



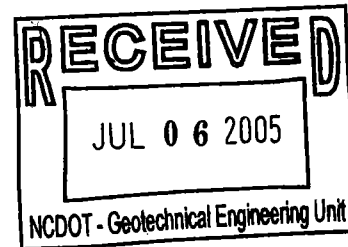
A **tyco** International Ltd. Company

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July 6, 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  
Taylor Oil Company Property (Parcel #43)  
583 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 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 Taylor Oil Company Property (Parcel #43) is located at 583 South Main Street in King, North Carolina. The property is situated on the east side of South Main Street at the northeastern quadrant of the intersection of South Main Street and Kirby Road (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 (Pantry #3178) where six underground storage tanks (USTs) are present. The USTs include one 12,000-gallon kerosene, one 12,000-gallon diesel fuel, and four 12,000-gallon gasoline tanks. The property consists of a single-story building with a canopied pump island on the east and west side of the building. The USTs are located on the north side of the building (Figure 2). The proposed right-of-way does not appear to affect the building or USTs, but may affect one corner of the dispenser island area. Because of the presence of USTs, the NCDOT requested a Preliminary Site Assessment to evaluate the soils within the proposed right-of-way.

Earth Tech reviewed the North Carolina Department of Environment and Natural Resources (NCDENR) Incident Management database and no incident number was listed for this location. 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 0-009153. The operator and owner of the tanks are listed as follows:

Owner

The Pantry, Inc.  
Post Office Box 1410/1801 Douglas Drive  
Sanford, North Carolina 27330-1410  
(919) 774-6700

Operator

Pantry 3178 dba Etna  
583 South Main Street  
King, North Carolina 27021  
(336) 983-6981

### **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 proposed right-of-way. The geophysical survey consisted of an electromagnetic survey using a Geonics EM61 time-domain electromagnetic induction meter to locate buried metallic objects, specifically USTs. 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 Kirby Road. The grid was located to cover all accessible portions of the proposed right-of-way. The survey lines were spaced 1.5 meters (5 feet) apart. Magnetic data was collected continuously along each survey line with a data logger. After collection, the data was reviewed in the field with graphical computer software. Following the electromagnetic survey, a ground penetrating radar (GPR) survey was conducted to further evaluate any anomalies.

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

### **Site Assessment Activities**

On May 11, 2005, Earth Tech mobilized to the site to conduct a Geoprobe<sup>®</sup> direct push investigation to evaluate soil conditions within the proposed corridor. 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).

Five direct-push holes (43-1 through 43-5) 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 B. The borings were located within the proposed right-of-way to evaluate the entire right-of-way (Attachment C). Borings 43-1 and 43-2 were located to evaluate the southern proposed right-of-way. Borings 43-3 and 43-4 were located to assess the pump island area. Boring 43-5 was located to evaluate soil conditions in the proposed right-of-way at a point nearest to the known USTs. The lithology encountered by the direct-push samples generally was consistent throughout the site. The ground surface for the boring locations was covered with about 0.15 meters (6 inches) of asphalt and gravel. Below the surface treatment to a depth of 4.8 meters (16 feet) was a medium to reddish brown fine-grained sandy clay. 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 D, petroleum hydrocarbon compounds were detected in three of the five soil samples collected from the site (Figure 3). The soil sample from boring 43-2 contained a diesel range organic (DRO) concentration of 8.87 mg/kg, the soil sample from boring 43-3 contained a DRO concentration of 7.85 mg/kg, and the soil sample from boring 43-4 contained a DRO concentration of 29.8 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. One of the soil samples collected from the site contained a TPH diesel fuel concentration above the 10 mg/kg assumed action level.

### **Conclusions and Recommendations**

A Preliminary Site Assessment was conducted to evaluate the Taylor Oil Company Property (Parcel #43) located at 583 South Main Street in King, Stokes County, North Carolina. Five soil borings were advanced to evaluate the soil conditions on the property. The laboratory reports of the soil samples from these borings suggest that one of the samples contained TPH concentrations above the assumed action level. Based on the location of the soil boring from which the soil

Mr. Greg Smith  
July 6, 2005  
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sample was collected that contained elevated TPH concentrations, the source of the contamination is most likely from the dispenser islands.

To evaluate the volume of soil requiring possible remediation, the soil sample with TPH concentrations above 10 mg/kg was considered. The analytical results of the soil sample suggest that the soil from boring 43-4 contained a TPH DRO concentration above the assumed action level. A review of the field screening readings (Table 1) suggests that a maximum contaminated soil thickness of 3 meters (10 feet), from ground surface to 3 meters (10 feet), is likely. The volume of potentially affected soil was estimated based on a thickness of 3 meters (10 feet), a width of 9 meters (30 feet), and a length of 21 meters (69 feet). These dimensions result in a volume of about 567 cubic meters (750 cubic yards) of contaminated soil. This volume is estimated from TPH analytical data, which are no longer valid for remediation of sites reported after January 2, 1998. After this date, MADEP EPH/VPH and EPA Method 8260/8270 analyses will likely be required to confirm cleanup. However, these analyses do not correlate exactly with TPH data and, as a result, the actual volume of contaminated soil may be higher or lower.

Earth Tech appreciates the opportunity to work with the NCDOT on this project. Earth Tech recommends that a copy of this report be submitted to the Division of Waste Management, UST Section, in the 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**  
**TAYLOR OIL COMPANY PROPERTY (PARCEL #43)**  
**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)
43-1	0 - 0.6	0			
	0.6 - 1.2	0.1			
	1.2 - 1.8	0			
	1.8 - 2.4	0.2			
	2.4 - 3.0	0.1			
	3.0 - 3.6	0.4			
	3.6 - 4.2	0.7	43-1-12-14	DRO (BQL) GRO (BQL)	10 10
43-2	4.2 - 4.8	0.6			
	0 - 0.6	0.4			
	0.6 - 1.2	0.4			
	1.2 - 1.8	0.5			
	1.8 - 2.4	0.5	43-2-6-8	DRO (8.87) GRO (BQL)	10 10
	2.4 - 3.0	0			
	3.0 - 3.6	0.1			
43-3	3.6 - 4.2	0			
	4.2 - 4.8	0.1			
	0 - 0.6	0			
	0.6 - 1.2	0.1			
	1.2 - 1.8	0.2	43-3-4-6	DRO (7.85) GRO (BQL)	10 10
	1.8 - 2.4	0			
	2.4 - 3.0	0			
43-4	3.0 - 3.6	0			
	3.6 - 4.2	0			
	4.2 - 4.8	0			
	0 - 0.6	0			
	0.6 - 1.2	0			
	1.2 - 1.8	0			
	1.8 - 2.4	0.1			
43-5	2.4 - 3.0	0.2	43-4-8-10	DRO (29.8) GRO (BQL)	10 10
	3.0 - 3.6	0.1			
	3.6 - 4.2	0			
	4.2 - 4.8	0			
	0 - 0.6	0			
	0.6 - 1.2	0.1			
	1.2 - 1.8	0.2			
43-5	1.8 - 2.4	0	43-5-6-8	DRO (BQL) GRO (BQL)	10 10
	2.4 - 3.0	0			
	3.0 - 3.6	0			
	3.6 - 4.2	0			
	4.2 - 4.8	0			

DRO - Diesel range organics.

