The Reese Group
Environment, Compliance, Construction

May 25, 2023

Ms. Alice Egan
Hydrogeologist
Wisconsin Department of Natural Resources
Bureau for Remediation and Redevelopment

RE: Site Investigation Work Plan
Former Reliable Plating Works Inc. Facility
644 South 5th Street
Milwaukee, Wisconsin
BRRTS NO. - 02-41-576772
FID NO. - 241041240

1.0 INTRODUCTION

The Reese Group, LLC has been retained to assist Denmark LQ LLC with environmental investigation and remediation activities at the Former Reliable Plating Works Inc. property located at 644 South 5th Street in Milwaukee, Wisconsin. This report presents a work plan to complete a Site Investigation. The information provided herein is based on the requirements of ch. NR 716, of the Wisconsin Administrative Code (WAC).

2.0 PROJECT BACKGROUND

The Site was a former chromium and nickel-plating facility, called Reliable Plating Works, Inc. and operated from 1929 through 2008. Site operations occurred in the approximately 20,000 square foot building that covers the Site. During a Phase II investigation chromium, nickel, cyanide, and polycyclic aromatic hydrocarbon (PAH) contamination was discovered on the Property. The Wisconsin Department of Natural Resources (WDNR) was notified of the contamination on February 11, 2016. The contamination in the soil and groundwater was identified on the south side of the Site where the plating lines were located. Further investigation to delineate the contamination in the soil was also conducted in the center and north portions of the Property. Soil and groundwater samples were analyzed for Resource Conservation and Recovery Act (RCRA) metals, PAHs, cyanide, and nickel.

The Property is located within the Industrial-Mixed (IM) district zoning designation established by the City of Milwaukee and is currently occupied by a two (2) story multi-tenant building, with a partial basement located in the southwest portion of the building, approximately sixteen thousand one hundred (16,100) square feet in plan dimension. The remainder of the Site is covered by a concrete patio along the western side of the of the structure.

An Integrated Phase I and II Environmental Site Assessment was submitted to the WDNR on October 13, 2015. A site investigation report was submitted to the WDNR on May 14, 2018, followed by a closure request. December 3, 2018, a *Case Closure Not Recommended – Additional Investigation Required* letter was sent to Mr. Mark Lathers of Denmark LQ LLC.

Subsequent to the site investigations being conducted, the building has been renovated, and various businesses now operate on the Property, including a restaurant, juice bar and a malt company.

2.1 Site Location, Contacts and Description

The former Reliable Plating Works Site, herein referred to as the "Site" or "Property" includes one parcel totaling approximately 0.37 acres located at 644 South 5th Street in the City of Milwaukee, Wisconsin. The Site is generally located in the SW ¼ of the NE ¼ of Section 32, Range 22E, Township 7N. The parcel's Wisconsin Transverse Mercator (WTM) X and Y coordinates are 689790 and 285629, respectively, as noted by the Bureau for Remediation and Redevelopment Tracking System (BRRTS).

The Site is bordered to the north by a former nightclub (Kana Mojito Club – 626 South 5th Street) followed by two (2) parking lots, a former restaurant (Café La Paloma – 606 South 5th Street) and the West Bruce Street right-of-way, to the east by a public right-of-way followed by private residences (416 and 410 West Pierce Street), to the south by the West pierce Street right-of-way followed by a multi-use commercial and apartment building (700 – 706 South 5th Street) and an office building (Gravity Marketing, LLC – 720–722 5th Street), and to the west by the South 5th Street right-of-way followed by a mixed use building – commercial / retail on the first floor with apartments on the upper floors.

The following contact information is provided for the facility and environmental consultant:

Parcel Owner	Mark Lathers Denmark LQ, LLC 35050 Old Woods Road Oconomowoc, Wisconsin 53066 mlathers@kellyconstructiondesign.com 414-708-5500
WDNR Project Manager	Alice Eagan Remediation and Redevelopment Program Wisconsin Department of Natural Resources 1027 West St. Paul Avenue Milwaukee, Wisconsin 53233 alice.egan@wisconsin.gov 414-263-8626 414-639-4007 (mobile)

Environmental Consultant Christine (Tina) Reese, P.G.
The Reese Group, LLC
1433 N Water Street, Ste 400
Milwaukee, Wisconsin 53202
treese@the-reese-group.com
414-719-1477 (mobile)

2.2 Geologic/Hydrogeologic Conditions

The Site location is depicted on a United States Geologic Service (USGS) topographic map included as **Figure 1**. The topography at the Site is flat, approximately 600 feet above mean sea level (ft amsl).

Based on information obtained during site investigation activities, the geology at the Property consists of concrete, brown silty sand and gravel (fill), sand and wood fragments, black clayey silt with little sand (fill), and crushed limestone (fill).

The depth to groundwater is shallow, between approximately eight (8) and ten (10) feet below ground surface (bgs), as noted in the four NR141-compliant monitoring wells installed on the Property. Based on the topography at the Site and hydrogeologic information identified by others during previous site investigation activities, groundwater flow on the Property is toward the southeast.

