

**Addendum 1  
October 22, 2024  
South Jersey Port Corporation  
Request for Proposals**

**SJPC RFQ-24-E14  
New Fire Main Extension - Pier 5 - Warehouse 3  
Broadway Marine Terminal**

**NOTICE**

This Addendum is considered part of this Request for Proposals and must be acknowledged with your submission.

**Additional Information**

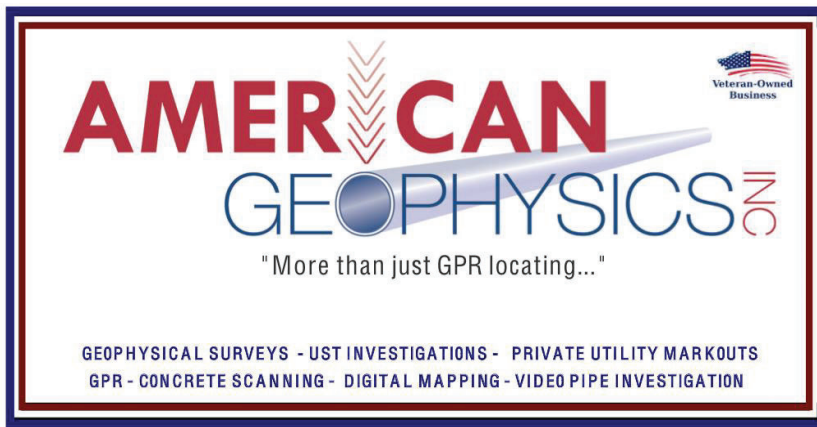
**On Thursday, October 17, 2024, a ground penetrating radar study was performed of the construction area.**

**That report is attached for information.**

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**ANSWERS TO FORMALLY SUBMITTED QUESTIONS**

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## Geophysical Investigation Report

*Locations:*

**2570 Broadway  
Camden, New Jersey 08104  
(AGInc. Job No. 1923638)**

*Prepared for:*

**South Jersey Port Corporation  
2 Aquarium Drive, Suite 100  
Camden, NJ 08103**

*Investigated and prepared by:*

**Derek Cafasso  
Geophysical SUE Technician**

**American Geophysics, Inc.  
180 Main Street, #177  
Butler, NJ 07405  
833-SCAN GPR/ 833-722-6477**

*Completed on:*

**October 17, 2024**

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## ***INTRODUCTION***

American Geophysics, Inc. (AGInc.), is a geophysical survey and investigation services firm which provides Environmental & Engineering Geophysics (EEG) services to the environmental consulting, construction, and engineering communities. Led by over 20 years of field experience, AGInc. takes pride in providing the highest training for our technicians and the use of the most current and state-of-the-art equipment. This winning combination of experience and technology results in the most accurate findings.

## ***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 a magnetometer depending on the size, matrix and conductive properties of the targets. Site conditions and client specifications of the areas of investigation (AOIs), determine the survey approach and equipment used to provide the most comprehensive data possible.

## ***EQUIPMENT USED:***

**Radiodetection RD1100 250MHz ground penetrating radar (GPR)**

**Fisher TW-6 Electromagnetic Magnetometer**

**Geonics EM31-mk2 Ground Conductivity Meter**

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## ***SCOPE OF WORK***

On October 17th, 2024, a geophysical survey and investigation was completed at the above mentioned location. The scope of work was to investigate potential foundations and/or concrete structures residing in the subsurface. In addition the client wanted to mark all detected utilities and anomalies in the area of investigation (AOI). The site was Pier #5 at the South Jersey Port at the above mentioned address. The surface conditions consisted of asphalt, concrete, and reinforced concrete. The property was scanned using an RD1100 250MHz (GPR), the Fisher TW-6 Electromagnetic Magnetometer, and the Geonics EM31-mk2 Ground Conductivity Meter.

## ***SURVEY RESULTS***

All the equipment was used in an octagonal-grid pattern over each of the AOIs. 3D data was collected and 2D locations were logged. The RD 8000 was also used in many different modes, directly and passively. All neighboring utility access points, as well as all pipes/conduits going in or out of the ground were directly induced. Please note that all depths are estimated below ground surface (BGS). The best possible data points were collected and all findings are estimated and dependent upon soil types/conditions, weather conditions and the dielectric properties of the subsurface during the time of the investigation. All findings were discussed with the client and marked on site in APWA color-coded paints and flags. All unknown subsurface anomalies were painted pink. Please see the sample figures/photos section below.



