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Stormwater Solutions: Devices That Work

Collection, flow control, detention, and treatment devices help meet stormwater regulations and needs.

When designing your stormwater-control system, a look at available devices gives you a strong starting point.

Collection, diversion

Collecting and channeling stormwater runoff to where you want it should be the first step in your plan's design. Curb inlets and trench drains are two important collection devices.

Concrete curb inlets such as those from Rotondo Environmen-

tal Solutions have various throat configurations. RES, for example, offers single-, double-, and triple-throat inlets with lengths of 3.5, 7.0, and 10.5 feet respectively.

American Wick Drain offers its Akwadrain. This is a prefabricated edge drain made from a formed polymeric core, surrounded by a geotextile filter fabric. The fabric filters out materials that could clog the drain. The 1-inch-thick edge drain comes in 12- to 36-inch widths all in 500-foot-long rolls.

RES provides its precast trench

drain to catch sheet flow. This drain comes in 6- and 8-inch widths equipped with a cast-iron gate. Standard depth is 12 inches with a section length of 4 feet. Sections can be placed end-to-end.

Flow control

Some products, such as American Wick Drain's Akwadrain, combine collection and flow control. Other devices focus more fully on flow and keeping it in its place.

Rotondo Environmental Solution's high-flow bypass structures direct polluted low-flows to treatment facilities. RES also provides precast concrete flow-diversion inlets to direct polluted low flows while allowing extreme flows to bypass the device. Their outlet-control structures are vaults 48 inches in diameter with a weir length of about 12.5 feet, or 72 inches in diameter with a weir length of 18 feet, 10 inches.

Contech recently began marketing its Optimizer. This is an underground detention system that contains flow-control devices using pressure heads to immediately discharge at the maximum allowable rate from multiple orifices. Corrugated pipe detention renders the required storage volume as well as excavation and backfill requirements.

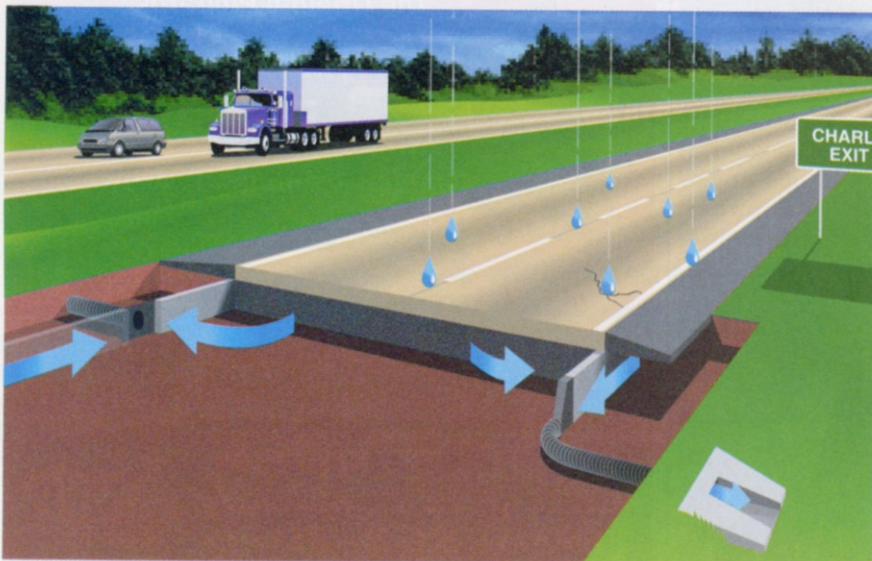
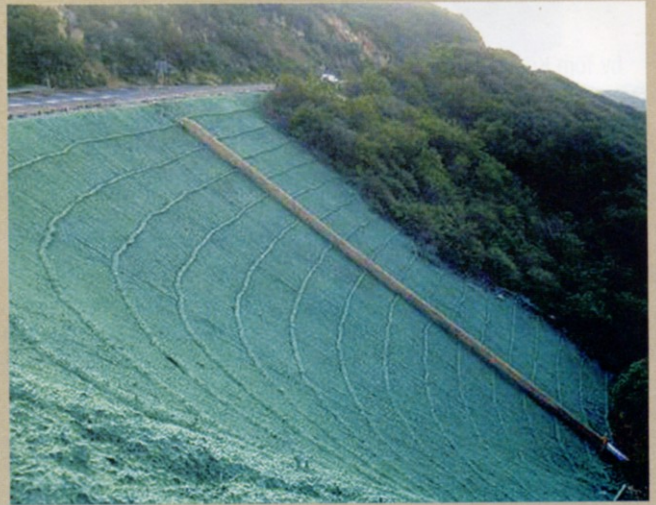