GRO - Gasoline range organics.

**BOLD** value present above the assumed action level.

ppm - parts per million.

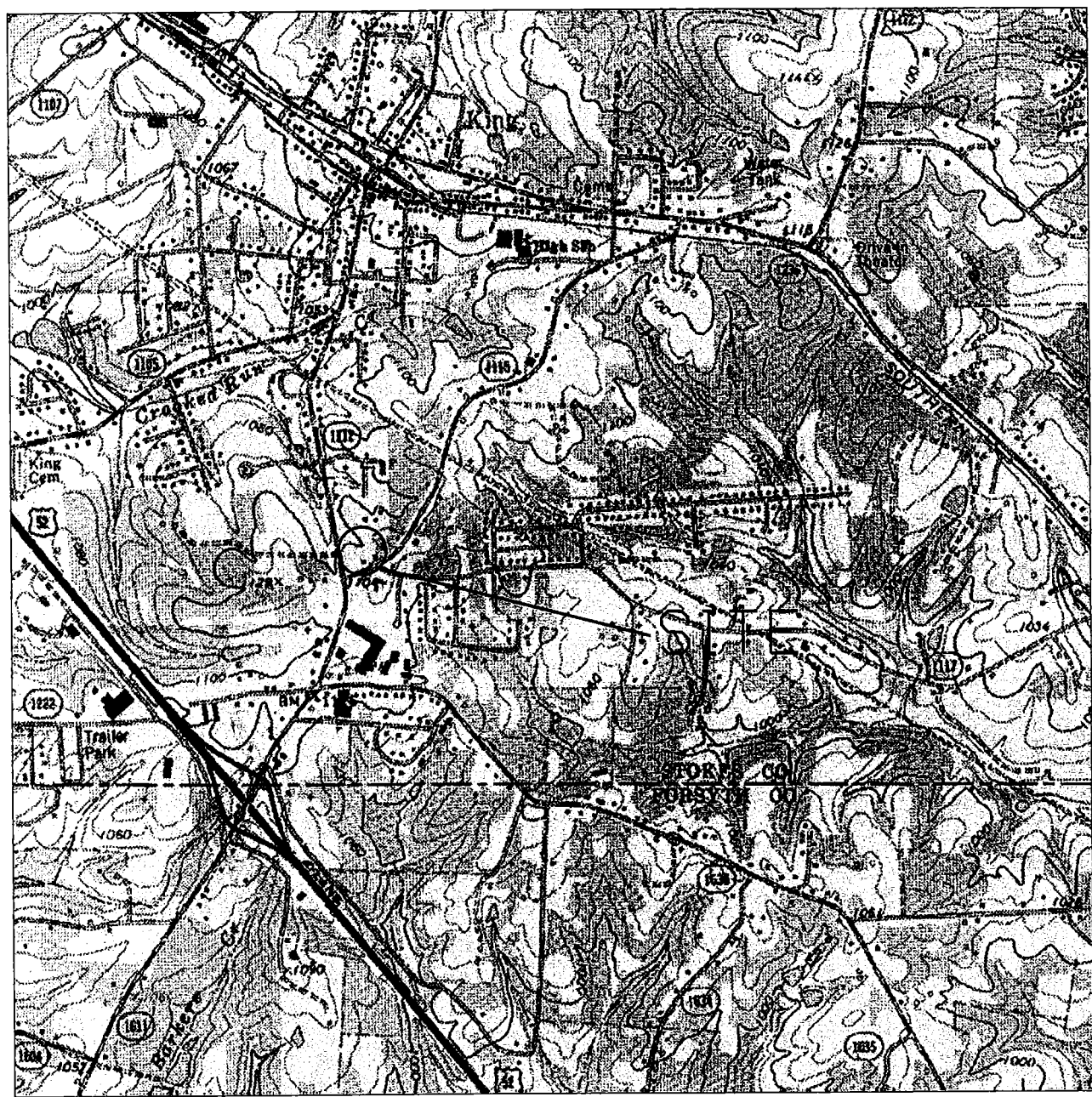
mg/kg - milligrams per kilogram.