2.3 Summary of Previous Investigations

TRG conducted a review of historical environmental site investigation and remediation reports that were provided by the client and/or available on the BRRTS on the Web online database for contaminated sites in the State of Wisconsin. One previous BRRTS case was identified for the subject property. including:

1. **Phase 2 Environmental Site Assessment**
   644 South 5th Street
   Milwaukee, Wisconsin
   September 2005

Sigma Environmental Services, Inc. conducted a Phase I Environmental Site Assessment at a property located at 644 South 5th Street, in Milwaukee, Wisconsin (subject property). The purpose of the environmental assessment was to identify any recognized environmental conditions (RECs) as defined by ASTM in it Standard Practice for Environmental Site Assessments (E1527-00), on the subject property.

The assessment has not revealed evidence of RECs in connection with the property with the exception of the following:

- Since 1929, Reliable Plating Works, Inc. (RPW) has occupied the subject property. RPW is an electroplating facility, which operates a nickel and chromium plating line. Surficial staining from plating operations was evident in the building on the subject property. The apparent release of plating chemicals could have negatively impacted the subject property.

- Historically, the floor drains in the building on the subject property discharged to the sanitary sewer system as evidenced by a release of 150 gallons of chromic acid to the sanitary sewer system on December 22, 1989. Historical releases of plating chemicals to the sewer system could have compromised the integrity of the sanitary sewer lines and negatively impacted the subject property.

2. 02-41-576772 Integrated Phase I and Phase II Environmental Site Assessment
Former Reliable Plating Works, Inc. Facility
October 13, 2015

An Integrated Phase I and Phase II Environmental Site Assessment was conducted by United Engineering Consultants Inc. (UEC) to identify and investigate Recognized Environmental Conditions (RECs) within the limitations of the authorized scope of work, in connection with the subject property. These concerns are typically related to known and potential environmental concerns caused by past or present on-site activities related to the disposal, manufacture, usage, or storage of hazardous materials on or adjacent to the property which might have had an adverse environmental impact upon the property.

The scope of services for the Phase I portion of the environmental assessment included a walk-through reconnaissance of the property, a review of various city, state and federal regulatory agency listings, files and records, a review of aerial photographs and other maps, informal interviews with various parties, and a description of adjacent properties as viewed from the subject site or public access points. Photographs were taken as part of the site reconnaissance and are included in the Appendix. The EDR radius map report has not been appended and is available upon request.

The Phase II portion of the assessment included the advancement of eight (8) borings and the installation of three (3) NR 141 compliant groundwater monitoring wells and the laboratory analysis of collected soil and groundwater samples.

<u>Conclusions and Recommendations</u>

On the basis of the information obtained to date during the course of the Phase I portion of the assessment, there were no indications the site has been affected by items of potential environmental concern other than the prior utilization of the subject property for nickel and chromium electroplating activities. In addition, there are no specific indications at this time that the site has been directly impacted by off-site events of an environmental nature. In summary, no RECS as defined by ASTM E 1527-13 were identified on the subject property or the immediately adjacent properties with the

exception of the former utilization of the property for nickel and Chromium electroplating activities which is addressed by the Phase II portion of the assessment.

The analytical results of the Phase II portion of the assessment indicate the presence of PAHs in soil at select locations in the southern portion of the building at concentrations in exceedance of their Industrial and/or Non-Industrial Direct Contact RCLs or their Groundwater Pathway RCL.

The results of the RCRA metal analysis indicate the presence of Arsenic at all of the sampled locations at concentrations which exceed the Industrial and Non-Industrial Direct Contact RCL for Arsenic. Nickel is present at P-2 from the near surface to approximately one (1) foot at a concentration which exceeds its Non-Industrial Direct Contact RCL. Either Arsenic, Barium, Cadmium, Lead, Mercury, Nickel, or Selenium are present at all of the sampled locations at concentrations which exceed their respective Groundwater Pathway RCLs.

With regards to the groundwater, Nickel and Arsenic are present at all of the sampled locations at concentrations which exceed their ES and PAL, respectively. Chromium is present at MW-2 at a concentration which exceeds its PAL while Selenium is present at MW-2 and MW-3 at concentrations which exceeds its PAL. Total Cyanide is present at MW-1 at a concentration which exceeds its PAL.

Based on the above referenced results, further investigation activities are recommended including the installation of additional groundwater monitoring wells down gradient of the existing monitoring well network to the southeast to determine the lateral extent of the Nickel, Arsenic, Chromium and Selenium plume.

The pathway to site closure will include the placement of the subject property on the GIS Registry for soil and groundwater due to the presence of Industrial Direct Contact RCLs and ES exceedances. In addition, a continuing obligation to maintain the existing concrete floor as an impermeable cap will most likely be a requirement of site closure.

3. 02-41-576772 – Site Investigation Report
Former Reliable Plating Works Facility
May 11, 2018

Nickel and Chromium electroplating operations occurred at the subject property in the approximate southern half of the existing site building from at least 1930 until 2008. A Cyanide stripping tank was also utilized along the eastern elevation of the structure from 1970 to 1976. Nickel stripping operations reportedly continued in the approximate southern half of the building until 2008. A Chromium release was also documented on the immediately adjacent property to the north which was formerly occupied by Chromium Inc. Several flush mounted groundwater monitoring wells remain in the asphaltic concrete parking lot north of the site building at 626 S. 5th Street.

