REPORT OF:

Preliminary Environmental Evaluation
UNOCAL Corporation
Red Horse-Auto/Truck Stop
UNOCAL Site #9787-214
Mebane, NC

PREPARED FOR:
UNOCAL Corporation
13 Corporate Square, NE
P. O. Box 4147
Atlanta, GA 30302

PREPARED BY:
Thomas G. Whitehead and Ronald C. Gilkerson
Ecological Services, Inc.
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Report No. ES - 0155

June 29, 1992

ESI
ECOLOGICAL SERVICES, INC

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APPENDICES

1.0 Project Information

UNOCAL Corporation authorized ESI to perform a Preliminary Environmental Evaluation to determine the areal extent of petroleum affected material adjacent to three separate underground tank excavations and two island areas at the subject site. It is our understanding that UNOCAL Corporation contracted James Construction Company to perform the removal of all underground storage tanks (UST's) and associated piping. We understand that ENSCI Corporation was contracted to perform the Underground Storage Tank Closure Activities as required by North Carolina, Division of Environmental Management (NCDEM).

The subject site is located at the intersection of I-85 North Access Road and Trollingwood Road in Mebane, NC, Figure 1 (Appendix A). We understand that four 4,000 gallon underground gasoline storage tanks, and four 10,000 gallon underground diesel storage tanks were excavated during the week of June 8, 1992. The subject site is located in a section of Mebane, NC that is characterized by mainly farmland with some residential areas along Trollingwood Road (South). Two retail gasoline station outlets are located across I-85 just north of the subject site.

2.0 Field Exploration

The site was visited and the drilling locations were selected by Mr. Ron Gilkerson of ESI. The boring locations were selected to delineate the areal extent of petroleum affected soil adjacent to the tank excavation and pump island areas at the subject site. The borings were designated B-1 through B-12 and located in the field using a rolo-tape and estimated right angles, referencing existing site features. See Figure 2 (Appendix A) for Soil Test Boring Location Plan. Due to construction activities, additional soil test borings could not be performed just east of the former 4000 gallon gasoline UST area and just west of the two former 10,000 gallon diesel UST areas.

In addition, prior to the initiation of drilling activities the average depth of each excavation was measured and recorded in the field. The depth of the former 4000 gallon UST excavation was approximately 9.0 feet below grade, the depth of the former 10,000 gallon diesel UST area (west) was approximately 9.0 feet below grade and the 10,000 gallon UST diesel area (east) was approximately 10.0 feet below grade.

A site specific Health and Safety Plan was executed and is included in Appendix D.

3.0 Methodology

3.1 Soil Test Borings

The twelve soil test borings were drilled using our Dig-R-Mobile 550 drill rig employing 3 1/4 I.D. hollow-stem steel augers to advance the bore holes. The borings were advanced to approximately 1.5-2.0' below the base of the UST excavations.
Soil borings adjacent to the island areas were drilled to varying depths based on Gas Chromatograph results. Auger cutting samples were collected at regular intervals from each of the borings. Based on this soil sampling procedure no penetration resistance testing was performed at these locations.

Prior to drilling each soil test borings, all auger equipment was properly steam cleaned to minimize cross-contamination between borings. Representative portions of auger cuttings obtained were classified by a geologist in the field. Test Borings Records are attached (Appendix C), showing soil descriptions and boring termination depths.

3.2 Soil Sampling Methodology

Fifteen soil samples were collected from borings B-1 through B-12 to determine the absence/presence of petroleum affected material. The soil samples collected from the shallow borings B-1 through B-5 were obtained by manually twisting a stainless steel hand auger into undisturbed soil.

The soil samples obtained from the deeper borings B-6 through B-12 were obtained by driving a KV™ 3/4-inch I.D., 1.0-inch O.D. stainless steel core barrel equipped with a disposable Teflon sampling sleeve. The KV™ soil sampler was driven into the undisturbed soil with a rotary hammer. Once the stainless steel sampler was driven approximately 12-15 inches, the soil sampler was retrieved and the soil sample was collected from the sampling sleeve. The teflon sampling sleeve was replaced prior to obtaining each sample. To minimize the potential for cross-contamination, all sampling equipment was properly steam cleaned.

Each soil sample was immediately placed in a 8-oz. glass container, covered with aluminum foil, sealed with a teflon lined lid and allowed to volatilize for 1 hour. All soil samples obtained were inspected for obvious visual and olfactory signs of petroleum staining.

3.3 Photovac 10S Plus Field Procedure

Following sample collection, each soil sample collected at the twelve sampling points was field screened using a portable Photovac™ 10S Plus Portable gas chromatograph equipped with a computer interface (Dandi™)

The 10S Plus unit is a portable photoionization detector (PID) capable, according to the manufacture's literature, of detecting benzene in a 1 ml. air sample at a concentration of 0.1 parts per billion (ppb) with a signal to noise ration of 4:1. The PID detector within the instrument operates using high energy (11eV) ultraviolet light to ionize gases. Since many pollutants have ionization potentials less than 11eV, they can be ionized by the detector.

The positive ions are then collected and amplified. The PID itself, however, is unable to distinguish particular compounds and detects only total volatile organic compounds (VOC's).

Once each soil sample was allowed to volatilize 1 hour, the PID probe of the GC was inserted into each sampling container, puncturing the aluminum foil, and obtaining a head space reading. As a part of our quality assurance program, hourly calibration runs are made with a known concentration of iso-butylene gas (100ppm). Results of field gas chromatograph screening are presented in Table 1 (Appendix B).

4.0 Subsurface Conditions

Surface coverings encountered in borings B-1, B-2, B-3, B-4, B-5, B-6, B-9, B-10 and B-12 consisted of approximately 3 to 4-inches of asphalt. Gravel was encountered beneath the asphalt in these borings.

