

REPORT

UST CLOSURE AND SOIL CLEANUP REPORT FOR NON-REGULATED RESIDENTIAL UST

**NCDOT PARCEL 918
FORMER JAMES A. ATKINS PROPERTY
5432 MILFORD ROAD
GREENSBORO, GUILFORD COUNTY, NC**

STATE PROJECT 6.498003T (TIP U-2525B)

Prepared for

North Carolina Department of Transportation
Geotechnical Unit

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April 26, 2002

URS

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FORM GW/UST-12
SITE INVESTIGATION REPORT FOR PERMANENT CLOSURE OF UST

A. General Information

1. Facility Information

-Facility name:

None (residence)

-Facility ID #:

Unassigned

-Facility address, telephone number and county:

Former James A. Atkins Property
5432 Milford Road
Greensboro, Guilford County, North Carolina

No phone number (former residence)

-Date of report:

April 26, 2002

-Name of UST owner:

James A. Atkins

-Owner address and telephone number:

James A. Atkins
1228 Lanken Mill Road
McLeansville, North Carolina 27301

2. Contacts

- Name, address, telephone number and job title of primary contact person:

Mr. Gene Tarascio
North Carolina Department of Transportation (NCDOT)
Century Center
1020 Birch Ridge Drive
Raleigh, NC 27611
(919) 250-4088

- Name, address and telephone number of closure contractor:

Soil Solutions Inc.
1703 Vargrave Street
Winston-Salem, NC 27107
(336) 725-5844

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- **Name, address and telephone number of primary consultant:**

Mr. Lee Rhea, L.G.
URS Corporation – North Carolina
3109 Poplarwood Court, Suite 301
Raleigh NC 27604
(919) 850-9511

- **Name, address, telephone number, and State certification number of laboratory:**

Prism Laboratories, Inc.
449 Springbrook Road
Charlotte, NC 28224-0543
(704) 529-6364
NC Certification No. 402

3. UST Information

Tank No.	Installation date(s)	Size (Nominal)	Tank Dimensions	Last Contents	Previous Contents (if any)
1	Unknown	550 gal (2,082 liters)	3.7 ft. dia. by 8 ft. long (1.1 m dia. By 2.4 m long)	Fuel Oil	Fuel Oil

4. Site Characteristics and Potential Receptors

- **Describe any past releases at this site:** There have been no known previous releases associated with the UST other than the apparent historic release(s) that were discovered when the tank was excavated.

- **Is the facility active or inactive at this time? If the facility is inactive note the last time the USTs were in operation:** The UST was used to store heating oil for consumptive use on a property that was formerly a residence. The last date of use is unknown.

- **Describe surrounding property use (for example, residential, commercial, farming, etc.):**

The Site is in a lightly developed mixed commercial/residential area in Greensboro, NC. Commercial development is present along Rte. 29 west of the Site, opposite Milford Road. Residences southeast of the Site and woods are located north of the Site.

A pond is located adjacent to the southern side and two additional ponds are located within approximately 1,000 feet (300 meters) south of the Site. Two streams emanating from the ponds pass immediately west of the Site and join a third stream located approximately 1,000 feet (300 meters) north of the Site in a wooded area. Two wells associated with nearby residences are located within approximately 1,300 feet (400 meters) and 1,100 feet (340 meters) southeast of the site.

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Based on a telephone conversation on April 25, 2002 between Mr. Lee Rhea of URS and Mr. John Nycamp of the Guilford County Department of Public Health, Division of Environmental Health, there are no wellhead protection areas established in Guilford County, public water supply is not available in the Site vicinity, there are no public water supply wells within 1,500 feet (460 meters) of the Site, but there are existing private water wells within 1,500 feet of the Site. According to Mr. Nycamp, available records indicate that a 50 foot (15 meter) well was abandoned at 5426 Milford Road four years ago, that a 360 foot (110 meter) well at 5424 Milford Road also now services 5426 Milford Road, and that a 600 foot (180 meter) well with 120 feet (37 meters) of casing is in use at 5420 Milford Road.

