

# BELL ENGINEERING

## CIVIL & ENVIRONMENTAL ENGINEERING

*Environmental Site  
Assessments*

*Hazardous Waste  
Remediation*

*UST Closure Assessments*

*Environmental Permitting*

*Design/Build Construction*

*Construction Management*

*Site Development*

*Waste Water Disposal*

*Water Supply*

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October 10, 1996

Donald Robinsky, Project Manager  
Vermont Department of Environmental Conservation  
103 South Main/West Building  
Waterbury, VT 05671-0404

Re: Investigation / Site Characterization:  
BCC Property  
45-47 Grant Avenue  
Rutland, VT

Remedial clean-up of spilled oil conducted by Lincoln Applied  
Geology under HMMD Site Investigation Contract #0963399 and  
results reported in "Site Investigation Report - Rutland City  
Petroleum Vapors, SMS Site #94-1628" April 30, 1996.

Dear Mr. Robinsky:

On behalf of the BCC Corporation, Bell Engineering Inc. is pleased to  
submit this site characterization of the above referenced residential site.  
This work was performed in response to a leak from a 275-gallon heating  
oil tank. Initial clean-up and investigation of the spill was conducted by  
Lincoln Applied Geology as referenced above.

## 1.0 INTRODUCTION / SITE DESCRIPTION

The residential property owned by the BCC Corporation is located at 45-  
47 Grant Street in the City of Rutland, VT. The property is located on the  
corner of Grant and Elm Streets. A site area map showing the location to  
the property is presented in figure 1. The property is currently unoccupied.  
Sometime prior to February 13, 1996 vandals removed the copper supply  
tubing from the 275 fuel oil AST which resulted in a release of an unknown  
quantity of no. 2 fuel oil (less than 275 gal.). Personnel from Lincoln  
Applied Geology(LAG) utilized absorbent pads to soak up free product  
and installed a "bucket well" to capture floating fuel oil. Additionally, a  
shallow monitoring well was installed in the basement and six exterior  
monitoring wells were installed on the property of the BCC Corporation  
and the neighboring Ellis residence (see site plan prepared by LAG

AST  
DIVISION  
OCT 14 10 24 AM '96

presented in Figure 2.) The results of a round of ground water samples taken by LAG showed elevated levels of TVH in the sump of the BCC property where free product was present and in Monitoring wells MW-3 and MW-4. Personnel from LAG attributed the contamination found in MW-3 and MW-4 to the release from the 275 AST fuel oil tank at the BCC property and not as a result of an abandoned fuel oil UST located alongside the Ellis residence as shown in Figure 2.

The purpose of this investigation was to determine the extent of any remaining soil/ground water contamination remaining on the property, evaluate the potential impact to sensitive receptors and to recommend any further actions needed to minimize exposure that may have resulted from the fuel oil release at the BCC property.

## **2.0 FIELD PROCEDURES**

In order to assess surface and subsurface soil and groundwater conditions at the BCC property, Bell Engineering, Inc. performed field explorations at the property on September 30, 1996, as described below.

### **2.1 Soil Borings**

Three soil borings were completed in the basement of the BCC property by Bell Engineering, Inc. Approximate soil boring locations (designated as TB-1 through TB-3) are shown on Figure 2 (overlain on the site plan originally prepared by LAG). The borings were conducted to assess the presence of residual petroleum contamination in soil and groundwater in the basement. The borings were conducted with a helical hand auger which provides relatively good soil profiles.

#### ***2.1.1 Soil and Groundwater Condition***

Soils encountered in the test borings consisted of approximately 3-4 inches of coarse, dark fill material consisting of organics, ash, sand and gravel. This top layer was underlain by a fine grained silty loam soil. Groundwater was encountered at or within several inches of the surface. The underlying silty loam layer was heavily mottled. Standing water was present in a sump hole and a drainage ditch, which bisects the basement, contained slowly moving water.

#### ***2.1.2 Soil Screening and Analysis***

The soils samples collected in the basement test borings were screened in the field for total concentrations of volatile organic compounds (VOCs) using a Thermo Environmental Model 580 photoionization detector (PID) which was calibrated just prior to use. Soil samples were screened using standard headspace sampling protocol.

The results of the soil screening showed that only a small area of soil contamination currently exists in the basement - that being the area adjacent to the 275 AST. A relatively

localized area of contamination was encountered. PID readings of a soil sample from TB-1 in the 0-4 inch depth ranged resulted in a peak reading of 64 ppm. Soil samples extracted from approximately 8, 16 and 24 inches had no detectable VOC levels. Soil samples extracted from TB-2 and TB-3 had no detectable VOC levels. Bore holes were installed to approximately 24 inches.