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## **LISTED SURVEY RESULTS:**

- 1) The entire surface of the area of investigation (AOI) was investigated with the Radiodetection RD1100 250MHz ground penetrating radar (GPR), Fisher TW-6 Electromagnetic Magnetometer, and the Geonics EM31-mk2 Ground Conductivity Meter.
- 2) Subsurface anomalies, consistent with reinforced concrete structures, were detected at estimated depths of ~(2-3 feet) below ground surface (BGS) and were marked with white paint. It is estimated that these detected structures were foundations of demolished buildings and walls of former drydocks.
- 3) Anomalous areas with metallic responses were detected in the AOI and were marked with white paint and labeled "Metallic".
- 4) Subsurface linear anomalies were detected at estimated depths of ~(1-3 feet) BGS and were marked with pink paint. These anomalies are theorized to be abandoned in place and decommissioned utilities.
- 5) High voltage conduits were detected at estimated depths of ~(2-3 feet) BGS and were marked with red paint.
- 6) Fire water lines were detected at estimated depths of ~(4-6 feet) BGS and were marked with blue paint.
- 7) A site walk and safety meeting was performed prior to the commencement of the investigation. All necessary PPE, potential safety hazards and safety equipment was discussed and implemented.
- 8) All of the equipment was used in an octagonal-grid pattern for data collection over the areas of Investigation (AOIs).
- 9) All metallic/magnetic responses were investigated with the GPR.
- 10) Accessible manholes and utility access-points were opened and investigated.
- 11) All the findings were discussed with the client on-site. Please see the sample figures/images below.

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## **LIMITATIONS**

Areas within ~3 feet of any wall and/or any other vertical obstruction can not be fully investigated and confirmed due to the physical inability to get the center of any GPR antenna flush to the wall. Subsurface congestion can lead to coupling. This also can lead to distortion, attenuation, "bleed-off" and sympathetic signals. 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. Buildings, concrete barriers, wet soils, saturated conditions, cracked surfaces, curb lines, and metal structures may have affected survey results near and immediately beneath them.

### **GPR signal penetration depth during survey/investigation:**

GPR 250MHz antenna: fair and estimated to be ~(4-5 ft) below ground surface (BGS)

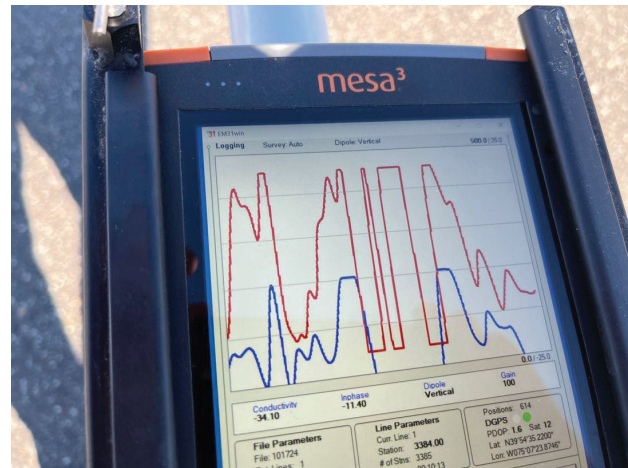
### **Listed Limitations:**

- 1) Reinforced concrete attenuates GPR signal and penetration depth
- 2) No access to buildings
- 3) Non-conductive materials
- 4) Limited utility access points
- 5) Coupling
- 6) Metallic interference

## Figures



**Fig. 1:** All of the equipment was used in an octagonal-grid pattern across the entire area of investigation (AOI). Sample GPR data set shown.



**Fig. 2:** The AO I was investigated using the Geonics EM31-MK2 ground conductivity meter. Sample images of data sets shown.