- **Describe site geology/hydrogeology:** Soils encountered in the tank excavations were predominantly clays to a depth of about 6 feet (1.8 m) overlying fine sands, as summarized below:

Feet	Meters	Description	FID (ppm)
0-4	0-1.2	Previously disturbed by construction contractor.	Not Available
4	1.2	Dry, black, silty Clay.	115
5	1.5	Moist, black, Gravel.	15
6	1.8	Reddish-brown, sandy Clay. Odors.	60
7	2.1	Light brown, silty, fine Sand.	5
8	2.4		57.1
9	2.7		140.2
10	3.0		163.5
11	3.4	Tan silty fine Sand.	29.8
12	3.7		8
13	4.0	Light brown, silty, fine Sand.	3
14	4.3		2
15	4.6	Brown, silty, fine Sand.	1.4

Groundwater was not encountered during the excavation work. Based on the local topography, groundwater flow is estimated to be in a northerly direction into one of several nearby tributaries to Reedy Fork that are located within several hundred feet to the north, east, and west of the Site.

5. Release Information

- **Date Discovered:** February 2002
- **Latitude:** 36.1560° N
- **Longitude:** -79.7253° W
- **Estimated Quantity of Release:** Unknown.
- **Cause of Release:** Apparent historic leaks or overfills.
- **Source of Release:** The source of the release was UST #1.

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B. Closure Procedures

1. Describe preparations for closure including the steps taken to notify authorities, permits obtained and the steps taken to clean and purge the tanks.

- URS notified the North Carolina Department of Environment and Natural Resources (NCDENR) Winston-Salem Regional Office via facsimile on February 12, 2002 and Mr. Ed Rich of the Guilford County Fire Marshall's Office by telephone on February 18, 2002. A copy of the completed UST-GW3 form is provided in Appendix A.

Soil Solutions uncovered the top and sides of the UST using a backhoe. The UST was empty of any residuals. Dry ice was inserted in the uncovered UST to maintain a non-flammable atmosphere inside it during removal and transport. Prior to removal, and again prior to transport, the UST was monitored for a non-explosive atmosphere.

2. Note the amount of residual material pumped from the tank(s) and describe the storage, sampling and disposal of the residual material.

- No material was present in the UST.

3. Document soil excavation activities:

- **Describe excavation procedures noting the condition of the soils and the dimensions of the excavation in relation to the tanks, piping and/or pumps:** The UST had been partially exposed prior to URS's initial arrival at the site by other contractors of NCDOT. When URS initially arrived on site, the UST was located in a partial excavation that was marked off with flagging measuring 10.5 feet (3.2 meters) long by 5.5 feet (1.7 meters) wide. The area around the UST consisted of backfill brought in following removal of the former house from the property.
- Based on the truck weight tickets provided in Appendix D, the soil excavated and hauled from the site on February 25 and 26, 2002 weighed a total of 129.59 short tons (117.56 metric tons).
- No piping entering/exiting the UST excavation was observed at the time of the tank removal (the residential Site was being cleared and regraded by another contractor for NCDOT).
- **Note the depth from land surface to top of tank:** The top of the UST was located 1 foot (0.30 meters) below ground surface (bgs).
- **Note the volume of soil excavated:** Based on the excavation dimensions of approximately 14 feet (4.3 meters) wide, 18 feet (5.5 meters) long, and 15 feet (4.6 meters) deep, and allowing for the space occupied by the UST, a total of approximately 140 cubic yards (109 cubic meters) of soil were excavated.
- **Describe the soil type(s) encountered:** The soils excavated from around the UST ranged from moist, medium brown, clayey sand to dry, light brown, silty fine sand.

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- **Describe the type and source of backfill used:** The excavation was backfilled with soil provided by the Soil Solutions and placed into the excavations on February 26, 2002 by Soil Solutions. The backfill was moist, light brown, medium sand that was from Falyers Sandrock.

 - **Describe the condition of the UST system(s) (i.e., pitting, holes, etc.):** On February 25, 2002 the UST was excavated from its location. Visible signs of recent damage were noted on one side of the UST (Appendix G), and several small holes were noted in the bottom of the UST.

 - **Note if water, free product, or bedrock was encountered in the excavation process:** No liquid was observed in the UST excavation or during excavation of the associated contaminated soil. Bedrock was not encountered in the excavation.
4. **Document contaminated soil**
- **Describe how the extent of soil excavation was determined:** The extent of the excavation for the UST was determined using visual and olfactory observations and field screening readings from an organic vapor analyzer (OVA).

 - **Describe the method of temporary storage, sampling and treatment/disposal of soil:** The soil was field screened at the time of excavation, and immediately placed in and transported by truck to the Soil Solutions treatment facility in Winston-Salem, North Carolina (Appendix D).
5. **Document the location and method of disposal of the tanks:**
Soil Solutions has certified that the UST was removed from the excavation and transported to Safeway Tank Disposal, Inc. of Walnut Cove, North Carolina and disposed of in accordance with API 1604, 1987 "Removal and Disposal of Used Underground Petroleum Storage Tanks" (Appendix C).