A hand spade was used to aerate surface soils for screening with the PID to determine the extent of the soil contamination in the area of TB-1 and other areas of the basement. It was determined that surface soils in approximately a 5 foot diameter around the tank were contaminated with fuel oil. However, it was apparent that, similar to the soils extracted from TB-1, that the contamination was surficial in nature. It was apparent that the combination of the underlying soils being somewhat restrictive to vertical transport and the high groundwater table tended to minimize soil contamination. Based on the results of the PID soil screening, it is estimated that there are approximately 6.5 cu. ft. of soil assuming an average depth of contamination of 4 inches.

Due to the relatively minor extent of the contamination, soil samples were not taken for laboratory analysis.

## **2.2 SURFACE AND GROUND WATER CONDITIONS**

Surface water exists in the basement in a sump hole and in the drainage ditch that bisects the basement. The surface water was observed to be clear with no evidence of floating product. A jar headspace sample of the surface water in the sump hole showed no detectable VOC's as measured by PID.

The shallow monitoring well which is present in the basement (HA-1) was bailed with a disposable polyethylene bailer. The ground water was bailed into a bucket for visual observation. No evidence of floating product was observed. A jar headspace sample of the groundwater sample from HA-1 showed no detectable VOC's as measured by a PID.

Surface and groundwater samples were not taken for laboratory analysis.

## **2.3 AIR SAMPLING**

The air quality in the basement of the BCC property basement was sampled with the PID. No detectable VOC levels were detected in the basement space. The nondetect readings are a result of the fact that there is a minimal amount of contaminated soils combined with the fact that the soil is either very moist or saturated.

## **3.0 CONCLUSIONS AND RECOMMENDATIONS**

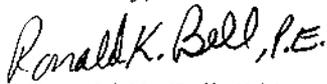
A combination of high groundwater and a relatively low permeability soil has limited migration of fuel oil from the spill into the basement soils. Based on the results of the PID

soil screening it was determined that only a small area of soil contains elevated levels of VOCs (approximately 20 sq. ft.) and that the residual fuel oil contamination is surficial in nature (approximately 3-4 inches). It appears that a majority of the spilled fuel oil was carried out of the basement by the drainage ditch in the basement or soaked up with absorbents by LAG.

It is recommended that the contaminated soils in the area of the 275 AST be removed to clean soils, drummed and disposed of properly as a hazardous waste. This action is deemed to be adequate to prevent ingestion, contact or inhalation exposure of future occupants of the Grant Street property. Soil removal should be accompanied with PID soil screening to assure complete removal of VOC contaminated soils. As part of this activity it is also recommended that the basement of the Ellis property be screened with a PID to assure that elevated VOC levels are not present.

If you have any questions about this letter report or require any further clarification on any issues please do not hesitate to call me. After the soil removal and basement screening is completed I will be requesting a "Sites Management Section Activity Closed" letter from you so it is important to understand if the proposed actions meet your approval. I look forward to talking with you in the near future.