100  
100

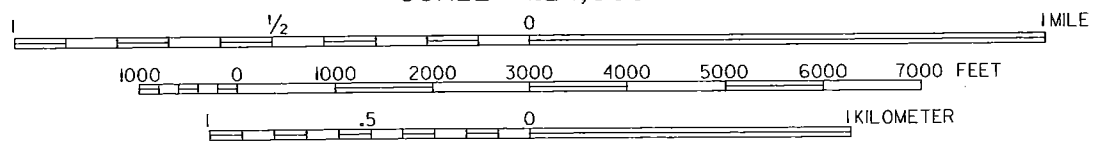
100

100

**FIGURES**



SCALE 1:24,000



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

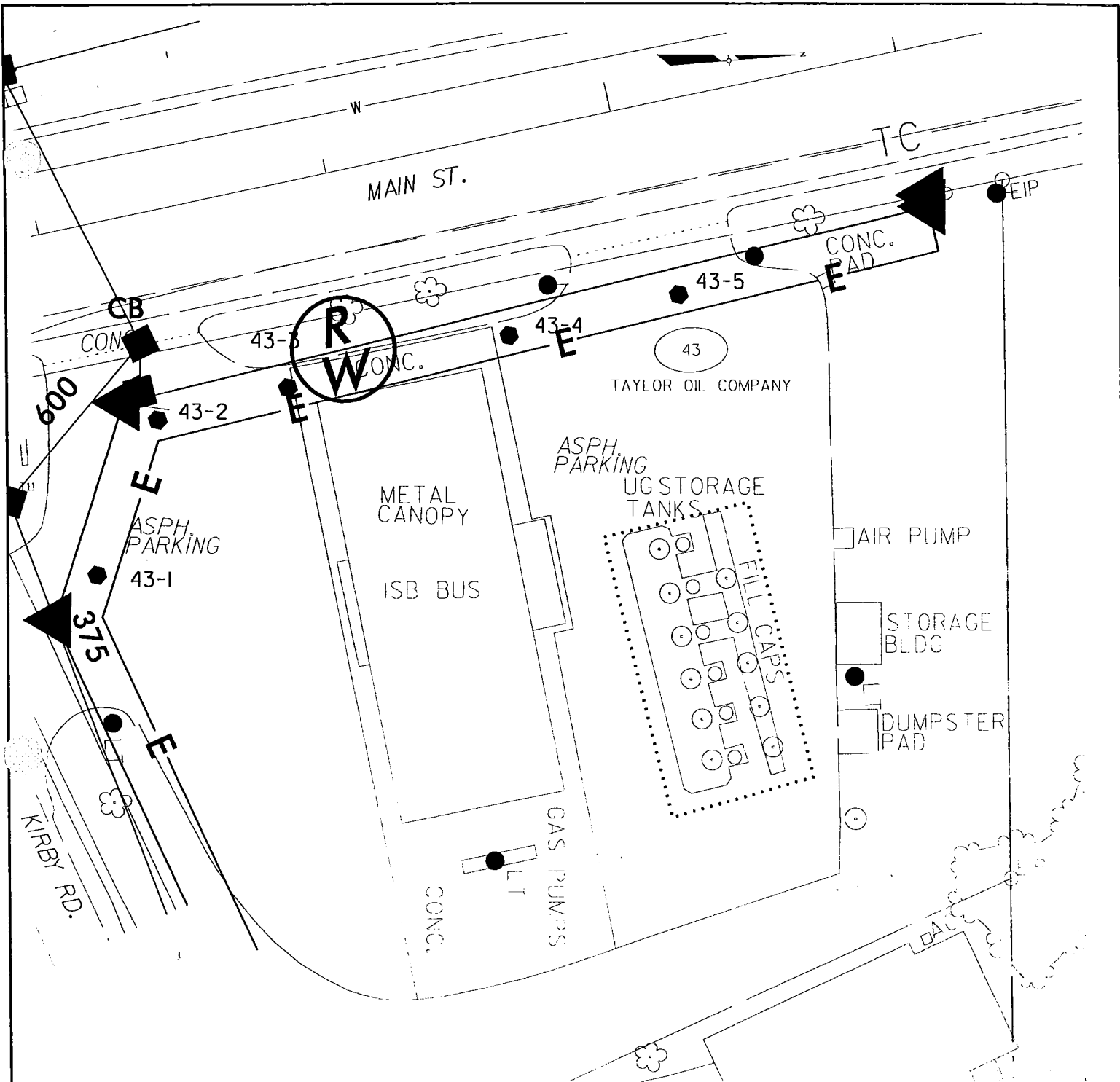


FIGURE 1  
VICINITY MAP  
TAYLOR OIL COMPANY PROPERTY (PARCEL #43)  
KING, NORTH CAROLINA

MAY 2005

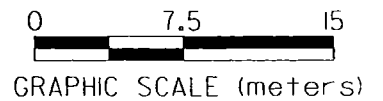
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**LEGEND**

- 43-1 ● SOIL BORING LOCATION AND IDENTIFICATION
- ⋯ UST LOCATION

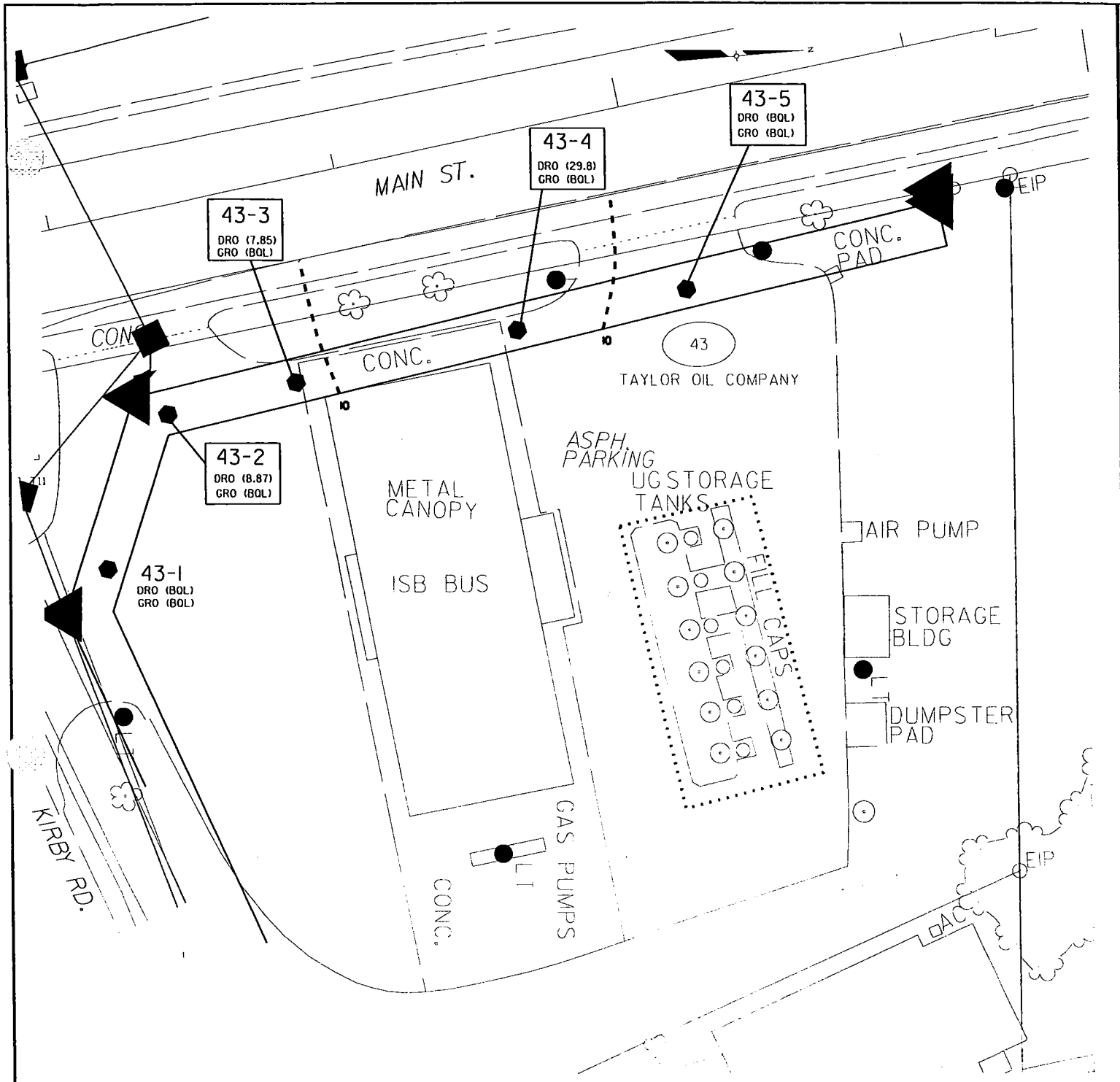


EARTH  TECH



**FIGURE 2**  
**SITE MAP**  
 TAYLOR OIL CO. PROPERTY (PARCEL #43)  
 KING, NORTH CAROLINA

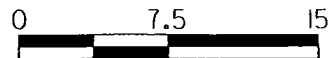
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**LEGEND**

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



GRAPHIC SCALE (meters)

**FIGURE 3**  
 ANALYTICAL RESULTS MAP  
 TAYLOR OIL CO. PROPERTY (PARCEL #43)  
 KING, NORTH CAROLINA



MAY 2005

85238

10

11

12

**ATTACHMENT A**

**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-Tobacoville 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]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Taylor Oil Company Property (Parcel 43) Kangaroo Station

**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]

[REDACTED]



3

st

### 3.7 Taylor Oil Company Property (Parcel 43)

The Taylor Oil Company property is located immediately northeast of the Main Street and Kirby Road intersection and contains the Kangaroo Station. The ROW and easement areas consist of grass, asphalt and steel-reinforced concrete surfaces. A site map showing the locations of the survey lines is presented in Figure 20.

