

Slope-Sliding Away

One man's creativity has kept an eroding Seattle hillside from sliding into Puget Sound by transforming the property into a beautiful Superior Site.

By Jennifer Jaros

Situated on a steep slope overlooking Puget Sound, the home of Mark and Sharon Bloome had a yard like no other: It had trees, a waterfront view and a slide. The trees were beautiful. The view was spectacular. And the slide was made of mud. Unlike other slides, however, this one didn't leave anyone smiling. In fact, it left nothing at all.

In late Spring of 1992, a heavy storm runoff had caused a municipal storm drain, which ran through the Bloomes' property, to erupt, causing the southern half of the 2-acre site to slide into Puget Sound. What was once a gentle slope of native landscape had turned into a 35-foot-high cliff — and a dangerous situation for both the Bloomes and their surroundings.

With their old landscape swimming with the fishes, and a new cliff endangering their home and what was left of the property, the Bloomes sought help from Hendrikus Schraven Landscape Construction & Design, Inc. in Issaquah, WA.

Born and raised in Holland, Hendrikus Schraven explains that his native land is flat and pretty much rockless. "If a 2-foot by 2-foot rock was found in Holland, it would be on the [newspaper's] front page. I thought the whole world was flat," he says with a laugh. But even with that memory, Schraven saw nothing funny about the Bloomes' situation.

"The slide not only destroyed all the native landscape, it also created a 35-foot sheer cliff that undermined the foundation of the home's upper building," says Schraven, president of the landscape company. "Without repair, erosion would have spread through the entire hillside."

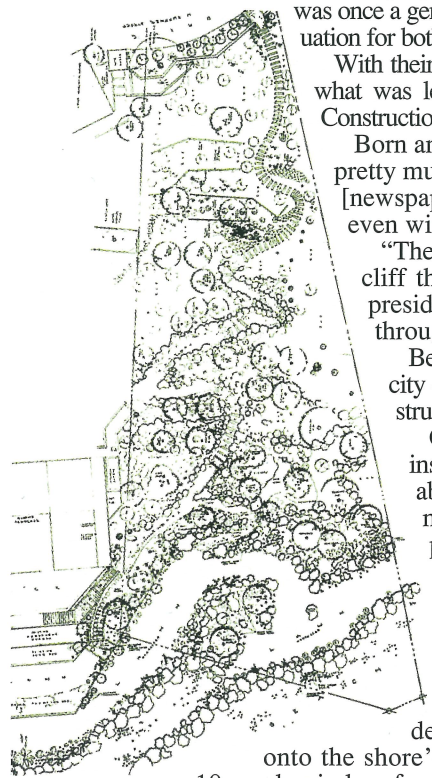
Before he could secure the 1-to-1 slope against future erosion, Schraven worked with the city of Seattle to clean up the damage. He went along with "whatever the city wanted to do structuralwise, and then improvised."

Olympic Construction Co. in Bremerton, WA, cleared up the slide debris and installed 225 feet of new, 12-inch-diameter storm drainpipe that ran from the street above down to the shoreline. The drain system was anchored into the hillside with metal clamps onto a concrete footer "so heavy runoff could not kick it out." With this process complete, the landscape was ready for its reconstructive surgery. And like any surgery, time was of the essence.

A Sign of the Tides

"Access to the site was difficult," Schraven recalls. While smaller materials could be sent down the hill, larger materials — from plants to rocks to equipment — had to be brought in by barge. This meant planning a landscape design around the tides. "Careful planning and timing were needed for delivery onto the shore's limited staging area," Schraven explains, "as [barge] rides dictated a mere 10-week window for access to the shore."

Working with such a time restraint meant fast planning for Schraven and his crew. "[There was] not a lot of time on our hands as far as making blueprints [was] concerned," he says. "[We were] on a time crunch with the tide, and with carrying in equipment on barges, we had to move rather rapidly."



Great care was taken to protect root systems of the existing plant materials that surrounded the lower house at the base of the hillside (below). Retainers, planting beds and rock settings were used to help create a beautiful landscape (left). The interlocking 4-foot by 6-foot retainers are built with a complete drainage and irrigation system, and are filled with a light, rich, organically amended topsoil/compost blend.



So Schraven's plan was "born on the site." While he wasn't sure exactly what he and his crew were going to do, Schraven surveyed the situation and thought about what materials he would need to fix the slope. "I had ideas in my mind, and that's what we went with," he says. He made lists, as if he were going to the grocery store: so many tons of rock, so many cubic yards of topsoil. Then Schraven and his crew "started bringing [these supplies] in on barges real quick."

