



November 17, 2017

Rick Joslin
Wisconsin Department of Natural Resources
625 E. County Rd Y, Suite 700
Oshkosh, Wisconsin 54901

**Re: Further Site Investigation Work Plan
Former Troy Laundry & Cleaners
320 Pine Street, Sheboygan Falls, Wisconsin
BRRTS#: 02-60-385641**

Dear Mr. Joslin:

EnviroForensics, LLC (EnviroForensics) is pleased to provide this Further Site Investigation (FSI) Work Plan (Work Plan) for the Former Troy Laundry & Cleaners facility located at 320 Pine Street in Sheboygan Falls, Wisconsin (Site). The Site layout is depicted on **Figure 1**. The Site investigation is being performed in accordance with Wisconsin Department of Natural Resources (WDNR) regulations and guidance regarding such investigations.

The WDNR reviewed the May 18, 2017 Site Investigation Report and provided comments in a letter dated September 13, 2017. A copy of the letter is provided in **Attachment 1**. The WDNR requested that EnviroForensics address three (3) main FSI items:

- An additional groundwater monitoring well at the location of former soil boring GP-5 southeast of the building;
- Additional assessment of the vapor intrusion pathway in the Site building, including sub-slab vapor and soil gas sampling; and
- Semi-annual groundwater monitoring.

WDNR also made several comments regarding data presentation and discrepancies in property information. These comments will be addressed in future submittals.

EnviroForensics evaluated the comments and requirements for additional work. In a September 20, 2017 email to the WDNR project manager, EnviroForensics described concerns about the suggested installation of a soil gas sampling point in the dirt floor area of the basement, and proposed replacing a soil gas sampling point with an additional sub-slab vapor sampling port. The WDNR project manager replied on September 22 with agreement on our proposed approach.

Document: 6351-0302
EnviroForensics, LLC
N16 W23390 Stone Ridge Drive, Suite G, Waukesha, WI 53188
Phone: 262-290-4001 • Fax 317-972-7875

Therefore, soil gas sampling is not part of the vapor intrusion assessment at the Site building. Additionally, a quarterly groundwater monitoring schedule is proposed rather than semi-annual so that concentration trends can be established and the timeframe for completing the site investigation can be expedited.

FURTHER SITE INVESTIGATION WORK PLAN

The proposed FSI activities are detailed in the following sections. EnviroForensics has developed this Work Plan to serve as the procedures document for the FSI activities. The objectives of this FSI are to satisfy the specific requirements (minus soil gas sampling) outlined in the September 13, 2017 WDNR letter and move the Site toward closure.

Monitoring Well Installation

In accordance with safe work practices and as required by Wisconsin State Law, EnviroForensics will contact Wisconsin Digger's Hotline subsurface utility protection service at least 72-hours prior to the anticipated onset of subsurface work at the Site. As a result, subsurface utilities and structures owned or managed by member companies and municipalities will be located by an independent contractor service. EnviroForensics will also contract with a private underground utility locating service to provide additional confidence regarding the position of potential underground hazards at the Site. The private locating service will use geophysical and electromagnetic equipment locate underground utilities across the entire Site.

A new monitoring well designated MW-5 will be installed at the location of former soil boring GP-5 (see **Figure 2**). The purpose of MW-5 is to evaluate groundwater conditions at the GP-5 location with a permanent monitoring well constructed in compliance with WDNR regulations. The well will be installed using hollow-stem auger methods in accordance with the requirements of Wisconsin Administrative Code (WAC) Chapter NR 141. A boring log will be generated but soil samples will not be collected from the boring. The monitoring well will be constructed with a 10-foot long 0.010-inch slotted screen from approximately 8 to 18 feet below ground surface (bgs). Well materials will be 2-inch diameter PVC. An expandable locking cap and padlock will be placed on the well. The surface completion will consist of a flush-mount well vault set in concrete. The new monitoring well will be developed according to the procedures described in WAC Chapter NR 141.

A licensed surveyor will locate the new monitoring well by standard surveying methods. The horizontal and vertical grid coordinates of the well will be recorded to within 0.1 foot and 0.01 foot, respectively. The well will be incorporated into the existing Site plan, which is referenced to the State Plane Coordinate System.