Based on the results of the Integrated Phase I and Phase II ESAs, additional borings were advanced on the Property to document the degree and extent of contamination. Four of the borings were subsequently converted to NR 141-compliant groundwater monitoring wells.

Conclusion and Recommendations

Soil

The analytical results of soil samples collected in the areas of the former Nickel and Chromium plating lines and Cyanide stripping tank indicate the following:

- The presence of Nickel in the soil at a concentration in exceedance of its Non-Industrial Direct Contact and Groundwater Pathway RCLs. Nickel is present in the soil at the other sampled locations and extending to the northwest into the former warehouse area and to the southeast into the immediately adjacent alleyway at concentrations in exceedance of its Groundwater Pathway RCL from the near surface to approximately ten (10) feet.

- Chromium is present in the soil at all of the sampled locations at concentrations which do not exceed its Groundwater Pathway RCL.

- The Hexavalent Chromium analysis did not indicate its presence in the area of the former plating lines from the near surface to approximately two (2) feet at concentrations at or above the detection limit. Total Cyanide is present in the area of the former plating lines at concentrations between its Non- Industrial Direct Contact and Industrial Direct Contact RCLs.

- The results of the RCRA metals analysis indicate that Arsenic is present in the soil in the former northern plating line and the adjacent packaging area at concentrations exceeding its Non-Industrial Direct Contact and Industrial Direct Contact and Groundwater Pathway RCLs. Arsenic is not present at any other sample locations at concentrations that exceed its BTV. Barium, Cadmium, Lead, Mercury, and Selenium are present in the soil in the areas of the former plating lines at concentrations which exceed their Groundwater Pathway RCL.

- The PAH analysis indicates the presence of Benzo(a)pyrene in the near surface soils at concentrations in exceedance of its Non-Industrial Direct Contact and Groundwater Pathway RCLs in the areas of the former plating lines and adjacent to the northern elevation of the building in the former warehouse area. Chrysene is also present in these areas in the near surface soils at concentrations in exceedance of its Groundwater Pathway RCL.

Groundwater

- Nickel and Chromium are present in the areas of the former plating lines and former packaging area immediately to the north at concentrations in exceedance of its respective ES and PAL. Free Cyanide is also present in the groundwater in these areas at concentrations above its PAL. Chromium is present at a concentration in exceedance of its ES immediately adjacent to the northern elevation of the building in the former warehouse area. Chromium is also present in the groundwater in the parking lot to the north of the subject property and its elevated presence along the northern elevation of the structure is most likely due to the down gradient migration of the documented Chromium release from

the 626 S. 5th Street property.

- Arsenic, Cadmium, Lead, Mercury, and Selenium are present in the groundwater in the area of the former plating lines at concentrations in exceedance of their respective PALs. No PAHs are present in the groundwater at concentrations in exceedance of their respective PALs or detection limits.

- Based on the above referenced soil and groundwater analytical results, the lateral and vertical extent of the Nickel, Chromium, Cyanide, RCRA metals and PAH contaminant plumes have been generally defined and further investigation is not warranted. The Nickel, Chromium and Cyanide impacts to the subsurface are due to the former electroplating activities at the subject property while the RCRA metal and PAH impacts are most likely due to historic industrial utilization of the parcel. Therefore, the preparation and submittal of Case Closure – GIS Registry form 4400-202 and a request for site closure is recommended.

- The subject property will require placement on the GIS Soil Registry due to the presence of Non-Industrial Direct Contact, Industrial Direct Contact and Groundwater Pathway RCLs exceedances for the near surface to approximately ten (10) feet. The maintenance of the existing concrete floor slab and patio as an impermeable cap will be required as a continuing obligation of site closure. The site will also require placement on the GIS Groundwater Registry due to the presence of Nickel and Chromium ES exceedances and free Cyanide, Arsenic, Cadmium, Lead, Mercury, and Selenium PAL exceedances. An ES and PAL exemption for these compounds will also be required.

- It is recommended that the Chromium ES exceedance in the groundwater along the northern elevation of the building be investigated as part of documented Chromium release BRRTS #04-41-520853 which was scheduled to be transferred to an ERP site.

2.4 Regulatory Correspondence

The results of the investigation activities to date, indicate additional work is needed to complete a site investigation in accordance with NR716 of the Wisconsin Administrative Code (WAC). Based on information obtained from the WDNR in a December 3, 2018, *Case Closure Not Recommended* letter and a teleconference between Denmark LQ LLC, TRG, and the WDNR on March 15, 2023, we propose the following scope of work:

<u>PFAS Scoping Statement</u>

To the best of the current and past property owners' knowledge (Denmark LQ LLC and Reliable Plating Works), they are not aware of any current or historical activities on Site that would have been associated with the generation, storage, or placement of PFOA/PFOS related materials or other emerging contaminants of concern such as 1,4 dioxane. As such, they will not be addressed in this work plan.