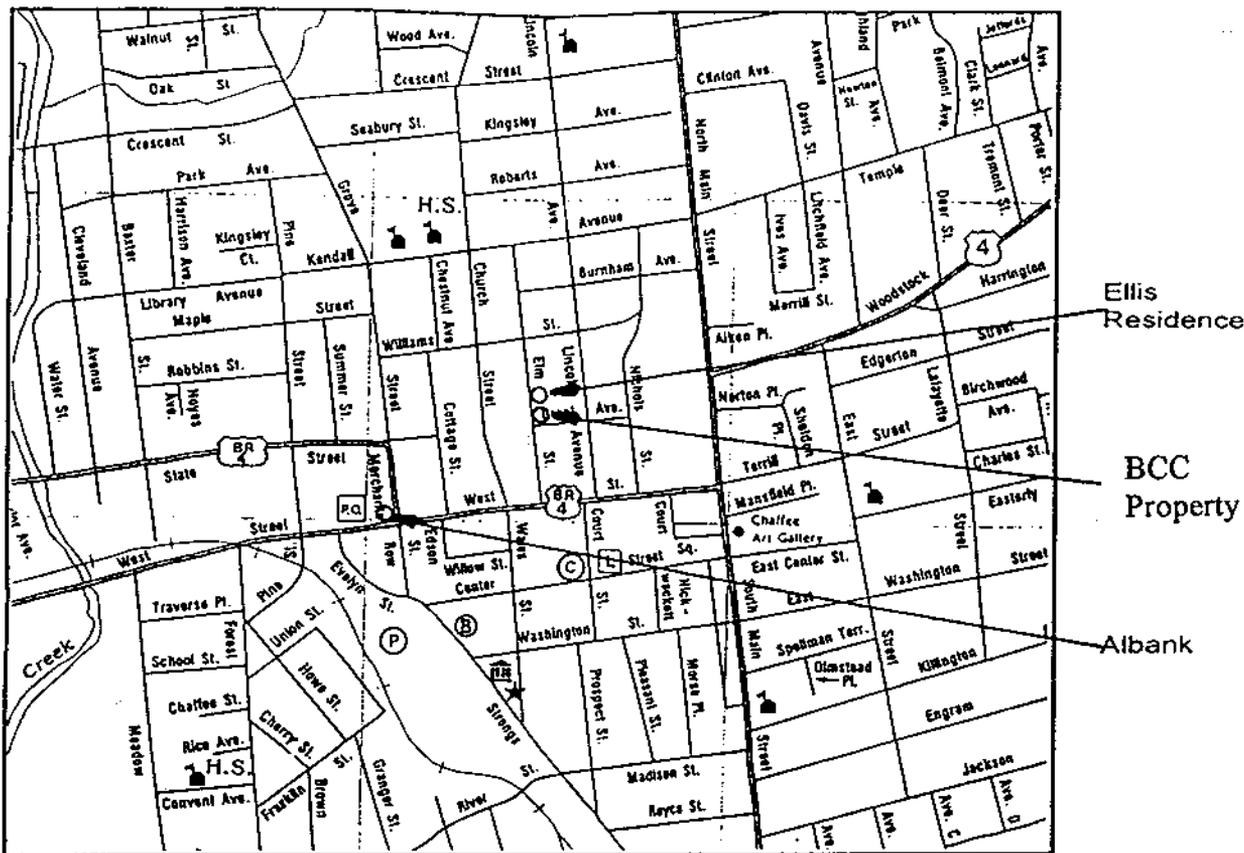
Sincerely,

A handwritten signature in black ink that reads "Ronald K. Bell, P.E." in a cursive style.

Ronald K. Bell, P.E.

