PROJECT DESCRIPTION

RESTORATION ENGINEERING LLC
Aquatic Restoration and Environmental Hydraulics

Stream Restoration

Jack Creek

Stream Relocation, Restoration, & Habitat Enhancement

Location: Jeffers, Montana

Client: Private Client and NRCS

Key Project Elements:

- Initial Site Inspection & Feasibility Analysis
- Geomorphic & Habitat Assessment
- Hydraulic Analysis & Hydrologic Assessment
- Stream Restoration & Fish Habitat Enhancement
- Bioengineered Bank Stabilization
- Revegetation Design & Implementation

Project Description:

The RE, LLC team designed and provided construction oversight for a stream restoration project on Jack Creek, a tributary to the Madison River. The project design included the relocation of a portion of the channel into an adjacent floodplain surface, creation and enhancement of juvenile and adult fish habitat, restoration of riparian vegetation, and re-activation of the floodplain.

The purpose of the Jack Creek relocation project was to restore a 1,600 foot reach of the channel and floodplain corridor. The original 1,290 foot project reach was diverted from its historic channel into an artificially straightened channel. A road was constructed on the south side of this channel to serve as a flood control barrier and to provide ranch access. Consequently, the existing channel was a nearly uniform thirty-foot wide corridor with low habitat complexity that was disconnected from its historic floodplain. Livestock also had open access to Jack Creek, which resulted in compacted streambanks, loss of riparian vegetation, and greatly compromised fish habitat.

The restoration design included developing an appropriate planform, profile and cross-section for the creek, construction of engineered log jams, creation of quality aquatic habitat, restoration and development of the floodplain, and a comprehensive revegetation plan. Specific tasks included geomorphic and habitat assessments, channel classification and reference reach characterization, flood frequency analysis, bedload characterization and hydraulic modeling of the design channel. Designs were completed to standards established by the Natural Resource Conservation Service (NRCS).

The main objectives of this restoration plan were to re-establish a stable plan form with increased sinuosity, a longitudinal profile with appropriate bed feature slopes, and channel cross-section geometry with an appropriate width / depth ratio. Upon completion, this project resulted in a fully functional channel and floodplain corridor, significantly enhanced and diversified aquatic habitat, and the establishment of extensive riparian vegetation and riparian habitats.