Source Areas

As was discussed in the teleconference, the Property has been renovated, and various businesses operate on the Site, including a restaurant, juice bar and a malt company. Further investigation inside the building(s) is not feasible. However, there is a basement in the southwest corner of the Property that has an existing floor drain which will be investigated. More detail on the investigation scoping is included in Section 2.5 Degree and Extent of Contamination in all Media.

Use of Trichloroethylene (TCE)

Volatile Organic Compounds (VOCs) will be analyzed in all soil and groundwater samples collected during this phase of the investigation. Should the results indicate that VOCs are not constituents of concern, future sampling will exclude VOCs from the monitoring strategy.

Sources of Chromium

Total chromium has been identified in the groundwater above its respective WAC ch. NR140 enforcement standard (ES). The source of the chromium contamination in the southern portion of the Property is assumed to be the nickel and chromium plating line(s) (Figure 2). It appears that the chromium contamination in the northern portion of the property is likely due to on-site migration from an adjacent property.

TRG proposes to analyze hexavalent chromium, total chromium and dissolved chromium in groundwater samples collected during this phase of the investigation. Should the results indicate that hexavalent chromium is not a constituent of concern, future groundwater sampling will exclude it from the monitoring strategy.

2.5 Degree and Extent of Contamination in All Affected Media

In the *"Case Closure Not Recommended – Additional Investigation Required"* letter, the DNR indicated that the field investigation needed to extend beyond the property boundaries and that all affected, or potentially affected media (soil, groundwater, and vapor) be evaluated for constituents of concern. Additionally, no soil samples were collected on the west or northeast sides of the Site.

During our March 15th, 2023, teleconference, it was discussed that the contaminant plume located in the northern portion of the Site is likely due to on-site migration from an off-site source. It was also discussed that, Denmark LQ, LLC would not pursue an off-site migration exemption, but would evaluate existing and any new data obtained during the implementation of this work plan for natural attenuation as a final remedy for the Site.

The following paragraphs summarize the investigative activities proposed for the Property:

Soil – Additional soil sampling is needed to define the degree and extent of contamination near soil boring P-2, a boring installed in the southcentral portion of the building in the area of the former plating line

(1970-1985). It is anticipated that one soil boring (SB-5) will be installed in the concrete sidewalk adjacent to the W. Pierce Street Right-of-Way (ROW), just downgradient of P-2, and one soil boring (SB-6) will be installed in the concrete sidewalk in the vicinity of P-9/TW-6.

According to a 2005 Phase I ESA, two documented spills occurred on site involving chromic acid and nickel stripping solutions. In order to determine if these spills have impacted the soils in the vicinity of a floor drain located in the southwest portion of the building, TRG is proposing to install one hand auger (HA-1) adjacent to the existing floor drain. This hand auger will be used to evaluate the soil quality near the drain.

During our March 15, 2023, teleconference, it was decided that additional monitoring locations will not be installed in the northern portion of the Property, but that Denmark LQ, LLC will utilize existing and newly acquired data obtained during these investigation activities to document the use of natural attenuation as a final remedy for the Site. As such, no additional soil borings will be installed in the northern portion of the building.

Groundwater – Additional groundwater sampling is needed to define the degree and extent of groundwater contamination to the east and south of the Property. Chromium and nickel were identified above their respective WAC ch. NR140 enforcement standards (ESs) at temporary well TW-1, located in the southwest corner of the Property adjacent to the public alley. In an effort to define the downgradient extent of contaminant impacts identified in the groundwater sample collected from TW-1, a temporary well, TW-5, was installed in the public alley to the east of the Property. The sample results from TW-5 indicated that there were no exceedances of groundwater standards at this location.

TRG is proposing to conduct six rounds of groundwater monitoring at all six (6) NR141-compliant monitoring wells. This information will be utilized to document the occurrence of natural attenuation.

Vapor – TRG proposes to evaluate the vapor intrusion (VI) pathway, both on and off-site per the DNR guidance document RR-800 once the data being collected during these investigation activities is evaluated. The VI pathway will only be completed if VOCs are constituents of concern for the Property. If it is determined that VOCs are not constituents of concern at the property, the VI pathway will not be evaluated.

2.6 Receptors

In accordance with WAC ch. NR716.07(7), TRG will include an evaluation of the potential or known impacts to receptors. As we discussed in our March 15th, 2023, teleconference, TRG is proposing to advance a hand auger in the southwest portion of the building in the basement adjacent to an existing floor drain. The results of the soil sample will be used to determine if past known spills have impacted the soil in the vicinity of floor drain. Other receptors will also be evaluated during this investigation including the location of existing public and private potable wells, well head protection areas, well field with high-capacity wells: groundwater discharge areas, surface waters, threatened or endangered species or habitats, floodplains, and wetlands, as well as possible changes in land use.

