PROJECT MEMORANDUM

To: Andy Kitzmann, Erie Canalway

From: The Chazen Companies

cc: Distribution List

Date: January 25, 2021

Re: Matton Shipyard - Summary of Environmental Conditions and Proposed Soil Remediation Plan
Chazen Project No. 32069.00

Dear Mr. Kitzmann:

We understand that the Erie Canalway Heritage Fund, Inc. (Erie Canalway), in partnership with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP)intends to adaptively reuse the former Matton Shipyard by preserving existing historical buildings, maintaining the visual character of the site, promoting the site (Site, or Project Site) as a hub for recreational, educational, and cultural activities, and increase direct access points to the Hudson River for residents of Cohoes and surrounding communities and visitors. The property is located on State-owned land. The Erie Canalway has expressed to Chazen that its objective is to achieve the desired end use with a practical and cost-beneficial approach that requires targeted capital costs, has a low impact, requires little maintenance (minimal operating costs), and is resilient and adaptive to the potential for future flooding.

Chazen has been tasked with developing a plan to mitigate the potential environmental risks associated with near-surface and subsurface soil conditions, including the presence of elevated concentrations of lead and chromium in subsurface soils. The strategy for remedial action must be adaptable and flexible with respect to the particular end-use of the property and tailored to achieving the most cost-beneficial solution to meet the client's objectives. To this end, Chazen has reviewed the December 2016 "*Phase I Environmental Site Assessment"* (Phase I ESA) prepared by Fisher Associates, Inc.*,* and both the September 2019 "*Environmental Site Investigation Report"* and the October 2019 "*Additional Sampling Report*" prepared by Ambient Environmental, Inc. These reports indicate that investigation of historical uses of the property identified the presence of environmental conditions that warrant remediation for protection of human health and the environment. Chazen also reviewed the "*Phase I Archaeological Investigation Report",* February 2017 prepared by Hartgen Archaeological Associates, Inc. This report indicates that the Site is archeologically sensitive and includes the potential for remnants of Indian burials. In addition, Chazen has coordinated with project stakeholders including the Erie Canalway, New York State Office of Parks, Recreation and Historic Preservation (OPHRP,) several First Nations, and its project engineers and consultants to prepare this summary of environmental conditions and develop a soil remediation plan consistent with the planned end use of the property as well as the ongoing work at the site in connection with shoreline stabilization, historic building preservation, and permitting of this project. Supplemental soil sampling was performed in December 202 to further refine the remedial footprint and evaluate potential soil disposal costs.

The strategic approach to soil remediation presented herein is consistent with the goals and objectives of the project while protecting human health and the environment. Upon gaining concurrence regarding the proposed soil remediation strategy from Erie Canalway and the New York State Office of Parks, Recreation, and Historic Preservation, Chazen will develop a work plan.

The following presents a summary of previous investigations and a recommendation for remedial action.

Summary of Previous Cultural Resource Investigations

A February 2017 Phase I Archaeological Investigation Report prepared by Hartgen Archaeological Associates, Inc. indicates that the Site is archeologically sensitive and that remnants of Indian burials have been found at the Site. Precontact Site Locus 2 is situated in the southwestern part of the project site and contains sensitive Native American cultural artifacts beginning at approximately 1 ft below ground surface. The soils in the eastern and southeastern portion of the Project site were extensively disturbed by the Matton Shipyard with little potential to contain Native American archeological deposits in shallow soil.

Summary of Previous Environmental Investigations

The Phase I ESA of the subject property located at the former Matton Shipyard, Delaware Avenue, Van Schaick Island, City of Cohoes, New York identified the following Recognized Environmental Conditions (RECs):

- Impacts associated with a former heating oil underground storage tank(s) (USTs,)
- Historical Operations,
- Lack of information on wastewater disposal,
- Lack of information regarding a steel pipe and unknown subsurface anomaly, and
- Container storage over dirt floor.

