

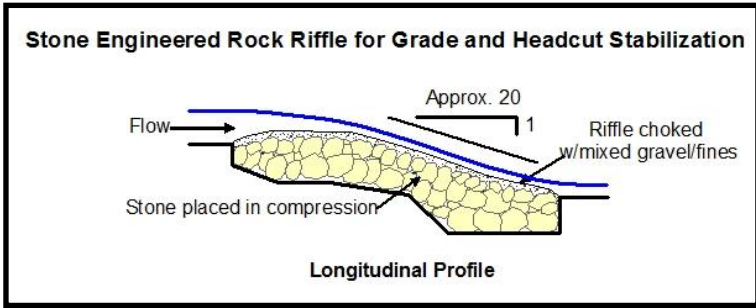
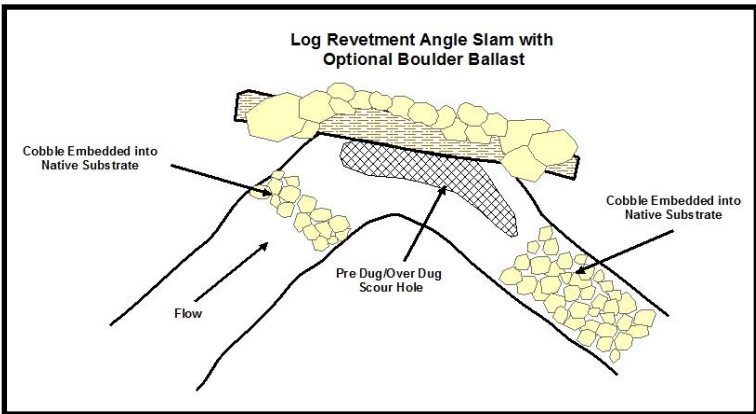
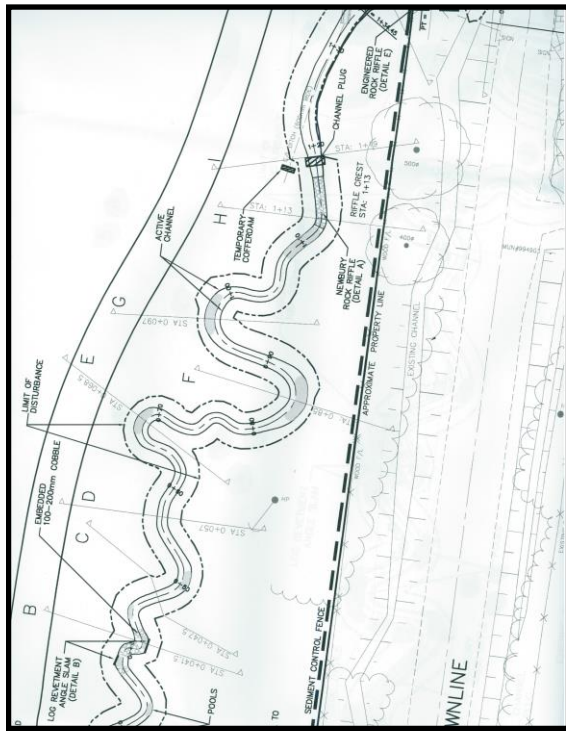
## Hockley Hills Trout Stream Relocation and Natural Channel Design

Road widening in rural areas often involves impacts to streams. A government stimulus project in a rural township in southern Ontario sought to widen an existing road and replace a failing bridge. A high quality stream was located parallel to the road but had poorly developed habitat and channel characteristics due to road maintenance impacts. As part of compensation requirements, the stream was moved away from the road and into a nearby field, located on private property. This provided sufficient room for a “natural” channel design that would align stream flows to the new bridge and provide in-stream habitat to support a native Brook Trout population.

The natural channel design was based on geomorphic characteristics and stream channel dimensions produced from on-site assessments and GIS based analyses. The stream was designed to duplicate existing unaltered headwater streams located nearby (left photo). The design channel included various habitat structures including Engineered Rock Riffles, Log Revetment Angle-Slams, and undercut banks based on modified design structures originally developed by Dave Derrick. The “new” channel created more in-stream habitat than the one it replaced due to the greater amount of meandering, increasing channel length, and in-stream structures. The design channel was constructed in one-week and can be seen below (right photo). Riparian restoration was also completed using native vegetation. The design plan, structure drawings, and additional photos of completed habitat structures are also shown on the next page.



**Left photo shows pre-construction condition and existing streams with channel along road (red line);  
Right photo shows meandering natural stream channel as completed.**



Drawings of the channel design (left) and habitat structures (right).



As built Log Revetment Angle-Slam (upper left photo) and Engineered Rock Riffle (right photo); Resident Brook Trout (lower left photo).  
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