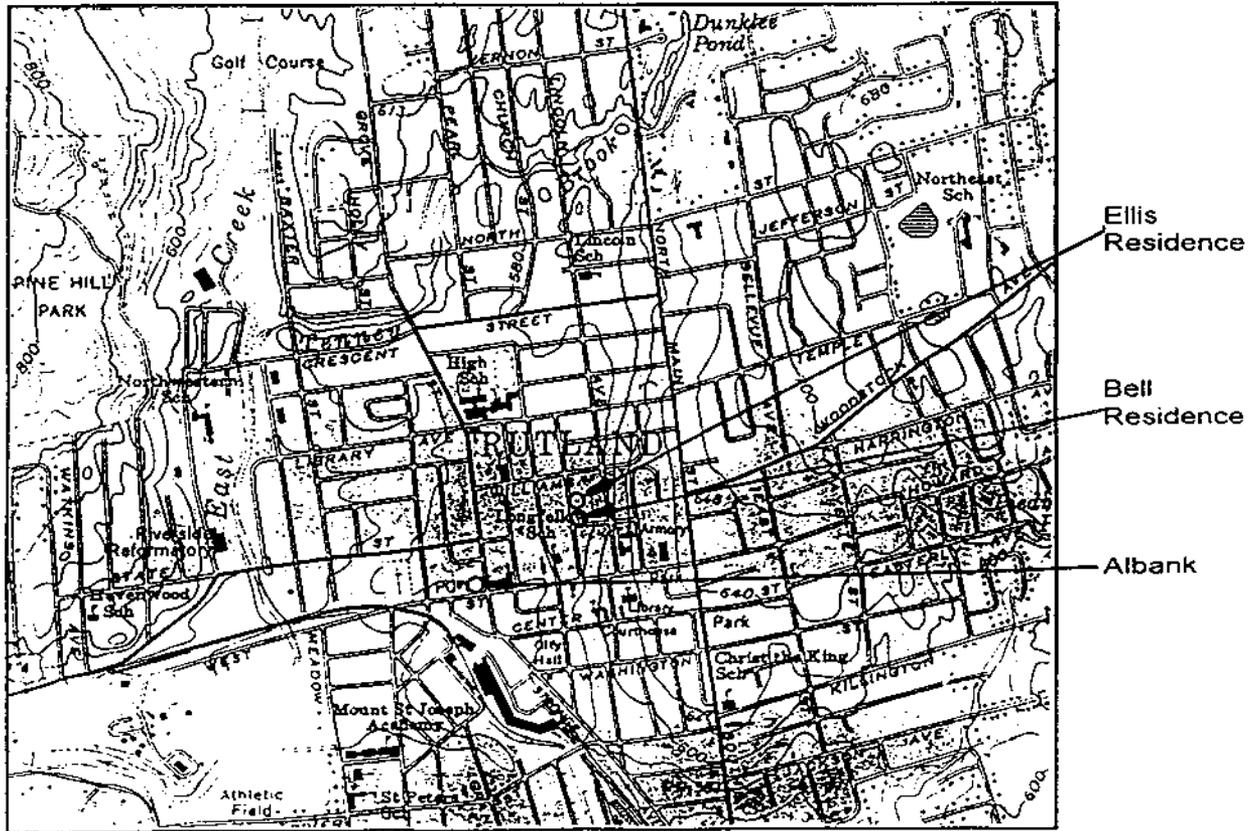
# General Location Map

Figure 1



Source: VT City Map

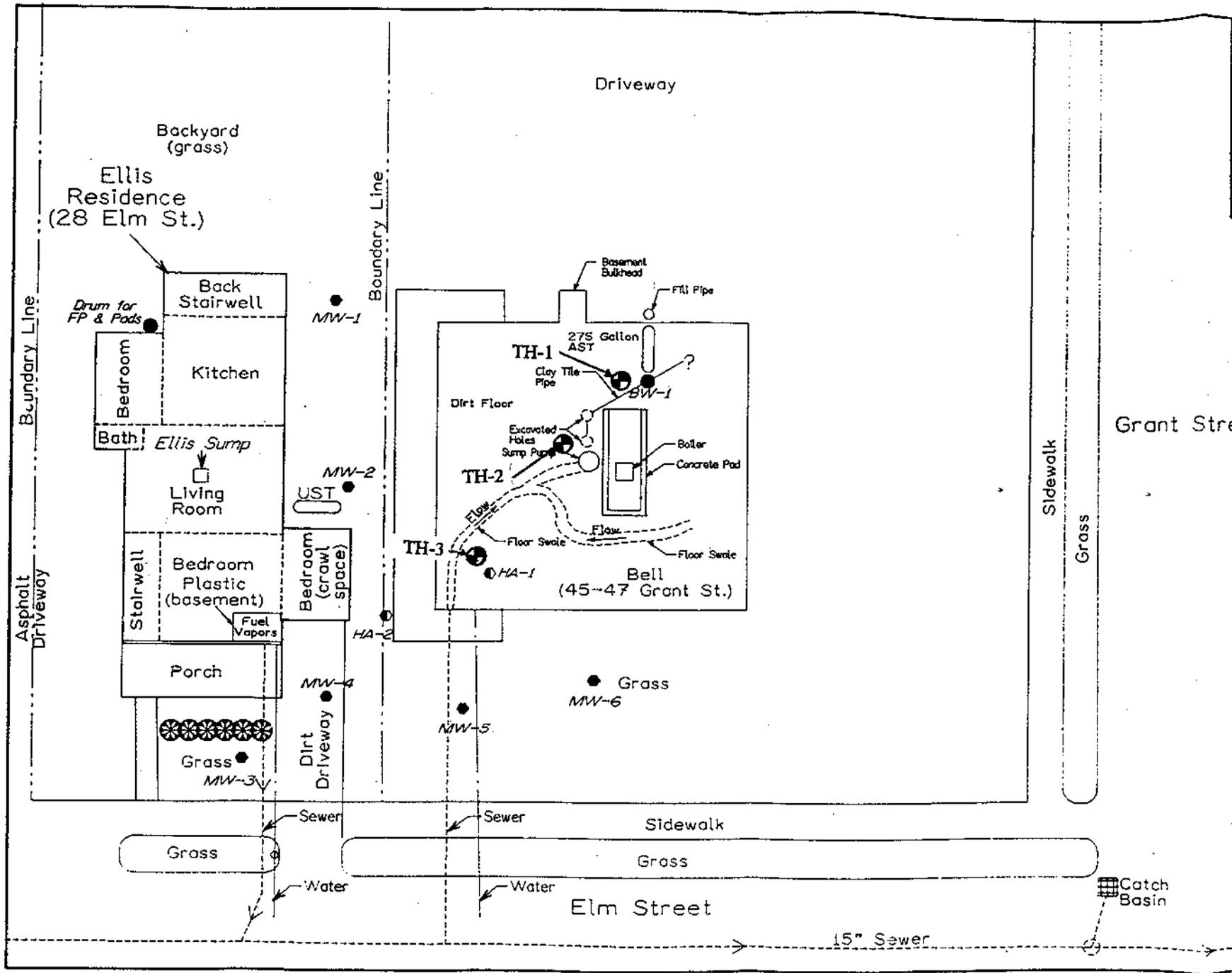
Scale: 1" = 1,100'



Source: U.S.G.S. 7.5 Min  
Topo Series  
Rutland, VT Quad. (1961)

Scale: 1" = 2,000'

SOURCE: Lincoln Applied Geology, Inc. report prepared under HMMD Site Investigation Contract #0963399, April 30, 1996



SOURCE: Lincoln Applied Geology, Inc. report prepared under HMMD Site Investigation Contract #0963399, April 30, 1996