Two subsurface investigations were performed in 2019 as documented in the September 2019 "*Environmental Site Investigation Report"* and the October 2019 "*Additional Sampling Report," both* prepared by Ambient Environmental, Inc., collectively referred to herein as the Subsurface Investigation (SI and, SI Reports) The SI included sampling to address these RECs and additional investigation related to USTs as detailed below. The results of the SI are presented in **Figures 1 and 2.**

Wastewater Disposal

The Phase I ESA Report indicated that there was uncertainty regarding the disposal of wastewater at the Site. There were no apparent manholes observed at the site and the City of Cohoes did not have any documentation of sanitary sewer servicing the property. This was considered a REC. It was recommended that additional study be conducted to locate the sanitary disposal system at the site.

As part of the 2019 SI, a GPR survey did not identify the potential presence of septic / sewer lines.

Containers

According to Phase I ESA, drums were observed in the carpenter shop were not labeled, appeared to be intact, and no leakage was observed. The western end of the Main Stores Building also contained various 5-gallon and 1-gallon containers of paints, epoxy, primers, and other painting preparation materials. There were also containers observed in the Compressor and Tool Shop, and in the Carpenter Shop. Most of these containers had been previously opened and were paint-related. The Phase I ESA Report indicated that

overall condition of the containers appeared to be good and recommended that the containers be disposed, and the areas of the buildings where they are stored require further investigation. Typically, containers that appear to be in good condition are not considered a threat of release and a REC, but the 2016 REC opinion appears to be associated with the container storage over a dirt floor.

The available information indicates that some or all of the containers of paints, epoxy, primers, and other painting materials located in multiple buildings at the property may have been disposed of as part of associated building demolition. Remaining materials in existing buildings should be properly disposed.

Former Heating Oil Underground Storage Tanks

UST Closures

The Phase I report indicated that records obtained from the NYSDEC reveal that an UST was removed from the north side of the former Main Stores/Office Building at the project site, and a spill was dated April 29, 1997. The investigative reports indicate that petroleum- contaminated soils were excavated and disposed at the time of the removal, and that potential impact to the groundwater in the vicinity was suspected. The amount of soil excavated during the removal was limited due to the archaeological potential of the site. Therefore, the investigation included the installation of several ground water monitoring wells at the site to assess the ground water quality. The wells were sampled several times over six months and indicated decreasing levels of contamination over that period of time and NYSDEC eventually closed the spill.

The Phase I ESA report recommended that while subsurface explorations were being conducted at other areas of the property, that a limited investigation be conducted in the area of the UST to verify that petroleum is no longer present. The Phase I ESA Report did not provide a spill number for the 1997 tank removal spill or reference the documents in the FOIA Appendix indicating that another spill, associated with what appears to have been a separate tank removal, occurred in 2005. The available information does not include a figure to confirm the location of the tank that had been removed.

The SI Reports indicated the potential presence of petroleum residuals in soil at a former UST location north of the long building in the northeast portion of the Site which is believed to be the Office Building. Soil sample analyses did not indicate the presence of petroleum-related compounds at concentrations exceeding unrestricted use SCOs. Further review of the available information indicates that two USTs have been removed from the site, each with NYSDEC spill numbers, and that both spills have been closed by NYSDEC. Further details regarding the UST removal and spill cases are presented below.

A petroleum release took place in 1997 in connection with the removal of a 1,000-gallon heating oil underground storage tank (UST) located in the north side of the Matton Shipyard office building. Petroleum-contaminated soil was observed in the immediate tank vicinity between depths of six and 12 feet below ground surface (bgs) during tank removal activities. Approximately 75 cubic yards of petroleum-contaminated soil was excavated and removed from the site. Further excavation of contaminated soil was not performed at that time because of the presence of groundwater at approximately 10 feet bgs and the archeologically sensitive nature of the site, as reported by the archeologists from the New York State Bureau of Historic Preservation. Petroleum Spill No. 97-01299 was assigned by NYSDEC. Following a subsequent groundwater investigation and sampling events the spill was closed by NYSDEC on January 5, 1999.

