REMEDIAL ALTERNATIVES SELECTION EVALUATION

FORMER Z2 CLEANERS SITE
1502/1515 ROUTE 37 EAST
TOMS RIVER, NEW JERSEY 08753
BLOCK 1085.02, LOT 5

NJDEP PI # G000062662
NJDEP RI/RD/RAS TERM CONTRACT #A-86327 – NJDEP
PROJECT # A1776590

MAY 2016

Prepared for:

New Jersey Department of Environmental Protection
Site Remediation Program - Bureau of Site Management
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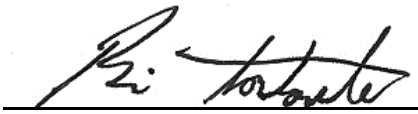

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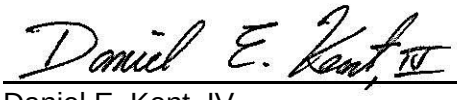

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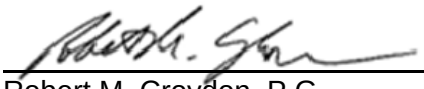

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May 2016
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1.0 INTRODUCTION

Kleinfelder East, Inc. (Kleinfelder) was contracted by the New Jersey Department of Environmental Protection (NJDEP, Term Contract #A-86327) to perform site-specific Remedial Investigation (RI) activities at the Former Z2 Cleaners property (the "site"), located at 1502/1515 Route 37 East (Block 1085.2, Lot 5), Toms River, Ocean County, New Jersey. RI activities were conducted in 2014-2015 and chlorinated volatile organic compounds (CVOCs) were identified in soil, groundwater, soil gas, and indoor on and adjacent to the site. As a result, the NJDEP retained Kleinfelder to prepare a Remedial Alternatives Selection Evaluation.

2.0 BACKGROUND

The former Z2 Cleaners site is located at 1502/1515 Route 37 East (Block 1085.02, Lot 5), Toms River, Ocean County, New Jersey. The site is situated at approximately 39° 57' 10" north latitude, 74° 09' 27" west longitude and at an elevation of approximately 40 feet North American Vertical Datum (NAVD, 1988). The site location, surface topography, and nearby surface water bodies are depicted on **Figure 1**, an annotated section of the United States Geological Survey (U.S.G.S.) 7.5 minute series topographic quadrangle map for Toms River, New Jersey. The site is approximately 160 feet by 100 feet and is currently developed with a one-story strip mall with four units. The former Z2 Cleaners was located in the center unit of the mall in what is now a used appliance store. The other units consist of a pet groomer, barber shop, and adult novelty shop. The majority of the site consists of the building or asphalt parking area, with two small landscaped areas along the eastern edge of the property.

During routine potable well sampling conducted as part of a property transaction in 1988, tetrachloroethene (PCE) and trichloroethene (TCE) were detected in a home owner's potable water well in the Breton Harbors neighborhood of Toms River. The Ocean County Health Department (OCHD) initiated domestic well sampling of neighboring properties to determine the extent of the contamination. By May 10, 1988, OCHD had collected 147 potable well samples. The results of the sampling revealed that 59 samples exceeded the maximum contaminant level for one or more volatile organic compounds (VOCs). The NJDEP began investigating in the vicinity of the former Z2 Cleaners in October 1999 as part of an investigation to determine the source of the Breton Harbors contamination. Borings installed immediately south of the former Z2 Cleaners site contained PCE at a maximum concentration of 152 micrograms per liter (µg/l), indicating that a source was likely nearby. During the 2000 groundwater investigation, an interview with a long-time resident revealed that a dry cleaner formerly operated in the strip mall located at 1502/1515 Route 37, up gradient of the Breton Harbors neighborhood. A search of historical tax, sewage and occupancy records by the NJDEP indicated that a dry cleaner named Z2 Cleaners existed at the site as early as 1966. Sanitary sewer service was not available in the vicinity of the site until 1971, therefore it is speculated that PCE-containing waste was discharged to an on-site septic system prior to connection to the municipal sewer system.

3.0 HISTORICAL ENVIRONMENTAL INVESTIGATIONS

3.1 NJDEP Investigations

In October and November 1999, the NJDEP installed five borings in the Breton Harbors neighborhood to confirm the presence and concentration of contamination identified during the 1988 residential well sampling. The borings were installed to a maximum depth of 76 feet below ground surface (bgs) with up to five groundwater samples collected per boring. Three of the five borings contained PCE in excess of the NJDEP Groundwater Quality Criteria (GQC), with a maximum concentration of 8.29 parts per billion (ppb) detected at the 49-52 foot interval.

In January 2001, five groundwater borings were installed down-gradient of the property that was later determined to be the former Z2 Cleaners. The borings were installed to a maximum depth of 72 feet bgs. PCE was detected in each of the five borings. The maximum concentration was detected in the 33-36 foot interval of GW-19 near the corner of Breton Harbor and First Bayway at a concentration of 152.76 ppb.

In June 2000, the NJDEP conducted a site investigation which included on-site soil sampling. Four continuous core borings were advanced in the area where the historic septic field (southwest corner of the site) was believed to exist. None of the core samples displayed any visual evidence of a septic system, nor did they exhibit any VOC readings above background while using a photoionization detector (PID) or organic vapor analyzer (OVA). As a result, none of these samples were sent to the laboratory for analysis. On June 21, 2001 three on-site prepacked monitoring wells were installed to 36 feet bgs, one side-gradient (MW-1) and two down-gradient of the site (MW-2 and MW-3).

In August 2001, two up-gradient soil borings [GW-1 (Z2) and GW-2 (Z2)], and one down-gradient soil boring [GW-3 (Z2)] were installed and sampled from 30-35 feet along with monitoring wells MW-1, MW-2, and MW-3. Up-gradient borings GW-1 and GW-2 contained PCE at concentrations of 9.5 and 8.2 ppb and TCE at concentrations of 1.1 and 2 ppb, respectively, in groundwater. Side-gradient well MW-1 contained PCE and TCE at concentrations of 62 and 3.9 ppb, respectively. Down-gradient boring GW-3 contained PCE at a concentration of 8.1 ppb and TCE at a concentration of 2 ppb. Down-gradient wells MW-2 and MW-3 contained PCE at concentrations of 160 and 250 ppb and TCE at concentrations of 5 and 3.2 ppb, respectively.

3.2 Kleinfelder Soil and Groundwater Investigations

Kleinfelder initiated investigation activities at the site in March 2014. A geophysical survey of the site revealed the presence of what were determined to be three drywells below the parking lot on the north side of the property. The investigation included the installation of 11 on-site soil and groundwater borings with the collection of 13 soil samples and up to two groundwater samples per boring. The groundwater samples were collected from two zones: the first water bearing zone at 32-35 feet bgs and a deeper zone at 47-50 feet bgs interval for vertical delineation. These two groundwater zones are hereafter referred to as the shallow and deep water bearing zones, respectively.

The soil samples collected from the first six-inch soil interval within the drywells (12.0-12.5 ft bgs) in borings SB-9 and SB-10, , revealed PCE and/or TCE in excess of the NJDEP default impact to groundwater soil screening level (DIGSSL). Additionally, sample SB-10 contained PCE in excess of the NJDEP Nonresidential Direct Contact Soil Remediation Standard in the first six-inch soil interval. The remainder of the soil samples collected from the six-inch soil interval above groundwater did not contain any contaminants of concern in excess of the NJDEP DIGWSSL. Groundwater samples indicated the presence of PCE in excess of the NJDEP GQC in each of the eleven shallow groundwater samples, with the highest concentration, 630 micrograms per liter (µg/L) in GW-5 located in the southwest corner of the site. TCE exceeded the NJDEP GQC in ten of the eleven shallow samples. Seven of the eight deep samples contained PCE in excess of the NJDEP GQC, with the highest concentration of 280 µg/L in boring GW-5. TCE was detected in excess of the NJDEP GQC in in three of the 8 deep samples, with the highest concentration of 17 µg/L in boring GW-5. **Tables 1 and 2** present a summary of the March 2015 soil and groundwater sampling analytical results, respectively.

In May 2015, Kleinfelder installed a series of groundwater borings on First and Second Bayway to delineate the horizontal extent of the PCE and TCE contamination observed on-site. Of the six borings installed along First Bayway, two contained PCE in excess of the NJDEP GQC in the shallow groundwater interval. None of the deep interval samples contained PCE in excess of the NJDEP GQC. TCE was not detected in either the shallow or deep samples in excess of the NJDEP GQC. Neither PCE nor TCE were detected in the shallow or deep interval in any of the six borings installed along Second Bayway. **Tables 3** presents a summary of the May 2015 groundwater sampling analytical results.

Additional soil and groundwater delineation was completed by Kleinfelder in July 2015. Seven soil and 13 groundwater borings were installed during this phase of investigation. Sixteen soil samples were collected in the vicinity of the drywells with samples collected from the 12-12.5 foot interval, corresponding to the contamination identified in the drywells. None of the soil delineation samples contained PCE in excess of the most stringent NJDEP Site Remediation Standards (SRS). Additional samples were collected from the 15.5-16.0 foot interval in boring SB-12 and the 17.5-18.0 foot interval in boring SB-17. These samples did not contain any exceedances indicating that the soil contamination is confined to the soil directly at the base (12.0-12.5 feet bgs) of the drywells. Results of the groundwater sampling further refined the PCE exceedances identified in the initial round of investigation. **Tables 4 and 5** present a summary of the July 2015 soil and groundwater sampling analytical results, respectively. The location and summary results of all soil sampling conducted at the site are presented on **Figure 2.**

Kleinfelder collected five additional shallow groundwater delineation samples in November 2015 which further delineated the on and off-site shallow PCE and TCE plumes. **Table 6** contains a summary of the November 2015 groundwater sampling analytical results. **Figures 3-6** depict the extent of the shallow and deep PCE and TCE plumes in groundwater, based on all rounds of investigation conducted by Kleinfelder

3.3 Kleinfelder Vapor Intrusion Investigation

Based on the results of the soil and groundwater investigation, Kleinfelder conducted a vapor intrusion investigation of the on-site strip mall in June 2015. Five sub-slab soil vapor and indoor air samples were collected, one from each of the strip mall units. Sub-slab PCE results ranged

from 1,360 micrograms per cubic meter (µg/m^3) to 45,500 µg/m^3 with four of the five sub-slab PCE concentrations exceeding the NJDEP Non-Residential Soil Gas Screening Level (NRSGSL). The highest PCE concentration was detected in the former drycleaner unit. None of the indoor air samples exceeded the NJDEP Non-Residential Indoor Air Screening Level (NRIASL) during the June 2015 sampling event. **Tables 7 and 8** contain a summary of the June 2015 vapor intrusion sampling analytical results.

In October 2015, sub-slab soil gas and indoor air samples were collected from the residences at 90 Breton Harbor Drive and 9 First Bayway. The sub-slab sample collected at 90 Breton Harbor Drive contained PCE at a concentration of 2,790 µg/m^3 which exceeds the NJDEP Residential Soil Gas Screening Level (RSGSL). No other contaminants of concern exceeded the corresponding NJDEP RSGSL. An air sample collected from the dirt floor of the crawl space at 19 First Bayway contained TCE at a concentration below the NJDEP RSGSL. **Tables 9 and 10** contain a summary of the results of the June 2015 vapor intrusion sampling analytical results.

Based on the results of the sub-slab vapor samples collected at the strip mall in June 2015, an additional round of indoor air samples were collected at the strip mall on February 24, 2016. Results of this round of indoor air sampling revealed PCE in four of the five units in excess of the NJDEP NRIASL at a maximum concentration of 202 µg/m^3. **Table 11** contains a summary of the results of the February 2016 vapor intrusion sampling analytical results. Based on the result of the February 2016 indoor air sampling event, the site was transferred to the NJDEP Site Remediation Program Bureau of Site Management for remediation.

4.0 SUMMARY OF FINDINGS AND ASSUMPTIONS

Based on the investigations conducted by the NJDEP and Kleinfelder, the mass of residual PCE and TCE contamination in groundwater is concentrated at the south east corner of the property and extends off-site. A geophysical investigation identified three drywells on the north side of the site. The installation of the drywells prior to the site's connection to the public sewer system indicates that they could have received waste water from the historical on-site dry cleaning operation. Soil samples collected from the first 6-inch soil interval (12.0-12.5 feet bgs) within two of the drywells revealed PCE and TCE in one or both of the drywells in excess of the NJDEP DIGWSSL. Although no samples were collected from the third drywell, due to concerns about its structural integrity, it is assumed that the third drywell could also have received waste water from historical operations. This assumption is based on the third drywell being located between the building and the two know contaminated drywells. The presence of PCE and TCE in the drywells and in no other on-site soil samples supports the assumption that the drywells are the likely source of the groundwater contamination. However, the presence (or absence) of CVOC contamination in soil directly beneath the strip mall building slab could not be confirmed, because no samples were collected beneath the building.

A vapor concern is present in the indoor air of four of the five units of the strip mall and is likely attributable to the elevated PCE in the shallow groundwater underlying the site and a potential residual soil source below the building footprint. Vapor intrusion sampling conducted at 90 First Bayway, located down-gradient of the site, indicated that the vapor concern appears to be migrating off-site.

