**Problem Statement**

- Changed watershed landcover
- More runoff
- Less contact time
- More erosion and pollution
- Loss of aquatic resources
- Reduction of floodplain function
- Degradation of wetland and riparian resources

**Loss of Ecosystem Services**

- “On the contour” reservoirs and porous media to create seepage wetlands that detain/retain and filter stormwater
- “Base flow” stream channel restoration to reconnect the stream to its riparian/floodplain area
- “Riffle grade control structures to raise stream channel invert to reconnect to floodplain and divert flows into seepage wetlands

**Benefits**

- Increased time of concentration for stormwater runoff
- Increased contact time and surface area for material processing
- Hydrologic modifications that support wetland creation/restoration, restore stream channel baseflow, recharge groundwater table, restore spring seeps, extend baseflow discharge on intermittent streams, etc.
- Restore floodplain functionality
- Suppress non-native invasive riparian plants
- Aquatic resource improvements, including aquatic habitat diversity, water quality improvements, vernal pool restoration in floodplains, etc.

**Applications**

- Repair of incised gullies/streams
- Development of cost-effective wetland hydrology to support wetland restoration
- Integrated stream and wetland restoration
- Trout stream rehabilitation for high temperature and low summer flow constraints
- Stormwater quantity and quality attenuation in new or existing developments

**Approach**

- Use techniques of stream and wetland restoration to capture water and hold it on the landscape
- Beaver dams as natural analog

**Regenerative Design**

- Sand Seepage Wetland