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June 23, 2005

Mr. Greg Smith
North Carolina Department of Transportation
Geotechnical Engineering Unit
1589 Mail Service Center
Raleigh, North Carolina 27699-1589

Reference: Preliminary Site Assessment
Hill Oil Company (King Chevron Mart) Property (Parcel #20)
718 South Main Street
King, Stokes County, North Carolina
NCDOT Project R-2201
WBS Element 34380.1.1
Earth Tech Project No. 85238

Dear Mr. Smith:

Earth Tech of North Carolina, Inc., (Earth Tech) has completed the Preliminary Site Assessment conducted at the above-referenced property. The work was performed in accordance with the Technical and Cost proposal dated April 7, 2005, and the North Carolina Department of Transportation's (NCDOT's) Notice to Proceed dated April 12, 2005. Activities associated with the assessment consisted of conducting a geophysical investigation, collecting soil and groundwater samples for laboratory analysis, and reviewing applicable North Carolina Department of Environment and Natural Resources (NCDENR) records. The purpose of this report is to document the field activities, present the laboratory analyses, and provide recommendations regarding the property.

Location and Description

The Hill Oil Company Property (Parcel #20) is located at 718 South Main Street in King, North Carolina. The property is situated on the north side of South Main Street at the northwestern quadrant of the intersection of South Main Street and Carmel Drive (Figure 1). Based on information supplied by the NCDOT and the site visit, Earth Tech understands that the site is an active gas station/convenience store (King Chevron Mart) where four underground storage tanks (USTs) are present. The active USTs include one 12,000-gallon diesel fuel and three 12,000-gallon gasoline tanks. The property consists of a single-story building with a canopied pump island on the northwest and southeast sides of the building. The USTs are located on the east side of the southeastern pump island (Figure 2). According to the NCDOT plan sheets, the buildings, USTs, and pump islands will not be affected, but the USTs are in close proximity to the proposed right-of-way.

Earth Tech reviewed the North Carolina Department of Environment and Natural Resources (NCDENR) Incident Management database and Incident Number 24032 was listed for this location. Information in the NCDENR files (Attachment A) indicates that a limited groundwater assessment had been conducted at the McDonalds Corporation Property in July and September 2001. This assessment concluded that groundwater contamination existed and that the source was off-site, most likely the King Chevron Mart, formerly owned by Morris Oil Company. A Notice of Violation (NOV) was issued to Morris Oil Company to conduct a Site Check. In February 2002, two groundwater monitoring wells were installed and groundwater contamination was confirmed at the site. Between February and July 2002, Hill Oil Company assumed ownership of the property and USTs, and was subsequently issued a NOV to comply with UST regulations. In a Soil Assessment Report dated August 23, 2002, Shield Engineering concluded that soil contamination was present around the USTs, along certain product lines, and at some of the dispensers. Following that investigation, 196 tons of contaminated soils were excavated and disposed off-site. Confirmation sampling indicated that soil contamination above the risk-based rules remained at the facility and a Phase II Limited Site Assessment (LSA) was conducted in September 2002. Eight groundwater monitoring wells, six shallow and two deep, were installed at the site and groundwater samples collected. One well, MW-3 on the northwest side of the building, contained 1.35 feet of free-phase product. Depth to groundwater was measured between 26 and 28 feet below ground surface, and groundwater flow was calculated to be to the south. The figures contained in the LSA report indicated that petroleum compounds were present in groundwater throughout the site and are likely to exist within the proposed right-of-way. Based on the LSA data, the site was classified as intermediate risk (petroleum compounds above the Gross Contamination Levels) and the land use as industrial/commercial. In a Notice of Regulatory Requirements (NORR), Hill Oil Company was directed to proceed with soil cleanup and removal of free-phase product. No other information was available in the NCDENR files to indicate the status of the site. However, King Chevron Mart personnel indicated that groundwater samples are periodically collected from the monitoring wells at the site. Because of the presence of reported contamination and proximity of existing USTs, the NCDOT requested a Preliminary Site Assessment to evaluate the soils within the property.

Earth Tech also reviewed the UST registration database to obtain UST ownership information. According to the database and the on-site UST Permit, the USTs on the property are operated under Facility Number 0-031004. The operator and owner of the tanks are listed as follows:

Owner

Hill Oil Company, Inc.
Post Office Box 367
Lexington, North Carolina 27293-0367

Operator

King Chevron Mart
718 South Main Street
King, North Carolina 27021

Geophysical Survey

Prior to Earth Tech's mobilization to the site, Pyramid Environmental conducted a geophysical survey to evaluate if additional USTs, other than the ones in use, were present on the property.

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The geophysical survey generally consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, specifically USTs. However, steel-reinforced concrete covered a significant portion of the investigation area and, as a result, only a ground penetrating radar survey was conducted. A survey grid was laid out at the property with the X-axis oriented approximately parallel to South Main Street and the Y-axis oriented approximately parallel to Carmel Drive. The grid was located to cover all accessible portions of the property. The survey lines were spaced 1.5 meters (5 feet) apart. Data were collected continuously along each survey line. After collection, the data were reviewed in the field with graphical computer software.

Several anomalies were detected in the geophysical survey. However, these anomalies were generally attributed to known USTs, steel-reinforced concrete, and buried utility lines or conduits. The survey concluded that no metallic USTs were present on the proposed right-of-way. A detailed report of findings and interpretations is presented in Attachment B.

Site Assessment Activities

On May 10, 2005, Earth Tech mobilized to the site to conduct a Geoprobe[®] direct push investigation to evaluate soil conditions within the proposed right-of-way. Continuous sampling using direct push technology (Probe Technology of Concord, North Carolina) resulted in generally good recovery of soil samples from the direct-push holes. Soil samples were collected and contained in 1.2-meter (4-foot) long acetate sleeves inside the direct push sampler. Each of these sleeves was divided in half for soil sample screening. Each 0.6-meter (2-foot) interval was placed in a resealable plastic bag and the bag was set aside for a sufficient amount of time to allow volatilization of organic compounds from the soil to the bag headspace. The probe of a photo ionization detector (PID) was inserted into the bag and the reading was recorded. After terminating the sample hole, the soil sample from the depth interval with the highest PID reading was submitted to Paradigm Analytical Laboratories, Inc., in Wilmington, North Carolina, using standard chain-of-custody procedures. The laboratory analyzed the soil samples for total petroleum hydrocarbons (TPH) using extraction methods 3550 (diesel fuel/fuel oil) and 5030 (gasoline).

Six direct-push holes (20-1 through 20-6) were advanced within the proposed right-of-way at the site to a depth of 4.8 meters (16 feet) as shown in Figure 2 and Attachment C. The borings were located to evaluate the conditions as close as possible to UST and dispenser island areas and remain within the proposed right-of-way (Attachment D). Borings 20-1 and 20-2 were located to evaluate the known UST area, borings 20-3 through 20-5 were located to assess soil conditions in the dispenser island areas, and boring 20-6 was located to provide the horizontal extent of potential contamination. The lithology encountered by the direct-push samples generally was consistent throughout the site. The ground surface was covered with about 0.15 meters (6 inches) of concrete and gravel. Below the surface treatment to a depth of about 2.4 to 3.0 meters (8 to 10 feet) was a reddish brown clay. Below this soil to a depth of 4.8 meters (16 feet) was a mottled medium brown, reddish brown, tan, and black medium-grained sand. No groundwater was

encountered in any of the borings. Based on field screening, soil samples were submitted for laboratory analysis, which are summarized in Table 1.

Analytical Results

Based on the laboratory reports, summarized in Table 1 and presented in Attachment E, petroleum hydrocarbon compounds were detected in one of the six soil samples collected from the site (Figure 3). The soil sample from boring 20-5 contained a diesel range organic (DRO) concentration of 7.82 mg/kg. According to the North Carolina Underground Storage Tank Section's Underground Storage Tank Closure Policy dated August 24, 1998, the action level for TPH analyses is 10 mg/kg for both gasoline and diesel fuel. However, that agency's "Guidelines for Assessment and Corrective Action," dated April 2001, does not allow for use of TPH analyses for confirmation of the extent of petroleum contamination or its cleanup. As a result, while TPH concentrations are no longer applicable in determining if soil contamination is present, this analysis is a legitimate screening tool. Based on the TPH action level for UST closures, the assumed action level for this report is 10 mg/kg. None of the soil samples collected from the site contained a DRO concentration above the 10 mg/kg assumed action level.

During the course of the field investigation, moderate to strong non-hydrocarbon odors were noted at a depth of 4.2 to 4.8 meters (12 to 14 feet) in all the borings. Elevated field screening readings suggested that the odor was from a volatile organic compound. The TPH analysis indicated that no petroleum hydrocarbon compounds were detected in the soil samples from these borings. Subsequently, the soil sample from boring 20-3 was re-analyzed to include volatile organic compounds using EPA Method 8260. The analysis indicated that no target volatile organic compounds were detected, but an analysis of tentatively identified compounds suggested the presence of minor concentrations of amylene hydrate, 2-methyl-2-pentanol, and 3-methyl-3-pentanol. Because the analysis was performed on a sample that was stored in a jar with headspace and the test was conducted beyond the 14-day holding limit, the presence of these compounds has been verified, but not their concentrations. The on-line Dorland's Illustrated Medical Dictionary defines amylene hydrate as a clear, colorless liquid with a camphoraceous odor, miscible with alcohol, chloroform, ether, and glycerin; used as a solvent in pharmaceutical preparations. No uses regarding 2-methyl-2-pentanol or 3-methyl-3-pentanol were available. Neither of these compounds appears to be on the list of hazardous substances.

Conclusions and Recommendations

A Preliminary Site Assessment was conducted to evaluate the Hill Oil Company Property (Parcel #20) located at 718 South Main Street in King, Stokes County, North Carolina. A previous release from the UST system at the site resulted in a groundwater incident being assigned to the property. According to NCDENR records, only soil cleanup and free-phase product removal have been directed at the site. No information regarding the status of the site was available. The Limited Site Assessment report suggests that the groundwater contamination is likely within the proposed right-of-way.

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Six soil borings were advanced to evaluate the soil conditions on the property. The laboratory reports of the soil samples from these borings suggest that no TPH concentrations are present above the assumed action levels.

Earth Tech appreciates the opportunity to work with the NCDOT on this project. While this site is an active groundwater incident site, no groundwater samples were collected. Although no hydrocarbon concentrations were detected above the action level in the soil, the tentatively identified compounds detected in the one soil sample are non-petroleum. The NCDENR guidelines require that any compound detected above the detection limit be reported to that agency. As a result, Earth Tech recommends that a copy of this report be submitted to the Division of Waste Management, UST Section, Winston-Salem Regional Office. If you have any questions, please contact me at (919)854-6238.

Sincerely,



Michael W. Branson, P.G.
Project Manager



Attachments

c: Project File

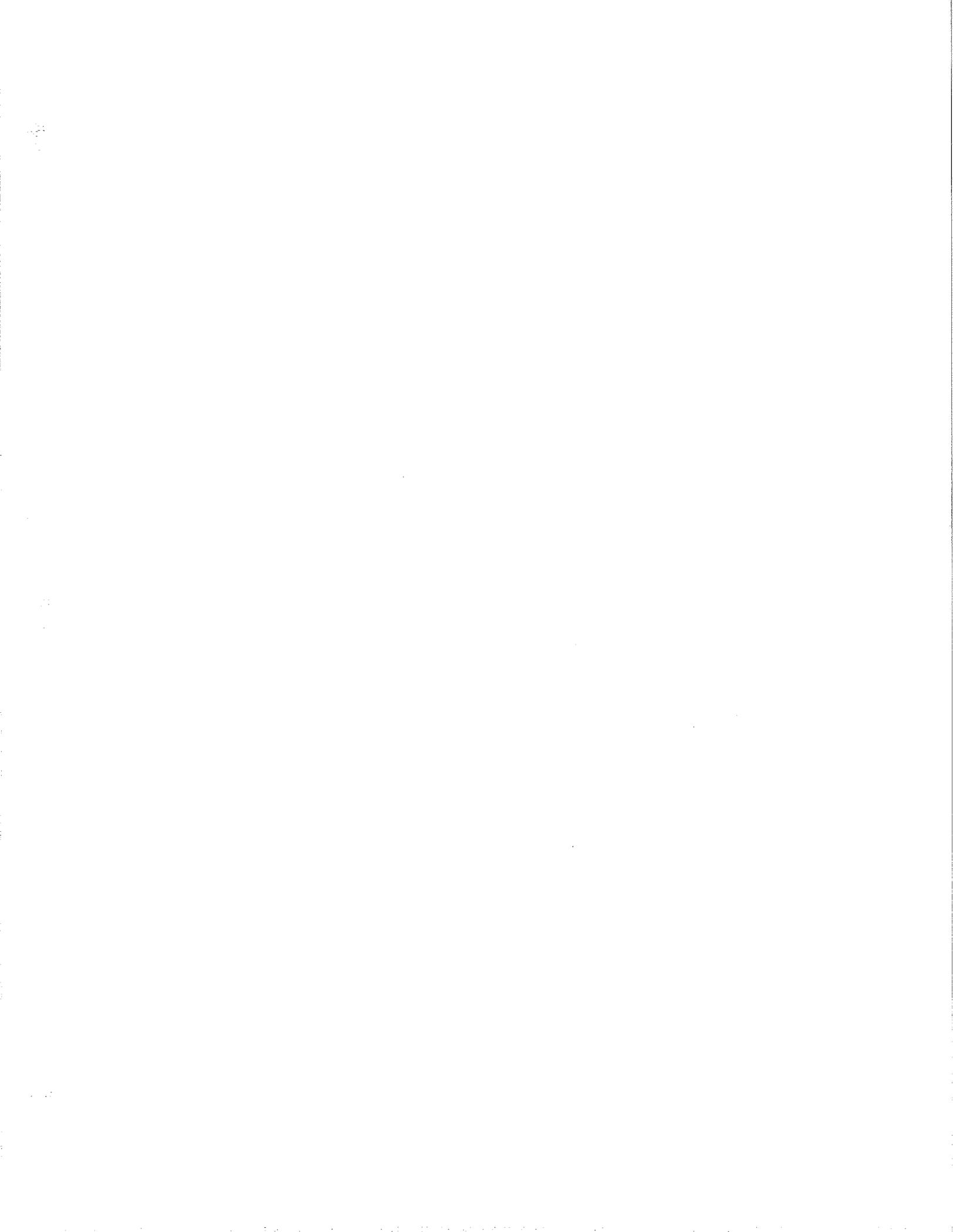
TABLE 1

FIELD SCREENING AND ANALYTICAL RESULTS
 HILL OIL COMPANY PROPERTY (PARCEL #20)
 KING, NORTH CAROLINA
 NCDOT PROJECT NO. R-2201
 WBS ELEMENT 34380.1.1
 EARTH TECH PROJECT NO. 85328

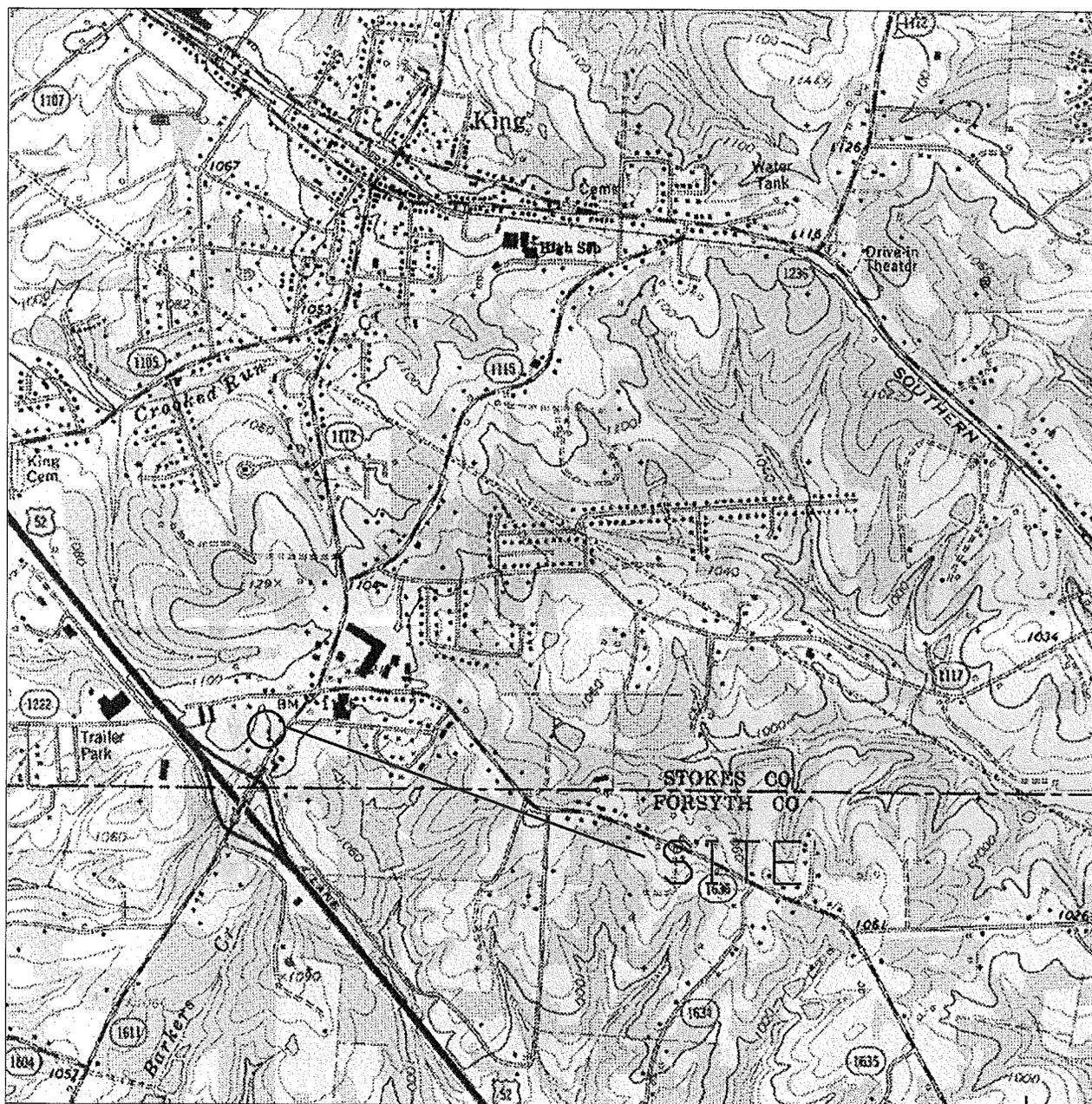
LOCATION	DEPTH (m)	PID READING (ppm)	SAMPLE ID	ANALYTICAL RESULTS (mg/kg)	ASSUMED ACTION LEVEL (mg/kg)
20-1	0 - 0.6	0			
	0.6 - 1.2	0.2			
	1.2 - 1.8	1.5			
	1.8 - 2.4	2.3			
	2.4 - 3.0	2.7			
	3.0 - 3.6	1.8			
	3.6 - 4.2	3.3			
	4.2 - 4.8	7.7	20-1-14-16	DRO (BQL) GRO (BQL)	10 10
20-2	0 - 0.6	0			
	0.6 - 1.2	0			
	1.2 - 1.8	0.1			
	1.8 - 2.4	0			
	2.4 - 3.0	1			
	3.0 - 3.6	2.4	20-2-10-12	DRO (BQL) GRO (BQL)	10 10
	3.6 - 4.2	1			
	4.2 - 4.8	1.4			
20-3	0 - 0.6	0.3			
	0.6 - 1.2	2			
	1.2 - 1.8	6.2			
	1.8 - 2.4	22.2			
	2.4 - 3.0	32.2			
	3.0 - 3.6	47			
	3.6 - 4.2	95.1			
	4.2 - 4.8	175	20-3-14-16	DRO (BQL) GRO (BQL)	10 10
20-4	0 - 0.6	2.4			
	0.6 - 1.2	5			
	1.2 - 1.8	10.5			
	1.8 - 2.4	15.3			
	2.4 - 3.0	27			
	3.0 - 3.6	19			
	3.6 - 4.2	53.1			
	4.2 - 4.8	105	20-4-14-16	DRO (BQL) GRO (BQL)	10 10
20-5	0 - 0.6	4.1			
	0.6 - 1.2	12.2			
	1.2 - 1.8	55.5			
	1.8 - 2.4	287			
	2.4 - 3.0	305			
	3.0 - 3.6	628			
	3.6 - 4.2	551			
	4.2 - 4.8	1200	20-5-14-16	DRO (7.82) GRO (BQL)	10 10
20-6	0 - 0.6	0			
	0.6 - 1.2	0			
	1.2 - 1.8	0			
	1.8 - 2.4	0.1			
	2.4 - 3.0	0.2			
	3.0 - 3.6	0.3			
	3.6 - 4.2	8.1	20-6-12-14	DRO (BQL) GRO (BQL)	10 10
	4.2 - 4.8	7			

DRO - Diesel range organics.
 GRO - Gasoline range organics.

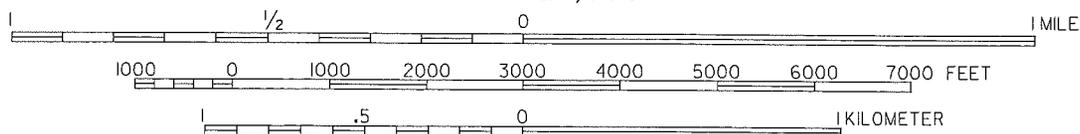
ppm - parts per million.
 mg/kg - milligrams per kilogram.



FIGURES



SCALE 1:24,000



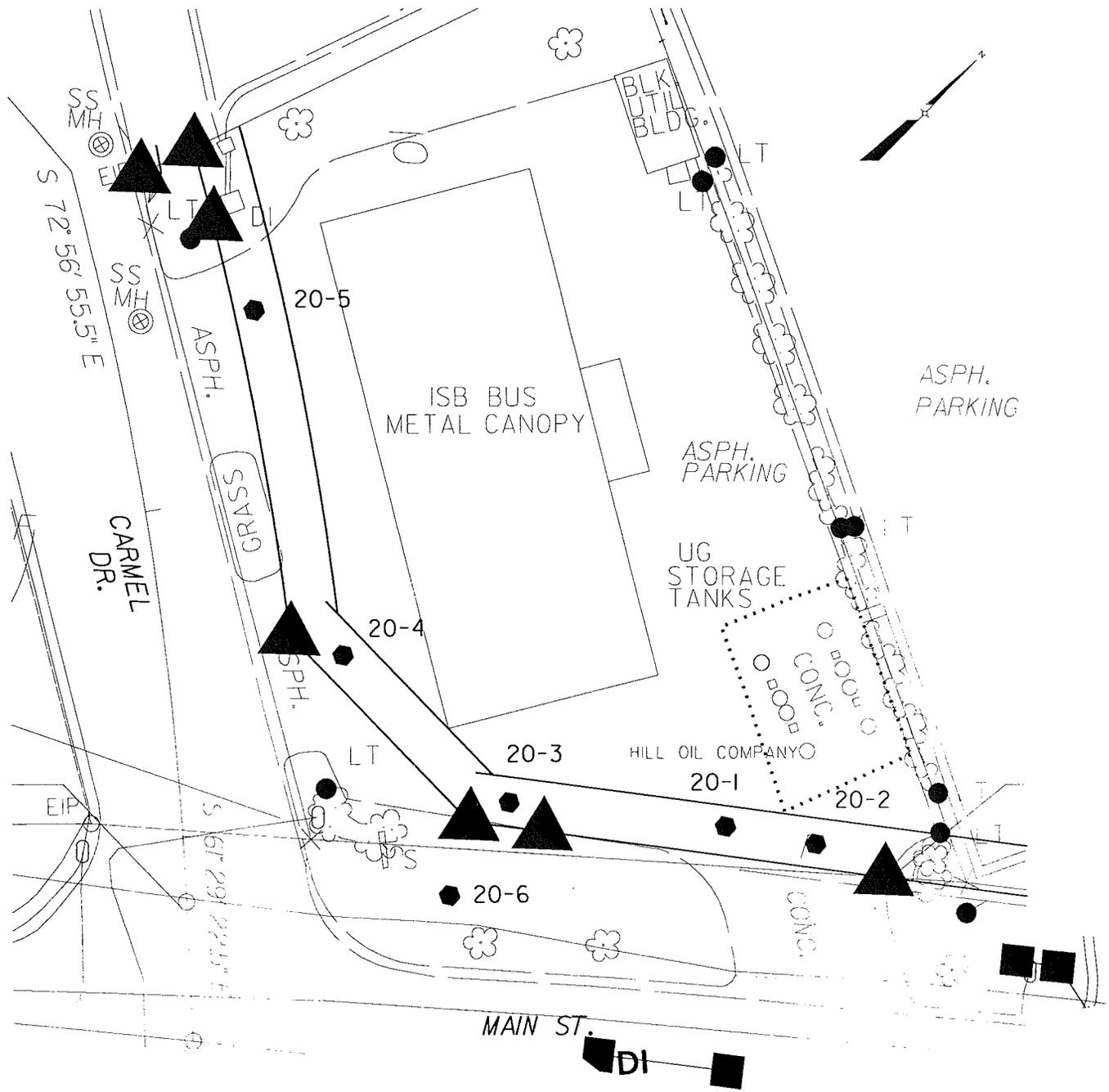
SOURCE: U.S. GEOLOGICAL SURVEY 7.5 MIN QUADRANGLE: KING, NC (REV 1983)



FIGURE I
VICINITY MAP
HILL OIL COMPANY PROPERTY (PARCEL #20)
KING, NORTH CAROLINA

MAY 2005

95230



LEGEND

- 20-1 ● SOIL BORING LOCATION AND IDENTIFICATION
- ⋯ UST LOCATION

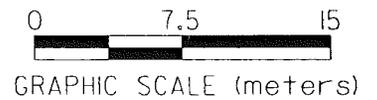
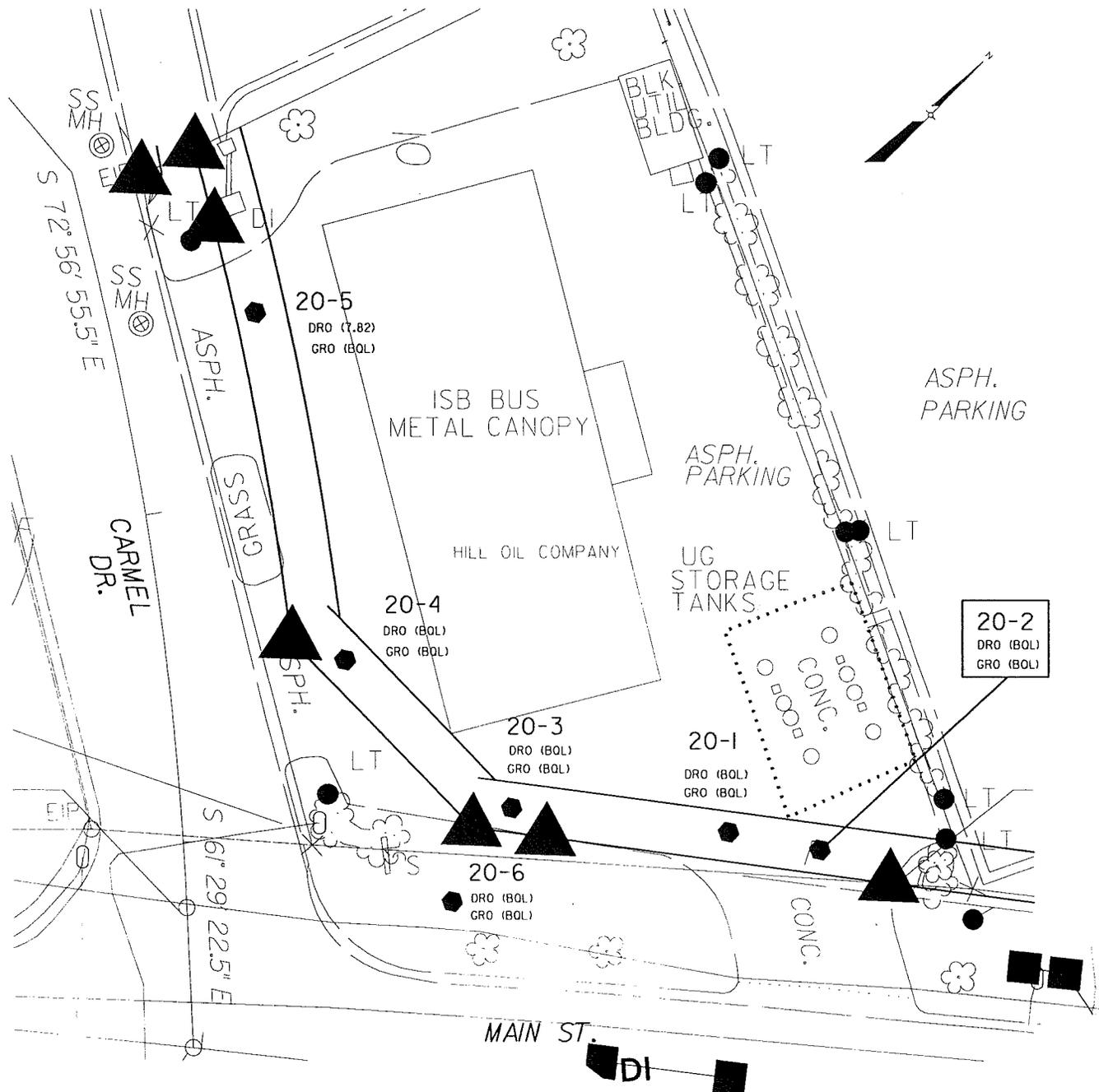


FIGURE 2
SITE MAP
 HILL OIL COMPANY PROPERTY (PARCEL #20)
 KING, NORTH CAROLINA

MAY 2005

85238



LEGEND

- SOIL SAMPLE LOCATION
- DRO (123) TPH AS DIESEL FUEL IN MG/KG
- GRO (123) TPH AS GASOLINE IN MG/KG
- BOL BELOW QUANTITATION LIMIT



FIGURE 3
ANALYTICAL RESULTS MAP
 HILL OIL COMPANY PROPERTY (PARCEL #20)
 KING, NORTH CAROLINA

MAY 2005

52971



ATTACHMENT A

LAWGIBB GROUP

October 17, 2001

Ms. Nadine Perry
McDonald's Corporation
3200 Beechleaf Court, Suite 300
Raleigh, North Carolina 27604

Berth Oil Company
c/o Mr. Paul Hendrick
Hendrick Law Firm
723 Coliseum Drive, Suite 101
Winston-Salem, North Carolina 27106-5326

RECEIVED
N.C.D. EHNH
NOV 06 2001
Winston-Salem
Regional Office

Subject: **Letter Report Limited Groundwater Assessment
from Permanent Monitoring Wells
McDonald's Excess Lot 032-9100
109 Carmel Drive
King, North Carolina
LAW Project No. 30740-0-4415-19-917A**

Dear Ms. Perry and Mr. Hendrick:

As authorized by Mr. Shawn Beichler's acceptance of LAW Proposal No. 30799-1-0000-0856 dated August 27, 2001, Law Engineering and Environmental Services, Inc. (LAW) is pleased to provide this Letter Report of Limited Groundwater Assessment from Permanent Monitoring Wells for the McDonald's Excess Lot 032-9100 in King, North Carolina. The objective of our services was to collect groundwater samples for laboratory testing to establish existing concentrations of gasoline constituents in samples collected from permanent monitoring wells, and to estimate the direction of groundwater flow using groundwater elevations in the permanent wells.

Background

The subject site is a recently constructed McDonald's restaurant located at 109 Carmel Drive in King, North Carolina (Figure 1). Berth Oil Company operates an underground storage tank (UST) system at the site.

LAW recently conducted a Limited Groundwater Assessment at the site and prepared a report (LAW Project No. 30740-0-4415-19-917, report dated July 17, 2001). During this assessment, we installed five temporary monitoring wells at the site and collected groundwater samples from the wells for laboratory testing. The laboratory detected gasoline constituents in these samples at concentrations that exceed the North Carolina Groundwater Quality Standards established in Section .0202, Subchapter 2L, Title 15A of the North Carolina Administrative Code (15A NCAC 2L .0202). LAW determined that the source of these gasoline constituents is off the site. We determined that groundwater beneath the site flows towards the south-southeast. Berth Oil Company desired to have permanent wells from which to collect groundwater samples on a periodic basis to determine if contaminant concentrations change through time.

Field Activities

On September 20, 2001, Mr. Jeff Ballsieper of LAW supervised the installation of three, permanent, groundwater monitoring wells at the site. The wells were installed to collect groundwater samples for laboratory testing with which to establish existing concentrations of gasoline constituents in samples collected from permanent monitoring wells, and to estimate the direction of groundwater flow using groundwater elevations in the permanent monitoring wells. One well was installed near Beroth's recently installed USTs (MW-1), and two were installed along Carmel Drive (MW-2 and MW-3). McDonald's Corporation provided Site Plan C-1, prepared by The John R. McAdams Company, that showed the location of the USTs, the property lines, and the buildings on the site. The locations of the three monitoring wells are shown on Figure 2.

