Figure 2a. Ellison Ridge Area: Ridge-running, Soil Erosion, Compound Impacts

July 13, 2016

Annotations in dark red added to Figure

1:36,112

0 0.425 0.85 1.7 mi

0 0.5 1 2 km

MVP_proposed_route_buffer

MVP_Proposed_Route_Soil_Erosion

- Severe
- Moderate
- Slight
- Not rated

NHD_flowline_MVPcounties

karst

Source: ICWA Interactive Environmental Map
http://indiancreekwatershedassociation.org/icwa-interactive-environmental-map

Description of Ellison Ridge Area: Ridge-running, Soil Erosion, Compound Impacts

<u>Figure 2a. Ellison Ridge Area: Ridge-running, Soil Erosion, Compound Impacts</u> is an example of the need for federal and state agencies to examine and evaluate effects of the destruction of ecological systems in headwater areas of high gradient first order stream watersheds, including springs, seeps, and wetlands. MVP's construction of a continuous, 125-foot corridor and pipeline trench along ridgetops and associated slopes would cause compound and cumulative impacts on watersheds.

Ellison Ridge and the Hans Creek Valley are integral parts of a scenic and historic farming valley that continues to support a vibrant farming tradition, including two National Bicentennial Farms. All homes and farms—both along the ridge and in the valley—rely on private springs and wells that are solely or heavily dependent on waters sourced by Ellison Ridge. The proposed MVP excavation route parallels the historic Hans Creek farming valley for 5 miles (about MP 182.3 to MP 187.2). It continues to impact the Hans Creek watershed to MP 190.2. Following are some of the interrelated impact issues revealed by the Environmental Impact Map:

- The MVP route will affect Hans Creek and its tributaries, by direct crossing and by construction on ridges above the tributary headwaters. By "running the ridges," MVP will have direct and cumulative negative impacts on water throughout the Hans Creek Valley, as well as impacts on Indian Creek, which is listed as a High Quality Stream by the WVDNR.
- Deforestation and construction along mountain ridges and narrow slopes will increase stormwater discharge, erosion, and sedimentation; reduce groundwater recharge; and destroy the canopy in headwater areas of first order streams which form the headwaters of Indian Creek and Hans Creek. The health of first order streams affects downstream waters and wetlands.
- The workspace needed for pipeline construction on the narrow ridges will need to be leveled to a width sufficient to allow for the pipeline trench, heavy equipment, and operating space. This is essentially mini mountain-top removal—top layers of soil and rock will be scraped to "fill out" the width resulting in increased compaction and disruption of headwater areas.
- Since MVP reports that bedrock in this area occurs 2-5 feet of the surface, with several locations less than 2 feet,[3] blasting or "mechanical removal" will be required. (The map's Soils layer, not shown in this Figure, confirms these soil depths.) Blasting along the ridges can destroy the areas where springs and seeps occur, changing the amount and direction of groundwater flow in unpredictable ways. The map shows that these impacts will not be confined to ROW easements. Wells and springs will likely be affected. A spring cannot be replaced.
- A region of exposed karst occurs along Hans Creek, with the creek itself disappearing underground for a third of a mile except during high water periods. The area needs a hydrogeological study to understand the heightened potential for negative water impacts.

<u>Figure 2b. Ellison Ridge Area: Imagery Basemap Showing Forest Impact</u> reveals the extent of forest that would be clear cut, and many (but not all) of the homes, farms, and businesses tucked into Ellison Ridge and along Hans Creek that would be affected by MVP construction and lifetime operation.

