August 19, 2020
Kleinfelder Project No. 20210948.001A

Jason G. Cook, LG, RG
Hydrogeologist 3
Washington Department of Ecology
Toxics Cleanup Program – Headquarters
PO Box 47600
Olympia, Washington 98504-7600

RE: Site Characterization Work Plan
Site Name: Daniel's Dry Cleaners Coal Creek
Site Address: 6923 Coal Creek Parkway SE, Newcastle, Washington 98059
Facility/Site No.:10627385
Cleanup Site ID No.: 629
VCP Project Number: NW3250

Dear Mr. Cook:

On behalf of RREEF-WEST VI (REEFF), the following is the initial site characterization workplan for the former Daniel's Dry Cleaners Facility. The scope of work outlined in this work plan is intended to address the action items outlined in the Further Action (FA) letter provided to RREEF from the Washington State Department of Ecology (DOE), dated March 3, 2020.

1.0 SITE DESCRIPTION AND BACKGROUND

Below is a description of the Site (geology, hydrogeology and chlorinated volatile organic compound [cVOC] concentrations) and established cleanup levels for cVOCs.

1.1 Site Geology and Hydrogeology

Site soils generally consist of silty sand with gravel from grade to approximately 5 feet below ground surface (bgs), underlain by dense silt with sand to a depth of 41.5 feet. The groundwater gradient at the Site is generally to the southwest at 0.09 feet per foot as shown in Figure 1.

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1.2 Chlorinated Volatile Organic Compound Concentrations

In general, cVOC concentrations reflect degradation resulting from the remedial injections performed in April 2019. Figures 2, 3, and 4 show the distribution of tetrachloroethylene (PCE), trichloroethylene (TCE) and vinyl chloride (VC), respectively, beneath the Site based on groundwater sampling from June 2020. Concentrations of PCE as of June 2020 were reported below the Washington State Department of Ecology (DOE) Model Toxics Control Act (MTCA) Method A groundwater cleanup level of 5 micrograms per liter (µg/L) in all groundwater monitoring wells at the Site, while TCE was only reported at a concentration that exceeds the MTCA Method A groundwater cleanup level of 5 µg/L in groundwater monitoring well B20 located in the parking lot to the east of the former Daniels Dry Cleaners tenant space. Post-injection concentrations of VC in groundwater continue to exceed the MTCA Method A groundwater cleanup level of 0.2 micrograms per liter (µg/L) in groundwater monitoring wells B3, B6, B8, B15 (located west of the former dry cleaner), and B20.

1.3 Cleanup Levels

The MTCA Method A groundwater cleanup levels are established at 5 µg/L for PCE and TCE and 0.20 µg/L for VC. Additionally, the Washington State Department of Ecology has established a Maximum Contaminant Level (MCL) of 7 µg/L for 1,1-DCE; 70 µg/L for cis-1, 2-DCE; and 100 µg/L for trans -1,2-DCE.

2.0 GROUNDWATER MONITORING WELL INSTALLATION

Based on comment number two in the FA letter, Kleinfelder will install three additional groundwater monitoring wells to the east, south, and west of the documented cVOC plume to better delineate the plume. The new groundwater monitoring well locations are presented on Figure 5.

2.1 Subsurface Utilities and Structures

In advance of equipment mobilization, Kleinfelder will coordinate public utility identification at the Site. In addition, Kleinfelder will subcontract with a private utility locator to identify additional utilities/potential subsurface structures beneath the surface in the vicinity of the planned subsurface explorations. The Site plan will be updated to depict the locations of newly identified utilities and any subsurface structures. In addition, Kleinfelder continues to consult with the property manager for any additional information (e.g., site plans, etc.) on possible utilities.

2.2 Groundwater Monitoring Well Installation

Each groundwater monitoring well will be installed using a hollow stem auger drill rig. Each well will be installed to a total depth of approximately 45 feet bgs. The wells will be constructed with two-inch polyvinyl chloride (PVC) casing with 0.010-inch slotted screen. The filter pack will extend two feet above the screen. The well seal will consist of a cement and bentonite grout and the wells will be completed with a traffic-rated vault. Well construction details will be logged on a well construction form and included in Kleinfelder's final report.

