## **Upper Shavers Fork – Before and After Photographs**



Station 434 - Shallow Pool Downstream of Rocky Run



Station 434 – Pool Deepened to Provide Fish Habitat, Cover & Thermal Refugia



Station 435 - View Upstream (Before) showing over-wide channel, formation of mid-channel bars, and unstable banks.



Station 435 – Showing Lower Width-Depth Ratio, Stabilized Bank, and Defined Thalweg. These improvements just downstream of Rocky Run provide better fish passage and cover during low flow periods. Narrowing the stream provides a better chance for natural re-forestation up to the streambanks, which benefits fish in many ways, including cover, organic matter, and cooler water temperatures for native brook trout. This photo was taken shortly after construction so the site did not have time to re-vegetate.



Station 437 – Unstable streambank and no fish habitat



Station 437 – After construction with J-Hook vane installed with a deep pool and the streambank stabilized



Station 441 – Wide channel with poorly defined thalweg (Before)



Station 441 – Narrowed Channel with Well-Defined Thalweg using Single Wing Deflectors (The flow in this "After" photo is lower than in the "Before" photo)

## **Problem Areas for 2012 Construction Season**

These photos represent common problems being corrected by this fish habitat improvement project. These common problems include unstable eroded banks, lack of stream access to floodplain, lack of defined thalweg for fish migration during dry periods, over-wide areas that contribute to higher stream temperatures in the summer, lack of deep pools, lack of woody debris, and other habitat deficiencies.



Station 465 – Fallen Blocks will be replaced with a bankfull bench and J-Hook rock vane



Station 486+35 – Eroded streambank will be repaired using brush mattresses & large woody debris



Station 510 – Straight and wide stream reach will be narrowed using alternating single wing deflectors and thalweg enhancement.



Station 558 – Eroded bank will be stabilized using toe wood and reinforced earth with live stakes. The use of toe wood will create fish habitat where it is currently absent.