In October 2005, following the removal of a 1,000 gallon heating oil underground storage tank (UST) adjacent to the Main Stores building, approximately 10 cubic yards of contaminated soil was excavated and disposed at a NYSDEC-regulated landfill. The confirmatory soil samples collected at the conclusion of contaminated soil removal indicated there were concentrations of petroleum-related compounds at levels above NYSDEC Part 375 Soil Cleanup Objectives (SCOs) (Phase I ESA report does not specify which SCOs used). Due to the presence of groundwater and the archaeological sensitivity of the site, excavations were limited and residual contamination was present as identified in the tank bottom excavation in the confirmatory sampling conducted. A sample was also collected from the water that was in the bottom of the excavation that indicated elevated levels of volatile organic compounds (VOCs) that exceeded NYSDEC's Ambient Water Quality standards and Guidance Values. Spill No. 05-08358 was assigned to the Site by NYSDEC and was closed on April 25, 2007.

Petroleum odors and a VOC reading of 48 ppm was detected at 9 feet bgs at SB-12, in the vicinity of a former UST. No odors, staining, or PID measurements greater than 5 ppm were detected in the recovered soil except at SB-12 where a gasoline odor was detected. Soil sample analyses did not indicate the presence of petroleum-related compounds at concentrations exceeding UUSCOs.

The SI Reports indicated that concentrations of SVOCs exceeded the NYS GWS for benzo(b)fluoranthene and benzo(k)fluoranthene in MW-3, MW-4 and MW-6, and chrysene and indeno(1,2,3-cd)pyrene in MW-4 and MW-6. VOCs were not detected in samples collected from six temporary wells installed across the site. Acetone was detected in soil and groundwater samples collected at several locations; however, the presence of this common laboratory artifact at the detected concentrations does not present as a project site contaminant.

Potential remaining contamination in connection with the two former USTs that have been removed and closed by NYSDEC does not appear to present a risk to human health or the environment. Should subsurface activities be performed in these areas in future, appropriate measures should be taken to protect human health and the potential presence of cultural resources.

Other Potential Tanks

The SI included a GPR survey of the project area to identify metallic anomalies that could be indicative of in-place underground storage tanks, disturbed soils, pipes/drains, electrical conduits, etc. The GPR survey identified several linear features consistent with inground pipes or electrical conduit, two potential USTs, an old building foundation, and two areas with an apparent abundance of near surface shallow metallic debris. The sources of these subsurface metallic anomalies have not been positively determined.

The SI indicated that there was metal debris and other buried materials at various locations throughout the Site but did not indicate the presence of buried tanks. A pipe protruding from the ground near a concrete pad, just east of a concrete slab adjacent to a wood-framed garage near the sandblasting silo, resembled a sump or drain cleanout rather than a tank fill port. No underground tank was encountered. Evidence of petroleum contamination was not encountered at SB-3.

A possible fill port was previously identified adjacent to the former pipe shop near boring location SB-4. During the GPR survey, a possible tank outline was identified with the metal detector, however; the GPR survey did not show typical UST indications. No evidence of contamination was encountered at SB-4. Further investigation has indicated that the pipe has an elbow and is threaded and is not a fill port.

There were no aboveground storage tanks (ASTs) observed at the subject property at the time of the site reconnaissance. However, a map titled "Matton Sea Wall Improvements – Matton Ship Yard Base Map" dated July 2006 (**Attachment 1)** indicates the presence of "concrete cradles" adjacent to the south-of the electrical building. No evidence of petroleum contamination was encountered at SB-5 which was located in the vicinity of the "concrete cradles." The SI indicated that a UST may have been located near SB-6, but evidence of contamination was not encountered at that location.

Although SI activities did not indicate the presence of USTs, the only way to determine that USTs are not present at locations of GPR anomalies is to excavate test pits at those locations. Based on the data that is available, and the demonstrated potential for natural attenuation processes to substantially reduce concentrations of petroleum-related compounds in subsurface media over time, there is limited potential risk to human health or the environment in connection with such conditions at the Site. Further investigation of such potential risks must be weighed against the potential to disturb sensitive cultural resource. Should subsurface activities be performed in these areas in the future, or should a regulatory agency require further investigation, appropriate measures should be taken to protect human health and the potential presence of cultural resources.

