

WARNER'S CORNER

FORESTS, TREES, AND LEAVES



JAMES WARNER

I often see where lots of effort and the client's money are spent over-analyzing the tiniest details, oftentimes without even a cursory glance at the overall picture.

A good example was a case where severe corrosion was evident on a significant industrial structure. So bad was the problem that the maintenance staff had hung netting under the overhead areas to prevent concrete spalls from falling onto personnel and into open tanks of processed product. Severely corroded reinforcing bar was widely visible, as was extensive rust staining. For whatever reason, the severe deterioration had been overlooked by plant staff until the wheel of a forklift penetrated the pan joist floor above. A well-known engineering firm was brought in to assess the situation and recommend appropriate repairs. It was evident from only a brief glance that serious corrosion had occurred, and major repair and complete replacement of some sections would be required.

The condition assessment included a visual examination, the drilling of nearly 100 holes to collect powder samples for chloride ion content tests, and even some petrographic evaluation. It concluded, quite properly, with a recommendation to replace the entire affected area of the slab. The replacement recommendation would have been appropriate based simply on the visual assessment, so why the large number of detailed material tests? They were not needed; simple observation of the overall condition of the structure would have sufficed.

Back when I was a contractor, I was called to make a proposal for settlement correction and repair of a large, recently built recreation building in a municipal park. Upon arrival at the site, I noticed traffic ahead bouncing over a dip in the road, adjacent to the park, and felt it myself as I crossed. Once on site, standing back and observing the wide area around the building, it was obvious that it had been constructed on the edge of a large depressed area, which included the dip in the adjacent roadway.

The engineer had drilled several shallow borings and performed numerous laboratory tests, concluding the problem

resulted from a thin layer of loose soil immediately under the spread footings, even though such a thin layer could not reasonably result in the extensive settlement. He called for compaction grout to be pumped under the footings to densify the soil, but this unfortunately added weight to the already overloaded formation, actually worsening the problem. The engineer's shallow borings had not descended to a deep zone of low-density peat soil that was responsible for the large areal settlement. The expensive soil testing was not needed and was misleading at best. Had he simply stood back and observed the wide area, the cause of the problem would have been obvious, and neither the excessive soil testing nor incorrect repair would have been called for.

I refused to bid the job, but it was done as specified, by another contractor. The settlement continued, the structure was abandoned, and it was eventually demolished. But that was not the end of the damage: about a year later, I received a call from an attorney representing the contractor that built the original structure; he was being sued for leaving loose soil under the footings. A lot more money was wasted—both the owner's and others involved with the project.

The true professional observes the entire forest as he encounters a new project. He then continues to the trees and then the leaves if deemed necessary. He does not waste the client's resources with unnecessary testing and analysis. And above all, he does not reach conclusions or recommend repair solutions that miss the problem completely. Let us all be true professionals.

James Warner, PE, is an independent Consulting Engineer specializing in foundation and structural restoration and repair. Formerly a contractor in these specialties, he organized the original concrete repair program for World of Concrete and presented those seminars for 19 years. It was at one of his seminars that the seeds were sown for what is now the International Concrete Repair Institute (ICRI). He continues an active consultancy and is an Honorary Life Member of the Institute.