McCall Brothers, Inc. (McCall), under subcontract to LAW, used a mechanical drilling rig equipped with hollow-stem augers to advance the three borings for the wells, each to a depth of 30 feet below land surface. Upon completing the borings, McCall constructed the monitoring wells using two-inch-diameter PVC well screen and riser, and fitted each well with a flush-mounted wellpad and well cover.

LAW developed each well by purging approximately three well volumes of groundwater, after which we sampled the well with a dedicated, disposable bailer. The groundwater samples were decanted into laboratory-supplied bottles, which were placed into a cooler packed with ice. LAW delivered the cooler containing the groundwater sample under chain-of-custody to Research and Analytical Laboratories (R&A) in Kernersville, North Carolina. R&A tested the samples for purgeable halocarbons according to EPA Method 601; for purgeable aromatic hydrocarbons according to EPA Method 602, modified to include isopropyl ether (IPE), total xylenes, and methyl tert-butyl ether (MTBE); for base neutral semi-volatile organic compounds according to EPA Method 625; for extractable and volatile petroleum hydrocarbons according to the Massachusetts Department of Environmental Protection (MADEP) methods; and for lead according to EPA Preparation/Testing Methods 3030C/6010. Well construction records and well sampling worksheets are attached.

LAW established the top-of-casing elevation of each well relative to a benchmark with an assumed elevation of 100 feet. This benchmark is the top of casing on MW-1. Prior to sampling the wells, we obtained water-level measurements from each well using an interface probe and subtracted these depths from the casing elevations to determine static groundwater elevations relative to the established benchmark. We did not detect free product in the monitoring wells. These data are included in Table 2.

Drawing 3 shows the elevation of the water table in each of the monitoring wells relative to the benchmark and a contour map of the surface of the water table. This drawing also shows an estimated direction of groundwater flow to the southeast.

Laboratory Test Results

Table 1 summarizes the laboratory test results. Copies of the laboratory test reports and chain-of-custody are attached.

The laboratory detected several petroleum-related compounds in the groundwater samples collected from the monitoring wells. The laboratory detected benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, lead, and several EPH and VPH compounds in one or more of the groundwater samples at concentrations that exceed their respective 2L Standards. However, the concentrations detected do not exceed the Gross Contaminant Levels (GCLs) established for benzene, ethylbenzene, toluene, xylenes, and MTBE for petroleum UST sites. GCLs for VPH and EPH compounds have not been established.

Discussion

The laboratory detected contaminant at concentrations similar to those detected in the groundwater samples from the temporary monitoring wells. LAW plotted total concentrations of benzene, toluene, ethylbenzene, total xylenes (BTEX) on Figure 2.

The groundwater flow direction beneath the site was determined to be towards the southeast (Figure 3 and Table 2). It appears that the contaminants in the groundwater samples collected from the wells migrated onto the subject site from an off-site source(s), probably to the north of the subject site. The King Chevron service station is located to the northeast across Carmel Drive. According to information maintained by the UST Section of the North Carolina Division of Waste Management's (DWM's) Winston-Salem Regional Office, a release has not been reported from the UST system at this Chevron station.

Conclusions and Recommendations

Groundwater beneath the site exhibits petroleum constituents at concentrations that exceed the North Carolina Groundwater Quality Standards established in 15A NCAC 2L .0202, but that are below established GCLs for petroleum UST release sites. Based on our assessment results, it appears that groundwater contaminants are migrating onto the subject site from the north.

LAW recommends performing periodic monitoring of these wells to monitor the contaminant concentrations in the groundwater beneath the site. Increased contaminant concentrations in MW-1 may be an indication that the USTs recently installed at the site are leaking. Periodic monitoring of the groundwater samples collected from this well will allow Beroth Oil Company to take remedial actions more quickly.

LAW recommends providing a copy of this report to DWM's Winston-Salem Regional Office. Upon your request, we will forward a copy of this report to that agency. Please call us if you have any questions.

Closing

This report is intended for the use of McDonald's Corporation (McDonald's) and Beroth Oil Company (Beroth), subject to the contractual terms between McDonald's, Beroth and LAW. Reliance on this document by any other party is prohibited without the express written consent of LAW and that party's acceptance of mutually agreeable terms and conditions. Use of this report for purposes beyond those reasonably intended by McDonald's, Beroth and LAW will be at the sole risk of the user.

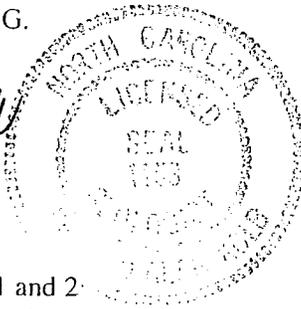
We appreciate your selection of LAW for this project and look forward to assisting you further on this and other projects. If you have any questions, please do not hesitate to contact us.

Sincerely,

Law Engineering and Environmental Services, Inc.

Jeffrey A. Ballsieper
Jeffrey A. Ballsieper, L.G.
Senior Geologist

Richard A. Kolb
Richard A. Kolb, L.G.
Principal Geologist



Attachments: Tables 1 and 2
Figures 1-3
Soil Boring Records
Well Construction Records
Well Sampling Worksheets
Laboratory Test Reports

TABLE 1

SUMMARY OF LABORATORY ANALYTICAL RESULTS
 McDONALD'S EXCESS LOT 032-9100
 109 CARMEL DRIVE
 KING, NORTH CAROLINA
 LAW PROJECT NO. 30740-0-4415-19-917A

Units mg/L

Constituent	Well Number and Date Sampled			Groundwater Quality Standard*	Gross Contaminant Levels
	MW-1 9/26/01	MW-2 9/26/01	MW-3 9/26/01		
<i>Purgeable Halocarbons and Purgeable Aromatic Hydrocarbons EPA Methods 601/602</i>					
Benzene	BDL	0.779	0.0011	0.001	5.0
Ethylbenzene	0.385	0.457	BDL	0.029	29.0
Toluene	0.455	2.62	BDL	1.0	257.5
Total xylenes	1.81	2.12	BDL	0.53	87.5
MTBE	BQL	1.59	BQL	0.20	200
<i>Semi-Volatile Organics EPA Method 625</i>					
Naphthalene	0.085	0.087	BQL	0.021	15.5
<i>Lead EPA Preparation Method 3030C</i>					
Lead	0.012	0.169	0.051	0.015	15.0
<i>Volatile and Extractable Petroleum Hydrocarbons MADEP Methods</i>					
C5-C8 Aliphatics	BDL	9.83	BDL	0.42	NE
C9-C12 Aliphatics	7.89	8.27	BDL	4.2	NE
C9-C18 Aliphatics	2.32	3.02	BDL		
C9-C10 Aromatics	4.64	6.60	BDL	0.21	NE
C11-C22 Aromatics	0.657	0.490	BDL		
C19-C36 Aliphatics	0.215	BDL	BDL		

Notes:

* 15A NCAC 2L .0202

BOLD = Concentration exceeds the 2L Groundwater Quality Standards or 2B Water Quality Criteria.

NE = Not Established

BDL = Below Detection Limit of Laboratory

Prepared/Date: JAB 10/10/01

Checked/Date: *JG* 10/15/01

TABLE 2

GROUNDWATER ELEVATION DATA
McDONALD'S EXCESS LOT 032-9100
109 CARMEL DRIVE
KING, NORTH CAROLINA
LAW PROJECT NO. 30740-0-4415-19-917A

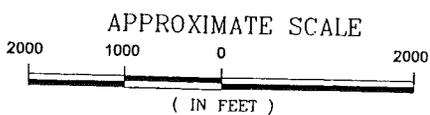
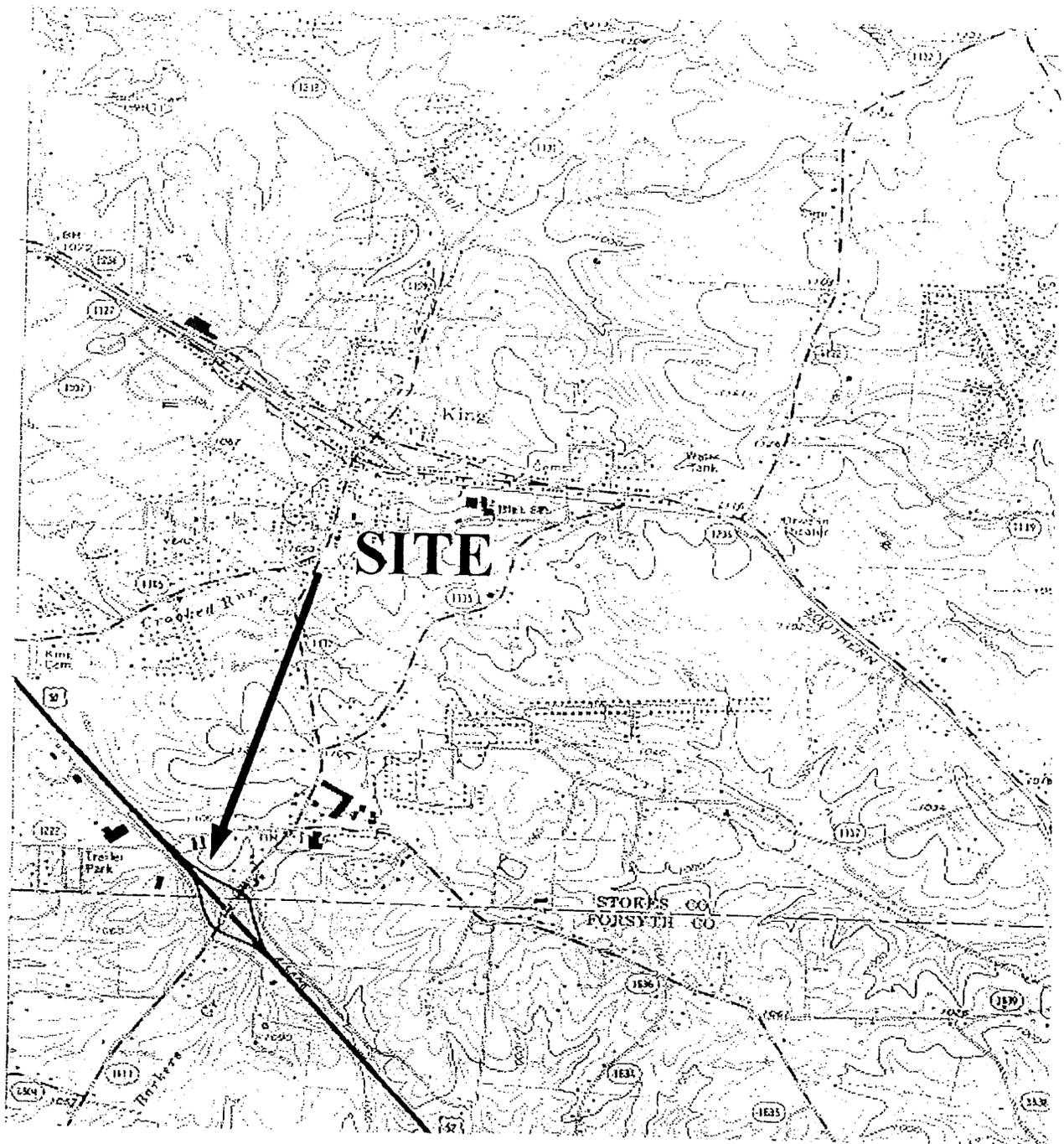
Well Number	Elevation of Top of Pipe (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)
MW-1	100.00	26.90	73.10
MW-2	99.62	23.03	76.59
MW-3	100.89	24.38	76.51

Notes:

- 1) Water levels measured by LAW personnel on September 26, 2001
- 2) Depths are measured from the top of the PVC riser pipe.
- 3) Elevations are referenced to an assumed site datum (top of PVC riser pipe at MW-1 = 100.0 feet).

Prepared/Date: JAB 10/10/01

Checked/Date: *[Signature]* 10/15/01



REF.: U.S.G.S. TOPOGRAPHIC MAP,
 KING NC QUADRANGLE,
 DATED 1964, PHOTOREVISED 1986.

 LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC. GREENSBORO, NORTH CAROLINA	
SITE TOPOGRAPHIC MAP McDONALD'S EXCESS LOT 032-9100 KING, NORTH CAROLINA	
PROJECT NO. 30740-0-4415-19	FIGURE 1

ANGELA DRIVE

MW-0.001

McDONALD'S RES

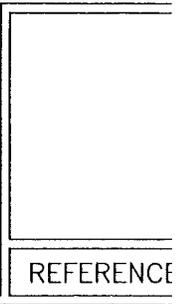
LEGEND

MW-3 MONITORING WELL LOCATION
 TOTAL BTEX CONCENTRATION
0.0011

 PROPERTY BOUNDARY

 LOCATION OF THE USTS

 ESTIMATED GROUNDWATER FLOW DIRECTION



KING CHEVRON GASOLINE STATION

CARMEL DRIVE

MW-2
5.976

DISPENSING CANOPY

RANT

MW-1
2.65

KING - TOBACCOVILLE ROAD
A.K.A. SOUTH MAIN STREET

FORMER KING SHELL
(PRESENTLY WENDY'S RESTAURANT)

TO U.S. HWY. 52

MARZIANO DRIVE

40-90124L



LAW

ENGINEERING AND ENVIRONMENTAL SERVICES, INC.
GREENSBORO, NORTH CAROLINA

BTEX CONCENTRATION MAP
KING-TOBACCOVILLE ROAD
DONALD'S EXCESS LOT 032-9100
KING, NORTH CAROLINA

DRAWN: JAB

DATE: OCTOBER 2001

DFT CHECK: *dfk*

SCALE: NTS

ENG CHECK: *JAS*

JOB: 30740-0-4415-19

APPROVAL: *FAK*

FIGURE: 2

SITE PLAN PROVIDED BY THE JOHN R. MCADAMS COMPANY, INC.; FIELD NOTES

ANGELA DRIVE

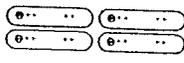
MV
76

McDONALD'S RESTAL

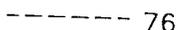
LEGEND

 MONITORING WELL LOCATION

 PROPERTY BOUNDARY

 LOCATION OF THE USTS

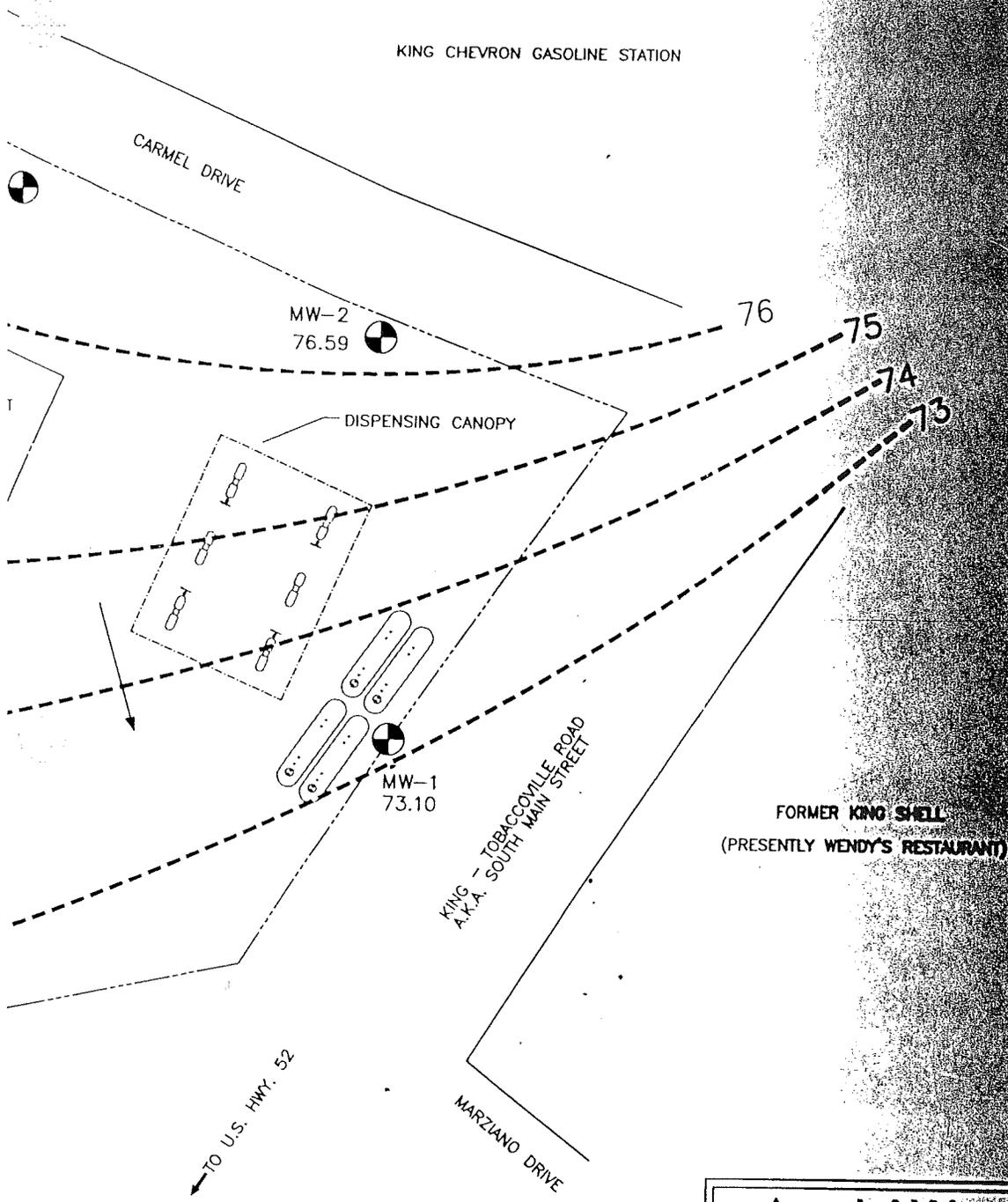
 ESTIMATED GROUNDWATER FLOW DIRECTION

 76 GROUNDWATER CONTOUR RELATIVE TO BENCHMARK

 BENCHMARK

GROU
Mc

REFERENCE:



LAW
 ENGINEERING AND ENVIRONMENTAL SERVICES, INC.
 GREENSBORO, NORTH CAROLINA

IDWATER ELEVATION CONTOUR MAP
 KING-TOBACCOVILLE ROAD
 DONALD'S EXCESS LOT 032-9100
 KING, NORTH CAROLINA

DRAWN: JAB	DATE: OCTOBER 2001
DFT CHECK: <i>M</i>	SCALE: NTS
ENG CHECK: <i>gas</i>	JOB: 30740-0-4415-19
APPROVAL: <i>RAK</i>	FIGURE: 3

PLAN PROVIDED BY THE JOHN R. MCADAMS COMPANY, INC.; FIELD NOTES

North Carolina
Department of Environment and Natural Resources

Division of Waste Management
UST Section

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director



January 25, 2002

CERTIFIED MAIL 7001 1940 0001 0340 0190
RETURN RECEIPT REQUESTED

Mr. R.F. Morris
Morris Oil Company, Inc.
7538 Lasater Road
Clemmons, NC 27012

Re: Notice of Violation of 15A NCAC 2L .0115
Risk-based Assessment and Corrective Action
for Petroleum Underground Storage Tanks

King Chevron Mart
King Tobaccoville Road, King, NC
Stokes County
Incident # Pending
High Risk Classification

Dear Mr. Morris:

Information received by this office on November 6, 2001 confirms a release or discharge at the Mc Donald's on Carmel Drive in King. Initial research indicates that you are the owner and operator of this UST system at the neighboring property of King Chevron. On December 18, 2001 you were sent a Notice of Regulatory Requirement requesting a site check and evaluation. I requested results from your system check by January 18, 2002. This letter is a standard notice explaining the violation(s) and associated corrective action(s) you must take as a result of the release or discharge in accordance with North Carolina statutes and rules. The Division of Waste Management, UST Section administers the state's rules for USTs and the required response for petroleum releases. Those rules are located in Title 15A, Subchapter 2L and Title 15A, Subchapter 2N of the North Carolina Administrative Code (NCAC).

VIOLATION 1:

Failure to investigate and confirm the suspected release pursuant to 15 A NCAC 2N.0603.

REQUIRED CORRECTIVE ACTION:

Please conduct a tank tightness test for each UST in accordance with federal regulation 40 CFR

Winston-Salem Regional Office, 585 Woughtown Street, Winston-Salem, North Carolina 27107-2241
Phone: 336-771-4600 \ FAX: 336-771-4632 \ Internet: www.enr.state.nc.us

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(as incorporated by 15 A NCAC 2N .0504) and a line tightness test for each piping system associated with a UST in accordance with 40 CFR 280.44 (b) (as incorporated in 15 A NCAC 2N .0505). Conduct a site check in accordance with 40 CFR 290.52 (b) (as incorporated by 15 NCAC 2N .0603) using the sampling protocol and methodology of the most recent version of the UST Section Closure Guidelines. In addition, it was recommended that two monitoring wells be installed, one between the King Chevron and Carmel Drive and one between the King Chevron and the Waffle House on the property line.

Please take the corrective action(s) for the above violation(s) as necessary to bring the site into compliance. Corrective actions must be taken and reported to the Winston-Salem Regional Office, within 30 days, unless otherwise noted in the above corrective actions, from the date of this notice to avoid recommendation of civil penalties for continuing violations.

Penalties may be assessed for the violation(s) described within this Notice of Violation. Your prompt attention to the items described herein is required. Failure to comply with the State's rules, in the manner and time specified, may result in the assessment of additional civil penalties and/or the use of other enforcement mechanisms available to the State. Each day that a violation continues may be considered a separate violation.

Please note that performing assessment and cleanup work that is not required under 15A NCAC 2L.0115 is not reimbursable from the Commercial or Noncommercial Leaking Petroleum Underground Storage Tank Cleanup Funds:

If you have any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at the letterhead address and/or phone number. If you have any questions regarding trust fund eligibility or reimbursement, please contact the UST Section at (336) 771-4608.

Sincerely,



Karen J. Hall
Hydrogeologist

cc: Rob Krebs – Mooresville Regional Office
Stokes County Health Department
WSRO files

North Carolina
Department of Environment and Natural Resources

Division of Waste Management
UST Section

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director

April 15, 2002



CERTIFIED MAIL 7001 1940 0001 0340 0749
RETURN RECEIPT REQUESTED

RECEIVED
N.C. Dept. of ENR
APR 19 2002
Winston-Salem
Regional Office

Mr. R. F. Morris
Morris Oil Company
P.O. Box 160
Clemmons, NC 27012

Re: Notice of Violation of 15A NCAC 2N .0603
Risk-based Assessment and Corrective Action
for Petroleum Underground Storage Tanks

King Chevron Mart
King Tobacoville Road, King, Stokes County, NC 27021
Incident # Pending
High Risk Classification.

Dear Mr. Morris:

Information received by this office on November 6, 2001 confirms a release or discharge from a petroleum underground storage tank (UST) system at the above-referenced location. Records indicate that you are the owner of this UST system. This letter is a standard notice explaining the violation(s) and associated corrective action(s) you must take as a result of the release or discharge in accordance with North Carolina statutes and rules. The Division of Waste Management, UST Section administers the state's rules for USTs and the required response for petroleum releases. Those rules are located in Title 15A, Subchapter 2L and Title 15A, Subchapter 2N of the North Carolina Administrative Code (NCAC).

VIOLATION 1:

Failure to submit a Site Check in accordance with 15A NCAC 2N .0603 to the UST Section within **30 days** of receipt of the Notice of Regulatory Requirements dated March 4, 2002.

REQUIRED CORRECTIVE ACTION:

Submit a site check in accordance with 2N .0603 and the UST Closure guidelines as requested by letter from this office on March 4, 2002.

Please take the corrective action(s) for the above violation(s) as necessary to bring the site into

Winston-Salem Regional Office, 585 Woughtown Street, Winston-Salem, North Carolina 27107-2241
Phone: 336-771-4600 \ FAX: 336-771-4632 \ Internet: www.cnr.state.nc.us

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compliance. Corrective actions must be taken and reported to the Winston-Salem Regional Office, within **20 days**, unless otherwise noted in the above corrective actions, from the date of this notice to avoid recommendation of civil penalties for continuing violations.

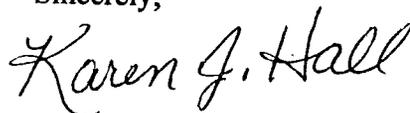
Penalties may be assessed for the violation(s) described within this Notice of Violation. Your prompt attention to the items described herein is required. Failure to comply with the State's rules, in the manner and time specified, may result in the assessment of additional civil penalties and/or the use of other enforcement mechanisms available to the State. **Each day that a violation continues may be considered a separate violation.**

Please note that performing assessment and cleanup work that is not required under 15A NCAC 2L.0115 is not reimbursable from the Commercial or Noncommercial Leaking Petroleum Underground Storage Tank Cleanup Funds.

Per our conversation on Thursday, April 11, 2002, I am enclosing the application for **State-Lead Trust Fund** evaluation. The **State-Lead Trust Fund** may assist you with the expenses of work done by an environmental company. You indicated in our conversation that you were not interested, but I hope that you will reconsider. If you do reconsider return the form with the requested information and a hand written note requesting that you be evaluated for the trust fund. Reimbursements can not be made until the application has been filed, reviewed, and deemed acceptable by the review board in Raleigh.

If you have any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at the letterhead address and/or phone number. If you have any questions regarding trust fund eligibility or reimbursement, please contact the UST Section at (919)733-8486.

Sincerely,



Karen J. Hall
Hydro Tech II

cc: Rob Krebs – Mooresville Regional Office
Stokes County Health Department
WSRO files

FO-4

North Carolina
Department of Environment and Natural Resources

Division of Waste Management

Michael F. Easley, Governor
William G. Ross Jr., Secretary
Dexter R. Matthews, Director



July 2, 2002

**CERTIFIED MAIL
RETURN RECEIPT REQUESTED**

Walter A. Hill, Sr.
Registered Agent
Hill Oil Company, Inc.
P.O. Box 367
Lexington, NC 27293

**Re: NOTICE OF VIOLATION OF 15A NCAC 2N
Criteria and Standards Applicable to Underground Storage Tanks**

King Chevron
718 South Main Street, King, NC
Stokes County
Facility ID # 0-031004

Dear Mr. Hill:

We understand that Hill Oil Company, Inc. has recently assumed ownership of the UST systems located at the above-referenced site. Please note that a general compliance inspection was conducted at the site on April 2, 2002. Based on that inspection, there are two violations that continue to exist relating to the upgrade that was performed on the UST systems. On April 10, 2002, a Notice of Violation (NOV) was issued to Morris Oil Company, Inc. The violations have not been corrected. As the current owner of the UST systems, Hill Oil Company, Inc. is now responsible for correcting these violations. The violations and corrective actions are described in detail below. For your information, the inspection report and NOV issued to Morris Oil Company, Inc. on April 10, 2002 are attached.

A site check report for this facility was completed by Hill Oil Company, Inc. and was received by this office on June 28, 2002. The report confirms a release or discharge from the UST systems. High levels of petroleum hydrocarbons were detected in soil samples from below certain pipes and dispensers. Some contamination was detected around Gasoline Tank #1. This NOV also sets forth initial response and abatement actions that Hill Oil Company must take to comply with the requirements of 15A NCAC 2N (attached).

A temporary permit has been issued for this facility for 31 days (Expires on July 31, 2002) with the understanding that after that date, the operating permit for this facility will not be renewed

Division of Waste Management/UST Section
1637 Mail Service Center, Raleigh, North Carolina 27689-1637
Phone: 919 - 733-8486 \ FAX: 919 - 733-9413
Internet: <http://wastenot.enr.state.nc.us/>

until the actions described in this notice are completed to the satisfaction of the Department.

VIOLATION 1:

Failure to ensure the integrity of an "existing tank system" prior to installing corrosion protection as required by federal regulation 40 CFR 280.21(b) (as incorporated by 15A NCAC 2N .0302).

REQUIRED CORRECTIVE ACTION:

All tanks installed before December 22, 1988 are defined as "existing tank systems". All "existing tank systems" that are upgraded by corrosion protection must have the integrity of the tank ensured.

The integrity of the tank installed for more than 10 years must be ensured by one of the following methods:

- (1) Conduct an internal inspection; OR
- (2) Use an alternative integrity assessment method that has been approved by the Division of Waste Management UST Section.

Please submit a description of the method used to ensure the integrity of the tanks; a copy of the invoices, the results of the integrity assessment and any other documentation of the completed work by July 31, 2002 to Cameron Weaver at the letterhead address.

VIOLATION 2:

Failure to have a corrosion expert design a field-installed cathodic protection system for an "existing tank system" as required by federal regulation 40 CFR 280.21(b)(2) (as incorporated by 15A NCAC 2N .0302)

REQUIRED CORRECTIVE ACTION:

All UST systems installed before December 22, 1988 are defined as "existing UST systems". Field installed cathodic protection systems must be designed by a "corrosion expert". The qualifications for a corrosion expert are defined in federal regulation 40 CFT 280.12 (as adopted by 15A NCAC 2N .0203). Please have a corrosion expert evaluate the cathodic protection system and certify that the system design is sufficient to protect the UST systems from corrosion. Please submit a cathodic protection system evaluation by July 31, 2002 to Mr. Cameron Weaver at the letterhead address.

VIOLATION 3:

Failure to take immediate action to prevent any further release of a regulated substance into the environment and abate the spread of contamination as required by federal regulation 40 CFR 280.61 and 40 CFR 280.62 (as incorporated by 15A NCAC 2N .0702 and .0703).

REQUIRED CORRECTIVE ACTION:

The site check recently conducted at this location indicates that there is significant contamination present below the dispensers and product lines at this facility. Some contamination was detected around Gasoline Tank #1. Per 15A NCAC 2N .0702 and 15A NCAC 2N .0703, you must take immediate action to prevent any further release of the regulated substance into the environment and identify and mitigate any fire, explosion and vapor hazards. This includes removing as much product from the UST system as necessary to prevent further release into the environment. You must also determine if free product is present and begin free product removal.

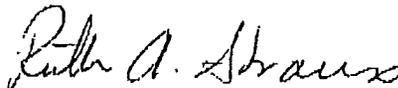
To determine the point(s) of the release, you must uncover the piping systems and assess the conditions underneath the dispensers. You must also determine the source of contamination at Gasoline Tank #1. If any defects or breaches in the equipment are found, the equipment must be replaced or repairs must be undertaken immediately in accordance with 15A NCAC 2N .0404. Please submit documentation of the condition of the UST systems, records of any repairs and replacements made and the results from any testing performed by July 31, 2002 to Cameron Weaver at the letterhead address.

Please notify Cameron Weaver or myself when the piping and area around the dispensers are uncovered. An inspector will visit the site to examine these areas.

Your prompt attention to the items described herein is required. Failure to comply with the State's rules in the manner and time specified, may result in the assessment of civil penalties and/or the use of other enforcement mechanisms available to the State. Each day that a violation continues may be considered a separate violation.

If you have any questions regarding the actions that must be taken or the rules mentioned in this notice, please contact Cameron Weaver or me at (919) 733-8486.

Sincerely,



Ruth A. Strauss

UST Permits and Inspection Branch Head

cc: Mayne Hill, Hill Oil Company, Inc.
Grover Nicholson, UST Section Chief
Annette Parker, RCO
Cindy Rintoul, WSRO
Michael Phelps, WSRO
Cameron Weaver, RCO



RECEIVED
N.C. Dept. of ENR

AUG 26 2002

Winston-Salem
Regional Office

Via: Overnight

August 23, 2002

Mr. Michael Phelps
North Carolina Department of Environment and Natural Resources
585 Waightown Street
Winston-Salem, North Carolina 27107-2241

RE: **Soil Assessment Report**
King Chevron
King, North Carolina
Shield Project No. 1020070-01

Dear Mr. Phelps:

Shield Engineering, Inc. (Shield) is submitting this Soil Assessment Report on behalf of Hill Oil Company for the King Chevron site. This letter/report summarizes the soil excavation and soil sampling work completed at the site. All work performed by Shield followed the North Carolina Department of Environment and Natural Resources (NCDENR) Guidelines for Tank Closure dated December 2000.

Site Check Investigation

In accordance with a letter from the NCDENR, Hill Oil Company, Inc. conducted a site check at the site in June 2002. This work included integrity testing of the underground storage tanks (USTs) and their piping and a subsurface investigation of the UST's, fill ports, product lines and dispensers following the NCDENR's Underground Storage Tank Section Guidelines for Tank Closure dated December 2000 as if the USTs were being closed in-place. The USTs and their piping passed the integrity testing. For the subsurface investigation, soil samples were analyzed for the appropriate total petroleum hydrocarbon (TPH), gasoline or diesel range, with respect to nearby USTs, product lines, and dispensers. The following areas showed TPH above the NCDENR action levels of 10 parts per million (ppm).

