CAP Groundwater Sampling
Former Asphalt Materials Testing Laboratory
NCDOT Site #6-48 (Lee Paving)
Pittsboro, Chatam County
Work Order No. 9.6600698
S&ME Project No. 1040-98-107

Prepared for:
Mr. Thomas C. Niver, P.G., CHMM
State of North Carolina
Department of Transportation
801 Summit Avenue, Suite 2
Greensboro, North Carolina 27405

Prepared by:
S&ME, Inc.
3118 Spring Forest Rd.
Raleigh, North Carolina 27616

October 20, 1998

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October 20, 1998

Mr. Thomas C. Niver, P.G., CHMM
State of North Carolina
Department of Transportation
801 Summit Avenue, Suite 2
Greensboro, NC 27405

Subject: **CAP Groundwater Sampling**
Former Asphalt Materials Testing Laboratory
NCDOT Site# 6-48 (Lee Paving)
Pittsboro, Chatham County
Work Order #: 9.6600698
S&ME Project No. 1040-98-107

Dear Mr. Niver:

S&ME, Inc. (S&ME) is pleased to submit this report for the groundwater sampling event conducted at the above-referenced site on September 28 and 29, 1998. The objective of this sampling event is to obtain current groundwater quality information at this site to aid in the preparation of a Correction Action Plan (CAP).

BACKGROUND

The subject site is the current location of Lee Paving asphalt production facility in Pittsboro, North Carolina (Figure 1). The NCDOT asphalt testing laboratory formerly located on the site utilized chlorinated solvents including trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), and carbon tetrachloride (CCl_4) in the asphalt analytical testing procedure. The Comprehensive Site Assessment (CSA)[1] completed in June 1997 by Geraghty & Miller investigated the extent of contamination in the soil and

[1] Geraghty & Miller, Inc., "Comprehensive Site Assessment, Site No. 48, Lee Paving Company, Pittsboro, North Carolina", June 1997.

groundwater. Based on the results of soil sampling, the CSA did not suggest the presence of an area which would represent a continuing source of target chlorinated compounds, as illustrated in the NCDOT Target Chlorinated Solvent Transformation Pathways (Figure 2). Please note that the NCDOT Target Chlorinated Solvent Transformation Pathways (Figure 2) taken from Smith and Dragun, 1984, may not accurately reflect the transformation of 1,1,1-TCA.

During the CSA, several target chlorinated compounds were detected in groundwater at concentrations exceeding the North Carolina Administrative Code Title 15A, Subchapter 2L Groundwater Quality Standards (2L Standards). During the CSA investigation, Geraghty & Miller also collected a water sample from the on-site supply well. This sample also contained several target contaminants with 1,1-dichloroethene and trichloroethene present in levels above the 2L Standards. Although the subsequent site specific water-supply well survey and sampling did not detect target contaminants in samples collected from four wells at adjacent residences, the two water-supply wells in the generally downgradient area were not sampled during the event. [2] These two water-supply wells are shown as Property ID No. 20 (John Etna Byrd/Doris Earl Byrd McNeil property) and 23 (Timothy R. Mitchel property) on Figure 2-3 in the January 29, 1998 Water Supply Well Survey Report. A copy of this figure attached to this report as Figure 3.

FIELD ACTIVITIES

Groundwater Sampling

S&ME personnel conducted groundwater sampling at the subject site on September 28 and 29, 1998. A total of 14 monitor wells and one on-site water supply well were sampled during this event. S&ME personnel also attempted to sample the two downgradient water-supply wells. The well located at the John Etna Byrd/Doris Earl Byrd McNeil property was abandoned and thus not sampled. It appeared that the well

[2] Arcadis Geraghty & Miller "Water Supply Well Survey, Site No. 48 – Roy M. Stewart (Lee Paving), Former Asphalt Testing Lab, Salisbury, North Carolina", January 29, 1998.

located at the Timothy R. Mitchel property (Property ID No. 23) was still in use, however, S&ME was unable to contact the resident to obtain approval to sample this well.

Prior to sampling, S&ME personnel attempted to locate the monitor wells indicated in the CSA report (Figure 4). One monitor well, MW-8, was found buried under surface soil and the well head was destroyed. With the exception of monitor well MW-8, depth to water from the top of the well casing was measured for each well using an electronic water level indicator and recorded (see Table 1). The water level indicator was decontaminated with Liqui-nox® solution and deionized water between each use.

Using a new Teflon® bailer, each monitor well was purged of three well volumes of groundwater or until the well was dry. A Grunfos® Redi-Flo submersible pump with Teflon® lined tubing was used to purge two deep wells, DMW-1 and DMW-2. Before each use, the pump and the tubing were decontaminated by pumping Liqui-nox® solution followed by deionized water through the system. The outer surface of the pump and tubing was also decontaminated with the same materials. Field index parameters including water temperature, pH, and specific conductivity were measured and recorded after each well volume of water was purged. Field parameters recorded are presented in Table 2. After purging, the well was allowed adequate time to recharge before sampling. Groundwater samples were collected from the monitor wells by collecting groundwater samples from the dedicated bailers directly into laboratory-supplied vials, which were labeled with sample ID, time collected, and analysis to be performed.

The water supply well and an available spigot was located prior to sampling the water supply well. The available spigot was allowed to discharge at the maximum flow rate for a period of approximately fifteen minutes. The water sample was collected by allowing a slow discharge to flow from the spigot directly into laboratory supplied containers, which were labeled with sample ID, time collected, and analysis to be performed. All groundwater samples collected were stored on ice and transported under chain-of-custody

procedures to Prism Laboratories, Inc. in Charlotte, North Carolina for laboratory analysis using EPA Method 601 for chlorinated compounds.

Investigative Derived Waste

Purge well water generated as a result of these field environmental investigations was discharged onto the ground in close proximity to the well in a manner that precluded surface runoff, per the agreement with NCDOT and NCDENR.

FINDINGS AND EVALUATON

Aquifer Potentiometric Surface

Water-level measurement data collected from each of the monitor wells on September 28, 1998 are presented in Table 1. Tops of casing elevations were obtained from the CSA report. The water-level elevation data were used to construct potentiometric contour map for the shallow aquifer on September 28, 1998 (Figure 4). As shown on Figure 4, the groundwater in the shallow portion of the aquifer flows across the site to the southeast and also exhibits convergent flow. This potentiometric map agrees in general with previous observations presented in the CSA report. Water level data collected from the deep wells is also consistent with previous water levels documented in the CSA report and would suggest that the groundwater in the deeper portion of the aquifer also flows towards the southeast.

A strong vertical gradient is not evident between the deep and shallow wells. The possibility exists that bedrock migration may not be limited to discrete fractures. A pump test would determine whether preferential flow paths exist.

Groundwater Quality

Groundwater samples were collected from 14 monitor wells and one on-site water supply well on September 28 and 29, 1998. A summary of the target analytes detected in groundwater from this sampling event is provided in Table 3. Per "Groundwater Section

Guidelines for the Investigation and Remediation of Soil and Groundwater, Volume I, Sources Other Than Petroleum Underground Storage Tanks", May 1998, the 15A NCAC 2L groundwater quality standards (i.e., the 2L standards) are currently used as groundwater clean-up standards. Thus, Table 3 also provides the applicable 2L standard for each target compound that was detected. Figure 5 depicts summaries of target analytes detected in the groundwater at each location. Figures 6 through 10 depict individual target analytes. The complete analytical results of groundwater sampling are included in Appendix I.

Table 3 indicates that five target analytes were detected in groundwater during this sampling event. Three of these compounds were detected at concentrations that exceed the 2L standard. These are as follows:

- 1,1,1-Trichloroethane [detected in one monitoring well and the on-site supply well above 2L standard (200 µg/L) at concentrations ranging from 230 to 240 µg/L], see Figure 6.

- Trichloroethene [detected in four monitoring wells and the on-site supply well above 2L standard (2.8 µg/L) at concentrations ranging from 5 to 890 µg/L], see Figure 7.

- 1,1-Dichloroethene [detected in three monitoring wells and the on-site supply well above 2L standard (7 µg/L) at concentrations ranging from 9 to 74 µg/L], see Figure 8.

The above three analytes and daughter compounds cis-1,2-dichloroethene and 1,1-dichloroethane (see Figures 9 and 10, respectively) also were detected in groundwater during this sampling event at concentrations below their respective 2L standards. cis-1,2-Dichloroethene was detected in groundwater samples collected from 48MW-11, 48DW-2 and the on-site supply well at a concentrations of 10, 5 and 5 µg/L, respectively below the 2L standard of 70 µg/L. 1,1-Dichloroethane was detected in groundwater from 48MW-1, 48MW-11, 48DW-2 and the on-site supply well at concentrations of 3, 6, 8 and 8 µg/L, respectively, below the 2L standard of 700 µg/L.

Carbon tetrachloride and its degradation products, chloroform, methylene chloride, and chloromethane, were not detected above method detection level (MDL) in any sample. Vinyl chloride, the downstream transformation product of cis-1,2-dichloroethene and 1,1-dichloroethane with the most stringent 2L standard (0.015 µg/L) among all target compounds, was not detected above the MDL (5 µg/L) in any sample.

A review of historical CSA groundwater data indicates that the above concentrations are consistent with previous sampling events for the surficial aquifer. With the exception of monitor well 48MW-11, the shallow aquifer is not impacted with target chlorinated solvents above the 2L standards. Please note that the cross-sections provided in the CSA report indicate that the screen interval for this monitoring well is installed across the soil/bedrock interface.

The comparatively high concentration detected at monitor well 48MW-11 suggests that contaminant migration is likely occurring at the overburden/bedrock interface. The well log indicates that approximately one and one-half feet of weathered bedrock was encountered at the top of bedrock; weathered zones typically provide greater potential for contaminant migration due to increased permeability. In addition, the bedrock is reported to consist of schist. This would be expected to amplify this migration potential, due to the preferentially oriented minerals that typify schist.

A review of historical CSA groundwater data indicates that the concentrations in the bedrock aquifer have increased for the original chlorinated compounds and their transformation products. The data collected for this report also confirms the findings in the CSA report that the vertical extent of the target chlorinated solvents associated with the former laboratory has not been defined.

Persistent presence of these parent contaminants in the dissolved phase in the source area will result in the increase of degradation products. Current groundwater sampling results suggest that the transformation of parent compounds has already occurred. The concern is then whether the product transformation will proceed to produce vinyl chloride which

is most toxic and most volatile. The fate of vinyl chloride will need to be determined to better evaluate the risk associated with the subject site.

RECOMMENDATIONS

The source area has not been adequately defined. Soil samples should be collected between the septic system laterals to evaluate whether this is the source area.

Monitor well 48MW-8 should be properly abandoned in accordance with 15A NCAC 2C .0100, "Criteria and Standards Applicable to Water Supply Wells and Certain Other Wells".