The purpose of this report is to evaluate the most effective and cost efficient remedial strategy to address the vapor intrusion issue and the source of the contamination identified at the Site. Based on discussions with the NJDEP project manager, the following three Remedial Alternatives will be evaluated:

- Alternative 1: Active Subsurface Depressurization System
- Alternative 2: Active Subsurface Depressurization System with Source Area Excavation
- Alternative 3: Active Subsurface Depressurization System, Source Area Excavation and Soil Vapor Extraction System Installation

5.0 REMEDIAL ALTERNATIVES

Based on Kleinfelder's understanding of the nature and extent of contamination and the NJDEP's desire to address the vapor intrusion issue at the site, the following Remedial Alternatives are being evaluated for the site.

5.1 Alternative 1: Active Subsurface Depressurization System

The objective of an active subsurface depressurization system (ASDS) is to apply a negative pressure field or vacuum beneath and/or around the building of concern, thereby preventing vapor intrusion into the building. Active subsurface depressurization systems utilize a fan or blower to create a continuous negative pressure field (vacuum) below the slab. The Department does not consider this action to separately constitute a remedial action of site contaminants found in soil or groundwater. (NJDEP 2013)

ASDS when combined with reasonable sealing of significant infiltration points, is typically the most effective mitigation method for basement slab or slab-on-grade foundation. Concentration reductions of 99.5% or greater have been obtained in carefully designed and installed systems in existing residential buildings. (NJDEP 2013)

To achieve this goal five ASDS vapor extraction points will be installed through the concrete slab of the on-site strip mall building. One extraction point will be installed in each of the four strip mall units with the final point installed through the basement floor below the fifth unit. The extraction points will be constructed of two-inch slotted polyvinyl chloride (PVC) pipe extended two feet below the building slab or basement floor. The piping from the extraction points will be extended through the rear wall of the various units and run through a trench below the rear parking lot to the basement at the western end of the building. The pipes will be connected to a manifold and to a blower capable of suppling sufficient vacuum to achieve the desired negative pressure field beneath the building. The exhaust from this blower will be treated with granular activated carbon (GAC) before being released to the atmosphere.

To assess the effectiveness of the system in achieving a negative pressure gradient, 10 vacuum monitoring points will be installed around the perimeter of the building. These points will extend to 12 feet bgs and be constructed of ¾ inch PVC with seven feet of slotted screen. In addition 18, ½ inch steel or PVC vapor monitoring points will be installed through the building slab. These points will allow for direct measurement of the induced vacuum as well as collection of repeated sub-slab vapor samples for evaluation of system termination. Four vapor monitoring points will be installed in each of the first three slab on grade strip mall units and six will be installed within the basement of the fourth strip mall unit.

Based on an estimate provided by the NJDEP's remediation contractor, Handex Consulting and Remediation, the cost of installing the ASDS will be approximately $110,000. These costs include labor and material for installation of the five ASDS extraction points, 10 exterior monitoring points, and 18 interior points. Also included are the cost of trenching and associated piping, the remediation system and site restoration. The cost also includes labor for system optimization, two years of system operation and maintenance and the cost of one GAC change-out. **Figure 7** contains the proposed layout of the ASDS and vacuum monitoring points.

5.2 Alternative 2: Active Sub Surface Depressurization System with Source Area Excavation

The second Alternative includes installation of the ASDS as detailed above with the addition of excavation and offsite disposal of the three drywells and associated soil on the north side of the site. The addition of excavation will eliminate the identified soil contamination which is potentially continuing to contribute to the groundwater contamination and acting as a source of the vapor concern.

The excavation will include removing the three drywells and associated soil to a depth of 15 feet bgs corresponding to the uncontaminated soils observed at the in sample SB-12. The excavation area is anticipated to be approximately 600square-feet (sf) in area and include the removal of approximately 333 cubic yards (cy) of soil (**Figure 8**). Groundwater is not anticipated to be encountered in the excavation. Because of the primarily sandy soils, the excavation will likely requiring shoring or sloping for stability; this cost is included in the estimate. During backfilling of the excavation, three shallow (15 feet bgs) soil vapor extraction (SVE) wells will be installed within the excavation for future use as remediation wells if deemed necessary. The SVE wells will be installed to a depth of 15 feet bgs and constructed of 4-inch PVC with 10 feet of slotted screen. In addition, four groundwater monitoring wells will be installed as part of Alternative 2. The wells will be installed to a total depth of 35 feet and screened from 25-30 feet bgs across the groundwater interface. This depth corresponds to the highest levels of contamination observed in the shallow groundwater zone. One well will be installed on the north side of the site in the excavation area and three wells will be installed along the southern property boundary along First Bayway. These wells will be utilized to confirm groundwater flow across the site and assess the effectiveness of the remediation strategy.

The additional cost associated with excavation of the source area is approximately $150,000, based upon Handex pricing. This cost includes labor, machinery and disposal costs to excavate approximately 333 cy of soil along, backfilling the excavation with an equal volume of certified clean fill material, and restoration of the site. The cost estimate also includes the labor and material to install the three SVE wells and four groundwater monitoring wells. The total cost for Alternative 2 is approximately $260,000. **Figure 8** contains the proposed layout of the ASDS, vacuum monitoring points, SVE wells, groundwater monitoring wells, and proposed excavation area.

5.3 Alternative 3: Active Sub Surface Depressurization System, Source Area Excavation and Soil Vapor Extraction System Installation

The Third Alternative includes installation of the ASDS, excavation of the source area as detailed above, and the addition of a soil vapor extraction (SVE) system. The installation of a soil vapor extraction system will address contamination not removed during the excavation phase, including unidentified residual soil contamination below the building foot print. The SVE system is also intended to mitigate the migration of vapors offsite.

SVE utilizes a vacuum applied to the vadose zone to remediate soils by enhancing the volatilization of adsorbed, dissolved and free phase VOCs. The contaminants transform into vapor phase and are removed and treated above ground. The underlying site geology plays a major role in the effectiveness of SVE technologies. SVE is best used in cases where the vadose zone is permeable and homogeneous, and the extractability of the induced air flow is influenced by porosity, soil structure, and air permeability. Based on soil borings advanced by Kleinfelder and the NJDEP the site is underlain by a homogeneous mix of sand and gravel to

approximately 30 feet bgs while groundwater at the site is approximately 28 feet bgs. These subsurface conditions make the site a good candidate for remediation by SVE.

The SVE system will consist of the installation of four SVE wells along the south side of the building and utilize the three shallow SVE wells installed in the former drywell exaction on the north side of the property. The installation of SVE wells in the former drywell excavation will assist in removing residual soil contamination not removed during the soil the excavation. The installation of four SVE wells along the south side of the building will address any unidentified soil contamination present below the building foot print. The additional SVE wells will also address vapors emanating from the area of high shallow PCE concentration at the southeast side of the site and prevent the migration of these vapors off-site.

The SVE wells will be installed to a depth of 20 feet bgs and constructed with 15 feet of four inch PVC slotted screen. Piping would be extended from these wells using the trench for the ASDS and connected to the manifold in the basement. The addition of the seven SVE wells will require a larger blower than specified for the ASDS to achieve the desired pressure gradient but will utilize the same GAC treatment proposed in Alternative 1. Six additional vacuum monitoring points will be installed to evaluate the effectiveness of the SVE system. The points will be installed as described above in Alternative 1. Four of the points will be installed along the southern edge of the site and two down-gradient of the site across First Bayway

The additional cost of installing the SVE system is estimated to be approximately $35,000, based upon Handex pricing. This includes the labor and material necessary to install the four SVE wells and additional vacuum monitoring points and pipe connection of the SVE wells and previously installed remediation wells to the treatment system. This alternative includes the cost to install a larger blower and scale up the treatment system to accommodate the additional SVE wells. The total cost for Alternative 3 is approximately $295,000. **Figure 9** contains the proposed layout of the ASDS, vacuum monitoring points, proposed excavation area, groundwater monitoring wells and SVE system layout.

6.0 RECOMENDATIONS

Based on the NJDEPs goal of protecting the occupants of the property, removing the source of the contamination and preventing off-site migration of vapors the following remedial alternatives were evaluated for the site:

- Alternative 1 is the installation of an ASDS.
- Alternative 2 includes the ASDS along with excavation of contaminated soil from the suspected source area in front of the site building.
- Alternative 3 includes the ASDS, excavation of the source area soil and installation of a SVE System.

Alternative 1, while protective of building occupants and the least expensive, does not address the source of the contamination or prevent the off-site migration of vapors. The implementation of Alternative 2 is expected to cost more than twice that of Alternative 1 and this remedial alternative does not address off-site vapor migration. Alternative 3 is the most expensive but less than 15% more expensive then Alternative 2 and Alternative 3 meets all three of the Department's objectives. Therefore, Alternative 3 is considered to be the appropriate remedial alternative for the site.

7.0 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are 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 other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk.

8.0 REFERENCES

New Jersey Department of Environmental Protection (NJDEP), Vapor Intrusion Technical Guidance Document, 2005. (updated March 2013)

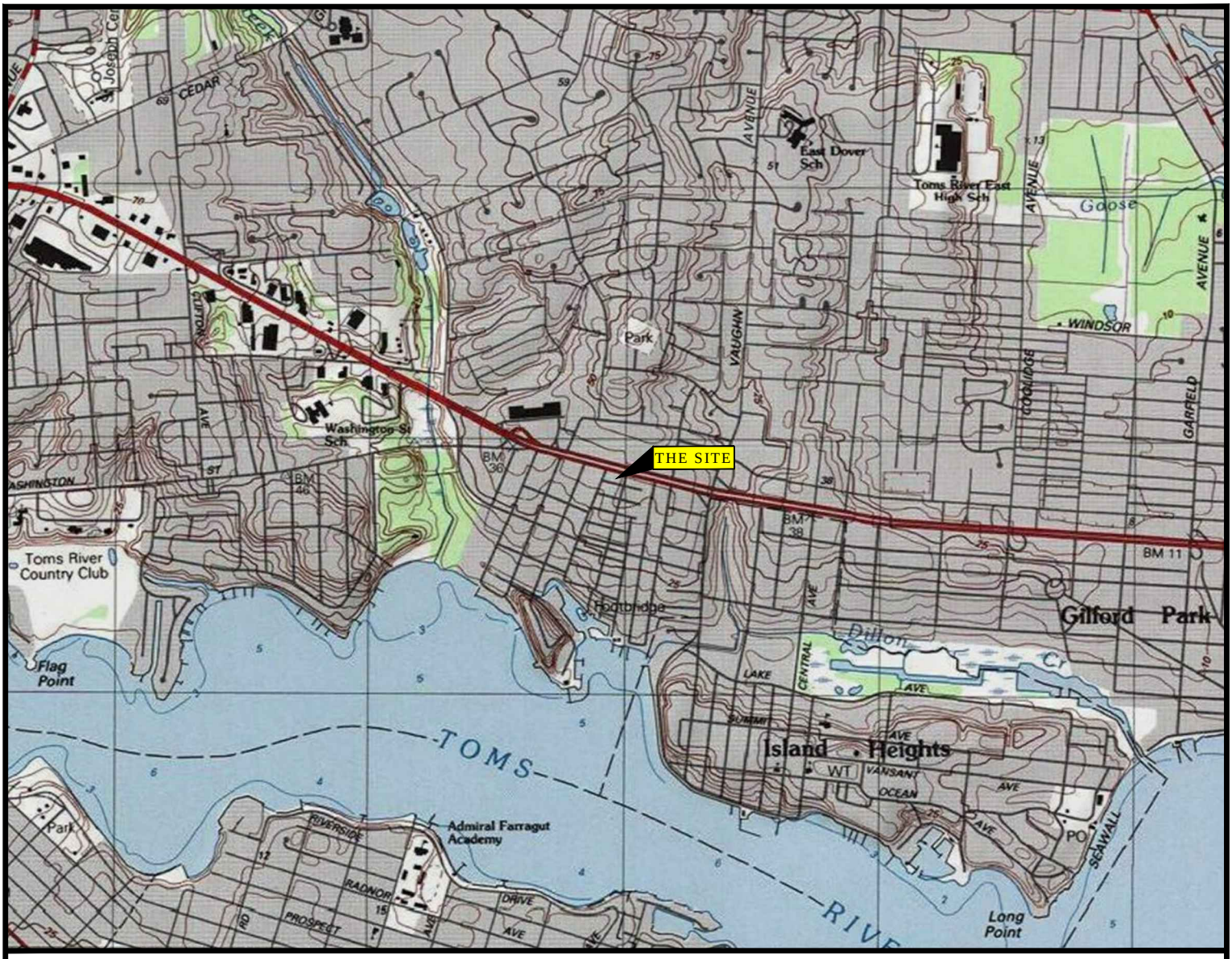
New Jersey Department of Environmental Protection (NJDEP), Field Sampling Procedures Manual, August 2005. (updated April 2011)

New Jersey Department of Environmental Protection (NJDEP), Ground Water Quality Standards, N.J.A.C. 7:9C, amended July 22, 2010.