2.7 Remedy

Based on the current use of the Property and the inability to conduct source removal without disrupting existing business operations, it is anticipated that the final remedy will be natural attenuation. Total chromium, nickel and cyanide have been identified in groundwater samples collected from on-site monitoring wells at concentrations that exceed their ESs and/or preventive action limits (PAL). The remedy requested by United Engineering Consultants, Inc. (UEC), Denmark LQ, LLC's previous consultant was natural attenuation by dispersion. However, UEC did not provide evidence that natural attenuation was occurring.

At the completion of the investigation activities proposed in this work plan, TRG will evaluate if natural attenuation is occurring at the Property. An analysis of geochemical indicators and parameters will be completed by TRG in areas of the Site where natural attenuation is part of the remedy. We will also determine if hexavalent chromium is a constituent of concern for the Property by documenting its occurrence and evaluating if it is being reduced to its less toxic and mobile form, trivalent chromium.

As required by the *Guidance on Natural Attenuation for Petroleum Releases,* dated January 2014, the contaminant plume behavior is of utmost concern. In an effort to characterize groundwater quality and define the degree and extent of contamination a groundwater monitoring strategy will be implemented that will monitor for evidence of contaminant decay. To determine dissolved plume behavior, geochemical indicators of natural attenuation will also be monitored. Based on the results of the geochemical parameters monitored, a graphical analysis to determine plume behavior will be performed. An upgradient monitoring well (MW-7) will be installed to support the evaluation of the occurrence of natural attenuation.

3.0 OVERVIEW OF INVESTIGATION STRATEGY

This work plan presents the means and methods for conducting investigation activities at the Site. The results of the investigation will be used in conjunction with the previous investigation data to evaluate the extent of impacts on the Property and to determine a remedial strategy. The work plan proposes the following investigation activities:

- Advance three (3) soil borings to a depth of approximately 15 ft bgs; one boring downgradient of the plating process tank and P-2; one boring in the vicinity of TW-5, a known monitoring location at the leading edge of the contaminant plume; and one boring upgradient of the known contaminant plume to be used . These borings are being advanced as part of an investigation to further evaluate the degree and extent of constituents of concern on and off-site of the Property, including chromium and hexavalent chromium in soil and groundwater.

- Advance one hand auger near the floor drain located in the basement in the southwest portion of the building.

- Collect six (6) rounds of quarterly groundwater samples to be analyzed for VOCs, PAHs, RCRA metals, hexavalent chromium, nickel, and total and free cyanide.

- Analyze groundwater samples for geochemical parameters to document the occurrence of natural attenuation.
- If required, collect one round (three sampling locations) of ambient air samples to evaluate the air quality in the building.
- Report sampling results to the DNR within 10 days of receiving the data.
- Preparation of a site investigation report.

4.0 INVESTIGATION WORK PLAN

The following sections present a description of the work to be completed during the investigation. The contents of this section will be prepared in accordance with NR716.09 WAC.

4.1 Health and Safety

Prior to beginning the investigation, a site-specific Health and Safety Plan (HASP) will be prepared to address the proposed field activities. Utility marking arrangements will be made through Digger's Hotline (the State of Wisconsin Public Utility clearance service), and discussions with the Property owner. If conditions are encountered during site investigation activities that differ from those outlined in the HASP, the Site activities will be reevaluated to determine the appropriate actions that will ensure the health and well-being of the workers.

4.2 Soil Boring Locations

The proposed soil borings / monitoring well locations described in this work plan were selected based on information identified during the investigation scoping and known industrial processes performed onsite. The boring locations were selected to evaluate soil and/or groundwater quality in areas of known releases to the environment. **Figure 2** depicts the locations of the proposed soil boring/monitoring well locations.

It should be noted that the proposed boring locations depicted in **Figure 2** are approximate. Changes to these locations may occur based on field conditions during site investigation activities, such as, screening results of nearby borings, impediments such as underground utilities, and above ground infrastructure.

4.3 Sample and Analysis Plan (SAP)

The soil assessment consists of physical and chemical characterization of the subsurface conditions. Rationale for the where and why soil samples collected from each boring, is discussed below.

4.3.1 Soil Quality Assessment

Soil samples will be collected at 4-ft intervals at each boring location using a Geoprobe® equipped with a split-spoon sampler. Soil type, relative moisture content, color, grain size, and other physical characteristics of the samples will be documented on WDNR soil boring logs The soil samples will also be examined for obvious signs of contamination (odor, occurrence of free product, or unusual color/texture). A photoionization detector (PID), calibrated to an isobutylene equivalent gas standard, will be used to field screen each sample for the presence of VOCs. Sample intervals will be chosen based on whether the soil exhibits any signs of contamination (e. g. obvious staining, odor, or free product) or emitted organic vapors detected by the PID above background concentrations, or at an interval above the water table. Soil samples collected will be submitted to a WDNR-certified laboratory for chemical analysis.

TRG anticipates collecting two soil samples from each newly installed boring, one in the upper four feet, and one in the interval just above the water table.

