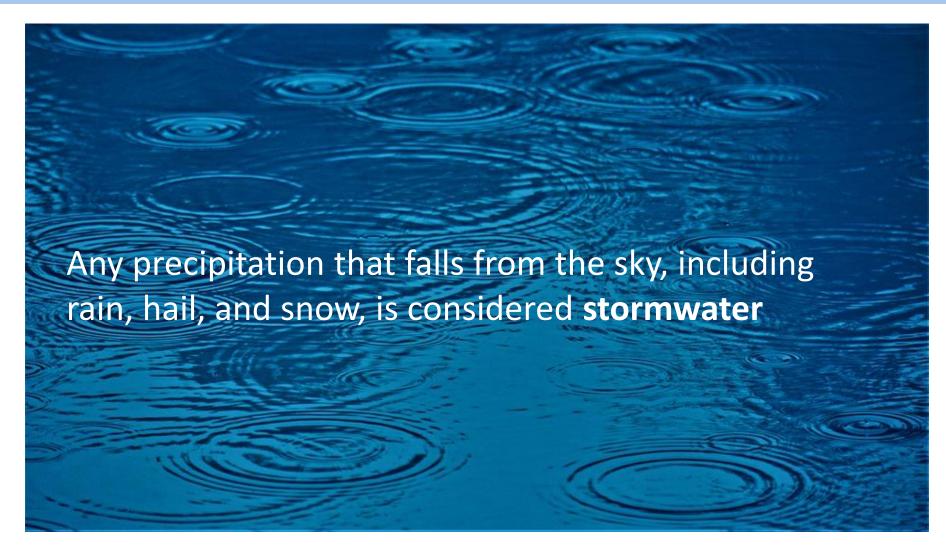


What is Stormwater?





Vancouver's Requirements

"Owners of private stormwater systems and facilities that collect, convey, treat and/or infiltrate runoff from private properties are responsible for the operation and maintenance of those facilities" VMC 14.25

- Specified on a recorded plat, short plat or covenant
- All maintenance to comply with state manual or approved site manual
- City retains authority to inspect for compliance







Clark County's Requirements

"All public and private drainage facilities shall be inspected and maintained by the owner in accordance with the Clark County Stormwater Manual. The intent is to ensure proper maintenance of pollution control and quantity control facilities to protect surface water and groundwater." CCC 13.26A





- Specified on a recorded plat, short plat or covenant
- Detailed in Covenants, Conditions and Restrictions (CC& Rs)



Clark County's Requirements

"All public and private drainage facilities shall be inspected and maintained by the owner in accordance with the Clark County Stormwater Manual. The intent is to ensure proper maintenance of pollution control and quantity control facilities to protect surface water and groundwater." CCC 13.26A





- All maintenance must comply with Clark County's Stormwater Manual
- Clark County inspects all private stormwater facilities annually

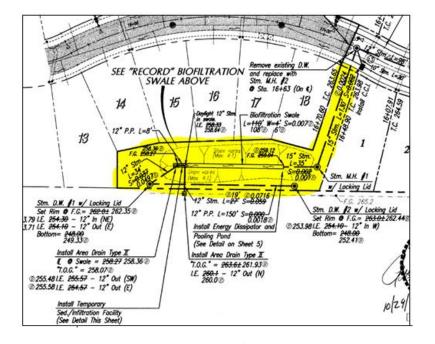


Stormwater on Developed Sites

- Dedicated tract of land or on individual lots
- Lack of formal HOA still have a shared maintenance responsibility.







