EXECUTIVE SUMMARY

Introduction

This report presents the results of a Preliminary Site Assessment of the Ferro Construction and Demolition (C&D) Debris Landfill site. This assessment report has been prepared for the New York State Department of Environmental Conservation (NYSDEC) under the New York State Superfund Contract Work Assignment No. D002520-7 by Dunn Geoscience Engineering Co., P.C. (DUNN).

Site Description

The Ferro C&D Landfill consists of 3.2 acres of fill distributed over two small parcels located south of NYS Route 23 in the Village and Town of Catskill, Greene County, New York (Figure ES-1, Figure ES-2). Approximately 2.2 acres of the fill area is present on a 2.6 acre parcel within the Village of Catskill. Northwest of the Village/Town of Catskill boundary, approximately 1.0 acres of fill extend onto a 1.8 acre parcel within the Town of Catskill. The landfill is currently owned and operated by Nicholas, Michael and Salvatore Ferro and N&S Demolition Corporation. A portion of the landfill apparently lies on property owned by KBK Investors Corporation who were reportedly neither involved in the site operation nor received any compensation for the dumping which occurred on their property. A Stipulation and Interim Order dated July 25, 1989 required remediation measures to abate gas and odor emissions. In August and September of 1989, a gas and odor abatement system (gas collection and charcoal filter) was installed at the Ferro site. A landfill cover system, consisting of 1-1/2 to 3 feet of clay was completed on September 8, 1989.

Ten commercial establishments are located less than 600 feet to the north and east of the landfill. One residence is located approximately 200 feet to the south of the southeastern corner of the Ferro site. The other residences on Bartow Street, Gardiner Street, Hudson Avenue and North Street are less than 1/4 mile to the south of the site.

Site History

The landfill began operation in 1988 as an exempt construction and demolition debris (C&D) site. The debris was deposited on a hillside north of residential areas, east of the Conrail Railroad, south of NYS Route 23 and west of property owned by Bulk Plants, Inc. From the summer of 1988 until its closure in December, 1988 there were numerous complaints of burning and illegal dumping. In December 1988, a release of gasoline from an underground storage tank located off-site north of Route 23 was documented by