4.3.2 Groundwater Quality Assessment

Permanent 2" Poly Vinyl Chloride (PVC) groundwater monitoring wells will be completed so that the 10 foot well screen intersects the water table. All groundwater monitoring wells will be developed and purged prior to sample collection in accordance with Ch. NR 141 WAC. Groundwater samples will be collected from the monitoring wells after development and submitted to a WDNR-approved laboratory for analysis. Water quality parameters will be measured using a YSI Multi-Meter at each sample location including pH, dissolved oxygen (DO), specific conductivity (SC), and oxidation-reduction potential (ORP). Geochemical parameters will also be collected and analyzed to document that natural attenuation is occurring.

4.3.3 Hydraulic Conductivity Testing

In-situ hydraulic conductivity testing will be completed at the three newly installed well locations using traditional slug testing or baildown testing techniques. The purpose of hydraulic conductivity testing is to measure the ability of the aquifer to transmit water when subjected to a change in hydraulic gradient. These data help to interpret results from the wells both in terms of plume delineation and future remedial performance.

4.3.4 Groundwater Sampling

TRG is proposing to conduct six (6) rounds of quarterly groundwater monitoring at all seven (7) monitoring wells. The water level in each well will be measured using a decontaminated electronic water level meter.

Following the collection of water level measurements, groundwater samples will be collected from the wells using low-flow sampling techniques. Low-flow sampling techniques are used to collect representative water samples in the formation adjacent to the well screen while 1) reducing water turbulence which may unnecessarily volatilize contaminants; 2) reduce turbidity levels that may bias analytical results high; and 3) reduce the volume of water requiring management.

Low-flow sampling consists of purging the groundwater at a low-flow rate (less than 150 milliliters per minute) until a set of field parameters (dissolved oxygen, temperature, pH, conductivity, oxidation-reduction potential, and turbidity) stabilize within 10 percent for three consecutive readings. Purging will be completed using a peristaltic pump with dedicated polyethylene tubing, depending on the depth to water. Field parameters will be measured using a calibrated multi-parameter meter. Once the field parameters stabilize, the water sample will be collected. Nitrile gloves will be worn by the sampling personnel and discarded between each sampling location and following any activity that may produce cross-contamination.

The groundwater samples will be collected and submitted for laboratory analysis. All containers and preservatives will be obtained directly from the analytical laboratory. Immediately after collection, the sample containers will be placed in a cooler with ice until shipment to the appropriate laboratory can be arranged. Standard chain-of-custody procedures will be followed throughout sample collection, storage, and shipment.

4.3.5 Ambient Air Sampling

If required, three (3) ambient air sample locations will be evenly distributed within the building based on layout, and physical placement limitations, with the goal to thoroughly investigate ambient air quality in the building(s) . Each ambient air sample will be collected in a 6-Liter Summa canister at each of the three (3) sample locations (Figure 2). The Summa canisters are equipped with a flow controller calibrated to a flow rate of 200 mL/min to collect a sample over a period of 30 minutes.

4.3.6 Analytical Parameters

The preceding sections listed the analytical parameters for the sampling activities. The following is a summary of the analytical methods:

Soil:

- VOCs – EPA 8260D
- Polynuclear Aromatic Hydrocarbons – EPA 8270E
- RCRA Metals + Nickel - EPA 6010D/7471B
- Hexavalent Chromium – EPA 7196A
- Total Cyanide – EPA 9012B

Groundwater:

- VOCs – EPA 8260D
- Polynuclear Aromatic Hydrocarbons – EPA 8270E
- Dissolved RCRA Metals + Nickel – EPA 6020B/7470A
- Total RCRA Metals + Nickel – EPA 6020B/7470A
- Hexavalent Chromium – EPA 7196A
- pH – field parameter
- Total and Free Cyanide – EPA335.4

Geochemical Parameters

- Dissolved Oxygen (field parameter)
- Nitrate (NO_3) + Nitrite (NO_2) – NO7_0003
- Manganese (MN^{+2}) -
- Ferrous Iron (Fe^{+2}; field parameter)
- Sulfate ($SO4^{-2}$; field parameter)
- Methane (CH_4, if needed) – RSK175
- Alkalinity – EPA 2320B
- Oxidation-Reduction Potential (ORP; field parameter)
- Specific Conductivity (field parameter)
- Temperature (field parameter)

Ambient Air Monitoring

- VOCs –EPA TO-15

4.3.7 Quality Control/Quality Assurance

Procedures will be followed in the field, laboratory, and office to verify that the analytical results are accurate and representative of Site conditions. The following quality control procedures have been established for field activities, shipping and laboratory analysis, and data review/presentation.

Where possible, disposable equipment will be used to reduce the possibility of cross contamination. Polyethylene tubing will be used to collect groundwater samples from the monitoring wells. New tubing will be used for each sample point. Sampling personnel will wear disposable nitrile gloves for protection from constituents of concern and to provide additional protection from contamination of equipment.

All reusable down-hole equipment or equipment that might come into contact with the sample will be cleaned and decontaminated to minimize the potential for cross-contamination between sampling locations or other sources of contamination. Decontamination will include the following steps:

- Scrubbing with tap water and non-ionized detergent (such as alconox).
- Rince in clean tap water.
- Rinse with distilled water.
- Air dry.