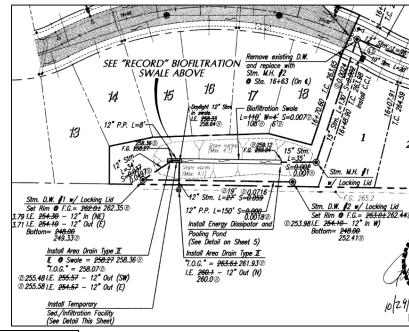
Notes:

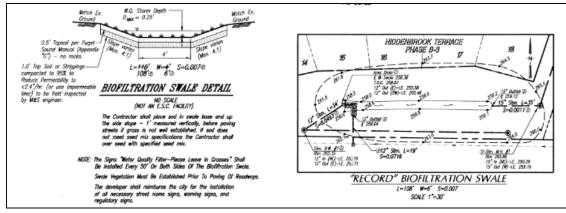
- 1. See Architectural Drawings for roof drain connections.
- 2. The stormwater treatment & infiltration facilities shall be privately maintained.
- 3. The infiltration system shall be observed and documented by a licensed engineer in the State of Washington proficient in geotechnical engineering.
- 4. The infiltration rates used in the final stormwater analysis shall be verified during the construction of the facilities by a licensed geotechnical engineer or a designated representative at the exact location and depth of the proposed stormwater infiltration facilities.



Designed Facilities

- Designed to treat specific drainage area
- Stormwater inspections refer to the approved plans for compliance
- Modifications to function need to be reviewed







Types of Stormwater Facilities

Surface Facilities

- Biofiltration Swales
- Bioretention (Rain Gardens)
- Stormwater Ponds
- Permeable Pavers
- Vegetated Filter Strips









Private Stormwater - 9

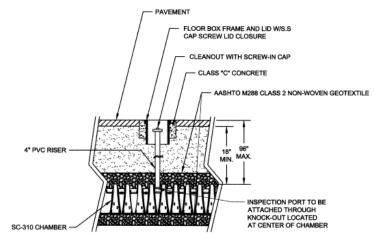
Types of Stormwater Facilities

Underground Facilities

- Filter Catch Basins
- Filter Manholes
- Filter Vaults
- Underground Detention
- Underground Infiltration
- Drywells

