

The Tributary: *Special Edition*

In This Issue: **The Smooth Rock Lick Project**

BRWA Works to Limit Acidic Mine Seepage into Smooth Rock Lick Run

In 2010, the BRWA helped improve the Beautiful Buckhannon River by implementing a project to remove acid mine drainage from Smooth Rock Lick. Smooth Rock Lick is a small tributary of the Right Fork of the Buckhannon located in the highlands of southern Upshur County (maps are on page 2). This important work was made possible by WV DEP's Division of Water and Waste Management in cooperation with BRWA and National Mine Land Reclamation Center's WV Water Research Institute has gathered data on these tributaries in recent years.

The History

According to the WVDEP¹, the Smooth Rock Lick (SRL) site is part of the DLM Mine Complex in Upshur County. Treatment to NPDES technology-based effluent limitations is required through litigation by the West Virginia Highlands Conservancy in 1985. Drainage from the Complex flows into several small tributaries of the Buckhannon River." Three of these tributaries are Herods Run, Swamp Run and Smooth Rock Lick Run.

Ever since the coal company gave up ownership, the WV DEP has been treating metal-laden, acidic drainage on the permitted area, which is now owned by the state of WV (the Alton Special Reclamation site). However, the three tributaries are also the receiving streams for seepage that originates from the permitted area but which surfaces off the permitted area and thus is not routinely treated by the DEP as part of the permitted treatment area.

The SRL Project: 2010

The project sites are located near the head of two unnamed tributaries that drain into the Smooth Rock Lick sub-watershed adjacent to the Alton Special Reclamation site. Seepage is from mine spoil and from water collecting along a mine bench. The nearest town, Alton, is approximately 2.8 miles northwest of the site; Alexander is approximately the same distance to the southwest.

The BRWA, WV DEP's Division of Water and Waste Management, and the WV Water Research Institute developed a plan to capture the seeps, reduce their metal content and neutralize their acidity before they enter the headwaters of Smooth Rock Lick Run. This project (SRL project) consists of three seepage sites, two of which are combined into one sub-project; the third site is a second sub-project. (continued page 2)



Smooth Rock Lick Site #1 Before Completion of Project



Smooth Rock Lick Site #1 After Completion of Project



Smooth Rock Lick Site #2 Polishing Pond

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Updates on research, projects, and activities within the Watershed

The Smooth Rock Lick Project (Continued)

Funding (\$330,000) for the design, engineering, and construction was from section 319(h) of the Clean Water Act and from the U.S. Office of Surface Mine's Watershed Cooperative Agreement program. Gathering baseline data specifically for this project began in late 2005, with fund procurement, conceptual design, and final engineering design having been completed by 2009. Following a period for surveying and bidding-out the job, construction began in July 2010 and was completed by October 2010.

The project uses a passive treatment system (no machinery or "dosers" are involved). The basic system consists of limestone channels to convey seeps to limestone leach beds where prolonged contact with limestone will "sweeten" the water by raising the pH and causing precipitation of iron, aluminum, and perhaps some manganese.

The last phase of the project, yet to begin, is gathering water-quality data to determine the project's effectiveness in meeting the intended goal, which is removal of approximately 80% of the contaminants. This constitutes a total removal of approximately 23,000 pounds per year of acidity, about 3,200 pounds per year of iron, and about 900 pounds per year of aluminum; some manganese reduction should also occur. The post-project water quality data will allow comparison of the metal and acidity loads before treatment with those loads after treatment. The ultimate goal for most of BRWA's projects is removing much of the acidity, metals, and coliform bacteria from waters entering the Buckhannon River.

¹Source: http://www.dep.wv.gov/WWE/watershed/TMDL/grpb/Documents/Tygart/3016_complete_tygart_tmdl.pdf: Accessed 1/2011.