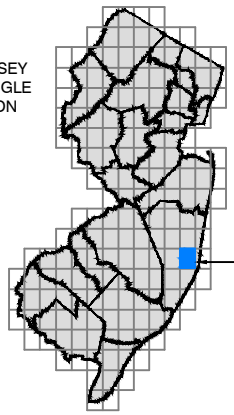
New Jersey Department of Environmental Protection (NJDEP), Remediation Standards, N.J.A.C. 7:26D, amended May 7, 2012.

New Jersey Department of Environmental Protection (NJDEP), Technical Requirements For Site Remediation, N.J.A.C. 7:26E, amended May 7, 2012.

FIGURES



NEW JERSEY QUADRANGLE LOCATION



SITE COORDINATES :

LATITUDE :
39° 57' 9.88" N

LONGITUDE :
74° 9' 27.32" W

0 1000 2000 4000

SCALE : 1 INCH EQUALS 2000 FEET

DRAWING SOURCE :
USGS 7.5 ' TOPOGRAPHIC MAP
TOMS RIVER, NEW JERSEY QUADRANGLE

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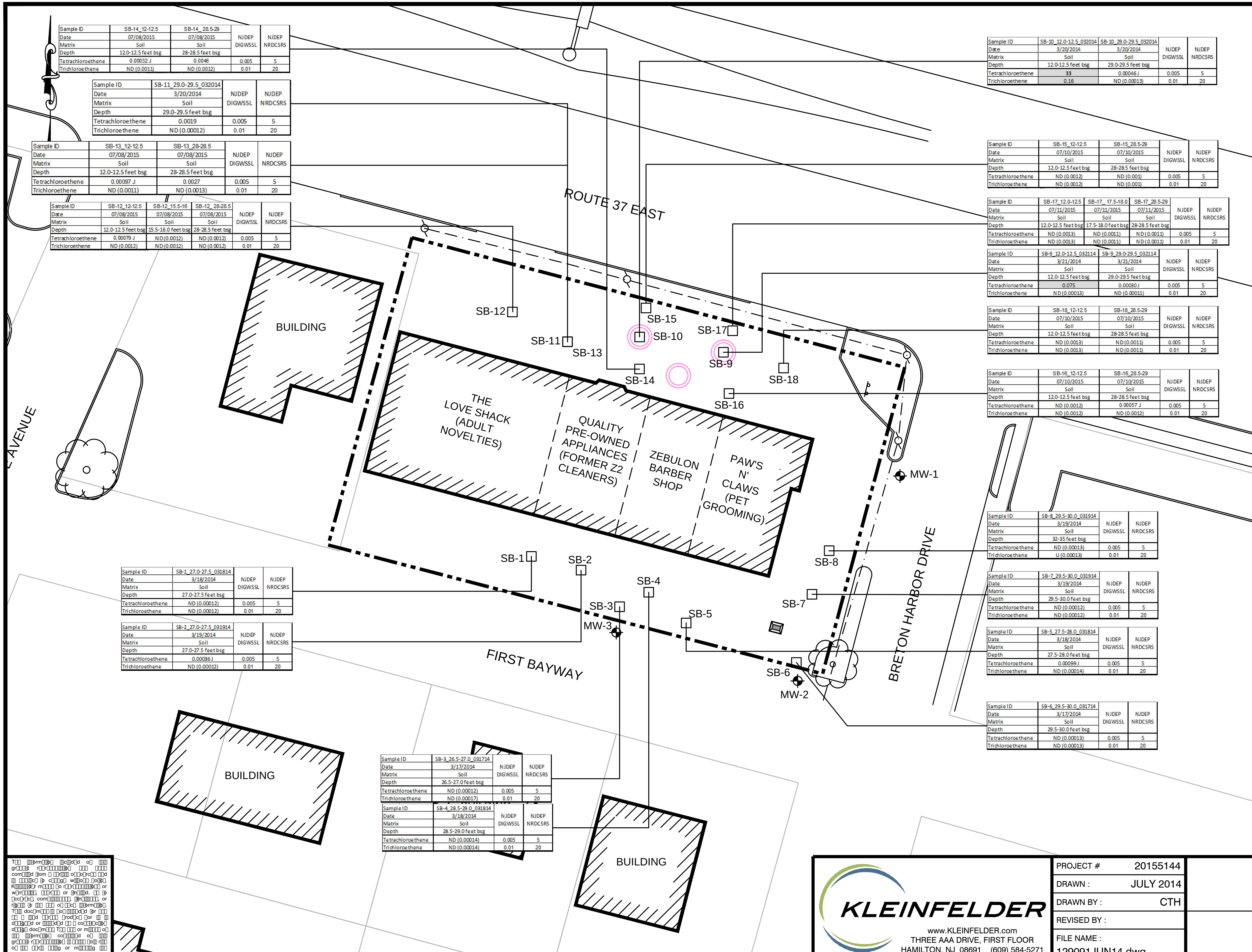
PROJECT #	129091/136647
DRAWN :	OCTOBER 2014
DRAWN BY :	CTH
REVISED BY :	
FILE NAME :	129091JUN14.dwg

SITE LOCATION MAP

FORMER Z2 CLEANERS
1502/1515 ROUTE 37 EAST
DOVER TOWNSHIP (TOMS RIVER)
OCEAN COUNTY, NEW JERSEY

FIGURE
1



Sample ID	SB-14_12-12.5	SB-14_ 28.5-29	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	07/08/2015	07/08/2015		
Matrix	Soil	Soil		
Depth	12.0-12.5 feet bsg	28-28.5 feet bsg		
Tetrachloroethene	0.00032 J	0.0046	0.005	5
Trichloroethene	ND (0.0011)	ND (0.0012)	0.01	20

Sample ID	SB-11_29.0-29.5_032014	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/20/2014		
Matrix	Soil		
Depth	29.0-29.5 feet bsg		
Tetrachloroethene	0.0019	0.005	5
Trichloroethene	ND (0.00012)	0.01	20

Sample ID	SB-13_12-12.5	SB-13_28-28.5	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	07/08/2015	07/08/2015		
Matrix	Soil	Soil		
Depth	12.0-12.5 feet bsg	28-28.5 feet bsg		
Tetrachloroethene	0.00097 J	0.0027	0.005	5
Trichloroethene	ND (0.0011)	ND (0.0013)	0.01	20

Sample ID	SB-12_12-12.5	SB-12_15.5-16	SB-12_ 28-28.5	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	07/08/2015	07/08/2015	07/08/2015		
Matrix	Soil	Soil	Soil		
Depth	12.0-12.5 feet bsg	15.5-16.0 feet bsg	28-28.5 feet bsg		
Tetrachloroethene	0.00079 J	ND (0.0012)	ND (0.0012)	0.005	5
Trichloroethene	ND (0.0012)	ND (0.0012)	ND (0.0012)	0.01	20

Sample ID	SB-10_12.0-12.5_032014	SB-10_29.0-29.5_032014	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/20/2014	3/20/2014		
Matrix	Soil	Soil		
Depth	12.0-12.5 feet bsg	29.0-29.5 feet bsg		
Tetrachloroethene	33	0.00046 J	0.005	5
Trichloroethene	0.16	ND (0.00013)	0.01	20

Sample ID	SB-15_12-12.5	SB-15_28.5-29	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	07/10/2015	07/10/2015		
Matrix	Soil	Soil		
Depth	12.0-12.5 feet bsg	28-28.5 feet bsg		
Tetrachloroethene	ND (0.0012)	ND (0.001)	0.005	5
Trichloroethene	ND (0.0012)	ND (0.001)	0.01	20

Sample ID	SB-17_12.0-12.5	SB-17_ 17.5-18.0	SB-17_28.5-29	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	07/11/2015	07/11/2015	07/11/2015		
Matrix	Soil	Soil	Soil		
Depth	12.0-12.5 feet bsg	17.5-18.0 feet bsg	28-28.5 feet bsg		
Tetrachloroethene	ND (0.0013)	ND (0.0011)	ND (0.0011)	0.005	5
Trichloroethene	ND (0.0013)	ND (0.0011)	ND (0.0011)	0.01	20

Sample ID	SB-9_12.0-12.5_032114	SB-9_29.0-29.5_032114	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/21/2014	3/21/2014		
Matrix	Soil	Soil		
Depth	12.0-12.5 feet bsg	29.0-29.5 feet bsg		
Tetrachloroethene	0.075	0.00030 J	0.005	5
Trichloroethene	ND (0.00013)	ND (0.00011)	0.01	20

Sample ID	SB-18_12-12.5	SB-18_28.5-29	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	07/10/2015	07/10/2015		
Matrix	Soil	Soil		
Depth	12.0-12.5 feet bsg	28-28.5 feet bsg		
Tetrachloroethene	ND (0.0013)	ND (0.0011)	0.005	5
Trichloroethene	ND (0.0013)	ND (0.0011)	0.01	20

Sample ID	SB-16_12-12.5	SB-16_28.5-29	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	07/10/2015	07/10/2015		
Matrix	Soil	Soil		
Depth	12.0-12.5 feet bsg	28-28.5 feet bsg		
Tetrachloroethene	ND (0.0012)	0.00057 J	0.005	5
Trichloroethene	ND (0.0012)	ND (0.0012)	0.01	20

Sample ID	SB-8_29.5-30.0_031914	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/19/2014		
Matrix	Soil		
Depth	32-35 feet bsg		
Tetrachloroethene	ND (0.00013)	0.005	5
Trichloroethene	U (0.00013)	0.01	20

Sample ID	SB-7_29.5-30.0_031914	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/19/2014		
Matrix	Soil		
Depth	29.5-30.0 feet bsg		
Tetrachloroethene	ND (0.00012)	0.005	5
Trichloroethene	ND (0.00012)	0.01	20

Sample ID	SB-5_27.5-28.0_031814	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/18/2014		
Matrix	Soil		
Depth	27.5-28.0 feet bsg		
Tetrachloroethene	0.00099 J	0.005	5
Trichloroethene	ND (0.00014)	0.01	20

Sample ID	SB-6_29.5-30.0_031714	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/17/2014		
Matrix	Soil		
Depth	29.5-30.0 feet bsg		
Tetrachloroethene	ND (0.00013)	0.005	5
Trichloroethene	ND (0.00013)	0.01	20

Sample ID	SB-1_27.0-27.5_031814	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/18/2014		
Matrix	Soil		
Depth	27.0-27.5 feet bsg		
Tetrachloroethene	ND (0.00012)	0.005	5
Trichloroethene	ND (0.00012)	0.01	20

Sample ID	SB-2_27.0-27.5_031914	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/19/2014		
Matrix	Soil		
Depth	27.0-27.5 feet bsg		
Tetrachloroethene	0.00036 J	0.005	5
Trichloroethene	ND (0.00012)	0.01	20

Sample ID	SB-3_26.5-27.0_031714	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/17/2014		
Matrix	Soil		
Depth	26.5-27.0 feet bsg		
Tetrachloroethene	ND (0.00012)	0.005	5
Trichloroethene	ND (0.00017)	0.01	20

Sample ID	SB-4_28.5-29.0_031814	NJDEP DIGWSSL	NJDEP NRDCSRS
Date	3/18/2014		
Matrix	Soil		
Depth	28.5-29.0 feet bsg		
Tetrachloroethene	ND (0.00014)	0.005	5
Trichloroethene	ND (0.00014)	0.01	20

LEGEND

- MONITORING WELL
- SOIL BORING
- PROPERTY LINE (SITE)
- PROPERTY LINE
- CATCH BASIN
- UTILITY POLE
- SIGN
- SUSPECTED DRYWELL
- BORING INSIDE SUSPECTED DRYWELL

0 15 30 60

SCALE : 1 INCH EQUALS 30 FEET

DRAWING SOURCE :
1. KLEINFELDER FIELD RECONNAISSANCE.
2. VARGO SITE SURVEY, DATED 4/3/2014.

