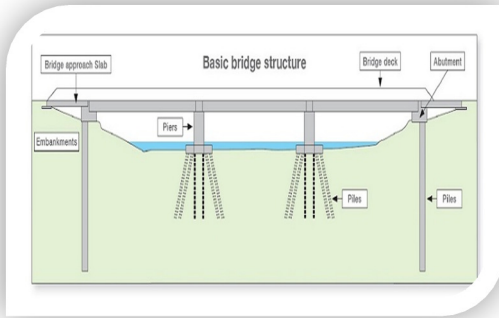


# Application Spotlight



## Ground Penetrating Radar for Bridge Girder Reinforcement

*Key Words: Ground Penetrating Radar, GPR, Concrete, Bridge Girder, Engineering*



In 2017 Maverick was involved in a project on a major highway in Alberta. The work was being performed to benefit Alberta Transportation.

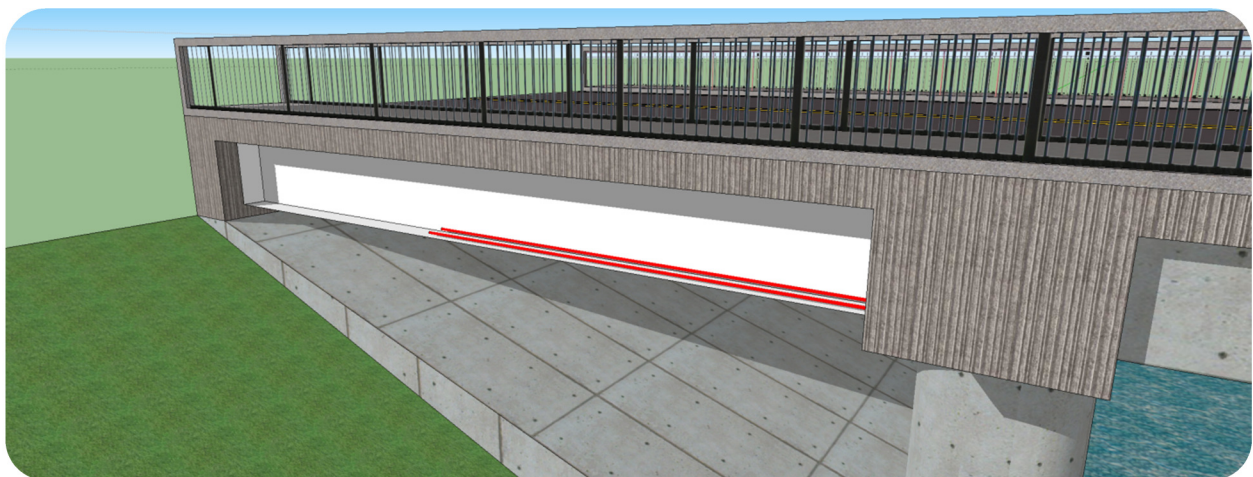
A bridge had been built during the 1950's. The bridge was originally designed as a cantilevered structure, and the steel reinforcement within the bridge girders reflected this reality. At some later point, as the highway was upgraded, abutments were added to the bridge, but no record was kept concerning the girders or the steel reinforcement bars

Maverick was able to travel to the worksite and perform an investigation. Our purpose was to determine whether the original lower flange longitudinal bars had been extended at the time of the abutment upgrade, or whether the bridge continued to follow the design specifications of a cantilevered structure.

GPR was used on the lower surfaces and faces of the bridge and the bars were found to terminate prior to reaching the abutment face. This meant that the structure was designed to have cantilevered stresses, and was now being exposed to loads and stresses in ways not originally intended. Because of this "post-construction" design change, additional reinforcement would be required on the exterior of the girders.

By measuring precisely the location of the rebar termination points, and providing information on the interior stirrups, rebar spacing, depth-of-coverage and related information, our client was able to design an appropriate system of external supports which maximized effectiveness while minimizing costs in material and labour.

The GPR services were completed in just a few hours on-site and the report was ready for review the following day.



*3D Cad Model Showing Rebar Layout,  
stirrups omitted for clarity*

**For more information contact: 780.467.1606**