



## PROJECT HIGHLIGHTS

### CLIENT PROFILE

The project is under a contract with a confidential global security company that is a recognized designer, developer, and manufacturer of precision engagement aerospace and defense systems for the United States and allied militaries. One of its five corporate business areas supports advanced combat, missile, rocket, and manned and unmanned systems for military customers including the U.S. Army, Navy, Air Force, and Marine Corps as well as NASA and dozens of foreign allies.

### PROJECT OVERVIEW

The 40-acre Orlando facility is approximately 60 years old and consists of an extensive array of subsurface utilities. Over the years, utilities have been abandoned or upgraded without removal of the previous subsurface systems, complicating utility conflict evaluations and impacting the repair of system failures. Although as-built maps are available, these maps have exhibited incorrect information and do not include details regarding utility shutoffs to support utility shutdowns. The project team prepared comprehensive subsurface utility maps to support facility infrastructure improvement projects, emergency shutdowns, and asset management planning.

### CHALLENGES

- Unknowns associated with historical infrastructure information
- Subsurface anomaly conflicts associated with geophysical and electromagnetic prospecting methods
- Investigation within high-traffic and secure site areas
- Inconsistent existing subsurface asset management system

### THE MSE GROUP APPROACH

The project team provided subsurface utility engineering (SUE) Quality Level B activities, engineering survey, and verification test hole advancement and logging, and developed a “subsurface unknowns” model for abandoned and non-critical utilities. SUE activities were conducted plant-wide over a 2-year period for utilities including chilled water, potable water, reuse water, oxygen, nitrogen, communication, sanitary sewer (gravity and force main), and storm sewer. These utilities were investigated using geophysical prospecting equipment and marked from service generation to service termination. Shutoff valves were identified and surveyed for each utility.

The deliverable included an extensive set of color-coded maps with aerial overlays tied to the existing survey data. The project team also developed an interactive asset management application that allowed desktop and tablet interface review of individual utilities and shutoffs. In addition, a nomenclature system was created for incorporation into future asset management tools for the facility.

### ACCOMPLISHMENTS

- Identified critical infrastructure component integral to the facility's utility shutdown protocol
- Provided a multidimensional asset tool to support infrastructure improvement and new construction projects
- Developed a scalable subsurface model that can easily incorporate future infrastructure modifications

### AREAS OF EXPERTISE

- Subsurface utility engineering
- Asset management
- Data management and GIS integration



*Field crews use a wide range of prospecting tools to locate underground utilities.*



*Ground penetrating radar and test hole excavations are used to locate, identify, and verify utility locations and provide a means for elevation surveys of key subsurface features.*