Investigation-derived media (IDM) generated during FSI activities, including soil cuttings, decontamination fluids, and purge water, will be placed in 55-gallon steel drums and stored on

Site. The sample results will be provided to a licensed contractor for profiling. The IDM will be transported off-Site under existing non-hazardous waste profiles for disposal.

Vapor Intrusion Assessment

The vapor intrusion (VI) assessment will include indoor air and sub-slab vapor sampling. Two (2) sampling events will be performed with at least one (1) event during the winter months. Three (3) sub-slab vapor samples and three (3) indoor air samples will be collected during each event. The proposed sample locations are depicted on **Figure 3**. All VI assessment activities will be conducted in accordance with WDNR guidance, including Publication RR-800: *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin*.

Indoor Air Sampling

Prior to sampling, an inspection of the occupied spaces will be conducted to identify and inventory materials that could potentially contribute to indoor air conditions, unrelated to VI issues. Suspect items identified during the inspection will be listed on a pre-sampling inspection form for later reference or potential removal.

Three (3) indoor air samples will be collected as follows:

- Two (2) samples from the basement of the building (IA-B-1 and IA-B-2); and
- One (1) sample from the first floor (IA-1-1).

Additionally, one (1) outdoor air sample will be collected from the upwind side of the building to assess background conditions. Samples will be collected in individually certified vacuum canisters positioned 3-5 feet above the floor. Sample collection will occur over an 8-hour period. A total of four (4) samples will be submitted to a laboratory under chain-of-custody for analysis of the contaminants of concern according to EPA Test Method TO-15. The analytical results of the air samples will be compared to WDNR Vapor Action Levels (VALs).

Sub-Slab Vapor Sampling Port Installation and Sampling

Permanent Vapor Pin[®] sampling ports will be installed in the basement slab of the building. Previous documents had indicated that the southwest part of the building was slab-on-grade construction. A slab-on-grade part of the building is also referenced in the WDNR letter (**Attachment 1**). However, a basement exists under the entire Site building.

The proposed sampling port locations are depicted on **Figure 3**. The sampling ports will be capped during installation until sampling is initiated. To ensure that the sub-slab vapor samples are representative of subsurface conditions, water dam leak testing will be performed at each

sample port. The integrity of the sample tubing and fittings will be verified prior to sampling collection by conducting a negative pressure test.

The sub-slab vapor samples will be designated SSV-1 through SSV-3. All samples will be collected through dedicated Teflon-lined polyethylene tubing connected to the sampling port. A graduated syringe will be utilized to purge ambient air from the tubing prior to initiating sample collection. Vapor beneath the concrete slab will then be drawn into a 1-liter vacuum canister fitted with a laboratory supplied regulator that limits the flow rate to approximately 200 milliliters per minute (mL/min).

Following the completion of sampling activities, three (3) sub-slab vapor sample canisters will be submitted to an environmental laboratory for analysis of analysis of the contaminants of concern via EPA Test Method TO-15. The analytical results of the sub-slab vapor samples will be compared to WDNR vapor risk screening levels (VRSLs).

Groundwater Monitoring

Four (4) groundwater monitoring events will be performed to evaluate groundwater flow direction and contaminant concentrations. The first event will be performed within two (2) weeks following installation of MW-5, and the next three (3) events will be performed on a quarterly basis. EnviroForensics prefers a quarterly monitoring schedule to expedite completion of the site investigation. The monitoring events will include groundwater elevation measurements and sample collection from all monitoring wells. Groundwater monitoring activities will be conducted in accordance with WDNR and US Environmental Protection Agency (EPA) guidance.

Sampling and analysis procedures will comply with the requirements listed in WAC Chapter NR 716. For quality assurance and quality control QA/QC purposes, one (1) duplicate sample and one (1) equipment blank sample will be collected; and one (1) trip blank will accompany each cooler. It is anticipated that a total of eight (8) samples will be submitted during each monitoring event to a state-certified laboratory for analysis of VOCs according to US EPA Method 8260B.

Purge water will be placed in 55-gallon steel drums and stored on Site pending transport off-Site under existing non-hazardous waste profiles for disposal.