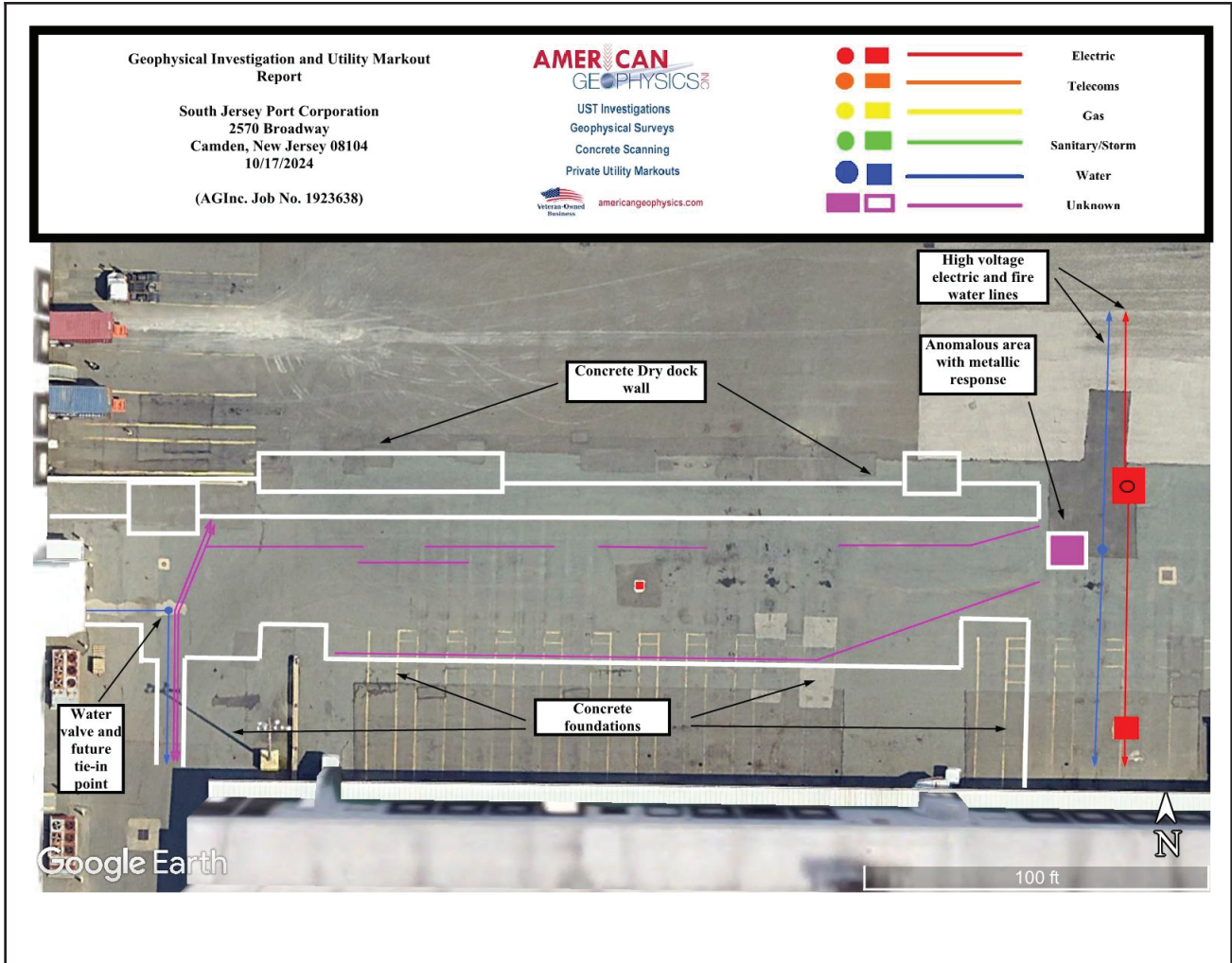




**Fig. 3: Sample images of findings.**

**Fig. 4: Sample images of findings.**



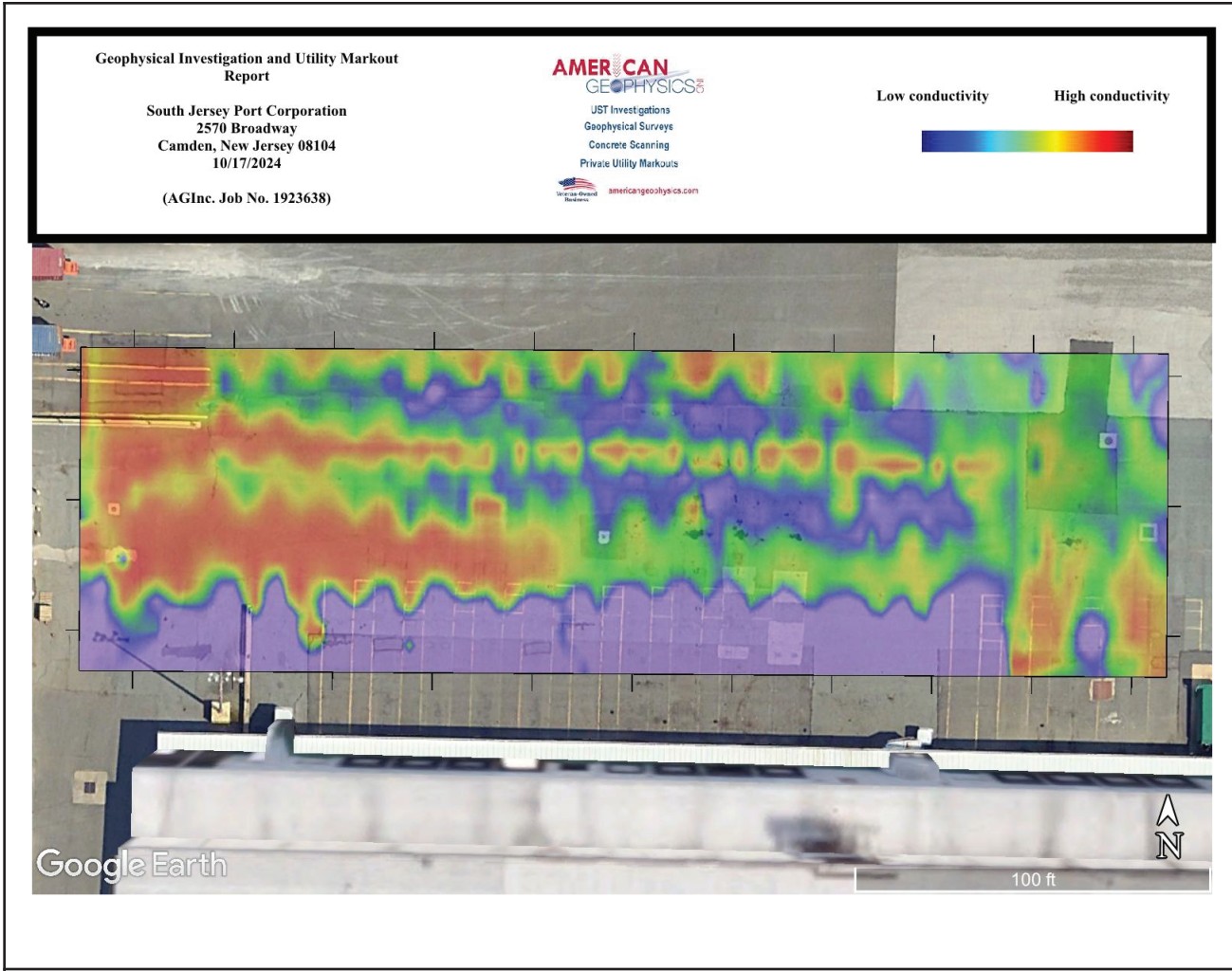


**Fig. 5: Site Diagram**

**\*\*for illustration purposes only\*\***

- Red: Electric Power Lines, Cables, Conduit & Lighting Cables
- Yellow: Gas Oil, Steam, Petroleum or Gaseous Materials
- Orange: Communication, Cable TV, Alarm or Signal Lines, Cables or Conduit
- Blue: Potable Water
- Green: Sewers and Drain Lines
- Purple: Reclaimed Water, Irrigation and Slurry Lines
- Pink: Temporary Survey Markings
- White: Proposed Excavation

\*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).



**Fig. 6: Site Diagram**

**\*\*for illustration purposes only\*\***

- Red: Electric Power Lines, Cables, Conduit & Lighting Cables
- Yellow: Gas Oil, Steam, Petroleum or Gaseous Materials
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\*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).

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## 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

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warranty or guarantee is included or intended in this agreement, or in any report, document, or otherwise.