Due to excavation activities, no asphalt material was encountered in borings B-7 and B-8. The concrete pump island had been removed prior to drilling boring B-7. The material beneath the gravel in borings B-1, B-2, B-3, B-4, B-5 and B-6 consisted of a silty clay. In borings B-2, B-3, B-5 and B-6 a slightly clayey sandy silt layer was identified at a depth of approximately 4.0 feet and ranged in thickness from approximately 1.0 ft. to 4.0 ft. A strong petroleum hydrocarbon odor was noted in this unit of more permeable material.

The material encountered in borings B-7, B-8, B-9, B-10, B-11 and B-12 consisted of silty clay to a depth of approximately 11 feet. In borings B-10 and B-12, the silty clay material was underlain by a slightly sandy clayey silt.

The above descriptions provide a general summary of the subsurface conditions encountered. The Test Borings Records included in Appendix C contain detailed information recorded at each boring location. These Test Boring Records represent our interpretation of the field logs based on examination of field samples by a geologist.

5.0 Test Results

5.1 Gas Chromatograph/PID Analysis of Soil Samples

The results of GC/PID field screening activities, adjacent to the gasoline pump islands, indicated the presence of total volatile organic compounds (VOC) levels ranging from 114 ppm to >2000 ppm in the soil samples obtained at borings B-1, B-2, B-3, B-4 and B-6. The soil samples obtained from boring B-5 indicated a significant reduction in the concentration of total VOC's.

The results of GC/PID field screening of the soil sample obtained from boring B-7 (east side of the 4,000 gallon UST excavation) indicated a concentration of 40 ppm total VOC's. Total VOC's were detected at a concentration of 152 ppm in the sample obtained from boring B-8 (north side of the excavation).

Total VOC's were detected in soil samples obtained from boring B-9, B-10 and B-12 adjacent to the two diesel tank excavations at concentrations of 20.1 ppm, 19.6 ppm and 38.1 ppm, respectfully.

The results of the sample obtained from boring B-11 (located beneath diesel pump island) indicated a total VOC level of 38.1 ppm.

6.0 Comment and Recommendations

The results of soil sampling and portable GC/PID Analysis in the area of the gasoline dispenser islands indicate a relatively high concentration of total VOC's immediately adjacent to the east and west sides of the concrete pad. A significant reduction in the concentration of total VOC's is apparent in a westward direction from boring B-2 to B-5. In addition the highest concentration of VOC's was identified in what appears to be a more permeable sandy silt unit encountered in borings B-2, B-3, B-5 and B-6. See boring logs in Appendix A.

We believe that these soils can be effectively treated by isolating the shallow unsaturated zone with an in-situ soil vapor extraction system. For this reason, additional excavation outside of the concrete pad area was not recommended to James Construction Company.

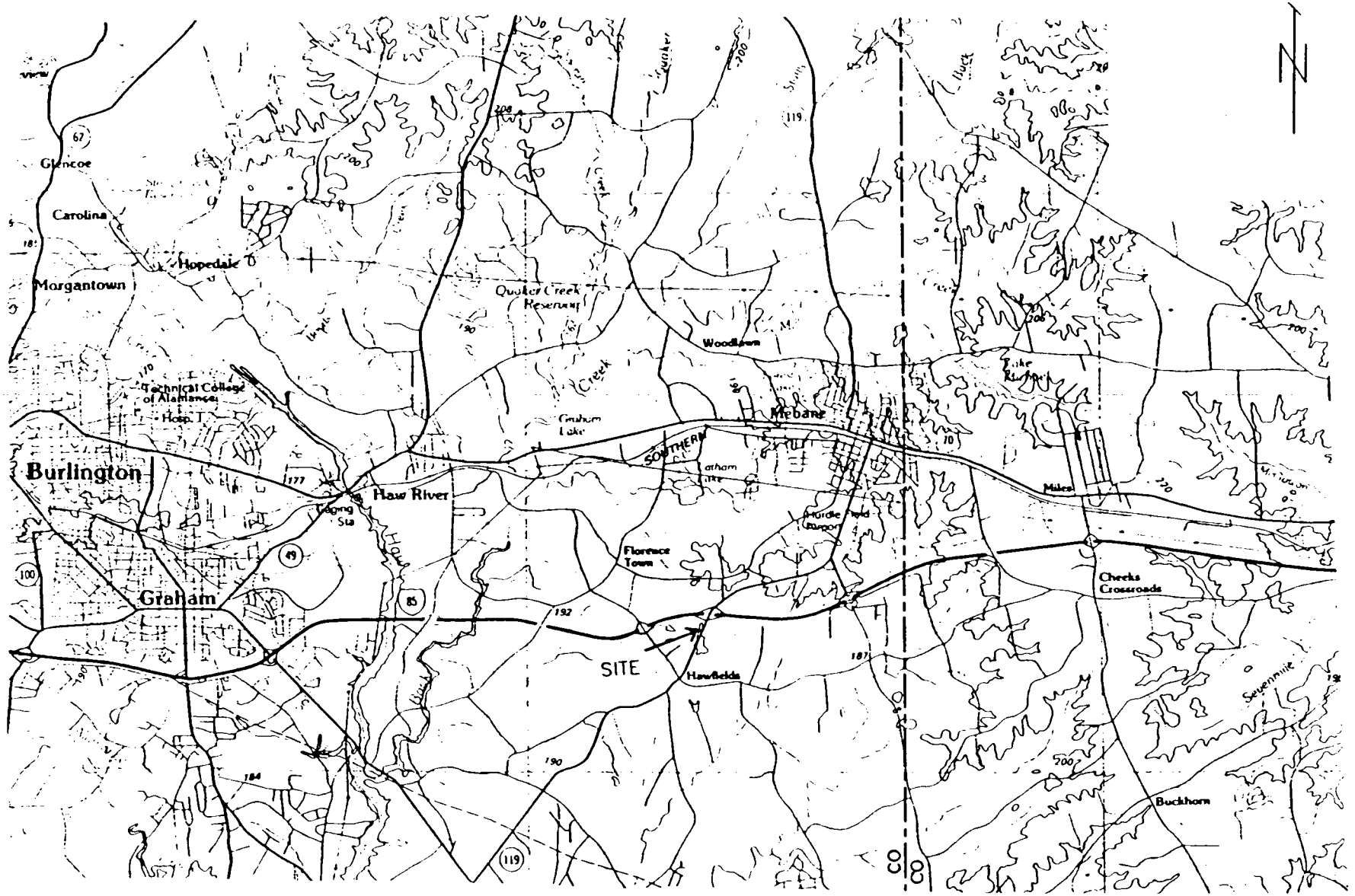
Based on the relatively high level of total VOC's encountered on the northern side of the 4,000 gallon UST excavation, additional excavation was recommended to just beyond the location of boring B-8. Further excavation was not recommended, west of the former UST pit. Due to construction activities, additional assessment was not performed on the south and east side of the excavation.