Data Evaluation

EnviroForensics will evaluate and summarize the data collected during the FSI to identify any data gaps. If additional investigation or vapor mitigation activities are warranted, EnviroForensics will prepare and submit a supplemental work plan. If the FSI data fully satisfy the WDNR's concerns, the data will be reported in a Supplemental Site Investigation Report prepared in accordance with WAC Chapter NR 716.

SCHEDULE

Fieldwork has been scheduled to begin during the last week of November. Utility clearance, monitoring well installation and development, and vapor/air sampling will be completed during the initial two-day mobilization. A second mobilization will follow within one (1) month for surveying and the first groundwater monitoring event. Subsequent vapor sampling and groundwater monitoring events will be conducted quarterly. Data evaluation will be ongoing during the FSI. EnviroForensics anticipates that all activities described in this Work Plan can be completed within one (1) year.

If you have any questions regarding this Work Plan or the status of the project, please do not hesitate to call us at (262) 290-4001.

Sincerely,
EnviroForensics, LLC

A handwritten signature in blue ink, appearing to read "Brian Kappen".

Brian Kappen, PG
Senior Geologist/Project Manager

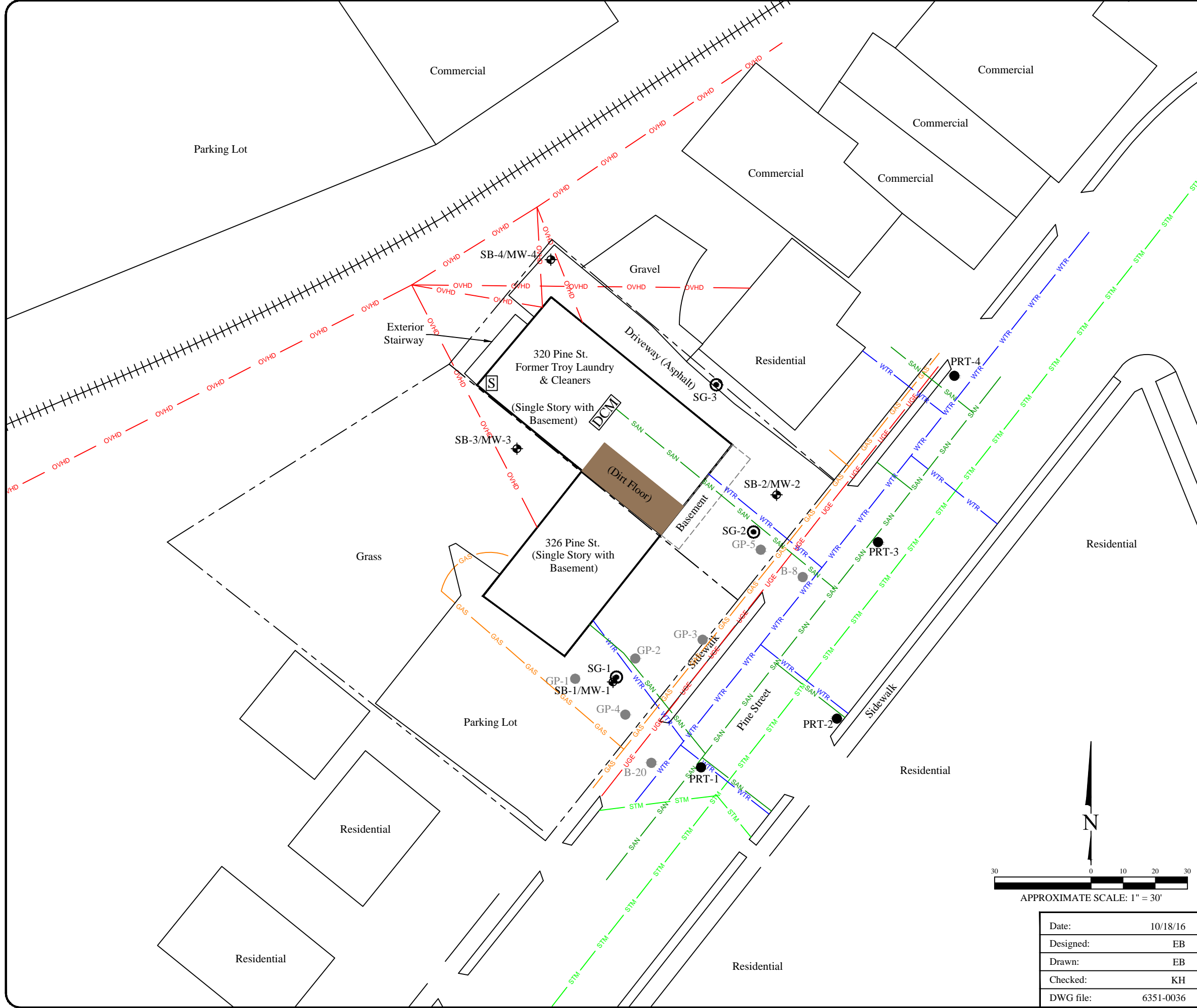
Copy: Tom and Marilyn Berlin

List of Attachments:

- Figure 1: Site Layout Map
- Figure 2: Monitoring Well Location Map
- Figure 3: Proposed Vapor Intrusion Sampling Locations

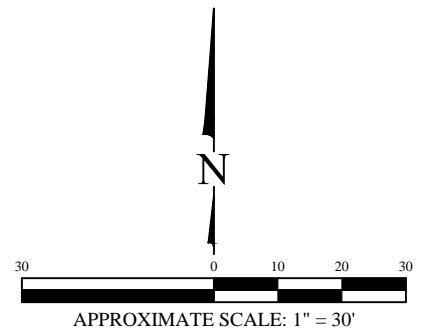
Attachment 1: September 13, 2017 WDNR Letter

