GEMTEC
CONSULTING ENGINEERS AND SCIENTISTS

Feature Project

Project Title: CFB Gagetown, Design of Lauvina Woods Erosion and Sediment Control Plan (ESCP)

Client: Public Works and Government Services Canada (PWGSC)

Project Description:

GEMTEC was retained to design an Erosion and Sediment Control Plan (ESCP) for the Lauvina Wood Heavy Equipment Training Area on CFB Gagetown, New Brunswick

Approximately 50 hectares of the 120-hectare site was cleared several years ago to form several fields in which heavy equipment is used on a regular basis. Several factors, including the clearing of land, the nature of the soil, the slope of the land and the lack of vegetation and proper ditching, etc. have led to major erosion and sedimentation problems. In some areas, runoff from the fields had cut gullies as deep as 1.8 metres. Even small rainfall events would result in unacceptable sediment levels in adjacent watercourses.

GEMTEC conducted a review of suspended sediment records for several Western New Brunswick watercourses to arrive at a reasonable discharge limit from the Lauvina Wood site. Detailed hydrologic and sediment loss analyses were carried out to estimate the magnitude of erosion and sedimentation for different rainfall events. A computer model called WEPP (Water Erosion Protection Project) was used to aid in this. In addition, water samples were taken from several locations on site and at discharge points during and following various rainfall events to measure suspended sediment levels. The results of the analyses were used to design an appropriate ESCP.

GEMTEC conducted a detailed survey of all of the cleared portions of the site and existing roadways, ditches and sedimentation ponds. Ditches and berms were used to separate the clean runoff from the wooded portions of the site from the sediment-laden runoff from the training fields. Several sedimentation ponds were designed to reduce sediment to acceptable levels before discharge. Several other erosion control structures including check dams, level spreaders and energy dissipaters were also designed throughout the site. Several roadways had to be redesigned, as well as re-sizing several culverts and completely redesigning the ditching system.

GEMTEC also provided construction inspection and monitoring during the construction phase.