2.3 Groundwater Monitoring Well Development

Following well installation, each well will be developed by pumping and surging. Well development details will be recorded on a well development form and included in Kleinfelder's final report.

2.4 Groundwater Monitoring Well Survey

Following well development, a professional surveyor licensed in the State of Washington will be contracted to survey top of casing positions and elevations. The wells will be surveyed from a mark placed on the northern portion of each PVC casing.

3.0 GROUNDWATER MONITORING

Kleinfelder will perform groundwater monitoring to assess cVOC concentrations in groundwater in the three new wells.

3.1 Groundwater Monitoring Protocol

Groundwater samples will be collected from the three new groundwater monitoring wells at the Site. Groundwater samples will be submitted along with chain-of-custody documentation for laboratory analysis of cVOCs by United States Environmental Protection Agency (US EPA) Method 8260.

Prior to groundwater sample collection, static groundwater levels will be measured in each of the three groundwater monitoring wells to be sampled. Depth to groundwater and total depth will be measured using an electric oil/water interface probe (OIP) with graduated markings in feet and hundredths of a foot. Prior to gauging each well, the OIP will be decontaminated with a tap water/non-phosphate detergent wash and distilled water rinse.

All measurements will be collected from the established measuring point of each well, typically the top of the well casing, in order to determine elevation of water from mean sea level. Depth to water measurement, date and time, and the initials of the sampler/measurer will be annotated on a Kleinfelder groundwater sampling form.

To reduce investigative derived waste (IDW) and to produce reliable results during investigative activities, groundwater sampling will be conducted using the low-flow groundwater sampling technique. The low-flow sampling method will involve the use of a peristaltic pump. New tubing will be installed prior to the groundwater sampling at each well. The tubing will be placed in each well, in turn, so that the tubing inlet is at the correct depth for monitoring and sampling. The pump and tubing will be slowly lowered in the well to minimize disturbance to the water column until the intake port reaches the desired depth for collecting the sample. The sampling depth will be recorded on the groundwater sampling form to be replicated during future sampling efforts.

Groundwater Purging

Groundwater will be purged from the well prior to sampling. A flow-through cell (the flow-through cell will only be used for purging, but will not be used for the collection of the groundwater sample) will be utilized to monitor groundwater chemistry parameters after at least one tubing volume plus the volume of the flow through cell has been purged. Groundwater chemistry readings will be collected at 3 to 5-minute intervals. Purging will continue until a minimum of two tubing volumes plus the volume of the flow-through cell have been purged or until the field parameters stabilize according to the EPA low-flow guidance.

Purging will be conducted at a low-flow rate to minimize drawdown in the well. Purge rates may be on the order of 0.1 to 0.5 L/min or as adjusted in the field based on observed conditions. Water levels will be collected during each purge cycle to check that minimal water level drawdown is maintained. After purging, the flow will be reduced, and groundwater samples collected for analysis.

Between groundwater monitoring wells, the low-flow tubing will be disposed of and the submersible pump will be decontaminated using a non-phosphate detergent solution followed by a triple-rinse of distilled water.

Groundwater Sample Collection Procedures

Groundwater samples will be collected in new, pre-preserved sampling containers provided by the analytical laboratory. Personnel performing the sampling will wear nitrile gloves while collecting samples. After the cVOC samples are collected, the vials will be sealed in a re-sealable bag, placed in a protective carrier (e.g. bubble wrap or similar) and immediately placed in a sample cooler on ice. One trip blank will accompany the samples under chain-of-custody documentation to the laboratory and will be analyzed for cVOCs by United States Environmental Protection Agency (US EPA) Method 8260B.

