



GEOPHYSICAL INVESTIGATION REPORT

SITE LOCATION:

**4720 3rd Avenue
Bronx, New York**

PREPARED FOR:

**PW Grosser
630 Johnson Avenue, Suite 7
Bohemia, New York**

PREPARED BY:

Alex Craig
Delta Geophysics Inc.
738 Front Street
Catasauqua, PA18032

August 24, 2017

Delta Geophysics, Inc. (Delta) is pleased to provide the results of the geophysical survey conducted at 4720 3rd Avenue, Bronx, New York.

1.0 INTRODUCTION

On August 21st and 22nd, 2017 Delta Geophysics personnel performed a limited geophysical investigation at 4720 3rd Avenue, Bronx, New York. The subject property currently contains a commercial garage that was formerly operated by Sears, however it is currently unoccupied. The site is believed to have contained two underground storage tanks (UST); a 550 gallon and a 2,000 gallon. This survey will encompass the entire site for any potential subsurface anomalous feature. Subsurface conditions were unknown at the time of survey; surface conditions consist of asphalt and reinforced concrete.

2.0 SCOPE OF WORK

The survey was conducted to investigate the subsurface for any anomalous features consistent with a UST and/or former excavation. A secondary objective is to investigate the subsurface for all floor drain piping, along with anomalies consistent with underground utilities and/or any other anomalous features within close proximity to any potential proposed boring locations. All findings would be marked and conveyed to PW Grosser's on-site field representative.

3.0 METHODOLOGY

Selection of survey equipment is dependent site conditions and project objectives. For this project the technician utilized the following equipment to survey the area of concern:

- Geophysical Survey Systems Inc. SIR-3000 cart-mounted Ground Penetrating Radar (GPR) unit with a 400 Mhz antenna.
- Radiodetection RD7000 precision utility locator.
- Fisher M-Scope TW-6 pipe and cable locator.

Ground penetrating radar (commonly called GPR) is a geophysical method that has been developed over the past thirty years for shallow, high-resolution, subsurface investigations of the earth. GPR uses high frequency pulsed electromagnetic waves (generally 10 MHz to 1,000 MHz) to acquire subsurface information. Energy is propagated downward into the ground and is reflected back to the surface from boundaries at which there are electrical property contrasts. GPR is a method that is commonly used for environmental, engineering, archeological, and other shallow investigations.

The GSSI SIR-3000 GPR can accept a wide variety of antennas which provide various depths of penetration and levels of resolution. The 400 MHz antenna can achieve depths of penetration up to about 20 feet, but this depth may be greatly reduced due to site-specific conditions. Signal penetration decreases with increased soil conductivity. Conductive materials attenuate or absorb the GPR signal. As depth increases the return signal becomes weaker. Penetration is the greatest in unsaturated sands and fine gravels. Clayey, highly saline or saturated soils, areas covered by steel reinforced concrete, foundry slag, or other highly conductive materials significantly reduces GPR depth of penetration.

The GPR was configured to transmit to a depth of approximately 10 feet below the subsurface, but actual signal penetration was limited to approximately 1-3 feet below ground surface (bgs). The limiting factor was signal attenuation from near surface soils.

The RD7000 precision utility locator uses radio emission to trace the location of metal bearing utilities. This radio emission can be active or passive. Active tracing requires the attachment of a radio transmitter to the utility, passive tracing uses radio emissions that are present on the utility. Underground electrical utilities typically emit radio signals that this device can detect.

The TW-6 is designed to find pipes, cables and other metallic objects such as underground storage tanks. One surveyor can carry both the transmitter and receiver together, making it ideally suited for exploration type searches of ferrous metal masses. Metal detectors of this type operate by generating a magnetic field at the transmitter which causes metallic objects in the subsurface to generate a secondary magnetic field. The induced secondary field is detected by the receiver, which generates an audible tone equal to the strength of the secondary field.

4.0 SURVEY FINDINGS

All accessible areas within PW Grosser's specified location were examined during this survey. The survey site was examined with the GPR and TW-6 for any potential anomalies and then surveyed with the RD7000 for potential subsurface utilities. Delta detected a potential UST, along with various subsurface utilities.

Potential UST (550 gallon)

Delta personnel utilized the GPR to detect an anomalous feature within the northeastern portion of the subject building. GPR transects over the feature displayed a cylindrical shaped feature, consistent with other potential USTs. Two cut pipes were visually detected with the proximity of the feature; these lines were traced using the RD7000 to the anomalous feature. The approximate size of the anomaly is 6.5 feet by 10.5 feet.

2,000 Gallon AST

After gaining access to the northern basement of the subject building, Delta personnel was able to visual detect an above ground storage tank approximately 2,000 gallons in size.

Utility Survey

Delta performed a utility survey throughout the survey area. The following utilities were identified: electric, sanitary sewer, storm sewer and unknown piping. All utilities were marked onsite with appropriate colors; unknown features were marked in pink paint.

Site map (082417) is included with all located subsurface features.

5.0 SURVEY LIMITATIONS

GPR depth of penetration was limited to approximately 0-3 feet bgs. The limiting factor was due to conductive soils. The TW-6 could not be utilized within close proximity to exterior building walls and reinforced concrete. The TW-6 was also limited within the building due to reinforced concrete.