The cross-sections in the CSA report indicate that Type II wells were installed across soil/bedrock interface; however, some inconsistencies have been observed between the cross-sections and supporting well logs. These Type II wells may provide preferential vertical pathways for contaminant migration and should be further evaluated.

During a telephone conversation on October 15, 1998 between Gary Birk with S&ME and Mark Stewart with Lee Paving, Mr. Stewart indicated that the on-site water supply well was fairly shallow, approximately 100 feet deep. This supply well may provide preferential vertical pathways for contaminant migration and should be further evaluated and possibly abandoned. Further, since this well is fairly shallow, an alternative water supply sources such as the installation of a deep water supply well or connection to municipal water should also be evaluated.

S&ME recommends that NCDOT also consider performing a 24 hour pump test on the on-site water supply well. The pump test will provide a means to determine the response of the aquifer to pumping, an understanding of the hydrology of the site (i.e., whether there are preferential flow paths), and data to model plume dispersion. In the course of performing the pump test, the monitor wells on the site would be monitored for changes

in groundwater elevation. Additionally, the water supply well should be sampled during the pump test to assess any changes in contaminant concentrations that occur with time. Contingent upon the results of the laboratory analysis and the drawdown observed in other wells on site, the water supply well may be abandoned. If data collected during the event indicates an easterly migration of contaminants is likely to occur, then an additional well(s) in this direction may be necessary. The data collected during the pump test will be used to determine what type of well (i.e., deep or shallow) will be most useful in assessing contaminant migration. In addition, the use of down-hole video logging should be considered. This technique may be provide beneficial data to determine or estimate the extent of fracturing, possible fracture orientation and details on construction of the water supply well.

The fact that the extent of parent compounds "plume" has not been significantly expanded suggests that temporary "hot spot removal " (i.e., pump the on-site water supply well and then abandon it) followed by natural attenuation may be feasible for this site. Field geochemical parameters will be to assess the potential for natural attenuation. A limited laboratory microcosm study can be conducted using soil cores collected next to wells 48MW-11, 48DW-2 and the on-site supply well with groundwater to document the extent and rate of dechlorination. If active remediation is required, the lab test will include treatment. In addition, the vertical extent of the target-chlorinated solvents associated with the former laboratory should be defined.

Please note that the NCDOT Target Chlorinated Solvent Transformation Pathways (Figure 2) taken from Smith and Dragun, 1984, may not accurately reflect the anaerobic transformation of 1,1,1-TCA. The chemical and biological transformation pathways of NCDOT target halogenated aliphatic compounds should be further evaluated prior to initiating design activities for natural attenuation.

CLOSURE

We look forward to meeting with you and your staff on October 21, 1998 to discuss the findings and options presented. Please do not hesitate to contact us at (919) 872-2660 if you have any questions.

Sincerely,

S&ME, INC.

James Wang

James Wang, Ph.D.
Project Professional

Gary M. Birk, P.E.
Department Manager

NORTH CAROLINA PROFESSIONAL SEAL 16723 ENGINEER GARY M. BIRK

10/20/98

Senior Review by: Ann M. Borden, P.G., Vice President

Attachments:

TABLES

TABLE 1. SUMMARY OF POTENTIOMETRIC SURFACE ELEVATIONS
(Sampling Event: September 28, 1998)

Well I.D.	Top of Casing Elevation* (ft)	Depth to Water (ft)	Water Table Elevation (ft)
48MW-1	995.20	32.54	962.66
48MW-2	993.80	30.47	963.33
48MW-3	997.71	34.16	963.55
48MW-4	998.21	25.50	972.71
48MW-5	1001.68	27.87	973.81
48MW-6	987.97	25.82	962.15
48MW-7	986.02	17.37	968.65
48MW-8†	989.41	-	-
48MW-9	990.91	18.18	972.73
48MW-10	994.99	27.02	967.97
48MW-11	988.48	26.43	962.05
48MW-12	972.71	12.20	960.51
48MW-13	967.74	9.08	958.66
48DW-1	994.67	30.8	963.87
48DW-2	991.84	29.74	962.10

* Based on the data contained in the CSA report.[1]
† Well head was destroyed and no measurement was taken.

There was no Table 2 in the hard copy report from which this pdf was scanned.

[1] Geraghty & Miller, Inc., "Comprehensive Site Assessment, Site No. 48, Lee Paving Company, Pittsboro, North Carolina", June 1997.

TABLE 3. SUMMARY OF LABORATORY ANALYTICAL RESULTS – GROUNDWATER* (EPA METHOD 601)

Parameter	15A NCAC 2L (µg/L)	48MW-1 (µg/L)	48MW-2 (µg/L)	48MW-3 (µg/L)	48MW-4 (µg/L)	48MW-5 (µg/L)
Carbon Tetrachloride	0.3	BQL	BQL	BQL	BQL	BQL
Chloroethane	2,800	BQL	BQL	BQL	BQL	BQL
Chloroform	0.19	BQL	BQL	BQL	BQL	BQL
Chloromethane	2.6	BQL	BQL	BQL	BQL	BQL
1,1-Dichloroethane	700	**3**	BQL	BQL	BQL	BQL
1,1-Dichloroethene	7	**40**	BQL	**9**	**6**	BQL
trans-1,2-Dichloroethene	70	BQL	BQL	BQL	BQL	BQL
Methylene Chloride	5	BQL	BQL	BQL	BQL	BQL
1,1,1-Trichloroethane	200	**140**	BQL	**17**	**12**	BQL
Trichloroethene	2.8	**140**	BQL	**5**	BQL	BQL
Vinyl Chloride	0.015	BQL	BQL	BQL	BQL	BQL
cis-1,2-Dichloroethene	70	BQL	BQL	BQL	BQL	BQL

Abbreviations:

BQL	Below laboratory quantitaion limit
µg/L	micrograms per liter
15A NCAC 2L	North Carolina Administrative Code Title 15A, Subchapter 2L Groundwater Quality Standards

Notes:

* Only the target chlorinated compounds illustrated in the NCDOT Target Chlorinated Solvent Transformation Pathways were detected in groundwater samples.

Bold Values: Constituent was detected above the method detection limit

Shaded and bold Values: Constituent was detected above the 15A NCAC 2L groundwater quality standard

TABLE 3. (cont'd) SUMMARY OF LABORATORY ANALYTICAL RESULTS – GROUNDWATER* (EPA METHOD 601)

Parameter	15A NCAC 2L (µg/L)	48MW-6 (µg/L)	48MW-7 (µg/L)	48MW-9 (µg/L)	48MW-10 (µg/L)	48MW-11 (µg/L)
Carbon Tetrachloride	0.3	BQL	BQL	BQL	BQL	BQL
Chloroethane	2,800	BQL	BQL	BQL	BQL	BQL
Chloroform	0.19	BQL	BQL	BQL	BQL	BQL
Chloromethane	2.6	BQL	BQL	BQL	BQL	BQL
1,1-Dichloroethane	700	BQL	BQL	BQL	BQL	**6**
1,1-Dichloroethene	7	BQL	BQL	BQL	BQL	**74**
trans-1,2-Dichloroethene	70	BQL	BQL	BQL	BQL	BQL
Methylene Chloride	5	BQL	BQL	BQL	BQL	BQL
1,1,1-Trichloroethane	200	BQL	BQL	BQL	BQL	**240**
Trichloroethene	2.8	BQL	BQL	BQL	BQL	**890**
Vinyl Chloride	0.015	BQL	BQL	BQL	BQL	BQL
cis-1,2-Dichloroethene	70	BQL	BQL	BQL	BQL	**10**

Abbreviations:

BQL	Below laboratory quantitaion limit
µg/L	micrograms per liter
15A NCAC 2L	North Carolina Administrative Code Title 15A, Subchapter 2L Groundwater Quality Standards

Notes:

* Only the target chlorinated compounds illustrated in the NCDOT Target Chlorinated Solvent Transformation Pathways were detected in groundwater samples.

Bold Values: Constituent was detected above the method detection limit

Shaded and bold Values: Constituent was detected above the 15A NCAC 2L groundwater quality standard

TABLE 3. (cont'd) SUMMARY OF LABORATORY ANALYTICAL RESULTS – GROUNDWATER* (EPA METHOD 601)

Parameter	15A NCAC 2L (µg/L)	48MW-12 (µg/L)	48MW-13 (µg/L)	48DW-1 (µg/L)	48DW-2 (µg/L)	Supply Well (µg/L)
Carbon Tetrachloride	0.3	BQL	BQL	BQL	BQL	BQL
Chloroethane	2,800	BQL	BQL	BQL	BQL	BQL
Chloroform	0.19	BQL	BQL	BQL	BQL	BQL
Chloromethane	2.6	BQL	BQL	BQL	BQL	BQL
1,1-Dichloroethane	700	BQL	BQL	BQL	**8**	**8**
1,1-Dichloroethene	7	BQL	BQL	BQL	**61**	**60**
trans-1,2-Dichloroethene	70	BQL	BQL	BQL	BQL	BQL
Methylene Chloride	5	BQL	BQL	BQL	BQL	BQL
1,1,1-Trichloroethane	200	BQL	BQL	BQL	**53**	**230**
Trichloroethene	2.8	BQL	BQL	BQL	**470**	**320**
Vinyl Chloride	0.015	BQL	BQL	BQL	BQL	BQL
cis-1,2-Dichloroethene	70	BQL	BQL	BQL	**5**	**5**

Abbreviations:

BQL	Below laboratory quantitaion limit
µg/L	micrograms per liter
15A NCAC 2L	North Carolina Administrative Code Title 15A, Subchapter 2L Groundwater Quality Standards