The EM61 bottom coil results and the differential results are presented in Figures 21 and 22, respectively. The majority of EM61 anomalies are probably in response to cultural features such as storm drains, signs and utility related objects. The high amplitude anomaly centered around the pump island area is probably in response to steel-reinforced concrete. The geophysical results suggest that the proposed ROW and easement areas at Parcel 43 do not contain unknown metallic UST's.

[REDACTED]

[REDACTED]

[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:

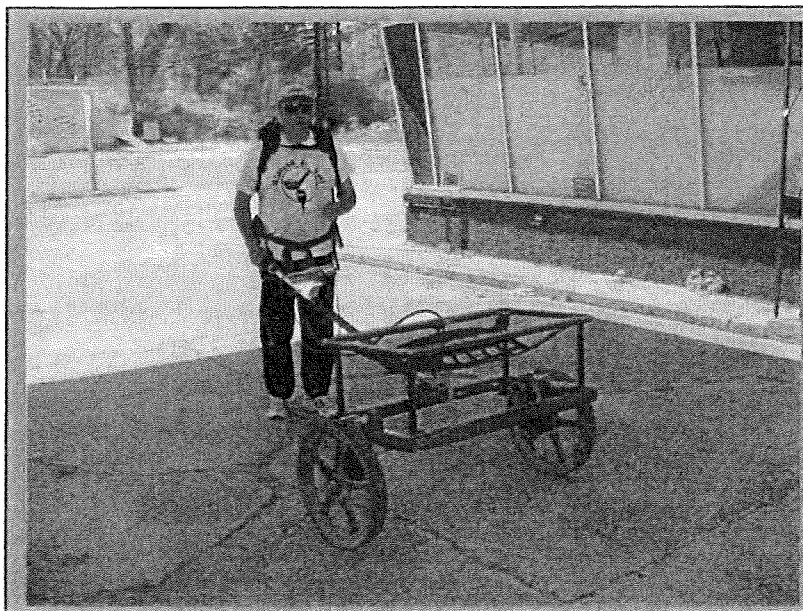
- The EM61 and GPR surveys provided reliable results for the detection of metallic UST's within the surveyed portions of the proposed ROW and easement areas of each site.
- GPR surveys were conducted across selected EM61 differential anomalies, areas containing steel reinforced concrete, and at several 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]  
[REDACTED]  
[REDACTED]  
Taylor Oil Company Property (Parcel 43)  
[REDACTED]

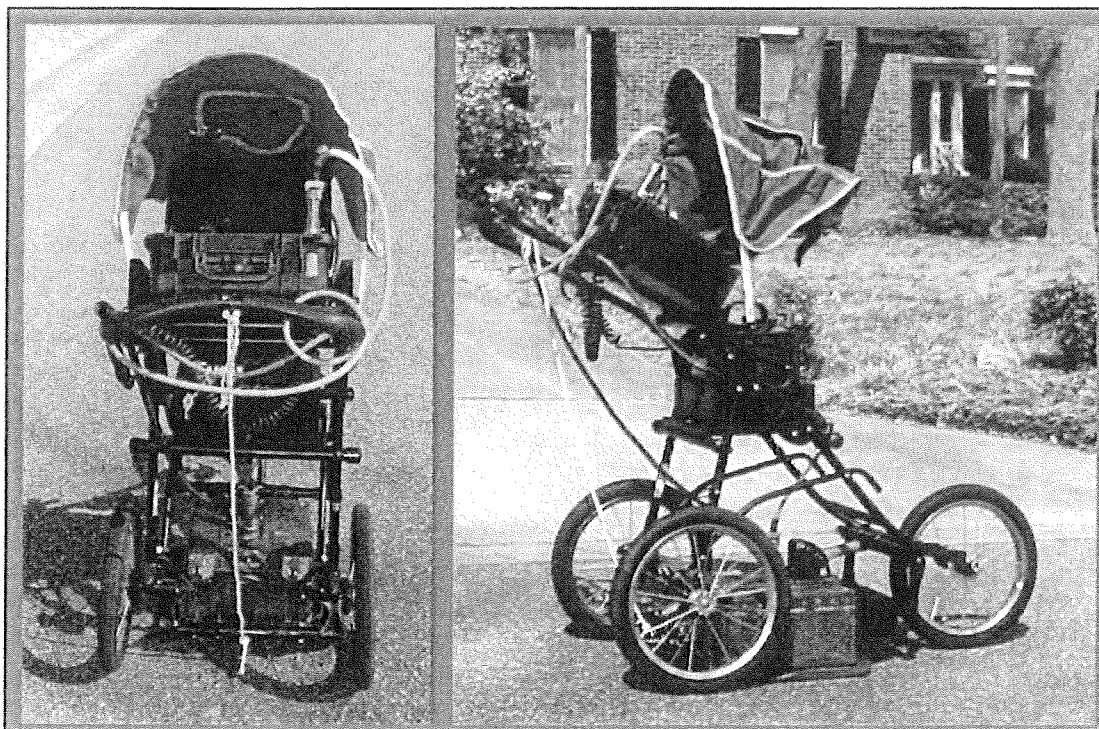
- [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]
- [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

