

Infrasense Uses Ground Penetrating Radar (GPR) to Map Upper and Lower Rebar Schedules for a Bridge in Dennis, Massachusetts

Infrasense Inc., one of the leading subsurface detection firms in the nation, recently completed a ground penetrating radar (GPR) survey to map the schedule of steel reinforcing bars within the Swan Pond River bridge in Dennis, Massachusetts. During a routine bridge inspection, a large spall was located along the underside of the bridge, motivating the need for a more in-depth evaluation of the structure to aid in determining the structural capacity of the bridge; GPR was the preferred method for this survey because of its ability to image accurately measure the location and depth of objects within a material (concrete) without the need for cutting, drilling, or coring.

Dennis, Massachusetts ([PRWEB](#)) January 11, 2017 -- Infrasense Inc., one of the leading subsurface detection firms in the nation, recently completed a ground penetrating radar (GPR) survey to map the schedule of steel reinforcing bars within the Swan Pond River bridge in Dennis, Massachusetts. During a routine bridge inspection, a large spall was located along the underside of the bridge, motivating the need for a more in-depth evaluation of the structure to aid in determining the structural capacity of the bridge. The bridge evaluation required a non-destructive approach that could efficiently provide comprehensive information, making GPR the best choice. GPR was the preferred method for this survey because of its ability to image accurately measure the location and depth of objects within a material (concrete) without the need for cutting, drilling, or coring.

The objective of the survey was to map the position of upper and lower steel reinforcing bars to verify the reinforcing schedule and construction quality prior to deciding whether to repair or replace the bridge structure. The survey was conducted with the assistance of two Dennis, MA police officers who provided traffic control, maintaining the safety of the survey crew.

GPR data were collected along orthogonal traverses spaced no more than 1-foot apart along the 3,600-square foot bridge structure, producing 7500 linear feet of GPR data in under 4 hours. The data collection was completed using a combination of 900-MHz and 1.5-GHz antennas and a GSSI SIR-3000 GPR control unit, mounted to a survey cart with an integrated distance encoder. Elapsed time between the data collection and the delivery of the final report was just over 1-week, including detailed maps of rebar spacing and depth.

Ground penetrating radar operates by transmitting short pulses of electromagnetic energy into the deck using an antenna that is moved across the concrete surface. These pulses are reflected back to the antenna with an arrival time and amplitude that is related to the location and nature of dielectric discontinuities in the material (air/asphalt or asphalt/concrete, reinforcing steel, etc). For the Swan Pond River bridge, we were interested in the reflected response of the reinforcing steel, which was used to map the spacing and cover depth. The results of the survey provided the engineering firm confirmation that construction of the bridge matched the original design plans, including the intricate changes in rebar scheduling.

About Infrasense, Inc.

Since 1987, Infrasense, Inc. has applied state-of-the-art technologies to address the most difficult challenges in subsurface scanning. Infrasense's engineers nondestructively extract critical information from a diverse range of structures. In addition to providing ongoing subsurface evaluation services to clients across the country, the



firm has also conducted numerous research programs to advance the field of subsurface detection and non-destructive evaluation. To learn more about Infrasense and the services we provide, visit our website: <http://www.infrasense.com>

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