STORM DRAIN INLET PROTECTION

The protection of storm drain inlets from sediment laden runoff can be achieved using various practices applied around or under the storm drain inlet. Protecting inlets is an important way to prevent high sediment loads to ponds, which in turn results in improved pond performance and less frequent sediment removal required in ponds and catchbasins. Flows entering storm drains may also be conveyed directly to a receiving water system without passing through an end-of-pipe control, in which case the necessity of reducing sediment entry into the storm drain is even greater.

The types of sediment control measures often applied to block sediment entry into these inlets are sediment retention barriers and filters. By applying these types of measures, the inlet still receives runoff but sediment is removed as the water flows in from the drainage area.

Figure B2-12: Storm drain inlet protection measures

Application

- Applied on all operational storm drain inlets on the site
- Applied at grade around or overtop the inlet or applied below grade inside a storm drain
- For drainage areas >1 ha, multiple barriers are needed and the inlet protection device should not be the only ESC measure installed.

Design and installation

- Install immediately once the connection of the storm sewer system is live.
- Determine the drainage area in order to properly size the inlet protection device.
- Common types of devices that provide effective inlet protection are filters in a bag/sack configuration that hangs below the inlet grate, sediment retention barriers that are applied around the outside of the inlet, and filter pads that are placed over the inlet grate. Some examples are shown in Figure B2-12.

Structural reinforcement options

- Cinder blocks
- Wood panels
- Stakes
- Granular materials
- T-bars

- Refer to manufacturer specifications (for the device being installed) to determine sizing and appropriate installation techniques specific to the product.
- Ensure there's structural reinforcement to prevent movement or shifting of the protection. For filter socks used for inlet protection, ensure sock is staked into place.
- Ensure that any inlet inserts have handles so that they can be easily removed with machinery and install so that the handles are easily accessed.
- Place any structural reinforcement used on the inside of the sediment retention device
- For protection devices installed around or above the inlet, ensure that it is not completely blocking the inlet grate and preventing flow through. Filters applied overtop of the inlet, like coir inlet filter pads, are an exception as they allow flow through.
- The use of geotextile fabric placed under the inlet grate as a standalone inlet protection measure is discouraged due to the frequent cleaning required in order to maintain effectiveness.
- For areas with heavy vehicle traffic, select below grade inlet protection in order to minimize risk of device damage and need for frequent repairs.
- Consider excavating the area around the inlet or installing a rock/gravel jacket around or in front of the inlet to allow more opportunity for ponding of water (see Figures B2-13 and B2-14). This should encourage localized ponding in the immediate area of the inlet, not flooding into the roadway or other adjacent areas.

Inspection and maintenance

- Inspect weekly, and before and after significant rainfall (see definition in Section 10.1.2) or snowmelt events, and keep a record of the inspection.
- Look for any signs that runoff is undermining or otherwise bypassing the sediment control measure and repair as needed.
- Remove any sediment accumulation that has reached approximately 30% of the height of the sediment retention barrier and ensure proper disposal.
- For below grade installations, like filter fabric sacks/bags, ensure that it is cleaned out at the frequency specified by the manufacturer/supplier. The sediment accumulation threshold at which clean out is needed may vary from one product to another, but is normally 50% accumulation. If there are signs of clogging causing impeded flow through and flooding, clean out immediately.
- Clean and/or replace the device if there is any evidence of clogging significantly impeding flow through and leading to flooding.
- Look for any signs of structural damage to the device. If it is being damaged due to vehicle traffic, consider substituting with a below grade device.
- If using granular material, periodically rake to reshape and remove and replace any granular material overloaded with sediment.

Maintenance is the key!

With inlet protection devices, maintenance is essential to ensure continued performance and the ***prevention of clogging and associated flooding***.

Inspect and clean them out regularly

- Any repair or maintenance needs identified should be repaired within 48 hours or sooner if natural receptors are at imminent and foreseeable risk of adverse impact.
- Ensure the inlet grate is not being unintentionally blocked by the protection device.