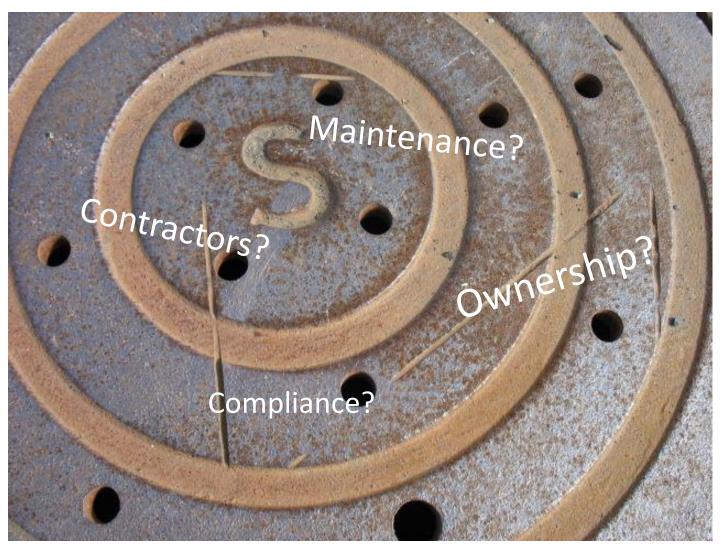






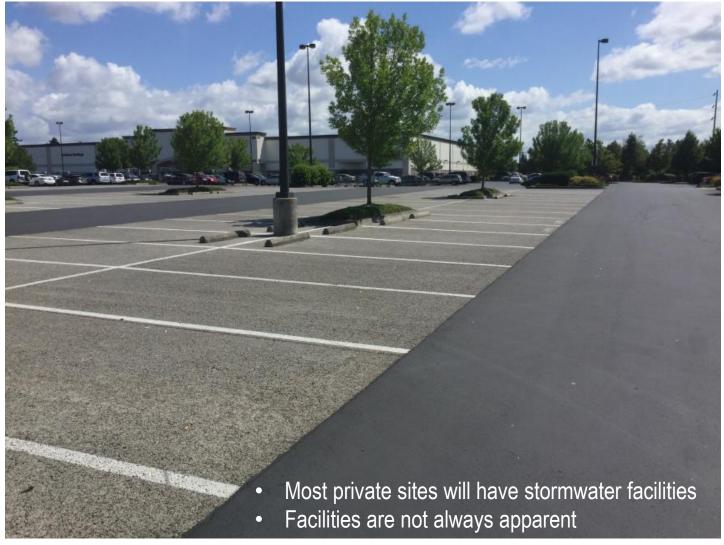


Stormwater Misconceptions





"We don't have stormwater facilities here"





"I thought the City maintains that area"

- Facilities along roadways are not always City-owned
- Most stormwater facilities in the City of Vancouver are private







Stormwater Facility Ownership In Clark County

- Developer of the subdivision determines who owns the stormwater facility
 - The developer can build the stormwater facility to Clark County Design Standards and give it to the county to own and maintain, or
 - If the developer can't build the stormwater facility to Clark County's Design Standards, the developer can give ownership to the HOA or property owner(s).







Stormwater Facility Ownership In Clark County

 About half (approx. 1400) of the stormwater facilities in Clark County are public or owned by Clark County. The other half (approx. 1400) are private and owned by HOA's, property owners or commercial businesses.







"That's a natural area; we do not maintain that"

- Stormwater facilities are not natural areas
- Facilities are designed for water quality treatment
- Maintenance is needed to ensure proper function





General Maintenance Tips

- Have a routine maintenance plan
- Keep records of maintenance and inspection
- Know who is managing maintenance
- Have a copy of the approved plans



Private Stormwater Facility Inspection Log

This inspection log is to remain on site and must be made available upon request by City employees.

Property description:	
Site address:	
Inspection Date: Comments:	Inspected by:





Coordinating with other homeowners/residents

- A property manager can help with logistics
- Agreement to split maintenance cost
- Maintain your respective area
- Self-Perform Maintenance



Private Stormwater Facility Inspection Log

This inspection log is to remain on site and must be made available upon request by City employees.

Property description:	
Site address:	
Inspection Date: Comments:	Inspected by:





Facilities require different skills, equipment and experience depending of the type of facility.

Self-Performing Maintenance Activities

- Mowing
- Planting/Reseeding
- Weeding
- Sediment and debris removal



Facilities maintenance guidelines

Swales







Biofiltration swale

Bioretention

Filter strip

Ponds







Infiltration basin



Treatment wetland



Utilizing existing landscaping services

- Useful for swales, bioretention, and pond maintenance
- Specify exact stormwater needs
- Can manage:
 - Weeding
 - Mowing
 - Replanting/Reseeding
 - Leaf and debris removal





Not all maintenance can be self-performed. Know when to rely on

stormwater professionals.

Contractor Recommended Activities

- Underground facilities
- Proprietary technologies
- Large rehabs
- Vactoring



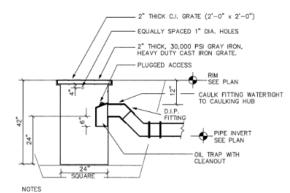


Stop Pollution Early

- Routinely clean catch basins
- Schedule parking lot sweepings
- Inspect after storms
- Spill Cleanup







- A.) CATCH BASIN TO BE CONSTRUCTED OF 10 GAUGE (MINIMUM) STEEL WITH ALL JOINTS WELDED.
- B.) OIL TRAP CLEANOUT LID TO BE PLUGGED ACCESS
 C.) CALK PIPE TO CALKING HUB.
- C.) CALK PIPE TO CALKING HUB.
 D.) SET CATCH BASIN ON 6" THICK COMPACTED CRUSHED
- ROCK OR SAND BASE.

 E.) BACKFILL AROUND CATCH BASIN WITH DRAIN ROCK.