[illegible]

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REVISED BY :	
FILE NAME :	129091JUN14.dwg

SOIL SAMPLIN□ ANAL□TICAL □ES□LTS S□MMA□□

FORMER Z2 CLEANERS
1502/1515 ROUTE 37 EAST
DOVER TOWNSHIP (TOMS RIVER)
OCEAN COUNTY, NEW JERSEY

FIGURE
2

ROUTE 37 EAST
POE AVENUE
FIRST BAYWAY
BRETON HARBOR DRIVE
BUILDING
THE LOVE SHACK (ADULT NOVELTIES)
QUALITY PRE-OWNED APPLIANCES (FORMER Z2 CLEANERS)
ZEBULON BARBER SHOP
PAW'S N' CLAWS (PET GROOMING)
GW-33 15
GW-34 1.75
GW-32 0.45
GW-31 1.4
GW-30
GW-12 11
GW-29 21
GW-13 ND
GW-14 0.4
GW-15 28
GW-27 1.3
GW-26 52
GW-25 26
GW-37 2.17
GW-36 1.38
GW-35 0.56
GW-16 ND
MW-1
MW-2
MW-3
SB-12/GW-12 57
SB-15/GW-15 26
SB-11/GW-11 260
SB-10/GW-10 130
SB-17/GW-17 16
SB-9/GW-9 220
SB-18/GW-18 30
SB-13
SB-14
SB-16
SB-1/GW-1 50
SB-2/GW-2 240
SB-3/GW-3 340
SB-4/GW-4 330
SB-5/GW-5 630
GW-28
SB-6/GW-6 520
SB-7/GW-7 330
SB-8/GW-8 150
1
100
200
300
400
500
600
LEGEND
MONITORING WELL
GROUNDWATER SAMPLE
SOIL BORING
SOIL BORING/GROUNDWATER SAMPLE
PROPERTY LINE (SITE)
PROPERTY LINE
CATCH BASIN
UTILITY POLE
SIGN
SUSPECTED DRYWELL
PCE CONCENTRATION LEVEL ≥ 600 µg/L
PCE CONCENTRATION LEVEL 500-599 µg/L
PCE CONCENTRATION LEVEL 400-499 µg/L
PCE CONCENTRATION LEVEL 300-399 µg/L
PCE CONCENTRATION LEVEL 200-299 µg/L
PCE CONCENTRATION LEVEL 100-199 µg/L
PCE CONCENTRATION LEVEL 1-99 µg/L
28 PCE CONCENTRATION (µg/L)
PCE - TETRACHLOROETHYLENE
µg/L - MICROGRAMS PER LITER
NA - NOT ANALYZED
ND - NOT DETECTED
0 15 30 60
SCALE : 1 INCH EQUALS 30 FEET
DRAWING SOURCE :
1. KLEINFELDER FIELD RECONNAISSANCE.
2. VARGO SITE SURVEY, DATED 4/3/2014.
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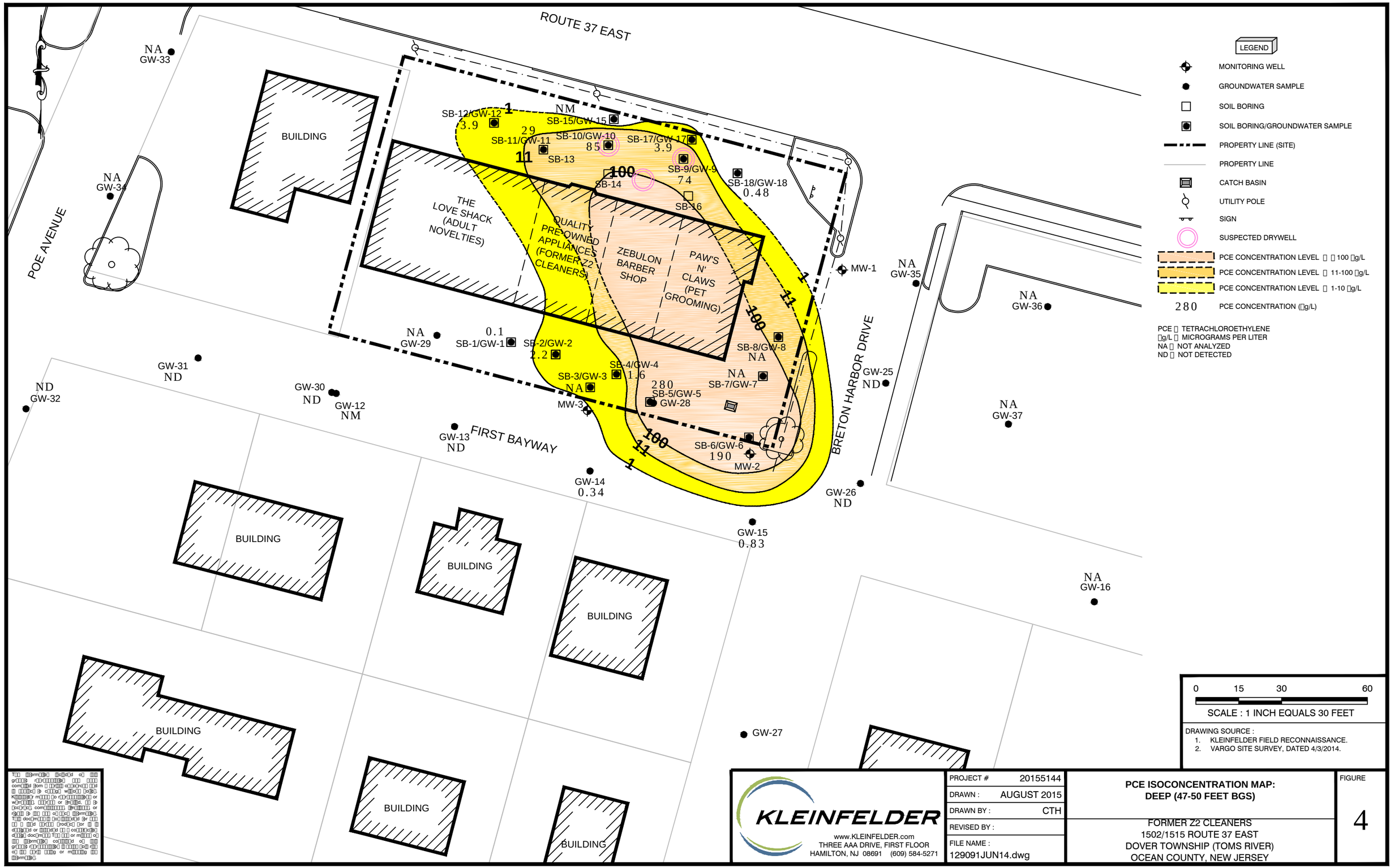
PROJECT # 20155144
DRAWN : AUGUST 2015
DRAWN BY : CTH
REVISED BY :
FILE NAME : 129091JUN14.dwg
PCE ISOCONCENTRATION MAP: SHALLOW (32-35 FEET BGS)
FORMER Z2 CLEANERS
1502/1515 ROUTE 37 EAST
DOVER TOWNSHIP (TOMS RIVER)
OCEAN COUNTY, NEW JERSEY
FIGURE 3



DRAWING SOURCE :
1. KLEINFELDER FIELD RECONNAISSANCE.
2. VARGO SITE SURVEY, DATED 4/3/2014.

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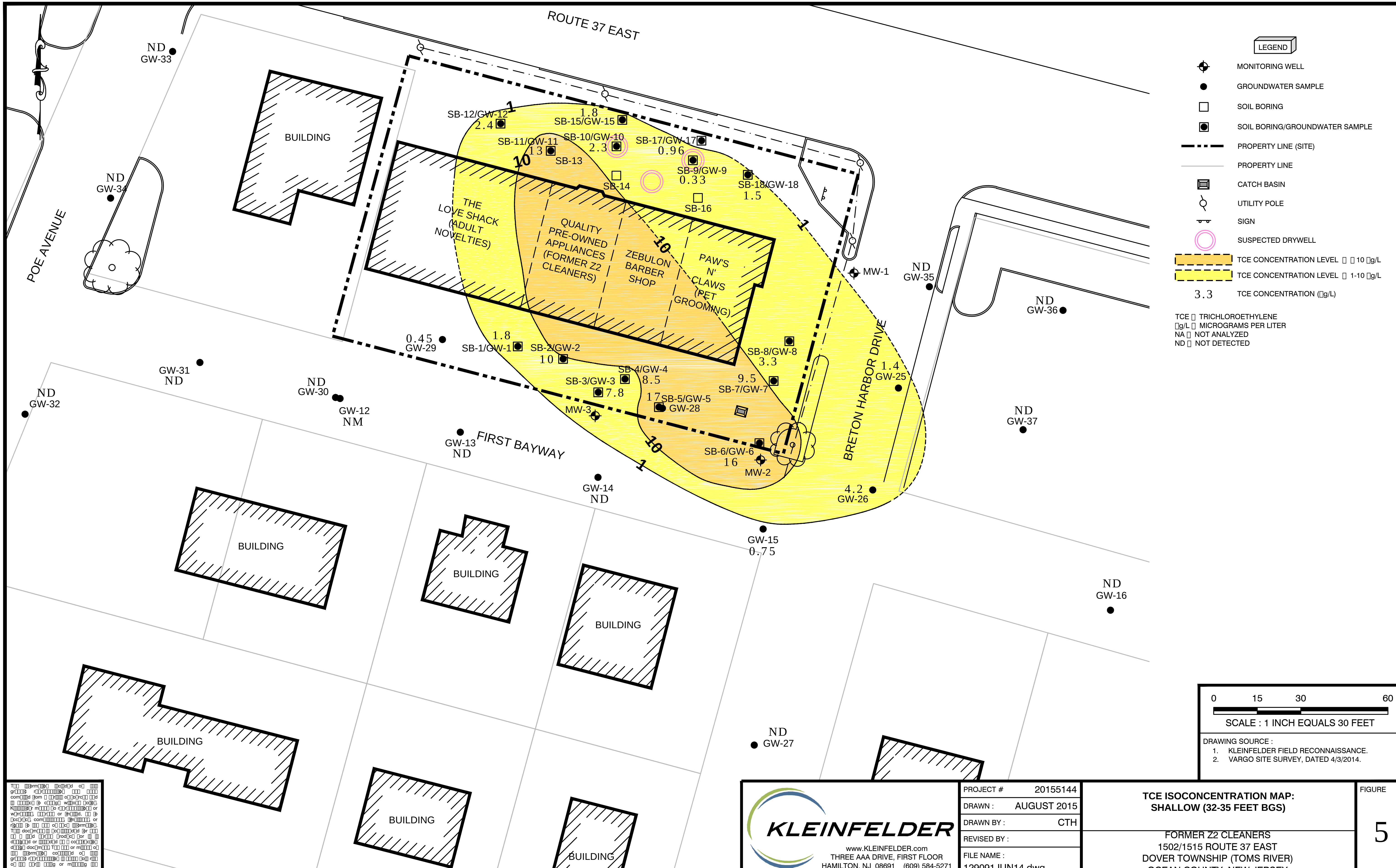
DRAWN BY :	CTH
REVISED BY :	
FILE NAME :	129091JUN14.dwg

PCE ISOCONCENTRATION MAP:
DEEP (47-50 FEET BGS)