Decommissioning

- Remove accumulated sediment.
- Carefully remove inlet inserts by the handles. Remove all components of the inlet protection devices so as to minimize disturbance of the area and accidental release of sediment into the inlet.

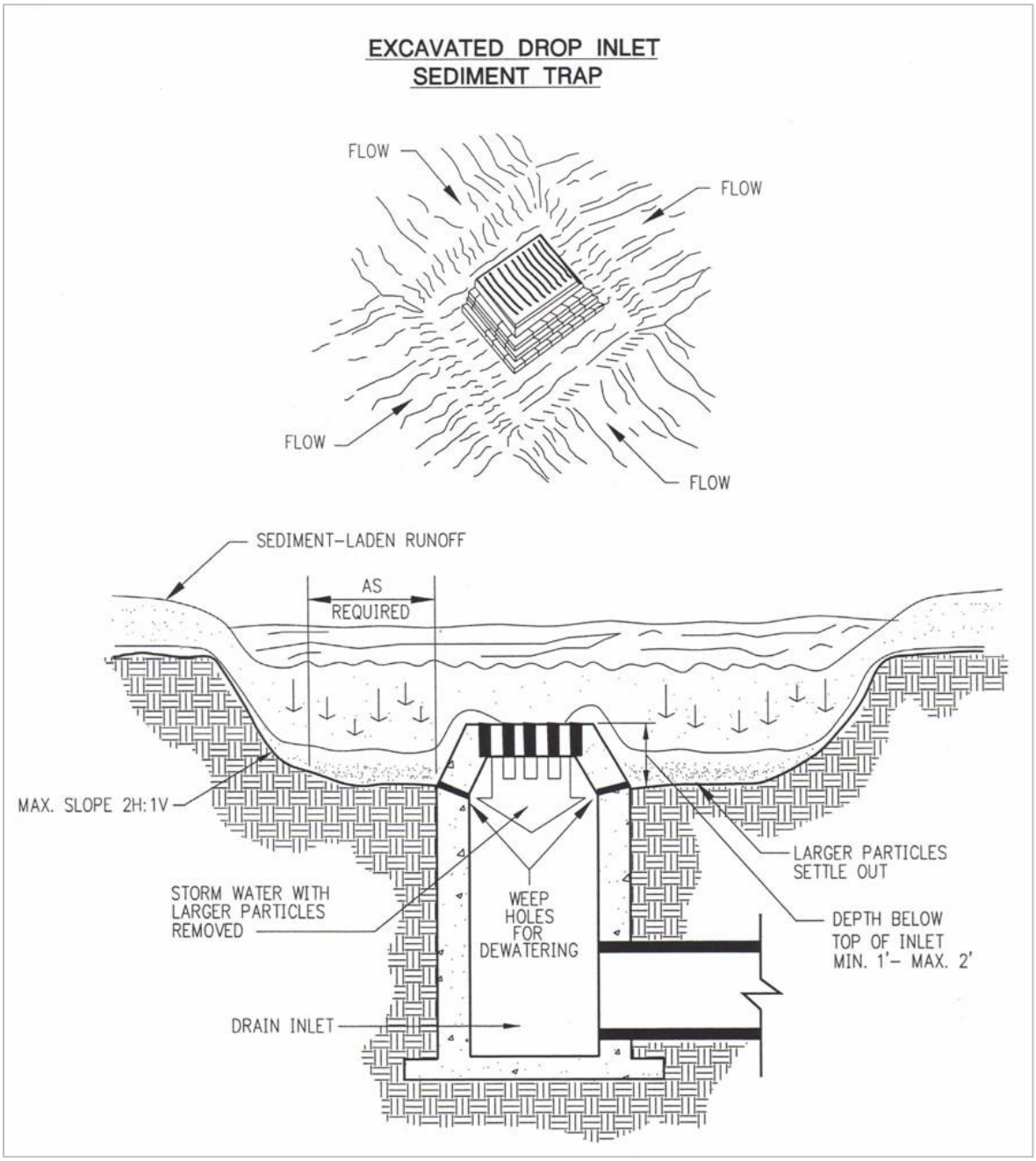

Figure B2-13: Excavated drop inlet structure for trapping sediment

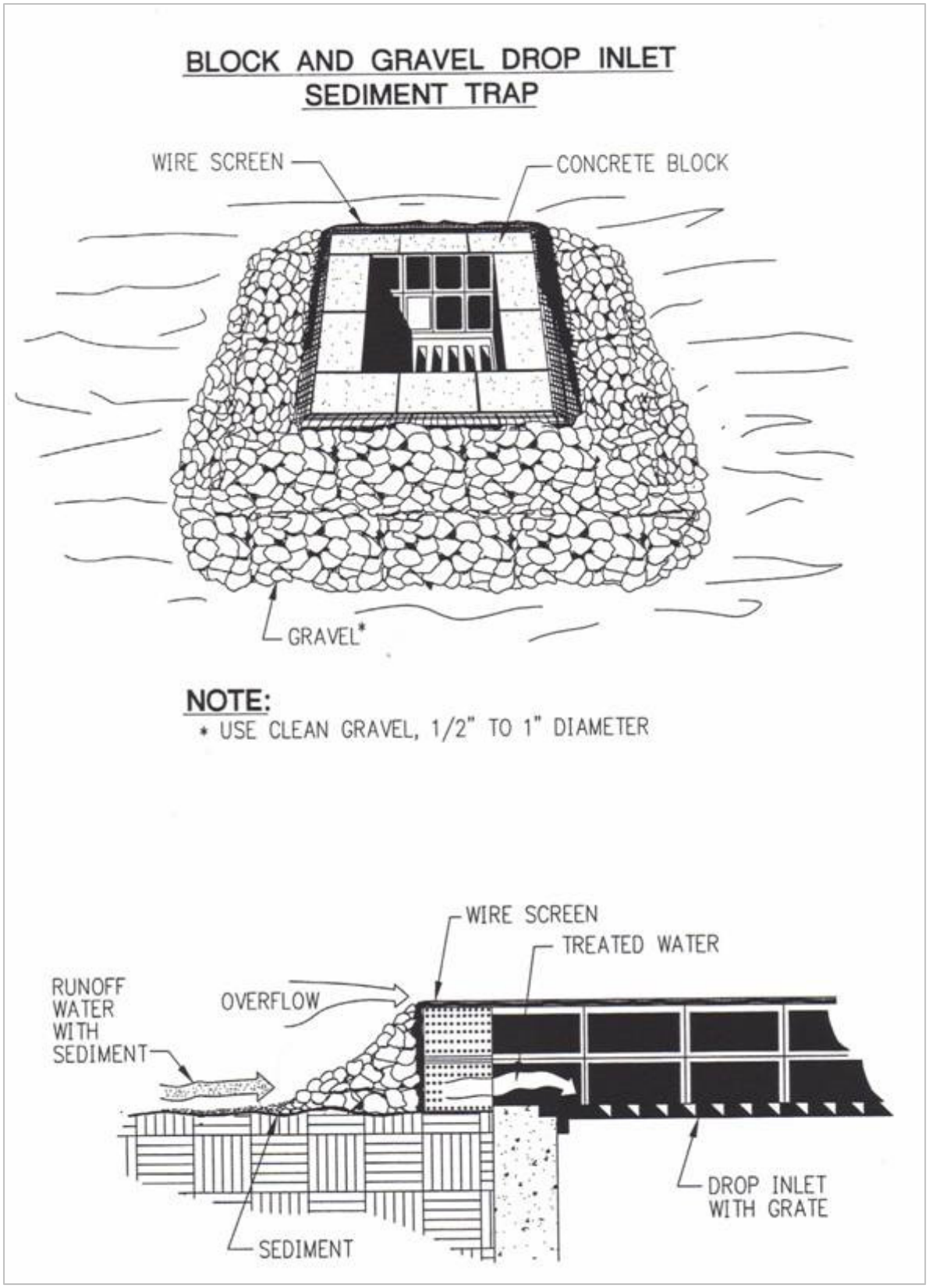

Figure B2-14: Gravel jacket installed around drop inlet.