Since the levels of petroleum affected soil appeared to be relatively low adjacent to the two former 10,000 gallon diesel tank pits, no additional areal excavation was recommended.

Based on the relatively strong petroleum hydrocarbon odor and diesel stained cuttings encountered during the drilling of boring B-11, ESI recommended the excavation of the material beneath the pump island areas to a depth of approximately 10 feet. In addition, visual observation of the second diesel pump island indicated similar surface stained conditions. However, since the pump island had not been removed no subsurface borings were performed in this area.

APPENDIX A

FIGURES



DATE: JUNE 23, 1992

SCALE: 1:100,000

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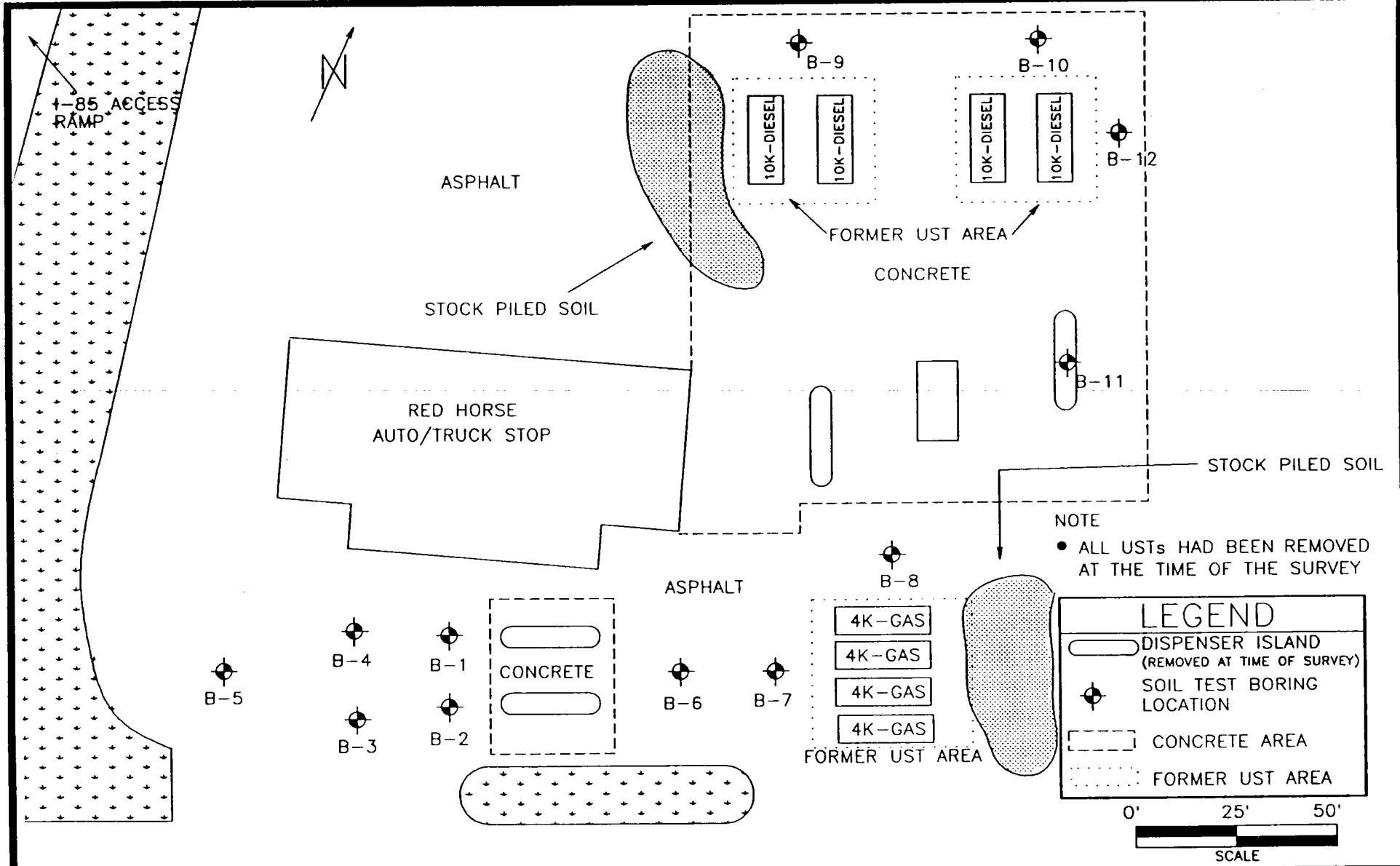
FIGURE: #1 SITE LOCATION MAP

RED HORSE AUTO/TRUCK STOP
UNOCAL SITE # 9787-214
MEBANE, NC



DATE: JUNE, 22, 1992

SCALE: ON DRWING

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FIGURE: #2 SITE PLAN
RED HORSE AUTO/TRUCK STOP
UNOCAL SITE # 9787-214
MEBANE, NC