FORMER Z2 CLEANERS
1502/1515 ROUTE 37 EAST
DOVER TOWNSHIP (TOMS RIVER)
OCEAN COUNTY, NEW JERSEY

FIGURE
4


ROUTE 37 EAST
POE AVENUE
FIRST BAYWAY
BRETON HARBOR DRIVE
BUILDING
THE LOVE SHACK (ADULT NOVELTIES)
QUALITY PRE-OWNED APPLIANCES (FORMER Z2 CLEANERS)
ZEBULON BARBER SHOP
PAW'S N' CLAWS (PET GROOMING)
ND GW-33
ND GW-34
ND GW-32
GW-31 ND
ND GW-30
GW-12 NM
0.45 GW-29
GW-13 ND
GW-14 ND
GW-15 0.75
ND GW-27
ND GW-16
ND GW-35
ND GW-36
ND GW-37
1.4 GW-25
4.2 GW-26
SB-12/GW-12 2.4
1.8 SB-15/GW-15
SB-11/GW-11 13
SB-10/GW-10 2.3
SB-17/GW-17 0.96
SB-13
SB-14
SB-9/GW-9 0.33
SB-16
SB-18/GW-18 1.5
1.8 SB-1/GW-1
SB-2/GW-2 10
SB-3/GW-3 7.8
SB-4/GW-4 8.5
17 SB-5/GW-5 GW-28
9.5 SB-7/GW-7
SB-8/GW-8 3.3
SB-6/GW-6 16
MW-1
MW-2
MW-3
1
10
LEGEND
MONITORING WELL
GROUNDWATER SAMPLE
SOIL BORING
SOIL BORING/GROUNDWATER SAMPLE
PROPERTY LINE (SITE)
PROPERTY LINE
CATCH BASIN
UTILITY POLE
SIGN
SUSPECTED DRYWELL
TCE CONCENTRATION LEVEL 10 g/L
TCE CONCENTRATION LEVEL 1-10 g/L
3.3 TCE CONCENTRATION (g/L)
TCE TRICHLOROETHYLENE
g/L MICROGRAMS PER LITER
NA NOT ANALYZED
ND NOT DETECTED
0 15 30 60
SCALE : 1 INCH EQUALS 30 FEET
DRAWING SOURCE :
1. KLEINFELDER FIELD RECONNAISSANCE.
2. VARGO SITE SURVEY, DATED 4/3/2014.
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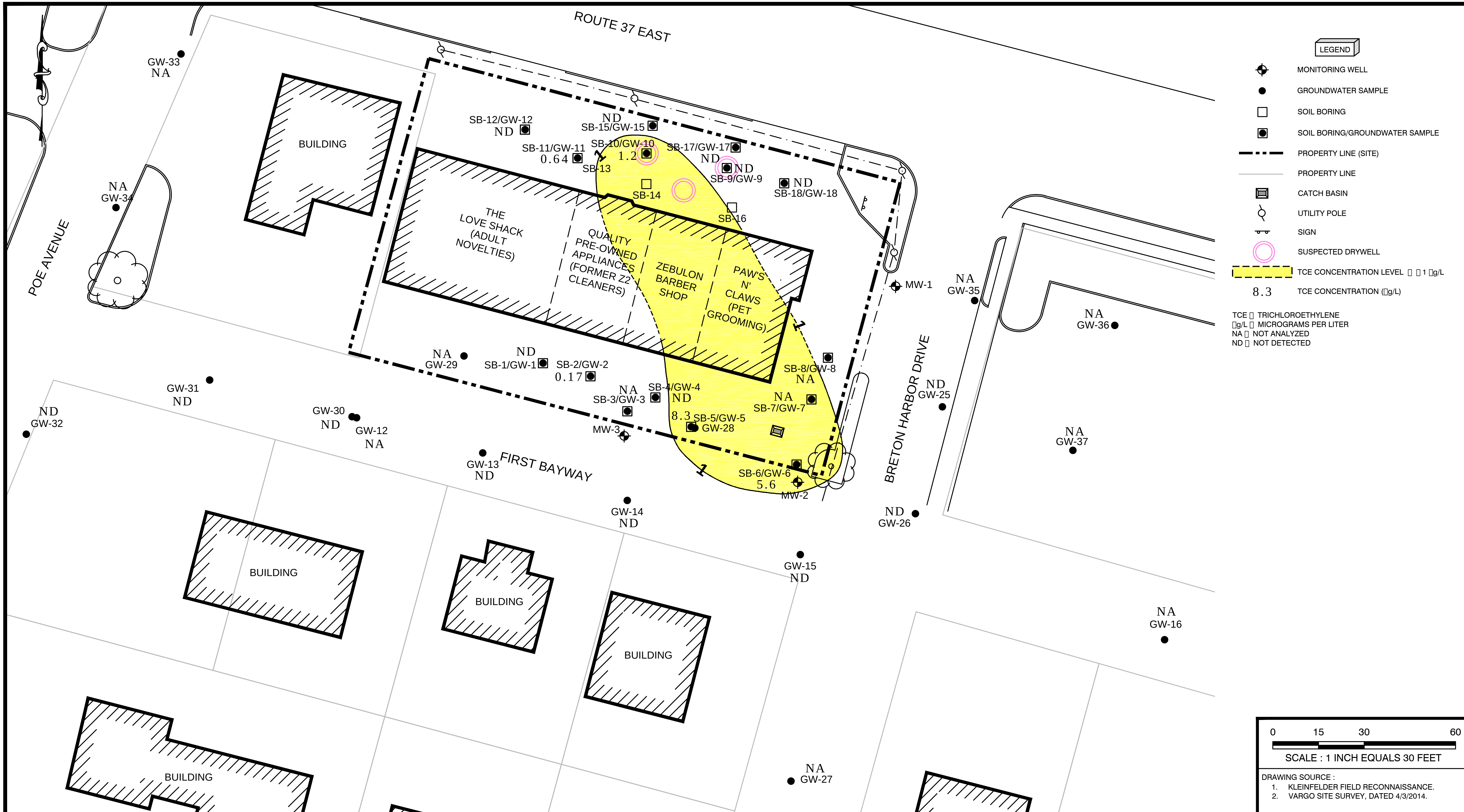
DRAWN BY : CTH
REVISED BY :
FILE NAME : 129091JUN14.dwg
TCE ISOCONCENTRATION MAP: SHALLOW (32-35 FEET BGS)
FORMER Z2 CLEANERS
1502/1515 ROUTE 37 EAST
DOVER TOWNSHIP (TOMS RIVER)
OCEAN COUNTY, NEW JERSEY
FIGURE 5



DRAWING SOURCE :
1. KLEINFELDER FIELD RECONNAISSANCE.
2. VARGO SITE SURVEY, DATED 4/3/2014.

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TCE ISOCONCENTRATION MAP: DEEP (47-50 FEET BGS)

FORMER Z2 CLEANERS
1502/1515 ROUTE 37 EAST
DOVER TOWNSHIP (TOMS RIVER)
OCEAN COUNTY, NEW JERSEY

FIGURE
6

LEGEND

- UTILITY VALVE COVER
- MANHOLE COVER
- UTILITY POLE
- LIGHT POLE
- FIRE HYDRANT
- STORM SEWER INLET
- PROPOSED ACTIVE SUBSURFACE DEPRESSURIZATION SYSTEM VAPOR EXTRACTION POINT
- PROPOSED VACUUM MONITORING POINT
- E — ELECTRIC
- G — GAS
- T — TELECOMMUNICATION
- SD — STORM SEWER
- SS — SANITARY SEWER
- W — WATER
- U — UNKNOWN UTILITY
- X — FENCE

NOTES:

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0 15 30 60

SCALE : 1 INCH EQUALS 30 FEET

DRAWING SOURCE :
1. DELTA GEOPHYSICS, INC "GEOPHYSICAL INVESTIGATION", DATED JUNE, 17, 2015.

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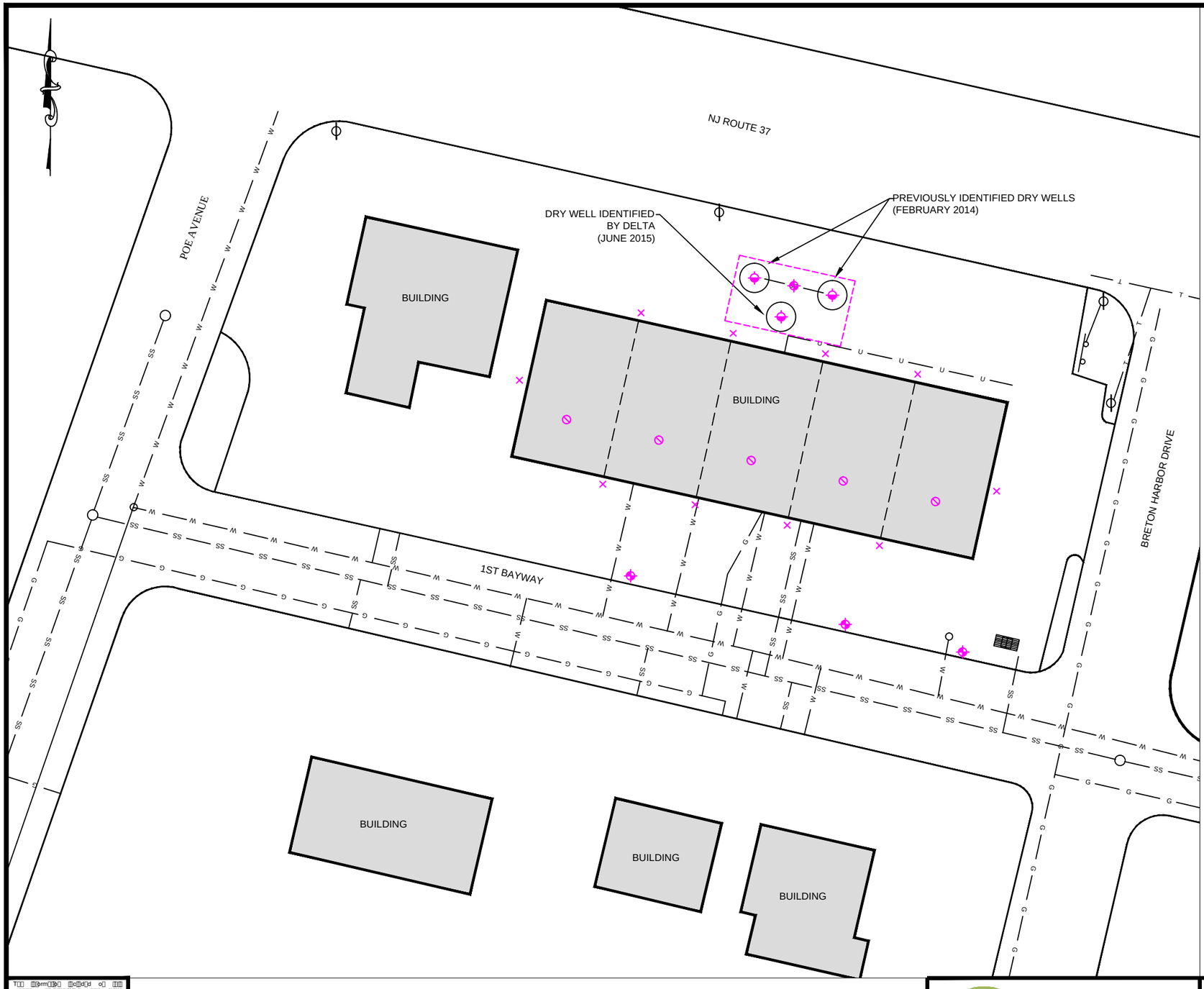
DRAWN BY :	CTH
REVISED BY :	
FILE NAME :	129091APR16.dwg

ALTERNATIVE 1
ACTIVE SUBSURFACE DEPRESSURIZATION SYSTEM

FORMER Z2 CLEANERS
1502/1515 ROUTE 37 EAST
DOVER TOWNSHIP (TOMS RIVER)
OCEAN COUNTY, NEW JERSEY

FIGURE
7



LEGEND

- UTILITY VALVE COVER
- MANHOLE COVER
- UTILITY POLE
- LIGHT POLE
- FIRE HYDRANT
- STORM SEWER INLET
- PROPOSED ACTIVE SUBSURFACE DEPRESSURIZATION SYSTEM VAPOR EXTRACTION POINT
- PROPOSED VACUUM MONITORING POINT
- PROPOSED GROUNDWATER MONITORING WELL
- PROPOSED SOIL VAPOR EXTRACTION WELL
- PROPOSED EXCAVATION AREA
- E — ELECTRIC
- G — GAS
- T — TELECOMMUNICATION
- SD — STORM SEWER
- SS — SANITARY SEWER
- W — WATER
- U — UNKNOWN UTILITY
- X — FENCE

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SCALE : 1 INCH EQUALS 30 FEET

DRAWING SOURCE :

1. DELTA GEOPHYSICS, INC "GEOPHYSICAL INVESTIGATION", DATED JUNE, 17, 2015.

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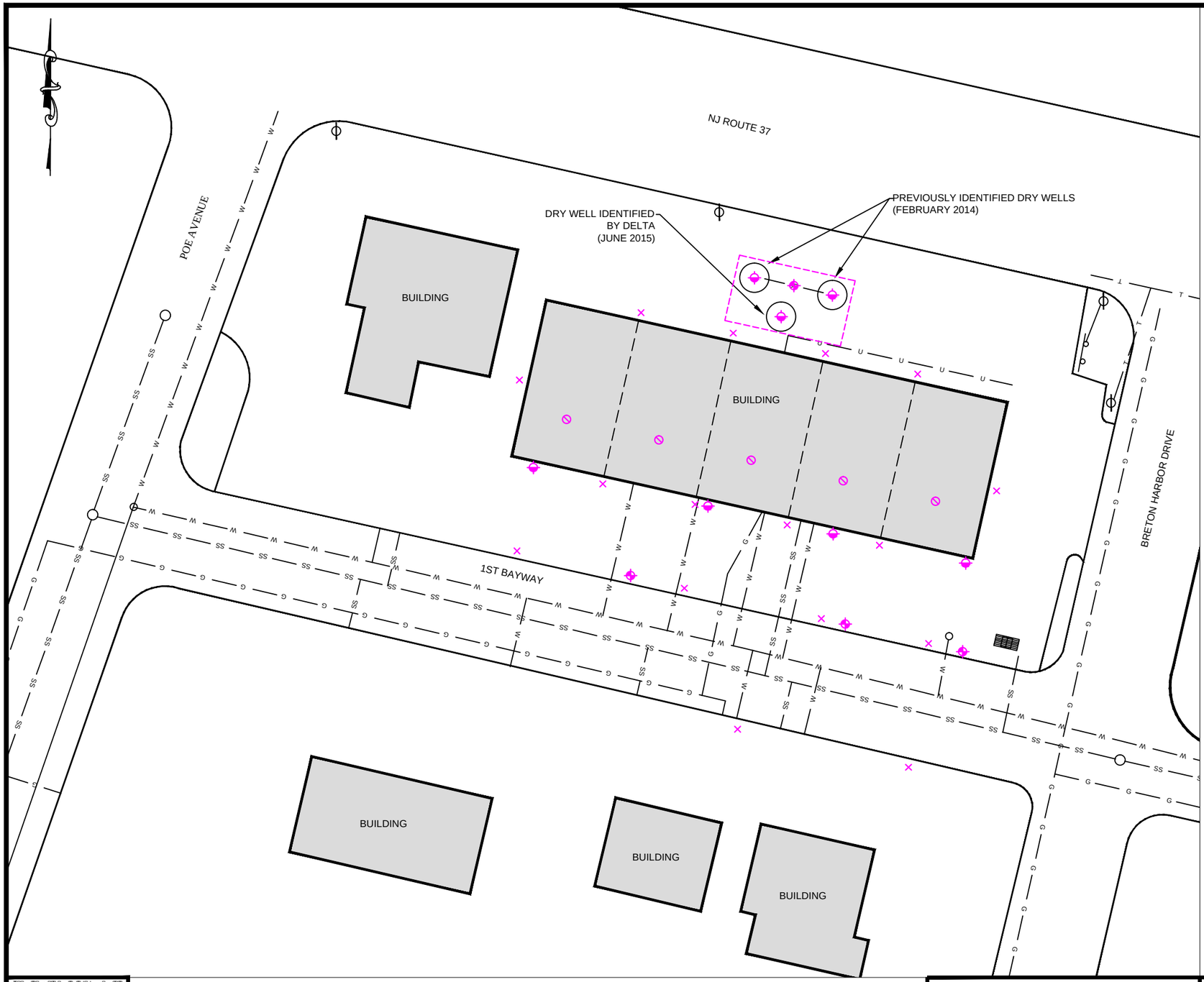
DRAWN BY :	CTH
REVISED BY :	
FILE NAME :	129091APR16.dwg