To evaluate sampling variability and sample handling procedures, one duplicate sample will be collected and analyzed for each batch of 10 samples per media (two soil and one groundwater). The duplicate will be analyzed for the same analyte as the primary sample. A laboratory supplied trip blank, consisting of an unopened acid-preserved vial of deionized water will be included with each cooler containing water samples being analyzed for VOCs. A pre-labeled Terracore kit will be used as a trip blank for each cooler containing soil samples being analyzed for VOCs. The purpose of the trip blank will be to evaluate conditions at the laboratory, sample transit and sample handling. Solvents are commonly used at laboratories for cleaning and extractions and vapors can be carried over into samples and equipment . The laboratory also conducts quality control testing, including batch duplicates and spike samples. A quality control report will be obtained for each laboratory report.

All field activities will be recorded in a field book specific to the project.

4.7 Surveying

Each boring location will be surveyed using an on-site/local benchmark and a hand-held GPS. Vertical elevations will be surveyed using a laser level.

4.8 Management of Investigative Derived Waste

Soil cuttings and purge water generated during soil boring installation and groundwater monitoring activities will be containerized in 55-gallon drums and stored on-site until proper disposal can be coordinated. The soil and groundwater analytical data from the investigation will be used to characterize the drummed soil and identify a suitable disposal facility.

4.9 Investigation Reporting

Following receipt of the soil, groundwater and/or ambient air analytical results, TRG will prepare a site investigation report. The report will present the procedures followed during the investigation and the results of the field screening and analytical testing. Copies of all soil borings logs, well construction, well development, and borehole abandonment forms, and laboratory analytical reports will be included in appendices.

Please contact me at 414-719-1477 or treese@the-reese-group.com if you have any questions or require additional information regarding our submission.

Sincerely,

THE REESE GROUP, LLC

Christine A Reese, P.G.
President

FIGURES

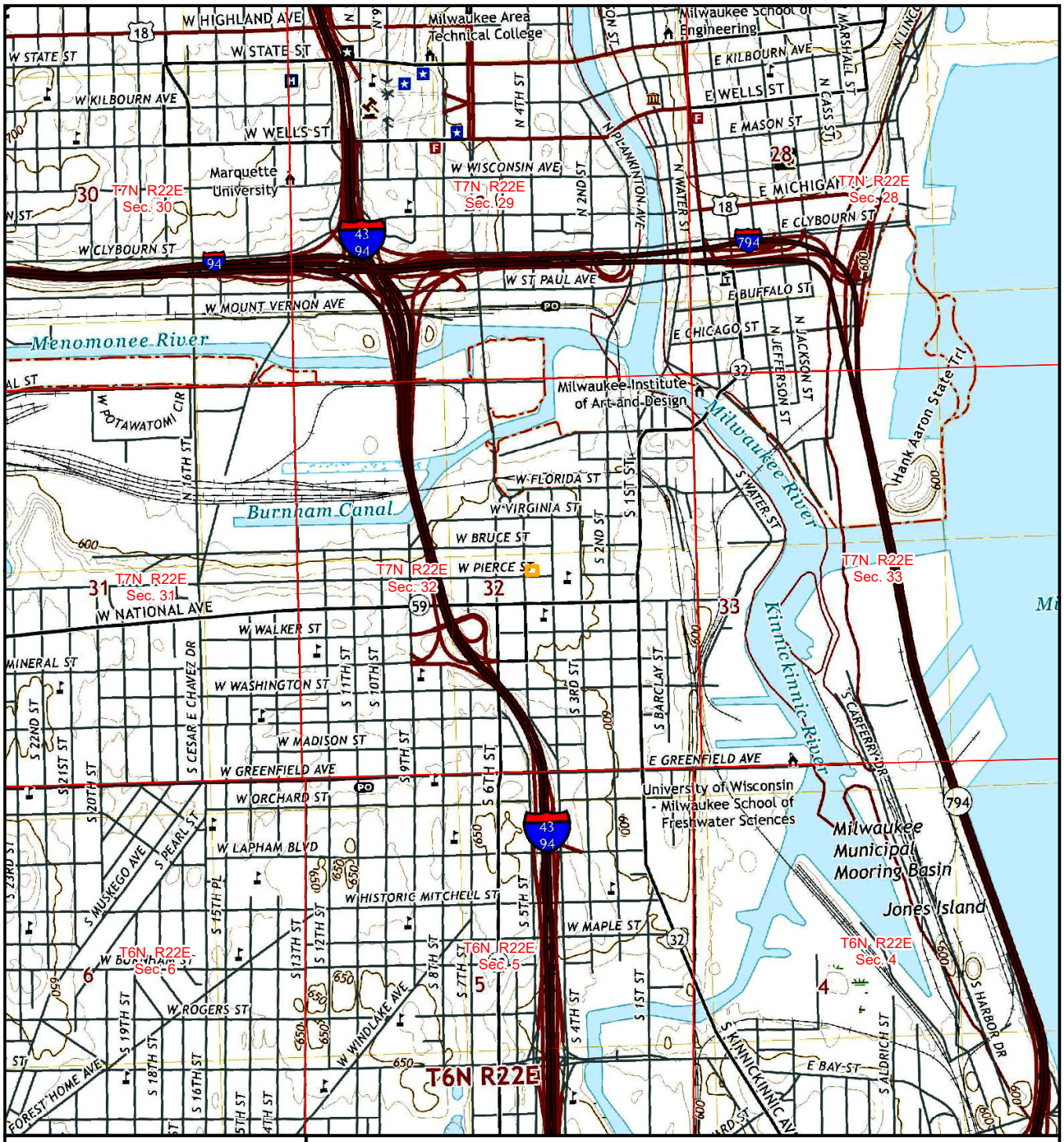

Figure 1 - Project Location Map
Former Reliable Plating Works, Inc
644 South 5th Street
Milwaukee, Wisconsin