**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.

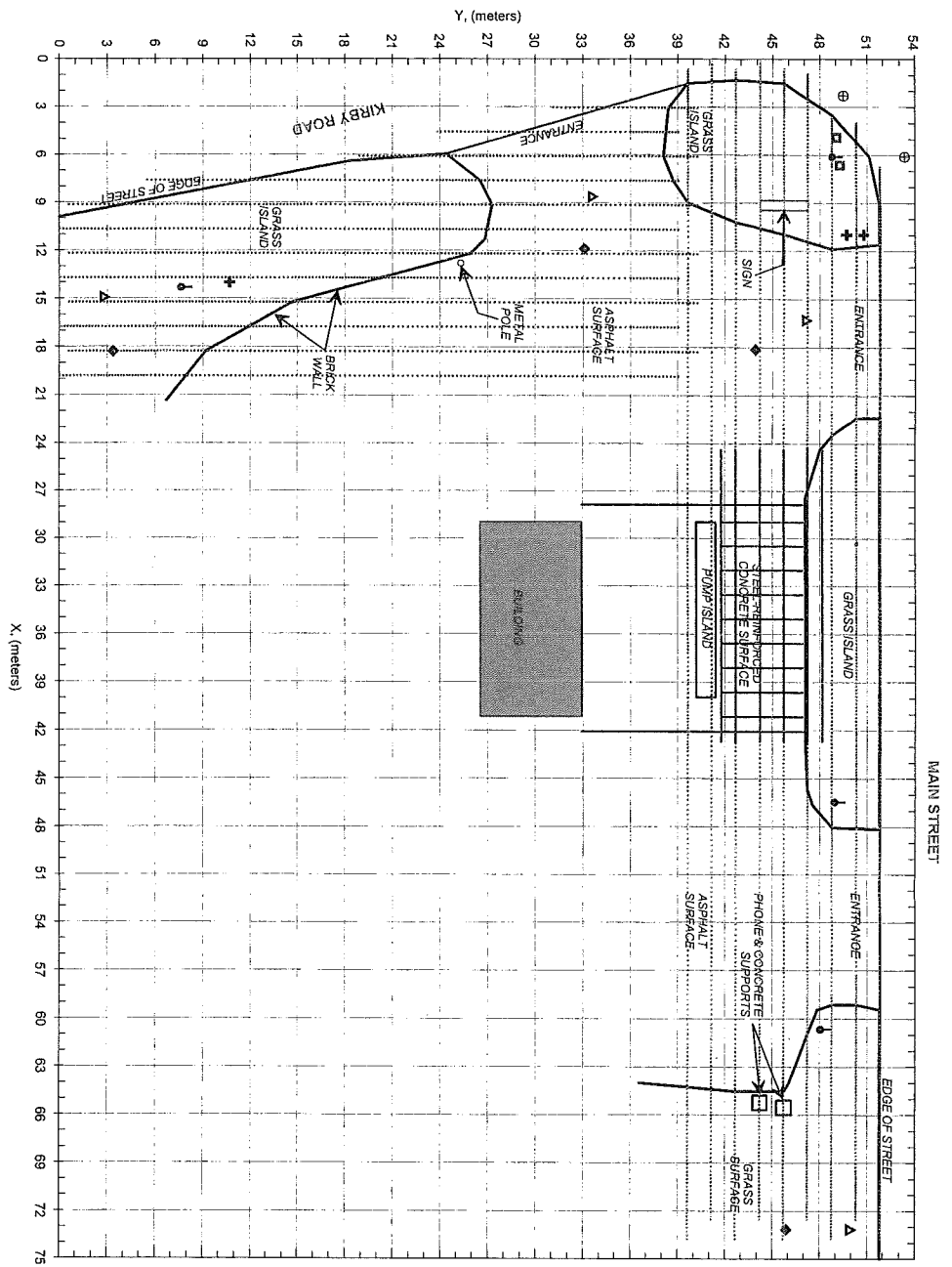


The SIR-2000 GPR system equipped with a 400 MHz antenna that was used at the King-Tobacco Road sites in April and May 2005.

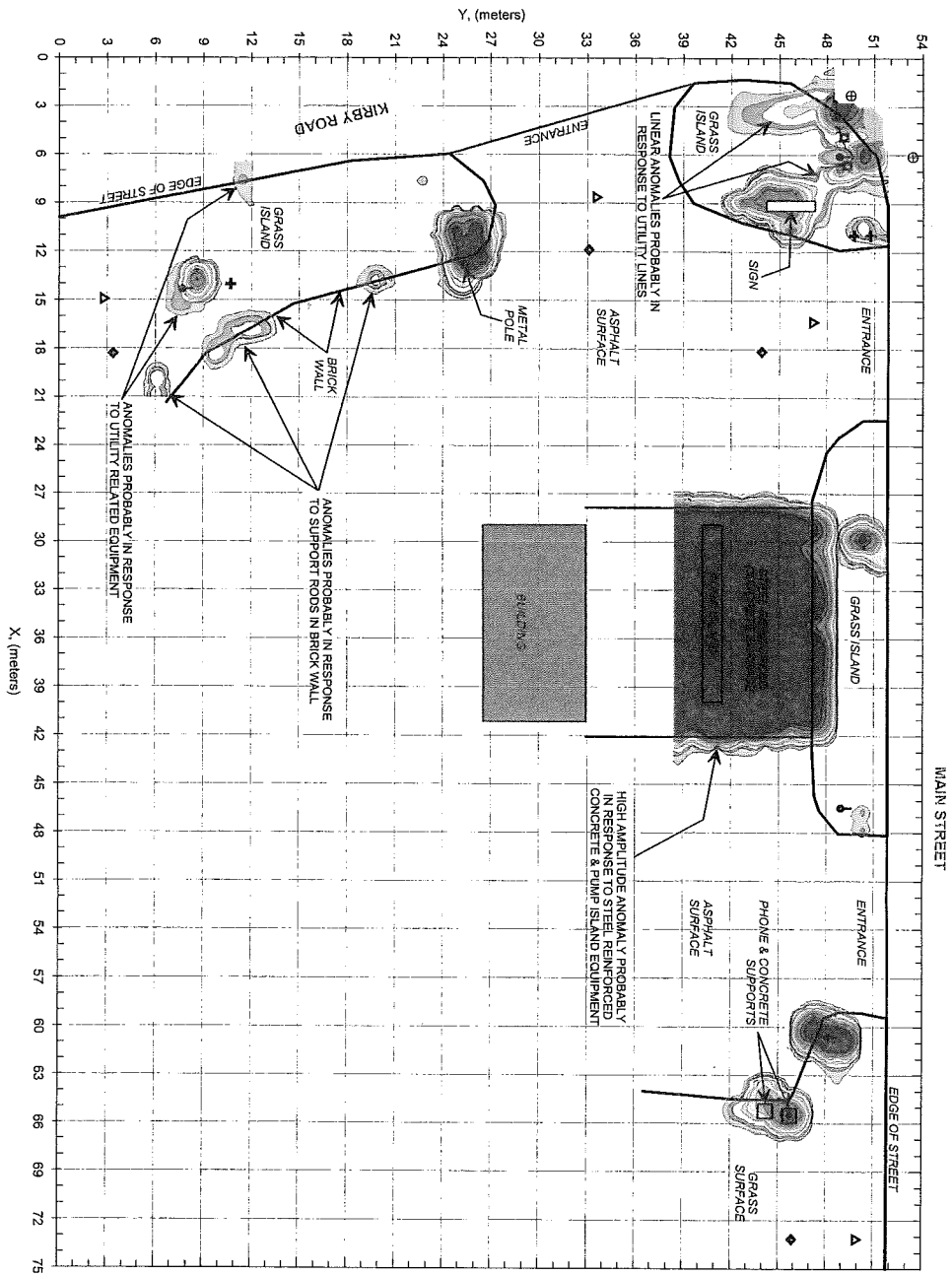
	CLIENT	EARTH TECH OF NORTH CAROLINA, INC.		DATE	5/11/05	BY	
	SITE	KING-TOBACCOVILLE ROAD (MAIN STREET) SITES		DAY		BY	
	CITY	KING	STATE	NORTH CAROLINA	BY		
	TITLE	GEOPHYSICAL RESULTS		NO.	2005-100	SCALE	

GEOPHYSICAL EQUIPMENT

FIGURE 1



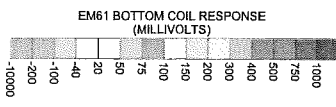
Note: The plot shows the EM61 and GPR survey line locations in red dots and purple lines, respectively. The EM metal detection data were collected on April 15, 2005 using a Geonics EM61 Instrument, Ground penetrating radar (GPR) data were acquired on April 22, 2005 using a Geophysical Survey Systems SIR 2000 Instrument with a 400 MHz antenna.