APPENDIX B

TABLES

TABLE 1

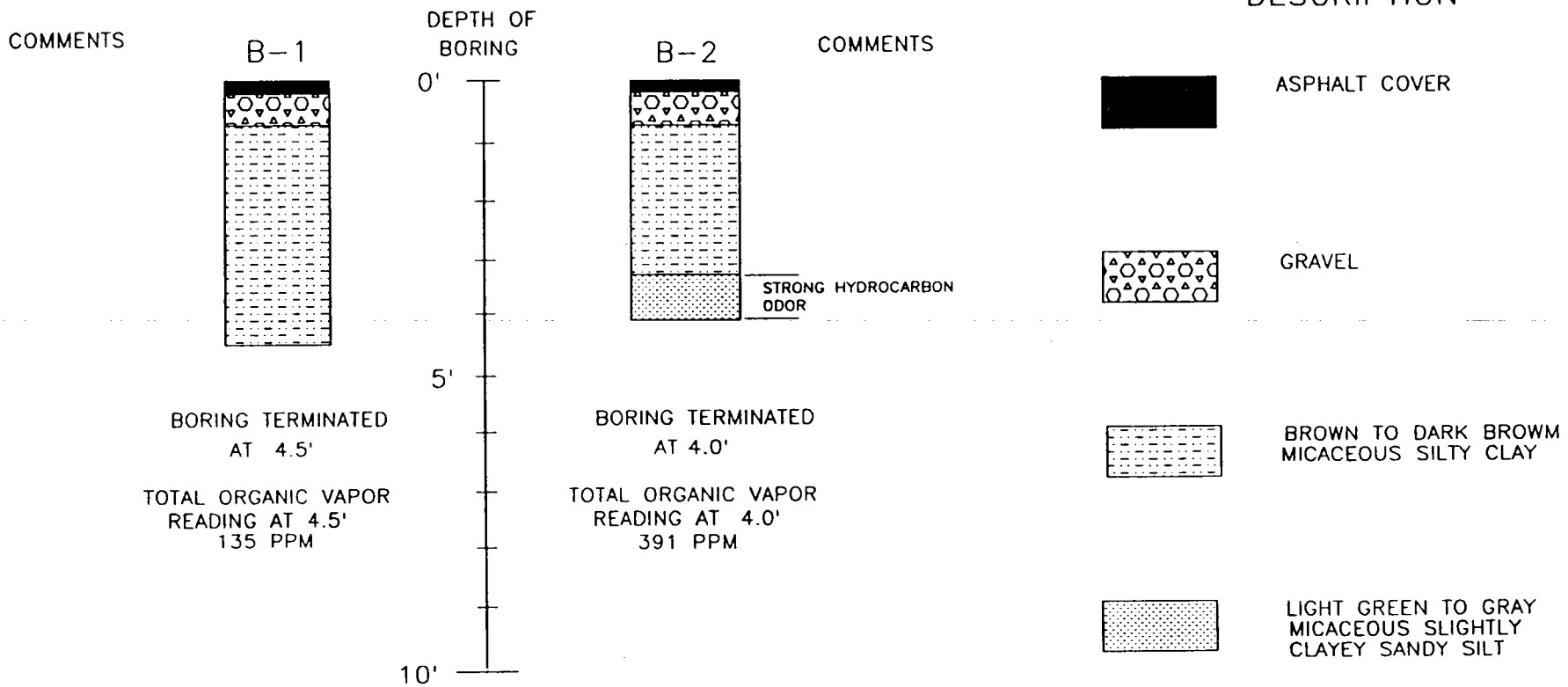
Field Gas Chromatograph Screening Data
Total VOC in Soil
Red Horse-Auto/Truck Stop
Mebane, NC

Station Soil Sample #	Depth (Ft.)	Date	GC Reading*
B-1	4.5'-5.0'	6/11/92	135
B-2	4.0'-4.5'	6/11/92	391
B-3	4.0'-4.5'	6/11/92	531
B-3A	5.5'-6.0'	6/11/92	114
B-4	4.5'-5.0'	6/11/92	89.9
B-5	5.0'-5.5'	6/11/92	48.0
B-5A	6.0'-6.5'	6/11/92	60.0
B-6	4.0'-4.5'	6/11/92	>2000
B-6A	8.0'-8.5'	6/11/92	235
B-7	10.5'-11.0'	6/11/92	40
B-8	10.5'-11.0'	6/11/92	152
B-9	10.5'-11.0'	6/11/92	20.1
B-10	11.0'-11.5'	6/11/92	19.6
B-11	11.5'-12.0'	6/11/92	38.1
B-12	10.0'-10.5'	6/11/92	18.1

* All Data in Parts Per Million (ppm)