ALTERNATIVE 2
ACTIVE SUBSURFACE DEPRESSURIZATION SYSTEM WITH SOURCE AREA EXCAVATION

FORMER Z2 CLEANERS
1502/1515 ROUTE 37 EAST
DOVER TOWNSHIP (TOMS RIVER)
OCEAN COUNTY, NEW JERSEY

FIGURE
8



LEGEND

- UTILITY VALVE COVER
- MANHOLE COVER
- UTILITY POLE
- LIGHT POLE
- FIRE HYDRANT
- STORM SEWER INLET
- PROPOSED ACTIVE SUBSURFACE DEPRESSURIZATION SYSTEM VAPOR EXTRACTION POINT
- PROPOSED VACUUM MONITORING POINT
- PROPOSED GROUNDWATER MONITORING WELL
- PROPOSED SOIL VAPOR EXTRACTION WELL
- PROPOSED EXCAVATION AREA
- E — ELECTRIC
- G — GAS
- T — TELECOMMUNICATION
- SD — STORM SEWER
- SS — SANITARY SEWER
- W — WATER
- U — UNKNOWN UTILITY
- X — FENCE

NOTES:

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0 15 30 60

SCALE : 1 INCH EQUALS 30 FEET

DRAWING SOURCE :

1. DELTA GEOPHYSICS, INC "GEOPHYSICAL INVESTIGATION", DATED JUNE, 17, 2015.

T[illegible] LEGEND

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PROJECT #	20155144
DRAWN :	APRIL 2016
DRAWN BY :	CTH
REVISED BY :	
FILE NAME :	129091APR16.dwg

ALTERNATIVE 3
ACTIVE SUBSURFACE DEPRESSURIZATION SYSTEM WITH SOURCE AREA EXCAVATION AND SOIL VAPOR EXTRACTION SYSTEM INSTALLATION

FORMER Z2 CLEANERS
1502/1515 ROUTE 37 EAST
DOVER TOWNSHIP (TOMS RIVER)
OCEAN COUNTY, NEW JERSEY

FIGURE
9

TABLES

TABLE 1

March 2014 Soil Analytical Results Summary
Former Z2 Cleaners
1515 Route 37 East
Toms River, Ocean County, New Jersey

Sample ID	SB-1_27.0-27.5_031814	SB-2_27.0-27.5_031914	SB-3_26.5-27.0_031714	SB-4_28.5-29.0_031814	SB-5_27.5-28.0_031814	NJDEP NRDCSRS	NJDEP DIGWSSL
Date	3/18/2014	3/19/2014	3/17/2014	3/18/2014	3/18/2014		
Matrix	Soil	Soil	Soil	Soil	Soil		
Depth	27.0-27.5 feet bsg	27.0-27.5 feet bsg	26.5-27.0 feet bsg	28.5-29.0 feet bsg	27.5-28.0 feet bsg		
Total EPH	NA	NA	NA	NA	NA	5100	-
Tetrachloroethene	ND (0.00012)	0.00036 J	ND (0.00012)	ND (0.00014)	0.00099 J	5	0.005
Trichloroethene	ND (0.00012)	ND (0.00012)	ND (0.00017)	ND (0.00014)	ND (0.00014)	20	0.01
Cis-1,2-Dichloroethene	ND (0.00011)	ND (0.00011)	ND (0.00011)	ND (0.00013)	ND (0.00013)	560	0.3
Vinyl Chloride	ND (0.00033)	ND (0.00033)	ND (0.00035)	ND (0.00039)	ND (0.00040)	2	0.005

Sample ID	SB-6_29.5-30.0_031714	SB-7_29.5-30.0_031914	SB-8_29.5-30.0_031914	SB-9_12.0-12.5_032114	SB-9_29.0-29.5_032114	NJDEP NRDCSRS	NJDEP DIGWSSL
Date	3/17/2014	3/19/2014	3/19/2014	3/21/2014	3/21/2014		
Matrix	Soil	Soil	Soil	Soil	Soil		
Depth	29.5-30.0 feet bsg	29.5-30.0 feet bsg	32-35 feet bsg	12.0-12.5 feet bsg	29.0-29.5 feet bsg		
Total EPH	NA	NA	NA	24	ND (2.0)	5100	-
Tetrachloroethene	ND (0.00013)	ND (0.00012)	ND (0.00013)	0.075	0.00030 J	5	0.005
Trichloroethene	ND (0.00013)	ND (0.00012)	ND (0.00013)	ND (0.00013)	ND (0.00011)	20	0.01
Cis-1,2-Dichloroethene	ND (0.00012)	ND (0.00011)	ND (0.00012)	ND (0.00012)	ND (0.00010)	560	0.3
Vinyl Chloride	ND (0.00038)	ND (0.00035)	ND (0.00036)	ND (0.00037)	ND (0.00032)	2	0.005

Sample ID	SB-10_12.0-12.5_032014	SB-10_29.0-29.5_032014	SB-11_29.0-29.5_032014	NJDEP NRDCSRS	NJDEP DIGWSSL
Date	3/20/2014	3/20/2014	3/20/2014		
Matrix	Soil	Soil	Soil		
Depth	12.0-12.5 feet bsg	29.0-29.5 feet bsg	29.0-29.5 feet bsg		
Total EPH	ND (2.0)	ND (2.0)	NA	5100	-
Tetrachloroethene	**33**	0.00046 J	0.0019	5	0.005
Trichloroethene	0.16	ND (0.00013)	ND (0.00012)	20	0.01
Cis-1,2-Dichloroethene	ND (0.018)	ND (0.00012)	ND (0.00011)	560	0.3
Vinyl Chloride	ND (0.014)	ND (0.00036)	ND (0.00035)	2	0.005

Note: All results in Miligrams per Kilogram

J: Estimated Concentration
U: Indicates the analyte was analyzed for but not detected
NJDEP NRDCSRS: New Jersey Department of Environmental Protection Non Residential Direct Contact Soil Remediation Standarc
NJDEP DIGWSSL: New Jersey Department of Environmental Protection Default Impact to Groundwater Soil Screening Leve
0.075 Concentration in excess of the NJDEP DIGWSSL
22 Concentration in excess of the NJDEP NRDCSRS

TABLE 2

March 2014 Groundwater Analytical Results Summary
Former Z2 Cleaners
1515 Route 37 East
Toms River, Ocean County, New Jersey

Sample ID	GW-1_32.0-35.0_031814	GW-1_47.0-50.0_031814	GW-2_32.0-35.0_031914	GW-2_47.0-50.0_031914	GW-3_32.0-35.0_031714	NJDEP GWQC	NJDEP VISL
Date	3/18/2014	3/18/2014	3/19/2014	3/19/2014	3/17/2014		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	32-35 feet bsg	47-50 feet bsg	32-35 feet bsg	47-50 feet bsg	32-35 feet bsg		
Tetrachloroethene	**56**	0.1	**240**	2.2	**340**	1	31
Trichloroethene	1.8	ND (0.090)	**10**	0.17J	**7.8**	1	2
Cis-1,2-Dichloroethene	3.9	ND (0.18)	4.5	ND (0.18)	0.82J	70	NS
Vinyl Chloride	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	1	1

Sample ID	GW-4_32.0-35.0_031814	GW-4_47.0-50.0_031814	GW-5_32.0-35.0_031814	GW-5_47.0-50.0_031814	GW-6_35.0-38.0_031714	NJDEP GWQC	NJDEP VISL
Date	3/18/2014	3/18/2014	3/18/2014	3/18/2014	3/17/2014		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	32-35 feet bsg	47-50 feet bsg	32-35 feet bsg	47-50 feet bsg	35-38 feet bsg		
Tetrachloroethene	**330**	1.6	**630 D(5)**	**280**	**560 D(10)**	1	31
Trichloroethene	**8.5**	ND (0.090)	**17**	**8.3**	**16**	1	2
Cis-1,2-Dichloroethene	1.1	ND (0.18)	2.3	1.1	1.9	70	NS
Vinyl Chloride	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	1	1

Sample ID	GW-6_47.0-50.0_031814	GW-7_32.0-35.0_031914	GW-8_32.0-35.0_031914	GW-9_32.0-35.0_032114	GW-9_47.0-50.0_032114	NJDEP GWQC	NDEP VISL
Date	3/18/2014	3/19/2014	3/19/2014	3/21/2014	3/21/2014		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	47-50 feet bsg	32-35 feet bsg	32-35 feet bsg	32-35 feet bsg	47-50 feet bsg		
Tetrachloroethene	**190**	**330**	**150**	22	7.4	1	31
Trichloroethene	**5.6**	**9.5**	**3.3**	0.33J	ND (0.090)	1	2
Cis-1,2-Dichloroethene	0.85J	1.2	0.25J	ND (0.18)	ND (0.18)	70	NS
Vinyl Chloride	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	1	1

Sample ID	GW-10_32.0-35.0_032014	GW-10_47.0-50.0_032014	GW-11_32.0-35.0_032014	GW-11_47.0-50.0_032014	NJDEP GWQC	NDEP VISL
Date	3/20/2014	3/20/2014	3/20/2014	3/20/2014		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	32-35 feet bsg	47-50 feet bsg	32-35 feet bsg	47-50 feet bsg		
Tetrachloroethene	**130**	**85**	**260**	29	1	31
Trichloroethene	**2.3**	1.2	**13**	0.64J	1	2
Cis-1,2-Dichloroethene	0.33J	ND (0.18)	19	0.68J	70	NS
Vinyl Chloride	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	1	1

Note: All results in Micrograms per Liter
D(5): Run at a dilution factor of 5
D(10): Run at a dilution factor of 10
J: Estimated Concentration
NJDEP GWQC: New Jersey Department of Environmental Protection Goundwater Quality Criterion
NJDEP VISL: New Jersey Department of Environmental Protection Vapor Intrusion Screening Level
1.8 Concentration in excess of the NJDEP GWQC
56 Concentration in excess of the NJDEP VISL

TABLE 3

May 2014 Off-Site Groundwater Analytical Results
Former Z2 Cleaners
1515 Route 37 East
Toms River, Ocean County, New Jersey

Sample ID	GW-12_30.0-33.0_051914	GW-13_30.0-33.0_051914	GW-13_50.0-53.0_051914	GW-14_30.0-33.0_051914	GW-14_50.0-53.0_051914	NJDEP GWQC	NJDEP VISL
Date	5/19/2014	5/19/2014	5/19/2014	5/19/2014	5/19/2014		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	30-33 feet bsg	30-33 feet bsg	32-35 feet bsg	30-33 feet bsg	50-53 feet bsg		
Tetrachloroethene	11	ND (0.10)	ND (0.10)	0.40J	0.34J	1	31
Trichloroethene	ND (0.090)	ND (0.090)	ND (0.090)	ND (0.090)	ND (0.090)	1	2
Cis-1,2-Dichloroethene	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	70	NS
Vinyl Chloride	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	1	1

Sample ID	GW-15_30.0-33.0_052014	GW-15_50.0-53.0_031814	GW-16_30.0-33.0_051914	GW-17_30.0-33.0_052014	GW-18_30.0-33.0_052114	NJDEP GWQC	NJDEP VISL
Date	5/20/2014	5/20/2014	5/19/2014	5/20/2014	5/21/2014		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	30-33 feet bsg	50-53 feet bsg	30-33 feet bsg	30-33 feet bsg	30-33 feet bsg		
Tetrachloroethene	28	0.83J	ND (0.10)	0.12J	ND (0.10)	1	31
Trichloroethene	0.75J	ND (0.090)	ND (0.090)	ND (0.090)	ND (0.090)	1	2
Cis-1,2-Dichloroethene	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	70	NS
Vinyl Chloride	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	1	1

Sample ID	GW-19_30.0-33.0_052114	GW-19_50.0-53.0_052114	GW-20_30.0-33.0_052114	GW-21_30.0-33.0_052014	GW-22_30.0-33.0_052214	NJDEP GWQC	NDEP VISL
Date	5/21/2014	5/21/2014	5/21/2014	5/20/2014	5/22/2014		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	30-33 feet bsg	30-33 feet bsg	30-33 feet bsg	30-33 feet bsg	30-33 feet bsg		
Tetrachloroethene	0.38J	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	1	31
Trichloroethene	ND (0.090)	ND (0.090)	ND (0.090)	ND (0.090)	ND (0.090)	1	2
Cis-1,2-Dichloroethene	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	70	NS
Vinyl Chloride	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	1	1