American Geophysics, 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 3 feet of any marks. American Geophysics, Inc. does not guarantee that utilities will not be encountered during drilling and/or excavation. Mark-out services performed by American Geophysics, Inc. do not satisfy state mark out requirements. By law, the appropriate state mark-out 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 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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Geophysical Investigation and Utility Markout  
Report

South Jersey Port Corporation  
2570 Broadway  
Camden, New Jersey 08104  
10/17/2024

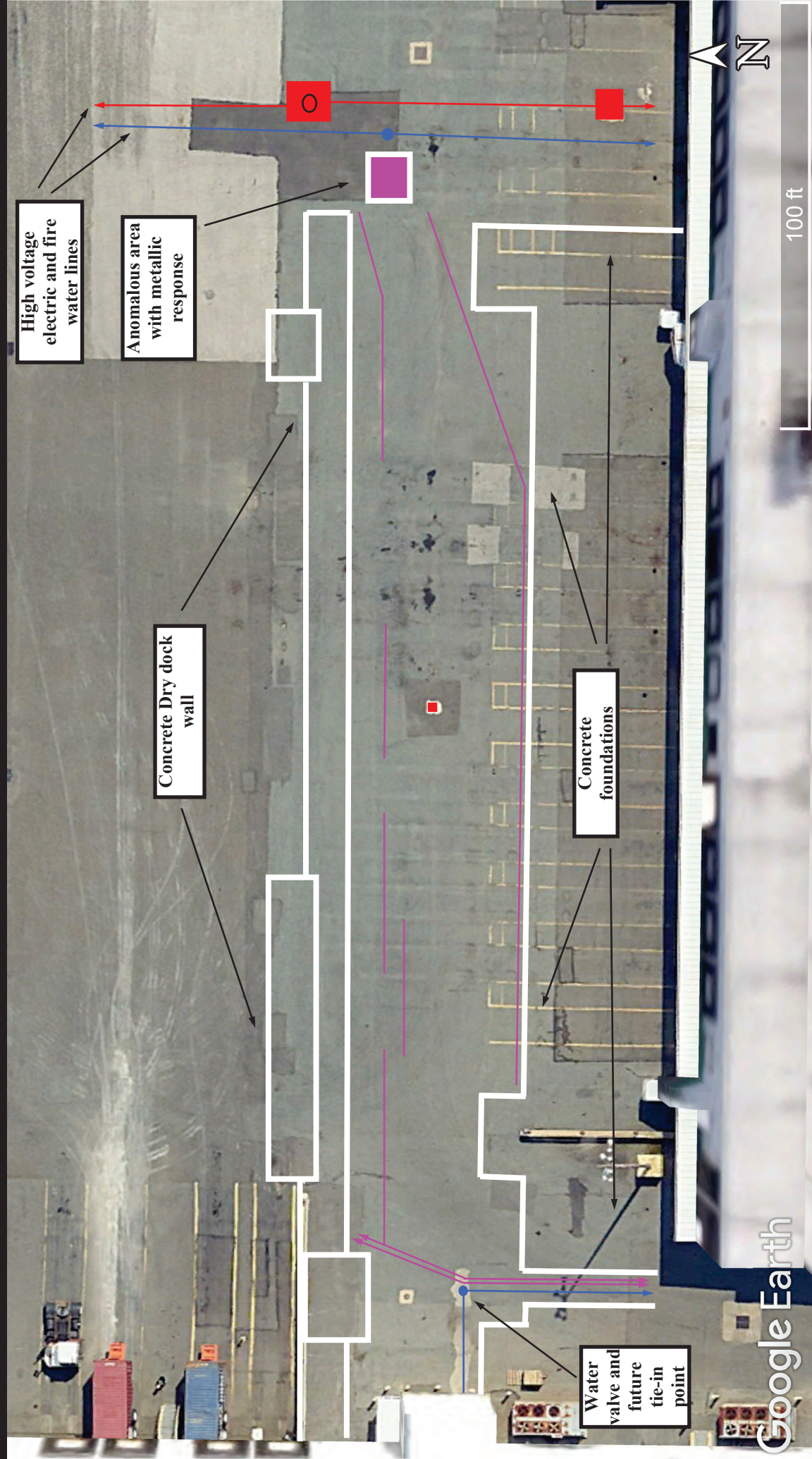
(AGInc. Job No. 1923638)



UST Investigations  
Geophysical Surveys  
Concrete Scanning  
Private Utility Markouts



- Electric
- Telecoms
- Gas
- Sanitary/Storm
- Water
- Unknown





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Report**

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**(AGInc. Job No. 1923638)**



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Geophysical Surveys  
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**Low conductivity** **High conductivity**