APPENDIX C

SOIL TEST BORING LOGS



DATE OF BORINGS: JUNE 11, 1992

DATE: JUNE 23, 1992

SCALE: ON DRAWING

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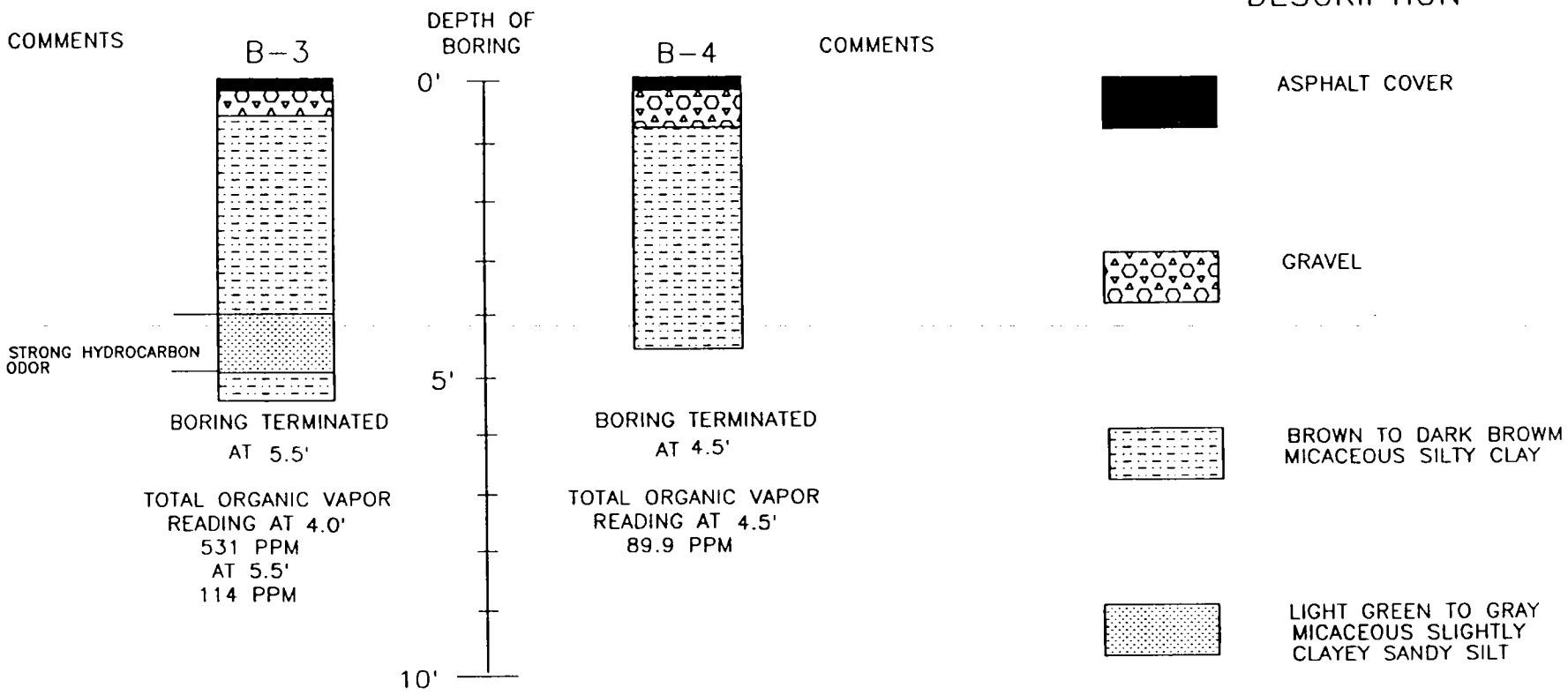
FIGURE: SOIL BORING LOGS
BORINGS B-1 & B-2
RED HORSE AUTO/TRUCK STOP
UNOCAL SITE # 9787-214
MEBANE, NC



DATE OF BORINGS: JUNE 11, 1992

DATE: JUNE 23, 1992

SCALE: ON DRAWING

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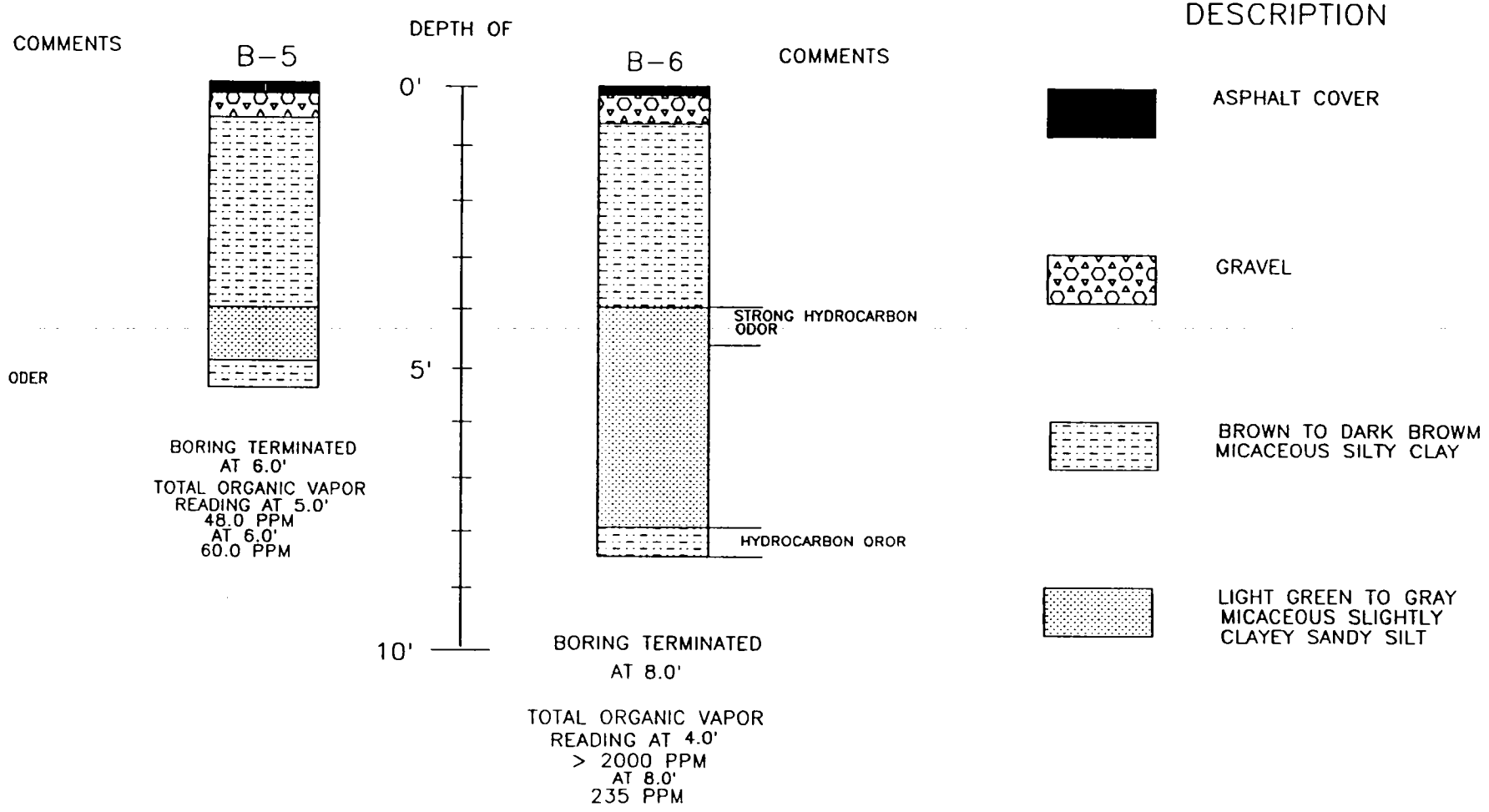
FIGURE: SOIL BORING LOGS

