

Storm Drain Inlet Protection

Description

Storm drain inlet protection is achieved by placing a temporary filtering device around any inlet to trap sediment. This mechanism prevents sediment from entering inlet structures. Additionally, it serves to prevent the silting-in of inlets, storm drainage systems, or receiving channels.

There are six (6) types of inlet structure filters, including:

- Type A-Low Flow
- Type B-Medium Flow, Low Velocity
- Type C-Medium Flow, Medium Velocity
- Type D-High Flow, High Velocity
- Type E-Surface Course Curb Inlet
- Type F-Inlet Tubes

When and Where to Use It

Inlet protection may be installed prior to the construction of roads however, once the sub base is placed, a different type of inlet protection may be required. Inlet protection is required on all inlets that have outfalls that bypass sediment trapping structures and directly discharge off site. Use inlet protection as a last resort for sediment control when no other means are practical and do not use as the only means of protection.

General Design Requirements

Type A-Low Flow Inlet Filters include filter fabric inlet protection and 18-inch diameter sediment tubes

- Applicable for inlets with peak flow rates **less than 1 cfs** where the inlet drain area has grades less than 5%. The immediate drainage area (5-foot radius around the inlet) has grades less than 1%. Areas receiving concentrated flows **are not** acceptable.

Type B-Medium Flow, Low Velocity Inlet Filters include hardware fabric and stone inlet protection.

- Applicable for inlets with peak flow rates **less than 3 cfs** where the inlet drain area has grades **less than 5%**. Flow velocities to the inlet may **not exceed 3 feet per second**. Applicable where an overflow capacity is **not** required to prevent excessive ponding around the structure.

Type C-Medium Flow, Medium Velocity Inlet Filters include block and gravel inlet protection.

- Applicable for inlets with peak flow rates **less than 3 cfs** where the inlet drain has grades **less than 5%**. Flow velocities to the inlet may **not exceed 5 feet per second**. Applicable where an overflow capacity is required to prevent excessive ponding around the structure. **Not applicable in areas exposed to traffic**, such as median drains

Type D-Rigid Inlet Filters include prefabricated inlet filters composed of a geotextile fabric connected to a rigid structure

- Applicable for drainage areas up to **2 acres** with peak flow rates **greater than 3 cfs** where the inlet drain area has grades **greater than 5%**. Flow velocities to the inlet may **exceed 3 feet per second**.
- These filters are used for median applications (Type D1) and for sump applications (Type D2). Applicable where an overflow capacity **is** required to prevent excessive ponding around the structure. Capable of protecting inlet structures not associated with curb inlets. The inlets may include, but are not limited to yard inlets, DI 24-inches by 24-inches, DI 24-inches by 36-inches and manholes.

Type E-Surface Course Curb Inlet Filters include prefabricated inlet filters composed of a synthetic material that has aggregate compartments for stone, sand, or other weighted mechanisms to hold the unit in place.

- Applicable for roadway catch basins after the road surface course is placed

Type F-Inlet Tubes are classified in two categories: weighted inlet tubes and non-weighted inlet tubes.

- Weighted inlet tubes are applicable for inlets with drainage areas less than 1 acre. Weighted inlet tubes are used for placement on gravel, concrete, asphalt or other hard surfaces around drainage inlets where stakes cannot be driven. Weighted inlet tubes are applicable where construction traffic may occur around the inlet. All weighted Type F Inlet Structure Filters are applicable as Type E Inlet Structure Filters.
- Non-weighted inlet tubes are inlet tubes applicable for Catch Basins with drainage areas less than 1 acre where stakes or posts are driven to hold the tube in place. For non-weighted inlet tube applications, an inlet tube is placed on subgrade and is applicable until the road base course is placed.
- Both weighted and non-weighted inlet tubes are applicable as weep hole inlet filters, although non-weighted inlet tubes can only be used in situations where stakes is driven into the ground or subgrade to secure the tube.

General Inspection and Maintenance

- Inspect every 7 calendar days and within 24-hours after each storm that produces ½-inches or more of rain. Handle any damage or needed repairs immediately.
- Inspect after installation for gaps that may permit sediment to enter the storm drainage system.
- Remove accumulated sediment and debris from the surface and vicinity of Inlet Filters after each rain event or as directed by the Engineer, Inspector or Manufacturer's Representative.
- Remove sediment when it reaches approximately 1/3 the height of the Inlet Filter. If a sump is used, remove sediment when it fills approximately 1/3 the depth of the hole. Maintain the pool area, always providing adequate sediment storage volume for the next storm event.
- Remove, move, and/or replace as required to adapt to changing construction site conditions.
- Remove Inlet Filters from the site when the functional longevity is exceeded as determined by the Engineer, Inspector or Manufacturer's Representative.
- Dispose of Inlet Filters no longer in use at an appropriate recycling or solid waste facility.
- Prior to final stabilization, backfill and repair all trenches, depressions, and other ground disturbances caused by the removal of Inlet Filters.
- Remove all construction material and sediment and dispose of them properly. Grade the disturbed areas to the elevation of the inlet structure crest. Stabilize all bare areas immediately.