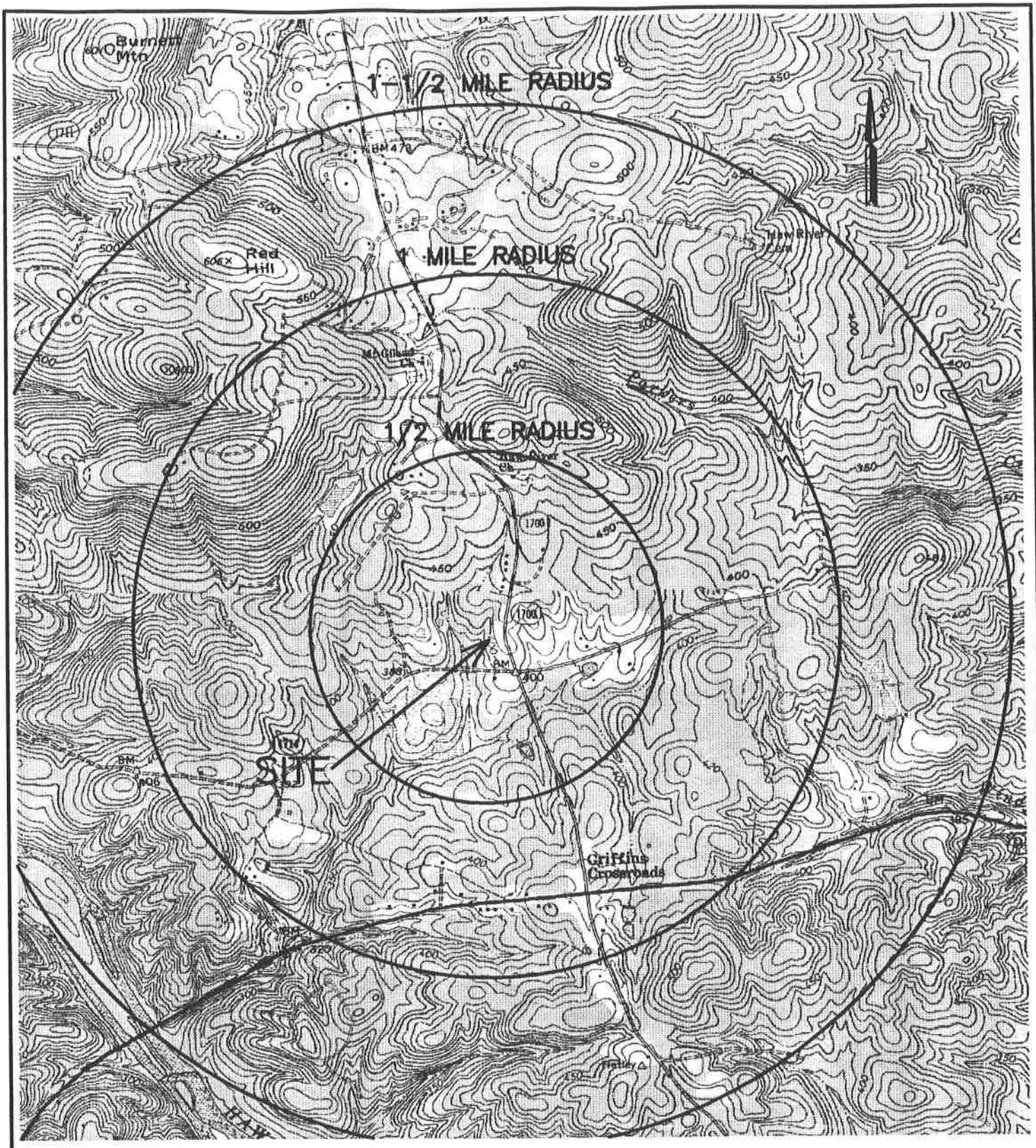
Notes:

* Only the target chlorinated compounds illustrated in the NCDOT Target Chlorinated Solvent Transformation Pathways were detected in groundwater samples.

Bold Values: Constituent was detected above the method detection limit

Shaded and bold Values: Constituent was detected above the 15A NCAC 2L groundwater quality standard

FIGURES



MERRY OAKS, NC USGS QUADRANGLE DATED 1969 (PHOTOREVISED 1981)
FARRINGTON, NC USGS QUADRANGLE DATED 1978 (PHOTOREVISED 1981)

SITE LOCATION MAP

SITE NO. 6-48

PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

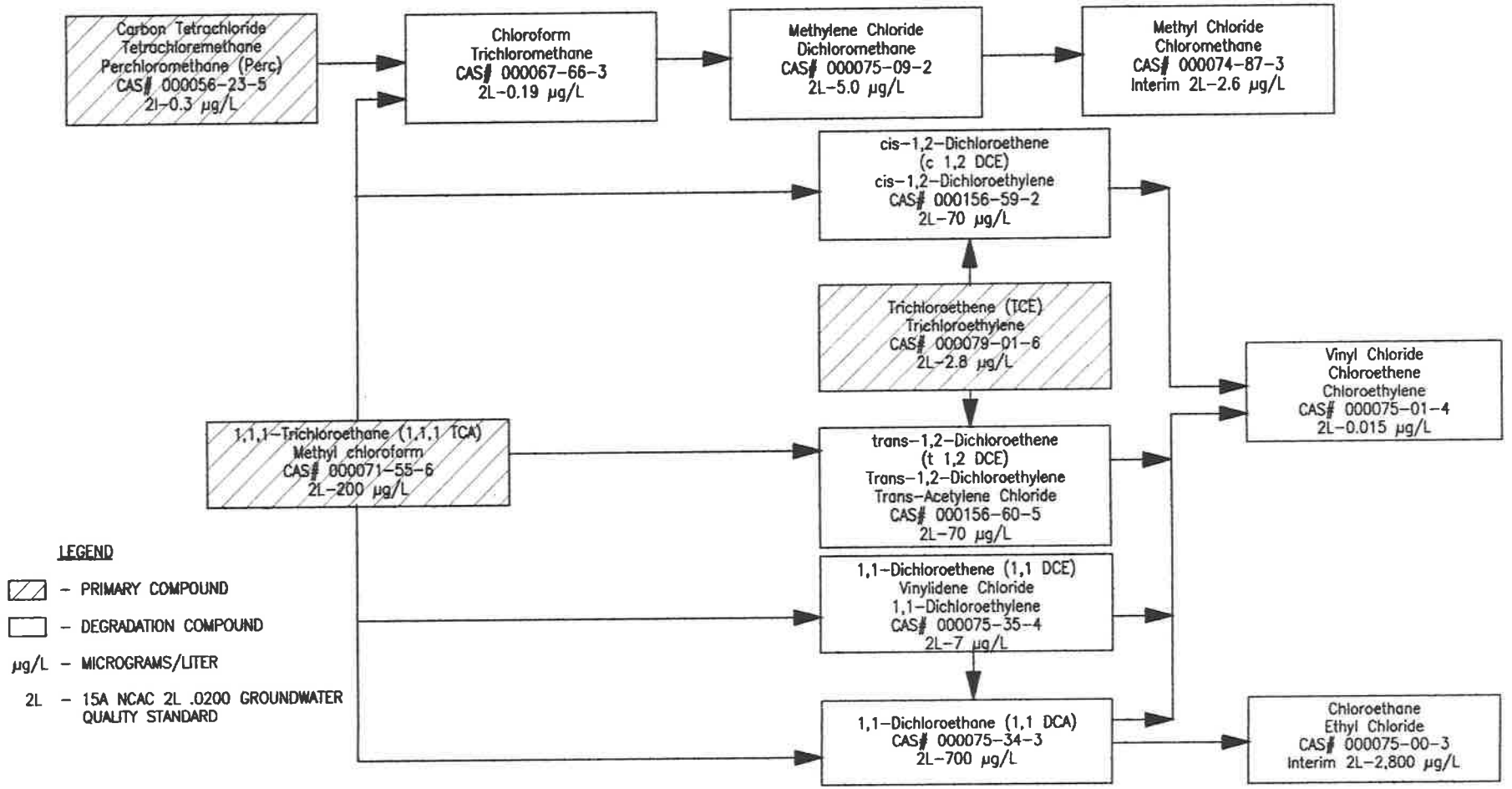
S&ME
ENVIRONMENTAL SERVICES
ENGINEERING • TESTING

Job No. 1040-98-107
Scale: 1" = 2000'
Fig No. 1

File: 107-98-OCT-FIG02.DWG

Target Chlorinated Solvents Transformation Pathways

Transformation Pathways for Various Volatile Priority Pollutants in Soil-Groundwater Systems from Smith and Dragun, 1984



TARGET CHLORINATED SOLVENTS
TRANSFORMATION PATHWAYS
SITE NO. 6-48
PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

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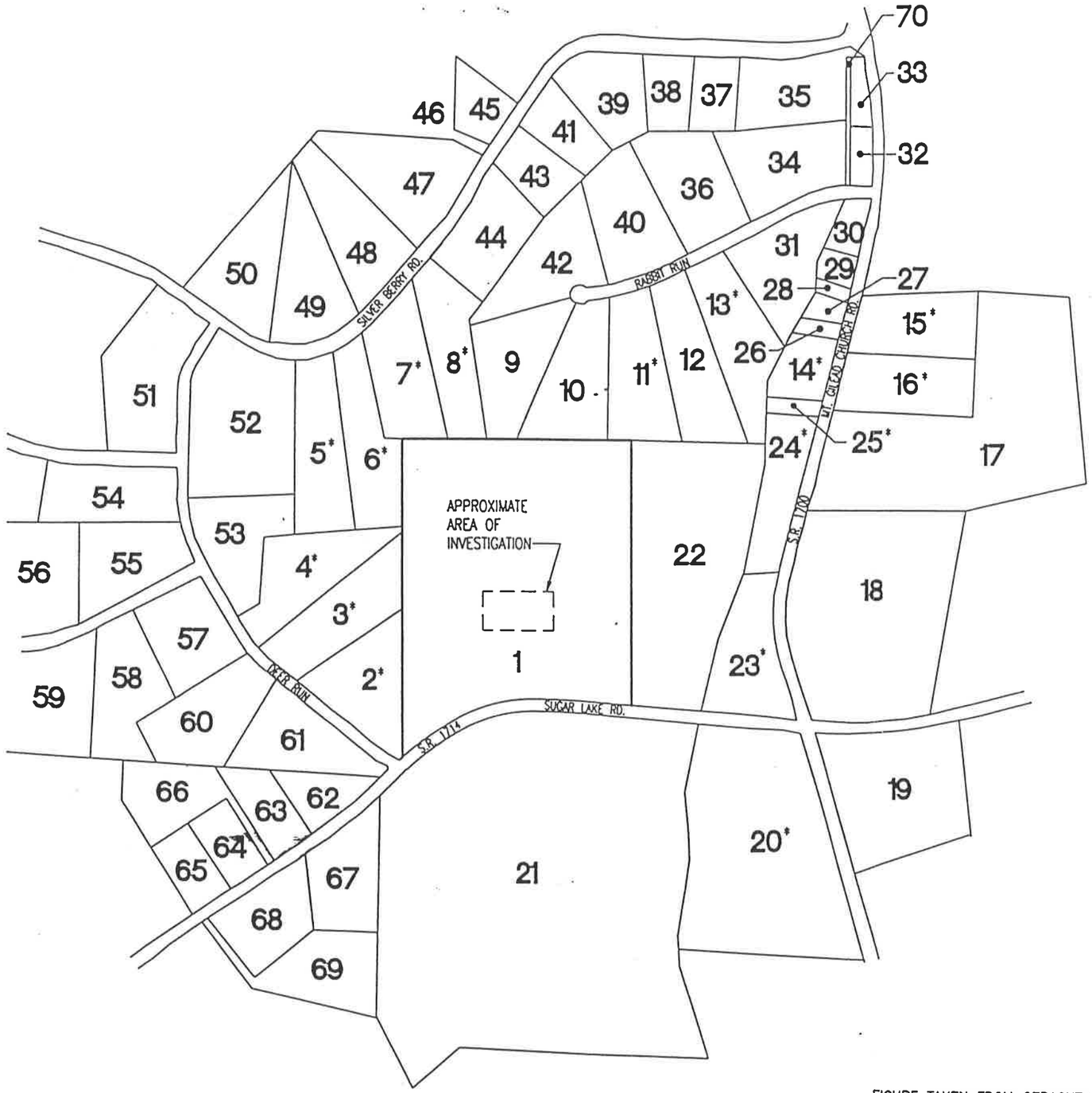
Scale: NONE
Date: OCT. 1998
Job No. 1040-98-107