- The west side of the USTs
- The gasoline and gasoline/diesel dispensers
- The gasoline/diesel product lines
- The diesel UST fill port



Based on the integrity of the tanks, visual observations during the replacement of the piping, and the analytical data, the source of the release in the vicinity of PL-1, PL-2, PL-9, and UST-8 is suspected to be leaking pipes, which have now been replaced.

A summary of the soil sampling laboratory analytical results for the soil samples collected during the Site Check investigation is included as Table 1. A Site Check report including the laboratory data was submitted to the NCDENR on June 27, 2002.

Soil Excavation and Sampling

In response to the soil contamination detected during the Site Check investigation, Shield supervised the excavation of contaminated soil from the product lines and dispenser areas on July 30 and 31 2002. Contaminated soil was excavated in four areas where soil contamination was detected during the Site Check investigation.

One excavation was located near previous soil boring locations D-3 and PL-6, one excavation was located near previous soil sample location D-12, and one soil excavation was located near previous soil boring locations PL-1, PL-2, and PL-9. Soil was excavated to a depth of approximately seven feet below grade in each of these excavations, which was five feet below the dispensers and/or product lines, as allowed by the UST closure guidelines. Also as allowed by the UST closure guidelines, soil was also excavated up to five feet laterally from each side of the former dispensers and/or product lines. The size of the excavations were limited by the on-site structures and underground utilities. Due to the on-site structures and underground utilities, soil could not be excavated near soil boring locations PL-3 and D-13.

The fourth excavation was extended down three feet to the top of the USTs at the site, which included the area around the fill port and previous soil boring location FP-4 where soil contamination was detected during the Site Check. Shield did not supervise the removal of the soil from the top of the USTs, but on August 6, 2002, verified that the soil around the fill port near soil sample location FP-4 have been removed from the top of the tanks.

The soil was excavated by Petrosolve, Inc. and transported to Soil Solutions, Inc. for disposal. Approximately 196 tons of soil was removed from the top of the USTs, from the dispenser and product line area excavations, and from trenches excavated to remove the old and install the new product line piping and dispenser. See Figure 1 for the site location and Figure 2 for the soil excavation areas and soil sample locations. The Certificate of Acceptance for the soil disposal from Soil Solutions, Inc. is included as Appendix A.

On July 30 and 31, 2002, Shield collected post-excavation soil samples from the product line (PL-1A, PL-2A, PL-9A, SW-1, SW-2, SW-8, and SW-9) and dispenser (D-3A, D-12A, PL-6A, PL-6A Side 1, SW-3, SW-4, SW-5, SW-6, SW-7, SW-10 and SW-11) soil excavations. As required by Michael Phelps of the NCDENR, soil samples were collected at the bottom of each excavation

and from the sidewalls of the excavations. The soil samples collected were transported to Prism Laboratories, Inc., a North Carolina certified laboratory. The soil samples were analyzed using Environmental Protection Agency (EPA) methods 5030 and 3550 for TPH. Soil samples which showed TPH contamination above 10 ppm were also analyzed using EPA method 8260 by 5035 (volatiles), EPA method 8270 (semi-volatiles), and Massachusetts Department of Environmental Protection (MADEP) volatile petroleum hydrocarbon (VPH) and extractable petroleum hydrocarbon (EPH) methods.

Soil samples (PL-3A and D-13A) were also collected from soil boring locations PL-3 and D-13. Soil samples from PL-3 and D-13 showed TPH contamination above 10 ppm during the Site Check investigation. PL-3A was collected from underneath the product lines and D-13A was collected from underneath the gasoline dispenser area. Contaminated soil from these areas could not be excavated due to on-site structures and underground utilities. The soil samples from PL-3A was analyzed using EPA method 8260 by 5035 (volatiles), EPA method 8270 (semi-volatiles), and MADEP VPH and EPH methods. The soil samples from D-13 were analyzed using EPA method 8260 by 5035 (volatiles) and MADEP VPH method.

During the soil excavation work at the site, eight stockpile soil samples (SP-1 through SP-8) were collected from the excavated soil, as they were loaded into dump trucks for transport to Soil Solutions, Inc. for disposal. The eight soil samples were composited by Prism Laboratories, Inc. into one stockpile soil sample (SP-1-8 Comp). This soil sample was only analyzed using EPA methods 5030 and 3550.

Soil Sampling Results

Laboratory analytical results showed soil contamination above the NCDENR action levels and/or above the applicable Maximum Soil Contamination Concentration (MSCC) Soil to Groundwater standards from the product line and dispenser excavation areas. Soil sample D-3A, D-12A, D-13A, PL-1A, PL-2A, PL-3A, PL-6A, PL-9A, PL-6 Side 1, SW-1, SW-2, SW-3, SW-4, SW-5, SW-8, and SW-9 showed soil contamination above the NCDENR action levels for TPH and/or MSCC Soil to Groundwater standards. Soil sample SW-7 showed soil contamination above the NCDENR action levels for TPH, but no contamination above the MSCC Soil to Groundwater standards. Soil sample SW-6, SW-10, and SW-11 showed no soil contamination above the NCDENR action levels for TPH and therefore were not analyzed for the other parameters. Soil contamination above the NCDENR action levels for TPH was detected from the stockpile soil sample SP-1-8 Comp. A summary of the post-excavation soil sampling results is included as Table 2. A copy of the laboratory analytical data is included as Appendix B.

Recommendations

Based on the post-excavation soil sampling results, Shield recommends three groundwater monitoring wells be installed to complete the Limited Site Assessment (LSA) Phase I. The wells will be installed near soil boring location PL-6, near soil boring location D-12, and near soil boring locations PL-1, PL-2, PL-9, and UST-8 (since all of these are suspected to be from the

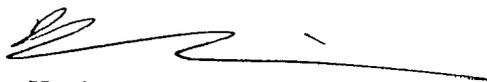
same source of the release and all being in close proximity to one another). The approximate location of the proposed monitoring wells is shown on Figure 2.

Hill Oil Company has replaced the product lines and dispensers at the site and has internally inspected the USTs. The cathodic protection system has also been re-certified by a N.A.C.E professional. Hill Oil Company will submit this information to the NCDENR UST Compliance Branch when final reports are received. Based on the above the NCDENR should re-issue the UST permit for the site.

If you have any questions concerning this letter/report, or any aspect of this project, please do not hesitate to contact us.

Sincerely,

SHIELD ENGINEERING, INC.



Kevin A. Simpson
Project Manager



David A. Stoner, P.G.
Principal Hydrogeologist

8-23-02

Figure 1: Site Location Map

Figure 2: Soil Excavation Map

Table 1: Summary of Site Check Sampling

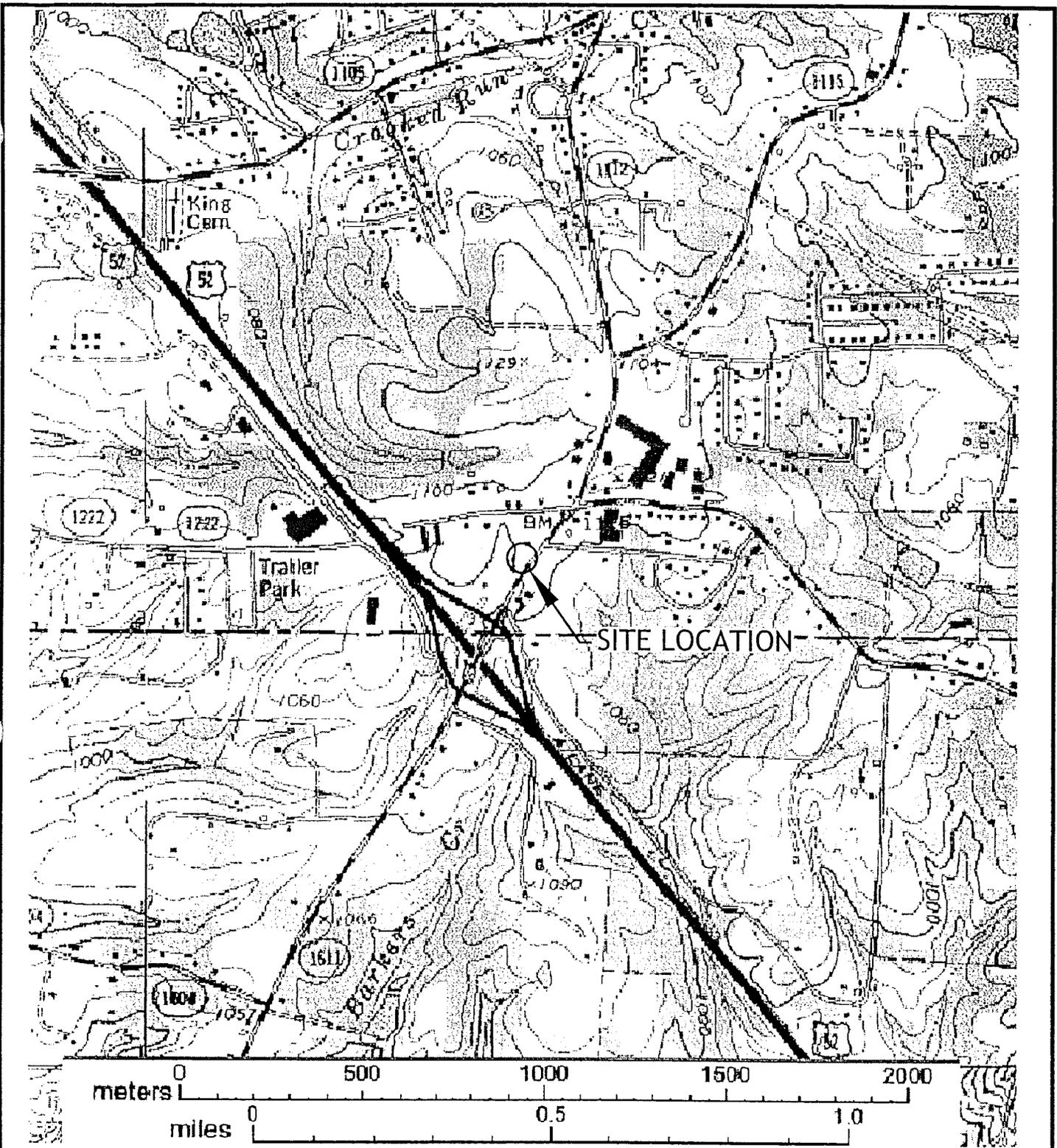
Table 2: Summary of Post-Excavation Soil Sampling Results

Appendix A: Certificate of Acceptance-Soil Disposal

Appendix B: Laboratory Analytical Data Reports

cc: File
Hill Oil Company
NCDENR UST Section-Ruth Strauss

H:\Assessment (0130)\2002\1020070\Soil Assessment.doc



SHIELD
ENGINEERING, INC.

4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
704-394-6913
704-394-6968 fax
www.shieldengineering.com

SITE LOCATION MAP

KING CHEVRON
718 SOUTH MAIN STREET
KING, NORTH CAROLINA
SHIELD # 1020070

DATE : 06/20/02

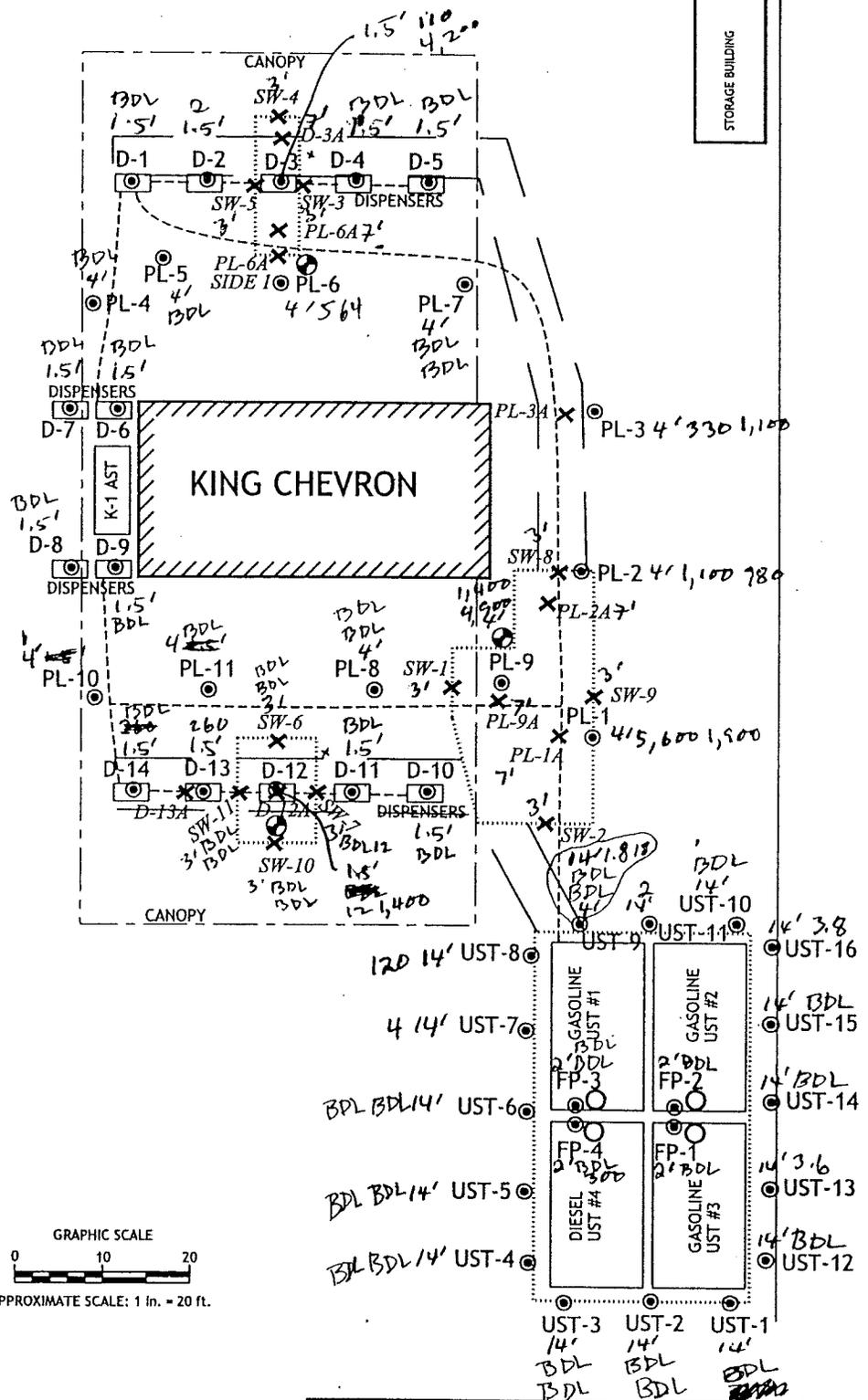
DRAWN BY : DE

SCALE : AS SHOWN

FIGURE : 1



CARMEL DRIVE



GRAPHIC SCALE
 0 10 20
 APPROXIMATE SCALE: 1 in. = 20 ft.

LEGEND:

- SOIL BORING LOCATION
- × SOIL SAMPLE LOCATION (ITALICIZED FONT)
- ⊙ PROPOSED LSA PHASE I MONITORING WELL LOCATION
- FORMER PRODUCT LINE
- SOIL EXCAVATION LIMITS
- NEW PRODUCT LINE TRENCH
- UST UNDERGROUND STORAGE TANK

NOTES:

1- ALL LOCATIONS ARE APPROXIMATE.



SHIELD
ENGINEERING, INC.

4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
704-394-6913
704-394-6968 fax
www.shieldengineering.com

SOIL EXCAVATION MAP

KING CHEVRON
718 SOUTH MAIN STREET
KING, NORTH CAROLINA
SHIELD # 1020070

DATE : 08/15/02	DRAWN BY : DE
SCALE : AS SHOWN	FIGURE : 2

H-ASSESSMEN 1020070 FIGURES 1020070 SE

Table 1
 Summary of Site Check Sampling
 Soil Samples
 King Chevron
 718 South Main Street
 King, North Carolina

Sample ID/Sample Location	Sample Date	Sample Type	Depth Below Ground (feet)	FID (ppm)	TPH 5030 (mg/kg)	TPH 3550 (mg/kg)
UST-1	06/06/02	GeoProbe™	14-15	40	BDL	NA
UST-2	06/06/02	GeoProbe™	14-15	NA	BDL	BDL
UST-3	06/06/02	GeoProbe™	14-15	25.7	BDL	BDL
UST-4	06/06/02	GeoProbe™	14-15	12.9	BDL	BDL
UST-5	06/06/02	GeoProbe™	14-15	9.5	BDL	BDL
UST-6	06/06/02	GeoProbe™	14-15	90	BDL	BDL
UST-7	06/06/02	GeoProbe™	14-15	1686	4.4	NA
UST-8	06/10/02	GeoProbe™	14-15	1418	120	NA
UST-9	06/06/02	GeoProbe™	4	114	BDL	BDL
UST-9	06/10/02	GeoProbe™	14-15	251	1.8	18
UST-10	06/10/02	GeoProbe™	14-15	2900	BDL	NA
UST-11	06/10/02	GeoProbe™	14-15	4911	2	NA
UST-12	06/10/02	GeoProbe™	14-15	503	BDL	NA
UST-13	06/10/02	GeoProbe™	14-15	7600	3.6	NA
UST-14	06/10/02	GeoProbe™	14-15	139	BDL	NA
UST-15	06/10/02	GeoProbe™	14-15	36.1	BDL	NA
UST-16	06/10/02	GeoProbe™	14-15	80.1	3.8	NA
D-1	06/06/02	Hand Auger	1.5	41	BDL	NA
D-2	06/06/02	Hand Auger	1.5	35	2	NA
D-3	06/06/02	Hand Auger	1.5	NA	110	4200
D-4	06/10/02	Hand Auger	1.5	82.3	BDL	NA
D-5	06/10/02	Hand Auger	1.5	57.4	BDL	NA
D-6	06/10/02	Hand Auger	1.5	16.8	BDL	NA
D-7	06/10/02	Hand Auger	1.5	68	BDL	NA
D-8	06/10/02	Hand Auger	1.5	25.8	BDL	NA
D-9	06/10/02	Hand Auger	1.5	28.1	BDL	NA
D-10	06/10/02	Hand Auger	1.5	37.1	BDL	NA
D-11	06/10/02	Hand Auger	1.5	63	BDL	NA
D-12	06/10/02	Hand Auger	1.5	1111	12	1400

Table 1
 Summary of Site Check Sampling
 Soil Samples
 King Chevron
 718 South Main Street
 King, North Carolina

Sample ID/Sample Location	Sample Date	Sample Type	Depth Below Ground (feet)	FID (ppm)	TPH 5030 (mg/kg)	TPH 3550 (mg/kg)
D-13	06/10/02	Hand Auger	1.5	503	260	NA
D-14	06/10/02	Hand Auger	1.5	5.6	BDL	NA
PL-1	06/10/02	Hand Auger	4	1%	5600	1900
PL-2	06/10/02	Hand Auger	4	2442	1100	980
PL-3	06/10/02	Hand Auger	4	1850	330	1100
PL-4	06/10/02	Hand Auger	4	185	BDL	NA
PL-5	06/10/02	Hand Auger	4	700	BDL	NA
PL-6	06/10/02	Hand Auger	4	2400	5.5	64
PL-7	06/10/02	Hand Auger	4	19.5	BDL	BDL
PL-8	06/10/02	Hand Auger	4	85	BDL	BDL
PL-9	06/10/02	Hand Auger	4	2%	4900	1400
PL-10	06/10/02	Hand Auger	4	1554	1	NA
PL-11	06/10/02	Hand Auger	4	162	BDL	NA
FP-1	06/10/02	Hand Auger	2	182	BDL	NA
FP-2	06/10/02	Hand Auger	2	34.3	BDL	NA
FP-3	06/10/02	Hand Auger	2	27.5	BDL	BDL
FP-4	06/10/02	Hand Auger	2	7.1	BDL	300

Notes:

FID = Flame Ionization Detector

TPH = Total Petroleum Hydrocarbons

NA = Not analyzed

BDL = Below the Method Detection Limit

mg/kg = Milligrams per kilogram

ppm = Parts per million

Bold numbers exceeded the NCDENR Action Levels

Summary of Post-Excavation Soil Sampling Results
 King Chevron
 Facility ID# 0-031004
 Incident # 24032

EPA Method 8260 (by 5035)

5030/3550

Analytical Method

Sample ID	Sample Depth (feet)	Date Collected	TPH	Benzene	Toluene	Ethyl benzene	Total Xylenes	Methyl tert-butyl ether (MTBE)	Isopropyl Ether (IPE)	N-Butylbenzene	N-Propylbenzene	Naphthalene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
SP-1-8 Comp	-	7/30/02	3400/890	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-3A	7	7/30/02	14000/8500	430	4400	1200	6200	740	BDL	79	660	320	3000	1100
D-12A	7	7/30/02	BDL/15	0.56	BDL	BDL	0.81	1.2	BDL	BDL	BDL	BDL	0.42	BDL
D-13A	3	7/31/02	NA	21	540	330	2000	BDL	BDL	70	190	280	1700	460
PL-1A	7	7/30/02	8900/2600	48	820	300	1500	3.3	BDL	94	230	150	1400	380
PL-2A	7	7/31/02	BDL/27	2.4	5.7	1.7	9	3.1	BDL	BDL	0.37	0.7	3	0.83
PL-3A	4	7/31/02	NA	0.068	0.054	0.057	0.14	0.46	BDL	BDL	0.019	0.074	0.59	0.038
PL-6A	7	7/30/02	4900/6100	220	2800	930	4000	250	BDL	63	480	290	2000	680
PL-9A	7	7/30/02	5200/1300	63	1200	300	1400	BDL	BDL	59	210	270	910	330
PL-6 SIDE 1	3	7/30/02	1600/45	49	940	400	2100	190	BDL	51	310	170	1200	430
SW-1	3	7/30/02	640/160	BDL	39	34	230	BDL	BDL	16	55	32	340	120
SW-2	3	7/30/02	BDL/18	0.065	0.22J	0.078	0.41	0.3	BDL	BDL	0.019	0.48	0.3	0.072
SW-3	3	7/31/02	690/290	BDL	160	91	430	70	BDL	11	59	37	220	93
SW-4	3	7/31/02	27/31	BDL	BDL	BDL	10	5.2	BDL	0.86	0.36	5.2	11	27
SW-5	3	7/31/02	1700/970	BDL	520	280	3800	BDL	BDL	BDL	280	230	2400	830
SW-6	3	7/31/02	BDL/BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-7	3	7/31/02	BDL/12	BDL	0.012	BDL	0.022	0.0077	BDL	BDL	BDL	0.013	0.018	BDL
SW-8	3	7/31/02	BDL/14	0.36J	0.75	0.31J	0.81	0.59J	BDL	0.018	0.1	0.49	0.44	0.22J
SW-9	3	7/31/02	5.7/74	BDL	0.9	1.5	14	BDL	BDL	9.6	8.4	23	98	30
SW-10	3	7/31/02	BDL/BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-11	3	7/31/02	BDL/BDL	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trip Blanks	--	7/31/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Soil to Groundwater MSCC (mg/kg)			-	0.0056	7	0.24	5	0.92	0.37	4	2	0.58	8	7
Residential MSCC (mg/kg)			-	22	3200	1560	32000	156	156	156	156	63	782	782
Industrial/Commercial MSCC (mg/kg)			-	200	82000	40000	200000	4088	4088	4088	4088	1635	20440	20440

MSCC = Maximum Soil Contamination Concentration

BDL = Below the method detection limit specified in the laboratory report

J = Above laboratory instrument calibration range

NA = Not analyzed

MADEP-VPH & EPH = Massachusetts Department of Environmental Protection - Volatile Petroleum Hydrocarbons & Extractable Petroleum Hydrocarbons

mg/kg or ppm = Milligrams per kilogram or parts per million

BDL numbers exceeded the MSCC (Soil to Groundwater) or NCDENR Action Levels

Summary of Post-Excavation Soil Sampling Results
 King Chevron
 Facility ID# 0-031004
 Incident # 24032

Analytical Method		EPA Method 8260 (by 5035)			EPA Method 8270			MADEP-VPH			MADEP-EPH		
Contaminant of Concern		Sec-Butyl- benzene	Isopropyl- benzene	P-Isopropyl- toluene	2-Methyl Naphthalene	Naph- thalene	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aliphatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aliphatics	
Sample ID	Sample Depth (feet)	Date Collected	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
SP-1-8 Comp	-	7/30/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
D-3A	7	7/30/02	54	180	26	79	9600	12000	4900	2700	BDL	NA	
D-12A	7	7/31/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	300	
D-13A	3	7/31/02	27	44	45	NA	BDL	1800	1100	NA	BDL	BDL	
PL-1A	7	7/30/02	37	45	9J	46	970	1600	850	920	BDL	NA	
PL-2A	7	7/31/02	BDL	BDL	BDL	BDL	13	BDL	2.4	BDL	BDL	230	
PL-3A	4	7/31/02	BDL	0.0058	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
PL-6A	7	7/30/02	42	160	63	58	13000	16000	6000	46	BDL	56	
PL-9A	7	7/30/02	23	43	11	36	1400	1600	900	750	BDL	160	
PL-6 SIDE 1	3	7/30/02	30	76	14	13	1100	1900	1000	BDL	BDL	BDL	
SW-1	3	7/30/02	8.5	8.8	BDL	2.4	BDL	BDL	310	110	BDL	62	
SW-2	3	7/30/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
SW-3	3	7/31/02	6.90	18	BDL	11	BDL	980	520	100	BDL	47	
SW-4	3	7/31/02	0.64	BDL	0.42	0.51	BDL	BDL	25	BDL	BDL	BDL	
SW-5	3	7/31/02	BDL	BDL	BDL	19	1200	3900	1800	240	BDL	75	
SW-6	3	7/31/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SW-7	3	7/31/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
SW-8	3	7/31/02	0.01	0.028	0.016	BDL	BDL	BDL	BDL	BDL	BDL	BDL	
SW-9	3	7/31/02	2.7	0.98	1.20	BDL	BDL	25	24	BDL	BDL	BDL	
SW-10	3	7/31/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SW-11	3	7/31/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Trip Blanks	--	7/30/02 &	NA	NA	NA	NA	BDL	BDL	BDL	NA	NA	NA	
Soil to Groundwater MSCC (mg/kg)			3	2	-	3	72	3255	34	3255	Immobilite	34	
Residential MSCC (mg/kg)			156	1564	-	63	939	9386	469	9386	93860	469	
Industrial/Commercial MSCC (mg/kg)			4088	40880	-	1635	24528	245280	12264	245280	245280	12264	

MSCC = Maximum Soil Contamination Concentration

BDL = Below the method detection limit specified in the laboratory report

J = Above laboratory instrument calibration range

NA = Not analyzed

MADEP-VPH & EPH = Massachusetts Department of Environmental Protection - Volatile Petroleum Hydrocarbons & Extractable Petroleum Hydrocarbons
 mg/kg or ppm = Milligrams per kilogram or parts per million

Bold numbers exceeded the MSCC (Soil to Groundwater) or NCDEMR Action Levels

H:/Assessment/2002/1020070/Excavation Soil Data-King Chevron

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**LIMITED SITE ASSESSMENT
 PHASE I AND II
 KING CHEVRON
 718 SOUTH MAIN STREET
 KING, STOKES COUNTY, NORTH CAROLINA
 GROUNDWATER INCIDENT No. 24032
 FACILITY ID No. 0-031004
 SHIELD PROJECT No. 1020070-01
 NOVEMBER 2002**

<p>Prepared For:</p> <p>Hill Oil Company P.O. Drawer 367 Lexington, NC 27292</p> <p>Contact:</p> <p>Mr. Mayne Hill (336) 248-5101</p>	<p>Consultant:</p> <p>Shield Engineering, Inc. 4301 Taggart Creek Road Charlotte, North Carolina 28208</p> <p>Contact:</p> <p>Mr. Kevin Simpson (704) 394-6913</p>	<p>Property Owner and Current UST Owner/Operator:</p> <p>Property Owner: Hill Oil Company, Inc.</p> <p>UST Owner: Hill Oil Company, Inc.</p>
--	---	--

Site Risk Classification: Pending	Site Latitude: 36° 15' 42" North
Land Use Category: Pending	Site Longitude: 80° 21' 49" West
Release Discovered: February 2002	Quantity Released: Unknown
Release Source(s): Diesel and gasoline USTs, dispensers, and/or product lines	Release Cause: Unknown

I, David A. Stoner, a Professional Geologist for Shield Engineering, Inc., do certify that the information contained in this report is correct and accurate to the best of my knowledge.


 Kevin A. Simpson
 Project Manager

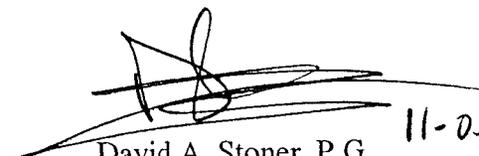

 David A. Stoner, P.G.
 Principal Hydrogeologist
 11-05-02



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Figure 10:	MTBE Isoconcentration Map
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Table 1:	Water Supply Well Survey Information (Adjacent Property Owner Information)
Table 2:	Summary of Well Construction and Groundwater Elevation Data
Table 3:	Summary of Analytical Results - Groundwater Samples
Table 4:	Summary of Site Check Sampling
Table 5:	Summary of Post-Excavation and LSA Phase I Soil Sampling Results

APPENDICES

Appendix A:	Boring Logs
Appendix B:	Laboratory Reports

H:\Assessment (0130)\2002\1020070\LSA PHASE II Report King Chevron.doc

1.0 SITE HISTORY

UST Site History					
Tank No.	Installation Date	Closure Date (Closed in-place)	Size in Gallons	Last Contents	Was a release associated with this UST?
1	1983	Still in-use*	12,000	Gasoline	Yes**
2	1983	Still in-use*	12,000	Gasoline	Yes**
3	1983	Still in-use*	12,000	Gasoline	Yes**
4	1983	Still in-use*	12,000	Diesel	Yes**

*- Product lines and dispensers for the UST systems were replaced and the USTs were inspected and lined in August 2002.

** - Contamination was detected from the UST basin, product lines, and dispenser areas. The contamination has commingled into one contaminant plume.

Hill Oil Company, Inc. is the owner of the underground storage tanks (USTs) at the site. The King Chevron site is an active fueling station and convenience store.

Based on a Notice of Regulatory Requirements (NORR) letter dated December 3, 2001 and a Notice of Violation (NOV) letter dated January 25, 2002 from the North Carolina Department of Environment and Natural Resources (NCDENR), Morris Oil Company (the former owner of the site and the USTs) contracted Engineering Consulting Services, LTD. (ECS) to install two groundwater monitoring wells to investigate a possible release from the UST system at the site. Groundwater contamination was detected. Groundwater contamination was also detected in monitoring wells at the McDonalds Restaurant/BP Gas Station located to the south of the site.

On February 13, 2002, ECS installed two groundwater monitoring wells (MW-1 and MW-2) at the site. Groundwater contamination was detected above the North Carolina Administrative Code (NCAC), 15A 2L Class GA Standards (2L Standards) in both monitoring wells. Additional information regarding this investigation and the laboratory analytical data was included in the Report of Environmental Services dated February 28, 2002 completed by ECS and submitted to the NCDENR.

In accordance with a letter from the NCDENR, Shield Engineering, Inc. (Shield) conducted a site check at the site in June 2002. This work included integrity testing of the USTs and their piping and a subsurface investigation of the UST's, fill ports, product lines and dispensers. The USTs and their piping passed the integrity testing. This subsurface investigation was conducted following the NCDENR's Underground Storage Tank Section Guidelines for Tank Closure dated December 2000 as if the USTs were being closed in-place. Soil contamination was detected above the NCDENR action levels in soil samples collected from the product line, dispenser, and UST areas. A Site Check report was completed by Shield and submitted to the NCDENR on June 27, 2002.

In response to the soil contamination detected during the Site Check investigation, approximately 196 tons of contaminated soil was excavated from the product lines and dispenser areas and from the top of the USTs. Contaminated soil was excavated in four areas where soil contamination was detected during the Site Check investigation.

Laboratory analytical results from the post excavation soil samples showed soil contamination above the NCDENR action levels and/or above the applicable Maximum Soil Contamination Concentration (MSCC) (Soil to Groundwater category as outlined in the "Groundwater Section Guidelines for the Investigation and Remediation of Soil & Groundwater", dated January 2, 1998) in the product line and dispenser excavation areas. A Soil Assessment report was completed by Shield and submitted to the NCDENR on August 23, 2002.

In a NORR letter dated July 1, 2002, the NCDENR required the completion of a Limited Site Assessment (LSA) at the site. The results of our investigation are discussed within.

The site location can be seen on the Site Location Map, Figure 1.

2.0 RISK CHARACTERIZATION:

2.1 Limited Site Assessment Risk Classification and Land Use Form

Part I – Groundwater/Surface Water/Vapor Impacts **High Risk**

1. Has the discharge or release contaminated any water supply well including any used for non-drinking purposes? **NO**
Not to our knowledge.

