

EXECUTIVE SUMMARY

Breadth Analyses and Construction Management Depth Study

This thesis report presents the results of a year's worth of investigation into the Cancer Institute project at the Penn State Milton S. Hershey Medical Center. With an emphasis in construction management, technical analyses are performed to assess early phasing activities associated with the project, including site utility plans and foundation systems. This is complimented by a depth study of the construction industry, which looks at building respect among subcontractors.

The first analysis looks at the deep micropile foundation of the building and proposes redesign to an intermediate, Geopier-reinforced mat slab system. To demonstrate breadth of knowledge in structures, evaluations are taken both from a design and construction perspective. Project management considerations of constructability, schedule reduction, and value engineering are all examined as well.

The next study looks at the high voltage distribution plan of PSHMC's East Campus with respect to three projects- the Cancer Institute, Parking Garage, and future Children's Hospital. An alternative layout is proposed that better facilitates this transformation, both from a construction and operation perspective. Breadth knowledge of electrical systems is demonstrated in a comparison of the two layouts with respect to feeder line losses.

The last portion of this report contains a depth study in construction management, examining industry influences on subcontractor bid package markups. Through two surveys, one tailored to project management professionals and one to subcontractors, the study compares industry perceptions of the major determinants of a subcontractor's markup, placing emphasis on reputations and business relationships.