Geophysical Investigation Report

Location

163-05 Archer Ave

163-25 Archer Ave

Jamaica, NY 11433

Prepared for:

SESI Consulting Engineers

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Investigated and prepared by:

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Completed on:

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INTRODUCTION

American Geophysics, Inc. is a geophysical survey and investigation services firm which provides Environmental & Engineering Geophysics (EEG) services to the environmental consulting, construction, and engineering community.

METHODOLOGY

Geophysical surveys are typically accomplished by employing the following techniques; Ground penetrating Radar (GPR), electromagnetic metal detector (Fisher TW6), radio frequency line locating (RF), Electromagnetic Profiler (EM). Underground storage tanks (USTs), utilities, and metallic anomalies are typically traced and mapped with RF, GPR, EM, and TW6 unit depending on the size, matrix and conductive properties of the targets. For concrete applications a GSSI Structurescan Mini XT 2.7 GHz and MALA CX concrete scanners are used to identify and characterize unique features in concrete slabs, beams, and columns. Site conditions and client specifications of areas of concern (AOCs), determine the survey extents and equipment used to provide the most comprehensive data possible.

Equipment Used:

Radiodetection RD1100 250MHz ground penetrating radar (GPR)

Radiodetection RD8000 PDL pipe and cable locator

Fisher TW-6 Metal Detector

SCOPE OF WORK

On August 20th, 2019 a geophysical survey and investigation was completed at the property addresses mentioned above. The site location consisted of two properties that have been demolished and created one open lot. The properties also consisted of a bus terminal and parking garage. The boring locations on site have been previously dug and the client is drilling down deeper in the same boring locations. In order to investigate the 13 total boring locations in the area of concern (AOC), we had to identify private underground utilities, possible underground storage tanks (UST), and associated piping. Surface conditions consisted of different layered grass, soil, concrete, reinforced concrete and asphalt.

SURVEY RESULTS

The GPR and TW-6 were used in an octagonal grid pattern over all accessible areas around the building and throughout the entire parking lot area of both properties. 2D locations were logged. No anomalies with USTs were detected. All standard utilities were investigated and marked out through the AOC. Multiple subsurface metallic anomalies, with linear features, and having data consistent with underground piping were detected throughout the entire site. These anomalies did not interfere with the boring location nearby. Boring locations were adjusted slightly due to the subsurface data collected. An electric manhole was located on the site, however, upon investigation it was determined that these lines were no longer active. Multiple subsurface metallic anomalies were located along the fence. Upon investigation, it appears these were previous utilities that enter the site and are suspected to have been abandoned in place. All results were discussed with client representative on site. Please see photos below.

LIMITATIONS

The approximate signal penetration depth of the GPR was relatively poor throughout the site and ranged from (2'-6') below ground surface (BGS). The ground and soil consisted of buried rock, concrete and building materials which caused poor signal penetration. Buildings, curb lines, standing water, metal structures, tree and root structures, metal fencing, and overgrowth may have affected survey results near and immediately beneath them. Due to surface conditions and the dielectric properties of the subsurface and properties of concrete, plastic polymer, and fiberglass, not all subsurface anomalies and utilities may have been detected.

Figures

Fig. 1: Example of an unknown subsurface metallic anomaly near a previous boring location.

Fig. 2: Electric manhole located on the property, upon investigation it was determined that the lines were abandoned.