Note: The contour plot shows the bottom coil (most sensitive) response of the EM61 instrument in millivolts (mV). The bottom coil response shows buried metallic objects regardless of size. The EM metal detection data were collected on April 15, 2005 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on April 22, 2005 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna. The GPR results are not shown on this map.

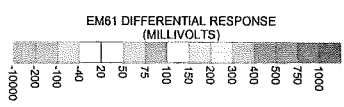
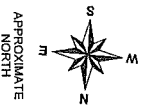
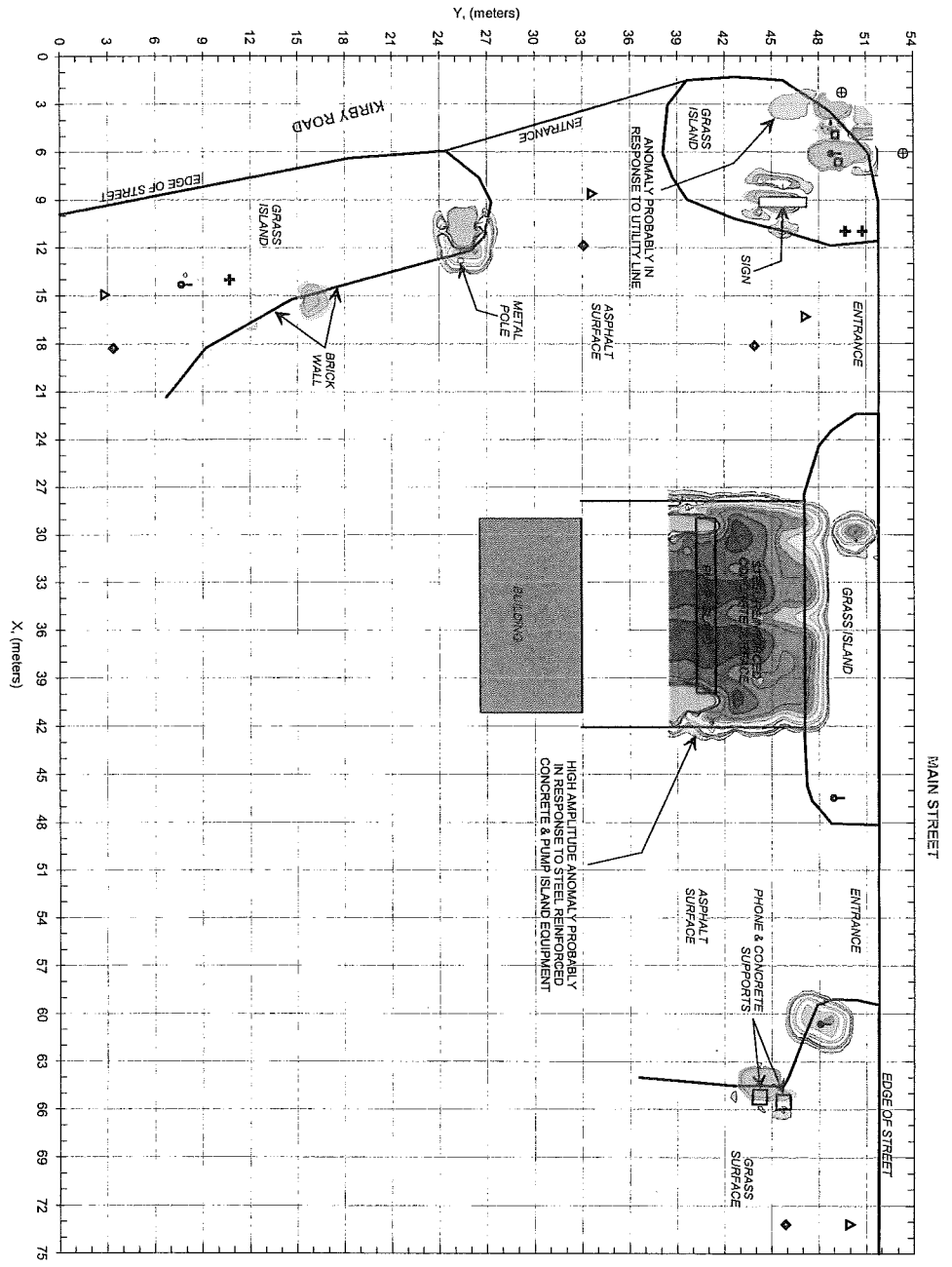
**LEGEND**

- EM61 SURVEY AREA - EM DATA ACQUIRED ALONG NORTHERLY/SOUTHERLY OR EASTERLY/WESTERLY TRENDS (LINES SHADED 1.5 METERS APART)
- BUILDING
- UTILITY POLE
- WATER METER COVER
- GUY WIRE
- CABLE OR JUNCTION BOX
- STORM SEWER GRATE
- TRAFFIC SIGN
- MANHOLE COVER
- RIGHT-OF-WAY MARKER
- EASEMENT MARKER



EARTH TECH OF NORTH CAROLINA, INC.		DATE	5/12/05
TAYLOR OIL COMPANY PROPERTY (PARCEL 43)		PROJECT	
CITY	KING	STATE	NORTH CAROLINA
EM61 GEOPHYSICAL RESULTS		SCALE	2005-100

EM61  
BOTTOM COIL  
RESULTS



LEGEND	
[White box]	EM61 SURVEY AREA. EM DATA ACQUIRED ALONG NORTHERLY-SOUTHERLY OR EASTERLY-WESTERLY TRENDED LINES SPACED 1.5 METERS APART
[Grey box]	BUILDING
[Vertical line]	UTILITY POLE
[Circle with cross]	WATER METER COVER
[Circle with dot]	GYLY WIRE
[Square with cross]	CABLE OR JUNCTION BOX
[Circle with cross]	STORM SEWER GRATE
[Circle with cross]	TRAFFIC SIGN
[Circle with cross]	MANHOLE COVER
[Circle with cross]	RIGHT-OF-WAY MARKER
[Circle with cross]	EASEMENT MARKER

Note: The contour plot shows the differential response between the bottom and top coils of the EM61 instrument in millivolts (mV). The differential response focuses on larger, buried metallic objects such as drums and UST's and ignores smaller miscellaneous buried metal debris. The EM61 data were collected on April 15, 2005 using a Geonics EM61 instrument. Ground penetrating radar (GPR) data were acquired on April 22, 2005 using a Geophysical Survey Systems SIR 2000 instrument with a 400 MHz antenna.