4.0 SOIL SAMPLING

This section describes the soil sampling to be performed at the Site. Soil samples will be collected from the east and west sides of the former Daniel's Dry Cleaners tenant space to assess the risk of cVOCs leaching into Site groundwater and to address the Soil-Leaching exposure pathway.

4.1 Soil Borings

Up to 12 soil borings will be advanced using a direct push drill rig. Soil boring locations are presented on Figure 5. Each soil boring will be advanced to approximately 30 feet bgs as groundwater level was formerly observed as deep as 27 feet bgs. The borings will be continuously logged by a Kleinfelder scientist or engineer. Soils samples will be collected and placed into Ziploc bags. A field-calibrated photoionization detector (PID) will be used to gather headspace data from inside the bag for each sample interval. The soils encountered in the borings will be logged using the Unified Soil Classification System (USCS). The PID readings and USCS soil descriptions will be recorded on boring logs and included in Kleinfelder's final report. Drill tooling will be decontaminated between borings using a non-phosphate detergent solution and distilled water rinse.

At least one soil sample from each boring will be collected for laboratory analysis. The soil samples will be collected from the direct push liner by hand, using a new disposable nitrile glove for each sample. The sample material will be placed into new, laboratory-provided sample containers and placed on ice. The samples will be transported to the laboratory under COC documentation and submitted for analysis of cVOCs by US EPA Method 8260B.

5.0 SOIL VAPOR SAMPLING

This section describes the soil vapor sampling to be performed at the Site. Soil vapor samples will be collected from the north and east edges of the parking area located west of the former Daniel's Dry Cleaners tenant space. The proposed soil vapor monitoring locations are shown on Figure 1. Soil vapor locations were chosen based on the proximity of the building and the plume. This allows Kleinfelder to assess the soil-vapor exposure pathway and possible associated risks to indoor air quality.

5.1 Soil Vapor Sample Collection

Kleinfelder will collect up to seven grab soil vapor samples. Soil vapor sample collection will be performed in accordance with the Interstate Technology Regulatory Council (ITRC) Technical and Regulatory Guidance for Vapor Intrusion, published in 2007. Prior to collecting a soil gas sample, Kleinfelder will conduct a leak test using helium. A shroud will be placed over the vapor sampling equipment and sampling train, and soil vapor will be purged through the sampling train using an air pump. The helium content of the soil vapor stream must be less than 10 percent of the starting helium concentration prior to sample collection. If the helium content of the gas stream cannot be lowered below 10 percent, the soil vapor sampling point will be reinstalled, and the procedure repeated.

All Summa cannisters will be pressure tested prior to use. The leak test results will be recorded in the daily notes. Each soil vapor sample will be collected into a one-liter Summa cannister, and the flow rate will be maintained at 0.2 liters per minute (L/min). The valve to the Summa cannister will be closed while the gauge still indicates negative pressure. Pre- and post-sample cannister pressures will be recorded in the field notes. The filled Summa cannisters will be transported to the laboratory under COC documentation.

6.0 INVESTIGATIVE DERIVED WASTE

IDW such as soil cuttings, decontamination water, and groundwater resulting from the activities in this site characterization Work Plan will be stored in 55-gallon drums, appropriately labeled in accordance with local and federal waste management regulations, and sampled for characterization, profiling and disposal. Waste characterization sampling requirements will be determined by the disposal facility that will ultimately receive the waste. Drums will be stored on-site, pending characterization and disposal. A waste disposal company will be contracted to remove the waste following waste characterization.

7.0 REPORTING

Kleinfelder will author a report documenting the groundwater monitoring well installation, soil sampling, soil gas sampling, and groundwater monitoring. The report will include an updated Site plan, laboratory analytical data tables, and a discussion of the laboratory analytical results, including recommendations for further remedial actions or continued monitoring.