2. Is a water supply well used for drinking water located within 1,000 feet of the source area of the discharge or release? **NO**

No water supply wells were identified within 1,000 feet of the site.

The NCDENR's Request for Water Supply Well Information letter was hand delivered or mailed to all property owners/occupants within 500 feet of the site as required. A letter requesting information concerning the residents' source of water was mailed to all the other property owners/occupants within 1,500 feet of the site, whom were not interviewed during the site visit. Figure 2 depicts the approximate locations of supply wells within 1,500 feet of the site. Refer to Table 1 for specific information.

The supply well survey was conducted by walking and/or driving publicly accessible roads within a 1,500 foot radius of the site. During the survey, Shield personnel looked from the streets for supply wells and/or water meters and interviewed available residents when considered safe. Locations of addresses are approximate, based on perceived locations, using a topographical and tax map, and observations in the field. There may be other supply wells or water meters that were not readily visible at the time of our survey. Regarding the interviews and survey letter responses, we can only report what the interviewed parties told us and what was reported on the returned survey letters; we are not validating whether the information is correct. Section 3.0 Numbers 1 and 2, Figure 2 and Table 1 should not be used separately from this report.

3. Is a water supply well used for any purpose (e.g., irrigation, washing cars, industrial cooling water, filling swimming pools) located within 250 feet of the source area of the release or discharge? NO

Not to our knowledge.

4. Does groundwater within 500 feet of the source area of the discharge or release have the potential for further use in that there is no other source of water supply other than the groundwater? NO

Municipal water is available in this area.

5. Do vapors from the discharge or release pose a threat of explosion because of accumulation of the vapors in a confined space or pose any other serious threat to public health, public safety, or the environment? NO

Free product has been detected at the site. There are no confined spaces. The areas where contaminated soil and groundwater were detected are covered with concrete. However see the following section 3.0 number 6.

6. Are there any other factors that cause the discharge or release to pose an imminent danger to public health, public safety, or the environment? NO

Intermediate Risk

7. Is a surface water body located within 500 feet of the source area of the discharge or release? NO

No surface water body was observed within 500 feet of the site. The closest observed surface water body is approximately 1,005 feet north of the site. Another surface water body, which is shown on the topographical map for the area, was shown approximately 800 feet southeast of the site. This surface water body was not observed during our site visits.

If yes, does the maximum groundwater contaminant concentration exceed the surface water quality standards and criteria found in 15A NCAC 2B .0200 (2B Standard) by the factor of 10? N/A

8. Is the source area of the discharge or release located within a designated wellhead protection area as defined in 42 USC 300h-7(e)? NO

According to the NCDENR web page, no wellhead protection areas are located in Stokes County.

9. Is the discharge or release located in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985? NO

If yes, is the source area of the discharge or release located in an area in which there is recharge to the unconfined or semi-confined deeper aquifer that is being used or may be used as a source of drinking water? N/A

10. Do the levels of groundwater contamination for any contaminant exceed the gross contamination levels established by the Department? YES

Free product was detected in monitoring well MW-3 at the site.

Part II – Land Use

Property Containing Source Area of Discharge or Release

The questions below pertain to the property containing the source area of the release.

1. Does the property contain one or more primary or secondary residences (permanent or temporary)? NO

2. Does the property contain a school, daycare center, hospital, playground, park, recreation area, church, nursing home, or other places of public assembly? YES

The site operates as a convenience store and fueling station.

3. Does the property contain a commercial (e.g., retail, warehouse, office/business space, etc.) or industrial (e.g., manufacturing, utilities, industrial research and

development, chemical/petroleum bulk storage, etc.) enterprise, an inactive commercial or industrial enterprise, or is the land undeveloped? YES

Commercial enterprise

4. Do children visit the property? YES

5. Is access to the property reliably restricted consistent with its use (e.g., by fences, security personnel or both)? NO

6. Do pavement, buildings, or other structures cap the contaminated soil? YES

Concrete covers the area of contaminated soil and groundwater.

If yes, what mechanisms are in place or can be put into place to ensure that the contaminated soil will remain capped in the foreseeable future?

This is a commercial property with little possibility to become a residential property, and as such will require a paved parking area or a vehicular access area to conduct business.

7. What is the zoning status of the site?

The site is zoned General Business (B2)

8. Is the use of the property likely to change in the next 20 years? NO

Due to the location of the site and the fact that it has recently been fully upgraded, it is assumed that it will remain a convenience store and fueling station.

Property Surrounding Source Area of Discharge or Release

The questions below pertain to the area within 1,500 feet of the source area of the discharge or release (excludes property containing source area of the release):

9. What is the distance from the source area of the release to the nearest primary or secondary residence (permanent or temporary)?

The source area is approximately 400 feet southeast of a primary or secondary residence.

10. What is the distance from the source area of the release to the nearest school, daycare center, hospital, playground, park, recreation area, church, nursing home or other place of public use?

The site is surrounded by other commercial properties, which are places of public use.

11. What is the zoning status of properties in the surrounding area?

The properties immediately surrounding the site are zoned General Business (B2).

12. Briefly characterize the use and activities of the land in the surrounding area.

Commercial properties surround the subject site.

3.0 RECEPTOR INFORMATION

1. Water Supply Wells

No water supply wells were identified within 1,000 feet of the subject site. Figure 2 depicts the approximate locations of supply wells within 1,500 feet of the site. Refer to Table 1 for specific information. Municipal water is available in the area.

2. Public Water Supplies

No public water supplies were identified within 1,500 feet of the site.

3. Surface Water

No surface water body was observed within 500 feet of the site. The closest observed surface water body is approximately 1,005 feet north of the site. Another surface water body, which is shown on the topographical map for the area, was shown approximately 800 feet southeast of the site. This surface water body was not observed during our site visits.

4. Wellhead Protection Areas

According NCDENR web page, there are no designated wellhead protection areas in Stokes County.

5. Deep Aquifers in the Coastal Plain Physiographic Region

Not Applicable

6. Subsurface Structures

Underground utilities have been identified at the site. Soil contamination may be in contact with these underground utilities. Groundwater is approximately 25 feet below grade at the site. The underground utilities are shallower than 25 feet and therefore, would not be considered receptors or conduits for the groundwater contamination migration. Free product has been observed at the site and vapors may impact subsurface structures at the site. See Figure 3 for the approximate location of underground utilities at the site.

7. Land Use

The land use of this area is characterized as commercial and residential.

8. Property Owners and Occupants

Refer to Table 1, which lists property owners/occupants within 1,500 foot of the impacted area.

4.0 GEOLOGY AND HYDROGEOLOGY

4.1 Area Geology and Hydrogeology

The project site is located in the Sauratown Mountains Anticlinorium, an area underlain by ancient igneous and metamorphic rocks. The virgin soils encountered in this area are the residual product of in-place chemical weathering of rock, which was similar to the rock presently underlying the site. In areas not altered by erosion or disturbed by the activities of man, the typical residual soil profile consists of clayey soils near the surface, where soil weathering is more advanced, underlain by sandy silts and silty sands. The boundary between soil and rock is not sharply defined. This transitional zone termed "partially weathered rock" is normally found overlying the parent bedrock. Partially weathered rock is defined, for engineering purposes, as residual material with standard penetration resistances in excess of 100 blows per foot. Weathering is facilitated by fractures, joints and by the presence of less resistant rock types. Consequently, the profile of the partially weathered rock and hard rock is quite irregular and erratic, even over short horizontal distances. Also, it is not unusual to find lenses and boulders of hard rock and zones of partially weathered rock within the soil mantle, well above the general bedrock level.

Surface and subsurface drainage patterns provide an indication of the direction in which contaminants, if present, would be transported by surface waters or groundwater. The movement of groundwater through soil and rock is dependent upon the effects of geological features, such as bedding, faults, folds or foliation planes on groundwater flow. Groundwater recharge within the Piedmont region occurs mostly from precipitation on upland areas above flood plains. The residual soils and saprolite act as an infiltration medium for precipitation to seep into the fractures and joints of the underlying bedrock. Discharge from the system occurs as seepage springs that are

common near the bases of slopes and at the intersection with surface water features such as streams and lakes.

4.2 Site and Subsurface Conditions

Shield personnel logged soil classifications based on the Unified Soil Classification system. The soil lithology at the site generally consisted of silty clays, clayey silts, silty sands, and sandy silts. According to the Geologic Map of North Carolina (1985) the site is underlain by granitic gneiss. Bedrock was not encountered during the installation of the groundwater monitoring wells at the site. Boring Logs for MW-3, MW-4, MW-5, MW-6, DMW-1, and DMW-2 that represent the soil lithology at the site are located in Appendix A. The boring logs for MW-1 and MW-2 were submitted to the NCDENR in the report by ECS dated February 28, 2002.

On October 18, 2002 Shield measured the depth to water in monitoring wells MW-1 through MW-6, DMW-1, and DMW-2. Based on the groundwater elevation data, the groundwater flow direction was determined to be towards the south at the site. Figure 4 shows the groundwater flow direction at the site. The hydraulic gradient was calculated to be approximately 0.0058 feet per foot between MW-1 and MW-6. Table 2 shows the groundwater elevation data collected.

5.0 SAMPLING RESULTS

5.1 Previous Investigations

Based on a NORR letter dated December 3, 2001 and a NOV letter dated January 25, 2002 from the NCDENR, Morris Oil Company (the former owner of the site and the USTs) contracted ECS to install two groundwater monitoring wells to investigate a possible release from the UST system at the site. Groundwater contamination was detected. Groundwater contamination was also detected from monitoring wells at the McDonalds Restaurant/BP Gas Station located to the south of the site.

On February 13, 2002, ECS installed two groundwater monitoring wells (MW-1 and MW-2) at the site. Groundwater samples were collected from the groundwater monitoring well MW-1 and MW-2. The groundwater samples were analyzed by Paradigm Analytical Laboratories utilizing United States Environmental Protection Agency (USEPA) Methods 601 and 602 with isopropyl ether (IPE), methyl tert-butyl ether (MTBE), and xylenes, USEPA Method 625 plus the 10 most prominent TICs, and volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) using the Massachusetts Department of Environmental Protection (MADEP) Method. Groundwater contamination was detected above the 2L Standards in both monitoring wells. A summary of the analytical results for the groundwater samples is located in Table 3. Additional information regarding this investigation and the laboratory analytical

data was included in the Report of Environmental Services dated February 28, 2002 completed by ECS and submitted to the NCDENR.

In accordance with a letter from the NCDENR, Shield conducted a site check at the site in June 2002. This work included integrity testing of the USTs and their piping and a subsurface investigation of the UST's, fill ports, product lines and dispensers. The USTs and their piping passed the integrity testing. The subsurface investigation was conducted following the NCDENR's Underground Storage Tank Section Guidelines for Tank Closure dated December 2000 as if the USTs were being closed in-place. Soil samples were analyzed for the appropriate total petroleum hydrocarbon (TPH), gasoline or diesel range, with respect to nearby USTs, product lines, and dispensers. The following areas showed TPH above the NCDENR action levels of 10 parts per million (ppm).

- The west side of the USTs
- The gasoline and gasoline/diesel dispensers
- The gasoline/diesel product lines
- The diesel UST fill port

The source of the release in the vicinity of soil sample locations PL-1, PL-2, PL-9, and UST-8 is suspected to be leaking pipes, which have now been replaced. This is based on the integrity of the tanks, visual observations during the replacement of the piping, and the analytical data.

A summary of the soil sampling laboratory analytical results for the soil samples collected during the Site Check investigation is included as Table 4. The soil sample locations as shown on Figure 5. A Site Check report including the laboratory data was submitted to the NCDENR on June 27, 2002.

In response to the soil contamination detected during the Site Check investigation, approximately 196 tons of contaminated soil was excavated from the product lines and dispenser areas and from the top of the USTs in July and August 2002. Contaminated soil was excavated in four areas where soil contamination was detected during the Site Check investigation.

Post excavation soil samples were collected and transported to Prism Laboratories, Inc., a North Carolina certified laboratory. The soil samples were analyzed using USEPA methods 5030 and 3550 for TPH. Soil samples which showed TPH contamination above 10 ppm were also analyzed using USEPA method 8260 by 5035 (volatiles), USEPA method 8270 (semi-volatiles), and MADEP VPH and EPH methods. This analytical protocol was previously reviewed with the NCDENR case manager.

Laboratory analytical results from the post excavation soil samples in the product line and dispenser excavation areas showed soil contamination above the NCDENR action levels and/or above the applicable MSCC (Soil to Groundwater standards). A summary of the post-excavation soil sampling results is included in Table 5. Figure 5 shows the soil sampling locations and extent of the soil excavations. A Soil Assessment report was

completed by Shield and submitted to the NCDENR on August 23, 2002. A copy of the laboratory analytical data was included in the Soil Assessment report submitted to the NCDENR.

5.2 Phase I & II Investigations

On September 12 and 13, 2002 three groundwater monitoring wells, MW-3, MW-4, and MW-5 were installed within the area of soil contamination at the site following NCDENR Guidelines for Assessment and Corrective Action, dated April 2001, effective July 1, 2001 (Guidelines). As approved by the NCDENR, the three monitoring wells were installed in the areas, which showed the highest levels of soil contamination during the site check investigation.

As required, soil samples were collected every 10 feet below grade during the installation of MW-3, MW-4, and MW-5 at the site. Samples were collected every 10 feet since the groundwater level at the site was deeper than 25 feet. The soil samples were analyzed by Prism Laboratories, Inc. (North Carolina Certification #402) utilizing EPA method 8260 by 5035 (volatiles), EPA method 8270 (semi-volatiles), and MADEP VPH and EPH methods. Petroleum hydrocarbon constituents exceeding the MSCC (Soil to Groundwater standards) were detected in soil samples collected from all three monitoring wells. A summary of the soil analytical results is located in Table 5. The laboratory analytical results are included in Appendix B.

Groundwater samples were collected from groundwater monitoring wells MW-3, MW-4, and MW-5. The groundwater samples were analyzed by Prism Laboratories, Inc. utilizing USEPA Methods 601 and 602 with IPE, MTBE, and xylenes. USEPA Method 625 plus the 10 most prominent TICs, USEPA Method 504.1 for ethylene dibromide (EDB), Method 3030c for lead and VPH and EPH using the MADEP Method. The laboratory analytical results are included in Appendix B. A summary of the analytical results for the groundwater samples is located in Table 3.

Since petroleum hydrocarbon constituents were detected ten times higher than the 2L Standards in groundwater samples collected from MW-3, MW-4, and MW-5, three additional monitoring wells were installed in accordance with NCDENR requirements. One well (MW-6) was installed in the upgradient direction of the source area. Downgradient and upgradient were based on the top of casing survey and groundwater level measurements at the site. In addition, two vertical extent wells (DMW-1 and DMW-2) were installed as required by the NCDENR. These two wells were approximately 75 feet deep. Since bedrock was not encountered during the installation of DMW-1 and DMW-2 these well were installed as Type II wells. Monitoring wells MW-1 and MW-2, which were installed during the previous investigation at the site, were used as the two required downgradient monitoring wells.

Groundwater samples were collected from monitoring wells, MW-1, MW-2, MW-6, DMW-1, and DMW-2 on October 9, 2002. The groundwater samples were analyzed by

Prism Laboratories, Inc. utilizing USEPA Methods 601 and 602 with IPE, MTBE, and xylenes, USEPA Method 625 plus the 10 highest TICs, USEPA Method 504.1 for EDB, Method 3030c for lead and VPH and EPH using the MADEP Method. The laboratory analytical results are included in Appendix B. A summary of the analytical results for the groundwater samples is located in Table 3. Contaminant concentration maps are included as Figures 6 through 14. Boring log and Well Construction records are included in Appendix A.

Monitoring well MW-1, MW-2, MW-4, MW-5, MW-6, DMW-1, and DMW-2 contain petroleum hydrocarbon constituents above the 2L Standards. Approximately 1.35 feet of free product was detected in MW-3, which exceeds the NCDENR gross contamination levels (GCLs). Contaminant levels in MW-1, MW-2, MW-4, MW-5, MW-6, DMW-1, and DMW-2 were not detected above the GCLs.

6.0 CONCLUSIONS AND RECOMMENDATIONS

No drinking water supply wells have been identified within 1,000 feet of the site. No surface water bodies were identified within 500 feet of the site. The site and surrounding properties are commercial properties. Groundwater contamination has been detected above the 2L Standards, but below the GCLs, in MW-1, MW-2, MW-4, MW-5, MW-6, DMW-1, and DMW-2. Approximately 1.35 feet of free product has been detected in MW-3 at the site, which is above the GCLs. Petroleum hydrocarbon constituents were detected above the MSCCs (Soil to Groundwater and Residential Standards) but below the MSCCs (Industrial/Commercial Standards) in the soil samples collected at the site.

Based on the above, NCDENR guidelines will require that a Comprehensive Site Assessment be completed at the site. The horizontal extent of the groundwater contamination will have to be determined. The vertical extent of the groundwater contamination has been adequately defined by DMW-1 and DMW-2. Also the horizontal and vertical extent of the soil contamination will need to be determined.

Shield recommends performing Mobile Multi-Phase Extraction (MMPE) events at the site to help remove the free product from the area around MW-3. We would like the NCDENR to consider this recommendation and discuss it in further detail with Shield.

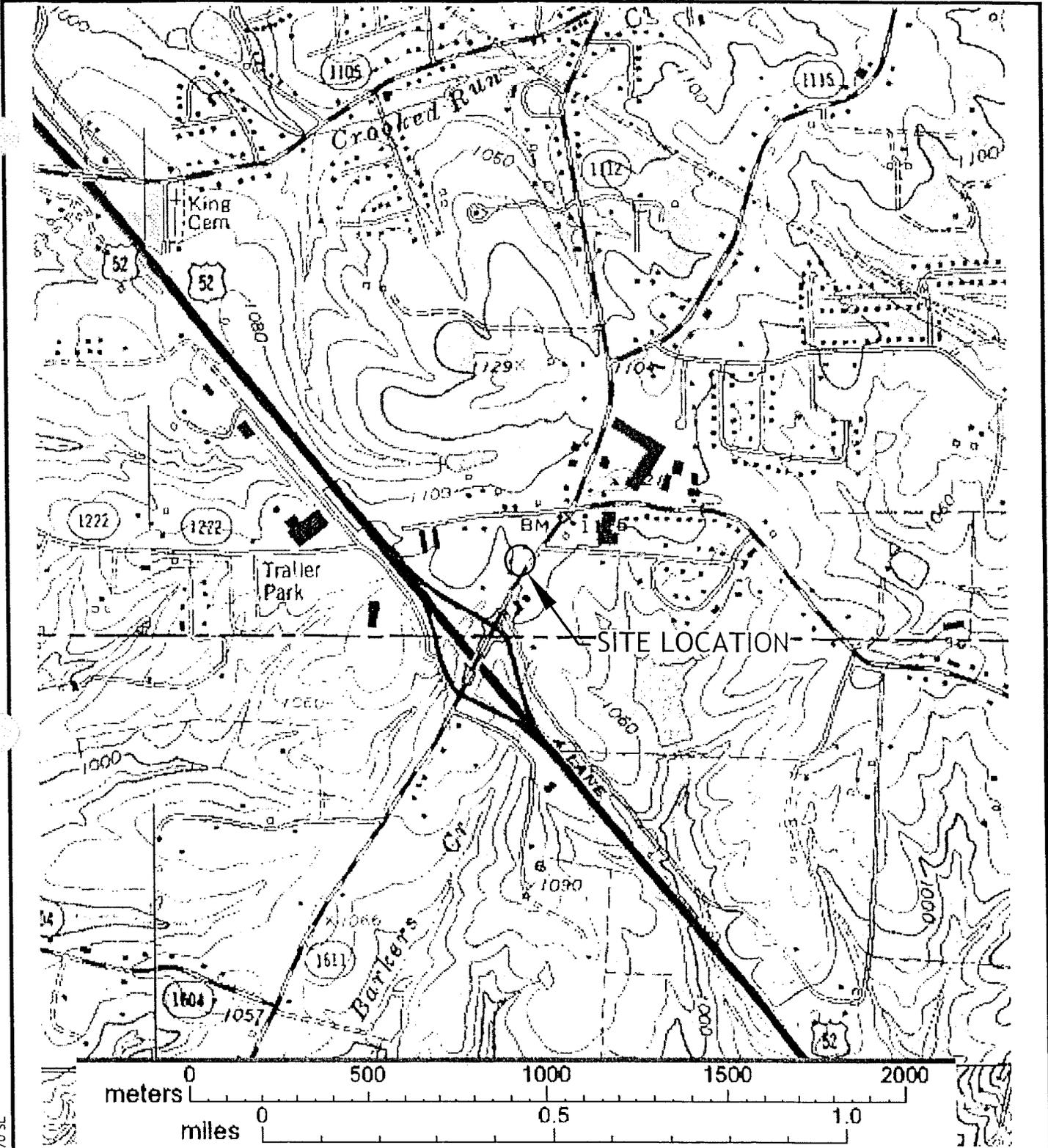
7.0 LIMITATIONS

Shield was contracted by Hill Oil Company, Inc. to perform assessment activities at the subject site in accordance with the Scope of Services outlined in Shield Project/Proposal 1020070. Shield has performed this scope of work as an independent contractor/consultant using reasonable care and skill in accordance and consistent with customary industry standards of engineering, geology, and hydrogeology practices. This standard of care is the sole and exclusive standard of care that can be applied to measure

Shield's performance of the work. No other warranty, expressed or implied is made or intended by Shield.

The report has been prepared for the exclusive use by Hill Oil Company, Inc. All recommendations, findings, and conclusions, made by Shield have been made to the best of Shield's knowledge, opinion and belief, based upon information obtained during this assessment, and is limited by the scope nature and type of services as agreed upon between Hill Oil Company, Inc. and Shield. Conclusions are provided with the understanding that Shield is presenting information and not rendering legal advice. If such advice is needed, legal counsel should be consulted. It is the responsibility of Hill Oil Company, Inc. under advice of its counsel to notify the appropriate federal, state, or local public agencies as required by law; or otherwise to disclose in a timely manner, any information that may be necessary to prevent damage to human health, safety, or the environment.

Compliance with recommendations provided as part of this report in no way assures compliance with federal, state and/or local laws, regulations, and/or requirements. Furthermore, unless otherwise indicated, Shield did not attempt to ascertain whether current or previous owners or occupants of the subject site have complied with federal, state or local laws, regulations, and/or requirements. Analytical data has been obtained from Prism Laboratories, Inc. This information, to the extent that it was relied on to generate this environmental evaluation, is assumed to be correct and complete. The work performed in conjunction with this evaluation and the data developed are intended as a description of available information at the dates and specific locations given. Shield is not responsible for inspecting, examining, or reporting findings or recommendations with respect to any conditions that were knowingly or unknowingly withheld, concealed, hidden, or in any way not disclosed or observable at the time of this investigation.



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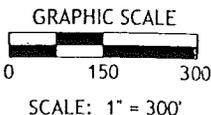
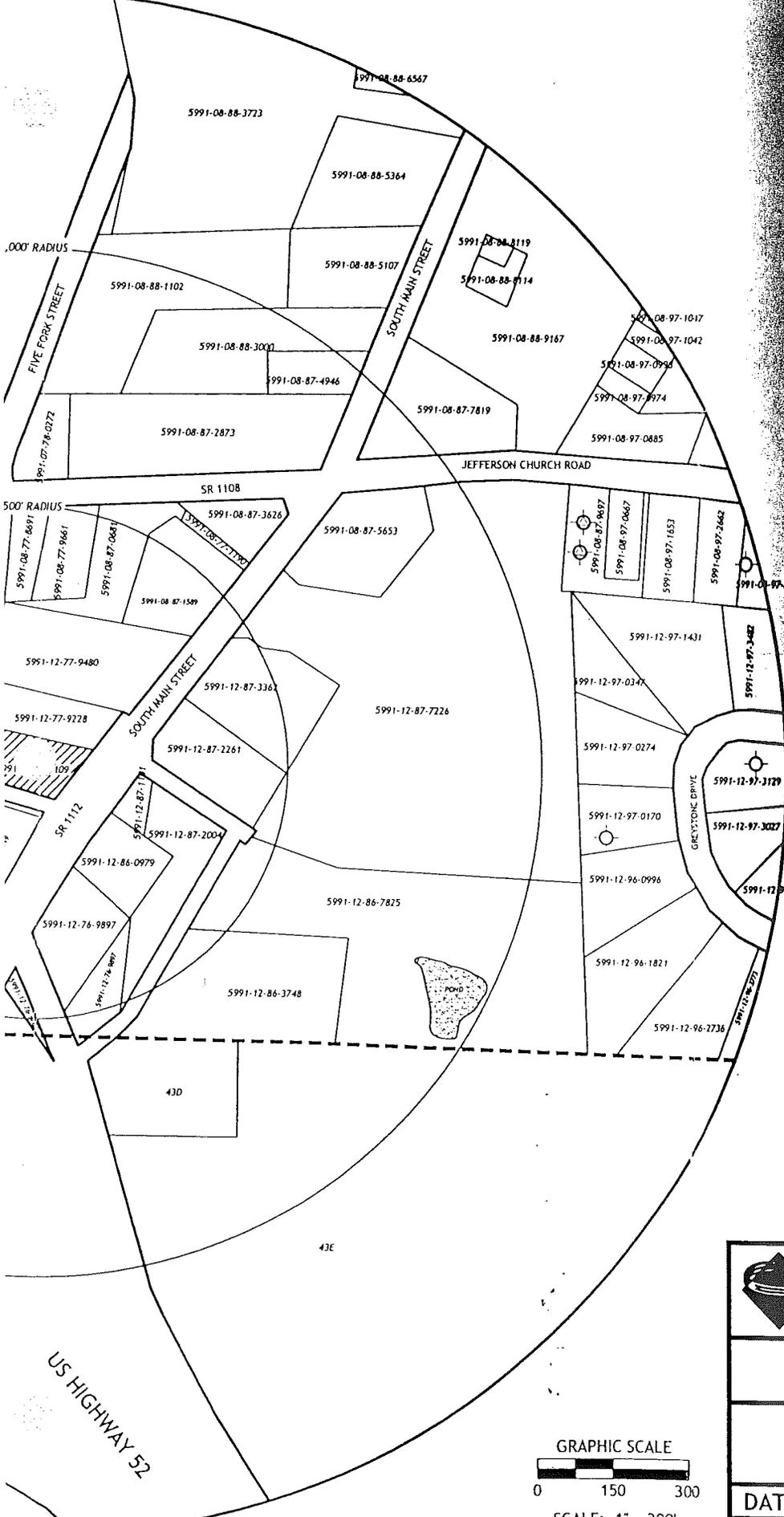
	SHIELD ENGINEERING, INC.		4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-6913 704-394-6968 fax www.shieldengineering.com
	SITE LOCATION MAP		
KING CHEVRON 718 SOUTH MAIN STREET KING, NORTH CAROLINA <small>S- E.D # 1020070</small>			
DATE :	10/24/02	DRAWN BY :	DE
SCALE :	AS SHOWN	FIGURE :	1

1,500' RADIUS

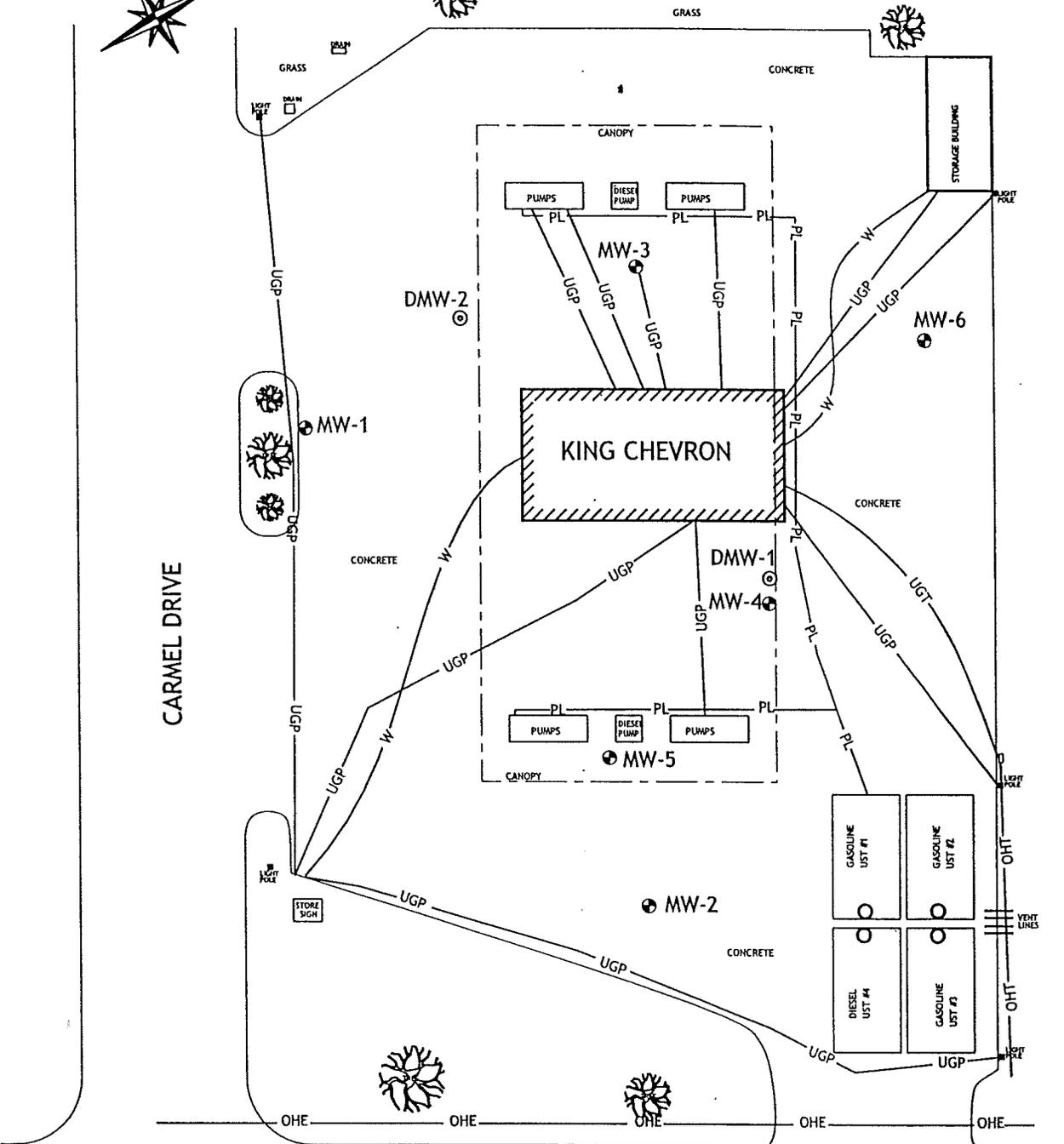
500' RADIUS

500' RADIUS

US HIGHWAY 52

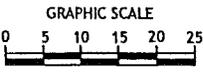


 SHIELD ENGINEERING, INC.	4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-6913 704-394-6968 fax www.shieldengineering.com		
	1,500' RADIUS MAP		
KING CHEVRON 718 SOUTH MAIN STREET KING, NORTH CAROLINA SHELD # 1020070			
DATE :	10/24/02	DRAWN BY :	KS
SCALE :	AS SHOWN	FIGURE :	2



LEGEND:

- SHALLOW TYPE II MONITORING WELL LOCATION
- DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- W WATER LINE
- OHE OVERHEAD ELECTRIC
- UGP UNDERGROUND POWER
- UGT UNDERGROUND TELEPHONE
- OHT OVERHEAD TELEPHONE
- PL PRODUCT LINE



APPROXIMATE SCALE: 1 in. = 25 ft.

NOTES:

1- ALL LOCATIONS ARE APPROXIMATE.



