



1 Upper cascade



5 Pedestrian bridge



9 Aluminum benches



10 Facility aerial



2 Flow Splitters made from granite curbs



6 Art at upper cascade



Existing Conditions



3 Cast-in-place concrete benches



7 Art at upper cascade



4 Interpretive signage by SPU



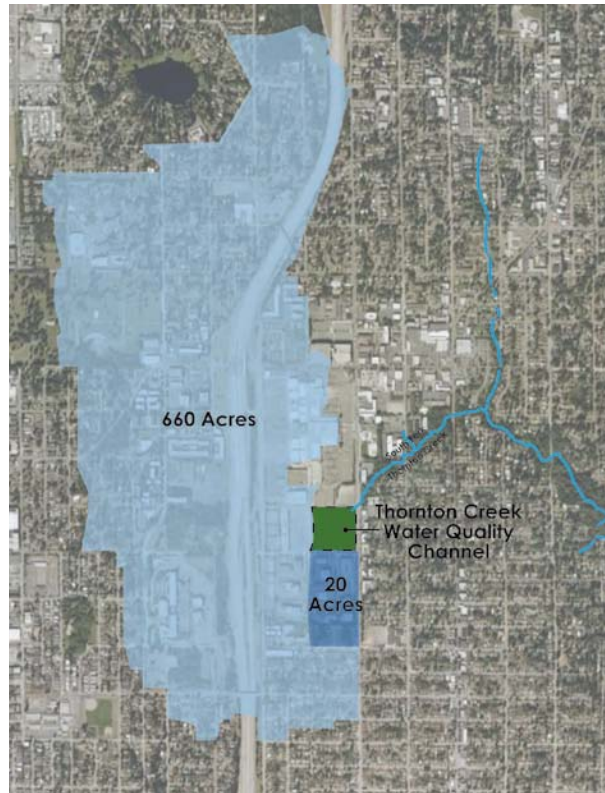
8 Upper cascade



NE 103rd STREET

5th AVENUE NE

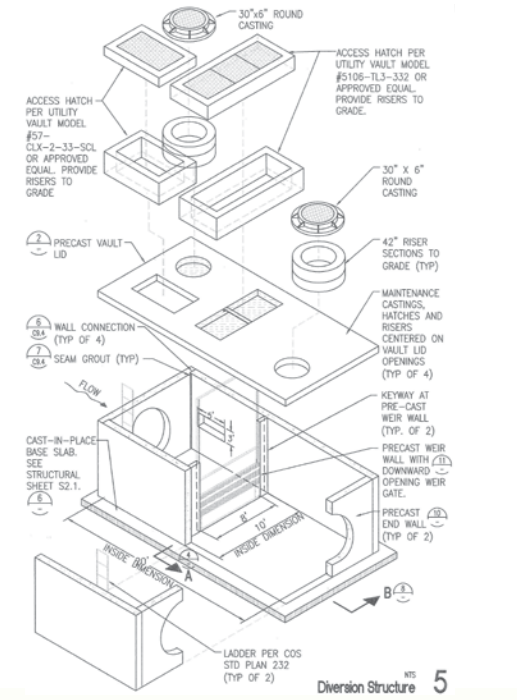
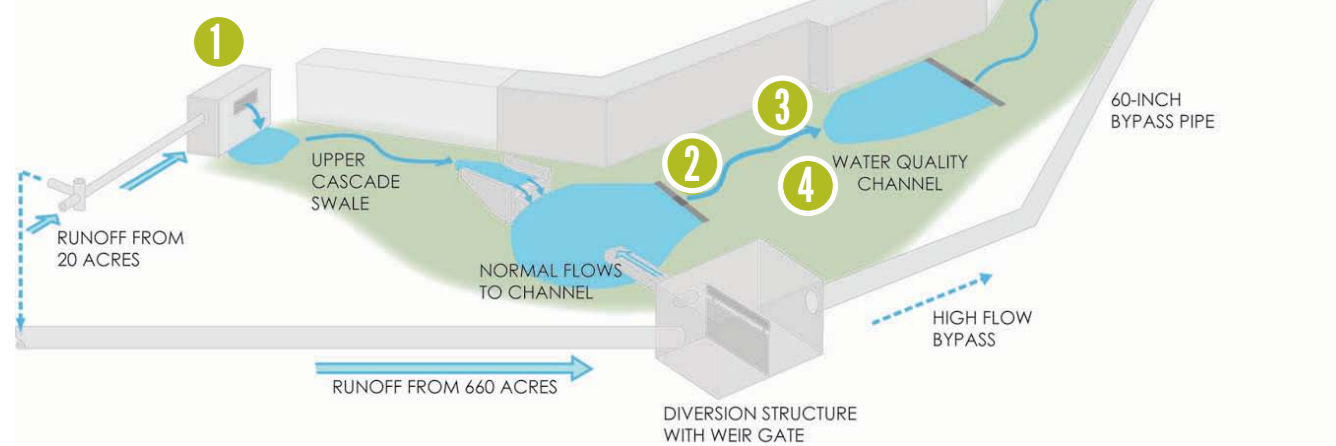
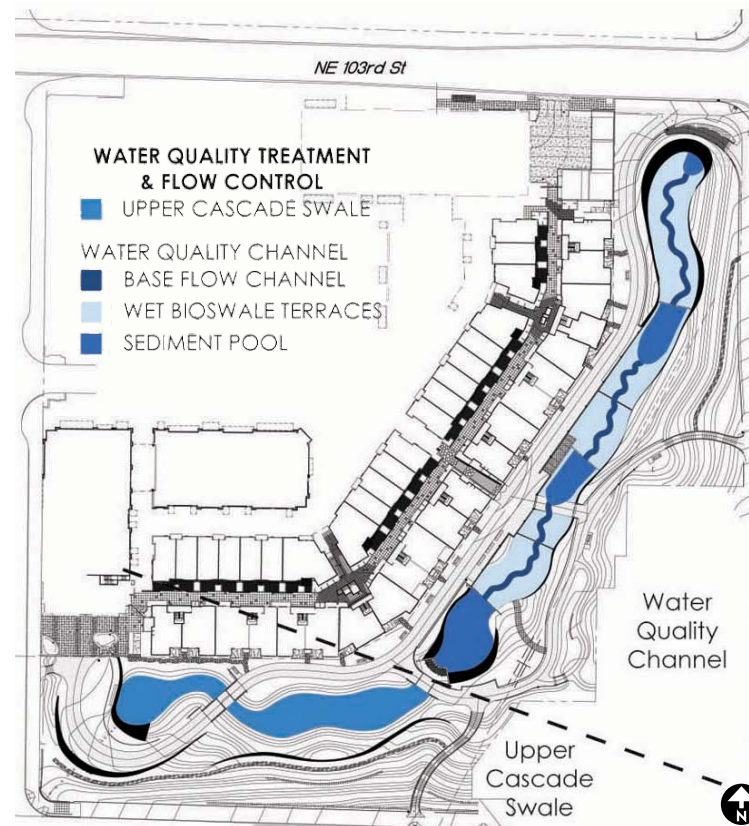
THORNTON CREEK WATER QUALITY CHANNEL - SITE FEATURES



Drainage basin

Thornton Creek Facts

680 acre basin (see Drainage Basin above)
 2.7 acres within the larger 8.6 acre site
 Average Annual Rainfall Diverted - 91%
 Treatment Design - 13 cfs
 Calculated Base Flow - 0.13 cfs
 Calculated 6 Month Storm Event - 4.23 cfs
 Calculated 25 Year Storm Event - 30 cfs
 Hydraulic Residence Time - 5-9 minutes
 Upper Cascade Swale - 300 l.f
 Water Quality Channel - 500 l.f.
 Channel - 30' wide with 10" design depth



The Channel's design is intended to improve water quality by slowing stormwater flows to allow sediments and associated pollutants to settle out, while also providing a multilayered landscape of native plants that serves as a safe and aesthetically pleasing public amenity that integrates with surrounding private development.

The Water Quality Channel is a modified biofiltration swale. Dense vegetation is essential in this process as it provides the resistance that slows flows. Depths for water quality treatment flows are generally limited to one-third to one-half of vegetation height. The design team looked for plants that could maintain an upright biomass at least several inches above the 10-inch flow depth during the winter. This led to the selection of a list of emergent rushes, sedges, and bulrushes 15 to 36 inches in height.

The Facility's water course is created by two diversions. One diversion directs stormwater and base flows from the 20 acre subbasin into the Upper Cascade Swale located at the site's southwest corner. The second diversion, located in the center of the site, directs the majority of the 660 acre subbasin's flows from the existing 60-inch storm pipe into the Water Quality Channel. A weir gate within this diversion structure creates a backwater condition that directs all base flows and the majority of storm flows into the Water Quality Channel. Flows from large storm events overtop the weir gate, bypassing the Water Quality Channel to remain in the 60-inch storm pipe.



1 Water enters through the Upper Cascade Waterfall



2 Lower Cascade Waterfall



3 Water in the Low Flow Channel



4 Plants were selected to provide necessary resistance for settling of sediments and for year-round value