

# **Stream Restoration Remediation - Designing MTMs to Maximize On-site Stream Reconstruction**

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## **Abstract**

Surface mining reclamation practices in West Virginia result in stable valley fills with planar shape profiles. Environmental concerns related to these engineered structures include the loss of headwater stream length, increased flooding risk, and elevated conductivity and metal levels. One reclamation technique, geomorphic landform design, may offer opportunities to improve aspects of West Virginia valley fill design. The approach designs landforms in a steady-state, mature condition and considers long-term climatic conditions, soil types, slopes, and vegetation. This work will seek to answer the following question: Can stable, landforms be designed such that streams are mitigated or preserved on site, while maintaining the same overall footprint as conventional reclamation? A series of field work was completed to characterize mature landforms in southern WV. These characteristics were used to design landforms for three valley fills of varying size. Ultimately, the research will provide the coal industry and regulators with knowledge to advance reclamation.