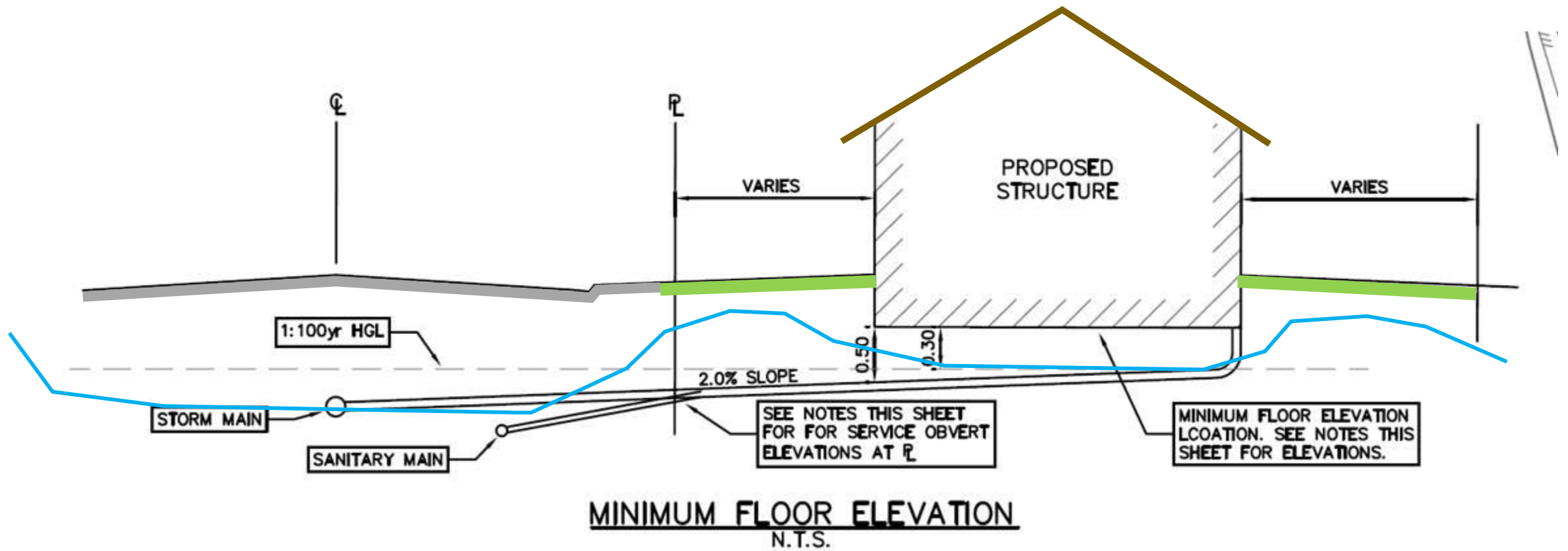
Can't live without it – can't change it overnight