Approved By: GMB
Drawn By APM
Fig No. 2

File: 107-98-OCT-FIG03.DWG



LEGEND			
1	ROY STEWART (SITE PROPERTY)	37	TONY MICHAEL
2	ERSKINE HEATHERLY, JR.	38	DAVID & DEBORAH WALTON -
3	PATRICIA ELLIS & DEBORAH SASSER	39	JOHN & CYNTHIA HEUER
4	JAMES E. MCKENDRY	40	RICHARD & CHRISTY FISH
5	JAMES L. HARRIS	41	ALBERT LINDSAY
6	BRADLEY E. HOLLOWAY	42	THOMAS & HELEN DEAN
7	SARA CORDEN	43	GAIL DARDEN & ALBERT LINDSAY
8	RAYMOND J. INGRAM	44	PHILLIP ALLEN
9	MILDRED CASON	45	JAMES R. POOLE
10	MILDRED CASON	46	CAROLYN CAMBELL, JOHN DAVIS, JOHN & JANET CAMBELL
11	DAVID P. MARTINEZ		
12	DAVID P. & GRACI J. MARTINEZ	47	KIMBERLY GAY PREBLE
13	ROY F. & ALIENE KECK	48	ANNA LEE LEONARD
14	DEXTER V. PERRY-DEXTER V. PERRY TRUST	49	DAVID & ROBYN HALLIDAY
15	JAMES D. & ANN B. MARLOW	50	TERRY & LINDA LINDSEY
16	WILLIAM F. & DEBORAH K. LANCASTER	51	BOBBI & JEAN RIDDLE
17	CLARON N. HATLEY	52	PHREDDIE DELOIS POPP
18	WILLIAM HATLEY	53	JONATHAN RIEDLING
19	DEBRAH MCNEIL DEATON	54	PHREDDIE DELOIS POPP
20	JOHN ETNA BYRD/DORIS EARL BYRD MCNEIL	55	MARK FLYNN
21	SUGAR LAKE LAND COMPANY	56	MICHAEL & PATTI DAVIS
22	FEDERAL PAPER BD CO.INC.	57	DORIS & KATHLEEN FLYNN
23	TIMOTHY R. MITCHEL	58	WILLIAM & JANET WYATT
24	DENNIS C. & PHYLLIS C. CAMPBELL	59	JOHN & JACQUELINE O'GORMAN
25	ALVIS PAGE	60	WAYNE MICHAEL WADE
26	JAMES & MARJORIE BURNETTE	61	MARIA RUSSON
27	SAMUEL BURNETTE	62	RONALD & PHILLIS GRAHAM
28	PAGE WILLENE BRIGHT	63	DANIEL & MARION MUNN
29	PHILLIP W. CORN	64	ROBERT PAUL KOLIN
30	LOUISE HEARDON & HELEN TONEY	65	DOUGLAS WAKEMAN
31	PAUL DEAN & VIRGINIA BAILEY	66	THOMAS & SARANNE WILSON
32	PAT & ELWARD HORTON	67	THEADORE & JULIE TAYDUS
33	PEGGY JEAN PORTER	68	ARCHIE & SHANA HANKINS
34	KARL W. & INGER RABE	69	JOHN JUDD & ANNETTE REAVES
35	GARRY & PATRICIA ANDERSON	70	PAT & ELWARD HORTON
36	RICHARD & CHRISTINE FISH		

\- INFORMATION OBTAINED FROM CHATHAM COUNTY TAX MAP OFFICE

* DENOTES PROPERTY WITH WATER SUPPLY WELL

FIGURE TAKEN FROM GERAGHTY & MILLER, INC. "COMPREHENSIVE SITE ASSESSMENT, SITE NO. 48, LEE PAVING COMPANY, PITTSBORO, NORTH CAROLINA", JUNE 1998

ADJACENT PROPERTIES MAP

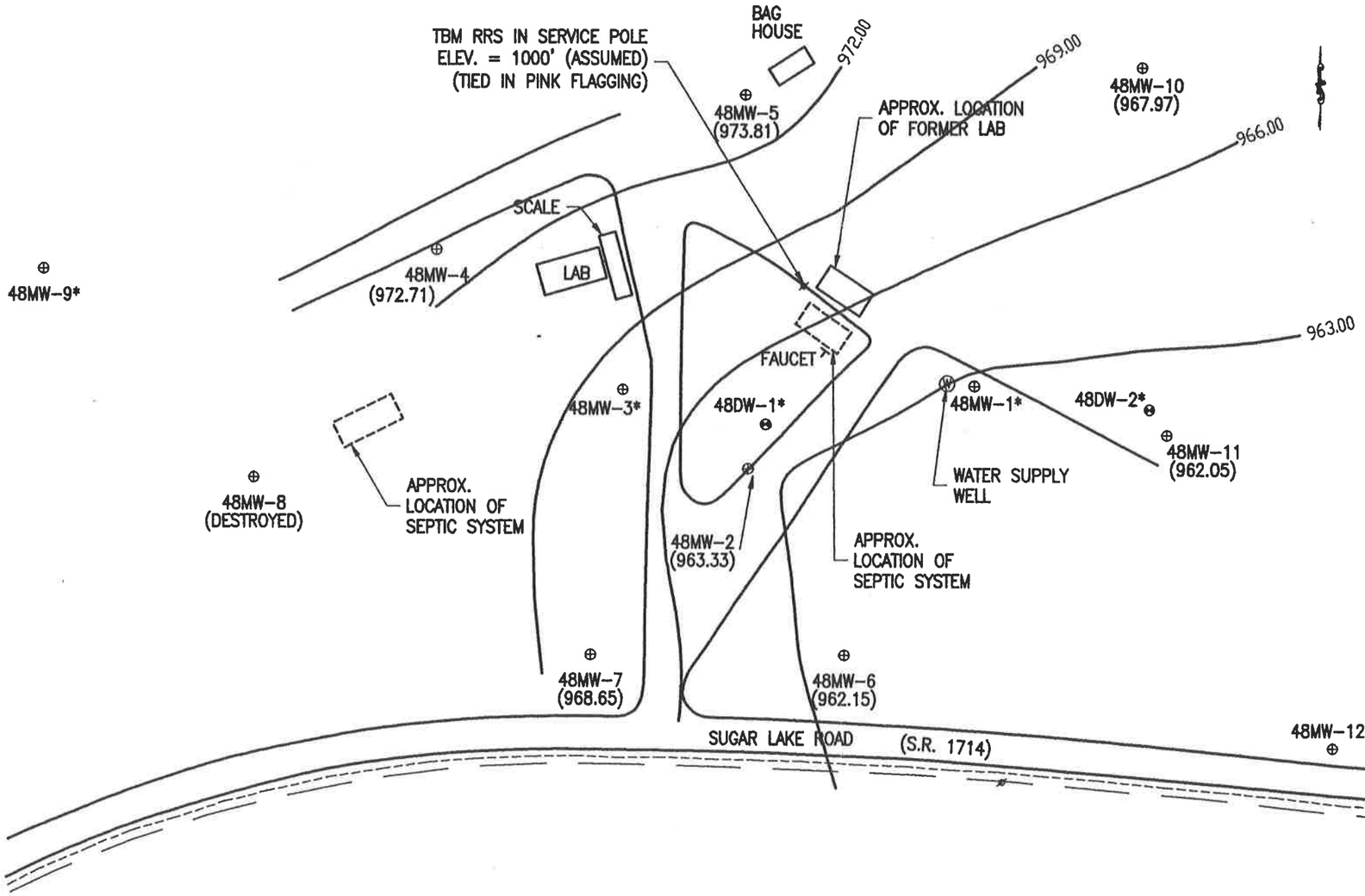
SITE NO. 6-48
PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

S&ME
ENVIRONMENTAL SERVICES
ENGINEERING • TESTING

RALEIGH BRANCH
3118 SPRING FOREST ROAD
P.O. BOX 58069
RALEIGH, N.C. 27658-8069
(919) 872-2660
FAX: (919) 790-9827

SCALE: 1" = 80'	DRAWN BY: APM	CHECKED BY: GMB
JOB NO. 1040-98-107	DATE: OCT. 1998	FIGURE 3

File: 107-98-OCT-FIG-03.DWG



APPROXIMATE LOCATION OF PROPERTY LINE

LEGEND

- ⊕ TYPE II MONITOR WELL
- ⊕ TYPE III MONITOR WELL
- Ⓦ APPROXIMATE LOCATION OF WATER SUPPLY WELL
- ( ) POTENTIOMETRIC SURFACE ELEVATION (FT.)
- * DATA FROM THIS WELL NOT USED IN CONTOURING
- 960.00 APPROXIMATE GROUNDWATER CONTOUR

