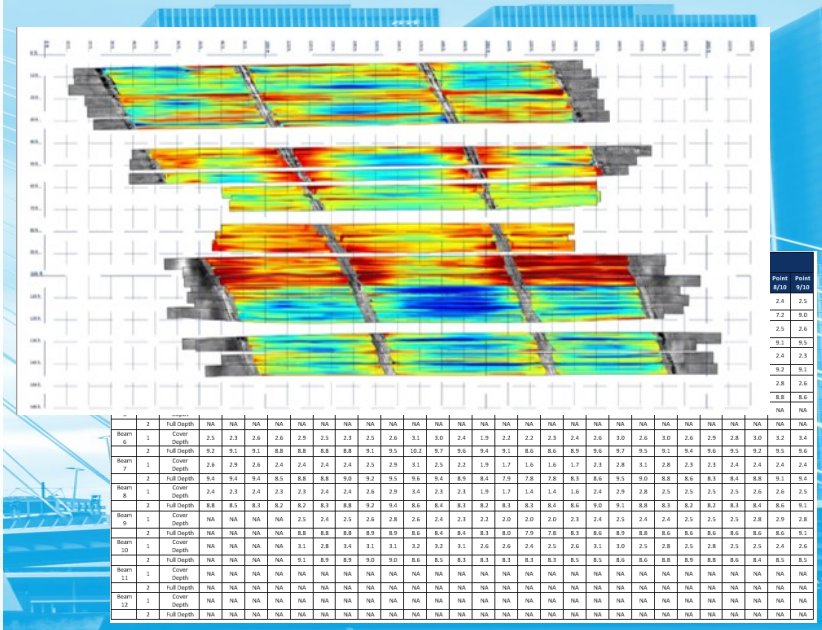
Cover Thickness and Slab Thickness Measurement of Maryland Bridge

To resolve questions around the potential over and/or under pouring of concrete cover on a newly milled bridge deck, NEXCO and iSee, LLC evaluated the depth of both concrete cover thickness and total deck thickness across the entirety of a 32,000ft^2 bridge deck.

The concrete cover depth measurements are derived from reflections at the top rebar mat. A heatmap display like the one shown on the right can show variances across the many rebar strands in the deck. In this map's case, red indicates a deep depth while blue indicates shallow, so you can see that there are starkly contrasting portions of the deck.

Using the slab end reflection and reflections across longitudinal I-beams, we generated a similar heatmap of the total deck thickness.

From the depth heatmaps, we concluded that the inner portion of the deck had too much concrete cover.



Project Details

Client	[Maryland Agency] iSee, LLC
Reference	Mark Wolcott mark.wolcott@iseeusa.net
Surface Area	1 Bridges 32,000ft^2
Project Period	March 2022

Impression

As opposed to taking many cores in set distance intervals to confirm cover depth, you will be able to strategically select problem spots using a GPR-generated cover depth map. Tying one or two ground truth cores to the GPR data also provides very high accuracy so far as the dielectric properties are similar for most of the deck.

This was a highly useful tool in diagnosing a suspected construction issue and put further subjective arguments to rest with the introduction of an objective report.

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