

## **Geomorphic Reclamation using Natural Regrade**

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Autodesk and Carlson Mining products provided by the OSM TIPS program are used extensively by the Indiana AML group to design reclamation projects. These products allow us to design projects efficiently and in a timely manner. In 2008 we were asked to try out a new software package called Natural Regrade by Carlson Mining.

During the three day training for this software, I started redesigning an AML project that would be going out for bid in the near future. Natural Regrade was so easy and straight forward that I was able to redesign a highwall backfill in a few hours time. This design gave a much more varied landform and allowed for the elimination of a stone lined ditch and upland terrace.

It was decided to bid the job as it was originally designed and as an alternative to bid the Natural Regrade portion so that an economic comparison could be made. By using the natural landform design approach there was a savings in yardage to be moved and stone to line the ditch. I was hoped that this savings would offset the more complicated shaping of the finished landform.

There were three bidders for the project and when their bids were averaged this was the result: Conventional reclamation was \$350,345, using more natural design approach the cost was \$316,497, over a 10% savings.

This new way of design saved Indiana AML \$34,000 on its first use and we have a more natural landscape. There are no terraces or down drains to maintain, thus saving money in the future.

This is a true success story on the use of TIPS software where one project can give a more lasting reclamation to the nations' orphan coal lands.