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704-394-6968 fax
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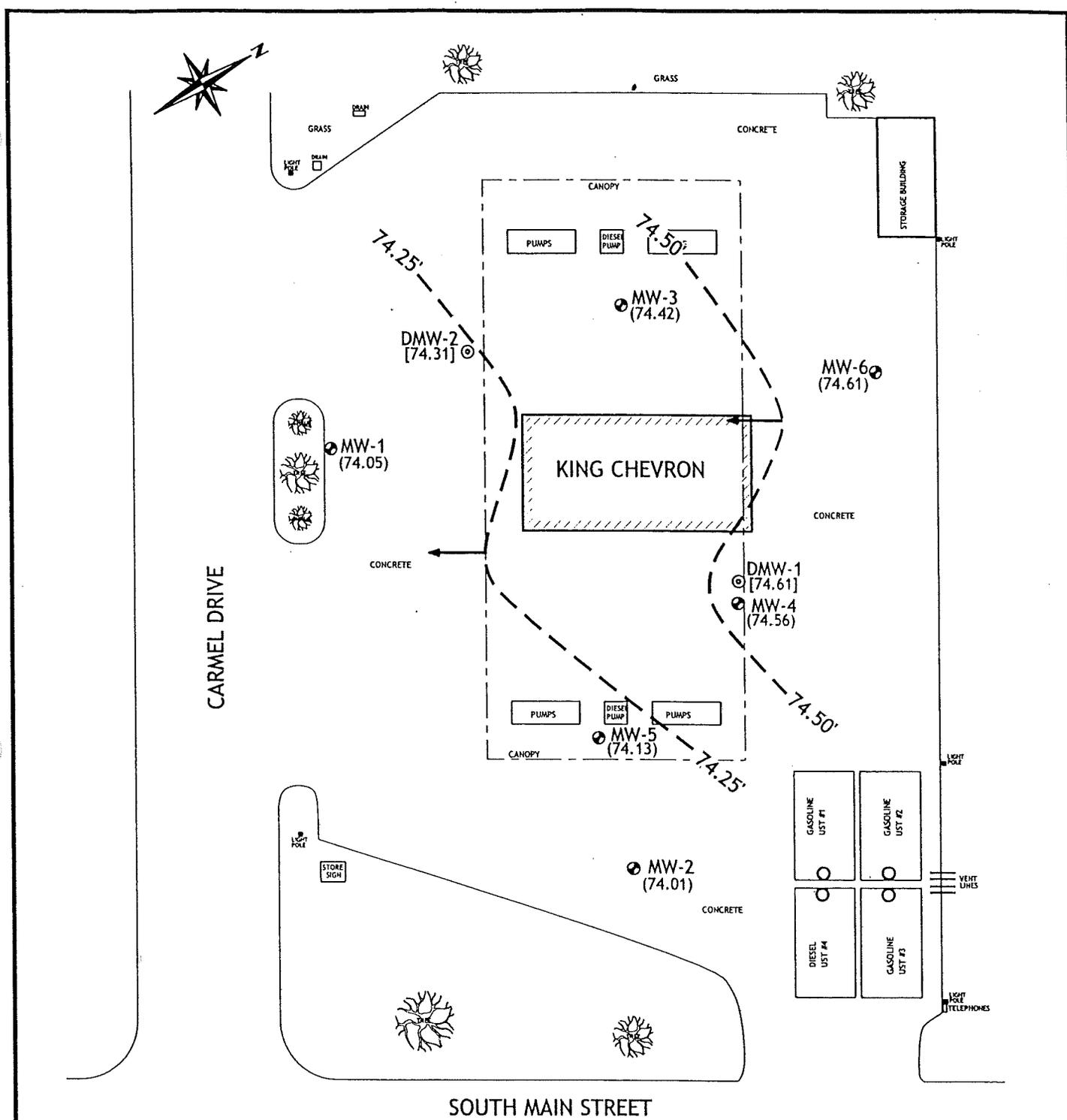
SITE MAP

KING CHEVRON
718 SOUTH MAIN STREET
KING, NORTH CAROLINA
SHIELD # 1020070

DATE : 10/24/02	DRAWN BY : DE
SCALE : AS SHOWN	FIGURE : 3

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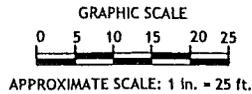


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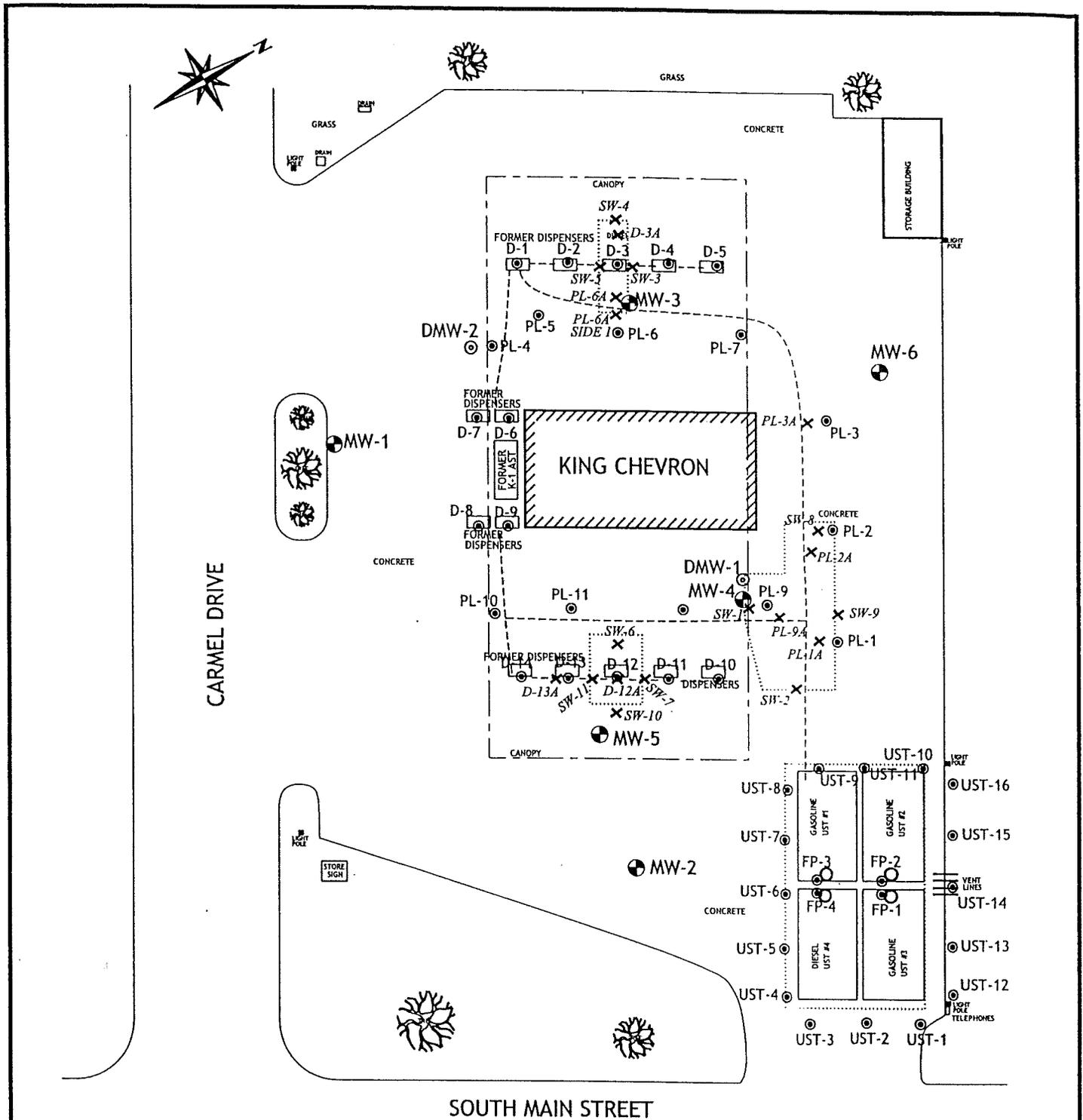
- SHALLOW TYPE II MONITORING WELL LOCATION
- DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- (74.05) GROUNDWATER ELEVATION (FEET)
- [74.61] GROUNDWATER ELEVATION NOT USED IN CONTOURING (FEET)
- - - GROUNDWATER ELEVATION CONTOUR LINE (FEET)
- GENERALIZED GROUNDWATER FLOW DIRECTION

NOTES:

- 1- DEPTHS TO GROUNDWATER MEASURED ON 10/18/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



	<p>SHIELD ENGINEERING, INC.</p>		4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-8913 704-394-8988 fax www.shieldengineering.com
	<p>GROUNDWATER ELEVATION CONTOUR MAP</p>		
<p>KING CHEVRON 718 SOUTH MAIN STREET KING, NORTH CAROLINA SHIELD # 1020070</p>			
DATE :	10/24/02	DRAWN BY :	DE
SCALE :	AS SHOWN	FIGURE :	4

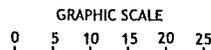


LEGEND:

- ⊙ SOIL BORING LOCATION
- ✕ SOIL SAMPLE LOCATION (ITALICIZED FONT)
- ⊕ SHALLOW TYPE II MONITORING WELL LOCATION
- ⊙ DEEP TYPE II MONITORING WELL LOCATION
- FORMER PRODUCT LINE
- SOIL EXCAVATION LIMITS
- UST UNDERGROUND STORAGE TANK

NOTES:

1- ALL LOCATIONS ARE APPROXIMATE.



APPROXIMATE SCALE: 1 in. = 25 ft.



SHIELD ENGINEERING, INC.

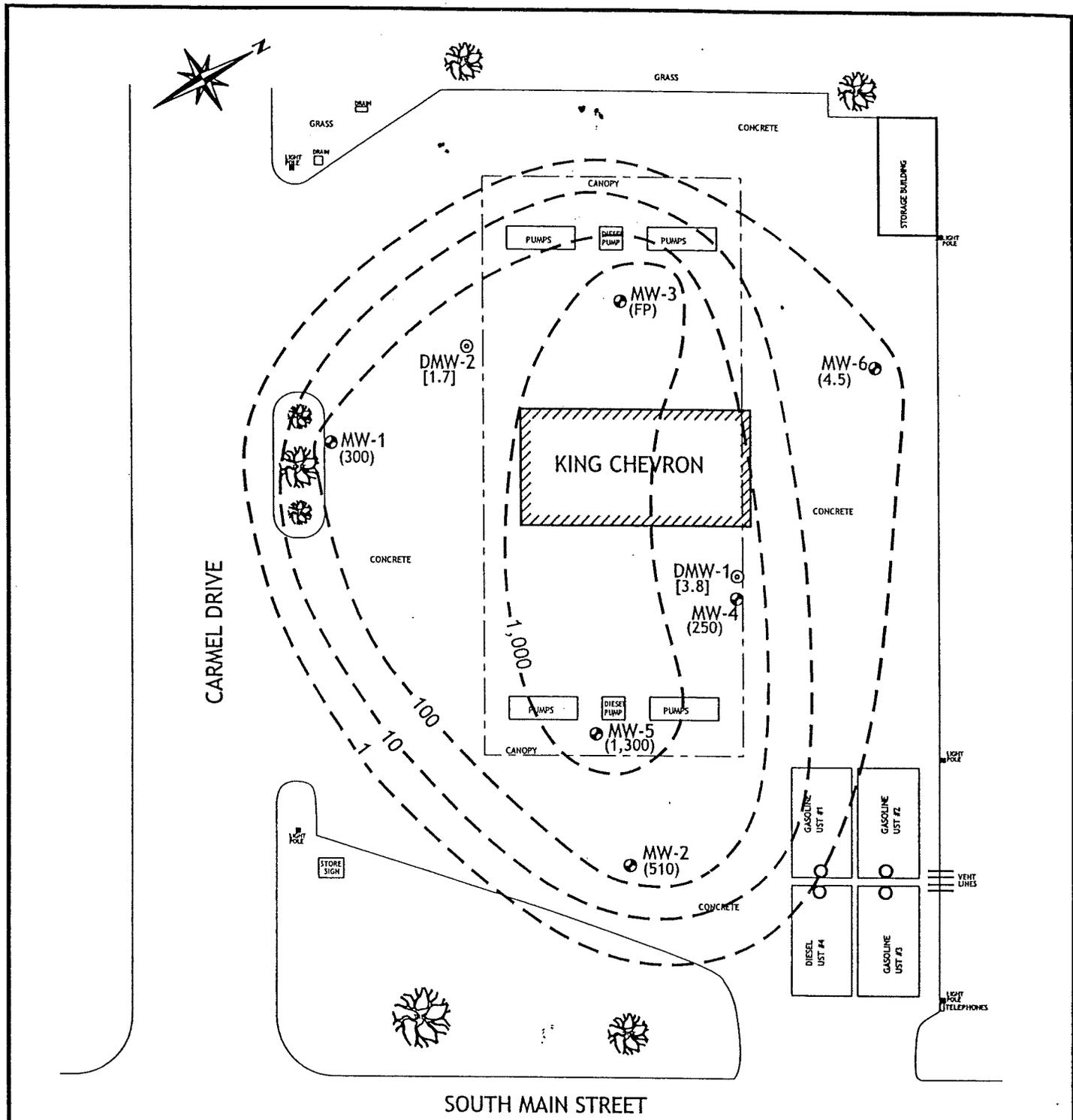
4301 TAGGART CREEK ROAD
CHARLOTTE, NC 28208
704-394-8919
704-394-6988 fax
www.shieldengineering.com

SOIL EXCAVATION MAP

KING CHEVRON
718 SOUTH MAIN STREET
KING, NORTH CAROLINA
SHIELD # 1020070

DATE : 10/16/02	DRAWN BY : DE
SCALE : AS SHOWN	FIGURE : 5

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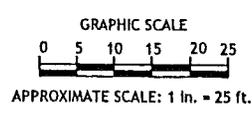


LEGEND:

- SHALLOW TYPE II MONITORING WELL LOCATION
- DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- (ug/L) MICROGRAMS PER LITER
- (1,300) CONTAMINANT CONCENTRATION (ug/L)
- [1.7] CONTAMINANT CONCENTRATION NOT USED IN CONTOURING (ug/L)
- ISOCONCENTRATION CONTOUR LINE (ug/L)
- BDL BELOW DETECTION LIMITS
- FP FREE PRODUCT

NOTES:

- 1- GROUNDWATER SAMPLES COLLECTED ON 09/13/02 AND 10/9/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



	4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-8913 704-394-8908 fax www.shieldengineering.com	
	BENZENE ISOCONCENTRATION MAP	
KING CHEVRON 718 SOUTH MAIN STREET KING, NORTH CAROLINA SHIELD # 1020070		
DATE : 10/24/02	DRAWN BY : DE	
SCALE : AS SHOWN	FIGURE : 6	

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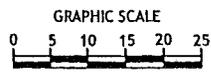
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LEGEND:

-  SHALLOW TYPE II MONITORING WELL LOCATION
-  DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- (ug/L) MICROGRAMS PER LITER
- (410) CONTAMINANT CONCENTRATION (ug/L)
- [1.7] CONTAMINANT CONCENTRATION NOT USED IN CONTOURING (ug/L)
- - - ISOCONCENTRATION CONTOUR LINE (ug/L)
- BDL BELOW DETECTION LIMITS
- FP FREE PRODUCT

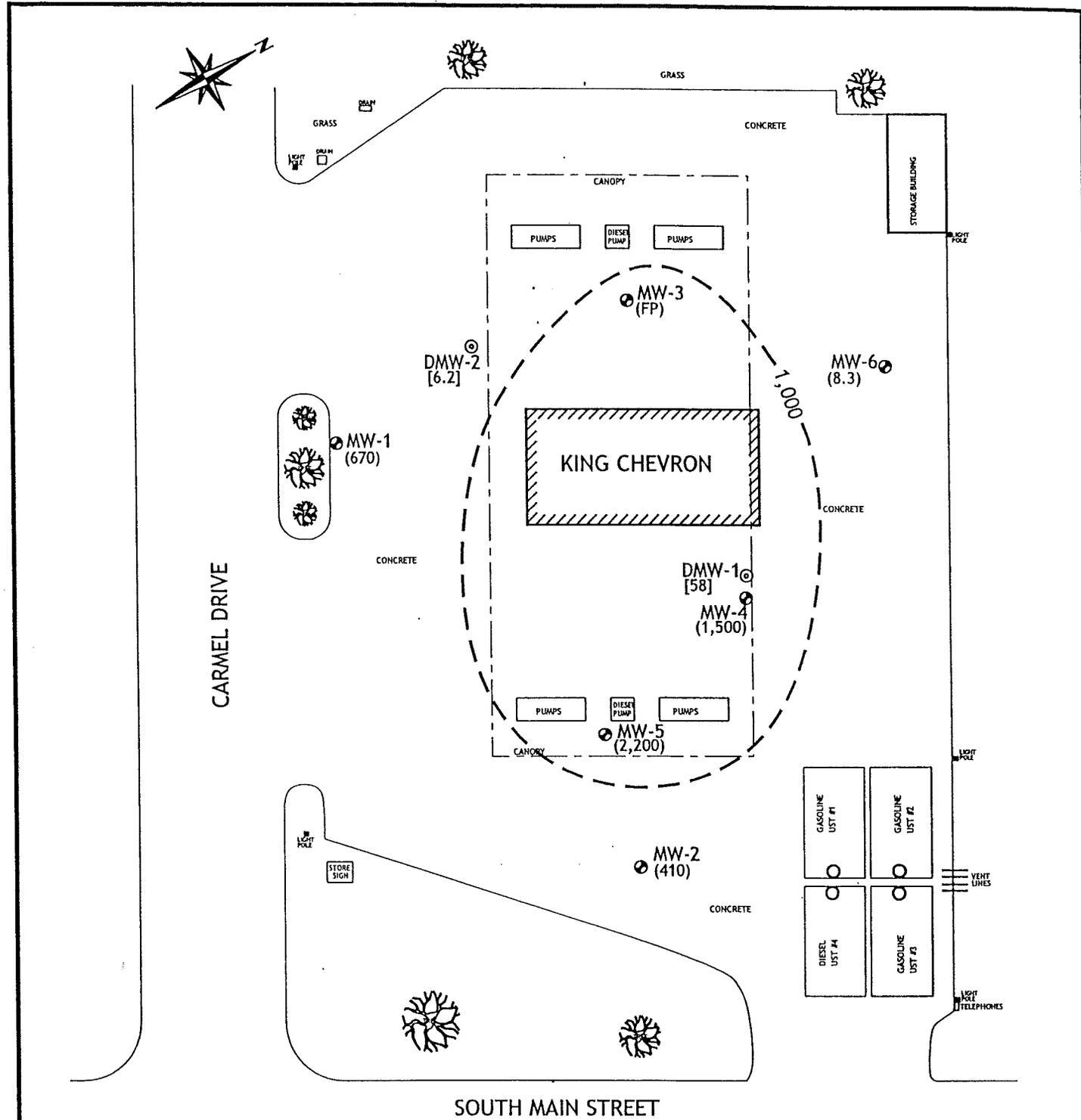
NOTES:

- 1- GROUNDWATER SAMPLES COLLECTED ON 09/13/02 AND 10/9/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



APPROXIMATE SCALE: 1 in. = 25 ft.

	<h1 style="margin: 0;">SHIELD</h1> <p style="margin: 0;">ENGINEERING, INC.</p>	4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-8913 704-394-8968 fax www.shieldengineering.com
	<h2 style="margin: 0;">TOLUENE ISOCONCENTRATION MAP</h2>	
<h3 style="margin: 0;">KING CHEVRON</h3> <p style="margin: 0; font-size: small;">718 SOUTH MAIN STREET KING, NORTH CAROLINA SHIELD # 1020070</p>		
DATE : 10/24/02	DRAWN BY : DE	
SCALE : AS SHOWN	FIGURE : 7	



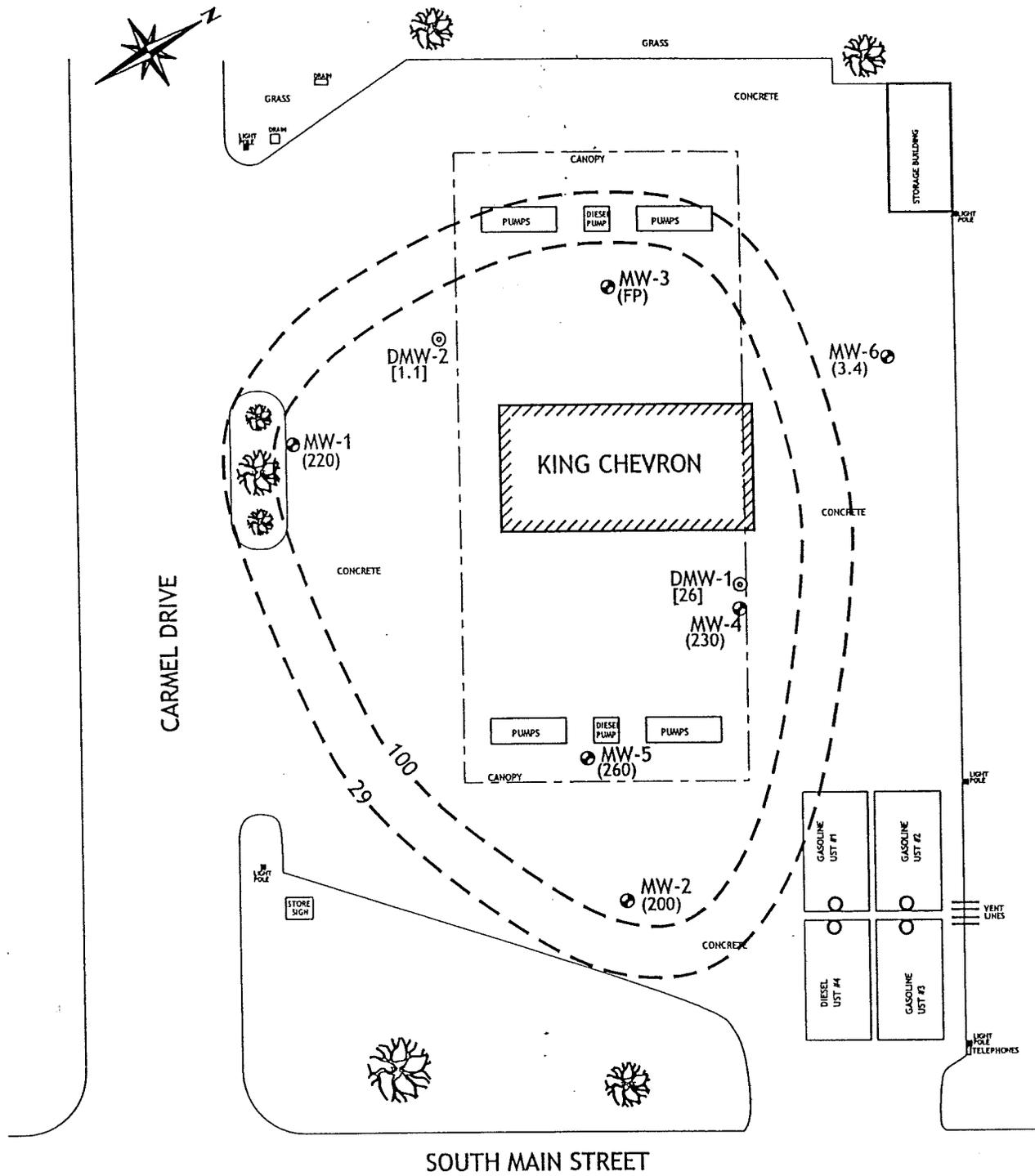
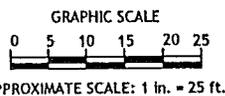
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LEGEND:

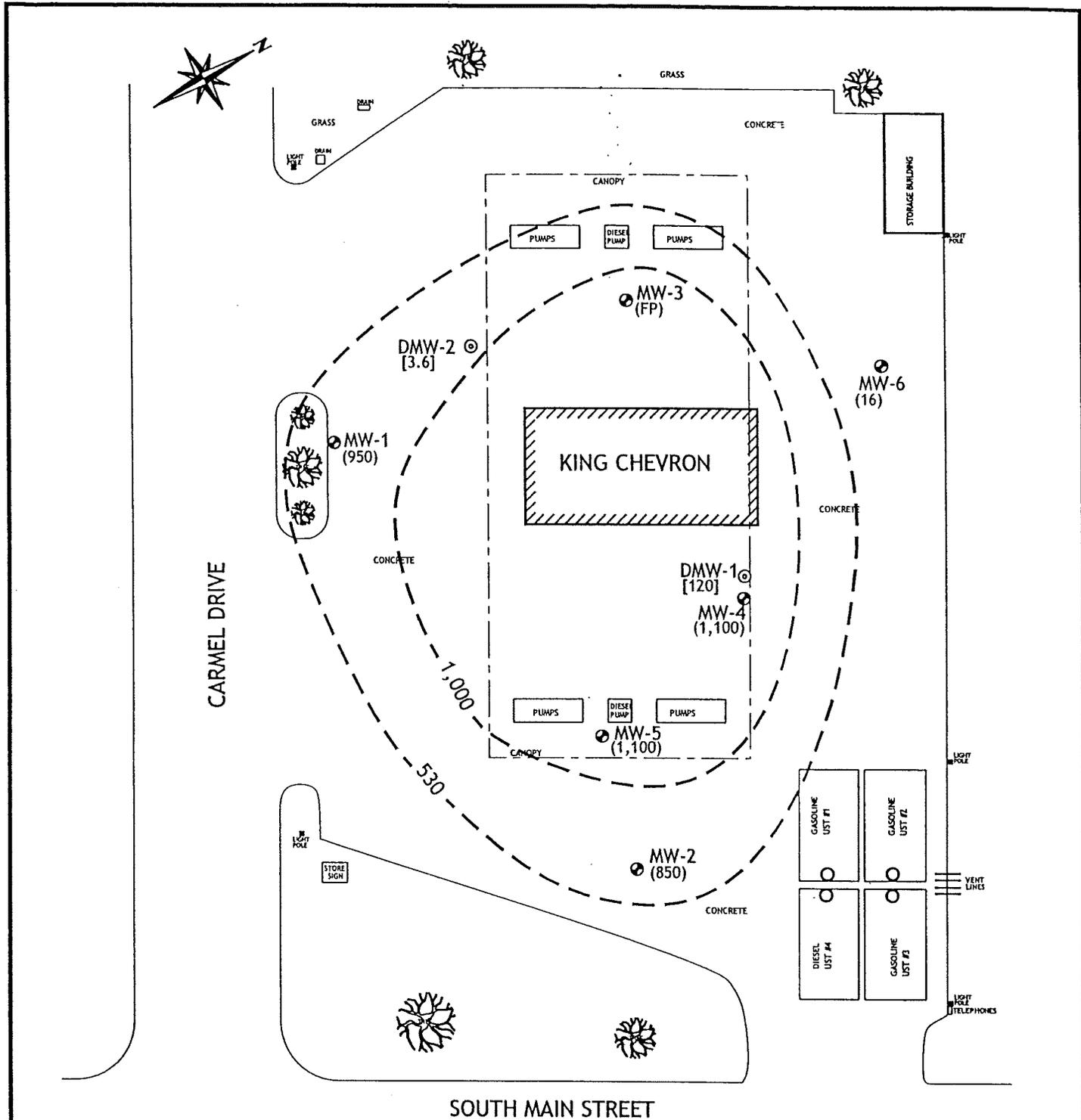
- SHALLOW TYPE II MONITORING WELL LOCATION
- ⊙ DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- (ug/L) MICROGRAMS PER LITER
- (220) CONTAMINANT CONCENTRATION (ug/L)
- [1.1] CONTAMINANT CONCENTRATION NOT USED IN CONTOURING (ug/L)
- ISOCONCENTRATION CONTOUR LINE (ug/L)
- BDL BELOW DETECTION LIMITS
- FP FREE PRODUCT

NOTES:

- 1- GROUNDWATER SAMPLES COLLECTED ON 09/13/02 AND 10/9/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



	4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-8913 704-394-8988 fax www.shieldengineering.com	
	<h2 style="margin: 0;">ETHYLBENZENE ISOCONCENTRATION MAP</h2>	
<h3 style="margin: 0;">KING CHEVRON</h3> <p style="font-size: x-small; margin: 0;">718 SOUTH MAIN STREET KING, NORTH CAROLINA SHIELD # 1020070</p>		
DATE : 10/24/02	DRAWN BY : DE	
SCALE : AS SHOWN	FIGURE : 8	

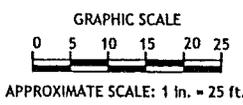


LEGEND:

- SHALLOW TYPE II MONITORING WELL LOCATION
- ⊙ DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- (ug/L) MICROGRAMS PER LITER
- (950) CONTAMINANT CONCENTRATION (ug/L)
- [3.6] CONTAMINANT CONCENTRATION NOT USED IN CONTOURING (ug/L)
- - - ISOCONCENTRATION CONTOUR LINE (ug/L)
- BDL BELOW DETECTION LIMITS
- FP FREE PRODUCT

NOTES:

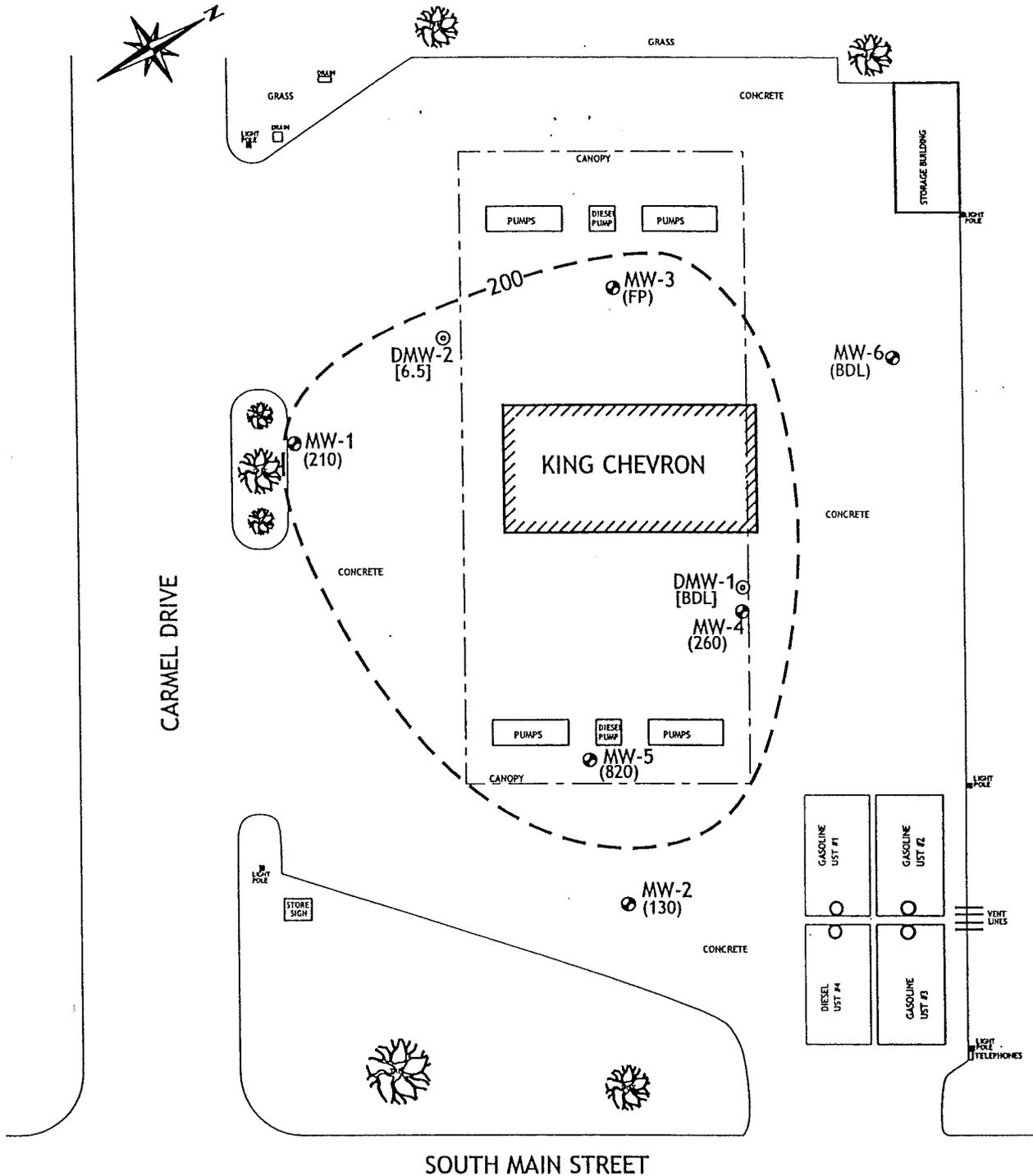
- 1- GROUNDWATER SAMPLES COLLECTED ON 09/13/02 AND 10/9/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



	4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-8913 704-394-8968 fax www.shieldengineering.com		
	TOTAL XYLENES ISOCONCENTRATION MAP		
KING CHEVRON 718 SOUTH MAIN STREET KING, NORTH CAROLINA SHIELD # 1020070			
DATE :	10/24/02	DRAWN BY :	DE
SCALE :	AS SHOWN	FIGURE :	9

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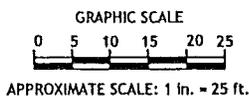


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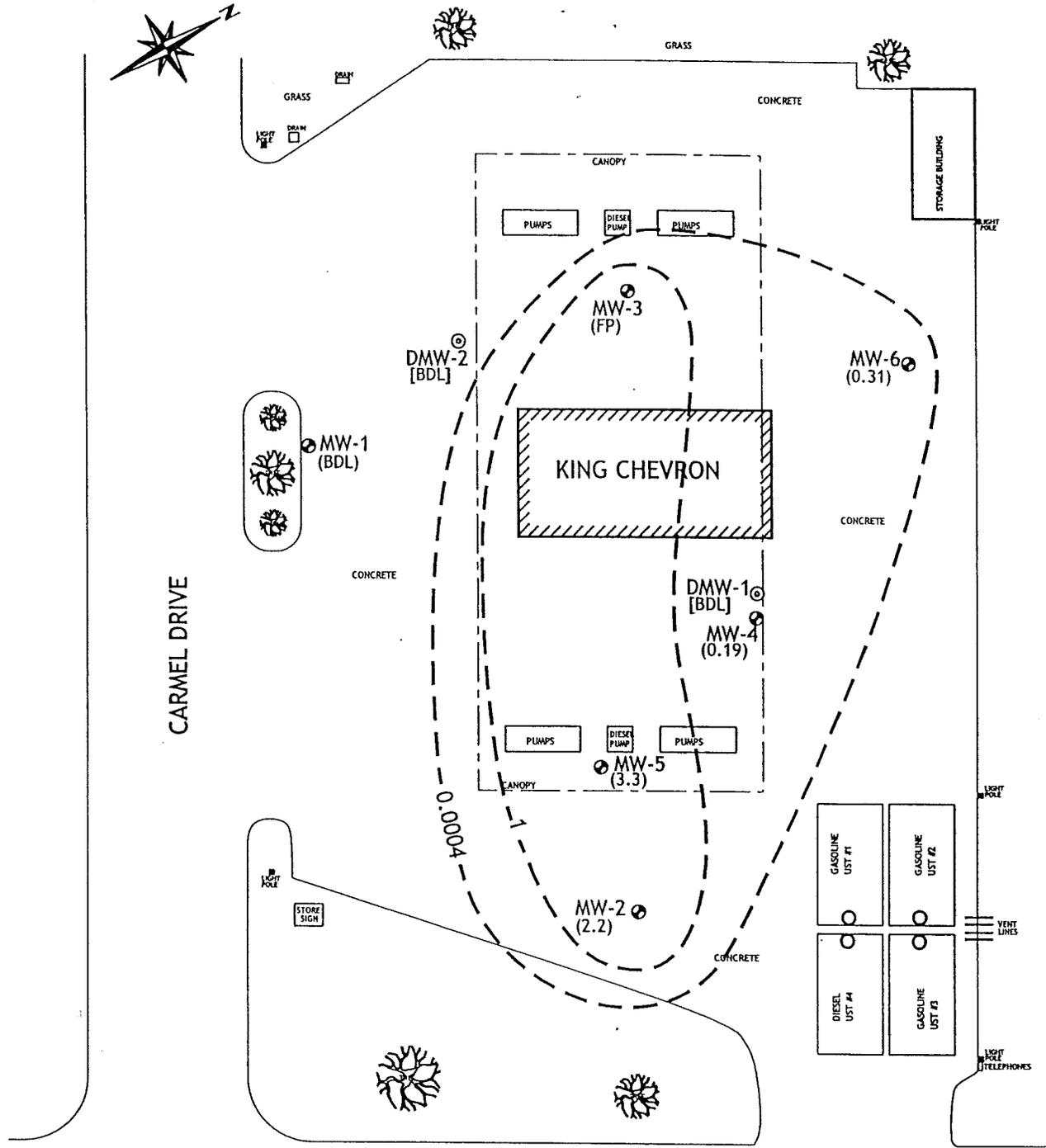
- SHALLOW TYPE II MONITORING WELL LOCATION
- ⊙ DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- (ug/L) MICROGRAMS PER LITER
- MTBE METHYL-TERTIARY-BUTYL-ETHER
- (210) CONTAMINANT CONCENTRATION (ug/L)
- [6.5] CONTAMINANT CONCENTRATION NOT USED IN CONTOURING (ug/L)
- - - ISOCONCENTRATION CONTOUR LINE (ug/L)
- BDL BELOW DETECTION LIMITS
- FP FREE PRODUCT

NOTES:

- 1- GROUNDWATER SAMPLES COLLECTED ON 09/13/02 AND 10/9/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



	4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-6913 704-394-6988 fax www.shieldengineering.com
MTBE ISOCONCENTRATION MAP	
KING CHEVRON 718 SOUTH MAIN STREET KING, NORTH CAROLINA SHIELD # 1020070	
DATE : 10/24/02	DRAWN BY : DE
SCALE : AS SHOWN	FIGURE : 10

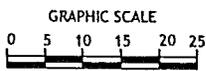


LEGEND:

- SHALLOW TYPE II MONITORING WELL LOCATION
- DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- EDB ETHYLENE DIBROMIDE
- (ug/L) MICROGRAMS PER LITER
- (0.19) CONTAMINANT CONCENTRATION (ug/L)
- [BDL] CONTAMINANT CONCENTRATION NOT USED IN CONTOURING (ug/L)
- ISOCONCENTRATION CONTOUR LINE (ug/L)
- BDL BELOW DETECTION LIMITS
- FP FREE PRODUCT

NOTES:

- 1- GROUNDWATER SAMPLES COLLECTED ON 09/13/02 AND 10/9/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



APPROXIMATE SCALE: 1 in. = 25 ft.