EARTH TECH OF NORTH CAROLINA, INC.		DATE	5/12/05
TAYLOR OIL COMPANY PROPERTY (PARCEL 43)		CLIENT	
KING	NORTH CAROLINA	PROJECT	2005-100
EM61 GEOPHYSICAL RESULTS		SCALE	

EM61 DIFFERENTIAL RESULTS

FIGURE 22



2

3

4

**ATTACHMENT B**

# TEST BORING REPORT

PROJECT TAYLOR OIL COMPANY PROPERTY (PARCEL #43)

CLIENT NCDOT (R-2201)

PROJECT NUMBER 85238

CONTRACTOR PROBE TECHNOLOGY

EQUIPMENT GEOPROBE

BORING NUMBER 43-1

PAGE 1

ELEVATION

DATE 5/11/05

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			0		6" ASPHALT/GRAVEL, MEDIUM BROWN SANDY CLAY, DRY, NO ODOR.
			0.1		AS ABOVE, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
10.0			0.2		AS ABOVE, DRY, NO ODOR.
			0.1		MEDIUM BROWN, FINE-GRAINED SAND, DRY, NO ODOR.
			0.4		AS ABOVE, DRY, NO ODOR.
15.0			0.7		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.6		AS ABOVE, DRY, NO ODOR.
					BORING TERMINATED AT 16 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

# TEST BORING REPORT

PROJECT TAYLOR OIL COMPANY PROPERTY (PARCEL #43)

BORING NUMBER 43-2

CLIENT NCDOT (R-2201)

PAGE 1

PROJECT NUMBER 85238

ELEVATION \_\_\_\_\_

CONTRACTOR PROBE TECHNOLOGY

DATE 5/11/05

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			0.4		6" ASPHALT/GRAVEL, MEDIUM BROWN SANDY CLAY, DRY, NO ODOR.
			0.4		MEDIUM BROWN, FINE-GRAINED SANDY CLAY, DRY, NO ODOR.
			0.5		AS ABOVE, DRY, NO ODOR.
10.0			0.5		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0		AS ABOVE, DRY, NO ODOR.
			0.1		AS ABOVE, DRY, NO ODOR.
15.0			0		AS ABOVE, DRY, NO ODOR.
			0.1		AS ABOVE, DRY, NO ODOR.
					BORING TERMINATED AT 16 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

# TEST BORING REPORT

**PROJECT** TAYLOR OIL COMPANY PROPERTY (PARCEL #43)  
**CLIENT** NCDOT (R-2201)  
**PROJECT NUMBER** 85238  
**CONTRACTOR** PROBE TECHNOLOGY  
**EQUIPMENT** GEOPROBE

**BORING NUMBER** 43-3  
**PAGE** 1  
**ELEVATION**  
**DATE** 5/11/05  
**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			0		6" ASPHALT/GRAVEL, MEDIUM BROWN SANDY CLAY, DRY, NO ODOR.
			0.1		MEDIUM BROWN, FINE-GRAINED SANDY CLAY, DRY, NO ODOR.
			0.2		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
10.0			0		AS ABOVE, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
15.0			0		AS ABOVE, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
20.0					BORING TERMINATED AT 16 FEET. NO GROUNDWATER ENCOUNTERED.

# TEST BORING REPORT

**PROJECT** TAYLOR OIL COMPANY PROPERTY (PARCEL #43)  
**CLIENT** NCDOT (R-2201)  
**PROJECT NUMBER** 85238  
**CONTRACTOR** PROBE TECHNOLOGY  
**EQUIPMENT** GEOPROBE

**BORING NUMBER** 43-4  
**PAGE** 1  
**ELEVATION**  
**DATE** 5/11/05  
**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			0		6" ASPHALT/GRAVEL, MEDIUM BROWN TO GRAY, MEDIUM-GRAINED SAND, DRY, NO ODOR.
			0		MEDIUM TO REDDISH BROWN, FINE-GRAINED SANDY CLAY, DRY, NO ODOR.
			0		MOTTLED MEDIUM BROWN AND TAN, MEDIUM-GRAINED SAND, DRY, NO ODOR.
10.0			0.1		AS ABOVE, DRY, NO ODOR.
			0.2		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0.1		AS ABOVE, DRY, NO ODOR.
15.0			0		AS ABOVE, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
20.0					BORING TERMINATED AT 16 FEET. NO GROUNDWATER ENCOUNTERED.

# TEST BORING REPORT

**PROJECT** TAYLOR OIL COMPANY PROPERTY (PARCEL #43)  
**CLIENT** NCDOT (R-2201)  
**PROJECT NUMBER** 85238  
**CONTRACTOR** PROBE TECHNOLOGY  
**EQUIPMENT** GEOPROBE

**BORING NUMBER** 43-5  
**PAGE** 1  
**ELEVATION**  
**DATE** 5/11/05  
**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" ASPHALT/GRAVEL, MEDIUM BROWN TO TAN, FINE-GRAINED CLAYEY SAND, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
			0.1		AS ABOVE, DRY, NO ODOR.
5.0			0.2		AS ABOVE, DRY, NO ODOR. SUBMIT TO LABORATORY FOR ANALYSIS.
			0		AS ABOVE, DRY, NO ODOR.
10.0			0		AS ABOVE, DRY, NO ODOR.
			0		AS ABOVE, DRY, NO ODOR.
15.0			0		AS ABOVE, DRY, NO ODOR.
					BORING TERMINATED AT 16 FEET. NO GROUNDWATER ENCOUNTERED.
20.0					