BORINGS B-3 & B-4
RED HORSE AUTO/TRUCK STOP
UNOCAL SITE # 9787-214
MEBANE, NC



DATE OF BORINGS: JUNE 11, 1992

DATE: JUNE 23, 1992

SCALE: ON DRAWING

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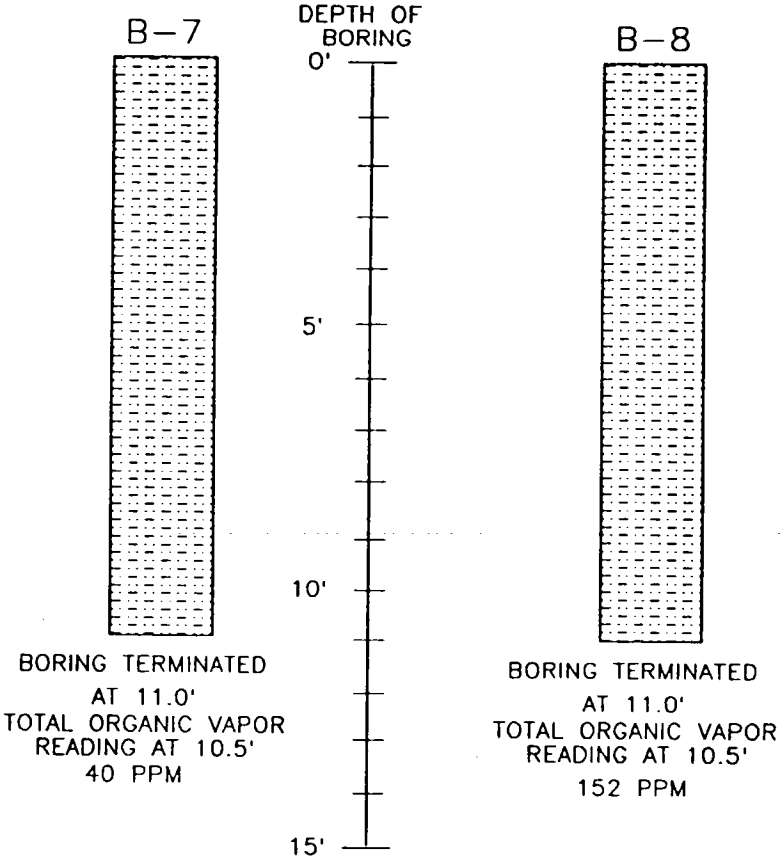
FIGURE: SOIL BORING LOGS
BORINGS B-5 & B-6
RED HORSE AUTO/TRUCK STOP
UNOCAL SITE # 9787-214
MEBANE, NC



DESCRIPTION

BROWN TO DARK BROWN MICACEOUS SILTY CLAY

DATE OF BORINGS: JUNE 11, 1992

DATE: JUNE 23, 1992

SCALE: ON DRAWING

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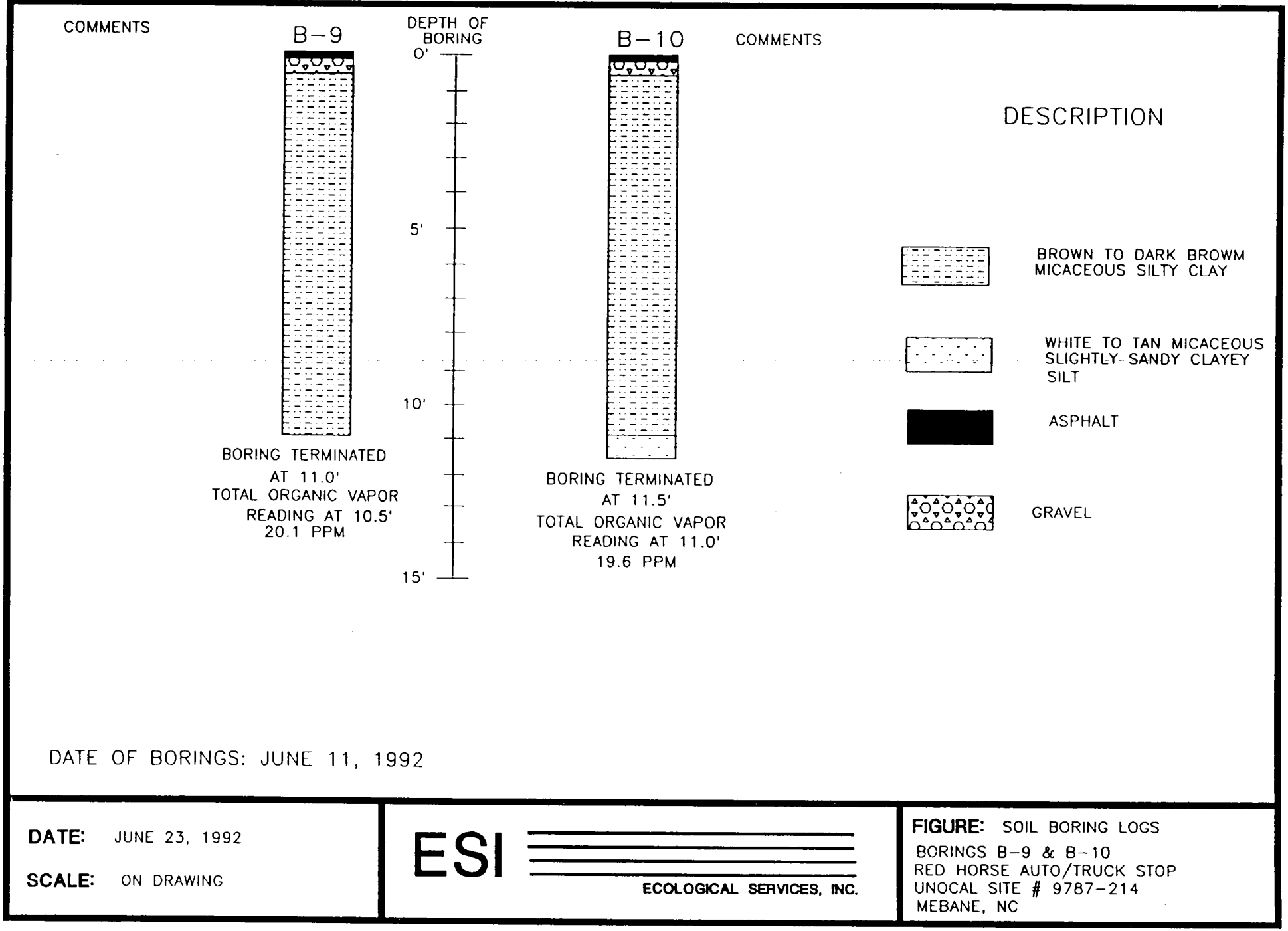
FIGURE: SOIL BORING LOGS
BORINGS B-7 & B-8
RED HORSE AUTO/TRUCK STOP
UNOCAL SITE # 9787-214
MEBANE, NC



