DJC

THE DAILY JOURNAL OF COMMERCE, PORTLAND, OREGON

TUESDAY
December 9, 2014
www.djcOregon.com

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Pointing to a cleanup's success

By Inka Bajandas
inka.bajandas@djcOregon.com

Nine years have passed since NorthWest Ecosystem Services ecologist Paul Fishman started managing an extensive effort to clean up a brownfield in Portland's South Waterfront District.

He still returns to the 30-acre Zidell Yards property to monitor native plantings reclaiming an area where ship deconstruction operations led to asbestos, lead, oils and other harmful compounds for years being dumped into the Willamette River and onto the bank. On a recent visit to the site, Fishman, who served as the Zidell waterfront cleanup project manager, showed a riverbank once marred by industrial use that now is in a more natural state.

"To me, this is beautiful," he said.

The privately funded cleanup, led by site owner ZRZ Realty Co., was completed in 2011 to make way for mixed-used redevelopment on the riverfront property adjacent to the Zidell Marine Corp. shipyard on Southwest Moody Avenue. As the positive results become apparent, the project is gaining national recognition for innovative engineering techniques and serving as a model for remediation.

The Coasts, Oceans, Ports and Rivers Institute recently honored Vancouver, Wash.-based environmental engineering and planning firm Maul Foster & Alongi for its contributions to the cleanup with a 2014 Project Excellence Award in the large project category. The award is one of two given out annually by COPRI, a semi-autonomous institute of the American Society of Civil Engineers.

The judges for the award commented that the Zidell Yards cleanup was "a novel approach" to removal and containment of contaminants along the riverbank.

"The skill sets and techniques of the design team to accomplish the analysis and ... design are impressive," they added. "The efforts resulted in a successful mitigation of decades of military-related aquatic sediment and landslide contamination."

Because of the complexities of the site, project engineers spent an extensive amount of time analyzing various factors, Maul Foster & Alongi senior engineer Erik Bakkom said. The result was three different designs for cleaning up and reforming different portions of the site based on the level of contamination and typography of the riverbank.

"All those things changed how we addressed the design," Bakkom said.

Firm staffers worked closely with the Zidell Marine Corp. and other project team members to restore the contaminated site without disrupting its ongoing use as a barge construction facility. The worst contamination was removed and transported to a landfill. The rest was contained within an 11-acre cap that Maul Foster & Alongi staffers designed to prevent hazardous chemicals from leaching into the river. It also fits under the new Tilikum Crossing transit bridge.

"There was a lot of thought that even went into the design just of this pile of dirt," Bakkom said.

During the cleanup, nearly 20,000 cubic yards of soil contaminated with industrial chemicals was removed from the riverbank in coordination with Tilikum Crossing construction nearby. The effort also involved removing from the river 2,200 treated wood pilings that formerly were part of a dock built in the 1930s.

The contaminated soil was replaced by barge loads of clean sand from the Columbia River and rock from a quarry near the town of St. Helens. The added sand and rock reshaped the riverbank to feature more a gradual slope instead of a steep vertical drop. To provide wildlife and habitat, approximately thousands of native shrubs were planted and larger rocks were replaced with gravel more hospitable to fish.

"We rebuilt this whole riverbank," Fishman said.

The cleanup was officially completed nearly four years ago, but Fishman and Maul Foster & Alongi staffers for the next 10 to 15 years will monitor the site as it's further primed for commercial and residential redevelopment. This includes ensuring efforts to create fish habitat in the river are working and that the cap is still preventing contaminated soil from leaching out. A couple of months ago, the site gained 20,000 additional plantings.

"Zidell is actively managing this project," Fishman said. "You've got to take care of it."

Paul Fishman, an ecologist with NorthWest Ecosystem Services, describes how cleanup of a former brownfield site in the South Waterfront District has benefited the Willamette River. (Sam Tenney/DJC)