



UNISTORM-V MAINTENANCE

UNISTORM –V DESCRIPTION

The UNISTORM-V is a 3-compartment Precast concrete vault. Vault width ranges from 6-12 feet depending on the diameter of the storm sewer pipe. Vault length increases with the size of the impervious area being treated. UNISTORM-V vaults are manufactured from standard precast concrete modules. Use of modules reduces the weight of the structures that need to be handled during shipment and installation.

Normal water depth in the UNISTORM sump will be 3.5-4.0 ft. This shallow sump reduces excavation costs and the depth to be accessed from a pumper truck.

UNISTORM-V inlet and outlet compartments are typically 36 inches long, and act as flow distributors for the quiescent middle compartment. The middle compartment length will be longer and vary depending on the size of the impervious area being treated. Each compartment is equipped with 24"-30" access openings.

POLLUTANT STORAGE CAPACITY AND CLEANOUT FREQUENCY

Recommended practice for the UNISTORM-V is to plan on semi-annual inspections and annual pumpout based on the following general design guidelines:

- (1) Sediment Sump -- the rate at which sediment is accumulated will depend on land use and Highway Department activities (e.g., heavy winter sanding will create extra pavement sediment, while regular pavement sweeping will reduce sediment accumulation). Environment 21 recommends sediment pumpout when the average depth of the sediment pile is 0.50 ft. The UNISTORM sump is designed to store an average sediment pile depth of 1.5 ft.
- (2) Floatables Chambers -- oil sheen and floating debris will be retained in the inlet and middle sections of the UNISTORM-V. Annual accumulation of floatables is estimated at less than 0.50 inches but can vary depending on land use.

During the first year of operation, Environment 21 recommends visual inspections in February, May, and October. This inspection schedule can be modified in subsequent years according to experience and/or to meet specific stormwater permit requirements.



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SEDIMENT PILE DEPTH MEASUREMENT

Cast iron manhole frames with vented covers are provided in the UNISTORM-V roof to make the sediment pile readily accessible for measurement and cleaning. Sediment should be removed when the pile depth is 6"-12". Normal water depth in the UNISTORM sump will be 3.5-4.0 ft.

During routine inspections, the distance from the rim of the UNISTORM access opening to the top of the sediment pile can be determined by slowly lowering a measuring rod with 3-6-inch diameter end plate. The end plate improves the ability to sense when the top of the sediment pipe has been contacted.

To determine sediment pile depth, twist the measuring rod into the sediment pile until the end plate contacts the floor of the UNISTORM-V.

Organic debris that has become waterlogged and settled to the floor is expected to be present in relatively small quantities that will be removed during pumpout of the mineral sediment.

FLOATABLES OBSERVATION AND MEASUREMENT

Oil sheen and floating debris can be observed using a flood light to illuminate the water surface in the inlet and middle sections of the UNISTORM. Gently stir the floatables to estimate depth. This depth will typically be less than one inch and floatables can be skimmed from the surface prior to pumpout of the sediment.

PUMPOUT

Pumpout of the UNISTORM is achieved using standard truck-mounted sewer and catch basin cleaners with positive displacement rotary lobe vacuum pumps. Manhole openings provide access to all sections of the UNISTORM. Site Plans for the project should include a driveway area for truck access to the UNISTORM.

DISPOSAL OF WASTEWATER, SEDIMENT, AND FLOATABLES

Commercial and retail sites are usually adjacent and tributary to public stormwater systems, and accordingly pumper truck contents should be delivered to an approved waste disposal facility. Facilities used by the local Highway Department may be acceptable. For industrial sites, pumper truck contents should be delivered to a disposal site approved by the owner of the industrial site.