

Representative Projects

Project Name

Long X Road Culvert Replacement

Client

McKenzie County

Contact

Michael Greer, PE

Key Elements

Land Survey

Hydrologic Analysis

Hydraulic Analysis

USACE Permitting

USFS Coordination

Downchute Channels

Design Drawings

Contract Documents

Life Cycle Cost Analysis

Construction Administration

Civil Engineering Services

ECS Engineers was retained by McKenzie County, ND to provide design and construction administration services for the replacement of an existing 96" CMP culvert installed in the early 1980's beneath Long X Road. The pipe had corroded, which resulted in erosion beneath the pipe as well as road failure.

ECS conducted hydrologic and hydraulic analysis, then worked with local suppliers to determine the best material option for this project. The soil types were highly corrosive, thus concrete pipe was analyzed and determined to be the best option when a life cycle costs analysis was conducted.

ECS worked closely with the United States Forest Service, McKenzie County and adjacent landowner to ensure 24/7 access. Long X Road is a busy county road due to oil exploration activities. The pipe was over 240' long since it crossed Long X Road as well as the landowner's access to his residence. The maximum fill height over the pipe was 30'.

The contractor installed the pipe in two phases and constructed a temporary detour to allow for the county road to be open at all times.