Historical Operations

The Phase I ESA report indicated that there were buildings identified as "machine shop" and "engine room" which typically involved the use of cutting oils, lubricants, and fuels. Several buildings were identified as having been involved with engine assembly / repair and a Compressor Shop. It was also noted in the Phase I ESA report that the ships were built out of doors along the shore of the Hudson River. Sandblasting activities took place in the southern portion of the property. The potential use of petroleum products, lubricants, cleaning fluids, lead-based paints, metal parts cleaning, paint preparation, and painting of the ships took place in this area may have released to the ground surface was considered a REC. The Phase I ESA Report recommended that a subsurface investigation be performed to determine if historical activities may have resulted in releases in these areas.

In August 2019, Ambient collected soil samples at 16 soil borings that were advanced to various depths below ground surface (bgs) to characterize subsurface conditions in connection with previously identified recognized environmental conditions (RECs). In September 2019, Ambient collected samples at 15 locations to further characterize the extent of lead and chromium in shallow soil. Two samples were collected from each location, with one sample from 0" to 2" below the root level and the second sample from 2" to 12" below the root level. Thirty soil samples were analyzed for total lead and total chromium using appropriate analytical methods. In total, the 2009 characterization of on-site soil and groundwater included the installation and sampling of 16 soil borings, 15 near-surface hand borings, and 6 temporary groundwater sampling points. A total 15 surface soil (0 to 6 inches), 20 near-surface (6 inches to 2 feet,) and 5 subsurface (> 2 feet) soil samples and 5 groundwater grab samples were collected and submitted for laboratory analyses of VOCs, SVOCs, PCBS, and RCRA metals.

Given the proposed end use of the site, and consistent with NYSDEC remediation guidance, sampling results have been compared to 6 NYCRR Part 375 commercial use soil cleanup objectives (CUSCOs) as the

basis for decision-making.[1] The 2019 sampling results indicate the presence of lead in soil at concentrations exceed the CUSCO, which 1000 ug/kg for lead, at A-9 from 2 to 12 inches bgs (1,290 mg/kg) and at A-10 from 2 to 12 inches bgs (1040 mg/kg.)

December 2020 Supplemental Soil Investigation

Additional investigation was performed to further delineate the horizontal extent of lead and chromium that may exceed CUSCOs and to characterize soil that may require off-site disposal in order to refine estimated disposal costs. On December 3, 2020, M & J Engineering collected shallow soil grab samples from 12 boring locations from the 0 to 2 in. and 2 to 12 in. below ground surface (bgs) depth intervals with the exception of locations SS-7 and SS-11 where refusal was encountered at 6 in. (rock) and 8 in. (concrete), respectively. Eleven grab samples were analyzed for lead and chromium and compared to CUSCOs In addition, a five-point composite soil sample was collected from the 0 to 6 in. depth interval in the area targeted for soil remediation in order to evaluate costs associated with the off-site disposal of any soil excavated and removed from the Site. The five-point composite soil sample was analyzed for a full suite of parameters in order to maximize the number of cost-beneficial disposal options. A grab sample collected from the remedial area was analyzed for VICs as part of the soil characterization effort.

The December 2002 supplemental soil grab sampling results indicate the presence of lead in soil at concentrations exceed the CUSCO at SS-7 from 2 to 6 inches bgs (1,900 mg/kg) and at SS-12 from 2 to 12 inches bgs (1100 mg/kg.) The waste characterization results further refined the disposal options and related costs for material targeted for off-site disposal from the southern portion of the property.

Other Items

The Phase I ESA report indicated that there were suspect PCB-containing fluorescent lights. Photos in the Phase I ESA indicated the presence of transformers on electrical poles; the current status of these transformers is unknown. Data gaps may exist in connection with other RECs that were identified in the Phase I Report, such as the machine shops and chemical storage as well as the rail spur and transformers.