Half of the Bloome property — the part that was left standing — was already landscaped. Schraven wanted to modify this existing landscape, then blend the reconstructed half with the original. With all of this on-site planning, and in keeping with the tides, Schraven began his climb up the hillside.

He Chutes, He Scores

After the city installed the new drain system, the pipe was covered with 380 yards of new topsoil. But Schraven and his crew did more than just cover the pipe. They replen-

ished the soil. "Certain areas of [Seattle] have incredibly hard blue clay," Schraven explains. "[This] means landslide possibilities. No matter what sits on [the clay], it can slip right off. And that's what we had. A lot of it had to be taken out and [we] literally carved into the hillside. [We needed] to put good earth in there to grow things in."

"Everything we do is organic," he continues. "We use soil amendments to break up clay particles so there's more of a bond between clay and new soil, so plant material can grow into the clay." According to Schraven, adding organic-soil compost to manufactured materials is important, as it helps landscapers "do what nature does — put microorganisms back into the soil so nature survives." One way Schraven does this is by using trace minerals, which he feels is "probably the best soil amendment known to man."

Chemicals "are not a good way to go," he says, because they "deplete soil of needed microorganisms and then the soil starts to die. We're doing the opposite. Basically, we're mimicking nature — putting [nutrients] back into the soil and speeding up the process rather than using chemicals, which don't do much."

Getting this beneficial soil on the slope was easier said than done, however. The road at the top of the hillside was a dead end and only one lane wide. This provided the crew with a limited area for material delivery and staging. Since the slope was so steep, it was too dangerous to bring buckets of topsoil down by hand.

So again, on the site, Schraven came up with a creative way to not only bring the soil down to the workers successfully, but to have fun at the same time. He invented the metal chute system.

Schraven describes his invention as a scene from a Dr. Seuss book. "Everything kind of meets up with everything," he explains. The contraption was made of long roofing metal, which Schraven and his crew folded into a "U" shape and reinforced and locked together in different positions. These chutes were made in 20-foot-long sections, so when attached, they could be arranged whatever way necessary. When locked together, the sections made a 150-foot-long chute that covered the hillside.

"We had about a couple of hundred 5-gallon buckets at the top of the road," Schraven says. A Bobcat dumped the soil into these buckets and a crew member would drop them into the shoot. "These buckets would go about 40 to 50 mph at 150 feet down," he explains. To prevent them from spilling when they reached the bottom of the slope, the crew used old truck tires at the end of the chute. "When the buckets would hit the tires, they would go back up the shoot. Then we would grab them after they'd jumped up" and pour the soil onto the slope. The process required about 15 men and, according to Schraven, "shoveling would have taken a lot longer."

And you wouldn't have as much fun shoveling as you would watching buckets of dirt bouncing off tires, either. The dirt spray itself was a sight to see, which Schraven and his workers called "the shampoo treatment."



This side view from the upper hill (left) shows erosion control with use of erosion netting and dirt held firm with untreated boards that will biodegrade after vegetation root systems are well-established. Seven months later (below), the ivy ground cover has taken over, and other native plantings actively stabilize the hillside.

"It was hilarious," Schraven recalls. "Actually, it was great fun. You might as well have a good time while you're doing a job, right? You have to keep a sense of humor." The crew also used this chute system for sending down high-nitrogen mulch, and all of the gravel used for the trails throughout the site.

After the slope was covered in topsoil, tiers of 3-foot-high steel and timber retaining walls were installed at the upper and steepest parts of the slope by Integral Construction, Seattle. These were secured by cables into the storm drain footer, and additional concrete footers were augured into the hillside.

Careful to make a site that was environmentally sound, Schraven then used biodegradable erosion netting, which was secured over the slope, as well as English ivy (*Hedera helix*) and a variety of trees and shrubs "to provide a quick and extensive root system to hold the soil. ... We wanted fast growth, as far as erosion control is concerned," he says. According to Schraven, the untreated boards that were secured across the entire slope, as well as the netting, will compost over time after the new plantings take over and stabilize the slope. And to further support the slope, Schraven used more than 300 tons of basalt rock for extensive rockeries and outcroppings. This rock placement, like most of the design work for the project, was also improvised on site, keeping in mind the contours of the property and sun and shadow.

A Spring in This Step
Schraven put an end to

potential irrigation problems by routing the water from a natural spring on the hillside into two 500-gallon storage tanks. As the tanks would fill, the overflow was sent to the other side of the property in the form of two hillside waterfalls. "The hill had a spring that produced an enormous [amount] of water," Schraven says. "We created a system with holding tanks and fed water into the springs." At night, the tanks are hooked up to the irrigation system for emergency irrigation. During the day, they flow as waterfalls. "[The waterfalls] handle any potential excess runoff, control erosion potential and partially serve the irrigation system," he says.