FIGURES

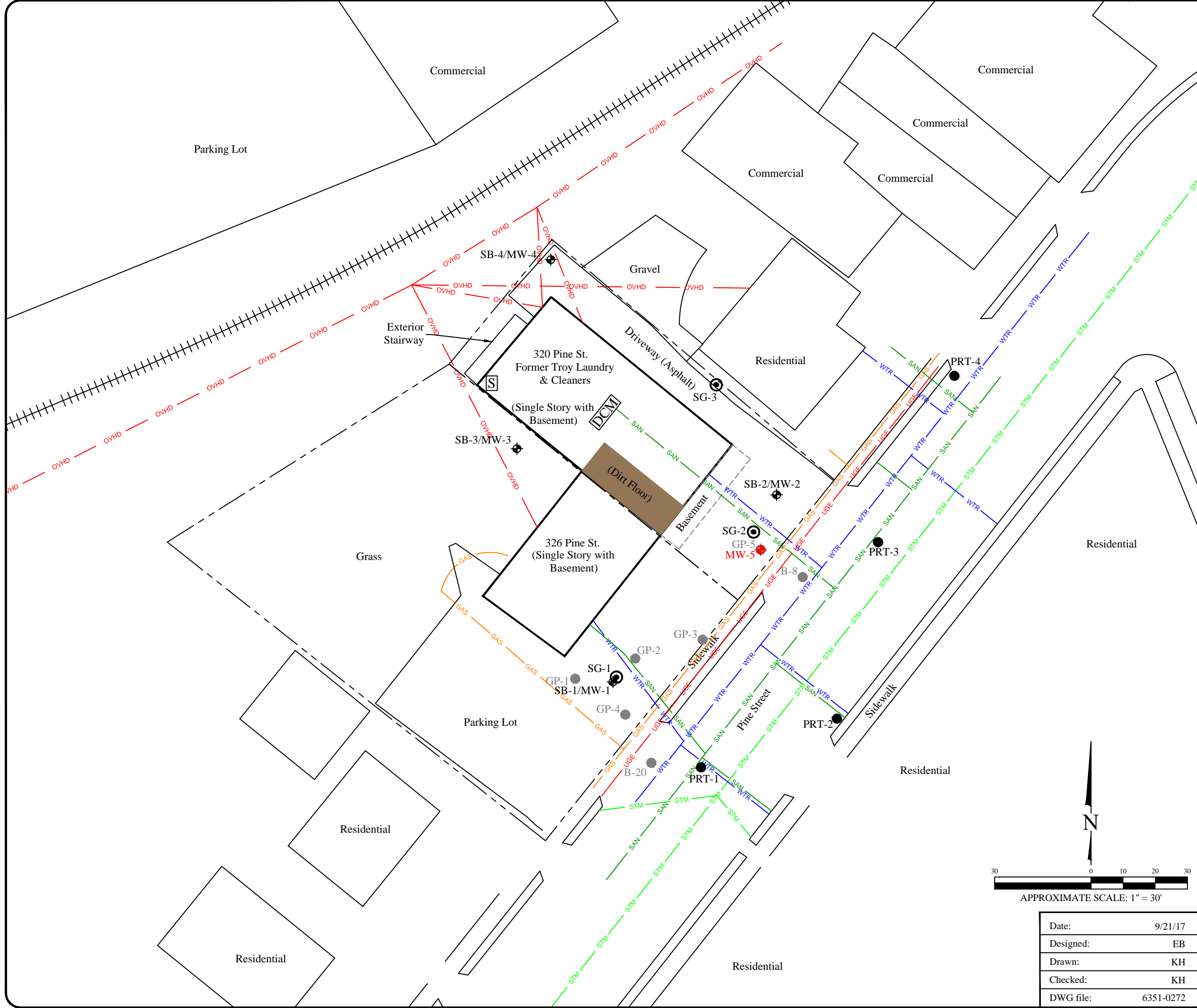


Legend

- Property boundary
- ++++ Railroad tracks
- SAN --- Underground sanitary utility line
- STM --- Underground storm utility line
- GAS --- Underground gas utility line
- WTR --- Underground water utility line
- OVHD --- Over head electrical utility line
- UGE --- Underground electrical utility line
- GP-1 ● Soil boring (By Others)
- SB-1/MW-1 ⊕ Soil Boring/Monitoring well
- SG-1 ⊙ Soil Gas sampling point
- PRT-1 ● PRT soil gas sample boring
- DCM Former dry cleaning machine location
- S Former PCE storage
- Dirt floor area

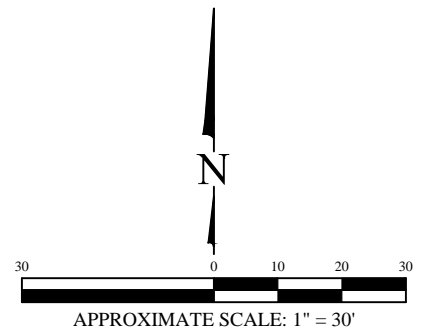


SITE LAYOUT	
Former Troy Laundry & Cleaners 320 Pine Street Sheboygan Falls, Wisconsin	
	Figure
ENVIRONMENTAL FORENSIC INVESTIGATIONS, INC. 825 North Capitol Avenue • Indianapolis, IN 46204 EnviroForensics.com	1
Date: 10/18/16 Designed: EB Drawn: EB Checked: KH DWG file: 6351-0036	Project 6351

