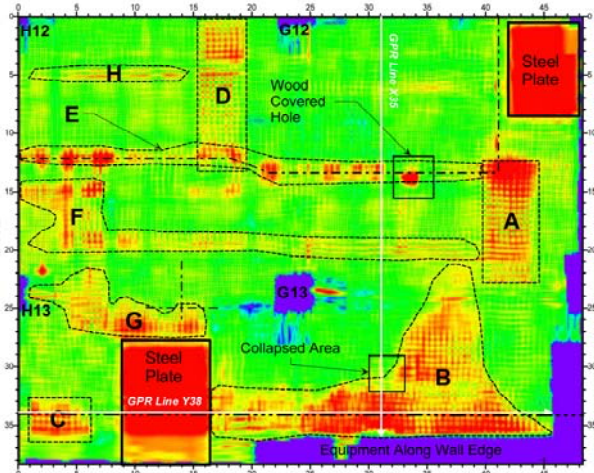


## CASE HISTORY

### Geophysical Survey Locates Voids Beneath Concrete Floor

#### Challenge:

A local construction company discovered voids beneath a concrete building floor after the floor collapsed in several locations. However, the overall extent and size of these voids was not known. The client was interested in determining the extent and size of these voids to resolve whether or not the buildings foundation had been compromised as they were proposing additional loading on the roof. Given the potential extent and magnitude of the problem, MUNDELL was asked to perform a geophysical survey to try and image the void spaces.



#### Action:

To accomplish the study objectives, MUNDELL personnel completed a geophysical survey using an advanced ground penetrating radar system (GPR), with a 1000-megahertz antenna, to view and characterize voids beneath the concrete floor.

#### Results:

The results indicated several void areas between the bottom of the concrete floor and the underlying fill materials in locations as shown above. Many of these voids were on the order of between 0.1 and 0.4 feet in thickness (as shown in the cross-section below) and were linked to leaking sewer pipes nearby. Using the geophysical results, MUNDELL recommended coring through the concrete at select locations to field verify the exact thicknesses of the voids. After

investigation of these areas, the client verified the locations and thicknesses of many of the voids and requested that an identical survey be completed over the remaining portions of the building floor. Similar results were obtained during the second survey.