Conclusions

- The available information indicates that some or all of the containers of paints, epoxy, primers, and other painting materials located in multiple buildings at the property may have been disposed of as part of associated building demolition. Remaining materials in existing buildings should be properly disposed.
- Potential remaining contamination in connection with the two former USTs that have been removed and closed by NYSDEC does not appear to present to risk to human health or the environment. Should subsurface activities be performed in these areas in future, appropriate measures should be taken to protect human health and the potential presence of cultural resources.

[1] The NYSDEC / NYSDOH September 2006 Technical Support Document (TSD) for the Development of Soil Cleanup Objectives support the use commercial use taking into account Child Visitor and Adult Worker Exposure Scenarios.

- There is no evidence that USTs remain at the Site. However, the only way to determine that USTs are not present at locations of GPR anomalies is to excavate test pits at those locations. Former UST closure-related activities were unable to remove all petroleum-related contamination from the subsurface. Based on the data that is available, and the demonstrated potential for natural attenuation processes to substantially reduce concentrations of petroleum-related compounds in subsurface media over time, there is limited potential risk to human health or the environment in connection with the potential for petroleum-related compounds to remain in subsurface media. Further investigation of such potential risks should be weighed against the potential to disturb sensitive cultural resources. At this time, no additional action are recommended in connection with the former petroleum storage tanks at the Site. Should subsurface activities be performed in areas at which former, or potential former tanks, may have been located in the future, appropriate measures should be taken to protect human health and the appropriately address the potential presence of cultural resources.
- The available data indicate that exposure to shallow soil does not appear to present a direct contact risk in the northern portion of the Site, which is consistent with our understanding of historical operations. Lead in shallow soils in the southern portion of the site represents a potential direct contact risk to workers and visitors which may be managed through remediation and engineering controls (ECs.)

Summary of Proposed Soil Remediation

The intended future use of the project site is an outdoor public recreation area with no residential use. Renovation of one or more of the buildings to accommodate walk-through museum spaces, park office space, and or community meeting rooms may be considered but that is not part of the short-term reuse plan under consideration.

The intended use of the southern portion of the property, where the greatest concentrations of lead and chromium in shallow soils have been observed, is a parking lot for visitors and workers. In order to mitigate the potential for exposure to metals in shallow soil, we present the following alternatives.

Option 1 – Cap and Cover

- Installation of an engineered cap in the southwestern portion of the project site. This would involve covering the area with a demarcation layer and placing 6 inches of crushed stone and gravel (or equivalent permeable pavement) to serve as an engineering control that will prevent direct contact with subsurface soils and act as a facility parking lot (Area A.). The driveway to this parking lot would also constitute a cap and could be located on top of the former rail spur. The top 6 inches of soil to the north of the parking lot would be covered with a demarcation layer and the placement 6 inches of top-soil (Area B.) The area would then be re-seeded. The concrete pad located to the north of the proposed parking area would remain in place and serve as a cap and support for potential future structure.

Option 2 – Excavation and Off-Site Disposal with Cap and Cover

- Excavation of shallow soils and installation of an engineered cap in the southwestern portion of the Site. This would involve removal and off-site disposal of the top 6 inches of soil, installation of a demarcation layer, and placement 6 inches of crushed stone and gravel to serve as an engineering control that will prevent direct contact with subsurface soils and act as a facility

parking lot (Area A.) The driveway to this parking lot would also constitute a cap and could be located on top of the former rail spur. The top 6 inches of soil to the north of the parking lot would be removed for off-site disposal followed by the installation of a demarcation layer and the placement 6 inches of top-soil (Area B.) The area would then be re-seeded. The concrete pad located to the north of the proposed parking area would remain in place and serve as a cap and support for potential future structure.