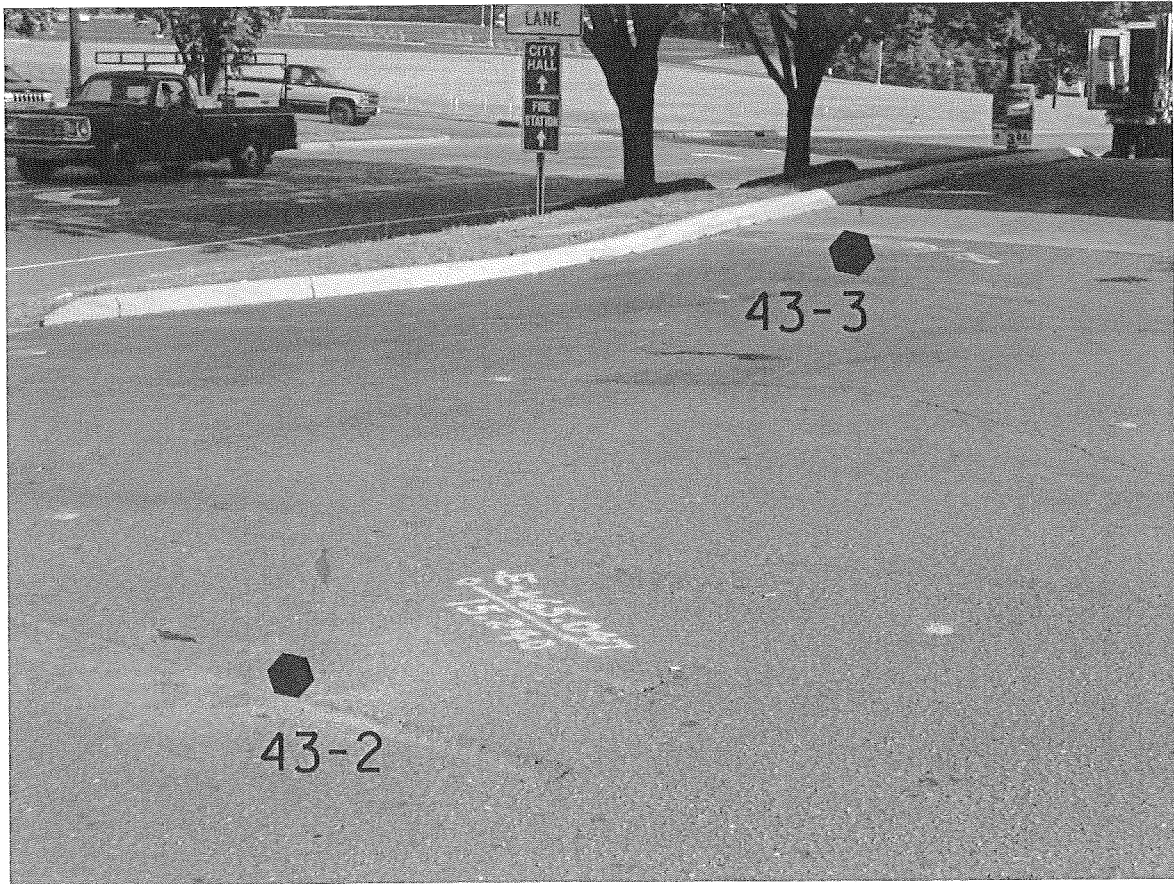
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100

100



**ATTACHMENT C**







**ATTACHMENT D**

**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: G204-457

Client Project: Parcel #43 King-NCDOT

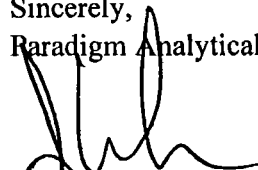
Dear Mr. Branson:

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

**Results for Total Petroleum Hydrocarbons**  
by GC/FID 8015

Client Sample ID: 43-1-12-14  
Client Project ID: Parcel #43 King-NCDOT  
Lab Sample ID: G204-457-1  
Lab Project ID: G204-457  
Report Basis: Dry Weight

Analyzed By: DCS  
Date Collected: 5/11/05 8:30  
Date Received: 5/12/05  
Matrix: Soil  
Solids 81.05

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.4	5030	1	05/20/05
Diesel Range Organics	BQL	7.63	3545	1	05/21/05

Reviewed By:           
TPH\_LIMS\_v1.71.XLS  
2 of 8

**Results for Total Petroleum Hydrocarbons**  
by GC/FID 8015

Client Sample ID: 43-2-6-8  
 Client Project ID: Parcel #43 King-NCDOT  
 Lab Sample ID: G204-457-2  
 Lab Project ID: G204-457  
 Report Basis: Dry Weight

Analyzed By: DCS  
 Date Collected: 5/11/05 8:45  
 Date Received: 5/12/05  
 Matrix: Soil  
 Solids 81.66

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.35	5030	1	05/20/05
Diesel Range Organics	8.87	7.48	3545	1	05/21/05

Reviewed By:     *RV*      
 TPH\_LIMS\_v1.71.XLS  
 3 of 8



**Results for Total Petroleum Hydrocarbons**  
by GC/FID 8015

Client Sample ID: 43-3-4-6	Analyzed By: DCS
Client Project ID: Parcel #43 King-NCDOT	Date Collected: 5/11/05 9:00
Lab Sample ID: G204-457-3	Date Received: 5/12/05
Lab Project ID: G204-457	Matrix: Soil
Report Basis: Dry Weight	Solids 80.84

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.42	5030	1	05/20/05
Diesel Range Organics	7.85	7.51	3545	1	05/21/05

Reviewed By:       
TPH\_LIMS\_v1.71.XLS  
4 of 8

**Results for Total Petroleum Hydrocarbons**  
by GC/FID 8015

Client Sample ID: 43-4-8-10

Client Project ID: Parcel #43 King-NCDOT

Lab Sample ID: G204-457-4

Lab Project ID: G204-457

Report Basis: Dry Weight

Analyzed By: DCS

Date Collected: 5/11/05 9:15

Date Received: 5/12/05

Matrix: Soil

Solids 86.28

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	6.95	5030	1	05/20/05
Diesel Range Organics	29.8	7.03	3545	1	05/21/05

Reviewed By:       
TPH\_LIMS\_v1.71.XLS

**Results for Total Petroleum Hydrocarbons**  
by GC/FID 8015

Client Sample ID: 43-5-6-8  
Client Project ID: Parcel #43 King-NCDOT  
Lab Sample ID: G204-457-5  
Lab Project ID: G204-457  
Report Basis: Dry Weight

Analyzed By: DCS  
Date Collected: 5/11/05 9:30  
Date Received: 5/12/05  
Matrix: Soil  
Solids 85.14

Analyte	Result MG/KG	Report Limit MG/KG	Prep Method	Dilution Factor	Date Analyzed
Gasoline Range Organics	BQL	7.05	5030	1	05/20/05
Diesel Range Organics	BQL	7.34	3545	1	05/23/05

Reviewed By: RW  
TPH\_LIMS\_v1.71 XLS  
6 of 8

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

Client: EMERY TECH Project ID: PH262 #43 KING-NCDDT Date: 5/11/05 Report To: MIKE BERWSON  
Address: 701 Corp. GRL Dr. STE47J Contact: MIKE BERWSON Turnaround: STD Job Number: 85238  
Address: PHOENIX, NC 27607 Phone: 919.854.6200 Fax: 919.854.6259 P.O. Number:  
Quote #: Invoice To: NCDDT WBS #36380.1.1

PARADIGM ANALYTICAL LABORATORIES, INC

Sample ID	Date	Time	Hour				Analysis		Comments
13-1-12-14	5/11/05	0830	801L	✓	✓				G204-457
13-2-6-8		0845		✓	✓				
13-3-4-6		0900		✓	✓				
13-4-8-16		0915		✓	✓				
13-5-6-8		0930		✓	✓				

Requested By: Beth Stelfano Date: 5.11.05 Time: 1200 Requested By: [Signature] Date: 5/11/05 Time: 0915 Turnaround: 9-20C State Certification Requested: NC  SC  Other

ORIGINAL

SEE REVERSE FOR  
TERMS AND CONDITIONS