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C. Site Investigation

1. Field Screening:

- **Describe the physical characteristics of the soil samples, as observed during collection:** All soil samples were either moist, medium brown, clayey sand, or dry light brown, silty fine sand. Additional field data for each sample are summarized on Table 1.
- **Describe the field instrumentation used to screen soils:** Field screening was performed using a PhotoVac MicroFid OVA.
- **Describe the field instrumentation calibration procedures:** The MicroFid OVA was calibrated to a 100 parts-per-million (ppm) methane-in-air standard according to the manufacturer's instructions.
- **Screening results:** The sample headspace screening results are summarized on Table 1. The field screening results generally support the analytical testing.

2. Document soil sampling information:

- **Location of samples:** UST closure sampling locations and analytical results are summarized on Table 1 and illustrated on Figure 2.
- **Type of samples (from excavation, stockpiled soil, etc.):** The initial grab samples of soil were collected from the bucket of a backhoe because the depth of the excavation exceeded four feet (1.2 meters). Four additional samples collected from the sidewalls of the excavation were obtained using a steel hand auger.
- **Sample collection procedures (grab, split spoon, hand auger, etc.):** The initial samples collected using a backhoe were taken directly from the center of the bucket, where the soil had not come in contact with any equipment. Four additional sidewall samples were collected using a hand auger decontaminated prior to collecting each sample using an Alconox detergent wash, a potable water rinse, and a distilled water rinse.
- **Depth of soil samples (below land surface):** Sample depths are provided on Table 1 and on Figure 2.
- **Time/date collected:** This information is detailed on the chain-of-custody forms provided in Appendix E.
- **Sample identification:** Sample identifications are provided on Table 1.
- **Sample analyses:** All initial soil samples were analyzed for total petroleum hydrocarbons (TPH) in the diesel (DRO) and gasoline (GRO) ranges using USEPA Method 8015 (Modified). VOC and SVOC analyses were performed on all initial samples for which TPH detections above 10 mg/kg occurred, using USEPA Methods 8260 and 8270, respectively. In addition, two initial closure samples and four supplemental sidewall samples were analyzed for MADEP VPH/EPH.

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3. Document groundwater sampling information:

Groundwater was not encountered and no groundwater sampling was conducted.

4. Document quality control measures:

- **Sample handling procedures including sample preservation techniques and sample transport procedures:** Soil samples were obtained from the center of the backhoe bucket by URS personnel wearing new disposable nitril gloves for each sample. Only soil that had not come into contact with other soils or equipment was selected for laboratory analytical preparation. Samples collected for laboratory analysis were transferred into new, clean, laboratory supplied containers. The samples were stored on ice in a cooler and shipped under Chain of Custody protocols to the laboratory by a commercial courier on the day after they were obtained (Appendix E).
- **Decontamination procedures:** As described above, samples were only in contact with new disposable materials throughout the collection and preparation process. Other equipment and materials that were not in contact with the samples were regularly cleaned using a solution of Alconox non-phosphate detergent followed by potable water and distilled water rinses.
- **Time and date samples were submitted to lab (attach chain of custody):** As documented on the completed chain-of-custody forms provided in Appendix E, all samples were submitted to the laboratory for analysis with sufficient time to meet the applicable holding times.
- **Samples collected for quality control purposes (e.g. duplicates, field blanks, trip blanks, etc.):** A trip blank was laboratory analyzed for VPH and no detections occurred.

5. Describe investigation results

- **Methods of analyses (i.e., EPA method number):** Refer to Section C.2 and C.3 for sample analytical method numbers. All initial soil samples were analyzed for TPH-DRO and TPH-GRO, and for VOCs, and SVOCs if exceedances of 10 ppm TPH-GRO or TPH-DRO were detected. In addition, initial closure samples B-6 and SB-15 and supplemental sidewall samples NSW-6, ESW-10, SSW-6, and WSW-6 were analyzed for MADEP VPH/EPH.
- **Provide analytical results for samples; discuss the results in relation to the cleanup levels or action levels, as appropriate:** Complete laboratory reports are included in Appendix F. The soil sampling results are summarized on Table 1 with the NCDENR UST Section TPH Action Levels and NCDENR Maximum Soil Contaminant Levels (MSCLs), and indicate the following:
 - In closure sample B-6, collected beneath the center of the UST, the presence of contamination was confirmed by detections of GRO, DRO, C9-C10 aromatic VPHs, C9-C18 aliphatic and C11-C22 aromatic EPHs, several VOCs, and several SVOCs in concentrations above applicable regulatory standards. This area was immediately excavated after closure sample B-6 was collected.