DATE OF BORINGS: JUNE 11, 1992

DATE: JUNE 23, 1992

SCALE: ON DRAWING

ESI

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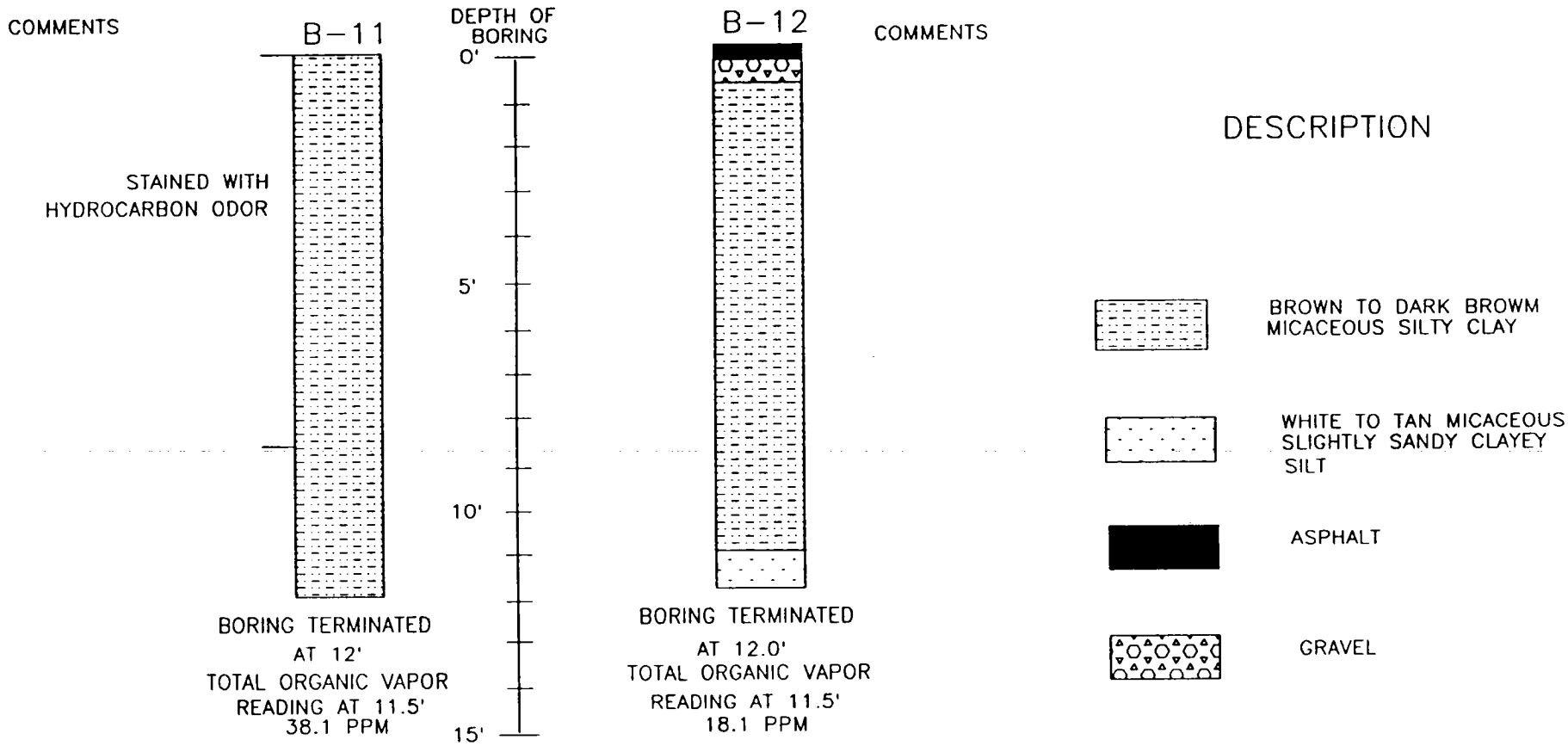
FIGURE: SOIL BORING LOGS
BORINGS B-9 & B-10
RED HORSE AUTO/TRUCK STOP
UNOCAL SITE # 9787-214
MEBANE, NC