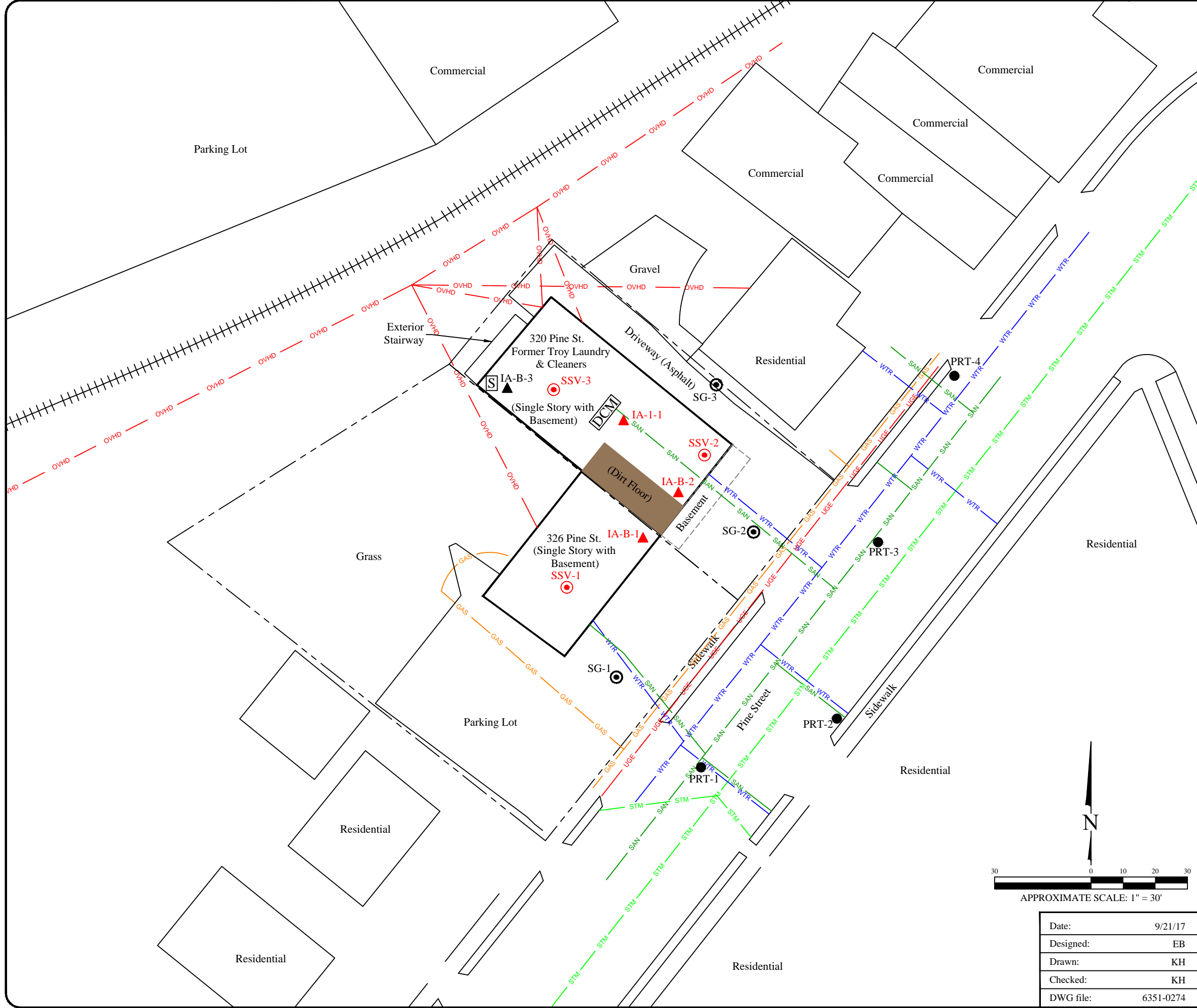


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- ⊙ SG-1 Soil gas sampling point
- PRT-1 PRT soil gas sample boring
- ⊠ DCM Former dry cleaning machine location
- ⊠ S Former PCE storage
- ⊕ MW-5 Proposed monitoring well location
- Dirt floor area

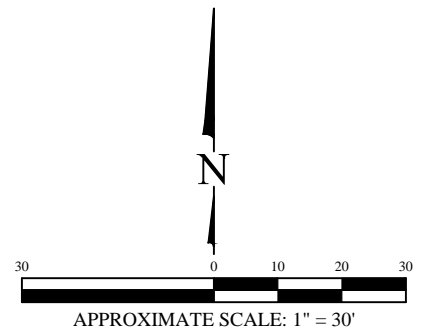


PROPOSED MONITORING WELL LOCATION	
Former Troy Laundry & Cleaners 320 Pine Street Sheboygan Falls, Wisconsin	
	Figure
ENVIRONMENTAL FORENSIC INVESTIGATIONS, INC. 825 North Capitol Avenue • Indianapolis, IN 46204 EnviroForensics.com	2
Date: 9/21/17 Designed: EB Drawn: KH Checked: KH DWG file: 6351-0272	Project 6351



Legend

- Property boundary
- ++++ Railroad tracks
- SAN --- Underground sanitary utility line
- STM --- Underground storm utility line
- GAS --- Underground gas utility line
- WTR --- Underground water utility line
- OVHD --- Over head electrical utility line
- UGE --- Underground electrical utility line
- ▲ IA-1 Proposed indoor air sample
- SSV-1 Proposed sub-slab sample
- ⊙ SG-1 Soil gas sampling point
- PRT-1 PRT soil gas sample boring
- DCM Former dry cleaning machine location
- S Former PCE storage
- Dirt floor area