Illustration shows how the Akwadrain highway edge drain lets water pass to the core while restraining soil particles.

Before and After



In January 2005, heavy winter rainfall washed out the underlying soil of sections of Highway 154, located in the San Marco Mountains of Santa Barbara County, California. Damaged mountain slopes, washed-out roadways, and crumbling craters of asphalt were the results of more than 30 inches of rain that fell in the span of over two weeks.



With a drain pipe in place to remove stormwater from the uphill slope, workers installed fiber wattles on Highway 154's Painted Cave slope to reduce the slope length and prevent rilling. Workers also hydroseeded Profile Products' Flexterra Flexible Growth Medium onto the mountain slope to provide erosion protection and seed germination on the 1.5H:1V slope.

ACF's GutterBuddy is a sediment-control device installed above ground to channel flow and control filter inlets.

GutterGator Slim, also from ACF, is used for curb inlets without grates where water flow is critical. The device is designed to handle high volumes of water during wet weather flows. It can also handle extreme sediment. The three-dimensional outer layer encloses a multidimensional inner layer, letting high-flow volumes

continue through the filter. Attached weight pockets secure the unit to the curb opening.

Pollution Solution has its Curb Inlet Sifter, an inlet filter encased in high-density polyethylene fabric. A 5-pound pouch of rock drops into the catch basin to stabilize the filter.

Silt-Saver offers square- or round-base frames to filter material above ground, keeping filters free to accommodate stormwater.

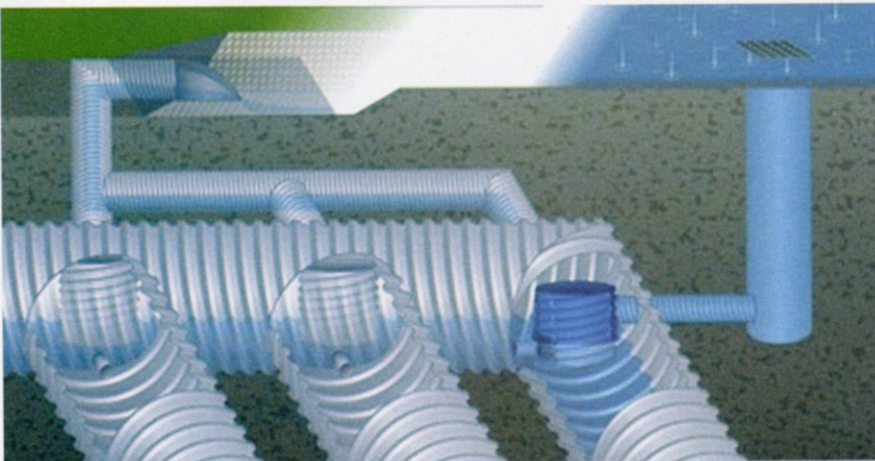
American Wick Drain's

Amerdrain sheet drain provides flow control on bridge abutments and behind retaining walls.

Treatment

Stormwater Management's StormFilter device is a treatment catch basin that accommodates their StormFilter and StormGate high-flow bypass manhole as well as the StormGate Separator, an offline sedimentation chamber. Filter choice targets specific pollutants, such as phosphorous.

Rotondo Environmental Solutions offers both perimeter and underground sand filters. The precast concrete sand filters are watertight structures. An oil/water separator used at the beginning of treatment can extend the filters' lives. BR



Contech's Optimizer instantly discharges the allowable rate, using a very small, economical system.

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