Nomination for Environmental Award

Team Consisting of:

Saskatchewan Highways & Transportation – Project Manager
Golder Associates Ltd. - Designer
Clifton Associates Ltd. - Resident Engineer
Vector Enterprises Ltd. - Contractor

What:

Installation of Fish Friendly Crossings (Engineering Design/Construction Practise)

Where:

Three Stream Crossings on Highway No. 55 West of the Shoal Lake Access

Why:

To conform to the newly enforced guidelines set out by DFO

When:

February - June 2002

How:

In September 2002 Highways and Transportation was informed by DFO that the three hydraulic designs submitted to them did not meet the current fisheries regulations. Specifically, fish velocities, fish habitat compensation, re-vegetation techniques and proposed construction practises did not meet standard. At this point, Golder Associates Ltd. (Amy Langhorne - Aquatic Biologist, Brent Topp - Senior Hydrologist and Mark Ealey - Senior Ecologist) was hired to circumvent a Harmful Alteration, Disruption or Destruction of Fish Habitat (HADD) and also potential fines from DFO. The Golder Team assembled a conceptual plan that would eventually be deemed acceptable by DFO officials. The plan also met the economic needs of Highways and Transportation. After conceptual acceptance was gained Golder was once again employed to perform a detailed design on the stream crossings. Fish habitat compensation (No Net Loss concept) was achieved through the design of two Rock Weirs.

Erosion control played a large role in gaining acceptance from DFO. Golder's Senior Ecologist developed a plan for re-vegetating the riparian areas surrounding the culverts. Dormant willows were harvested during the winter 2002 and eventually planted in the spring alongside the streambank. Other areas were seeded with a native grass mix also determined by Golder.

Culvert installation was achieved through the innovation of Golder's design and the on-site efforts of Clifton Associates and Vector Enterprises. Under new DFO regulations, siltation of the stream during installation is not allowed. Golder suggested that a temporary ice/snow crossing be constructed. Through innovative construction practises, Vector and Clifton placed logs, geotextile and snow/water to provide a temporary crossing (detour). It was through the efforts of these companies that the culverts were installed without siltation problems.

Monitoring of the culvert installations, rock weirs and revegetation was a major DFO requirement. Clifton provided excellent quality control throughout the culvert installation, while Golder has provided invaluable feedback on post-installation culvert hydraulics and currently is monitoring the vegetation growth.

Environmental Gains: No Net Loss of Fish Habitat. With the quality installation provided by the contractor this environmental gain should be long term.

Innovation Ideas: Rock Weirs, Temporary Ice Detours and Re-vegetation (willows and native grasses)

Some photos

1) Rock Weir Constructed
2) Culvert Outlets and Weir
3) Temporary Detour Construction

Submitted By: Jeff Crang, Project Manager, March 21, 2003

Saskatchewan Highways & Transportation
Environmental Award Submission
Ice Crossing Construction Photos

Old Timber Bridge (was removed)

Tethering Logs For Placement On Streambed of Ice Crossing
(To maintain water flow)

Laying Geotextile
(Prevention of Sediment Entering Streambed)

Dumping Clean Snow on Geotextile

Pumping Water Onto Detour
(Ice Created Strength In Detour)

Cross Section of Ice Crossing

Completed Ice Crossing Detour With Traffic Gravel

Saskatchewan Highways & Transportation
Environmental Award Submission
Culvert and Weir Photos

Completed Culverts

Rock V-Weir (Foreground)

Baffles In Culvert

Re-vegetated Willows (denoted by blue ribbon)