



Managing Job-Site Mud

Keep the sludge off the street
and out of the water

BY FERNANDO PAGÉS RUIZ

Drive past an average construction site (even a small residential addition) after a summer rain, and the street is usually coated with mud. Goopy, sticky, dirty stuff, the mud that runs off job sites and flows into storm sewers wreaks havoc on the quality of streams, rivers, and other waterways. But beyond the dire environmental consequences of job-site runoff, it's also rude to mire your neighbors in mud. Plus, there's the matter of steep fines.

It's the law

Although most municipal ordinances include punitive measures for noncompliance, all the building officials I spoke with in my research focus on prevention through builder education and support rather than coercion. But they take the job seriously enough to prosecute those who don't cooperate. Penalties for job-site pollution range from stop-work notices to thousand-dollar-a-day fines and even criminal prosecution.

"It's a question of influencing the construction culture," says Terry Ullsperger, a watershed-management inspector for Lincoln, Neb., who describes himself as someone who "has been on both sides of the silt fence." Ullsperger likens the cultural conversion effort to the famous 1960s "Don't Be a Litterbug" campaign, which made it unthinkable to toss trash from a car window. "Builders are slowly realizing a clean job site is just good building practice," says Ullsperger.

Similarly, Janice Lopitz of the Keep It Clean partnership in Boulder, Colo., believes that those who would never wash a paintbrush in a stream bed may not realize they are doing the same thing when rinsing paint from their brushes at the curb. When you wash on the curb, the paint enters a storm-water inlet and heads straight to the nearest stream, lake, or river. "Whatever hits the street is as good as in the stream," says Lopitz.

Big builders have been on notice for several years. Federal standards require a storm-water pollution-prevention plan when construction extends over an acre of land. This plan explains in detail what you will do to keep pollutants, principally mud, from seeping into the storm-water system. It requires an engineer's stamp and inspection of mitigation methods every two weeks and after every storm. The plan also requires a living, breathing individual (not just a business entity) to become responsible and liable

BREAK YOUR LOT INTO FOUR ZONES

To establish effective erosion and runoff controls on a job site, the first step involves walking the property to observe natural drainage patterns, potential hazards (such as a storm-water inlet in close proximity to the site), and the best areas for construction access and material handling. In essence, think of your job site as having four zones. Address each zone with the appropriate products and techniques.