VAPOR INTRUSION ASSESSMENT SAMPLE LOCATIONS

Former Troy Laundry & Cleaners
320 Pine Street
Sheboygan Falls, Wisconsin

Date:	9/21/17	<p style="font-size: small; margin: 0;">ENVIRONMENTAL FORENSIC INVESTIGATIONS, INC. 825 North Capitol Avenue • Indianapolis, IN 46204 EnviroForensics.com</p>
Designed:	EB	
Drawn:	KH	
Checked:	KH	
DWG file:	6351-0274	
		Figure 3 Project 6351

ATTACHMENT 1
SEPTEMBER 13, 2017 WDNR LETTER



September 13, 2017

MS. MARILYN WALSH-BERLIN
W2626 MILEY RD
SHEBOYGAN FALLS, WI 53085

Subject: Response to May 2017 Site Investigation Report
Troy Laundry & Cleaners, 320 Pine St., Sheboygan Falls, Sheboygan County, WI
DNR BRRTS Activity #: 02-60-385641

Dear Ms. Walsh-Berlin:

On May 24, 2017, the Department of Natural Resources ("DNR") received the *Site Investigation Report* dated May 18, 2017 (the "May 2017 SIR") submitted by Environmental Forensic Investigations, Inc. ("EnviroForensics") on your behalf along with the associated \$1,050 review fee in accordance with ch. NR 749, Wisconsin Administrative Code ("Wis. Adm. Code").

After the initial review of the May 2017 SIR, several questions were identified with regard to site features and investigative activities. The DNR provided those questions to EnviroForensics via electronic mail ("e-mail") on August 3, 2017. Answers to those questions were provided in an e-mail response from EnviroForensics on August 14, 2017. The above-referenced e-mail correspondence is attached to this letter.

The DNR performed a technical review of the May 2017 SIR and associated site file to provide this response. The review reveals the following items where requirements of the NR 700 Rule Series are not yet met:

1. Tetrachloroethylene ("PCE") contamination in groundwater identified in grab samples collected from borings GP-5 and B-8 (see attached Figure 2 – Site Layout) have not been verified or collected from a monitoring well that was constructed in accordance with ch. NR 141, Wis. Adm. Code as required under s. NR 726.05(7)(c), Wis. Adm. Code. An additional monitoring well needs to be installed in the vicinity of boring GP-5 to assess contamination concentrations and trends near the source area. Based on the groundwater analytical results obtained from this monitoring well, additional monitoring points maybe required to define the extent of groundwater contamination to the southeast and/or along utility lines.
2. Additional investigation to assess the vapor intrusion pathway is needed to characterize the degree and extent of contaminated vapor directly beneath the building per the requirements of s. NR 716.11(3)(a), Wis. Adm. Code. The vapor intrusion pathway cannot be ruled out based on indoor air samples alone. The PCE concentration measured in soil gas at SG-2 and the likelihood contaminated groundwater is in contact with the building foundation both support the need for additional vapor sampling. A soil gas sampling port and two sub-slab vapor ports are needed to assess vapors beneath the building based on the layout and construction of the inter-connected buildings shown on Figure 2 – Site Layout. The soil gas sampling port needs to be installed within the unfinished floor (i.e., dirt) of the basement. One sub-slab vapor port is needed within the footprint of the single story slab on-grade portion of the building and the second sub-slab vapor port is needed beneath the concrete floor from within the footprint of the basement. A minimum of two

vapor sampling events is needed to adequately assess the potential for contaminant vapors to migrate into the breathing space of the buildings. At least one event should be collected under frost conditions while the heat is running. Resources including fact sheets, videos and template letters are available to assist in gaining access and communicating vapor results to occupants at the following website: <http://dnr.wi.gov/topic/Brownfields/Vapor.html>.

3. In order to assess contaminant trends in the source area and in side- and down-gradient monitoring wells, additional groundwater monitoring is needed. Groundwater sampling needs to continue from the existing monitoring well network on a semiannual basis.