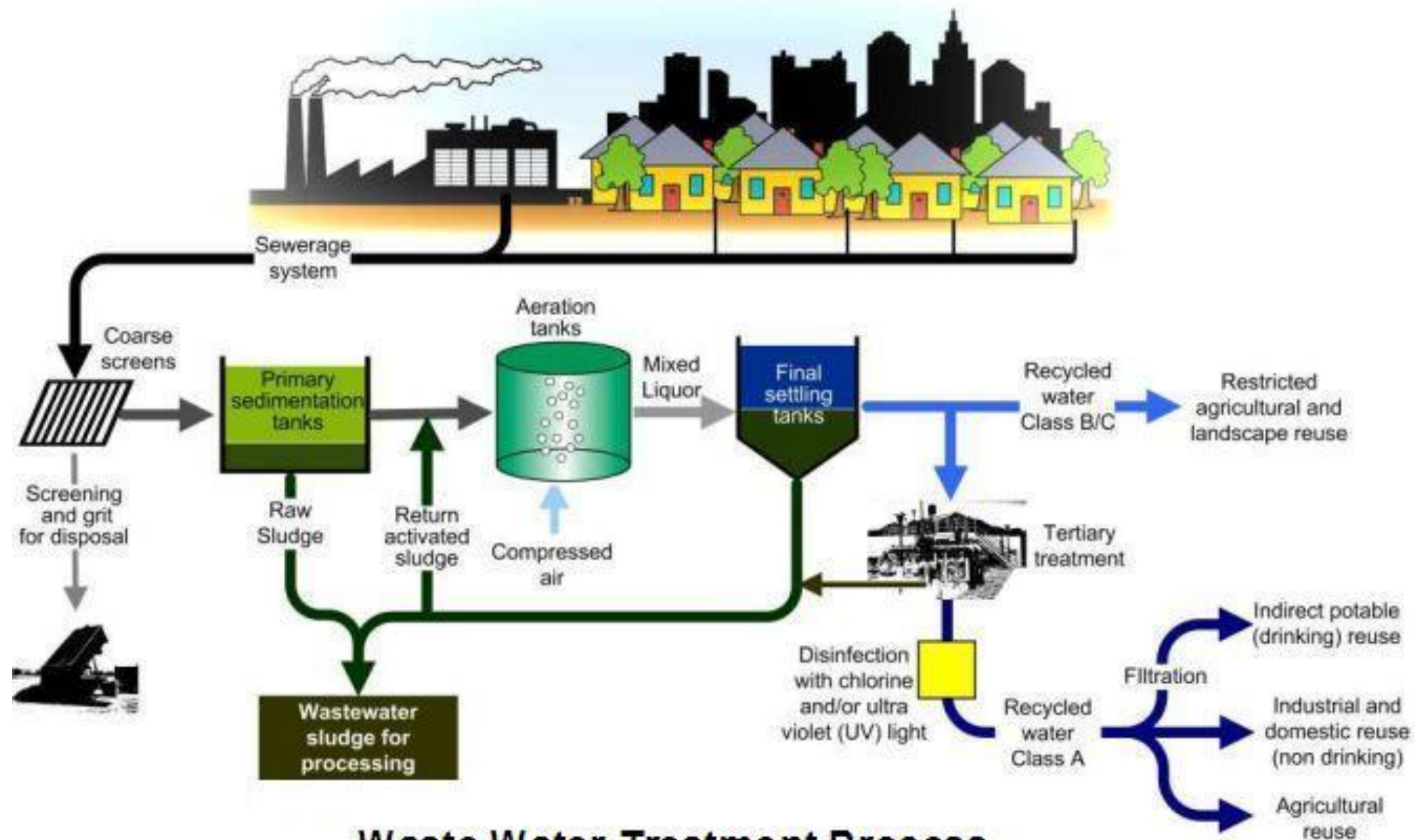


Concentration of Pollutants

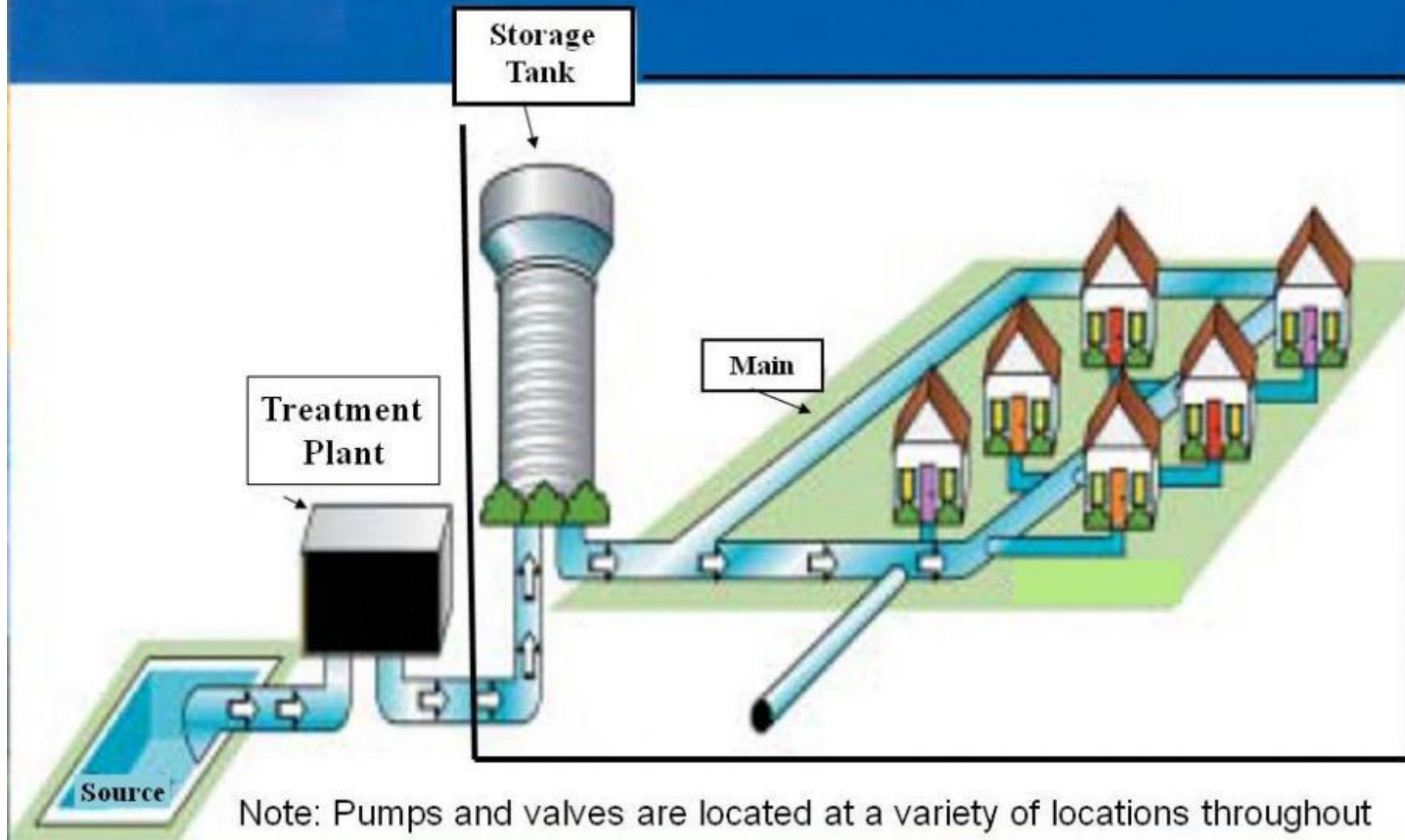


Concentration of Flow





Water Supply Distribution System



Note: Pumps and valves are located at a variety of locations throughout the distribution system.



Photo taken February 16, 2017
Image shows turbid water coming into
Comox Lake from Perseverance Creek
(lower left) moving towards Puntledge
River (upper right).

From the CVRD website: <http://www.comoxvalleyrd.ca/EN/meta/whats-new/news-archives/2017/oil-water-notice-for-all-users-of-the-comox-valley-water-system.html>

Outcomes of Current Infrastructure Practices

- Disruption of natural water cycle
 - Ground water
- Concentration of pollutants and flows
- Circular impact on whole system (pollutants introduced from storm and sanitary system have to be dealt with by potable water treatment)
- Throw in Climate Change....
 - Shorter duration / higher intensity rainfall more often