Site Boundary
Section

Source: Milwaukee, WI 2022
USGS 7.5' series topographic map

1:24,000

0 0.5 1 Miles

The Reese Group
Environment, Compliance, Construction

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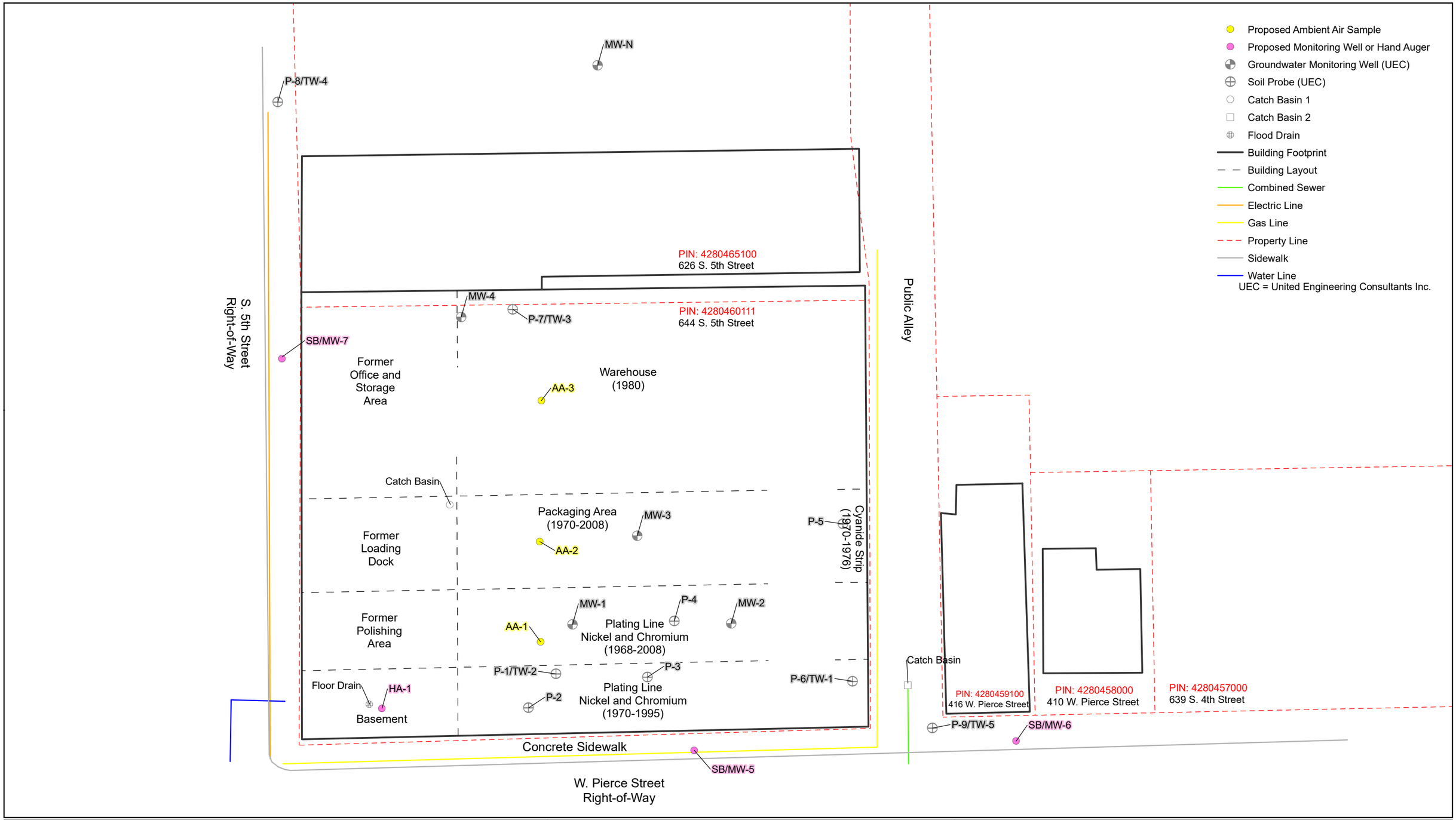

The Reese Group
Environment, Compliance, Construction

Date: 5/19/2023

0 25 50 Feet

1:280

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Former Reliable Plating Works, Inc
644 South 5th Street
Milwaukee, Wisconsin

Figure 2 - Site Map

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