NOTE:
SITE PLAN AND ELEVATIONS ARE BASED ON THE CSA REPORT FURNISHED BY NCDOT

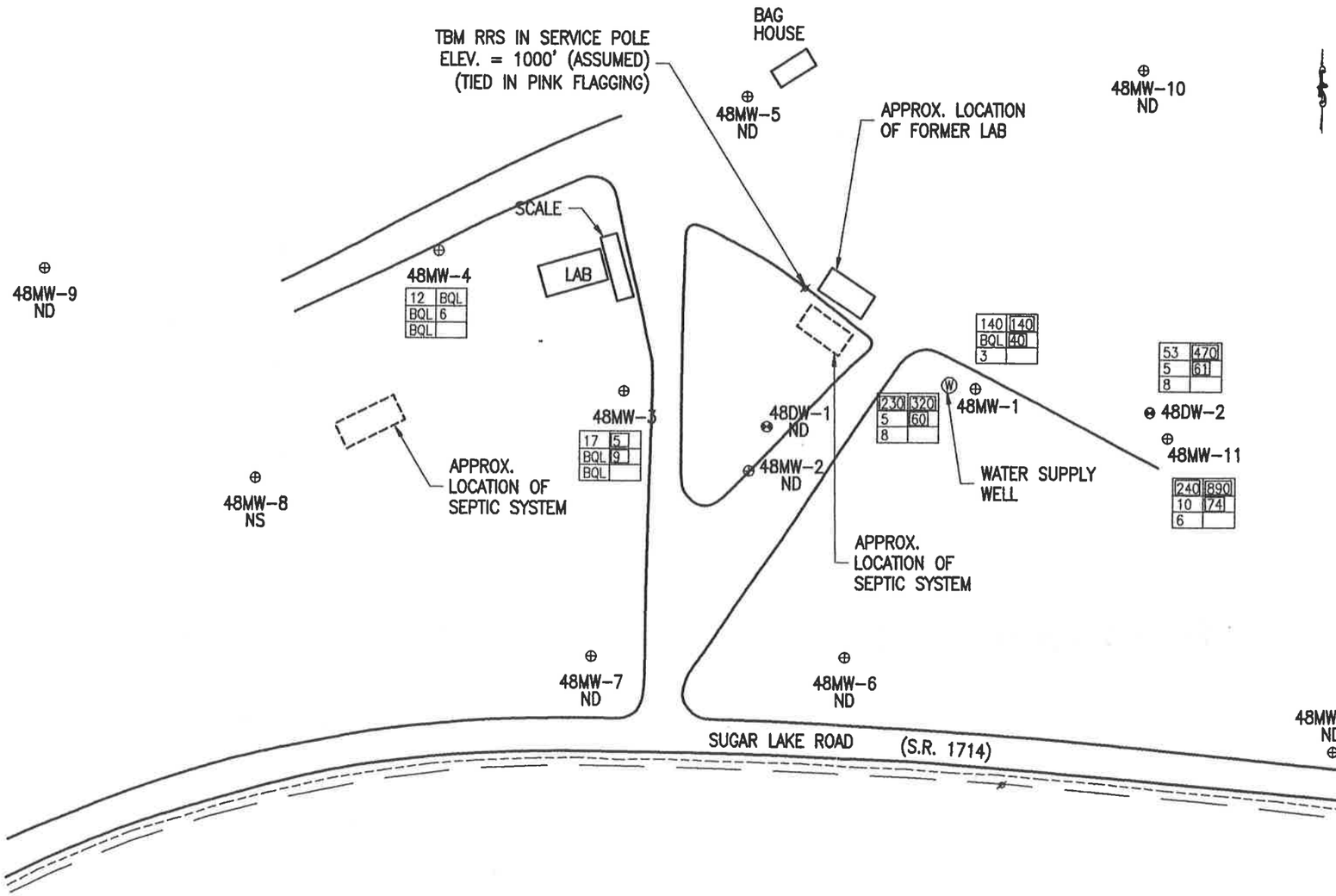
POTENTIOMETRIC CONTOUR MAP–SHALLOW WELLS
SEPTEMBER 28, 1998
SITE NO. 6–48
PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

S&ME
ENVIRONMENTAL SERVICES
ENGINEERING • TESTING

RALEIGH BRANCH
3118 SPRING FOREST ROAD
P.O. BOX 58069
RALEIGH, N.C. 27658-8069
(919) 872-2660
FAX: (919) 790-9827

SCALE: 1" = 80'	DRAWN BY: APM	CHECKED BY: GMB
JOB NO. 1040-98-107	DATE: OCT. 1998	FIGURE 4

File: 107-98-OCT-FIG-04.DWG



APPROXIMATE LOCATION OF PROPERTY LINE

ABBREVIATIONS

1,1,1-TCA = 1,1,1-TRICHLOROETHANE
TCE = TRICHLOROETHENE
CIS-1,2-DCE = CIS-1,2-DICHLOROETHENE
1,1-DCE = 1,1-DICHLOROETHENE
1,1-DCA = 1,1-DICHLOROETHANE

1,1,1-TCA (200)	TCE (2.8)
CIS-1,2-DCE (70)	1,1-DCE (7)
1,1-DCA (700)	

LEGEND

( ) NCAC 15A 2L STANDARDS
EXCEED 2L STANDARDS
NS NOT SAMPLED
ND CONSTITUENT NOT DETECTED ABOVE LABORATORY QUANTITATION LIMIT
⊕ TYPE II MONITOR WELL
⊕ TYPE III MONITOR WELL
Ⓦ APPROXIMATE LOCATION OF WATER SUPPLY WELL

NOTE:
1. SITE PLAN GENERATED FROM FIGURES PROVIDED IN THE CSA REPORT FURNISHED BY NCDOT
2. CONSTITUENT CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)

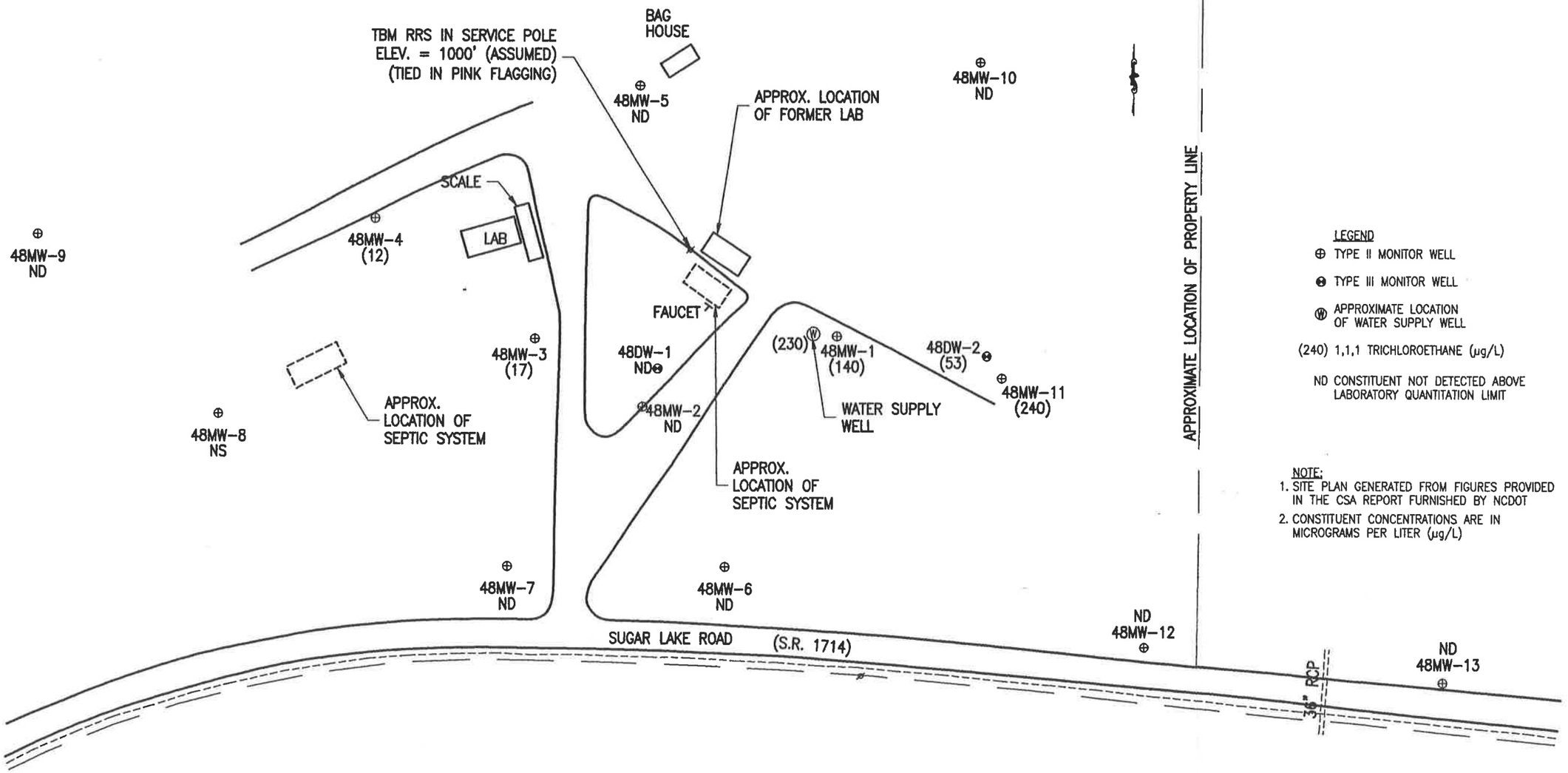
SUMMARY OF LABORATORY ANALYTICAL RESULTS
SEPTEMBER 28-29, 1998
SITE NO. 6-48
PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

S&ME
ENVIRONMENTAL SERVICES
ENGINEERING • TESTING

RALEIGH BRANCH
3118 SPRING FOREST ROAD
P.O. BOX 58069
RALEIGH, N.C. 27658-8069
(919) 872-2660
FAX: (919) 790-9827

SCALE: 1" = 80'	DRAWN BY: APM	CHECKED BY: GMB
JOB NO. 1040-98-107	DATE: OCT. 1998	FIGURE 5

File: 107-98-OCT-FIG-05.DWG



LEGEND

⊕ TYPE II MONITOR WELL

❷ TYPE III MONITOR WELL

Ⓦ APPROXIMATE LOCATION OF WATER SUPPLY WELL

(240) 1,1,1 TRICHLOROETHANE (µg/L)

ND CONSTITUENT NOT DETECTED ABOVE LABORATORY QUANTITATION LIMIT

NOTE:

1. SITE PLAN GENERATED FROM FIGURES PROVIDED IN THE CSA REPORT FURNISHED BY NCDOT
2. CONSTITUENT CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)

1,1,1 TRICHLOROETHANE IN GROUNDWATER (SEPTEMBER 28–29, 1998) SITE NO. 6–48 PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