These recommended engineering and institutional controls would be protective of human health and the environment, require minimal capital cost, minimal long-term maintenance, and resilient and adaptive to floodplain conditions. Additionally, this would be respectful to the presence of First Nation cultural resources and consistent with the recommendation of the project archaeologist, Hartgen Archaeological Associates, Inc., that any soil excavation be limited to no more than 12 inches in depth at the Site, and to no more than 6 inches in depth in the vicinity of Precontact Site Locus 2 to mitigate the potential disturbance of sensitive Native American artifacts.

We recommend the selection of Option 2, which will be protective of the direct contact pathway.

Summary of Selected Remedy

The remedy will consist of the removal and off-site disposal of approximately 570 cubic yards of material. The southernmost portion of the Site would be capped with a gravel parking lot. Further north, an area surrounding the exposed concrete slab to the south of the woodworking shop will be capped with clean topsoil and re-seeded.

Specifically, in the southernmost portion of the Site, the selected remedy consists of the excavation and off-site disposal of the top 6 inches of soil across of an area approximately depth of 6 inches in the southern portion of the site. An area approximately 130 ft x 150 ft would be capped with installation of a demarcation layer, and placement 6 inches of crushed stone and gravel to serve as an engineering control that will prevent direct contact with subsurface soils and act as a facility parking lot (Area A). The driveway to this parking lot would also constitute a cap and could be located on top of the former rail spur.

Further north, the top 6 inches of soil in the approximately 100 ft x 130 ft area to the north of the parking lot would be removed for off-site disposal followed by the installation of a demarcation layer and the placement 6 inches of top-soil (Area B.) The area would then be re-seeded. The 75 ft x 75 ft concrete pad located to the north of the proposed parking area would remain in place and serve as a cap and support for potential future structure.

The proposed remedy is protective of human health and the environment, aligns with stated goal of site activation with limited operation and maintenance costs, does not impact archeological and cultural resources, and limits the need for future remedial work. The estimated cost of this remediation and restoration work is approximately $275,000.

The proposed remedy is presented in **Figure 3. Next Steps**

This preliminary mitigation strategy and goals are subject to the final determination and acceptance of Erie Canalway and OPRHP. Upon achieving concurrence from stakeholders and involved regulatory agencies regarding this remedial strategy, Chazen will create the bid documents suitable for contracting the implementation of the selected remedy.

Key:

Underground conduit

Possible old foundation

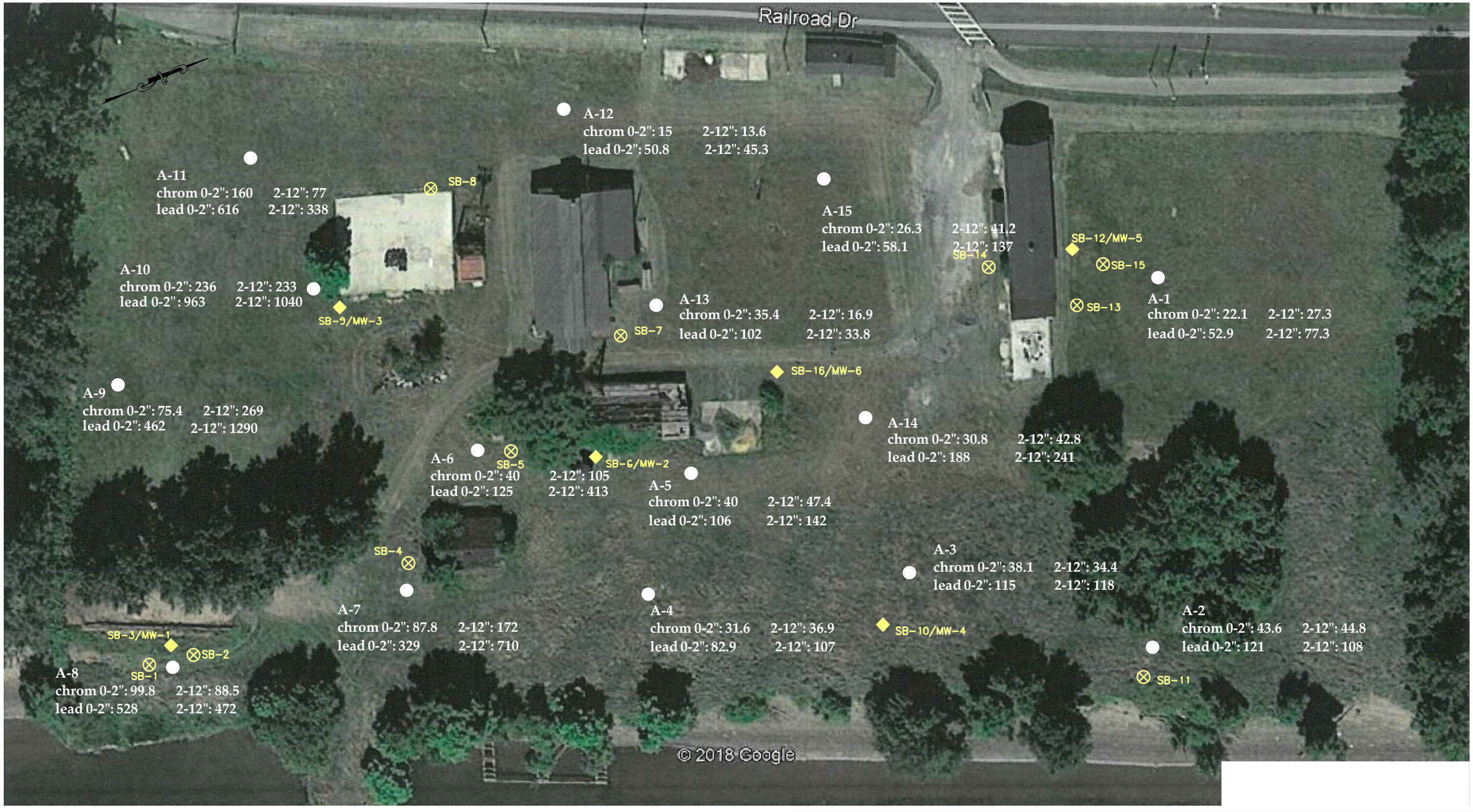
Area with many metal pieces

Possible UST

Fill Port

Buried metal piece

DRAWN BY AEM	FIGURE TITLE **GPR FINDINGS MAP**	
SCALE NTS	PROJECT LOCATION **FORMER MATTON SHIPYARD** **DELWARE AVENUE, VAN SCHAICK ISLAND** **COHOES, NY**	
DATE 8/2/19		
PROJECT # 190729ENVA	PREPARED FOR: ERIE CANALWAY HERITAGE FUND, INC	FIGURE NUMBER 1



50 0 25 50 100

( )

Additional sampling locations (results in ppm)

