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AI Engineers, Inc.

25 Years of Delivering Excellence & Value

The DIGITAL Download

AI Engineers, Inc.'s Survey Department

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Land surveying is an imperative preliminary step in any construction activity. The fundamentals of survey require angular and distance measurements to provide a variety of information, such as property boundaries, surface contours and location mapping. AI Engineers, Inc.'s (AI) Survey Department expands well beyond this basic definition.

This department encompasses services like GIS Mapping, Real Time Kinetic (RTK) GPS and construction survey. Our staff is fully CADD capable with expertise in both Autodesk and Bentley survey suites. Our survey and GIS equipment ranges from state of the art data collectors using the Windows CE platform to robotic total stations. Owning our own vehicles and bucket trucks, dedicated to survey, allows AI to respond quickly and cost effectively to any customer need.

ConnDOT I-84 Topographic Survey

I-84 Reconstruction, Waterbury, CT

AI is providing surveying services for the reconstruction of a portion of I-84 in Waterbury, CT. AI is part of the large expressway contract awarded by the Connecticut Department of Transportation. The job includes an extensive modification of a 2.5-mile section of I-84 with an estimated construction cost in excess of $250 million.

Construction has been focused on realigning the highway to remove sharp reverse curves (S-Bends) in order to reduce accidents and improve public safety. AI first started survey work on this project in 1999. Following the initial survey services, AI was subcontracted for the preparation of approximately 50 right-of-way maps for easements and property acquisitions required for the construction of this project. Additionally, in its construction phase, AI is providing Design Services During Construction (DSDC) utilizing our survey team. DSDC provides onsite verification and quality control of construction locations and elevations which support the owner as well as construction administrators in assuring accuracy and compliance with contract documents.

The assignment also includes establishing horizontal and vertical controls; research of city records and deeds for referential location of utilities; property lines and easements; review of aerial photographic mapping; providing additional topographic survey to field edit the aerial maps. Onsite work has encompassed bridge surveys, locating test pits and soil borings, as well as 3D surface modeling for volume excavations and preparing completed survey plans.

A data collector identifying the location & elevation of a manhole at an entrance to Bradley International Airport

CAA Bradley International Airport Sewer Study

Earlier this year AI completed the Bradley International Airport Sewer Study for the Connecticut Airport Authority (CAA). The project required the location and inspection of the entire sewer system that services the airport and multiple additional facilities on the campus including the Connecticut National Guard, Air National Guard, UPS and FedEx facilities. The project encompassed approximately 275 structures and over 5 miles of sewer mains. The project, valued at $400 thousand was comprised of three main responsibilities; GIS mapping and survey, structure and pipe evaluation and pump station inspection and testing, and a detailed report including repair and replace recommendations. Deliverables included a GIS map created in ArcGIS 10.3 with labeling and hyperlinks to field reports and matching videos.

Inspection included video capabilities providing in-depth visuals of pipes in a way not available in the not too distant past. AI used this technology to proactively provide current conditions of all pipes in the system and make recommendation for repair or replacement prior to failure that could result in significant repair and cleanup costs. Additionally, AI provided expert testing and evaluation of site's pump stations, as well as inspection and evaluation of all other sewer structures and appurtenances as a part of this contract.

During inspection, an RTK GPS survey was completed that included location and elevation of all accessible structures and pipe inverts within the system. A database of information was created for the structures and piping, where attribute information for the system can be queried to provide data based on the user needs. This next-generation mapping is being used by owners and municipalities to identify assets in-field and provide finger-tip access to all pertinent information and conditions as determined presently and in the future as the maps are scalable and editable.

The culmination of this technology and expertise resulted in a location and condition report that provided the CAA with comprehensive repair and rehabilitation recommendations, along with the cost estimating and budgeting for a multi-year capital improvement plan.