

Historical Repair Zone Identification

Surveys for undocumented and non-visible repair zones were conducted on Highway 401 in Toronto, Ontario to plan maintenance and road upgrades. The highway in this area is 40 years old and has seen many upgrades and repairs. Two sites are marked on the Google Earth map in Figure 1.

A 200 to 250 mm layer of asphalt overlies concrete slab which in turn overlies granular material. The GPR survey revealed many past repairs and structural issues which were neither on record nor visible from the surface.

Figure 2, shows results from “Site 1”, that highlight a repair zone where part of the entire concrete slab has been removed and the slab to the immediate left is tilted.

Data from “Site 2”, shown in Figure 3, indicates a different construction repair character.

In both instances, the RoadMap data were acquired at 10 mm station interval. Depths were determined from the localized point scattering diffractions and validated against subsequent core sampling.

RoadMap GPR Services ability to provide detailed images of the subsurface provides a powerful forensics tool.



Figure 1: The 2 surveyed sites are marked on the Google Earth map.

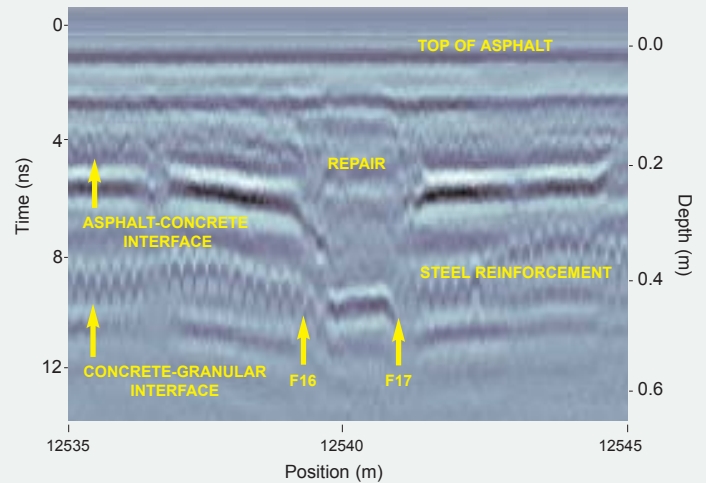


Figure 2: Detailed investigation of Hwy. 401 - “Site 1”. Fiducials 16 and 17 indicate surface cracks observed during GPR data collection. A previous repair and tilting of the concrete slab to the left of the repair are clearly visible in this GPR section. The surface cracks bracket the repair.

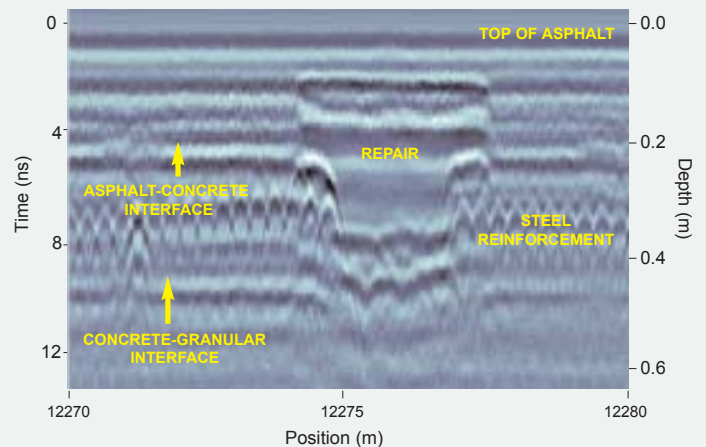


Figure 3: Another repair zone on Hwy. 401 - “Site 2”. In the repaired section, the steel reinforcing and possibly the concrete slab have been removed.