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**EDB
ISOCONCENTRATION MAP**

KING CHEVRON
718 SOUTH MAIN STREET
KING, NORTH CAROLINA
SHIELD # 1020070

DATE : 10/24/02

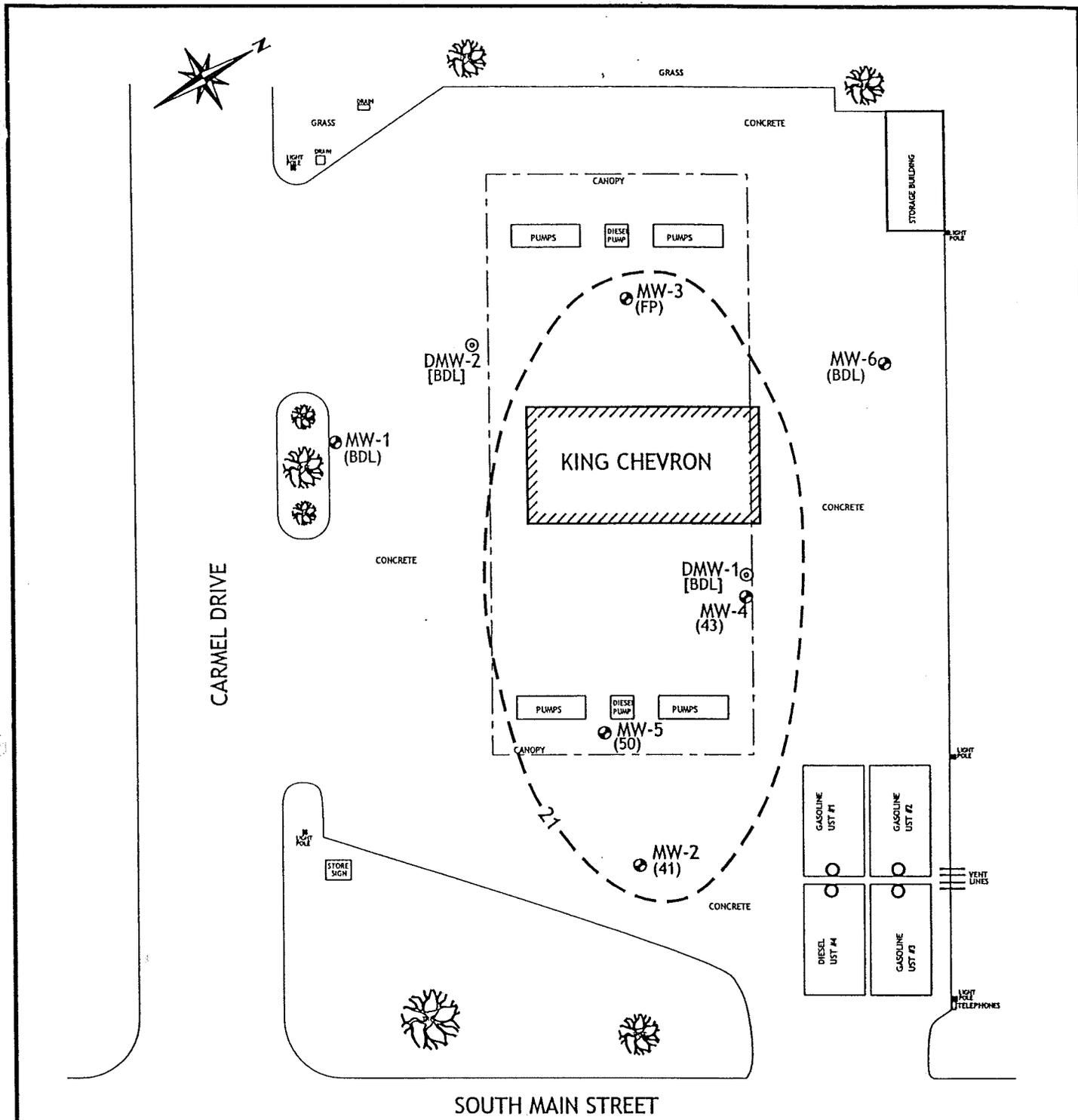
DRAWN BY : DE

SCALE : AS SHOWN

FIGURE : 11

H:\ASSESSMENT\2002\1020070\FIGURES\1020070 SITE

H:\ASSESSMENT\2002\1020070\FIGURES\1020070 SITE

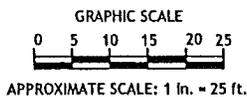


LEGEND:

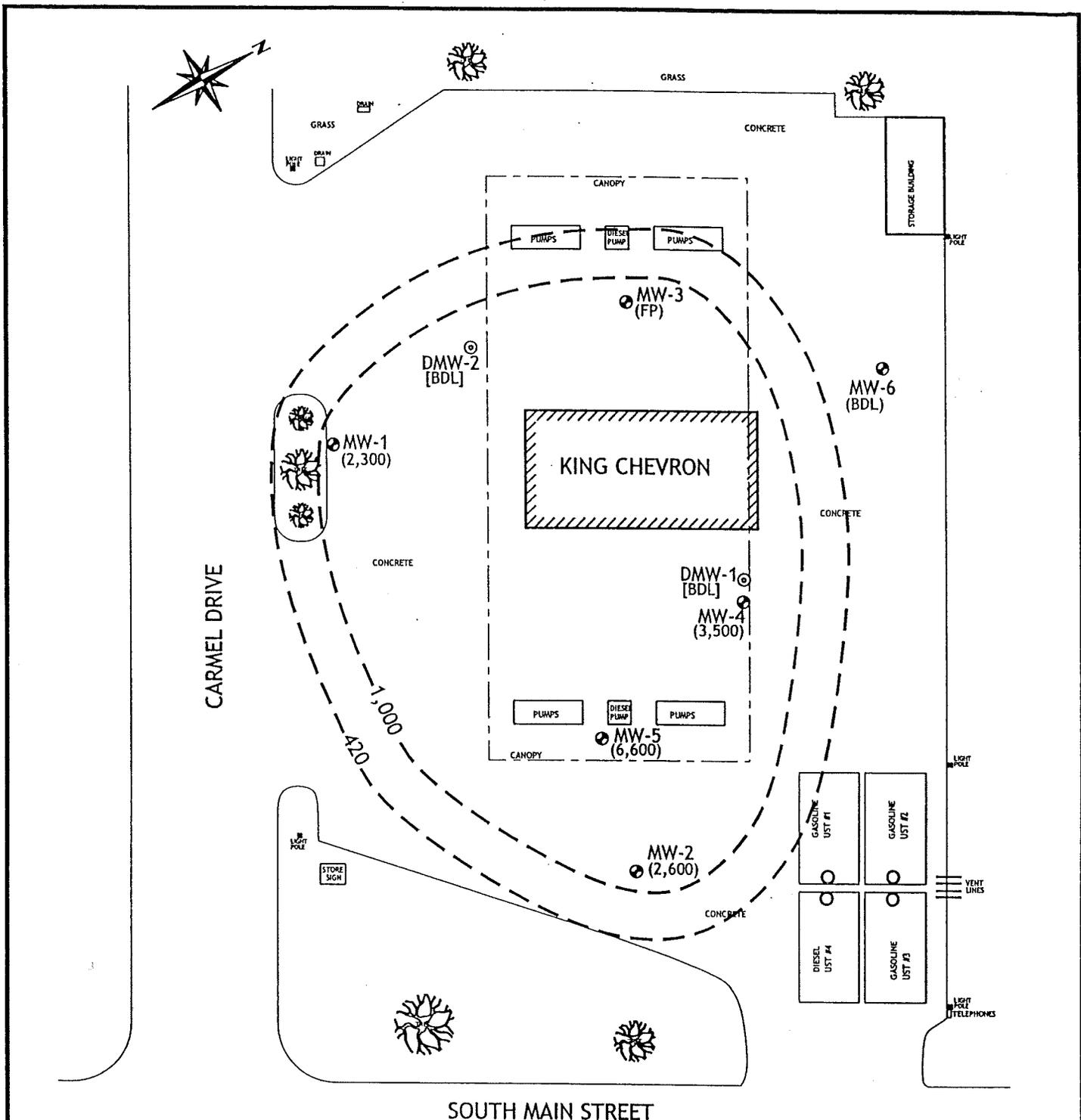
- SHALLOW TYPE II MONITORING WELL LOCATION
- ⊙ DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- (ug/L) MICROGRAMS PER LITER
- (43) CONTAMINANT CONCENTRATION (ug/L)
- [BDL] CONTAMINANT CONCENTRATION NOT USED IN CONTOURING (ug/L)
- ISOCONCENTRATION CONTOUR LINE (ug/L)
- BDL BELOW DETECTION LIMITS
- FP FREE PRODUCT

NOTES:

- 1- GROUNDWATER SAMPLES COLLECTED ON 09/13/02 AND 10/9/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



	4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-8913 704-394-0988 fax www.shieldengineering.com		
	NAPHTHALENE ISOCONCENTRATION MAP		
KING CHEVRON 718 SOUTH MAIN STREET KING, NORTH CAROLINA SHIELD # 1020070			
DATE :	10/24/02	DRAWN BY :	DE
SCALE :	AS SHOWN	FIGURE :	12

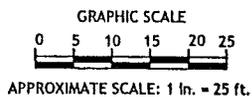


LEGEND:

- SHALLOW TYPE II MONITORING WELL LOCATION
- ⊙ DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- (ug/L) MICROGRAMS PER LITER
- (2,600) CONTAMINANT CONCENTRATION (ug/L)
- [BDL] CONTAMINANT CONCENTRATION NOT USED IN CONTOURING (ug/L)
- - - ISOCONCENTRATION CONTOUR LINE (ug/L)
- BDL BELOW DETECTION LIMITS
- FP FREE PRODUCT

NOTES:

- 1- GROUNDWATER SAMPLES COLLECTED ON 09/13/02 AND 10/9/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



<p>SHIELD ENGINEERING, INC.</p>	4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-8913 704-394-8988 fax www.shieldengineering.com	
	<p>C5-C8 ALIPHATICS ISOCONCENTRATION MAP</p>	
<p>KING CHEVRON 718 SOUTH MAIN STREET KING, NORTH CAROLINA SHIELD # 1020070</p>		
DATE : 10/24/02	DRAWN BY : DE	
SCALE : AS SHOWN	FIGURE : 13	

H:\ASSESSMENT\2002\1020070\FIGURES\1020070 SITE

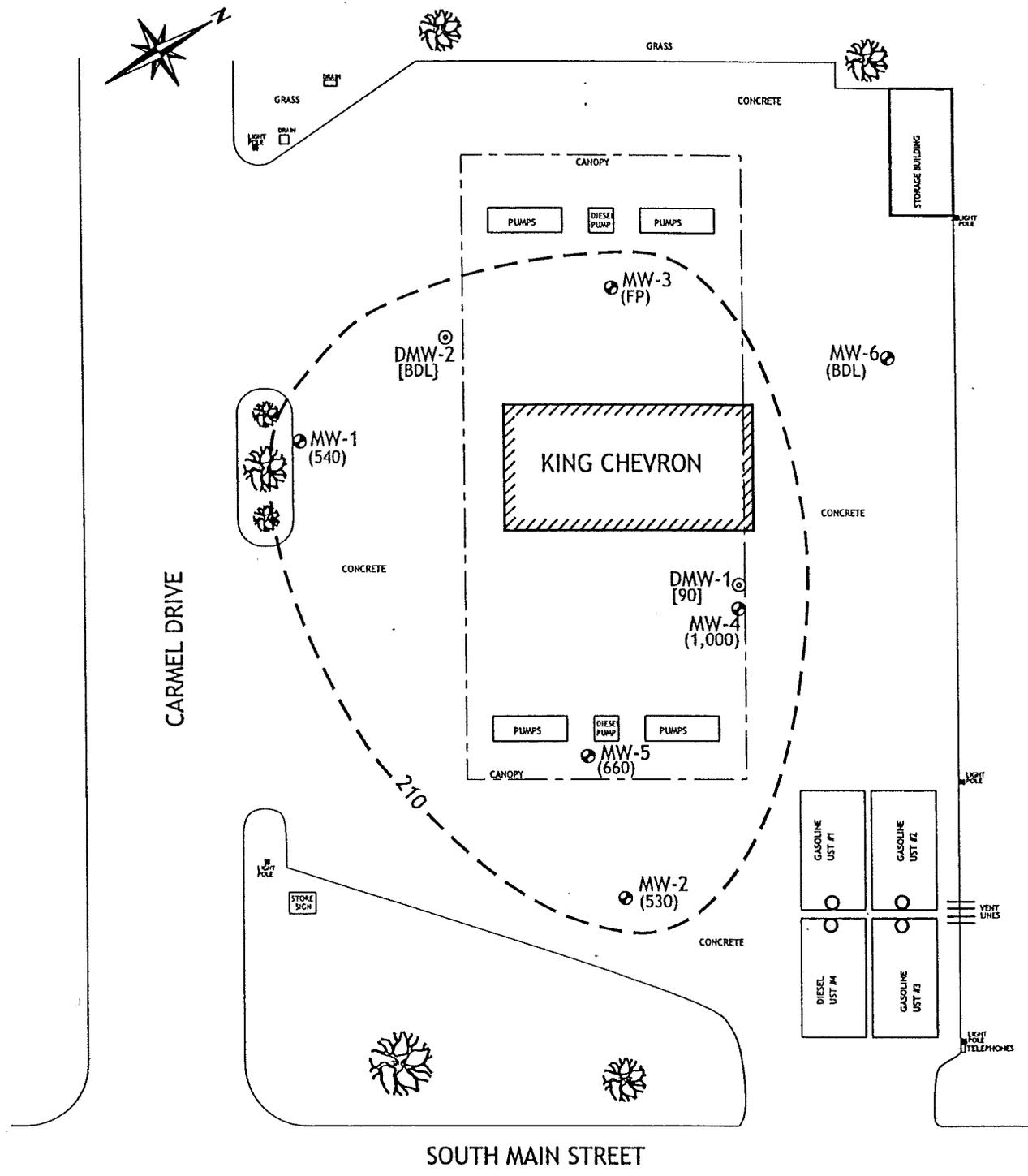
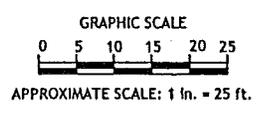
H:\ASSESSMENT\2002\1020070\FIGURES\1020070 SITE

LEGEND:

-  SHALLOW TYPE II MONITORING WELL LOCATION
-  DEEP TYPE II MONITORING WELL LOCATION
- UST UNDERGROUND STORAGE TANK
- (ug/L) MICROGRAMS PER LITER
- (660) CONTAMINANT CONCENTRATION (ug/L)
- [BDL] CONTAMINANT CONCENTRATION NOT USED IN CONTOURING (ug/L)
- ISOCONCENTRATION CONTOUR LINE (ug/L)
- BDL BELOW DETECTION LIMITS
- FP FREE PRODUCT

NOTES:

- 1- GROUNDWATER SAMPLES COLLECTED ON 09/13/02 AND 10/9/02.
- 2- ALL LOCATIONS ARE APPROXIMATE.



	<p>SHIELD ENGINEERING, INC.</p>		4301 TAGGART CREEK ROAD CHARLOTTE, NC 28208 704-394-8513 704-394-8568 fax www.shieldengineering.com
	<p>C9-C10 AROMATICS ISOCONCENTRATION MAP</p>		
<p>KING CHEVRON 718 SOUTH MAIN STREET KING, NORTH CAROLINA SHIELD # 1020070</p>			
DATE :	10/24/02	DRAWN BY :	DE
SCALE :	AS SHOWN	FIGURE :	14

TABLE 1
Water Supply Well Survey Information (Adjacent Property Owner Information)
King Chevron
718 South Main Street
King, North Carolina

Well ID (if any)/ Map No.	Owner Name	Address	Phone Number	Connected to Public Water Supply?	Well Use	Well Depth (ft)	Type of Well	Well Casing Depth	Well Screen Interval	Approx. distance of known in-use well from the source area of release.
5991-07-78-0272	Freddy Stone	204 Five Forks Street		Yes	Abandoned well on property	40	Unknown	Unknown	unknown	NA
5991-08-77-8601*	A Cleaner World (Mr. John Roland)	117 Ingram Road	336-983- 0333	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-07-77-7529*	RSR Automotive	119 Ingram Road	336-983- 9744	Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-77-8691*	King Dens Haircutters (Terri Forrest Champney)	115 Ingram Road	336-983- 4188	Yes	Supply well not observed	NA	NA	NA	NA	NA
5991-08-77-5567*	Possible abandoned house	205? Ingram Road		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-77-5567*	Trailer behind house at 205? Ingram Road	Angela Drive		Water meter not observed	Supply well not observed	NA	NA	NA	NA	NA
5991-12-77-7467*	Jennifer's Dance Center	111 Angela Drive		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-11-77-3235*	Former Prime Express (James C. Fay)	117 Carmel Drive	336-838- 3080	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-11-77-6046/5991-11- 77-7154/5991-12-76- 8919*	McDonald's/Amoco	109 Carmel Drive		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-11-77-7246*	King Express Lubre	110 Carmel Drive		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA

TABLE 1
Water Supply Well Survey Information (Adjacent Property Owner Information)

King Chevron

718 South Main Street

King, North Carolina

Well ID (if any)/ Map No.	Owner Name	Address	Phone Number	Connected to Public Water Supply?	Well Use	Well Depth (ft)	Type of Well	Well Casing Depth	Well Screen Interval	Approx. distance of known in-use well from the source area of release.
5991-12-77-7357*	Kwik Wash King (James D. Robertson)	Angela Drive		Yes	Supply well not observed	NA	NA	NA	NA	NA
5991-12-77-9228*	Waffle House	South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-12-77-9480*	Hardee's	710 South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-87-1589*	Kentucky Fried Chicken (Rene B. Murphy)	706 South Main Street	336-983- 6706	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-08-87-3626**	Main Street Auto (Chris Stover)	702 South Main Street	336-983- 3323	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-12-87-3362*	Burger King	739 South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-12-87-2261*	Taco Bell	711 South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-12-87-2261	Food Mart (Texaco)	713 South Main Street	336-838- 4000	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-12-87-2004/5991-12 87-1101*	Photo Center/Computers	717 South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-12-86-0979*	King Auto Parts	721 South Main Street		Yes	No supply well on property	NA	NA	NA	NA	NA

TABLE 1
Water Supply Well Survey Information (Adjacent Property Owner Information)

King Chevron

718 South Main Street

King, North Carolina

Well ID (if any)/ Map No.	Owner Name	Address	Phone Number	Connected to Public Water Supply?	Well Use	Well Depth (ft)	Type of Well	Well Casing Depth	Well Screen Interval	Approx. distance of known in-use well from the source area of release.
5991-12-76-9897*	Wendy's	725 South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
43D*	Pizza Hut (Don Goddazo)	Vesta Drive	336-623- 9108	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-12-86-3748*	Econo Lodge	109 Vesta Drive		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-12-96-3773	Not home	230 Greystone Drive		Yes	No supply well on property	NA	NA	NA	NA	NA
5991-12-97-0170	Kim Hall	222 Greystone Drive		Yes	Well not in- use	Unknown	Unknown	Unknown	Unknown	Piping and pump removed from well.
5991-12-97-0274**	Not home	220 Greystone Drive		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-12-97-1481**	Not home	214 Greystone Drive		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-12-97-3129	J. Kirby	213 Greystone Drive		Yes	Well not in- use	1200	Unknown	Unknown	Unknown	Pump no longer in well
5991-12-97-4001**	Not home	225 Greystone Drive		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-97-3661	Lou Bowles	134 Jefferson Church Road		Yes	Well not in- use	Unknown	Unknown	Unknown	Unknown	NA

TABLE 1
Water Supply Well Survey Information (Adjacent Property Owner Information)
King Chevron
718 South Main Street
King, North Carolina

Well ID (if any)/ Map No.	Owner Name	Address	Phone Number	Connected to Public Water Supply?	Well Use	Well Depth (ft)	Type of Well	Well Casing Depth	Well Screen Interval	Approx. distance of known in-use well from the source area of release.
5991-08-97-2662**	Not home	130 Jefferson Church Road		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-97-1653**	Not home	126 Jefferson Church Road		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-97-0667/5991-08- 97-9697**	David Allen	118 Jefferson Church Road	336-983- 2285	No	Two wells	50-60	Unknown	12	Unknown	1,100
5991-11-66-6997	Fowlers Chevrolet	Old Newsome Road		Yes	No supply well on property	NA	NA	NA	NA	NA
5991-11-67-8061	S & C Pools	109 Old Newsome Road		Yes	No supply well on property	NA	NA	NA	NA	NA
5991-11-67-5269	Buck Racing Engines (fence around building)	205 Old Newsome Road		Yes	No supply well on property	NA	NA	NA	NA	NA
-	Bojangles/Cigco	800 South Main Street		Yes	No supply well on property	NA	NA	NA	NA	NA
104	Exxon Station	801 South Main Street		Yes	No supply well on property	NA	NA	NA	NA	NA
5991-08-87-0681*	Vacant Lot (HRS)	Ingram Road	336-983- 3177	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-07-77-9661*	Vacant Lot (HRS)	Ingram Road	336-983- 3177	Yes	No supply well on property	NA	NA	NA	NA	NA

TABLE 1
Water Supply Well Survey Information (Adjacent Property Owner Information)
King Chevron
718 South Main Street
King, North Carolina

Well ID (if any)/ Map No.	Owner Name	Address	Phone Number	Connected to Public Water Supply?	Well Use	Well Depth (ft)	Type of Well	Well Casing Depth	Well Screen Interval	Approx. distance of known in-use well from the source area of release.
5991-12-87-7226*	Strip Mall (Diane Burton)	704 South Main Street	704-664- 4444	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-12-76-8782*	Vacant Lot	South Main Street		Water meter not observed	Supply well not observed	NA	NA	NA	NA	NA
5991-12-86-7825*	Vacant Lot	South Main Street		Water meter not observed	Supply well not observed	NA	NA	NA	NA	NA
5991-11-77-4404*	Apartments	Ingram Road		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-11-77-2424/5991-11- 77-0464**	Sherly's Land Home Center (not home)	223 Ingram Road		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-88-3723**	Strip Mall (Lowes Foods) PC-1 Development Co. (Chris Chapman)	600 South Main Street		Yes	No supply well on property	NA	NA	NA	NA	NA
5991-08-87-4946/5991-08- 88-3000	Evans Used Cars (Gina Evans)	South Main Street	336-983- 4701	Yes	Not aware of supply well on property	NA	NA	NA	NA	NA
5991-08-88-5107	Hickory Cooked BBQ	South Main Street		Yes	Not aware of supply well on property	NA	NA	NA	NA	NA

TABLE 1
Water Supply Well Survey Information (Adjacent Property Owner Information)

King Chevron
718 South Main Street
King, North Carolina

Well ID (if any)/ Map No.	Owner Name	Address	Phone Number	Connected to Public Water Supply?	Well Use	Well Depth (ft)	Type of Well	Well Casing Depth	Well Screen Interval	Approx. distance of known in-use well from the source area of release.
5991-08-88-5364	United Auto Center (Ricky Waits)	626 South Main Street	336-983- 3102	Yes	Not aware of supply well on property	NA	NA	NA	NA	NA
5991-08-88-5364	Nation Wide Insurance Office (looks vacant)	622 South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-88-2873**	Eckerd	South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-88-9167**	King Shopping Center (Brain Gullion)	607 South Main Street	336-983- 2220	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-08-88-7819**	LSB (Bank)(Craig L.)	647 South Main Street	336-224- 5300 (x301)	Yes	No supply well on property	NA	NA	NA	NA	NA
5991-08-87-5653**	First Union (Bank)	South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-88-8114**	Town & Country Restruant	625 South Main Street		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-97-0974**	Harris Body Shop	133 Jefferson Church Road		Water meter observed	Supply well not observed	NA	NA	NA	NA	NA
5991-08-88-1102**	Bhavini Patel	614B South Main Street	336-414- 2596	Yes	No supply well on property	NA	NA	NA	NA	NA

* - Letters requesting individual water supply well information were mailed to property owners or left at the residence or businesses with 500 feet of the site.

** - Letters requesting individual water supply well information were mailed to property owners or left at the residence or businesses 500-1,500 feet of the site.

- For properties not labeled with a * or ** the property owner and/or occupant were interviewed during our site visits.

Table 2
Summary of Well Construction and Groundwater Elevation Data
King Chevron

Shield Project #1020070-01

Well ID	Date Installed (m/dd/yy)	Date Water Level Measured (m/dd/yy)	Well Depth (Feet TOC)	Screened Interval (Ft TOC)	Top of Casing Elevation* (Feet)	Depth of Water From TOC (Feet)	Depth to Free Product** (Feet)	Groundwater Elevation* (Feet)
MW-1	02/13/02	09/26/02	33	18-33	100.00	25.90	-	74.10
		10/18/02						74.05
MW-2	02/13/02	09/26/02	33	18-33	101.51	27.52	-	73.99
		10/18/02						74.01
MW-3	09/12/02	09/26/02	38	18-38	100.56	26.90	25.83	74.46
		10/18/02						74.42
MW-4	09/13/02	09/26/02	36	16-36	101.07	26.51	-	74.56
		10/18/02						74.56
MW-5	09/13/02	09/26/02	38	18-38	100.68	26.53	-	74.15
		10/18/02						74.13
MW-6	10/09/02	10/18/02	40	20-40	101.44	26.83	-	74.61
DMW-1	10/03/02	10/18/02	75	70-75	100.90	26.29	-	74.61
DMW-2	10/04/02	10/18/02	75	70-75	100.36	26.05	-	74.31

Notes:

* - Groundwater elevations are relative to a temporary benchmark (MW-1) with an assumed datum of 100.00 feet.

** - If free product is present in well, groundwater elevation calculated by: Top of Casing Elevation - [Depth to Water - (Free Product Thickness x 0.75)]

NA= Not Available or not measured

TOC = Top of Casing

Table 3
 Summary of Analytical Results - Groundwater Samples
 King Chevron
 718 South Main Street
 King, Stokes County, North Carolina

Analytical Method →	EPA Method 601/602										EPA Method 504.1	EPA Method 625	MADEP - VPH/EPH ¹						EPA 3030C				
	Location	Date Sampled	Benzene ug/L ²	Toluene ug/L	Ethylbenzene ug/L	Total Xylenes ug/L	Methyl tert- butyl Ether (MTBE) ug/L	Chloroform ug/L	Isopropylether (IPE) ug/L	Bromodichloromethane ug/L			Bromoform ug/L	Dibromochloromethane ug/L	1,2 Dichloroethane ug/L	Ethylene Dibromide (EDB) ug/L	Naphthalene ug/L	C5-C8 Aliphatics ug/L		C9-C12 Aliphatics ug/L	C9-C18 Aliphatics ug/L	C19-C36 Aliphatics ug/L	C9-C10 Aromatics ug/L
MW-1	2/15/02	49	100	28	143	16	NA	NA	NA	NA	NA	NA	NA	NA	BDL ¹	250	NA	230	BDL	BDL	BDL	BDL	NA
MW-1	10/9/02	300	670	220	950	210	1.5	16	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2,300	1,300	BDL	BDL	BDL	540	BDL	59
MW-2	2/15/02	620	700	170	700	82	NA	NA	NA	NA	NA	NA	NA	NA	41	1,500	NA	980	BDL	BDL	350	NA	
MW-2	10/9/02	510	410	200	850	130	BDL	100	BDL	BDL	BDL	3.6	2.2	41	2,600	1,400	520	BDL	BDL	530	BDL	410	
MW-3	9/13/02																						
MW-4	9/13/02	250	1,500	230	1,100	260	17	BDL	BDL	BDL	BDL	BDL	BDL	0.19	43	3,500	2,500	360	BDL	1,000	BDL	BDL	BDL
MW-5	9/13/02	1300	2,200	260	1,100	820	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.3	50	6,600	1,900	490	BDL	660	BDL	BDL	28
MW-6	10/9/02	4.5	8.3	3.4	16	BDL	63	BDL	9.1	1.9	1.3	BDL	BDL	0.31	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
DMW-1	10/9/02	3.8	58	26	120	BDL	2.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	130	BDL	BDL	90	BDL	BDL	BDL
DMW-2	10/9/02	1.7	6.2	1.1	3.6	6.5	7.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trip Blank	9/13/02 & 10/9/02	NA ⁵	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	BDL	BDL	NA	NA	BDL	BDL	BDL	NA
2L Standard ⁶		1	1,000	20	530	300	NS ⁷	70	NS	NS	NS	0.38	0.0004	21	420	42,000	210	42,000	210	NS	NS	15	
GCL ⁸		5,000	257,500	29,000	87,500	200,000	NS	70,000	NS	NS	NS	300	50	15,500	NS	NS	NS	NS	NS	NS	NS	15,000	

Notes:

- Massachusetts Department of Environmental Protection-Volatile Petroleum Hydrocarbon/Extractable Petroleum Hydrocarbon analytical test method.
- Micrograms per liter.
- Concentration in bold face type exceeded the 2L Standards.
- Less than the method detection limit specified in the laboratory report.
- Not analyzed
- NCDENR - North Carolina Administrative Code Title 15A Subchapter 2L Class GA Groundwater Standards
- Not specified.
- Gross contaminant levels for groundwater.
- Engineering Consulting Services, LTD. collected groundwater samples from MW-1 and MW-2 on February 15, 2002.