ZONE 1 Establish a perimeter

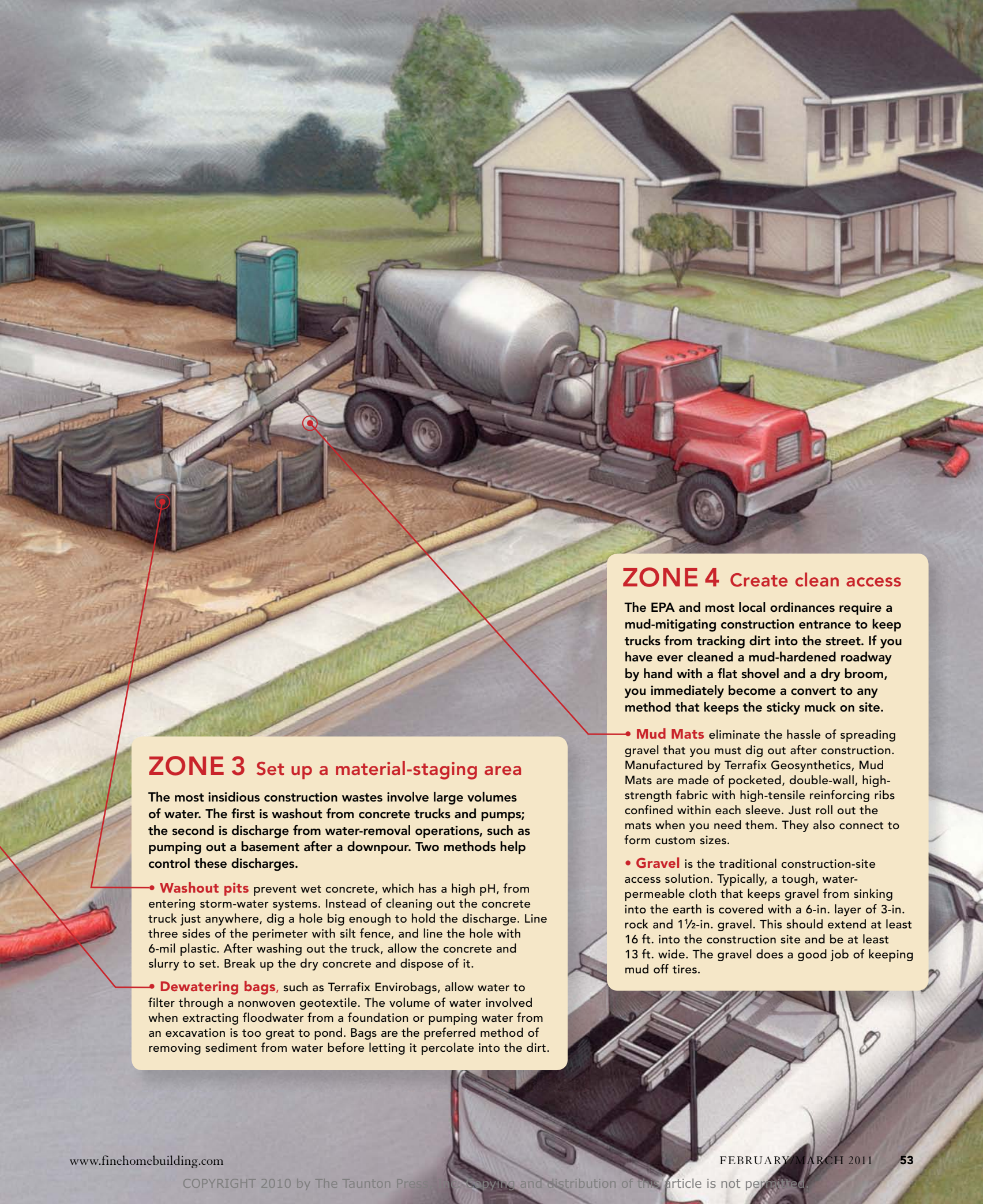
The best method for controlling runoff is to preserve as much natural vegetation as possible. If the vegetation is removed or disturbed, you'll have to keep any eroding soil or washed-away sediments on the property through other means.

- **Silt fence** is made from woven polypropylene yarn designed to block sediment while letting water flow through it. Silt fence should be placed downslope of disturbed ground, and the stakes to hold the fence in place should be stocked on site.
- **Wattles**, also known as filter socks or fiber rolls, are essentially mulch sausages. The casing is a biodegradable mesh, and the stuffing is usually made of agricultural waste products. They are staked in place and work well when tiered on slopes.

ZONE 2 Protect storm-water inlets

The last line of defense comes at the storm-sewer inlet. A standard approach—and a wrong one—is to place a bale of hay in front of the inlet. Bales break down quickly and dam water, or divert it someplace else. The real goal is to filter sediment out of the water entering the inlet.

- **Dandy Bag** by Dandy Products is a filter designed for use with flat grates and mountable curbs. The Dandy Bag is made of high-strength filter fabric. The inlet grate is placed in the bag before being placed back in its location.
- **Big Red** by ASP Enterprises is a highly porous filter sock that simply lies in front of an open throat-style inlet to prevent sludge from entering the storm-water line. The filter sock can be positioned to allow clean water to flow over it and/or through it.



ZONE 3 Set up a material-staging area

The most insidious construction wastes involve large volumes of water. The first is washout from concrete trucks and pumps; the second is discharge from water-removal operations, such as pumping out a basement after a downpour. Two methods help control these discharges.