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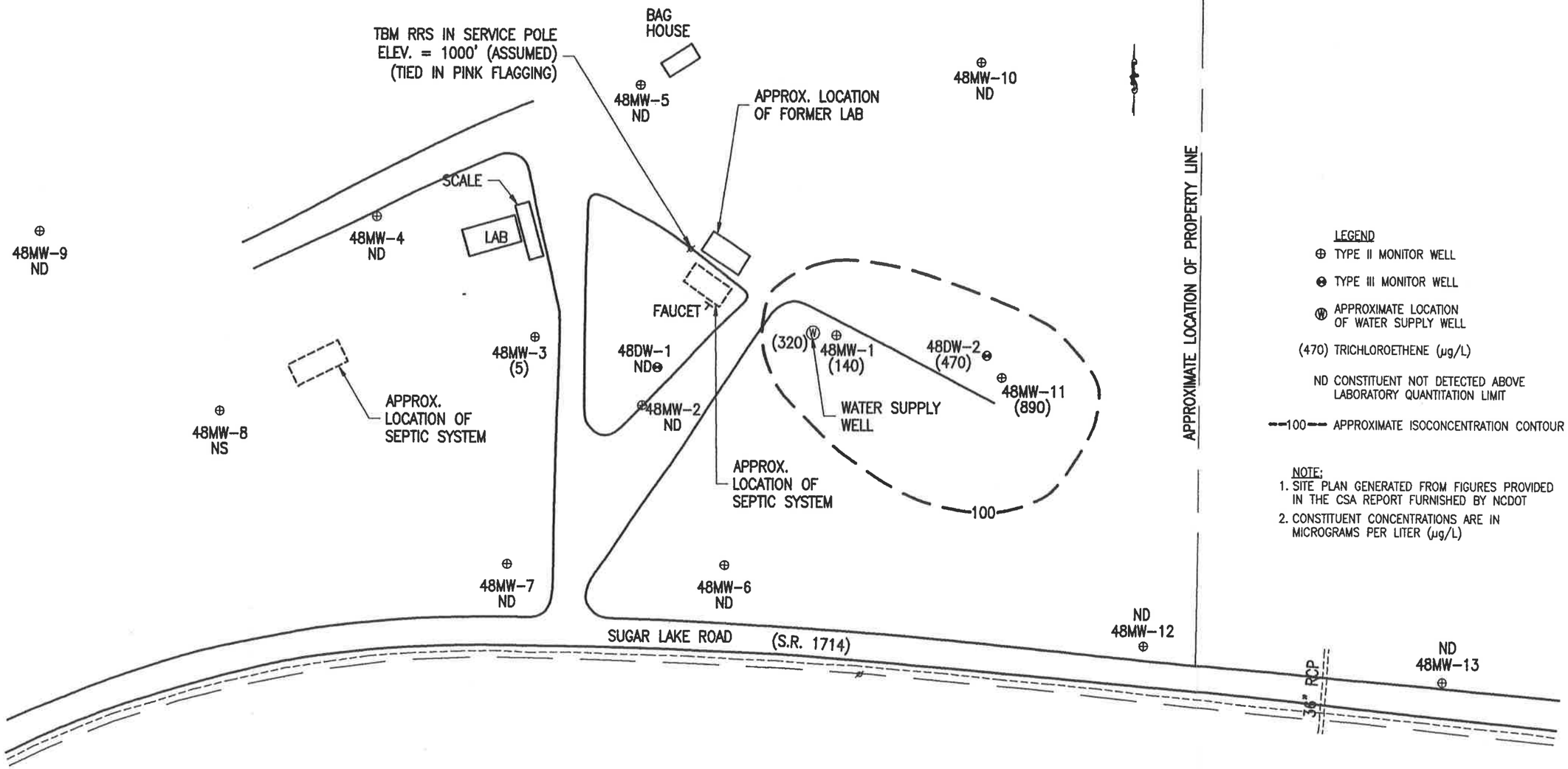
RALEIGH, N.C. 27658-8069
(919) 872-2660
FAX: (919) 790-9827

SCALE: 1" = 80'	DRAWN BY: APM	CHECKED BY: GMB
JOB NO. 1040-98-107	DATE: OCT. 1998	FIGURE 6

File: 107-98-OCT-FIG-06.DWG



LEGEND

- ⊕ TYPE II MONITOR WELL
- ⊖ TYPE III MONITOR WELL
- Ⓦ APPROXIMATE LOCATION OF WATER SUPPLY WELL
- (470) TRICHLOROETHENE (µg/L)
- ND CONSTITUENT NOT DETECTED ABOVE LABORATORY QUANTITATION LIMIT
- --100-- APPROXIMATE ISOCONCENTRATION CONTOUR

NOTE:

1. SITE PLAN GENERATED FROM FIGURES PROVIDED IN THE CSA REPORT FURNISHED BY NCDOT
2. CONSTITUENT CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)

ISOCONCENTRATION MAP FOR TRICHLOROETHENE IN GROUNDWATER (SEPTEMBER 28–29, 1998)
SITE NO. 6–48
PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

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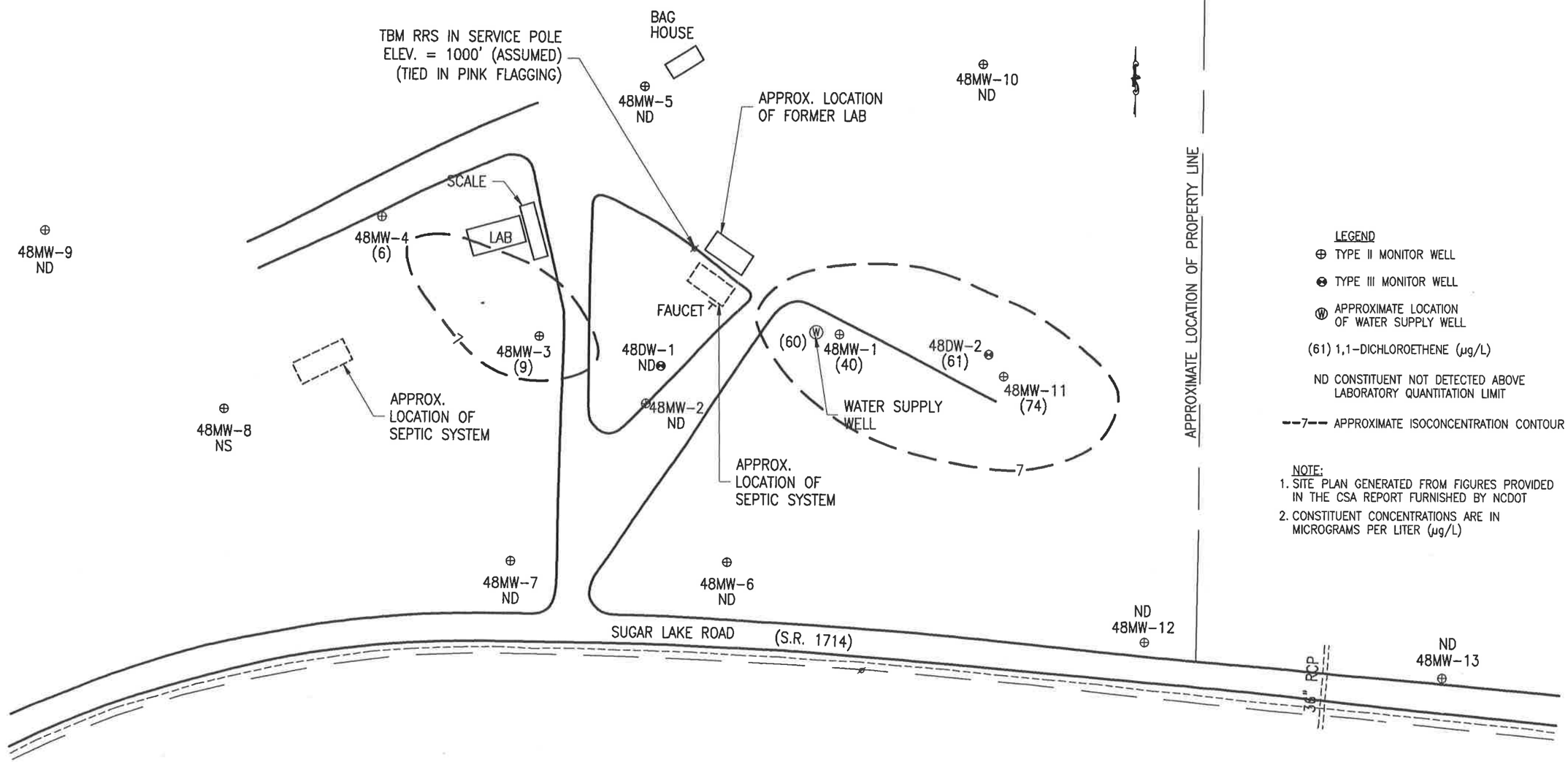
(919) 872-2660
FAX: (919) 790-9827

SCALE: 1" = 80'	DRAWN BY: APM	CHECKED BY: GMB
JOB NO. 1040-98-107	DATE: OCT. 1998	FIGURE 7

File: 107-98-OCT-FIG-07.DWG



LEGEND

⊕ TYPE II MONITOR WELL

⊖ TYPE III MONITOR WELL

Ⓦ APPROXIMATE LOCATION OF WATER SUPPLY WELL

(61) 1,1-DICHLOROETHENE (µg/L)

ND CONSTITUENT NOT DETECTED ABOVE LABORATORY QUANTITATION LIMIT

--7-- APPROXIMATE ISOCONCENTRATION CONTOUR

NOTE:

1. SITE PLAN GENERATED FROM FIGURES PROVIDED IN THE CSA REPORT FURNISHED BY NCDOT
2. CONSTITUENT CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)

ISOCONCENTRATION MAP FOR 1,1-DICHLOROETHENE IN GROUNDWATER (SEPTEMBER 28, 1998)
SITE NO. 6-48
PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

S&ME
ENVIRONMENTAL SERVICES
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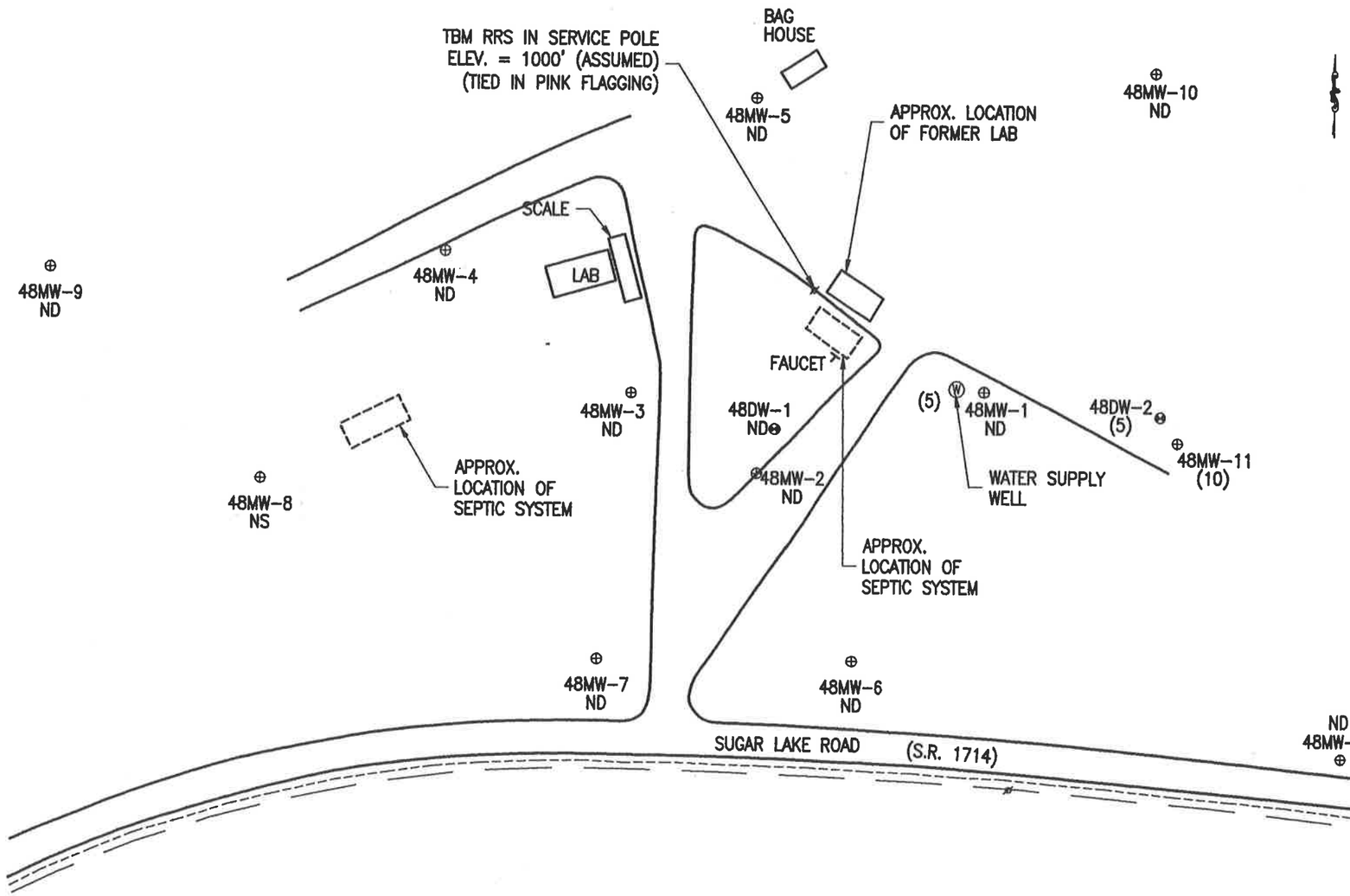
RALEIGH BRANCH
3118 SPRING FOREST ROAD
P.O. BOX 58069
RALEIGH, N.C. 27658-8069
(919) 872-2560
FAX: (919) 790-9827