LEGEND

SB-1 ⊗ SOIL BORING

SB-3/MW-1 ◆ SOIL BORING AND MONITORING WELL

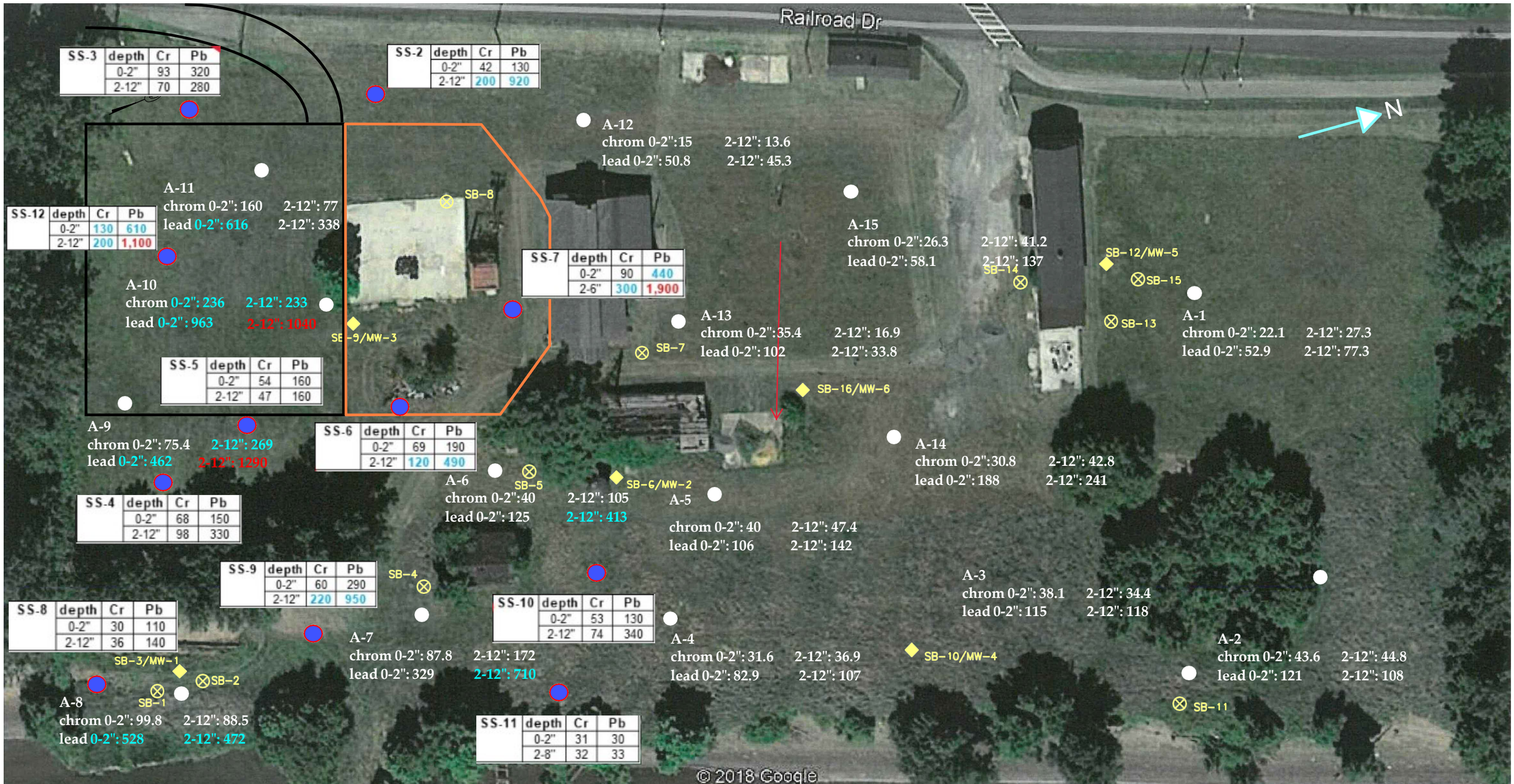
AMBIENT ENVIRONMENTAL, INC.
828 WASHINGTON AVENUE
ALBANY, NEW YORK 12203

PROJECT LOCATION
FORMER MATTON SHIPYARD
200 DELAWARE AVENUE
COHOES, NY 12047

DRAWING TITLE
SOIL BORING AND MONITORING WELL LOCATION MAP

PREPARED FOR:

DATE: 08/29/19	SCALE: AS SHOWN
PROJECT NO.	190729ENVA
DRAWN BY:	MTG
CHECKED BY:	
DRAWING NO.	FIGURE 2



Legend

- Surface Soil Sample Location - December 2020
- Surface Soil Sample Location - September 2019*
- Parking Area / Driveway
- Soil Boring Location - August 2019*
- Soil Boring and Monitoring Well Location - August 2019*
- Cap and Seed Area

50 0 25 50 100

(IN FEET)

Notes:
*Locations based off of prior Environmental Site Investigation reports by Ambient Environmental, Inc.
- All laboratory analytical results are reported in milligrams per kilogram (mg/kg).
- CUSCO exceedences are identified in red.

Figure 3