Sample ID	GW-23_30.0-33.0_052214	GW-24_30.0-33.0_052114	NJDEP GWQC	NDEP VISL
Date	5/22/2014	5/21/2014		
Matrix	Groundwater	Groundwater		
Depth	30-33 feet bsg	30-33 feet bsg		
Tetrachloroethene	0.64J	ND (0.10)	1	31
Trichloroethene	ND (0.090)	ND (0.090)	1	2
Cis-1,2-Dichloroethene	ND (0.18)	ND (0.18)	70	NS
Vinyl Chloride	ND (0.14)	ND (0.14)	1	1

Note: All results in Micrograms per Liter
D(5): Run at a dilution factor of 5
D(10): Run at a dilution factor of 10
J: Estimated Concentration
NJDEP GWQC: New Jersey Department of Environmental Protection Goundwater Quality Criterion
NJDEP VISL: New Jersey Department of Environmental Protection Vapor Intrusion Screening Level
1.8 Concentration in excess of the NJDEP GWQC
56 Concentration in excess of the NJDEP VISL

TABLE 4

July 2015 Soil Analytical Results Summary
Former Z2 Cleaners
1515 Route 37 East
Toms River, Ocean County, New Jersey

Sample ID	SB-12_12-12.5	SB-12_15.5-16	SB-12_ 28-28.5	SB-13_12-12.5	SB-13_28-28.5	SB-14_12-12.5	NJDEP DIGWSSL	NJDEP NRDCSRS
Date Received	07/08/2015	07/08/2015	07/08/2015	07/08/2015	07/08/2015	07/08/2015		
Matrix	Soil	Soil	Soil	Soil	Soil	Soil		
Depth	12.0-12.5 feet bsg	15.5-16.0 feet bsg	28.0-28.5 feet bsg	12.0-12.5 feet bsg	28.0-28.5 feet bsg	12.0-12.5 feet bsg		
Cis-1,2-Dichloroethene	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0011)	ND (0.0013)	ND (0.0011)	0.3	560
Tetrachloroethene	0.00079 J	ND (0.0012)	ND (0.0012)	0.00097 J	0.0027	0.00032 J	0.005	5
Trichloroethene	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0011)	ND (0.0013)	ND (0.0011)	0.01	20
Vinyl Chloride	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0011)	ND (0.0013)	ND (0.0011)	0.005	2

Sample ID	SB-14_ 28.5-29	SB-15_12-12.5	SB-15_28.5-29	SB-16_12-12.5	SB-16_28.5-29	SB-17_12.0-12.5	NJDEP DIGWSSL	NJDEP NRDCSRS
Date Received	07/08/2015	07/10/2015	07/10/2015	07/10/2015	07/10/2015	07/11/2015		
Matrix	Soil	Soil	Soil	Soil	Soil	Soil		
Depth	28.5-29 feet bsg	12.0-12.5 feet bsg	28.5-29 feet bsg	12.0-12.5 feet bsg	28.5-29 feet bsg	12.0-12.5 feet bsg		
Cis-1,2-Dichloroethene	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0013)	0.3	560
Tetrachloroethene	0.0046	ND (0.0012)	ND (0.0012)	ND (0.0012)	0.00057 J	ND (0.0013)	0.005	5
Trichloroethene	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0013)	0.01	20
Vinyl Chloride	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0013)	0.005	2

Sample ID	SB-17_ 17.5-18.0	SB-17_28.5-29	SB-18_12-12.5	SB-18_28.5-29	NJDEP DIGWSSL	NJDEP NRDCSRS
Date Received	07/11/2015	07/11/2015	07/10/2015	07/10/2015		
Matrix	Soil	Soil	Soil	Soil		
Depth	17.5-18.0 feet bsg	28.5-29 feet bsg	12.0-12.5 feet bsg	28.5-29 feet bsg		
Cis-1,2-Dichloroethene	ND (0.0011)	ND (0.0011)	ND (0.0013)	ND (0.0011)	0.3	560
Tetrachloroethene	ND (0.0011)	ND (0.0011)	ND (0.0013)	ND (0.0011)	0.005	5
Trichloroethene	ND (0.0011)	ND (0.0011)	ND (0.0013)	ND (0.0011)	0.01	20
Vinyl Chloride	ND (0.0011)	ND (0.0011)	ND (0.0013)	ND (0.0011)	0.005	2

Legend:

Note: All results in Miligrams per Kilogram

J: Estimated Concentration
ND: Indicates the analyte was analyzed for but not detected
NJDEP NRDCSRS: New Jersey Department of Environmental Protection Non Residential Direct Contact Soil Remediation Standard
NJDEP DIGWSSL: New Jersey Department of Environmental Protection Default Impact to Groundwater Soil Screening Level
0.075 Concentration in excess of the NJDEP DIGWSSL
22 Concentration in excess of the NJDEP NRDCSRS

TABLE 5

July 2015 Goundwater Analytical Results Summary
Former Z2 Cleaners
1515 Route 37 East
Toms River, Ocean County, New Jersey

Sample ID	GW-12_30-33	GW-12_47-50	GW-15_30-33	GW-15_47-50	GW-17_30-33	GW-17_47-50	GW-18_30-33	GW-18_47-53	NJDEP GWQC	NJDEP VISL
Date	07/07/2015	07/07/2015	07/09/2015	07/09/2015	07/10/2015	07/10/2015	07/09/2015	07/09/2015		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	30-33 feet bgs	47-50 feet bgs	30-33 feet bgs	47-50 feet bgs	30-33 feet bgs	47-50 feet bgs	30-33 feet bgs	47-50 feet bgs		
Cis-1,2-Dichloroethene	15	1.6	0.56 J	ND (1.0)	2.4	2.1	0.92 J	ND (1.0)	70	NS
Tetrachloroethene	**57**	3.9	**66**	ND (1.0)	16	2.5	30	0.44 J	1	31
Trichloroethene	**2.4**	ND (1.0)	1.8	ND (1.0)	0.76	ND (1.0)	1.5	ND (1.0)	1	2
Vinyl Chloride	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1	1

Sample ID	GW-25_30-33	GW-25_47-50	GW-26_30-33	GW-26_47-50	GW-27_30-33	GW-28_72-75	GW-28_97-100	GW-28_127-130	NJDEP GWQC	NJDEP VISL
Date	07/10/2015	07/10/2015	07/10/2015	07/10/2015	07/14/2015	07/13/2015	07/13/2015	07/13/2015		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	30-33 feet bgs	47-50 feet bgs	30-33 feet bgs	47-50 feet bgs	30-33 feet bgs	72-75 feet bgs	97-100 feet bgs	127-130 feet bgs		
Cis-1,2-Dichloroethene	1	ND (1.0)	2.5	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	70	NS
Tetrachloroethene	26	ND (1.0)	**52**	ND (1.0)	**1.3**	ND (1.0)	**3.2**	0.58	1	31
Trichloroethene	1.4	ND (1.0)	**4.2**	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1	2
Vinyl Chloride	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1	1

Sample ID	GW-29_30-33	GW-30_47-50	GW-31_30-33	GW-31_47-50	GW-32_30-33	GW-32_47-50	NJDEP GWQC	NJDEP VISL
Date	07/13/2015	07/14/2015	07/14/2015	07/14/2015	07/14/2015	07/14/2015		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	30-33 feet bgs	47-50 feet bgs	30-33 feet bgs	47-50 feet bgs	30-33 feet bgs	47-50 feet bgs		
Cis-1,2-Dichloroethene	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	70	NS
Tetrachloroethene	21	ND (1.0)	1.4	ND (1.0)	0.45 J	ND (1.0)	1	31
Trichloroethene	0.46	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1	2
Vinyl Chloride	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1	1

Legend:

Note: All results are in Micrograms per Liter
bgs: Below Ground Surface
J: Estimated Concentration
ND: Indicates the analyte was analyzed for but not detected
NJDEP GWQC: New Jersey Department of Environmental Protection Goundwater Quality Criterion
NJDEP VISL: New Jersey Department of Environmental Protection Vapor Intrusion Screening Level
1.8 Concentration in excess of the NJDEP GWQC
56 Concentration in excess of the NJDEP VISL

TABLE 6

November 2015 Groundwater Analytical Results Summary
Former Z2 Cleaners
1515 Route 37 East
Toms River, Ocean County, New Jersey

Sample ID	GW-33 (30-33)	GW-34 (30-33)	GW-35 (30-33)	GW-36 (32-35)	GW-37 (32-35)	NJDEP GWQC	NJDEP VISL
Date	11/24/2015	11/24/2015	11/24/2015	11/24/2015	11/25/2015		
Matrix	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater		
Depth	30-33 feet bsg	30-33 feet bsg	30-33 feet bsg	30-33 feet bsg	30-33 feet bsg		
Cis-1,2-Dichloroethene	ND (0.260)	ND (0.260)	ND (0.260)	ND (0.260)	ND (0.260)	70	NS
Tetrachloroethene	15	1.75	0.56 J	1.38	2.17	1	31
Trichloroethene	ND (0.398)	ND (0.398)	ND (0.398)	ND (0.398)	ND (0.398)	1	2
Vinyl Chloride	ND (0.259)	ND (0.259)	ND (0.259)	ND (0.259)	ND (0.259)	1	1

Note: All results in Micrograms per Liter
J: Estimated Concentration
NJDEP GWQC: New Jersey Department of Environmental Protection Goundwater Quality Criterion
NJDEP VISL: New Jersey Department of Environmental Protection Vapor Intrusion Screening Level
1.8 Concentration in excess of the NJDEP GWQC
56 Concentration in excess of the NJDEP VISL

TABLE 7

June 2015 Soil Gas Analytical Results Summary
Former Z2 Cleaners
1515 Route 37 East
Toms River, Ocean County, New Jersey

Client Sample ID	Units	SG-1_062515	SG-2_062515	SG-3_062515	SG-4_062515	SG-5_062515	NJDEP Nonresidential Soil Gas Screening Level
Building Unit		Paws and Claws	Barber Shop	Vacant Unit	Love Shack Basement	Love Shack SE Corner	
Date Received		06/27/2015	06/27/2015	06/27/2015	06/27/2015	06/27/2015	
Analyte		Result	Result	Result	Result	Result	
ACETONE	ug/m3	**78.4**	**209**	ND (95.1)	**133**	**119**	6,800,000
BENZENE	ug/m3	**1.95**	ND (5.11)	ND (5.11)	**2.27**	**2.91**	79
ETHANOL	ug/m3	**603**	**735**	**175**	**71.6**	**321**	-
ETHYLBENZENE	ug/m3	ND (1.73)	ND (6.94)	ND (6.94)	ND (1.73)	**18.6**	250
4-ETHYLTOLUENE	ug/m3	ND (1.96)	ND (7.85)	ND (7.85)	ND (1.96)	**8.83**	-
HEPTANE	ug/m3	ND (1.64)	**401**	ND (6.54)	**4.09**	ND (1.64)	-
N-HEXANE	ug/m3	**1.76**	**423**	ND (5.64)	**5.64**	ND (1.41)	150,000
2-BUTANONE (MEK)	ug/m3	**7.96**	**17.1**	**16.5**	**32.4**	**21.8**	1,100,000
4-METHYL-2-PENTANONE (MIBK)	ug/m3	**5.73**	**22.1**	**17.2**	**34.4**	**16.8**	660,000
2-PROPANOL	ug/m3	ND (615)	**1030**	**246**	**113**	**320**	-
STYRENE	ug/m3	ND (1.7)	ND (6.81)	ND (6.81)	ND (1.7)	**42.5**	220,000
TETRACHLOROETHENE	ug/m3	**16,300**	**23,100**	**45,500**	**4,010**	**1,360**	2,400
TOLUENE	ug/m3	**7.91**	ND (6.03)	**7.16**	**9.04**	**33.5**	1,100,000
1,1,1-TRICHLOROETHANE	ug/m3	ND (2.18)	ND (8.7)	ND (8.7)	ND (2.18)	**4.46**	1,100,000
TRICHLOROETHENE	ug/m3	**129**	**209**	**198**	**8.57**	ND (2.14)	150
1,2,4-TRIMETHYLBENZENE	ug/m3	ND (1.96)	ND (7.85)	ND (7.85)	**2.26**	**4.32**	-
1,3,5-TRIMETHYLBENZENE	ug/m3	ND (1.96)	ND (7.85)	ND (7.85)	ND (1.96)	**3.53**	-
M&P-XYLENE	ug/m3	ND (4.34)	ND (17.3)	ND (17.3)	ND (4.34)	**16.5**	22,000
O-XYLENE	ug/m3	ND (1.73)	ND (6.94)	ND (6.94)	ND (1.73)	**18.6**	-

Legend:

ug/m3 Micrograms per cubic meter
ND: Indicates the analyte was analyzed for but not detected
16,300 Concentration in excess of the NJDEP Non-Residential Soil Gas Screening Levels
-: No standard

TABLE 8

June 2015 Indoor Air Analytical Results Summary
Former Z2 Cleaners
1515 Route 37 East
Toms River, Ocean County, New Jersey