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- Although some DRO analysis of excavation confirmation samples indicated the potential presence of contaminants at significant concentrations, constituent-specific analyses of the suspect samples indicated that no regulatory standards for individual analytes were apparently exceeded (some soil-to-groundwater MSCLs for SVOCs are below the reported detection limit). Although DRO was not detected in post excavation samples at locations NE-6, NW-6, EN-10, and WN-6, DRO was detected in post excavation samples NB-15 (20 mg/kg), SB-15 (19 mg/kg), ES-10 (40 mg/kg), SE-6 (13 mg/kg), SW-6 (20 mg/kg), WS-6 (95 mg/kg), and STP-8 (220 mg/kg). However, no VOCs, SVOCs, VPH, or EPH were detected in the excavation confirmation samples except for WS-6, in which naphthalene was detected at 8.9 ug/kg and 1,2,4-trimethylbenzene were detected in sample WS-6, far below the applicable regulatory standards.

The fact that some of the detection limits for the SVOC analyses exceeded the soil-to-groundwater MSCLs for some polynuclear aromatic hydrocarbons does not appear to be a significant concern. The concentrations of VOCs and SVOCs detected is roughly equivalent in closure sample B-6 (collected from beneath the UST prior to soil removal), which provides a useful relationship for evaluating SVOC concentrations below the detection limits in the excavation confirmation samples. Given that the detection limits for VOCs in the excavation confirmation samples were below the soil-to-groundwater MSCLs for SVOCs, and that almost no VOCs were detected (with the exception of very low concentrations of p-isopropyltoluene and 1,2,4-trimethylbenzene in sample WS-6), it is not likely that any significant concentrations of SVOCs are present.

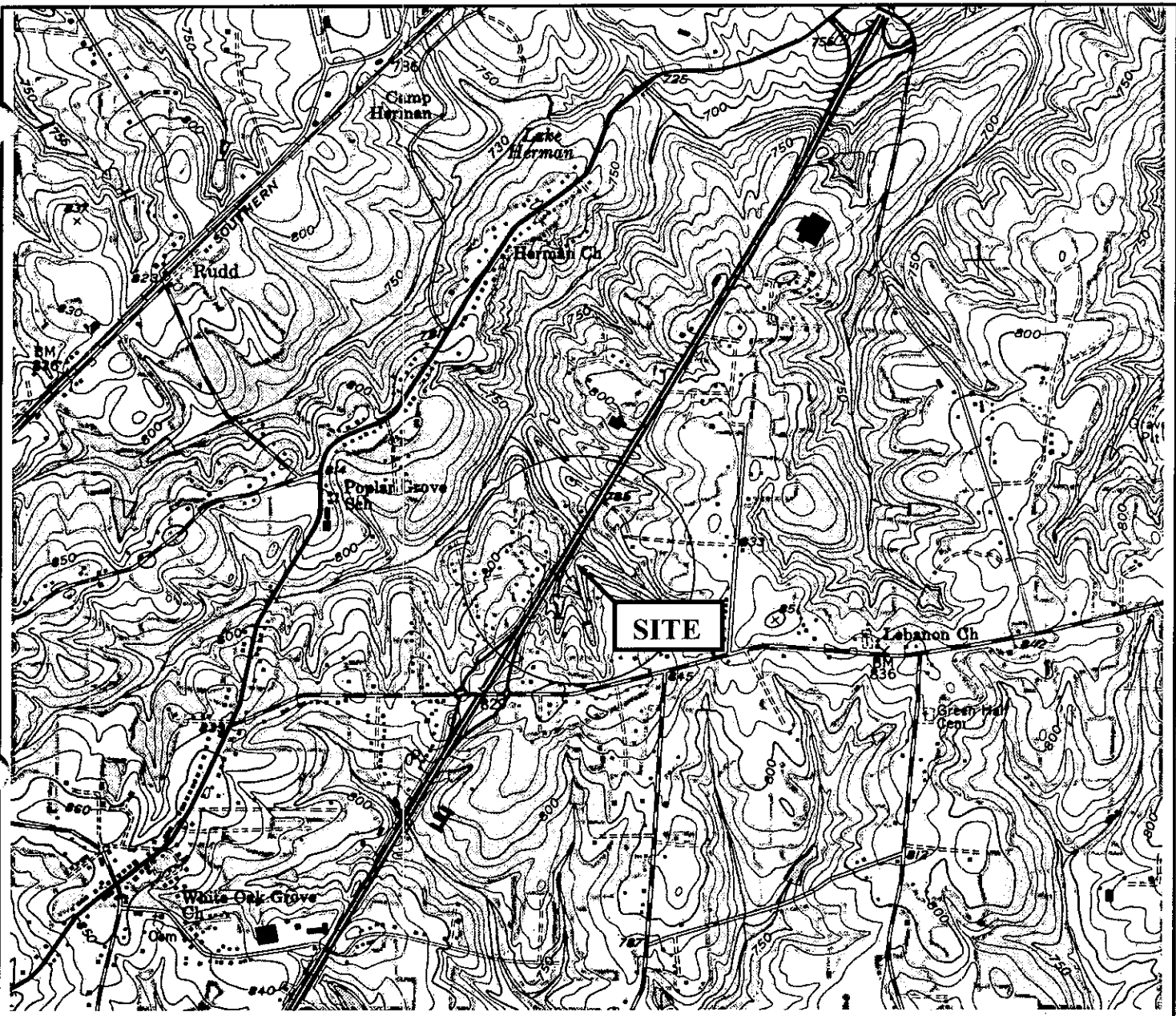
Discuss how the results of quality control samples may have affected the interpretation of soil, groundwater, or surface water analytical results: No detection was reported in the trip blank, which was analyzed for VPH. The laboratory results are also fully supported by field observations and screening results.