The following comments are presented for preparation of future submittals:

4. No isoconcentration map was submitted with the May 2017 SIR. As stated in s. NR 716.15 (4)(c), Wis. Adm. Code, an isoconcentration map is required and should depict the hazardous substance, concentration, the environmental medium, the date measured and the unit of measurement. Please make sure future submittals contain appropriate isoconcentration maps.
5. It appears that soil borings SB-1 through SB-4 were inadvertently identified as DP-1 through DP-4 on the figures. Please revise on future site maps so there is consistency throughout the document.
6. Photoionization detector ("PID") readings measured at borings SB-1 through SB-4 appear to be extremely high compared to the corresponding soil analytical results. Please review and provide an explanation.
7. The property boundaries as shown on the figures included in the May 2017 SIR do not match what is listed on the Sheboygan County Land Information website. The Sheboygan County Land Information website lists the main building with the basement (Parcel # 59282907080) as 320 Pine Street and the slab-on-grade portion of the building (Parcel # 59282907070) as 326 Pine Street. This is important information that is needed at the time of closure in order to provide proper notifications and continuing obligations for each parcel. This needs to be clarified in the text and figures of future submittals.
8. The Property Information and Property Owner Information in the May 2017 SIR appears incorrect. Based on the information presented on Sheboygan County Land Information website, the property address, parcel number, and the name and address of the property owner do not match what is listed in the May 2017 SIR. Please address this inconsistency in future submittals.
9. For future submittals please explain why there are three deed documents for the property (Document numbers 1433281, 1433282 and 1433283) and confirm that these are the most current available.
10. Table 3 - Summary of Soil Sample Analytical Results should include information that indicates whether soil samples were saturated versus not saturated at the time of collection.
11. Please revise Table 5 - Summary of Soil Gas Sample Analytical Results to show how Vapor Risk Screening Levels were calculated including the date of the WI Vapor Quick Look-Up Table used and the applicable attenuation factor(s).
12. Please include the information contained within the August 3 and August 14, 2017 e-mail correspondences that is attached to this letter in future submittals.

September 13, 2017
Ms. Marilyn Walsh-Berlin
Response to May 2017 Site Investigation Report
Troy Laundry & Cleaners, 320 Pine St., Sheboygan Falls, WI
BRRTS #: 02-60-385641

Page 3 of 3

Additional actions needed:

A brief work plan should be submitted prior to addressing the additional investigation items discussed above. A review fee of \$700 in accordance with ch. NR 749, Wis. Adm. Code should accompany the submittal if a detailed review and written response is requested.

Please note that s. NR 716.14, Wis. Adm. Code requires responsible parties to notify the DNR, property owners (if different than the responsible party), and occupants as appropriate, of sampling results from their relative property within 10 days of receipt of the data unless otherwise approved by the DNR. This timely notification to DNR will be important for the initial round of vapor data and groundwater data from the new monitoring well. If needed, a template notification letter (Form 4400-249) is available on the internet to assist responsible parties with this notification and can be found at the following link: <http://dnr.wi.gov/files/PDF/forms/4400/4400-249.pdf>. As stated under item #2 above, additional resources are available to assist in communicating vapor results to occupants.

At the completion of the additional investigation activities, please note that a supplemental site investigation report will need to be submitted to the DNR for review that addresses the items discussed in this letter and includes supporting documentation that has not yet been submitted (e.g., soil boring log, monitoring well construction form, development form, etc.). A review fee of \$1,050 in accordance with ch. NR 749, Wis. Adm. Code should accompany the submittal if a detailed review and written response is requested.

Thank you for the opportunity to review the May 2017 SIR. Please contact me with any questions in Oshkosh by phone at 920-424-7077 or by email at richard.joslin@wisconsin.gov.

Sincerely,



Richard Joslin
Hydrogeologist
Remediation & Redevelopment Program

Attachments:

August 3 and August 14, 2017 e-mail correspondence between DNR and EnviroForensics
Figure 2 – Site Layout dated October 18, 2016

cc: Rob Hoverman, EnviroForensics (email only – rhoverman@enviroforensics.com)
Brian Kappen, EnviroForensics (email only – bkappen@enviroforensics.com)