8.0 LIMITATIONS

Our work will be performed in a manner consistent with that level of care and skill ordinarily exercised by professionals practicing in the same locality, under similar conditions, and at the date the services are provided. Our conclusions, opinions, and recommendations will be based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

There can be no assurance that any proposed sampling techniques necessarily disclose all contaminants at the site due, among other things and without limitation, to such factors as a practical and contractual limitation on the number and locations of samples, sample depth, etc. Kleinfelder assumes no risk or liability for existing conditions on the site.

To the extent that the proposed services require judgment, there can be no assurance that fully definitive or desired results will be obtained, or if any results are obtained, that they will be supportive of any given course of action. The services may include the application of judgment to scientific principles; to that extent certain results of this work may be based on subjective

interpretation. Kleinfelder makes no warranties, express or implied, including without limitation, warranties as to merchantability or fitness for a particular purpose. The information provided in the work plan is not be construed as legal advice.

Land use, site conditions (both on-site and off-site) and other factors will change over time. The work plan should be considered valid for a period of 90 days from the date of the work plan. Since site activities and regulations beyond our control could change at any time, it may be necessary for Kleinfelder to revise the work plan after this time period.

Kleinfelder assumes no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

CLOSING

If you have any questions regarding the activities described in this Work Plan, please contact Andrew Alvaro at 801.261.3336.

Respectfully submitted,

KLEINFELDER

Brett Campbell, PE
Project Professional

Andrew Alvaro
Senior Project Manager

Ryan D. Merkley
Desert Southwest Area Manager

KLEINFELDER
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Figures

PLOTTED: 15 Jul 2020, 9:08am, DFahrney

CAD FILE: U:\Projects\CADD\CADD 2021\20210948\ LAYOUT: 3

ATTACHED IMAGES:
ATTACHED XREFS:
SEATTLE, WA

SAFEWAY

Prior Excavation Area

HDD-1

HDD-2

HDD-3

HVE COMPOUND

KHVE-1

KHVE-2

KHVE-3

KHVE-4

KHVE-5

KHVE-10

B-3 395.03

B-5 396.64

B-6 393.87

B-8 396.26

B-9 396.72

B-14 386.24

B-15 394.36

B-16 394.90

B-17 394.18

B-18 389.88

B-19 386.71

B-20 395.71

B-21 388.01

PIPING TRENCH

DANIEL'S DRY CLEANER

PARKING

STATE LIQUOR STORE

394

396

395

393

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390

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388

Explanation

- KHVE-10 — Well Abandoned in 2019
- B-16 — Monitoring Well Re-Installed in 2019 with Upgraded Seals
- B-8 — Monitoring Well
- High Vacuum Extraction (HVE) Piping
- Impacted Soil Removal Area
- Groundwater Elevation Contour (feet, above mean sea level)
- 398.57 — Groundwater Elevation (feet, above mean sea level)
- NM — Not Measured
- HDD-3 — Approximate Horizontal Directional Drilling (HDD) Boring Location

N

0 20

Scale: 1" = 20'

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PROJECT NO.	20210948
DRAWN:	07/2020
DRAWN BY:	DMF
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FILE NAME:	20210948_F2-F6.dwg

SITE PLAN WITH JUNE 25, 2020 GROUNDWATER ELEVATIONS

DANIEL'S DRY CLEANER
6923 COAL CREEK PARKWAY SE
NEWCASTLE, WASHINGTON

FIGURE
1

PLOTTED: 15 Jul 2020, 9:19am, DFahrney

CAD FILE: U:\Projects\CADD\CADD 2021\20210948\ LAYOUT: 4

ATTACHED IMAGES:
ATTACHED XREFS:
SEATTLE, WA

Explanation

- KHVE-11 — Non-Operational Vapor Extraction Well
- KHVE-10 — Well Abandoned in 2019
- B-16 — Monitoring Well Re-Installed in 2019 with Upgraded Seals
- B-8 — Monitoring Well
- <1.00 — PCE concentration in micrograms per liter (µg/l)
- PCE Isoconcentration contour in micrograms per liter (µg/l)
- Inferred PCE Isoconcentration Contour
- Impacted Soil Removal Area
- High Vacuum Extraction (HVE) Piping
- NS — Not Sampled
- HDD-3 — Approximate Horizontal Directional Drilling (HDD) Boring Location