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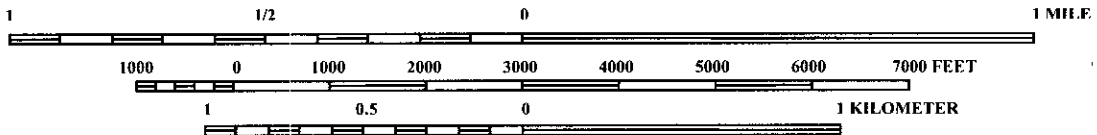
D. Conclusions and Recommendations

Include definitive and probable sources of contamination, conclude the need for further investigation and recommend whether remediation or no further action is required.

The information presented in this report indicates that petroleum hydrocarbons were likely historically released from the UST that is the subject of this report. The available analytical data gathered during the tank closure and removal of contaminated soil described in this report does not indicate contamination remains above applicable MSCLs, although some of the soil-to-groundwater MSCLs were below the detection limit for SVOCs. Therefore, URS recommends that the Site be closed with no further action required.



SCALE 1:24,000



CONTOUR INTERVAL: 10 FEET

DATUM IS MEAN SEA LEVEL



QUADRANGLE LOCATION

REFERENCES:
 U.S. Geological Survey
 7.5 Minute Series (Topographic)
 Browns Summit, NC (1951; photorevised 1968)

Former James A. Atkins Property
 5432 Milford Road
 Greensboro, Guilford County, NC

Lat. 36.1560 Long. -79.7253

URS

URS Corporation
 3109 Poplarwood Court Suite 301
 Raleigh, North Carolina 27604
 Telephone (919)850-9511 Fax (919)790-0217

LOCATION MAP

FILE NO.
 55146.05

FIG. NO.

1

SCALE:	DRAWN BY: LKR	DATE: Feb. 02
AS SHOWN	CHECKED BY: PWG	DATE: Mar. 02

STP-8
8' (2.4m)
 GRO: <1 VOC: ND
 DRO: 220 SVOC: ND

WSW-6
6' (1.8m)
 VPH: ND
 EPH: ND

WS-6
6' (1.8m)
 GRO: <1 DRO: 95
 Naphthalene: 8.9
 1,2,4-trimethylbenzene: 7.5
 SVOC: ND

SW-6
6' (1.8m)
 GRO: <1 VOC: ND
 DRO: 20 SVOC: ND

SSW-
6' (1.8m)
 VPH: N
 EPH: M

WN
6' (1.8m)
 GRO: ND
 DRO: ND
 N 76690
 E 786060

Woods

8.0 ft

1" = approximately 100'

g/kg
 mg/kg
 g/kg

S:\2000\55146\55146.05\alkins Property\New_Parcel 918 FIG 2.dwg

NCDOT PARCEL 918
 432 MILFORD ROAD, GREENSBORO,
 JILFORD COUNTY, NORTH CAROLINA

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Scale: 1" = approximately

DRAWN BY: PJP	DATE: 03/02	FILE NO.:
CHECKED BY: LKR	DATE: 03/02	D6-00055146.13

SITE LOCATION MAP

FIGURE

2