SCALE: 1" = 80'	DRAWN BY: APM	CHECKED BY: GMB
JOB NO. 1040-98-107	DATE: OCT. 1998	FIGURE 8

File: 107-98-OCT-FIG-10.DWG



LEGEND

⊕ TYPE II MONITOR WELL

⊕ TYPE III MONITOR WELL

Ⓦ APPROXIMATE LOCATION OF WATER SUPPLY WELL

(5) CIS-1,2-DICHLOROETHENE (µg/L)

ND CONSTITUENT NOT DETECTED ABOVE LABORATORY QUANTITATION LIMIT

NOTE:

1. SITE PLAN GENERATED FROM FIGURES PROVIDED IN THE CSA REPORT FURNISHED BY NCDOT
2. CONSTITUENT CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)

CIS-1,2-DICHLOROETHENE IN GROUNDWATER (SEPTEMBER 28-29, 1998) SITE NO. 6-48 PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

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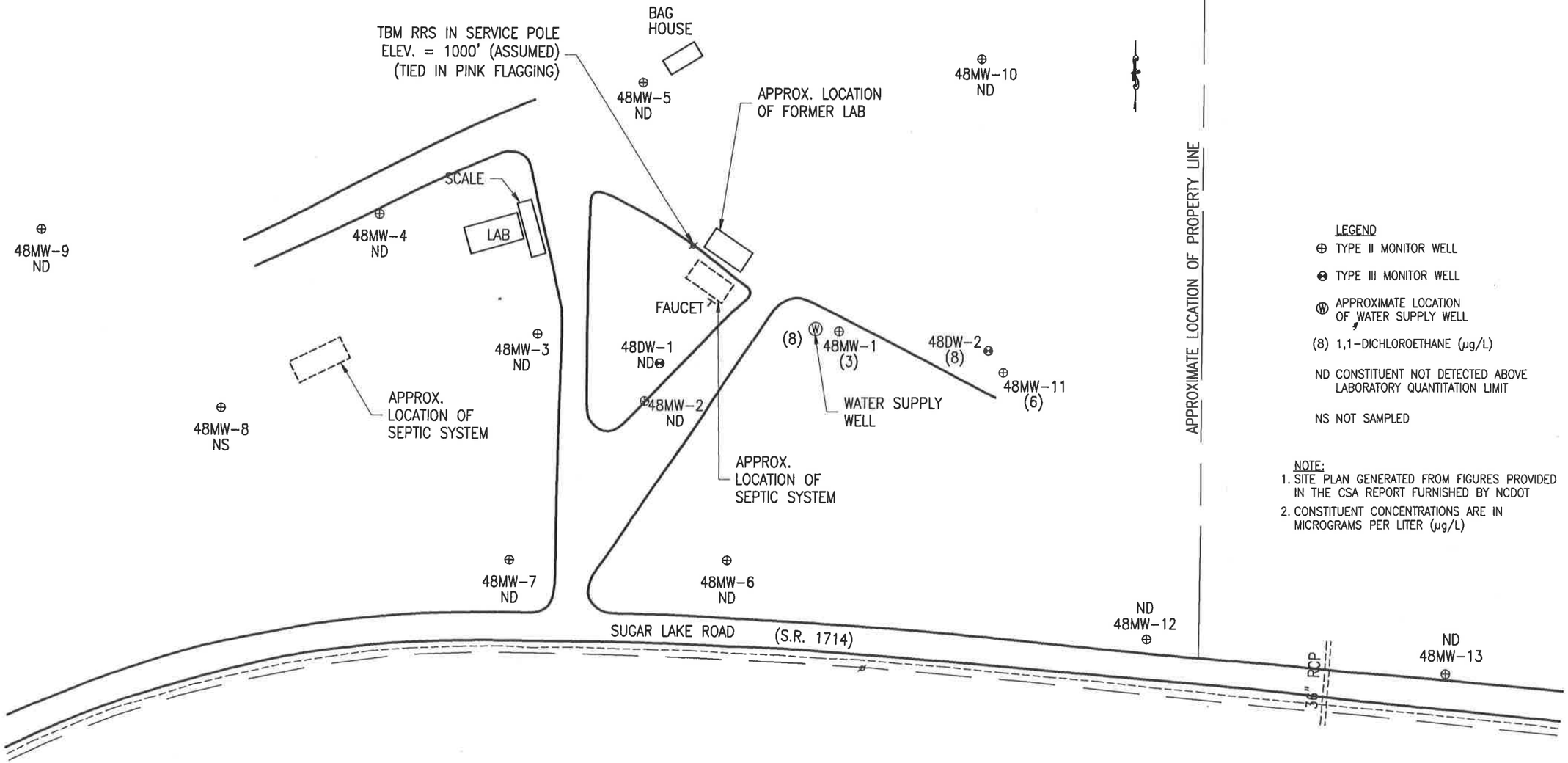
P.O. BOX 58069
RALEIGH, N.C. 27658-8069
(919) 872-2660
FAX: (919) 790-9827

SCALE: 1" = 80'	DRAWN BY: APM	CHECKED BY: GMB
JOB NO. 1040-98-107	DATE: OCT. 1998	FIGURE 9

File: 107-98-OCT-FIG-09.DWG



LEGEND

⊕ TYPE II MONITOR WELL

⊗ TYPE III MONITOR WELL

Ⓦ APPROXIMATE LOCATION OF WATER SUPPLY WELL

(8) 1,1-DICHLOROETHANE (µg/L)

ND CONSTITUENT NOT DETECTED ABOVE LABORATORY QUANTITATION LIMIT

NS NOT SAMPLED

NOTE:

1. SITE PLAN GENERATED FROM FIGURES PROVIDED IN THE CSA REPORT FURNISHED BY NCDOT
2. CONSTITUENT CONCENTRATIONS ARE IN MICROGRAMS PER LITER (µg/L)

1,1 DICHLOROETHANE IN GROUNDWATER (SEPTEMBER 28-29, 1998) SITE NO. 6-48 PITTSBORO, CHATHAM COUNTY, NORTH CAROLINA

S&ME
ENVIRONMENTAL SERVICES
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3118 SPRING FOREST ROAD
P.O. BOX 58069
RALEIGH, N.C. 27658-8069
(919) 872-2660
FAX: (919) 790-9827

SCALE: 1" = 80'	DRAWN BY: APM	CHECKED BY: GMB
JOB NO. 1040-98-107	DATE: OCT. 1998	FIGURE 10

File: 107-98-OCT-FIG-08.DWG

APPENDIX I
LABORATORY ANALYTICAL RESULTS

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07421 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW1
Sample collection date: 09/28/98 Time: 17:20
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/02/98
Time started: 03:34 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 86 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/02/98
Time started: 03:34 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	3	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	40	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	140	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	140	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07422 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW2
Sample collection date: 09/28/98 Time: 17:10
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/01/98
Time started: 04:31 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 77 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/01/98
Time started: 04:31 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	Not detected	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07419 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW3
Sample collection date: 09/28/98 Time: 17:05
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/01/98
Time started: 01:41 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 73 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/01/98
Time started: 01:41 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	9	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	17	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	5	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07428 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW4
Sample collection date: 09/29/98 Time: 14:20
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/02/98
Time started: 10:10 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 79 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/02/98
Time started: 10:10 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Full Service Analytical & Environmental Solutions

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	6	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	12	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07427 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW5
Sample collection date: 09/29/98 Time: 14:40
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/02/98
Time started: 09:14 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 86 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/02/98
Time started: 09:14 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

ISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	Not detected	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07417 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW6
Sample collection date: 09/28/98 Time: 16:50
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 09/30/98 Date finished: 10/01/98
Time started: 23:48 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 73 % MDL or sensitivity: 50-150
Date started: 09/30/98 Date finished: 10/01/98
Time started: 23:48 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

ISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	Not detected	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

ESM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07418 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW7
Sample collection date: 09/28/98 Time: 17:00
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/01/98
Time started: 00:45 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 77 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/01/98
Time started: 00:45 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	Not detected	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07431 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW9
Sample collection date: 09/29/98 Time: 14:10
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/02/98
Time started: 22:28 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 95 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/02/98
Time started: 22:28 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

ISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	Not detected	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07423 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW10
Sample collection date: 09/28/98 Time: 17:30
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/01/98
Time started: 05:27 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 83 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/01/98
Time started: 05:27 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Full Service Analytical & Environmental Solutions

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	Not detected	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07420 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW11
Sample collection date: 09/28/98 Time: 17:25
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/02/98
Time started: 02:28 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 78 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/02/98
Time started: 02:38 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	6	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	74	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	240	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	890	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	10	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

ISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07424 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW12
Sample collection date: 09/28/98 Time: 17:35
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/01/98
Time started: 06:25 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 82 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/01/98
Time started: 06:25 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	Not detected	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

RTSM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07425 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 MW13
Sample collection date: 09/28/98 Time: 17:40
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/01/98
Time started: 07:21 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 76 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/01/98
Time started: 07:21 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Full Service Analytical & Environmental Solutions