Notes:

VOCs = by EPA Method 8260. Results presented in µg/l

PCE = tetrachloroethene

BOLD indicates the result exceeds the cleanup level

N

0 20

Scale: 1" = 20'

SAFEWAY

HDD-1

HDD-2

HDD-3

HVE COMPOUND

PARKING

PIPING TRENCH

DANIEL'S DRY CLEANER

STATE LIQUOR STORE

Prprt Excavation Area

KHVE-1 KHVE-2 KHVE-3 KHVE-4 KHVE-5 KHVE-6 KHVE-7 KHVE-8 KHVE-9 KHVE-10 KHVE-11

B-3 0.173

B-5 <0.100

B-6 <0.100

B-8 2.42

B-9 <0.100

B-14 <0.100

B-15 <0.100

B-16 <0.100

B-17 <0.100

B-18 <0.100

B-19 <0.100

B-20 <0.100

B-21

GP-9

0.3

0.3

PROJECT NO.	20210948
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FILE NAME:	20210948_F2-F6.dwg

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PCE IN GROUNDWATER
JUNE 25, 2020

DANIEL'S DRY CLEANER
6923 COAL CREEK PARKWAY SE
NEWCASTLE, WASHINGTON

FIGURE
2

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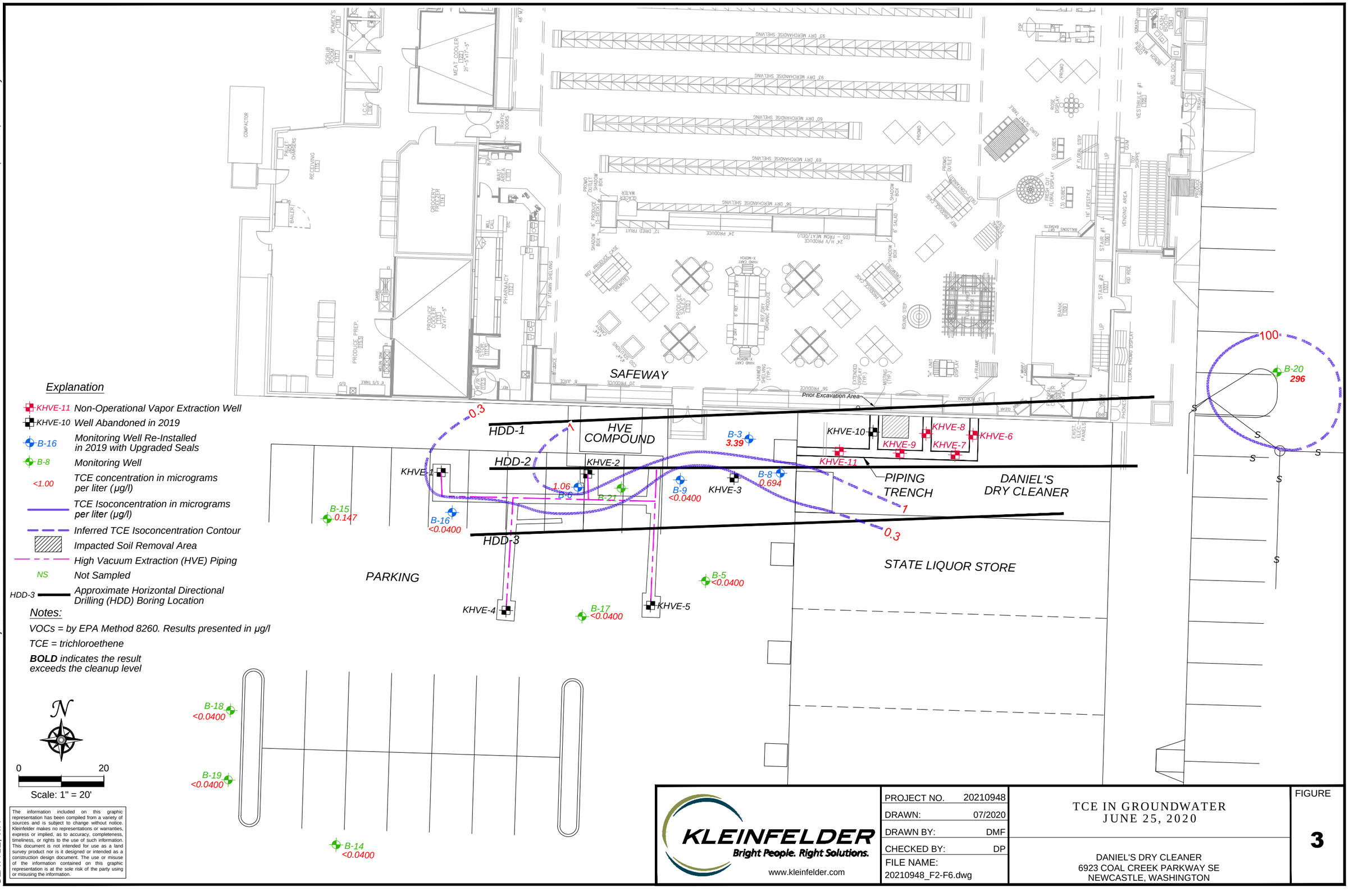
ATTACHED IMAGES:
ATTACHED XREFS:
SEATTLE, WA



