

# Gully Stabilization

Last Resort Farm, Monkton, VT

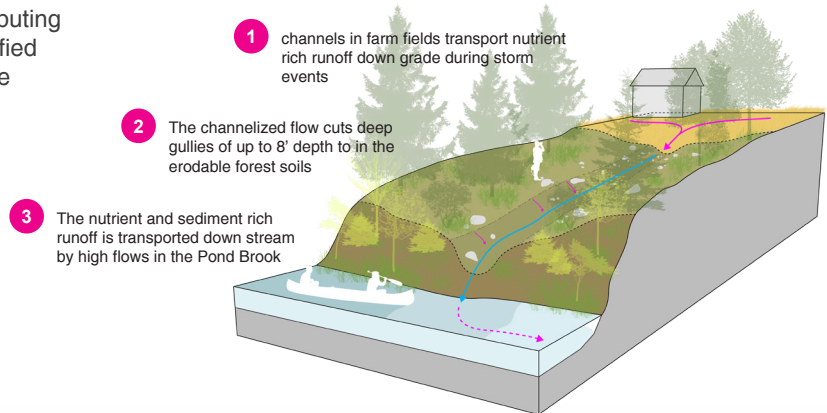
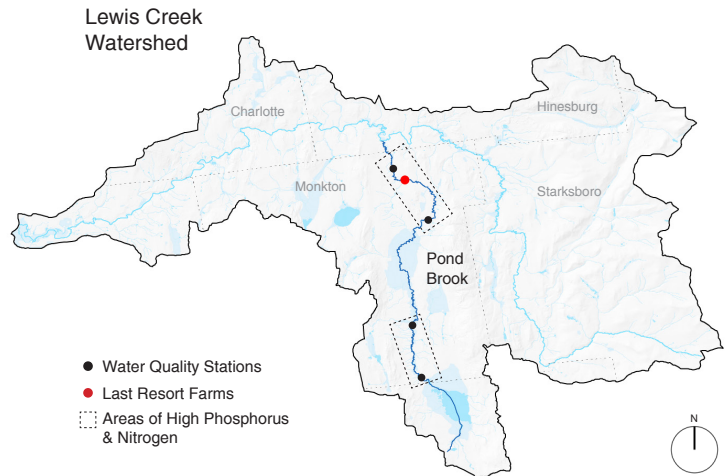
## Pond Brook Tributary

The Pond Brook Tributary, a sub-watershed of the Lewis Creek, has been identified as a chronic loader of sediment and phosphorus to the Lewis Creek, and a long segment of the Pond Brook is considered impaired for recreational uses due to E.coli, sediment and nutrients that derive from agricultural activities in the watershed.

Bracket sampling was conducted for one year to identify focal areas (or hot spots) of degraded water quality. Samples collected during a storm on May 16th, 2012 indicated a substantial spike in turbidity as well as phosphorous and nitrogen in two segments of the Pond Brook.

## Source Identification

Gully erosion was revealed along this reach - a likely contributing source of sediment and nutrients. Five gullies were identified that are fed by swales that developed in hay fields on the Last Resort Farm, and cut down through steep, forested slopes with erodable soils that formed the valley walls along Pond Brook. Where gullies met the Pond Brook, there were large deposits of sediment, which would be periodically flushed and transported downstream by high flows in the Pond Brook.



## Treatment Practices

The owners of Last Resort Farm, Sam and Eugenie Burr, were interested in addressing the eroding gullies. Utilizing funding from the Natural Resource Conservation Service Renvironmental Quality Incentive Program (NRCS EQIP) and Vermont Agency of Natural Resources Ecosystem Restoration Program (VTANR ERP), surveys and engineering and design services were completed and several treatment practices were developed to address erosion along the length of the gullies. The landowner was able to contribute matching funds in the form of in-kind services (grading of the field and installation of erosion control), and donated materials (tree boles and brush).

**Treatment 1**  
NRCS Rock-lined Waterway



12-24" stone are laid over geotextile fabric slowing the flow of water and reducing erosion.  
Requires heavy equipment and disturbs forested areas.

**Treatment 2**  
Rock-lined Entry



12-24" stone are laid at the gully inlet, dissipating the energy of the channelized flow and reducing gully erosion.

**Treatment 3**  
Log Check Dam



Large trunk segments are placed perpendicular to the gully in deep areas, stabilizing soils and slowing the flow of water.

**Treatment 4**  
Log Stacks



Small to large trunk segments are placed parallel to the gully in less deep areas, stabilizing soils and slowing the flow of water.

**Treatment 5**  
Brush and Small Log



Brush and small logs are arranged in multiple directors to stabilize gully walls and control erosion.