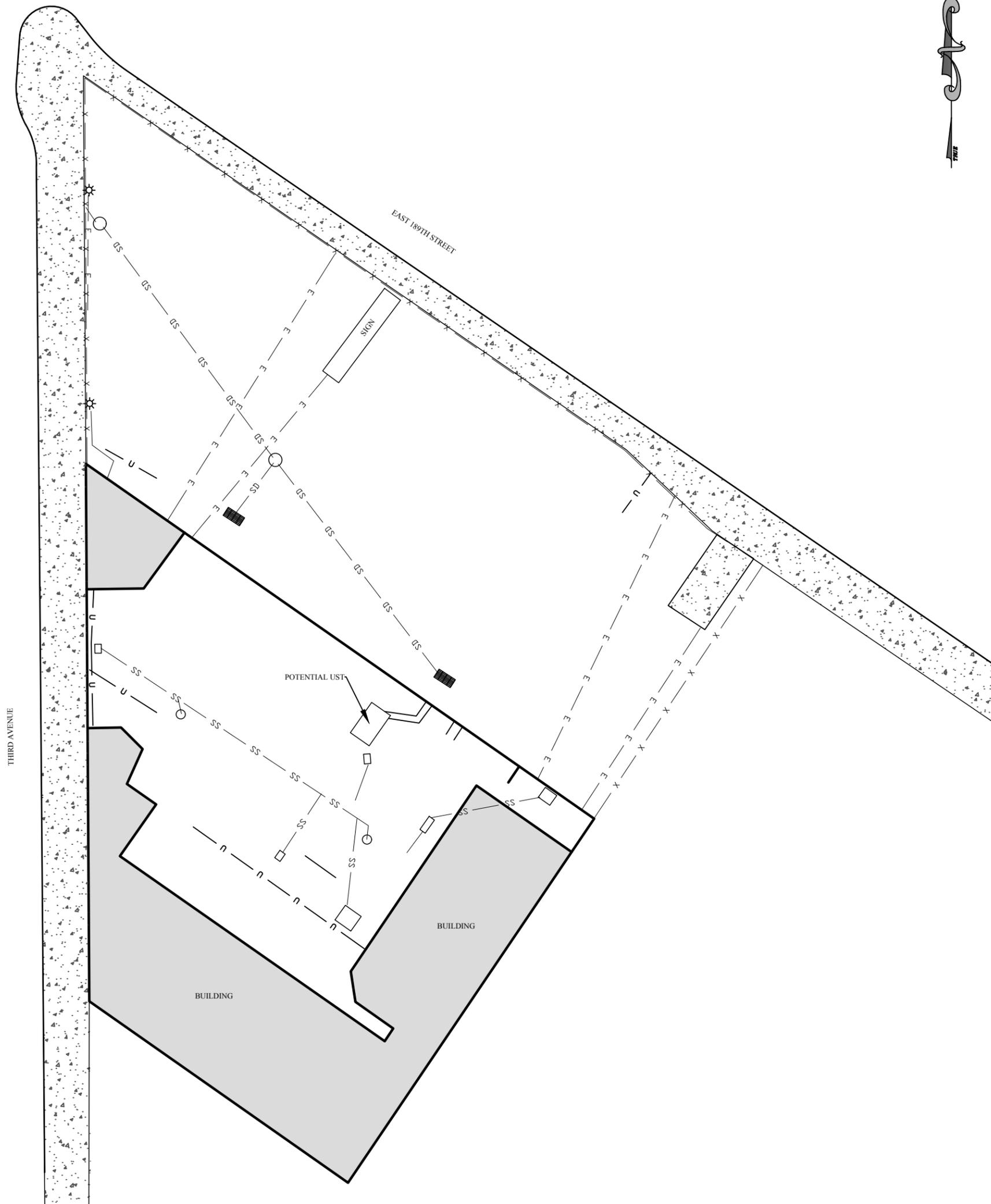
6.0 WARRANTIES AND DISCLAIMER

As with any geophysical method, it must be stressed that caution be used during any excavation or intrusive testing in proximity to any anomalies indicated in this report. In addition, the absence of detected signatures does not preclude the possibility that targets may exist. To the extent the client desires more definitive conclusions than are warranted by the currently available facts; it is specifically Delta's intent that the conclusions stated herein will be intended as guidance.

This report is based upon the application of scientific principles and professional judgment to certain facts with resultant subjective interpretations. Professional judgments expressed herein are based on the facts currently available within the limit or scope of work, budget and schedule. Delta represents that the services were performed in a manner consistent with currently accepted professional practices employed by geophysical/geological 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.

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NOTES:
 This site plan was produced from data positioned by differential GPS measurements collected in the field. Due to the errors normally present in DGPS data, this document is not intended or represented to be of survey precision. Caution should be used in all field measurements based on this site plan.
 As with any geophysical method, it must be stressed that caution be used during any excavation or intrusive testing in proximity of any anomalies indicated in this document. The absence of detected signatures does not preclude the possibility that targets exist. The geophysical data and results presented in this site plan are based upon the application of scientific principles and professional judgements to certain facts with resultant subjective interpretations. Professional judgements expressed herein are based on the facts currently available within the limits of the existing data, scope of work, budget, and schedule.
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LEGEND	
	UTILITY POLE
	LIGHT
	STORM DRAIN
	ELECTRIC
	GAS
	TELECOMMUNICATION
	SANITARY SEWER
	WATER
	UNKNOWN UTILITY
	FENCE

DATE	08/24/17
SCALE	1" = 30'
DWG NO.	082417
SHT NO.	1 OF 1
PROJECT.	082217

GEOPHYSICAL INVESTIGATION
4720 THIRD AVENUE, BRONX, NEW YORK
 FOR
PW GROSSER



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