DATE OF BORINGS: JUNE 11, 1992

DATE: JUNE 23, 1992

SCALE: ON DRAWING

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FIGURE: SOIL BORING LOGS
BORINGS B-11 & B-12
RED HORSE AUTO/TRUCK STOP
UNOCAL SITE # 9787-214
MEBANE, NC

APPENDIX D

HEALTH AND SAFETY PLAN

SITE SPECIFIC HEALTH AND SAFETY PLAN

1.0 GENERAL INFORMATION

A) Project Name: Red Horse Auto/Truck Stop

B) Location: Mebane, NC

Phone Number: (704)

C) Project Number: ES-0155

2.0 PROJECT ORGANIZATION

A) Project Manager: Ron Gilkerson

B) Operations Supervisor: Tom Whitehead

3.0 SAFETY PLAN PREPARATION

A) Prepared by & date: Ron Gilkerson 6/10/92

B) Reviewed/approved by & date: Tom Whitehead 6/10/92

4.0 SITE HISTORY AND DESCRIPTION

A) Type of Site: (Check)

☐ Spill ☐ UST ☒ Other

Site/Project Description:

Soil Test Boring Installation

B) Results of Previous Surveys: (attach MSDS sheets) N/A

C) Waste Types: (Check) N/A

☐ Liquid ☐ Solid ☐ Sludge ☐ Gas/Vapors ☐ Other

D) Hazardous Characteristics: (Check)

☒ Toxic ☐ Flammable/Volatile ☒ Ignitable

☐ Corrosive ☐ Reactive

E) Hazard Evaluation: (Known or Suspected)

Material	Quantity	IDLH
Benzene	Unknown	N/A
Toluene	Unknown	N/A
Xylenes	Unknown	N/A
Ethylbenzene	Unknown	N/A
Other Hydrocarbon Constituents	Unknown	N/A

5.0 SITE ORGANIZATION AND CONTROL

A) Work Areas Identified: Cones

B) Support Area Established: Yes

C) Entry and Escape Routes Identified: Yes

D) Site Map (Attached): Yes

6.0 JOB ACTIVITIES IN WORK PLAN

1. Tank (UST): Excavation _____
   Disposal _____
2. Soil: Excavation _____
   Disposal _____
3. Well Installation: _____
4. Water Treatment: _____
5. Other (Specify): Soil Test Boring Installation

7.0 EDUCATION AND TRAINING

A) Type of Training: OHSA 40 hr. Training

8.0 AIR MONITORING

A) Specific Work Requirements: PERIODIC PHOTOVAC SCREENING

9.0 EQUIPMENT

FID/PID _ Photovac 10S Plus

Combustile Gas Indicator Yes

02 Monitor

Other

10.0 PERSONNEL PROTECTION REQUIREMENTS

A) Job Activity Soil Test Boring Installation

Level D

Equipment Required: Hard hat, gloves

11.0 SAFETY EQUIPMENT LIST

A) First Aid: FIRST AID KIT

B) Fire Fighting: FIRE EXTINGUISHER (CO_2)

C) Communications (radio/signs/hand signals): Verbal

12.0 DECONTAMINATION PROCEDURES

A) Work Activities: _ Soil Test Boring Installation

Level of Protection: D

Decontamination Solutions: Isopropyl Alcohol and Alconox, Deionized Water

13.0 CONTINGENCY PLAN

A) Local Assistance

1. Hospital (Name): Alamance County Hospital

   (Address): 319 N. Graham-Hopedale Road
   ~~Burlington~~, NC

   (Phone): ~~(919(~~ 570-4000

   (Directions): Proceed on I-85 south to US Highway 70. Turn West on US Highway 70 and proceed to Graham-Hopedale Road. Turn right and proceed to Hospital.

2. Ambulance (Name & Number): 911

3. Fire Department (Name & Number): 911

4. Police (Name & Number): 911

5. Site Phone Number: (704)

B) National or Regional Sources of Assistance:

1. ESI	1.704.522-1111
2. Chemtrec (24 hours)	1.800.424.9300
3. Bureau of Explosives (24 hrs) (Association of American Railroads)	1.202.293.4048
4. National Release Center, NRC (Oil/Hazardous Substances)	1.800.424.3802
5. DOT, Office of Hazardous Operations DOT (Regulatory Matters)	1.202.426.0656 1.202.426.9280

14. This plan has been reviewed by all on-site personnel and all provisions are clear. (SIGNATURES REQUIRED).

Project Manager: Ron Gilkerson Ron Gilkerson 6/11/92

Operations Supervisor: Tom Whitehead Tom Whitehead 6/11/92

Other Personnel:

15. AMENDMENTS TO SITE SPECIFIC HEALTH AND SAFETY PLAN

A) This site specific health and safety plan is based on information available at the time of preparation. Unexpected conditions may arise. It is important that personnel protective measures be thoroughly assessed prior to and during the planned activities. Unplanned activities and/or changes in the hazard status should initiate a review of and major changes in this plan.

B) Changes in the hazard status or unplanned activities are to be submitted on "Amendments to Site Specific Health and Safety Plan" which is included as Page 6 of the Plan.

C) Amendments must be approved by the plan author prior to implementation of amendment.

AMENDMENTS TO SITE SPECIFIC HEALTH AND SAFETY PLAN

Changes in field activities or hazards:

1. Smoking not permitted within owners' gates.

2. Contractors restricted to work area only.

3. Compressed gas cylinders must be properly stored and capped while not in use.

4. All damage to owners' equipment (piping, wiring, other) must be reported immediately.

5. Any product spills must be reported immediately.

6. Any injury or illness must be reported immediately.

7. No horseplay permitted.

Proposed By: Tom Whitehead Date: 6/10/91

Approved By: Ron Gilkerson Date: 6/10/92

Accepted: X Declined: _____ Date:

Amendment Numbers: 1

Amendment Effective Date: 2/14/92