Reconstructing the landscape

By CHELSEA CONABOY
Monitor staff

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One of the biggest challenges in figuring out just why the Suncook River jumped its banks in Epsom last month is reconstructing what the landscape along the riverbank looked like before it was flooded, scientists say.

The river abandoned more than a mile of its channel on the morning of May 16, carving a shorter path to meet up with the river again downstream and bypassing two dams. The flood wore away an embankment and flooded a low-lying peat bog. It also eroded about two acres of sand from a large excavation pit on higher ground.

While the river may have eventually pushed its way out of the meandering channel to find a straighter path, some have questioned whether the pit, which was less than 200 feet from the bank, accelerated that process.

Epsom resident Eric Orff said the excavation made way for the river. Orff, who works for the state Fish and Game Department, said rolling hills that stood in place of the pit before excavation started may have pushed the river into the snake-like path it followed before the flood. "You turn two hills into a mole hole, and the river had a place to go that it wouldn't have otherwise gone," Orff said.

State geologist David Wunsch said he is doing "forensic geology"work, trying to piece together a picture of the pre-flood region.

"Maybe the gravel pit had something to do with it, but maybe it was something that was going to happen naturally," he said.

Upstream, residents worry the river that passes their property will be reduced to a trickle without the obstruction of the dams. Downstream, homeowners are still digging out their yards from feet of sand that was swept out of the pit by the high waters.

Some have urged town and state officials to try to put the river back where it was or to add a dam to the new channel. Scientists have said it will take awhile to make a decision. First, they have to get a handle on what happened.

"I'd certainly like to see those dry riverbeds fill up with water again," said Ralph Cutting, a spokesman for the Cutter family, who ran the gravel pit.

Cutting said the 5.6-acre pit, now unusable, had been used for excavating sand for septic systems and construction since the 1960s.

Cutting said the area was hilly and covered with large pine trees before then, but he doesn't think the pit changed the elevation of the area much. And, he said, the pit has been monitored regularly: The state inspected it, and the town signed off on excavation forms, each year.

Since April 2002, the town has allowed 31,900 cubic yards of sand to be hauled out, according to town excavation tax records. A month before the flood, town officials signed a plan to haul out 5,000 more.

The state Department of Environmental Services requires pits bigger than 100,000 square feet, or just over 2 acres, to go through a permitting process. The process is stricter for pits that lie within 250 feet of public water bodies. A 150-foot woodland buffer is required between the pit and the water.

But there's no state oversight if the pit was in operation before 1981, when the permitting program started, said Ridgely Mauck, supervisor of DES's Site Specific Program. He said the department has no record of permits or complaints dealing with the Cutter pit.

Regulated pit owners have to file regular status reports, but visits to both permitted and grandfathered pits to ensure that they stay within their bounds are limited.

"I'd have to characterize that as minimal," Mauck said. "It's, frankly, a staffing issue."

A separate state law requires local officials to permit pits and to keep excavation from happening within 75 feet of any large water body. Cutter estimated the pit had a 125-foot buffer with the river on average.

None of the state officials interviewed could say just what the buffer was before the flood. That's one thing Wunsch is trying to figure out, he said.

He's also trying to determine the land's elevation before the pit was dug. While topography maps show an incline where the pit is now, those aren't always accurate, he said. Varying map scales can be deceiving. Wunsch is trying to find aerial photos taken before the excavation. "They don't lie as much as the maps," he said.

Wunsch said it's natural for a river to try to cut off the hooks in its path to find a more direct one. Horseshoe Pond in Concord formed when the Merrimack River shifted sometime in the last 12,000 years and the old channel refilled with water, he said.

Wunsch said there's no evidence the river ever flowed through the course it's taking now.

"Maybe the river wanted to go there, but when you have two large hills that have been there since the ice age, it couldn't go there," said Orff, who has watched the river running chocolate from his home downstream.

No matter what regulations should have been or were being followed, Orff said, there

should be better state oversight of pits like Epsom's. "There should have been some physical effort made to determine, where is the line in the sand, so to speak, that you cannot go beyond," he said.

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