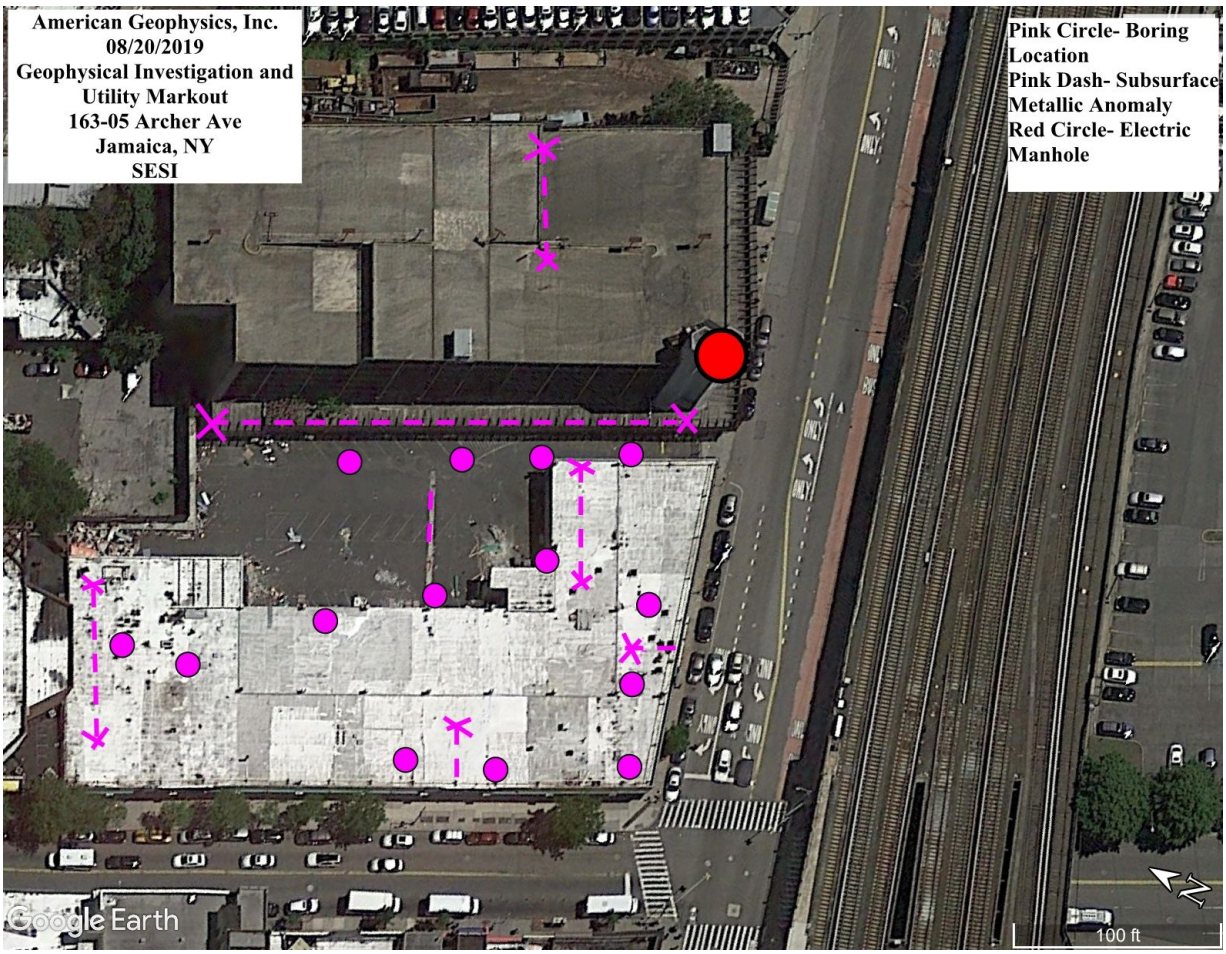
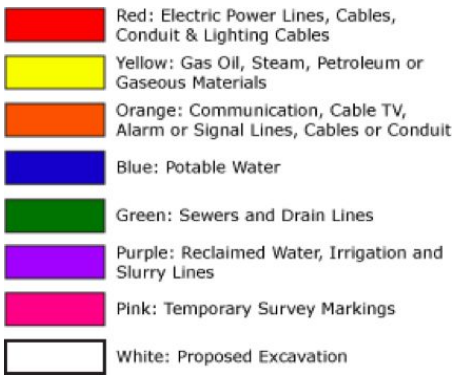


Fig 5: Diagram



***All field services were conducted in compliance with the industry standard of care guidelines found in ASCE 38-02 (Level B) and marked in appropriate colors as per the APWA (American Public Works Association).**

WARRANTIES

· ***American Geophysics, Inc. does not guarantee that utilities, conduit, and steel reinforcement will be avoided during drilling, cutting, trenching, and coring.***

· ***All utility designating will be in compliance with ASCE 38-02 (level B).***

· ***All field services were conducted in compliance with the industry standard of care guidelines found in CSDA-BP-007 and marked in appropriate colors as per the APWA (American Public Works Association).***

· ***The GPR unit must have direct contact with the concrete in order to collect quality data.***

· ***Any areas covered with debris cannot be scanned correctly with GPR.***

· ***Wet floors will not allow proper marking with paint and/or permanent marker.***

· ***All concrete slabs must be monolithic pours.***

· ***Dairy brick and some types of tile may cause signal interference.***

· ***New concrete can adversely affect the signal penetration and should be given a minimum of one month curing time.***

· ***All areas should be clear for scanning and marking.***

The field observations and measurements reported herein are considered sufficient in detail and scope for this project. American Geophysics, Inc. warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted geophysical methods. There is a possibility that conditions may exist which could not be identified within the scope of this project and were not apparent during the site activities performed for this project.

American Geophysics, Inc. represents that the services were performed in a manner consistent with that level of care and skill ordinarily exercised by geophysical consultants under similar circumstances. No other representations to Client, express or implied, and

no warranty or guarantee is included or intended in this agreement, or in any report, document, or otherwise.

American Geophysics, Inc. Service, Inc. believes that the information provided in this report is reliable. However, American Geophysics, Inc. cannot warrant or guarantee that the information provided by others is complete or accurate. No other warranties or guarantees are implied or expressed.

GPR data is subject to signal anomalies and operator interpretation. The GPR data is intended to provide the locations of areas of concern requiring additional investigation or the approximate location of underground structures and utilities. Great care must be utilized when excavating, drilling, and cutting around subsurface structures and utilities since GPR data can only be used for estimation purposes and GPR data is subject to misinterpretation. American Geophysics, Inc. cannot guarantee that utilities, post-tension cables, and/or rebar will not be incurred during drilling, cutting, coring, and excavation activities.

Hand clearing or vacuum-excavation should be performed within 2.5' of any marks. American Geophysics, Inc. does not guarantee that utilities will not be encountered during drilling and/or excavation. Markout services performed by American Geophysics, Inc. do not satisfy state mark out requirements. By law, the appropriate state markout service must be notified prior to any digging activities (i.e. NJ one-call, PA one-call, CT call before you dig, MD & VA miss utility, dig safely NY, FL one-call, 811 one-call, call before you dig, Sunshine State One-Call).

This report was prepared pursuant to the contract American Geophysics, Inc. has with the Client. That contractual relationship included an exchange of information about the property that was unique and between American Geophysics, Inc. and its client and serves as the basis upon which this report was prepared. Because of the importance of the communication between American Geophysics, Inc. and its client, reliance or any use of this report by anyone other than the Client, for whom it was prepared, is prohibited and therefore not foreseeable to American Geophysics, Inc.

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