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	Not detected	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

ISM LABS, INC.
Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07430 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 DMW1
Sample collection date: 09/29/98 Time: 14:15
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/02/98
Time started: 21:31 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 94 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/02/98
Time started: 21:31 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	Not detected	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	Not detected	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	Not detected	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	Not detected	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	Not detected	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07429 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 DW2
Sample collection date: 09/29/98 Time: 14:30
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/02/98
Time started: 11:07 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 80 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/02/98
Time started: 11:07 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	8	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

ISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	61	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	53	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	470	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	5	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

Lab Report

From: NC Certification No. 402
SC Certification No. 99012
NC Drinking Water Cert. No. 37735
FL Certification No. E87519

Full Service Analytical & Environmental Solutions

October 5, 1998

To: Mr. James Wang
S & ME, Inc.
3118 Spring Forest Road
Raleigh, NC 27616
PO# 990414

The following analytical results have been obtained for the indicated sample which was submitted to this laboratory:

Sample I.D. AB07426 Customer Code: S&ME-DOT
Login Group #: 8611D15 Customer Reference: NCDOT
Phone Number: (919)872-2660/fax(919)790-9827
Customer Sample I.D#: 6-48 WSW
Sample collection date: 09/29/98 Time: 15:00
Lab submittal date: 09/30/98 Time: 10:45
Received by: TLM Validated by: ADO

Parameter: HALOGENATED VOLATILES BY 601
Method reference: 601 Unit: ug/L
Result: see below
Date started: 10/01/98 Date finished: 10/02/98
Time started: 08:18 Analyst: JMV

Parameter: SURROGATE RECOVERY FOR 601
Method reference: 601 Unit: %
Result: 76 % MDL or sensitivity: 50-150
Date started: 10/01/98 Date finished: 10/02/98
Time started: 08:18 Analyst: JMV

Data for HALOGENATED VOLATILES BY 601 ug/L:

Component Name	Result	Component MDL
BROMODICHLOROMETHANE	Not detected	1
BROMOFORM	Not detected	1
BROMOMETHANE	Not detected	5
CARBON TETRACHLORIDE	Not detected	1
CHLOROBENZENE	Not detected	1
CHLOROETHANE	Not detected	5
CHLOROFORM	Not detected	1
CHLOROMETHANE	Not detected	5
DIBROMOCHLOROMETHANE	Not detected	1
1,2-DICHLOROBENZENE	Not detected	1
1,3-DICHLOROBENZENE	Not detected	1
1,4-DICHLOROBENZENE	Not detected	1
DICHLORODIFLUOROMETHANE	Not detected	5
1,1-DICHLOROETHANE	8	1
1,2-DICHLOROETHANE	Not detected	1

Lab Report

ISM LABORATORIES, INC.
Full Service Analytical & Environmental Solutions

Data for HALOGENATED VOLATILES BY 601 (continued):

Component Name	Result	Component MDL
1,1-DICHLOROETHENE	60	1
TRANS-1,2-DICHLOROETHENE	Not detected	1
1,2-DICHLOROPROPANE	Not detected	1
CIS-1,3-DICHLOROPROPENE	Not detected	1
TRANS-1,3-DICHLOROPROPENE	Not detected	5
EDB	Not detected	1
METHYLENE CHLORIDE	Not detected	5
1,1,2,2-TETRACHLOROETHANE	Not detected	1
TETRACHLOROETHENE	Not detected	1
1,1,1-TRICHLOROETHANE	230	1
1,1,2-TRICHLOROETHANE	Not detected	1
TRICHLOROETHENE	320	1
TRICHLOROFLUOROMETHANE	Not detected	5
VINYL CHLORIDE	Not detected	5
CIS-1,2-DICHLOROETHENE	5	1

Sample comments:

Project Name: NCDOT Asphalt
PO# 990414

If there are any questions regarding this data, please call.

Angela D. Overcash
Laboratory Director

CHAIN OF CUSTODY RECORD

PAGE 1 OF 2 QUOTE #

PRISM LABORATORIES, INC.

Full Service Analytical & Environmental Solutions

449 Springbrook Road ▲ Charlotte, NC 28217
P.O. Box 240543 ▲ Charlotte, NC 28224-0543
Phone: 704/529-6364 ▲ Fax: 704/525-0409

PRESS DOWN FIRMLY - 3 COPIES

LAB USE ONLY

	YES	NO	N/A
Samples INTACT upon arrival?	✓		
Received ON WET ICE? Temp	✓		
PROPER PRESERVATIVES indicated?	✓		
Received WITHIN HOLDING TIMES?	✓		
CUSTODY SEALS INTACT?			
VOLATILES rec'd W/OUT HEADSPACE?	✓		
PROPER CONTAINERS used?	✓		

Client: SME
Physical Address: 3118 Spring Forest Rd, Raleigh NC 27616
Phone: (919) 872-2660 Fax: (919) 790-9827
P.O.#/Billing Reference: 446414
Project Name: MCOT Asphalt

REPORT TO: Name: James Keams
Address: 3118 Spring Forest Rd.
BILL TO: Name: MCOT
Address:
Requested Due Date: Rush

(SEE REVERSE SIDE FOR RUSH TURNAROUND FEES)

State Certification Requested NC ✓ SC ___ Other ___ NA ___
Water Chlorinated Yes ___ No ✓ NA ___
Sample Iced Upon Collection Yes ✓ No ___

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	*TYPE SEE BELOW	NO.	SIZE	PRESERVATIVES	EPA 601						REMARKS	SUB LAB CERT. ID NO.	PRISM LAB ID NO.
6-98 MW6	9/28/98	1650	H2O	VOA	3	40mL	HCl	X								[illegible]
6-98 MW7	↓	1700	↓	↓	↓	↓	↓	X								[illegible]
6-98 MW3	↓	1705	↓	↓	↓	↓	↓	X								[illegible]
6-98 MW11	↓	1725	↓	↓	↓	↓	↓	X								[illegible]
6-98 MW1	↓	1720	↓	↓	↓	↓	↓	X						[illegible]		[illegible]
6-98 MW2	↓	1710	↓	↓	↓	↓	↓	X						[illegible]		[illegible]
6-98 MW10	↓	1730	↓	↓	↓	↓	↓	X						[illegible]		[illegible]
6-98 MW12	↓	1735	↓	↓	↓	↓	↓	X						[illegible]		[illegible]
6-98 MW13	↓	1740	↓	↓	↓	↓	↓	X						[illegible]		[illegible]
6-98 WSW	9/29/98	1500	↓	↓	↓	↓	↓	X								[illegible]

Sampler's Signature: [signature] Sampled By (Print Name): Brian Ke[illegible] Affiliation

Relinquished By: (Signature)	Received By: (Signature)	Date	Military/Hours
Relinquished By: (Signature)	Received By: (Signature)	Date	
Relinquished By: (Signature) [signature]	Received For Prism Laboratories By: [signature]	Date 9/30/98	[illegible]
Method of Shipment: FedEx		Log-In Group No. [illegible]	

Additional Comments

[illegible]

NPDES NC ___ SC ___ OTHER ___ UST: NC ___ SC ___ OTHER ___ GROUNDWATER: NC ___ SC ___ OTHER ___ DRINKING WATER: NC ___ SC ___ OTHER ___ SOLID WASTE: NC ___ SC ___ OTHER ___ OTHER: NC ___ SC ___ OTHER ___

*CONTAINER TYPE CODES: A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

SEE REVERSE FOR TERMS & CONDITIONS

CHAIN OF CUSTODY RECORD

PAGE 2 OF 2 QUOTE #

PRISM LABORATORIES, INC.

Full Service Analytical & Environmental Solutions

449 Springbrook Road ▲ Charlotte, NC 28217
P.O. Box 240543 ▲ Charlotte, NC 28224-0543
Phone: 704/529-6364 ▲ Fax: 704/525-0409

PRESS DOWN FIRMLY - 3 COPIES

LAB USE ONLY

	YES	NO	N/A
Samples INTACT upon arrival?	✓		
Received ON WET ICE? Temp	✓		
PROPER PRESERVATIVES indicated?	✓		
Received WITHIN HOLDING TIMES?	✓		
CUSTODY SEALS INTACT?			✓
VOLATILES rec'd W/OUT HEADSPACE?	✓		
PROPER CONTAINERS used?	✓		

Client SAME

Physical Address

Phone Fax

P.O.#/Billing Reference 990414

Project Name

REPORT TO: Name
Address

BILL TO: Name
Address

Requested Due Date Rush

(SEE REVERSE SIDE FOR RUSH TURNAROUND FEES)

State Certification Requested NC ___ SC ___ Other ___ NA ___

Water Chlorinated Yes ___ No ___ NA ___

Sample Iced Upon Collection Yes ___ No ___

CLIENT SAMPLE DESCRIPTION	DATE COLLECTED	TIME COLLECTED MILITARY HOURS	MATRIX (SOIL, WATER OR SLUDGE)	SAMPLE CONTAINER *TYPE SEE BELOW	NO.	SIZE	PRESERVA-TIVES	ANALYSES REQUESTED: 601						REMARKS	SUB LAB CERT. ID NO.	PRISM LAB ID NO.
6-18 MW 5	4/29/98	1440	H20	VOA	3	40-ml	HCl	X								[illegible]
6-18 MW 4	↓	1420	↓	↓	↓	↓	↓	X								[illegible]
6-18 DW 2	↓	1430	↓	↓	↓	↓	↓	X								[illegible]
6-18 DMW 1	↓	1415	↓	↓	↓	↓	↓	X								[illegible]
6-18 MW 9	↓	1410	↓	↓	↓	↓	↓	X								[illegible]
														[illegible]		

Sampler's Signature [signature] Sampled By (Print Name) Brian Reber Affiliation

Relinquished By: (Signature)	Received By: (Signature)	Date	Military/Hours
Relinquished By: (Signature)	Received By: (Signature)	Date	
Relinquished By: (Signature) [signature]	Received For Prism Laboratories By: [signature]	Date [illegible]	[illegible]
Method of Shipment Fed ex		Log-In Group No. [illegible]	

Additional Comments

Rush [illegible]

NPDES NC ___ SC ___ OTHER ___ UST: NC ___ SC ___ OTHER ___ GROUNDWATER: NC ___ SC ___ OTHER ___ DRINKING WATER: NC ___ SC ___ OTHER ___ SOLID WASTE: NC ___ SC ___ OTHER ___ OTHER: NC ___ SC ___ OTHER ___

***CONTAINER TYPE CODES:** A = Amber C = Clear G = Glass P = Plastic; TL = Teflon-Lined Cap VOA = Volatile Organics Analysis (Zero Head Space)

SEE REVERSE FOR TERMS & CONDITIONS