Explanation

- KHVE-11 — Non-Operational Vapor Extraction Well
- KHVE-10 — Well Abandoned in 2019
- B-16 — Monitoring Well Re-Installed in 2019 with Upgraded Seals
- B-8 — Monitoring Well
- <1.00 — TCE concentration in micrograms per liter (µg/l)
- TCE Isoconcentration in micrograms per liter (µg/l)
- Inferred TCE Isoconcentration Contour
- Impacted Soil Removal Area
- High Vacuum Extraction (HVE) Piping
- NS — Not Sampled
- HDD-3 — Approximate Horizontal Directional Drilling (HDD) Boring Location

Notes:

VOCs = by EPA Method 8260. Results presented in µg/l

TCE = trichloroethene

BOLD indicates the result exceeds the cleanup level

N

0 20

Scale: 1" = 20'

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PROJECT NO.	20210948
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TCE IN GROUNDWATER
JUNE 25, 2020

DANIEL'S DRY CLEANER
6923 COAL CREEK PARKWAY SE
NEWCASTLE, WASHINGTON

FIGURE
3

PLOTTED: 15 Jul 2020, 9:39am, DFahrney

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ATTACHED IMAGES:
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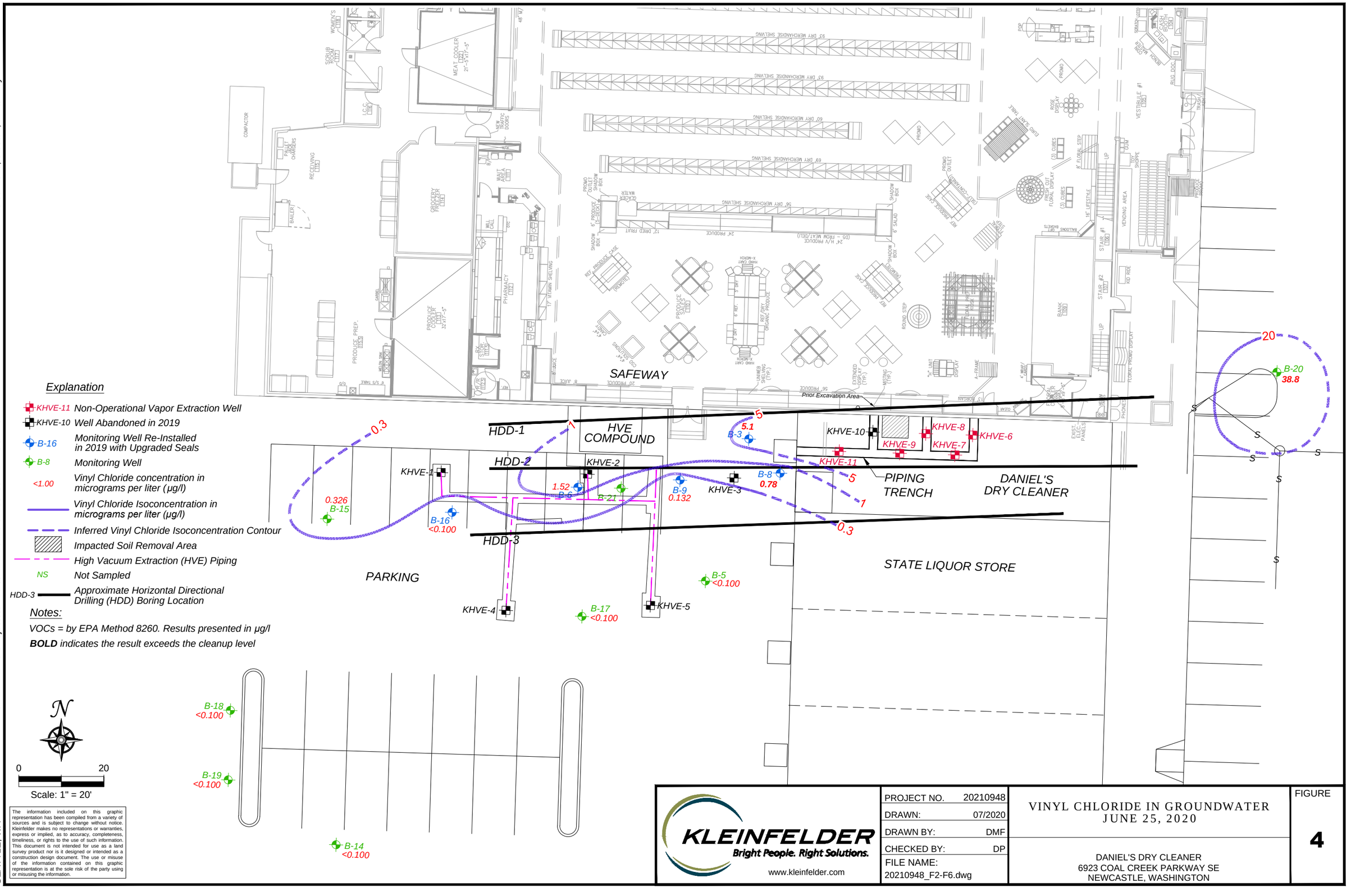
SEATTLE, WA



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VINYL CHLORIDE IN GROUNDWATER
JUNE 25, 2020