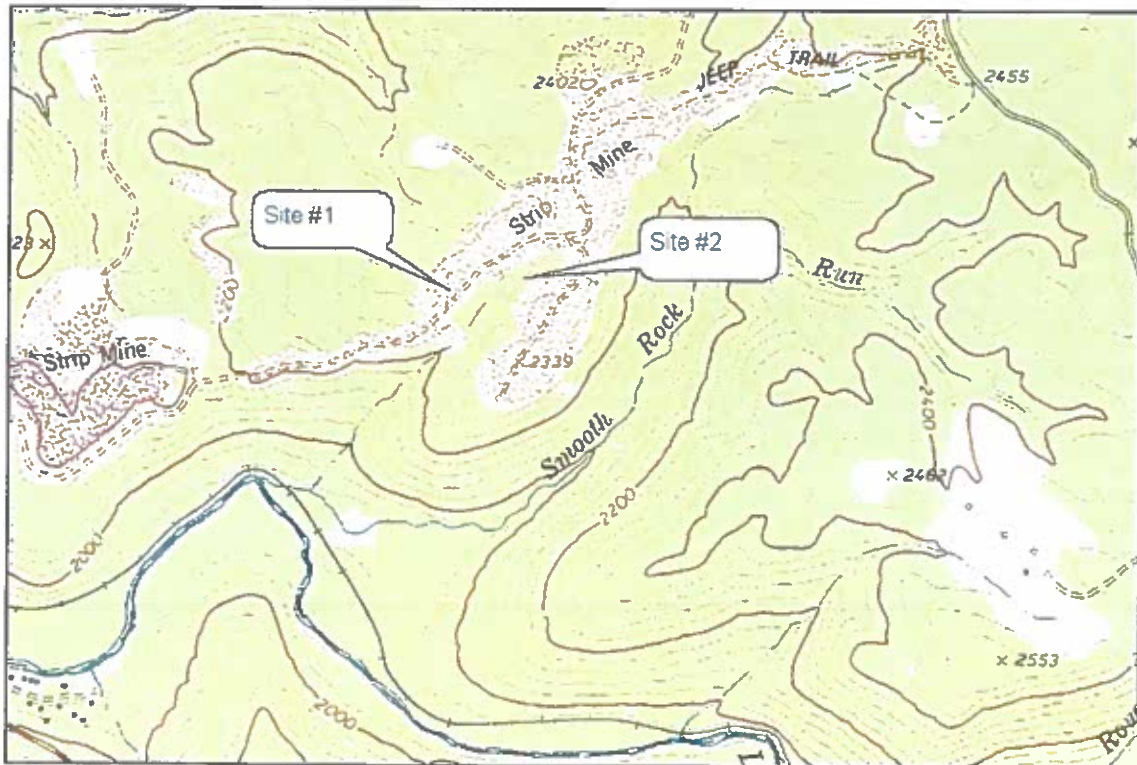
Smooth Rock Lick Site #2 Leach Bed

Buckhannon River Watershed Association

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T. Hackett
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USGS Topographical Map showing approximate locations of Smooth Rock Lick Sites #1 and #2.

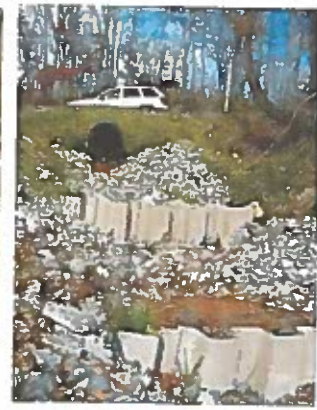




Smooth Rock Lick Site #3 Downstream

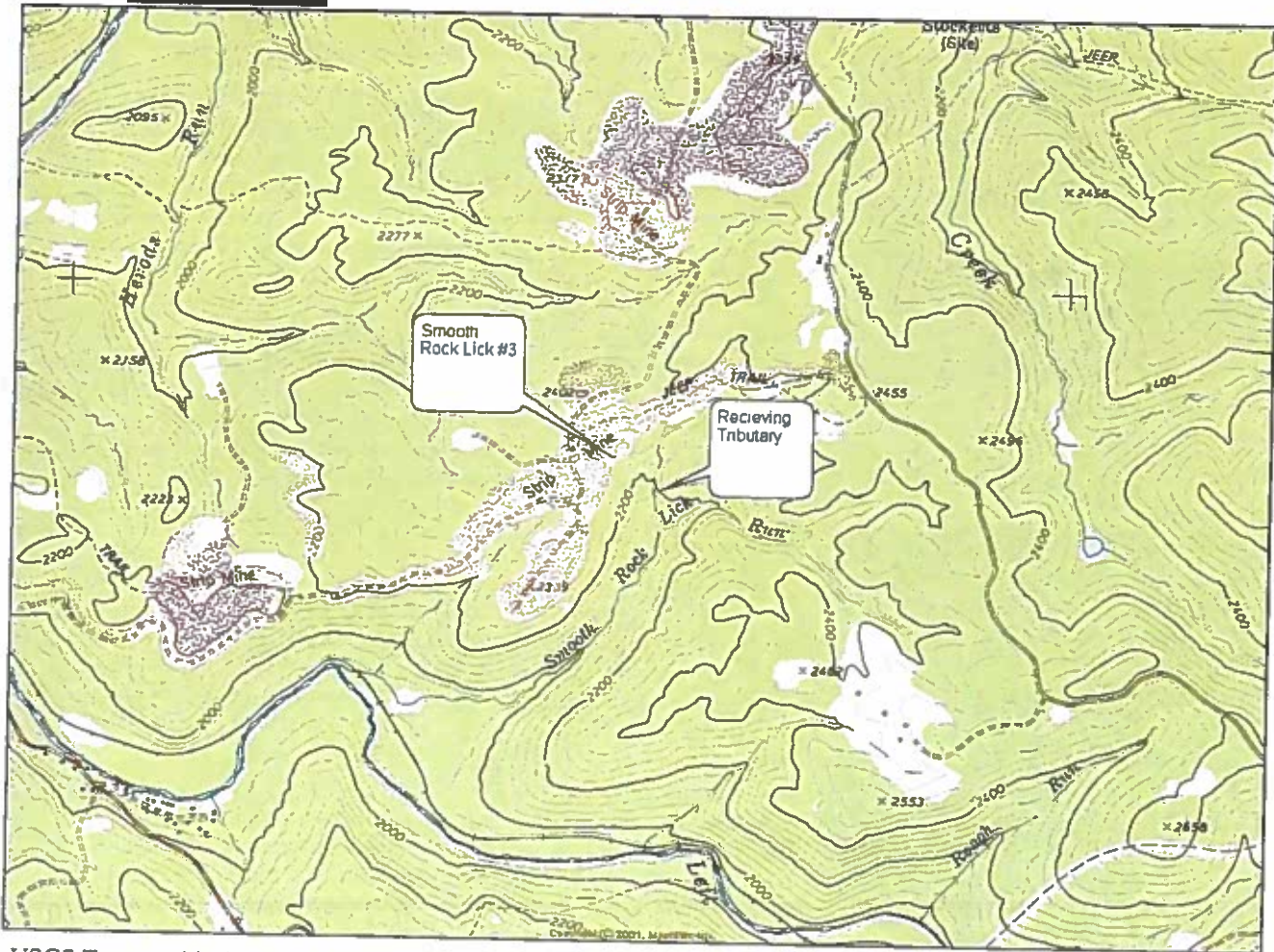


Smooth Rock Lick Site #3 Upstream



Repaired culvert, part of SRL Project

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USGS Topographical map showing approximate location of Smooth Rock Lick Site #3 and Smooth Rock Lick Run.