Client Sample ID	Units	IA-1-6/24/15	IA-2-6/24/15	IA-3-6/24/15	IA-4-6/24/15	IA-5-6/24/15	AA-1-6/24/15	NJDEP Nonresidential Indoor Air Screening Level
Building Unit		Paw and Claws	Barber Shop	Vacant Unit	Love Shack W Counter	Love Shack SE Corner	Ambiant Air	
Date Received		06/27/2015	06/27/2015	06/27/2015	06/27/2015	06/27/2015	06/27/2015	
Analyte		Result	Result	Result	Result	Result	Result	
ACETONE	ug/m3	ND (300)	ND (300)	**40.4**	**52.3**	**40.4**	**19**	140,000
BENZENE	ug/m3	**2.68**	**0.735**	ND (0.64)	ND (0.64)	**0.799**	ND (0.64)	2
1,3-BUTADIENE	ug/m3	**1.46**	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.44)	1
CHLOROETHANE	ug/m3	ND (1.3)	ND (1.3)	**1.82**	**6.6**	**3.69**	ND (1.3)	44,000
CHLOROMETHANE	ug/m3	**3.3**	**1.61**	**1.3**	**1.26**	**1.43**	**1.26**	390
ETHANOL	ug/m3	ND (2400)	ND (2400)	**84.8**	**1230**	**94.3**	**13.2**	-
ETHYLBENZENE	ug/m3	**1.13**	**1.21**	ND (0.87)	ND (0.87)	ND (0.87)	ND (0.87)	5
TRICHLOROFLUOROMETHANE	ug/m3	**1.35**	**1.29**	**1.12**	**1.29**	**2.08**	**1.29**	3,100
DICHLORODIFLUOROMETHANE	ug/m3	**2.77**	**2.62**	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	440
HEPTANE	ug/m3	**0.941**	**2.45**	ND (0.82)	ND (0.82)	ND (0.82)	ND (0.82)	-
N-HEXANE	ug/m3	**1.73**	**1.23**	ND (0.71)	**0.74**	**1.9**	ND (0.71)	3,100
METHYLENE CHLORIDE	ug/m3	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)	**2.85**	ND (1.7)	1,200
2-BUTANONE (MEK)	ug/m3	**4.13**	**2.95**	**2.8**	**6.49**	**5.31**	ND	22,000
2-PROPANOL	ug/m3	ND (3100)	ND (3100)	**73.7**	**32**	**29.5**	ND (3100)	-
STYRENE	ug/m3	**2.42**	ND (0.85)	ND (0.85)	ND (0.85)	ND (0.85)	ND (0.85)	4,400
TETRACHLOROETHENE	ug/m3	**28.5**	**35.3**	**23.1**	**32.6**	**24.4**	ND (1.5)	47
TOLUENE	ug/m3	**13.6**	**12.4**	**37.7**	**45.2**	**32.8**	**1.51**	22,000
1,1,1-TRICHLOROETHANE	ug/m3	ND (1.1)	ND (1.1)	ND (1.1)	ND (1.1)	**1.14**	ND (1.1)	22,000
1,2,4-TRIMETHYLBENZENE	ug/m3	**1.72**	**1.52**	**1.52**	ND (3.7)	ND (3.7)	ND (3.7)	-
2,2,4-TRIMETHYLPENTANE	ug/m3	**1.03**	**1.31**	ND (0.93)	ND (0.93)	ND (0.93)	ND (0.93)	-
M&P-XYLENE	ug/m3	**4.12**	**4.34**	ND (2.2)	**2.21**	**2.47**	**2.21**	440
O-XYLENE	ug/m3	**1.21**	**1.47**	ND (0.87)	ND (0.87)	ND (0.87)	ND (0.87)	-

Legend:

ug/m3 Micrograms per cubic meter
ND: Indicates the analyte was analyzed for but not detected above the laboratory method detection limit
-: No standard
3.23 Concentration exceeds the applicable NJDEP Vapor Intrusion screening level

TABLE 9

90 Breton Harbor Soil Gas and Indoor Air Analytical Results Summary
Residential Property
90 Breton Harbor Drive
Toms River, Ocean County, New Jersey

Client Sample ID	Units	SG-6-102215	IA-6-102115	AA-2-102115	NJDEP Residential Indoor Air Screening Level	NJDEP Residential Soil Gas Screening Level
Sample Location		Soil Gas	Indoor Air	Ambient Air		
Date Collected		10/22/2015	10/22/2015	10/22/2015		
Analyte		Result	Result	Result		
ACETONE	ug/m3	**394**	<11.9	**75.8**	32000	1600000
BENZENE	ug/m3	**4.06**	**0.709**	**1.39**	2	16
1,3-BUTADIENE	ug/m3	**3.16**	<0.443	<0.443	1	11
CHLOROMETHANE	ug/m3	<2.07	**1.32**	**1.85**	94	4700
ETHANOL	ug/m3	**988**	**10.8**	**798**	-	-
ETHYLBENZENE	ug/m3	**5.12**	<0.867	**2.24**	2	49
4-ETHYLTOLUENE	ug/m3	**1.98**	<0.982	<0.982	-	-
TRICHLOROFLUOROMETHANE	ug/m3	**2.61**	**1.42**	**2.04**	730	36000
DICHLORODIFLUOROMETHANE	ug/m3	<4.95	<2.47	**3.3**	100	5200
HEPTANE	ug/m3	**9.41**	<0.818	**1.93**	-	-
N-HEXANE	ug/m3	**10.6**	<0.705	**2.21**	730	36000
2-BUTANONE (MEK)	ug/m3	**75.2**	<1.47	**14.7**	5200	260000
4-METHYL-2-PENTANONE (MIBK)	ug/m3	**17.6**	<2.05	<2.05	3100	160000
METHYL METHACRYLATE	ug/m3	<4.09	<2.05	**2.62**	-	-
2-PROPANOL	ug/m3	**36.6**	<12.3	**14.1**	-	-
STYRENE	ug/m3	<1.7	<0.851	**3.43**	1000	52000
TETRACHLOROETHENE	ug/m3	**2790**	<1.36	**42.4**	9	470
TOLUENE	ug/m3	**15.8**	**1.17**	**17.5**	5200	260000
1,2,4-TRIMETHYLBENZENE	ug/m3	**7.9**	<0.982	**2.03**	-	-
1,3,5-TRIMETHYLBENZENE	ug/m3	**2.06**	<0.982	<0.982	-	-
2,2,4-TRIMETHYLPENTANE	ug/m3	<1.87	<0.934	**2.04**	-	-
M&P-XYLENE	ug/m3	**23.5**	<2.17	**5.59**	100	5200
O-XYLENE	ug/m3	**7.24**	<0.867	**1.95**	-	-

Legend:

ug/m3	Micrograms per cubic meter
ND:	Indicates the analyte was analyzed for but not detected
4.06	Concentration in excess of the NJDEP Non-Residential indoor Air Screening Levels
2790	Concentration in excess of the NJDEP Non-Residential Soil Gas Screening Levels
-:	No standard

TABLE 10

9 First Bayway Soil Gas and Indoor Air Analytical Results Summary
Residential Property
9 First Bayway
Toms River, Ocean County, New Jersey

Client Sample ID	units	SG-7_102215	IA-7_10228	AA-3_102215	NJDEP Residential Indoor Air Screening Level	NJDEP Residential Soil Gas Screening Level
Location		Crawlspace	First Floor	Ambient		
Date Collected		10/22/2015	10/22/2015	10/22/2015		
Analyte		Result	Result	Result		
ACETONE	ug/m3	**17**	**68.9**	**13.3**	32,000	1,600,000
BENZENE	ug/m3	**1.18**	**1.11**	**0.802**	2	16
CHLOROMETHANE	ug/m3	**1.04**	**1.92**	**1.69**	94	4,700
CYCLOHEXANE	ug/m3	**0.785**	ND (0.689)	ND (0.689)	6,300	310,000
1,2-DICHLOROETHANE	ug/m3	ND (0.81)	**0.858**	ND (0.81)	2	20
ETHANOL	ug/m3	ND (9.43)	**1600**	**16.5**	-	-
ETHYLBENZENE	ug/m3	ND (0.867)	**1.14**	ND (0.867)	2	49
TRICHLOROFLUOROMETHANE	ug/m3	**1.67**	**1.46**	**1.81**	730	36,000
DICHLORODIFLUOROMETHANE	ug/m3	ND (2.47)	ND (2.47)	**2.82**	100	5,200
HEPTANE	ug/m3	**1.46**	**2.45**	**0.916**	-	-
N-HEXANE	ug/m3	**2.22**	**1.5**	**1.31**	730	36,000
2-BUTANONE (MEK)	ug/m3	**44.8**	**7.34**	ND (1.47)	5,200	260,000
STYRENE	ug/m3	ND (0.851)	**1.72**	ND (0.851)	1,000	52,000
TETRACHLOROETHENE	ug/m3	**21.8**	ND (1.36)	**1.73**	9	470
TOLUENE	ug/m3	**2.89**	**12.5**	**2.74**	5,200	260,000
2,2,4-TRIMETHYLPENTANE	ug/m3	**1.79**	**1.49**	ND (0.934)	-	-
M&P-XYLENE	ug/m3	ND (2.17)	**3.13**	ND (2.17)	100	5,200
O-XYLENE	ug/m3	ND (0.867)	**1.43**	ND (0.867)	-	-

Legend:

ug/m3 Micrograms per cubic meter
ND: Indicates the analyte was analyzed for but not detected
21.8 Concentration in excess of the NJDEP Non-Residential Soil Gas Screening Levels
-: No standard

Table 11

February 2016 Indoor Air Analytical Results Summary
Former Z2 Cleaners
1515 Route 37, East
Toms River, Ocean County, New Jersey

Client Sample ID	Units	IA-8-022416	IA-9-022416	IA-10-022416	IA-11-022416	IA-12-022416	AA-4-022416	NJDEP
Sample Location		Pet Groomer	Barber Shop	Vacant Unit	Love Shack	Love Shack	Rear of Property	Nonresidentail
Date Collected		02/24/2016	02/24/2016	02/24/2016	02/24/2016	02/24/2016	02/24/2016	Indoor Air Screening
Analyte		Result	Result	Result	Result	Result	Result	Level
ACETONE	ug/m3	**62.3**	**27300**	**15.8**	**27.6**	**21.6**	**19.9**	140,000
BENZENE	ug/m3	**3.23**	**0.671**	**0.712**	ND (0.639)	ND (0.639)	ND (0.639)	2
1,3-BUTADIENE	ug/m3	**2.35**	ND (0.443)	ND (0.443)	ND (0.443)	ND (0.443)	ND (0.443)	1
CHLOROETHANE	ug/m3	**2.69**	**4.14**	**9.02**	**40.4**	**29.8**	ND (1.32)	44,000
CHLOROMETHANE	ug/m3	**4.15**	**2.03**	**1.62**	**1.59**	**1.54**	**1.54**	390
ETHANOL	ug/m3	**2210**	**14000**	**247**	**324**	ND (236)	**25.3**	-
TRICHLOROFLUOROMETHANE	ug/m3	**1.54**	**1.54**	**1.58**	**1.54**	**1.52**	**1.52**	3,100
HEPTANE	ug/m3	**1.71**	**7.93**	ND (0.818)	**1.4**	**1.05**	ND (0.818)	-
N-HEXANE	ug/m3	**1.24**	**1.05**	**0.895**	**0.931**	**0.846**	ND (0.705)	3,100
METHYLENE CHLORIDE	ug/m3	**16.5**	**116**	ND (1.74)	ND (1.74)	ND (1.74)	ND (1.74)	1,200
2-BUTANONE (MEK)	ug/m3	**4.9**	**1.6**	ND (1.47)	ND (1.47)	**1.68**	**2.67**	22,000
2-PROPANOL	ug/m3	**1260**	**12400**	**153**	**14.8**	**15.3**	ND (12.3)	-
STYRENE	ug/m3	**1.01**	ND (0.851)	ND (0.851)	ND (0.851)	ND (0.851)	ND (0.851)	4,400
TETRACHLOROETHENE	ug/m3	**187**	**202**	**29.6**	**53**	**51**	ND (1.36)	47
TOLUENE	ug/m3	**16.3**	**89.7**	**3.39**	**6.44**	**6.78**	**0.863**	22,000
1,1,1-TRICHLOROETHANE	ug/m3	ND (1.09)	ND (1.09)	ND (1.09)	**1.62**	**3.07**	ND (1.09)	22,000
TRICHLOROETHENE	ug/m3	**1.28**	**1.51**	ND (1.07)	ND (1.07)	ND (1.07)	ND (1.07)	3
1,2,4-TRIMETHYLBENZENE	ug/m3	ND (0.982)	ND (0.982)	**1.24**	ND (0.982)	ND (0.982)	ND (0.982)	-
M&P-XYLENE	ug/m3	**2.57**	ND (2.17)	**2.28**	ND (2.17)	ND (2.17)	ND (2.17)	440
O-XYLENE	ug/m3	ND (0.867)	ND (0.867)	**0.958**	ND (0.867)	ND (0.867)	ND (0.867)	-

Legend:

ug/m3 micrograms per meter cubed
3.23 Concentration exceeds the applicable NJDEP Vapor Intrusion screening level
-: No standard
ND: Indicates the analyte was analyzed for but not detected above the laboratory method detection limit