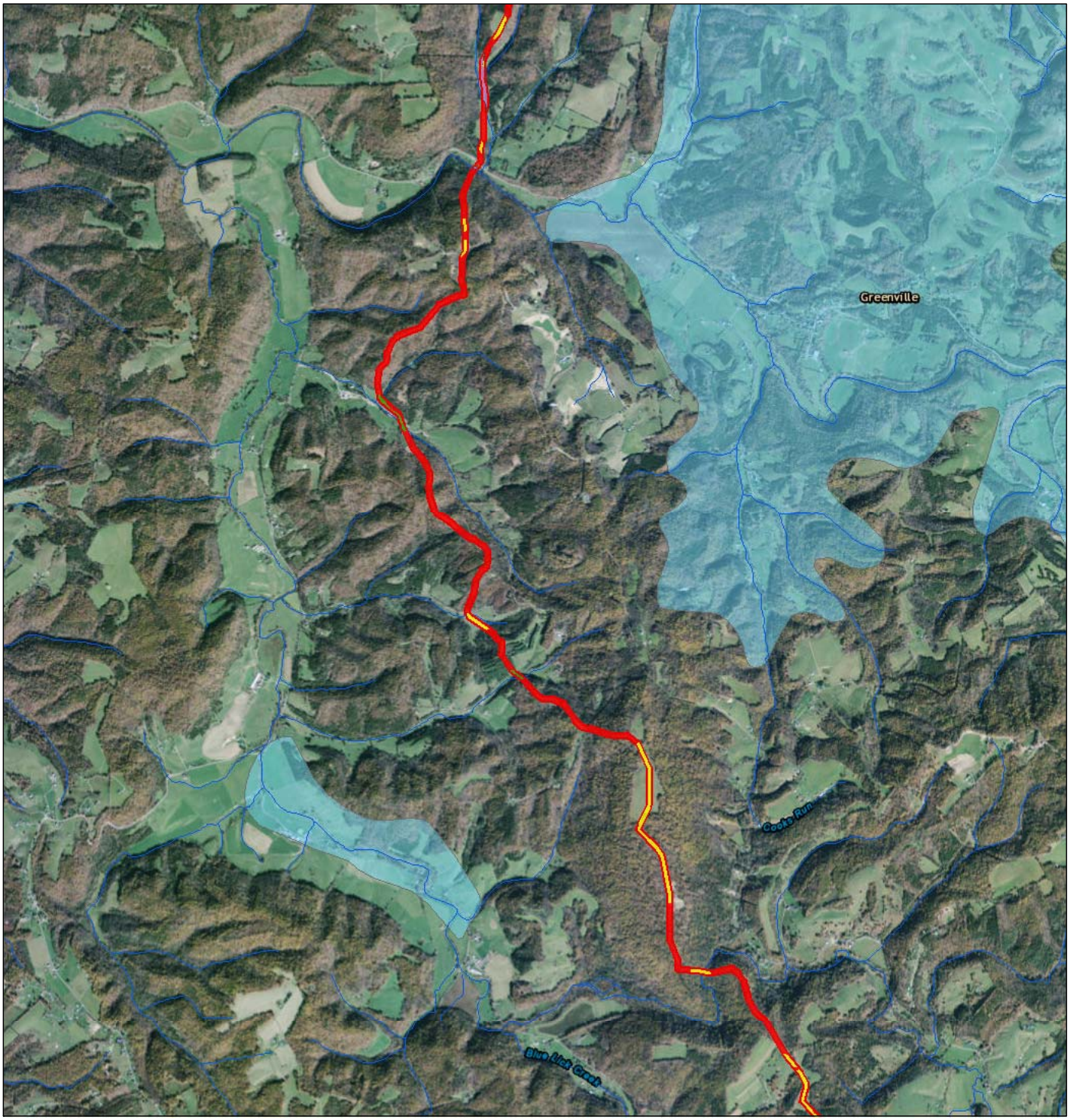
Interactive Mapping elements used in Figures 2a and 2b

Basemaps: Fig. 2a - USA Topo Maps (USGS 7.5 minute topographic map); Fig. 2b - Imagery with Labels

Layers: MVP proposed route right of way (construction easement), MVP Soil erosion potential, Streams: NHD flowlines, Karst

[3] MVP Resource Report 6 – Geology Appendix 6-B, Depth to Bedrock, page 10 of 16.

Figure 2b. Ellison Ridge Area: Imagery Basemap Showing Forest Impact



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