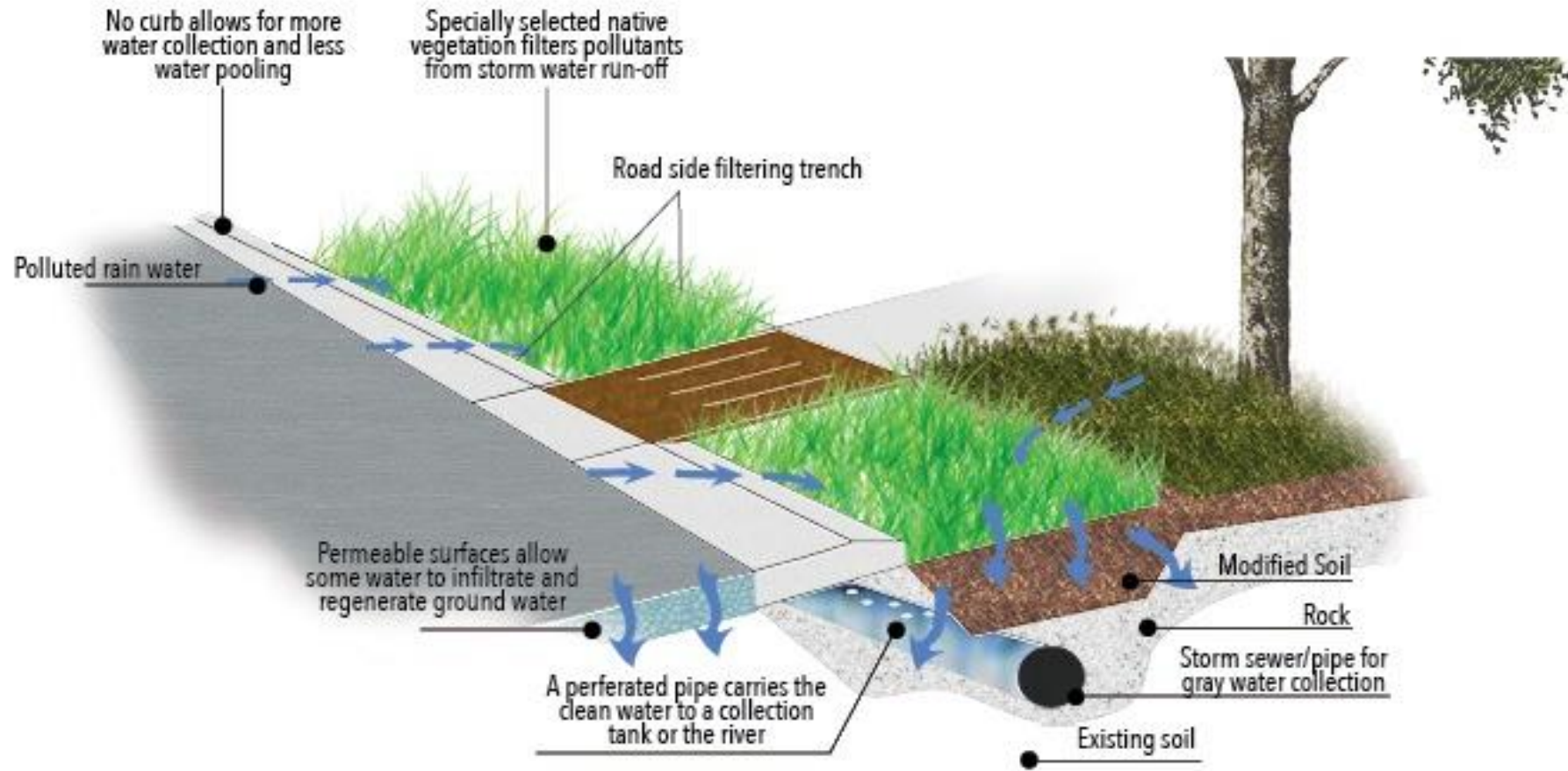
Solutions?

- Narrower Roads
 - Slower traffic
 - Less cost – up front and to tax payers
 - Less storm run-off
- Green Infrastructure

Stormwater Detention



Stormwater Infiltration



From the University of Guelph: <http://www.greengryphon.ca/Sustainability/ProjectDetail?title=Reynolds-Walk-Green-Streak-Project>

Distributed Sanitary Treatment

- Neighbourhood level treatment plants

Integrate Eco Assets



Summary

- Traditional infrastructure design causes more problems than it solves:
 - Concentration of flow and pollution
 - Disruption to the natural water cycle
- Traditional urban planning has paid little attention to the eco-assets that were built on
- The current practice of stormwater management, sewage treatment and disposal, water treatment and distribution cause problems at all levels in a circular fashion
- Add climate change!
- There are solutions!