



Los Angeles Sewer Rehabilitation Subsurface Geophysical Investigation

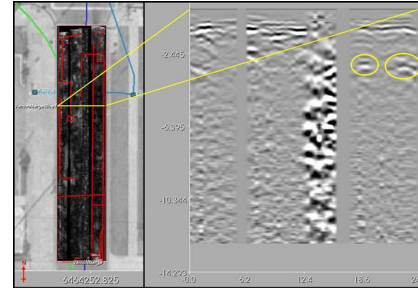


BACKGROUND

The City of Los Angeles Department of Public Works Bureau of Engineering engaged SanCon Engineering, Inc. and Underground Imaging Technologies, Inc. (UIT) to perform a comprehensive geophysical survey in advance of a sewer rehabilitation project.

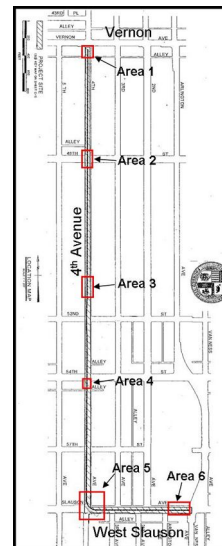
The project was a relining for the North Outfall Sewer Section 14 located along 4th Avenue from West Vernon Avenue in the north to West Slauson Avenue at the south. The area continues east along Slauson to Van Ness Avenue and was divided into six portions from north to south along 4th Avenue centered over the proposed location of entry, launch, and exit pits for the relining equipment. The purpose of the subsurface investigation was to pre-clear the way for pit excavation and allow for changes in pit location during the design phase. The client will use the revealed unknown utilities or other detected features of interest for planning in advance of excavation to lessen potential cost overruns or change orders encountered during construction.

The complete process included a geophysical survey of each area of interest, data handling and processing. Multi-channel systems, developed by UIT, the GPR TerraVision II® and electromagnetic induction MetaVision II® were used to perform this task. These systems provide dense subsurface datasets, which are then used to generate 3-D subsurface, and 2-D plan view images. Images were interpreted to identify pertinent subsurface features, and were subsequently mapped, documented and geo-referenced into California State Plane Zone V NAD83 feet. The identified utilities and other features were then overlain onto existing CAD design plans provided by the city allowing City engineers to more effectively plan pit location.



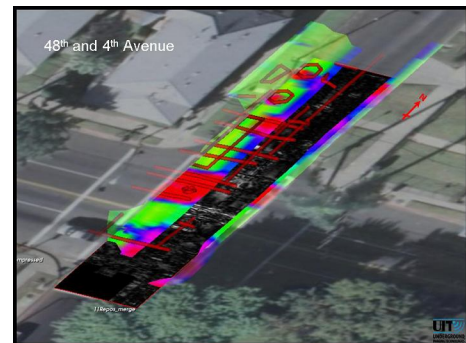
Plan view and cross section of Area 1

The two responses denoted by the yellow ovals indicate the two long features on the right hand side of the plan view to the left. The green box indicates the location of the proposed pit.



The entire area of rehabilitation

Each area denoted in red



A perspective view of GPR and EM data including interpreted features overlain onto a site aerial.