- **Washout pits** prevent wet concrete, which has a high pH, from entering storm-water systems. Instead of cleaning out the concrete truck just anywhere, dig a hole big enough to hold the discharge. Line three sides of the perimeter with silt fence, and line the hole with 6-mil plastic. After washing out the truck, allow the concrete and slurry to set. Break up the dry concrete and dispose of it.
- **Dewatering bags**, such as Terrafix Envirobags, allow water to filter through a nonwoven geotextile. The volume of water involved when extracting floodwater from a foundation or pumping water from an excavation is too great to pond. Bags are the preferred method of removing sediment from water before letting it percolate into the dirt.

ZONE 4 Create clean access

The EPA and most local ordinances require a mud-mitigating construction entrance to keep trucks from tracking dirt into the street. If you have ever cleaned a mud-hardened roadway by hand with a flat shovel and a dry broom, you immediately become a convert to any method that keeps the sticky muck on site.

- **Mud Mats** eliminate the hassle of spreading gravel that you must dig out after construction. Manufactured by Terrafix Geosynthetics, Mud Mats are made of pocketed, double-wall, high-strength fabric with high-tensile reinforcing ribs confined within each sleeve. Just roll out the mats when you need them. They also connect to form custom sizes.
- **Gravel** is the traditional construction-site access solution. Typically, a tough, water-permeable cloth that keeps gravel from sinking into the earth is covered with a 6-in. layer of 3-in. rock and 1½-in. gravel. This should extend at least 16 ft. into the construction site and be at least 13 ft. wide. The gravel does a good job of keeping mud off tires.

MUD MITIGATION

Silt fence

Cost: \$6 per ft.
(\$60 for 100 ft. by 36 in.
with stakes)

Source: DGI Industries
www.dgiindustries.com

Straw wattles

Cost: \$1 to \$2.50 per ft.
(12 in. dia.)

Source: Earth Saver Erosion
Control Products
www.earth-savers.com

Washout pit

Cost: 6-mil plastic \$60 (1000 sq. ft.)

Source: Contractor's Choice
www.lowes.com

Dandy Bag

Cost: \$40 each

Source: Dandy Products
www.dandyproducts.com

Dewatering bag

Cost: \$75 to \$125 each
(15 ft. by 15 ft.)

Source: Terrafix
Geosynthetics
www.terrafixgeo.com

Mud Mats

Cost: \$335 (15 ft. by 8 ft.)

Source: Terrafix
Geosynthetics
www.terrafixgeo.com

Big Red

Cost: \$75 each (24 in. by 36 in.)

Source: ASP Enterprises
www.aspent.com

for the methods used, their maintenance, and their effectiveness.

Small sites are governed locally and increasingly require a permit with a simple plot plan illustrating the lot's drainage pattern and the methods you will use to mitigate erosion, runoff, and pollutants.

Good housekeeping

Some builders have embraced the new job-site management practices and have discovered an unexpected benefit. "Customers notice a clean job site and assume our construction is as good as our housekeeping," says Sean Smetter of Smetter Custom Homes in Lincoln, Neb. Smetter attributes at least part of his success in a tough economy to customers seeing his tidy job site as evidence of the quality consciousness they were looking for in a builder.

But maintaining white-glove standards on a job site requires constant vigilance. You have to check perimeter erosion-control systems at least every two weeks and after every storm. You have to spade accumulated silt off the storm-sewer inlet barrier. You have to restake silt fences and reposition wattles. And after your favorite subcontractor drives off into the sunset, leaving a trail of mud behind his pickup, guess what? It's your responsibility to make sure the street has been swept clean before sundown.

Consider subbing it out

In response to the ratcheting up of federal and municipal job-site pollution-control requirements, a new class of geotech subcon-

tractor has evolved. Mitigation experts can take the headache of designing, installing, and maintaining storm-water management off your to-do list.

Outfits like Soil-Tek (www.soil-tek.com) in the Midwest, Down to Earth Compliance (DTEC; www.trustedtec.com) in the Mountain States, and Acacia Erosion Control (www.acaciaerosioncontrol.com) on the West Coast have the necessary certifications and equipment to make the job easy.

These subs not only have the tractors to knife in silt fence, but also offer the latest in geotech products and biofilter technology, which is used to re-establish erosion and sediment control after construction. □

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