Table 4
 Summary of Site Check Sampling
 Soil Samples
 King Chevron
 718 South Main Street
 King, North Carolina

Sample ID/Sample Location	Sample Date	Sample Type	Depth Below Ground (feet)	FID (ppm)	TPH 5030 (mg/kg)	TPH 3550 (mg/kg)
UST-1	06/06/02	GeoProbe™	14-15	40	BDL	NA
UST-2	06/06/02	GeoProbe™	14-15	NA	BDL	BDL
UST-3	06/06/02	GeoProbe™	14-15	25.7	BDL	BDL
UST-4	06/06/02	GeoProbe™	14-15	12.9	BDL	BDL
UST-5	06/06/02	GeoProbe™	14-15	9.5	BDL	BDL
UST-6	06/06/02	GeoProbe™	14-15	90	BDL	BDL
UST-7	06/06/02	GeoProbe™	14-15	1686	4.4	NA
UST-8	06/10/02	GeoProbe™	14-15	1418	120	NA
UST-9	06/06/02	GeoProbe™	4	114	BDL	BDL
UST-9	06/10/02	GeoProbe™	14-15	251	1.8	18
UST-10	06/10/02	GeoProbe™	14-15	2900	BDL	NA
UST-11	06/10/02	GeoProbe™	14-15	4911	2	NA
UST-12	06/10/02	GeoProbe™	14-15	503	BDL	NA
UST-13	06/10/02	GeoProbe™	14-15	7600	3.6	NA
UST-14	06/10/02	GeoProbe™	14-15	139	BDL	NA
UST-15	06/10/02	GeoProbe™	14-15	36.1	BDL	NA
UST-16	06/10/02	GeoProbe™	14-15	80.1	3.8	NA
D-1	06/06/02	Hand Auger	1.5	41	BDL	NA
D-2	06/06/02	Hand Auger	1.5	35	2	NA
D-3	06/06/02	Hand Auger	1.5	NA	110	4200
D-4	06/10/02	Hand Auger	1.5	82.3	BDL	NA
D-5	06/10/02	Hand Auger	1.5	57.4	BDL	NA
D-6	06/10/02	Hand Auger	1.5	16.8	BDL	NA
D-7	06/10/02	Hand Auger	1.5	68	BDL	NA
D-8	06/10/02	Hand Auger	1.5	25.8	BDL	NA
D-9	06/10/02	Hand Auger	1.5	28.1	BDL	NA
D-10	06/10/02	Hand Auger	1.5	37.1	BDL	NA
D-11	06/10/02	Hand Auger	1.5	63	BDL	NA
D-12	06/10/02	Hand Auger	1.5	1111	12	1400

Table 4
 Summary of Site Check Sampling
 Soil Samples
 King Chevron
 718 South Main Street
 King, North Carolina

Sample ID/Sample Location	Sample Date	Sample Type	Depth Below Ground (feet)	FID (ppm)	TPH 5030 (mg/kg)	TPH 3550 (mg/kg)
D-13	06/10/02	Hand Auger	1.5	503	260	NA
D-14	06/10/02	Hand Auger	1.5	5.6	BDL	NA
PL-1	06/10/02	Hand Auger	4	1%	5600	1900
PL-2	06/10/02	Hand Auger	4	2442	1100	980
PL-3	06/10/02	Hand Auger	4	1850	330	1100
PL-4	06/10/02	Hand Auger	4	185	BDL	NA
PL-5	06/10/02	Hand Auger	4	700	BDL	NA
PL-6	06/10/02	Hand Auger	4	2400	5.5	64
PL-7	06/10/02	Hand Auger	4	19.5	BDL	BDL
PL-8	06/10/02	Hand Auger	4	85	BDL	BDL
PL-9	06/10/02	Hand Auger	4	2%	4900	1400
PL-10	06/10/02	Hand Auger	4	1554	1	NA
PL-11	06/10/02	Hand Auger	4	162	BDL	NA
FP-1	06/10/02	Hand Auger	2	182	BDL	NA
FP-2	06/10/02	Hand Auger	2	34.3	BDL	NA
FP-3	06/10/02	Hand Auger	2	27.5	BDL	BDL
FP-4	06/10/02	Hand Auger	2	7.1	BDL	300

Notes:

FID = Flame Ionization Detector

TPH = Total Petroleum Hydrocarbons

NA = Not analyzed

BDL = Below the Method Detection Limit

mg/kg = Milligrams per kilogram

ppm = Parts per million

Bold numbers exceeded the NCDENR Action Levels

Summary of Post-Excavation c... Phase I Soil Sampling Results
 King Chevron
 Facility ID# 0-031004
 Incident # 24032

Analytical Method		EPA Method 8260 (by 5035)			EPA Method 8270		MADEP-VPH			MADEP-EPH		
Sample ID	Contaminant of Concern	Sec-Butylbenzene	Isopropylbenzene	P-Isopropyltoluene	2-Methyl Naphthalene	Naphthalene	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SP-1-8 Comp		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
D-3A	7	7/30/02	54	180	26	79	100	9600	12000	4900	2700	300
D-12A	7	7/31/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
D-13A	3	7/31/02	27	44	45	NA	NA	BDL	1800	1100	NA	BDL
PL-1A	7	7/30/02	37	45	9J	46	54	970	1600	850	920	230
PL-2A	7	7/31/02	BDL	BDL	BDL	BDL	BDL	13	BDL	2.4	BDL	BDL
PL-3A	4	7/31/02	BDL	0.0058	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
PL-6A	7	7/30/02	42	160	63	58	77	13000	16000	6000	46	56
PL-9A	7	7/30/02	23	43	11	36	39	1400	1600	900	750	160
PL-6 SIDE 1	3	7/30/02	30	76	14	13	13	1100	1900	1000	BDL	BDL
SW-1	3	7/30/02	8.5	8.8	BDL	2.4	1.2	BDL	BDL	310	110	62
SW-2	3	7/30/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
SW-3	3	7/31/02	6.90	18	BDL	11	13	BDL	980	520	100	47
SW-4	3	7/31/02	0.64	BDL	0.42	0.51	BDL	BDL	BDL	25	BDL	BDL
SW-5	3	7/31/02	BDL	BDL	BDL	19	25	1200	3900	1800	240	75
SW-6	3	7/31/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-7	3	7/31/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
SW-8	3	7/31/02	0.01	0.028	0.016	BDL	BDL	BDL	BDL	BDL	BDL	BDL
SW-9	3	7/31/02	2.7	0.98	1.20	BDL	BDL	BDL	25	24	BDL	BDL
SW-10	3	7/31/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SW-11	3	7/31/02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-3	10	9/11/02	BDL	BDL	BDL	0.51	BDL	20	32	16	BDL	BDL
MW-3	20	9/11/02	3.4	6.3	BDL	3.7	3	470	550	150	BDL	52
MW-4	10	9/11/02	BDL	BDL	BDL	BDL	BDL	34	27	9.1	BDL	BDL
MW-4	20	9/11/02	BDL	BDL	BDL	BDL	BDL	39	21	6.5	BDL	BDL
MW-5	10	9/11/02	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
MW-5	20	9/11/02	BDL	BDL	BDL	2.1	0.48	43	28	7.5	290	190
Trip Blanks		7/30/02, 7/31/02, 9/11/02	NA	NA	NA	NA	NA	BDL	BDL	BDL	NA	NA
Soil to Groundwater MSCC (mg/kg)			3	2	-	3	0.38	72	3255	34	3255	34
Residential MSCC (mg/kg)			156	1564	-	63	63	939	9386	469	9386	469
Industrial/Commercial MSCC (mg/kg)			4088	40880	-	1635	1635	24528	245280	12264	245280	12264

MSCC = Maximum Soil Contamination Concentration
 BDL = Below the method detection limit specified in the laboratory report
 J = Above laboratory instrument calibration range
 NA = Not analyzed

MADEP-VPH & EPH = Massachusetts Department of Environmental Protection - Volatile Petroleum Hydrocarbons & Extractable Petroleum Hydrocarbons
 mg/kg or ppm = Milligrams per kilogram or parts per million
 SP-1-8 Comp = Composite stockpile soil sample
 Bold numbers exceeded the MSCC (Soil to Groundwater) or NCDENR Action Levels



North Carolina Department of Environment and Natural Resources

Michael F. Easley, Governor

William G. Ross Jr., Secretary

June 3, 2004

Mr. Mayne Hill
Hill Oil Company, Inc.
P.O. Box 367
Lexington, NC 27292

Re: Notice of Regulatory Requirements
5A NCAC 2L .0115(d)
Risk-based Assessment and Corrective Action for Petroleum Underground Storage Tanks
King Chevron
718 S. Main Street, King
Stokes County
Incident # 24032
Intermediate Risk Classification

Dear Mr. Hill:

Information received by this office confirms a release or discharge from a petroleum underground storage tank (UST) system at the above-referenced location. Records indicate that you are the owner of this UST system. This letter is a standard notice explaining the actions you must take as a result of the release or discharge in accordance with North Carolina statutes and rules. The UST Section of the Division of Waste Management administers the State's rules for USTs and the required response for petroleum releases. Those rules are located in Title 15A, Subchapter 2L and Title 15A, Subchapter 2N of the North Carolina Administrative Code (NCAC).

The risk-based rule for petroleum USTs, 15A NCAC 2L .0115(d), states that the Department shall classify the risk of each known discharge or release from the UST system. A review of information you have provided to this office indicates that:

- (1) The levels of groundwater contamination for any contaminant except ethylene dibromide, benzene and aliphatic and aromatic carbon fraction classes exceeds 50 percent of the solubility of the contaminant at 25 degrees Celsius or 1,000 times the groundwater standard or interim standard established in 15A NCAC 2L .0202, whichever is lower; and
- (2) The levels of groundwater contamination for ethylene dibromide and benzene exceeds 1,000 times the federal drinking water standard set out in 40 CFR 141.

Winston-Salem Regional Office, 585 Woughtown Street, Winston-Salem, North Carolina 27107-2241
Phone: 336-771-4600 \ FAX: 336-771-4632 \ Internet: www.enr.state.nc.us

One
North Carolina
Naturally

Based on the conditions above, the discharge or release at the subject site has been classified as "intermediate risk." In addition, the land use at the site has been classified as industrial/commercial. Please note that 15A NCAC 2L .0115(e) requires you to notify the Department of any changes that might affect the risk or land use classifications that have been assigned.

Session Law 2003-352 requires the Department to consider the availability of funds in the Commercial Fund and the order in which the discharge or release was reported in setting the schedule for further assessment or cleanup.

As a result, at this time, you are directed to proceed only with assessment, removal, and cleanup of contaminated soil and assessment, removal, and cleanup of free product with thicknesses of ¼" or greater. At this time, you are not directed to proceed with any assessment or cleanup of contaminated groundwater. However, you are not relieved of the requirements for further groundwater assessment and cleanup whenever the Department deems them to be necessary and directs you to proceed or when Section 10 of Session Law 2003-352 expires (1 October 2005).

Note: You are not prohibited from conducting any groundwater assessment or cleanup activities if you choose to do so. However, any claims against the Commercial Fund for costs of activities that have not been specifically directed by the Department will be paid after all claims for costs of activities directed by the Department for this and other UST releases. Because of the imbalance between the revenue coming into the Commercial Fund and the potential claims for assessment and cleanup, there will be a considerable delay in reimbursement for activities not directed to proceed by the Department.

Based on the determination that the risk posed by the discharge or release at the subject site is intermediate, you must comply with assessment requirements pursuant to 15A NCAC 2L .0115(g). To achieve compliance with this rule, please submit a Comprehensive Site Assessment (CSA) Report in accordance with 15A NCAC 2L .0106(c), 15A NCAC 2L .0106(g), 15A NCAC 2N .0706 and the most recent version of the UST Section guidelines for assessment and corrective action. The guidelines are available on the Internet at <http://ust.ehnr.state.nc.us> or may be purchased from the UST Section for a fee of \$8.50. To purchase a copy of the guidelines, please send a check made payable to DENR to:

DENR/DWM/UST Section
1637 Mail Service Center
Raleigh, NC 27699-1637

As part of the Comprehensive Site Assessment, you shall also evaluate, based on site-specific conditions, whether the discharge or release poses a significant risk to human health or the environment. The CSA Report must be received by this office **within 90 days** of the date of receipt of this notice. In addition, you must submit a summary of the CSA Report to the local Health Director and the local Chief Administrative Officer in accordance with 15A NCAC 2L .0114. The summary should be submitted to these persons no later than five working days after submittal of the

CSA Report to this office.

Your prompt attention to the items described herein is required. Failure to comply with the State's rules in the manner and time specified, may result in the assessment of civil penalties and /or the use of other enforcement mechanisms available to the State. Each day that a violation continues may be considered a separate violation.

Please note that performing assessment and cleanup work that is not required under 15A NCAC 2L. 0115 is not reimbursable from the Commercial or Noncommercial Leaking Petroleum Underground Storage Tank Cleanup Funds.

If you have any questions regarding the actions that must be taken or the rules mentioned in this letter, please contact me at the letterhead address or phone number. If you have any questions regarding trust fund eligibility or reimbursement, please contact the UST Section Trust Fund Branch at (919) 733-8486.

Sincerely,



Linda Estkowski
Hydrogeologist

cc: Stokes County Health Department
WSRO files
Kevin Simpson
Shield Engineering, Inc.
4301 Taggart Creek Road
Charlotte, NC 28208



North Carolina Department of Environment and Natural Resources
Division of Waste Management
UST Section

Michael F. Easley, Governor

William G. Ross Jr., Secretary
Dexter R. Matthews, Director

June 3, 2004

Mr. Mayne Hill
Hill Oil Company, Inc.
P.O. Box 367
Lexington, NC 27292

Subject: King Chevron, 718 South Main Street, King, Stokes County,, Incident # 24032,
Intermediate Risk Classification

Dear Mr. Hill:

The Underground Storage Tank (UST) Section of the Division of Waste Management Winston-Salem Regional Office has reviewed the information in the subject incident file. Based on this review, free product is present in monitoring well MW-3.

In September 1997, the Environmental Management Commission adopted the "risk-based corrective action rule" which was incorporated into Title 15A of the North Carolina Administrative Code (NCAC) Subchapter 2L .0115, effective January 2, 1998. Under the new rule, the responsible party is obligated to notify the Department of any changes which might effect the level of risk assigned to a discharge or release from a petroleum UST system.

Based upon the information in the file, the Department has classified the incident site as having an intermediate risk with a land-use classification of industrial/commercial. The risk and land-use classifications are subject to change as additional information is submitted.

If you have any questions please contact me at (336) 771-4608, extension 286.

Sincerely,

Linda Estkowski
Hydrogeologist

Cc: WSRO
Kevin Simpson
Shield Engineering, Inc.
4301 Taggart Creek Road
Charlotte, NC 28208

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ATTACHMENT B

GEOPHYSICAL INVESTIGATION REPORT

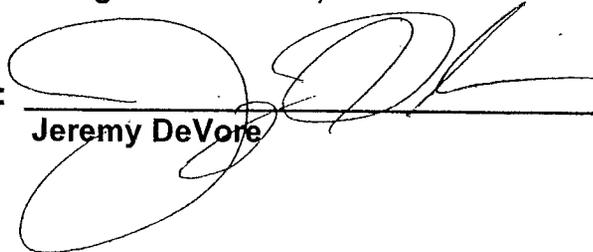
EM-61 & GPR SURVEYS

**King-Tobaccoville Road (Main Street) Sites
King, North Carolina**

May 13, 2005

**Report prepared for: Mike Branson
EarthTech, Inc.
701 Corporate Center Drive, Suite 475
Raleigh, North Carolina 27607**

Prepared by: 
Douglas Canavello, PG

Reviewed by: 
Jeremy DeVore

**PYRAMID ENVIRONMENTAL & ENGINEERING, P.C.
700 NORTH EUGENE ST.
GREENSBORO, NC 27401
(336) 335-3489**

1.0 INTRODUCTION

Pyramid Environmental conducted geophysical investigations for Earth Tech of North Carolina, Inc. during the period of April 13 to May 2, 2005, within the proposed Right-of-Way (ROW) and easement areas at nine sites in King, North Carolina. The work was done as part of the North Carolina Department of Transportation (NCDOT) road widening project. The sites are located along the both sides of King-Tobaccoville Road (Main Street) from 0.25 miles west of US 52 to Meadowbrook Road. The geophysical surveys were conducted to determine if unknown metallic underground storage tanks (UST's) were present beneath the proposed ROW and easement areas of each site.

Earth Tech's representative Mr. Michael Branson, PG, provided maps that outlined the geophysical survey areas of each site and visited the sites with Pyramid Environmental's representative Mr. Douglas Canavello, PG during the week of March 28, 2005. Geophysical surveys were conducted at the following nine sites:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Hill Oil Company Property (Parcel 20) Chevron Station

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

2.0 FIELD METHODOLOGY

Prior to conducting the geophysical investigations, a 10-foot by 10-foot survey grid was established across the proposed ROW and easement areas of eight of the nine sites using water-based marking paint. The exception was the William Oil Property (Parcel 6) where the entire site was gridded and surveyed. These marks were used as X-Y coordinates for location control when collecting the geophysical data and establishing base maps for the geophysical results.

The geophysical investigations consisted of electromagnetic (EM) induction-metal detection surveys and ground penetrating radar (GPR) surveys. The EM surveys were performed using a Geonics EM61-MK1 metal detection instrument. According to the manufacture's specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. The EM61 data were digitally collected at each site along parallel northerly-southerly or easterly-westerly trending survey lines spaced five feet apart. The data were downloaded to a computer and reviewed in the office using the Geonics DAT61W and Surfer for Windows Version 7.0 software programs.

Contour plots of the EM61 bottom coil results and the EM61 differential results for each site are included in this report. The bottom coil results represent the most sensitive component of the EM61 instrument and detect metal objects regardless of size. The bottom coil response can be used to delineate metal conduits or utility lines, small, isolated metal objects, and areas containing insignificant metal debris.

The differential results are obtained from the difference between the top and bottom coils of the EM61 instrument. The differential results focus on the larger metal objects such as drums and UST's and ignore the smaller insignificant metal objects.

GPR surveys were conducted across selected EM61 differential anomalies, and steel-reinforced concrete using a GSSI SIR-2000 unit equipped with a 400 MHz antenna. Surveys were also performed across several areas where parked vehicles that obstructed the EM61 survey had since been removed. GPR data were digitally collected in a continuous mode along X and/or Y survey lines, spaced two to five feet apart using a vertical scan of 512 samples, at a rate of 24 scans per second. A 110 MHz high pass filter and an 800 MHz low pass filter were used during data acquisition with the 400 MHz antenna. GPR data were collected down to a maximum depth of approximately eight feet, based on an estimated two-way travel time of 6 nanoseconds per foot.

The GPR data were downloaded to a field computer and later reviewed in the office using Radprint software. Photos of the EM61 and GPR instruments are shown in Figure 1. The perimeters of possible UST's, based on the geophysical results, were marked and labeled in the field using orange, water-based marking paint.

During the weeks of April 25 and May 2 2005, preliminary contour plots of the EM61 bottom coil and the differential results were emailed to Mr. Branson.

3.0 DISCUSSION OF RESULTS

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

T [REDACTED]
E [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

4.0 SUMMARY & CONCLUSIONS

Our evaluation of the EM61 and GPR data collected across the proposed ROW and easement areas at the nine sites in King, North Carolina provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic UST's within the surveyed portions of the proposed ROW and easement areas of each site.
- GPR surveys were conducted across selected EM61 differential anomalies, areas containing steel reinforced concrete, and at several areas where parked vehicles had obstructed the EM61 surveys.
- Linear EM61 anomalies at the nine sites are probably in response to buried utility lines and/or conduits. The majority of non-linear anomalies are probably in response to known cultural features.
- Excluding the areas containing active and known UST's, the geophysical results did not detect the presence of unknown metallic UST's within the surveyed portions of the proposed ROW and easement areas at the following sites:

[REDACTED]
[REDACTED]
[REDACTED]
Hill Oil Company Property (Parcel 20)
[REDACTED]
[REDACTED]

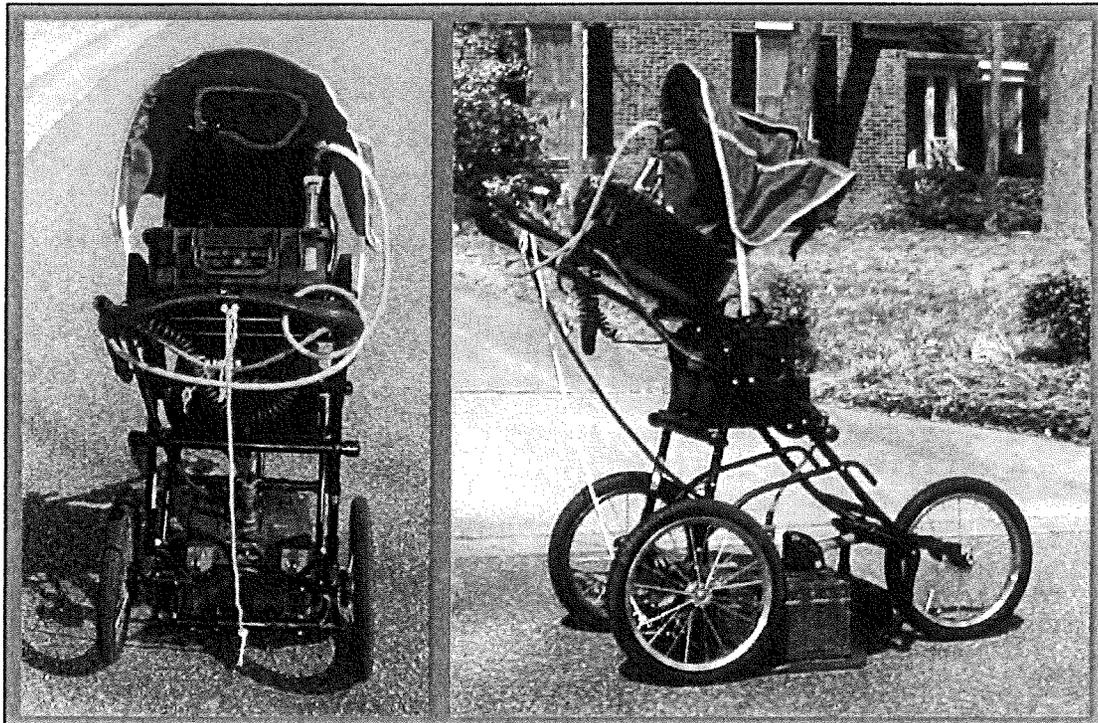
- [REDACTED] TS
- [REDACTED]

5.0 LIMITATIONS

EM61 and GPR surveys have been performed and this report prepared for Earth Tech of North Carolina, Inc. in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project do not conclusively define the locations of all metallic UST's but only suggest where some of the metallic UST's may be present. The EM61 and GPR anomalies, interpreted as possible UST's or tanks, may be attributed to other surface or subsurface conditions or cultural interference.



The Geonics EM61 metal detector was used to conduct the metal detection surveys at the King-Tobaccoville Road sites in April 2005.

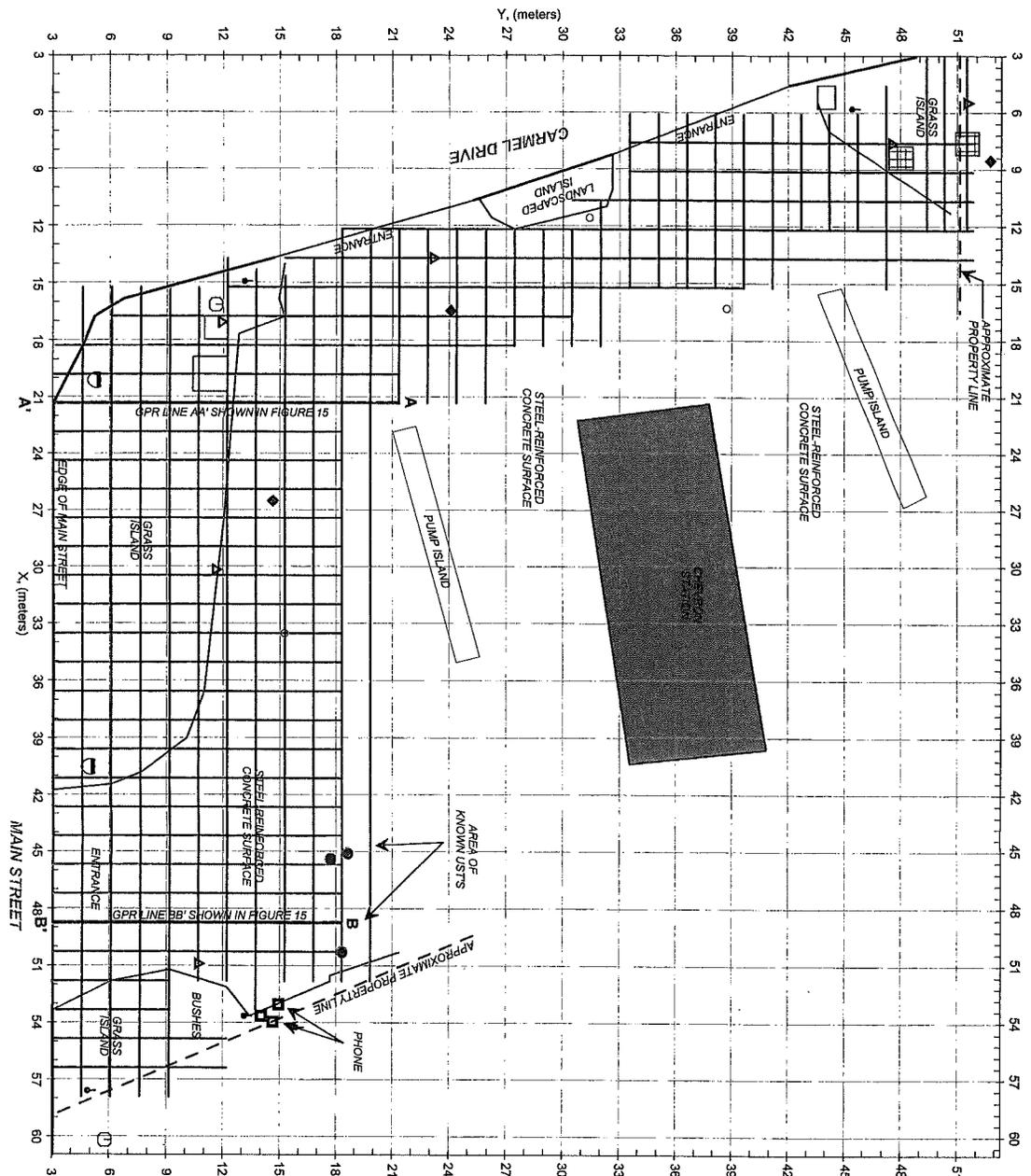


The SIR-2000 GPR system equipped with a 400 MHz antenna that was used at the King-Tobacco Road sites in April and May 2005.

	CLIENT	EARTH TECH OF NORTH CAROLINA, INC.	DATE	5/11/05	DRAWN		
	SITE	KING-TOBACCOVILLE ROAD (MAIN STREET) SITES	BY		REVISION		
	CITY	KING	STATE	NORTH CAROLINA	DATE		
	TITLE	GEOPHYSICAL RESULTS		NO.	2005-100	SCALE	
	GRAPHIC SCALE IN METERS						

GEOPHYSICAL EQUIPMENT

FIGURE 1



LEGEND

GPR SURVEY LINES, GPR DATA COLLECTED ALONG NORTHERLY, SOUTHERLY AND EASTERLY/WESTERLY SURVEY LINES SPACED 1.5 METERS APART

- MONITORING WELL
- ⊥ UTILITY POLE
- ⊕ WATER METER OR VALVE COVER
- + GUY WIRE
- ⊕ MANHOLE COVER
- ⊕ LID COVERS
- ⊕ STORM SEWER GRATE
- ⊕ TRAFFIC SIGN
- ⊕ STORE SIGN
- ⊕ RIGHT-OF-WAY MARKER
- ◆ EASEMENT MARKER
- ◆ INDIVIDUAL GPR SURVEY LINE

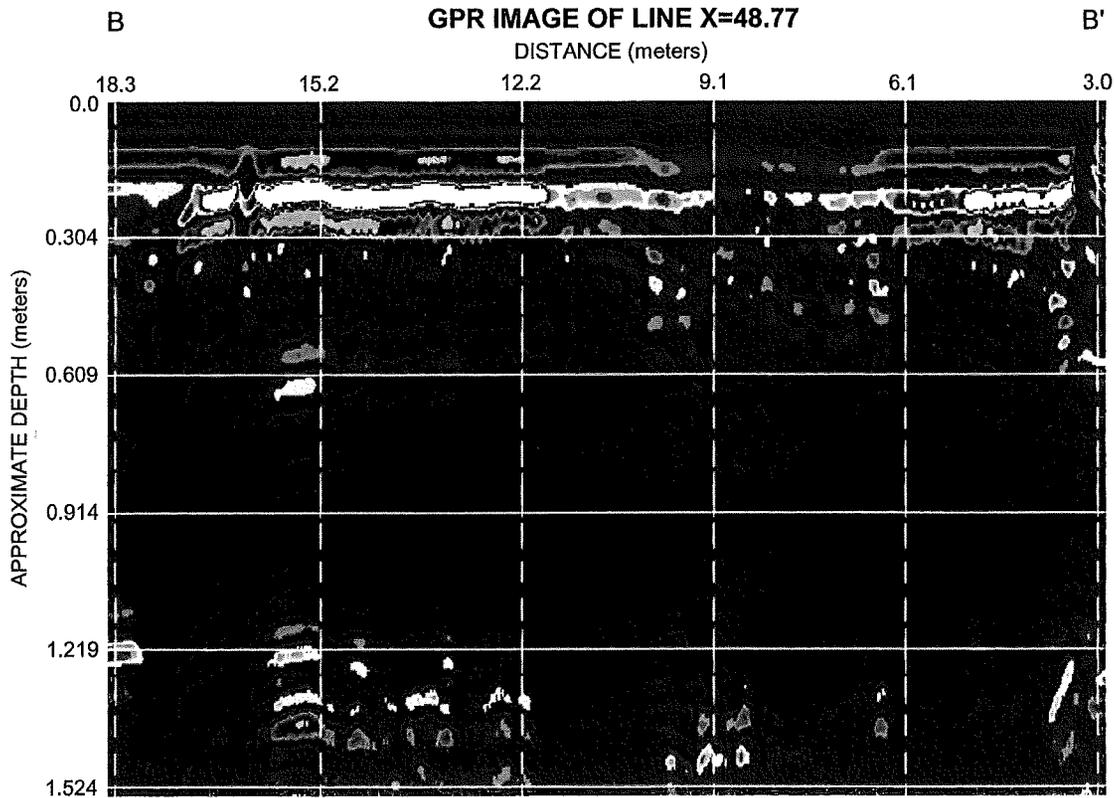
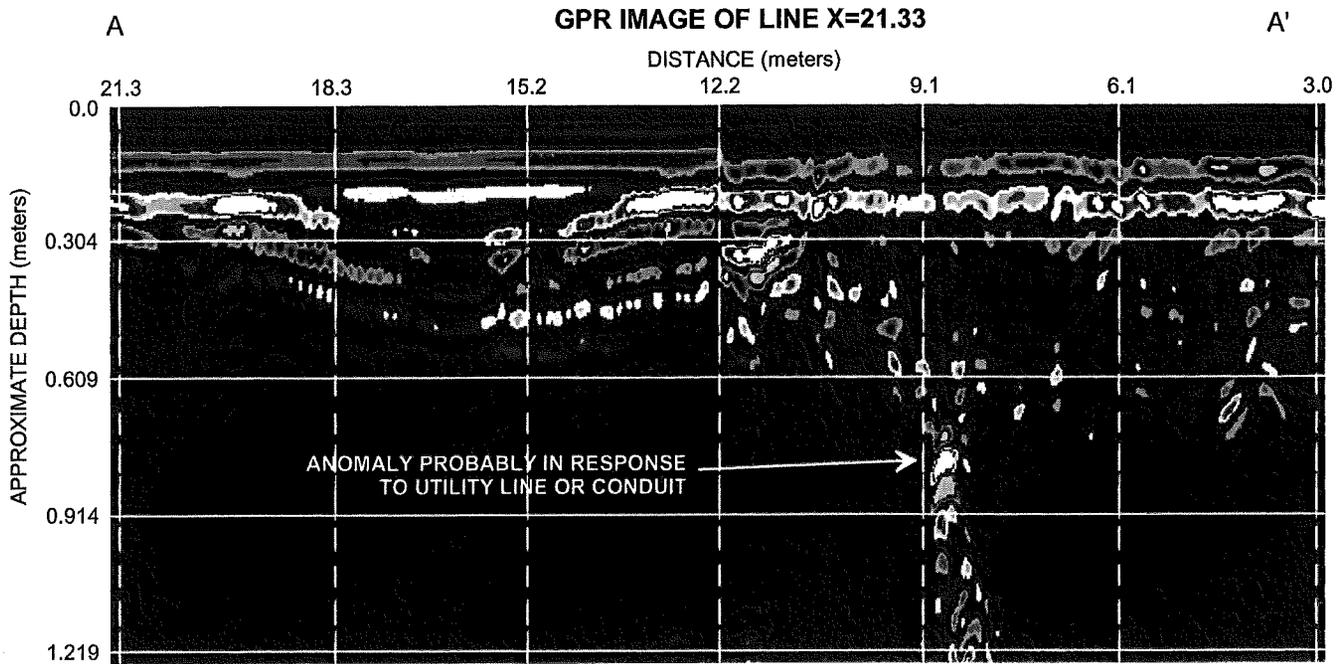
Note: EM61 metal detection surveys were not conducted at this site due to the presence of steel-reinforced concrete across much of the survey area. Ground penetrating radar (GPR) surveys were conducted across the survey area on May 2, 2005 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna. Excluding the area of known UST's, the GPR results suggest that the proposed Right-of-Way and Easement areas of the site do not contain UST's.