DANIEL'S DRY CLEANER
6923 COAL CREEK PARKWAY SE
NEWCASTLE, WASHINGTON

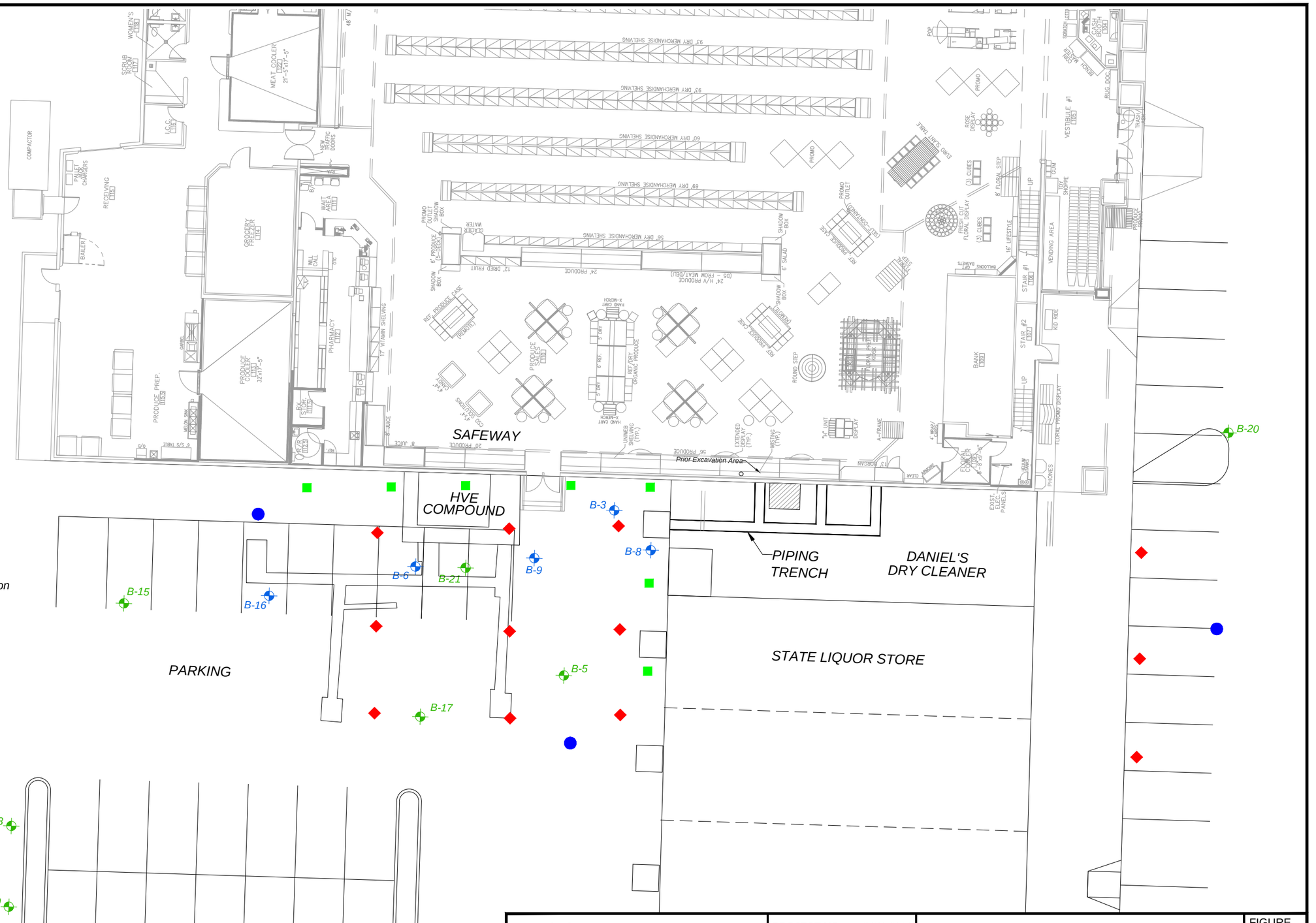
FIGURE
4

PLOTTED: 14 Aug 2020, 12:42pm, DFahrney

LAYOUT: 5

CAD FILE: U:\Projects\CADD\CADD 2021\20210948\

ATTACHED IMAGES:
ATTACHED XREFS:
SEATTLE, WA



EXPLANATION

- Proposed Monitoring Well Location
- Proposed Soil Vapor Sample Location
- Proposed Soil Sample Location
- B-16 Monitoring Well Re-Installed in 2019 with Upgraded Seals
- B-8 Monitoring Well
- Impacted Soil Removal Area

N

0 20

Scale: 1" = 20'

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PROJECT NO.	20210948
DRAWN:	08/2020
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FILE NAME:	20210948_F5_Prop-Loc.dwg

SITE PLAN WITH PROPOSED EXPLORATION LOCATIONS

DANIEL'S DRY CLEANER
6923 COAL CREEK PARKWAY SE
NEWCASTLE, WASHINGTON

FIGURE
5