Schraven gave his synthetic waterfalls a natural look by using decomposed granite, which is dustlike granite that has been ground down. He mixed this granite with cement to bond and expose it, and placed it underwater. "It looks like solid rock, but it's really cement," Schraven remarks. The valves on the tanks can be shut off, should the Bloomes ever want to change the flow direction of the water, he adds. "[The Bloomes] now have a free waterfall and irrigation system from a hillside spring [that also] adds to the beauty of the site," he says.

A series of pathways and trails meander up the hillside from the beach to the street above. Timber steps were anchored with galvanized pipe piles and filled with crushed rock. "It's quite a climb," Schraven observes. "It's great. [We] made sitting areas with flat rock and used an old, dead madrona tree (*Arbutus menziesii*) — [its] wood is incredibly hard — [and] created a patio out of it with moss plantings. [It's] shaded by a layer of trees with an incredible view. It's very beautiful."

Schraven densely planted the entire hillside with 28 evergreen and deciduous trees, including cedars, Douglas firs, hemlocks and shore pines. "Walking through the landscape is a journey from heavily shaded areas of tall trees and lush undergrowth, through semisunny areas opening through fruit trees and meadows of Dutch wallflowers onto the lower lawn and the beach area," he says.

Healing Hands

Schraven's landscape design was based on factors other than aesthetics. His basic design idea stemmed from a pastime of Mark Bloome — holding therapy groups in his garden. "Part of my idea was to create more of a healing garden," Schraven explains. This is more of a "visual" kind of healing: "If [you] walk around and get the sense of a lilac in spring, right away it brings you back to childhood — your grandparents or parents had one. As soon as you get the sense, your memory takes you back. If that was a good thing, that's a healing factor. When you get that sense again, you feel the great part of healing. When you start looking with [your] senses,



The plantings used for this site were chosen especially to create a wealth of colors in all seasons.

Equipment, including backhoes and bulldozers, was brought to the site by barge. An excavator, also brought in by barge (below), was used to unload the materials. Fly ash was installed on the eroded hillside, and 11 months later, all vegetation had taken firm root and grew profusely (above). Rock retainers and outcroppings were well-integrated and softened with lush plantings to give the feel of a well-established rock garden.

amazingly steep site, and I just needed what I needed." The cost of the Bloomes' landscape design was about \$275,000, including all equipment and labor — a price worth paying, when you consider that since the project was completed three and a half years ago, there have been no signs of settling or erosion on the site. The plants Schraven selected continue to help hold back the soil.

According to Schraven, heavy rains hit the Seattle area last spring, possibly the worst in years. "Major areas there had landslides that required entire roads to be closed," he says. "Houses went into the Sound. Nothing happened with this [landscape]. It showed no signs of slipping or settling."

Mark and Sharon Bloome still have a yard like no other — covered with majestic trees, gentle waterfalls and meandering paths that lead to healing. The only thing that's missing is the slide. But the only slide the Bloomes will ever experience now will have to be at the playground.

Jennifer Jaros is an assistant editor of American Nurseryman.

Reprinted with alterations and updates from AMERICAN NURSERYMAN, November 15, 1996.

like. That's what a garden is to me."

Approximately 5,530 hours and 16,350 installed plants later, Schraven's creativity and knowledge resulted in a landscape that not only protects a home and its surroundings from erosion, but provides a peaceful place of healing as well.

Working with particular colors and senses, not to mention tons of rock and plant material, caused the Bloomes' landscape budget to increase from the original estimate. According to Schraven, determining a budget at the beginning of the project was difficult. "I ended up with 125 tons of extra rock so I could finish my outcroppings. It's an

you can start to create healing [gardens]."

One way Schraven played with the senses was to use colors to their best advantages — be they the brilliant highlights of red huckleberry (*Vaccinium parvifolium*) or the golden glow of a maple (*Acer*). "There's nothing more beautiful than color," he explains. "It's important to keep color throughout the year — different grasses in winter, winter-blooming camellias, even a bad tree. If it has a beautiful branch structure, with frost, it's in bloom as far as I'm concerned. It's a picture. It's different. That's part of arranging color year-round. Life is happiness. That's what gardens should be

HENDRIKUS SCHRAVEN

LANDSCAPE • CONSTRUCTION • DESIGN, INC.

P.O. Box 1289, Issaquah, WA 98027
Phone: 425-392-9977 Fax: 425-392-4335
www.hendrikus.com