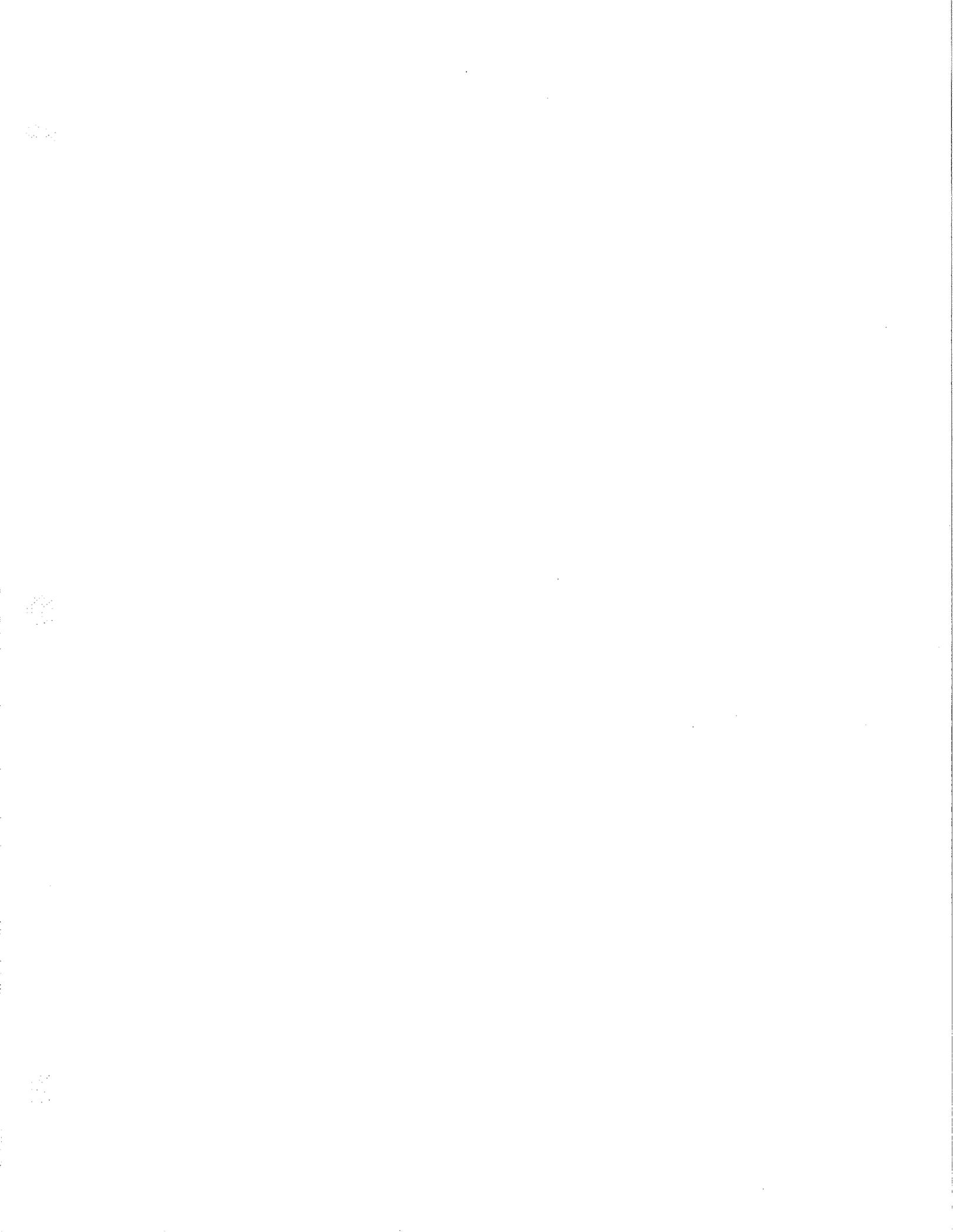
DATE	5/12/05
CLIENT	HILL OIL COMPANY PROPERTY (PARCEL 20)
CITY	KING
STATE	NORTH CAROLINA
PROJECT	GEOPHYSICAL RESULTS
SCALE	2005-100

GEOPHYSICAL SURVEY AREA

FIGURE 14



GPR images of Lines X=21.33 & X=48.77 show typical GPR responses that were obtained across the proposed ROW and easement areas at Parcel 20. GPR surveys were conducted across the survey area on May 2, 2005 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna. Excluding the area of known UST's, the GPR results suggest that the proposed Right-of Way and Easement areas of the site do not contain metallic UST's.



ATTACHMENT C

TEST BORING REPORT

PROJECT HILL OIL COMPANY PROPERTY (PARCEL #20)	BORING NUMBER 20-1
CLIENT NCDOT (R-2201)	PAGE 1
PROJECT NUMBER 85238	ELEVATION
CONTRACTOR PROBE TECHNOLOGY	DATE 5/10/05
EQUIPMENT GEOPROBE	DRILLER
	PREPARED BY STEFFENS

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
5.0			0		6" CONCRETE/GRAVEL, REDDISH BROWN CLAY, DRY, NO ODOR.	
				0.2		AS ABOVE, DRY, NO ODOR.
				1.5		AS ABOVE, DRY, NO ODOR.
				2.3		MEDIUM TO REDDISH BROWN CLAYEY SAND, DRY, NO ODOR.
				2.7		AS ABOVE, DRY, NO ODOR.
10.0						
				1.8		MOTTLED MEDIUM BROWN, REDDISH BROWN, TAN, AND BLACK MEDIUM-GRAINED SAND, DRY, NO ODOR.
				3.3		AS ABOVE, DRY, NO ODOR.
				7.7		AS ABOVE, DRY, SLIGHT TO MODERATE NON-HYDROCARBON ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
15.0						
20.0						

TEST BORING REPORT

PROJECT <u>HILL OIL COMPANY PROPERTY (PARCEL #20)</u> CLIENT <u>NCDOT (R-2201)</u> PROJECT NUMBER <u>85238</u> CONTRACTOR <u>PROBE TECHNOLOGY</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>20-2</u> PAGE <u>1</u> ELEVATION _____ DATE <u>5/10/05</u> DRILLER _____ PREPARED BY <u>STEFFENS</u>
--	--

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0		6" CONCRETE/GRAVEL, REDDISH BROWN CLAY, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
			0.1		AS ABOVE, DRY, NO ODOR.
5.0			0		REDDISH BROWN SANDY CLAY, DRY, NO ODOR
			1		MOTTLED MEDIUM BROWN, REDDISH BROWN, AND TAN FINE-GRAINED SAND, DRY, SLIGHT NON-HYDROCARBON ODOR.
10.0			2.4		AS ABOVE, DRY, SLIGHT NON-HYDROCARBON ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			1		AS ABOVE, DRY, SLIGHT NON-HYDROCARBON ODOR.
15.0			1.4		LIGHT TAN, MEDIUM-GRAINED SAND, DRY, SLIGHT NON-HYDROCARBON ODOR.
					BORING TERMINATED AT 16 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

TEST BORING REPORT

PROJECT <u>HILL OIL COMPANY PROPERTY (PARCEL #20)</u> CLIENT <u>NCDOT (R-2201)</u> PROJECT NUMBER <u>85238</u> CONTRACTOR <u>PROBE TECHNOLOGY</u> EQUIPMENT <u>GEOPROBE</u>	BORING NUMBER <u>20-3</u> PAGE <u>1</u> ELEVATION _____ DATE <u>5/10/05</u> DRILLER _____ PREPARED BY <u>STEFFENS</u>
---	--

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS	
5.0			0.3		6" CONCRETE/GRAVEL, REDDISH BROWN CLAY, DRY, NO ODOR.	
				2		AS ABOVE, DRY, NO ODOR.
				6.2		AS ABOVE, DRY, NO ODOR.
				22.2		AS ABOVE, DRY, NO ODOR.
				32.2		MOTTLED MEDIUM BROWN, REDDISH BROWN, AND TAN MEDIUM-GRAINED SAND, DRY, SLIGHT NON-HYDROCARBON ODOR.
10.0						
				47		AS ABOVE, DRY, SLIGHT NON-HYDROCARBON ODOR.
				95.1		AS ABOVE, DRY, SLIGHT NON-HYDROCARBON ODOR.
				175		AS ABOVE, DRY, SLIGHT TO MODERATE NON-HYDROCARBON ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
15.0						
20.0						

TEST BORING REPORT

PROJECT HILL OIL COMPANY PROPERTY (PARCEL #20) CLIENT NCDOT (R-2201) PROJECT NUMBER 85238 CONTRACTOR PROBE TECHNOLOGY EQUIPMENT GEOPROBE	BORING NUMBER 20-4 PAGE 1 ELEVATION DATE 5/10/05 DRILLER PREPARED BY STEFFENS
---	--

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0			2.4		6" CONCRETE/GRAVEL, REDDISH BROWN CLAY, DRY, NO ODOR.
			5		AS ABOVE, DRY, NO ODOR.
			10.5		MEDIUM TOI REDDISH BROWN SANDY CLAY, DRY, NO ODOR.
10.0			15.3		AS ABOVE, DRY, NO ODOR.
			27		AS ABOVE, DRY, NO ODOR.
			19		MOTTLED MEDIUM BROWN, REDDISH BROWN, TAN, AND BLACK FINE-GRAINED SAND, DRY, SLIGHT NON-HYDROCARBON ODOR.
15.0			53.1		AS ABOVE, DRY, SLIGHT NON-HYDROCARBON ODOR.
			105		AS ABOVE, DRY, SLIGHT TO MODERATE NON-HYDROCARBON ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
					BORING TERMINATED AT 16 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

TEST BORING REPORT

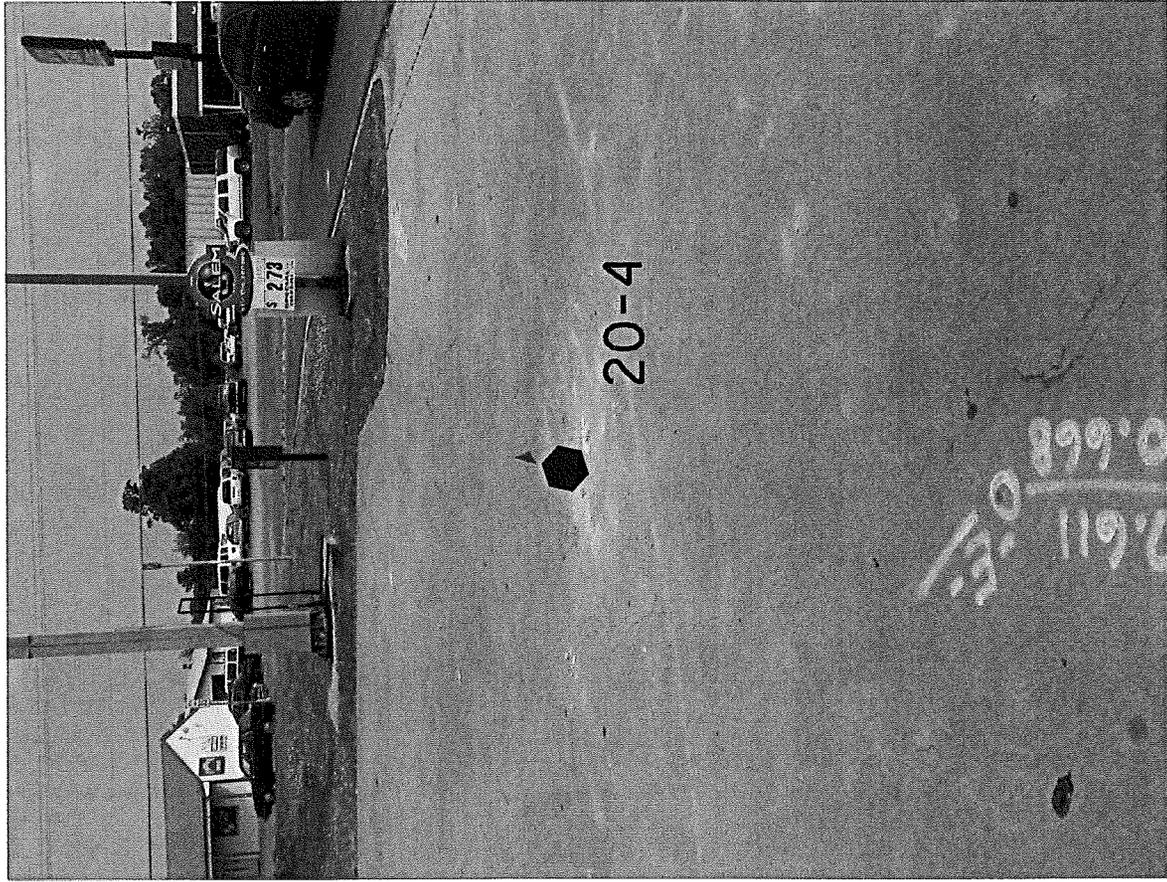
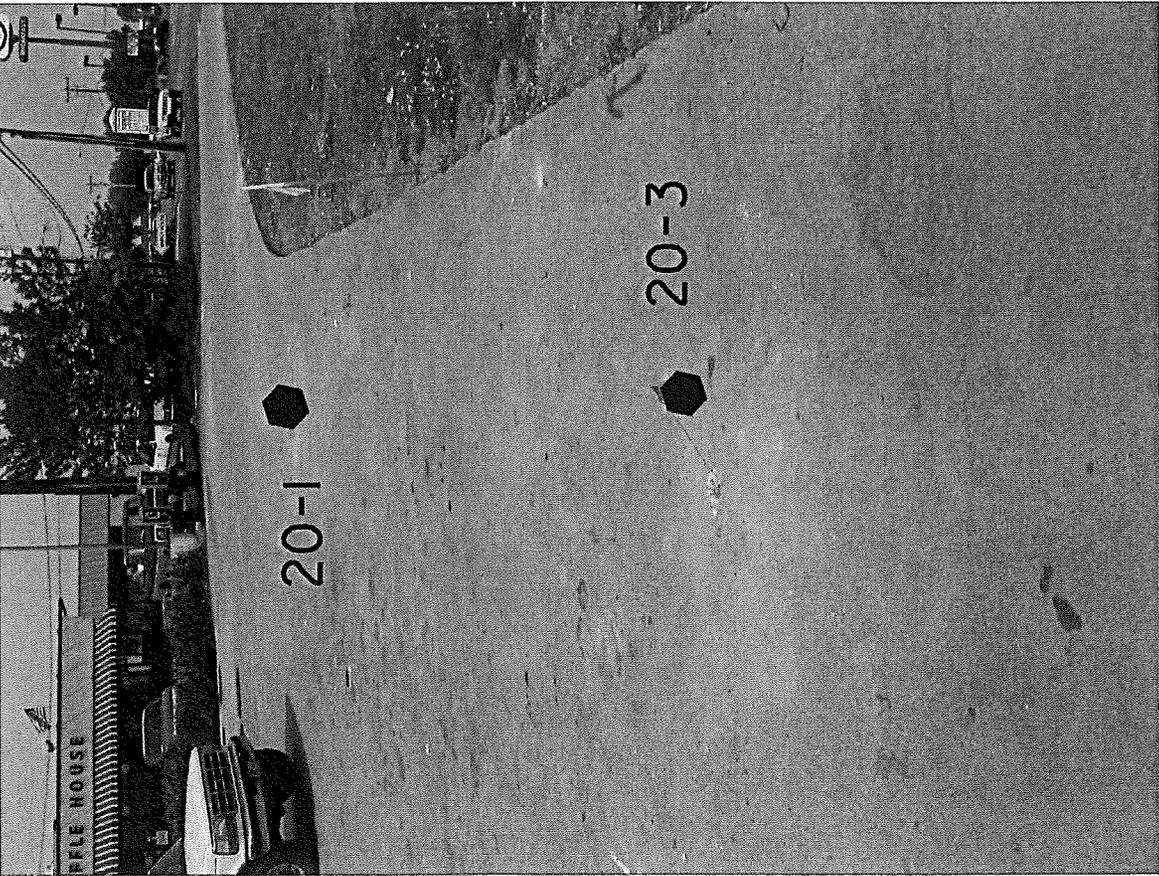
PROJECT HILL OIL COMPANY PROPERTY (PARCEL #20)
 CLIENT NCDOT (R-2201)
 PROJECT NUMBER 85238
 CONTRACTOR PROBE TECHNOLOGY
 EQUIPMENT GEOPROBE

BORING NUMBER 20-6
 PAGE 1
 ELEVATION _____
 DATE 5/10/05
 DRILLER _____
 PREPARED BY STEFFENS

DEPTH IN FEET	CASING BLOWS FOOT	BLOWS PER 6 INCHES	OVA (ppm)	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
			0		6" TOPSOIL, REDDISH BROWN SANDY CLAY, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
5.0			0.1		AS ABOVE, DRY, NO ODOR.
			0.2		AS ABOVE, DRY, NO ODOR.
10.0			0.3		AS ABOVE, DRY, NO ODOR.
			8.1		MEDIUM BROWN TO TAN FINE-GRAINED SAND, DRY, SLIGHT NON-HYDROCARBON ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
15.0			7		PINK TO TAN FINE-GRAINED SAND, DRY, SLIGHT NON-HYDROCARBON ODOR.
					BORING TERMINATED AT 16 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

100

ATTACHMENT D







20-6



ATTACHMENT E

PARADIGM ANALYTICAL LABORATORIES, INC.

5500 Business Drive
Wilmington, North Carolina 28405
(910) 350-1903
Fax (910) 350-1557

Mr. Mike Branson
Earth Tech
701 Corporate Dr. Suite 475
Raleigh NC 27607

Report Number: G204-455

Client Project: King Parcel #20

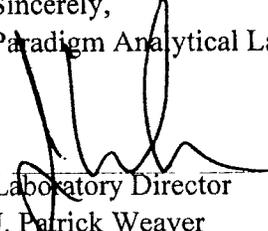
Dear Mr. Branson:

Enclosed are the results of the analytical services performed under the referenced project. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call Paradigm at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,
Paradigm Analytical Laboratories, Inc.


Laboratory Director
J. Patrick Weaver

5/23/05
Date

CASE NARRATIVE

Date: June 8, 2005

Earth Tech Project ID: King Parcel #20
Paradigm Analytical ID: G204-455

Six soil samples were submitted to the laboratory on May 11 for analysis of gasoline and diesel range organics (GRO and DRO). The samples were received in good condition, within temperature and holding time limits.

All extractions and analyses were completed within holding time and without quality control exception.

Only sample 20-5-14-16 contained any measurable concentration of DRO. No sample contained a measurable concentration of GRO.

However, the field crew discussed organic odors from the sampling area with the laboratory. It was decided to analyze sample 20-3-14-16 by GC/MS 8260 with a tentatively identified compound (TIC) scan to identify any constituents not detected by GRO or DRO that could have caused the observed odors.

The sample was analyzed by 8260 on June 3, outside of the 14-day holding time limit. While no target compounds were detected, three TICs were found.

These compounds are all alcohols.

The reported concentrations by the TIC method may be lower than the concentrations that exist in the field as the sample was stored in a 4-ounce jar with headspace beyond the 14-day holding time limit.

A re-sampling using collection method 5035 may be required to more accurately measure the concentrations as they exist in the field.

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260-5030

Client Sample ID: 20-3-14-16
Client Project ID: King Parcel #20
Lab Sample ID G204-455-3A
Lab Project ID: G204-455
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 05-10-2005 14:30
Date Received: 5/11/05
Matrix: Soil
%Solids: 90.0

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
Acetone	BQL	55.3	1	6/3/05
Benzene	BQL	5.53	1	6/3/05
Bromobenzene	BQL	5.53	1	6/3/05
Bromochloromethane	BQL	5.53	1	6/3/05
Bromodichloromethane	BQL	5.53	1	6/3/05
Bromoform	BQL	5.53	1	6/3/05
Bromomethane	BQL	5.53	1	6/3/05
2-Butanone	BQL	27.7	1	6/3/05
n-Butylbenzene	BQL	5.53	1	6/3/05
sec-Butylbenzene	BQL	5.53	1	6/3/05
tert-Butylbenzene	BQL	5.53	1	6/3/05
Carbon disulfide	BQL	5.53	1	6/3/05
Carbon tetrachloride	BQL	5.53	1	6/3/05
Chlorobenzene	BQL	5.53	1	6/3/05
Chloroethane	BQL	5.53	1	6/3/05
Chloroform	BQL	5.53	1	6/3/05
Chloromethane	BQL	5.53	1	6/3/05
2-Chlorotoluene	BQL	5.53	1	6/3/05
4-Chlorotoluene	BQL	5.53	1	6/3/05
Dibromochloromethane	BQL	5.53	1	6/3/05
1,2-Dibromo-3-chloropropane	BQL	5.53	1	6/3/05
Dibromomethane	BQL	5.53	1	6/3/05
1,2-Dibromoethane (EDB)	BQL	5.53	1	6/3/05
1,2-Dichlorobenzene	BQL	5.53	1	6/3/05
1,3-Dichlorobenzene	BQL	5.53	1	6/3/05
1,4-Dichlorobenzene	BQL	5.53	1	6/3/05
trans-1,4-Dichloro-2-butene	BQL	5.53	1	6/3/05
1,1-Dichloroethane	BQL	5.53	1	6/3/05
1,1-Dichloroethene	BQL	5.53	1	6/3/05
1,2-Dichloroethane	BQL	5.53	1	6/3/05
cis-1,2-Dichloroethene	BQL	5.53	1	6/3/05
trans-1,2-dichloroethene	BQL	5.53	1	6/3/05
1,2-Dichloropropane	BQL	5.53	1	6/3/05
1,3-Dichloropropane	BQL	5.53	1	6/3/05
2,2-Dichloropropane	BQL	5.53	1	6/3/05
1,1-Dichloropropene	BQL	5.53	1	6/3/05
cis-1,3-Dichloropropene	BQL	5.53	1	6/3/05
trans-1,3-Dichloropropene	BQL	5.53	1	6/3/05
Dichlorodifluoromethane	BQL	5.53	1	6/3/05
Diisopropyl ether (DIPE)	BQL	5.53	1	6/3/05
Ethylbenzene	BQL	5.53	1	6/3/05
Hexachlorobutadiene	BQL	5.53	1	6/3/05

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles
by GCMS 8260-5030

Client Sample ID: 20-3-14-16
Client Project ID: King Parcel #20
Lab Sample ID G204-455-3A
Lab Project ID: G204-455
Report Basis: Dry Weight

Analyzed By: JTF
Date Collected: 05-10-2005 14:30
Date Received: 5/11/05
Matrix: Soil
%Solids: 90.0

Report Name Compound	Result UG/KG	Quantitation Limit UG/KG	Dilution Factor	Date Analyzed
2-Hexanone	BQL	5.53	1	6/3/05
Iodomethane	BQL	5.53	1	6/3/05
Isopropylbenzene	BQL	5.53	1	6/3/05
4-Isopropyltoluene	BQL	5.53	1	6/3/05
Methylene chloride	BQL	22.1	1	6/3/05
4-Methyl-2-pentanone	BQL	5.53	1	6/3/05
Methyl-tert-butyl ether (MTBE)	BQL	5.53	1	6/3/05
Naphthalene	BQL	5.53	1	6/3/05
n-Propyl benzene	BQL	5.53	1	6/3/05
Styrene	BQL	5.53	1	6/3/05
1,1,1,2-Tetrachloroethane	BQL	5.53	1	6/3/05
1,1,2,2-Tetrachloroethane	BQL	5.53	1	6/3/05
Tetrachloroethene	BQL	5.53	1	6/3/05
Toluene	BQL	5.53	1	6/3/05
1,2,3-Trichlorobenzene	BQL	5.53	1	6/3/05
1,2,4-Trichlorobenzene	BQL	5.53	1	6/3/05
Trichloroethene	BQL	5.53	1	6/3/05
1,1,1-Trichloroethane	BQL	5.53	1	6/3/05
1,1,2-Trichloroethane	BQL	5.53	1	6/3/05
Trichlorofluoromethane	BQL	5.53	1	6/3/05
1,2,3-Trichloropropane	BQL	5.53	1	6/3/05
1,2,4-Trimethylbenzene	BQL	5.53	1	6/3/05
1,3,5-Trimethylbenzene	BQL	5.53	1	6/3/05
Vinyl chloride	BQL	5.53	1	6/3/05
m,p-Xylene	BQL	11.1	1	6/3/05
o-Xylene	BQL	5.53	1	6/3/05

	Spike Added	Spike Result	Percent Recovered
4-Bromofluorobenzene	50	54.6	109
1,2-Dichloroethane-d4	50	50.6	101
Toluene-d8	50	50.4	101

Comments:

Sample analyzed outside of 14-day holding time limit. See case narrative.

Flags:

BQL = Below Quantitation Limits.

Reviewed By:

Results of Library Search for Volatile Compounds
by GCMS

Client Sample ID: 20-3-14-16
 Client Project ID: King Parcel #20
 Lab Sample ID: G204-455-3a
 Lab Project ID: G204-455
 Sample Vol: 5 g
 Dilution: 1

Analyzed By: JTF
 Date Collected: 05-10-2005
 Date Received: 05-11-2005
 Matrix: Soil
 % SOLIDS: 90.0
 Date Analyzed: 06-03-2005

No.	Compound	Retention Time	CAS#	Match Probability	Result ug/KG
1	Amylene Hydrate	8.02	75-85-4	83	17.1
2	2-methyl-2-pentanol	10.69	590-36-3	83	17.4
3	3-methyl-3-pentanol	11.23	77-74-7	74	15.5
4					
5					
6					
7					
8					
9					
10					

Comment:

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak area of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak area is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Sample analyzed outside of 14-day holding time limit. See case narrative.

Reviewed by: PN

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 20-1-14-16
Client Project ID: King Parcel #20
Lab Sample ID: G204-455-1
Lab Project ID: G204-455
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 5/10/05 13:30
Date Received: 5/11/05
Matrix: Soil
Solids 86.38

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.95	5030	1	05/19/05
Diesel Range Organics	BQL	7.16	3545	1	05/19/05

Reviewed By: *mc*
TPH_LIMS_v1.71.XLS6 of 13

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 20-2-10-12
Client Project ID: King Parcel #20
Lab Sample ID: G204-455-2
Lab Project ID: G204-455
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 5/10/05 14:00
Date Received: 5/11/05
Matrix: Soil
Solids 84.95

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.06	5030	1	05/19/05
Diesel Range Organics	BQL	7.25	3545	1	05/19/05

Reviewed By: *hrc*
TPH_LIMS_v1.71.XLS 7 of 13

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 20-3-14-16
Client Project ID: King Parcel #20
Lab Sample ID: G204-455-3
Lab Project ID: G204-455
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 5/10/05 14:30
Date Received: 5/11/05
Matrix: Soil
Solids 90.02

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.67	5030	1	05/19/05
Diesel Range Organics	BQL	6.83	3545	1	05/19/05

Reviewed By: *me*
TPH_LIMS_v1.71.XLS8 of 13

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 20-4-14-16
Client Project ID: King Parcel #20
Lab Sample ID: G204-455-4
Lab Project ID: G204-455
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 5/10/05 15:00
Date Received: 5/11/05
Matrix: Soil
Solids 81.47

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.36	5030	1	05/19/05
Diesel Range Organics	BQL	7.03	3545	1	05/19/05

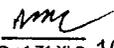
Reviewed By: 
TPH_LIMS_v1.71.XLS 9 of 13

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 20-5-14-16
 Client Project ID: King Parcel #20
 Lab Sample ID: G204-455-5
 Lab Project ID: G204-455
 Report Basis: Dry Weight

Analyzed By: DCS
 Date Collected: 5/10/05 15:45
 Date Received: 5/11/05
 Matrix: Soil
 Solids 83.83

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.16	5030	1	05/19/05
Diesel Range Organics	7.82	7.21	3545	1	05/20/05

Reviewed By: 
 TPH_LIMS_v1.71.XLS 10 of 13

Results for Total Petroleum Hydrocarbons
by GC/FID 8015

Client Sample ID: 20-6-12-14
Client Project ID: King Parcel #20
Lab Sample ID: G204-455-6
Lab Project ID: G204-455
Report Basis: Dry Weight

Analyzed By: DCS
Date Collected: 5/10/05 16:00
Date Received: 5/11/05
Matrix: Soil
Solids 87.38

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.87	5030	1	05/20/05
Diesel Range Organics	BQL	7.08	3545	1	05/20/05

Reviewed By: 
TPH_LIMS_v1.71.XLS 11 of 13

List of Reporting Abbreviations
and Data Qualifiers

B = Compound also detected in batch blank

BQL = Below Quantitation Limit

DF = Dilution Factor

Dup = Duplicate

E = Estimated concentration, exceeds calibration range.

J = Estimated concentration, below calibration range and above MDL

LCS(D) = Laboratory Control Spike (Duplicate)

MDL = Method Detection Limit

MS(D) = Matrix Spike (Duplicate)

PQL = Practical Quantitation Limit

RL = Reporting Limit

RPD = Relative Percent Difference

mg/kg = milligram per kilogram, ppm, parts per million

ug/kg = micrograms per kilogram, ppb, parts per billion

mg/L = milligram per liter, ppm, parts per million

ug/L = micrograms per liter, ppb, parts per billion

% Rec = Percent Recovery

% solids = Percent Solids

Special Notes:

- 1) Metals and mercury samples are digested with a hot block, see the standard operating procedure document for details.
- 2) Uncertainty for all reported data is less than or equal to 30 percent.

MI34.011404.1

PARADIGM ANALYTICAL LABORATORIES, INC.

5500 Business Drive, Wilmington, NC 28405
 Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 46783

Page 1 of 1

Client: EMPH TECH Project ID: KING - PAPER #20 Date: MAY 10, 2005 Report To: MIKE BRANSON

Address: 701 Corp. CNTL Dr. STE 475 Contact: MIKE BRANSON Turnaround: STD

Address: PHLEGH NC 27607 Phone: 919.854.4620 Job Number: 85238

Quote #: _____ Fax: 919.854.6259 P.O. Number: _____ Invoice To: NCDOT WBS# 34380.1.1

PARADIGM ANALYTICAL LABORATORIES, INC.

Sample ID	Date	Time	Matrix	Preservatives		Analyses		Comments: Please specify any special reporting requirements
				DRO	GRO			
20-1-14-16	5.10.05	1330	Soil	✓	✓			
20-2-10-12		1400		✓	✓			
20-3-14-16		1430		✓	✓			7600 +TTC, add? see note Serial 61195 #
20-4-14-16		1500		✓	✓			
20-5-14-16		1545		✓	✓			
20-6-12-14		1606		✓	✓			
Retriugished By	Date	Time	Received By	Date	Time	Temperature	State Certification Requested	
<u>B.H. Saffin</u>	<u>5.10.05</u>	<u>1730</u>	<u>Jalil Alwan</u>	<u>5/11/05</u>	<u>1015</u>	<u>55°C</u>	NC <input checked="" type="checkbox"/> SC <input type="checkbox"/> Other <input type="checkbox"/>	

ORIGINAL

SEE REVERSE FOR
TERMS AND CONDITIONS