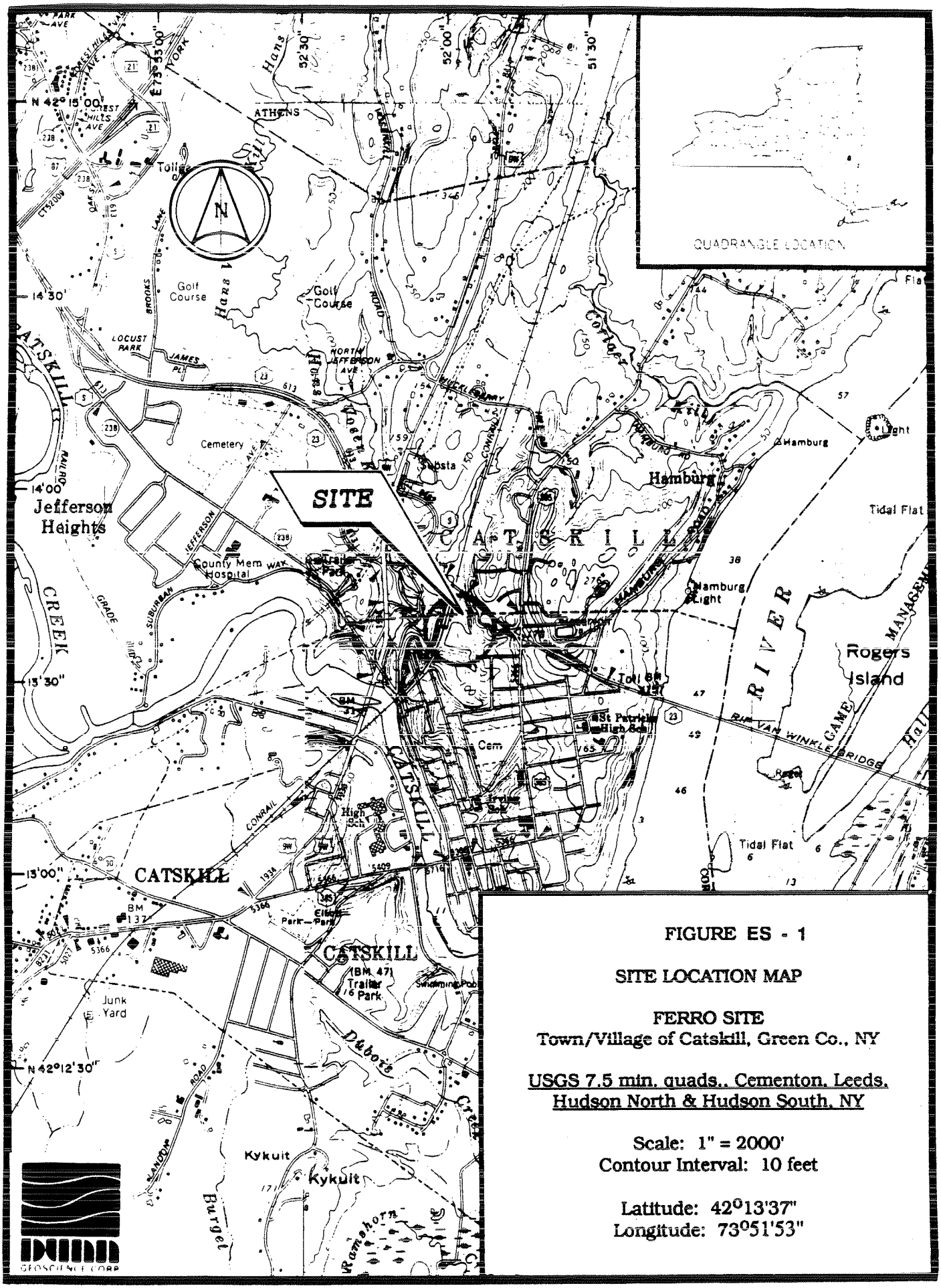


FIGURE ES - 1

SITE LOCATION MAP

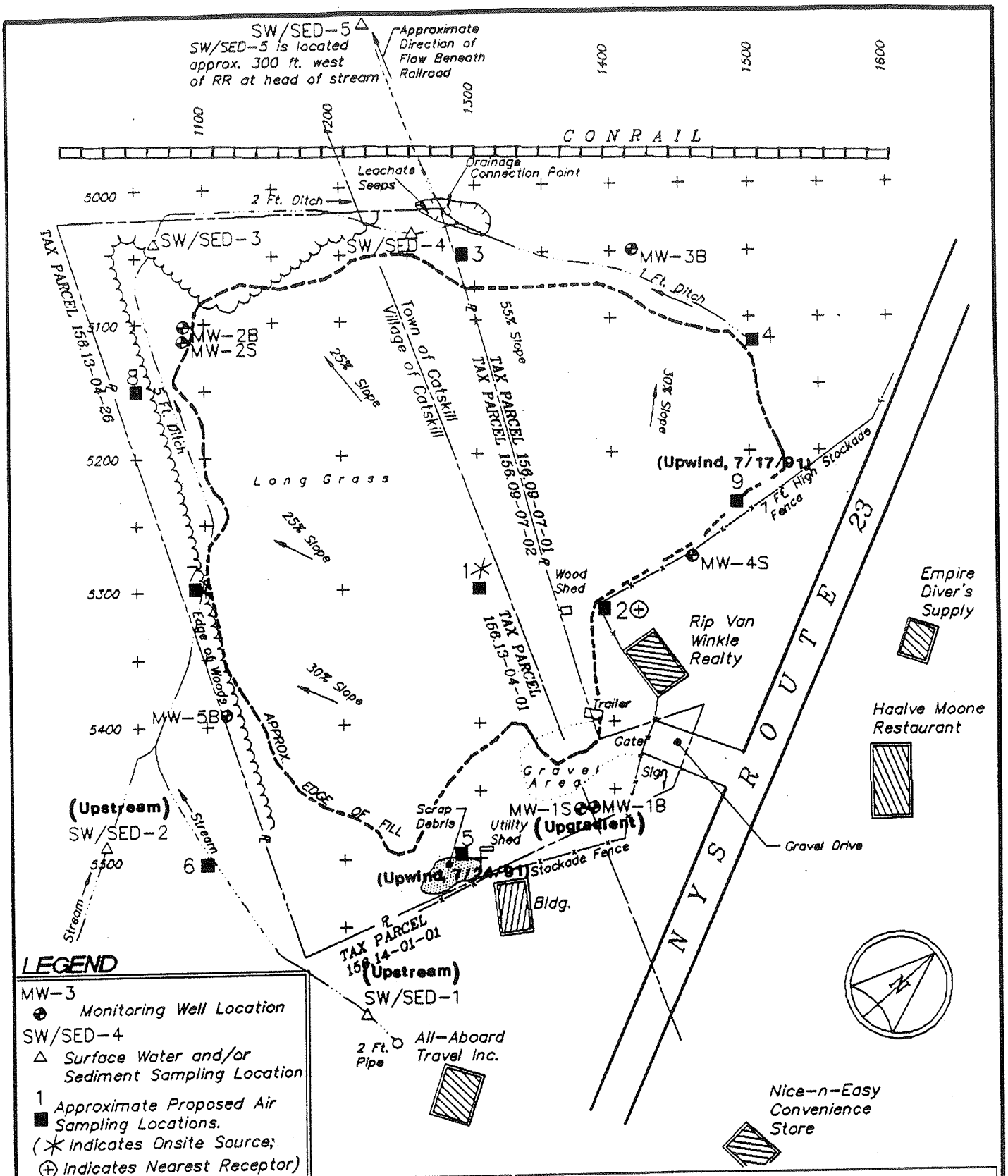
FERRO SITE
Town/Village of Catskill, Green Co., NY

USGS 7.5 min. quads., Cementon, Leeds, Hudson North & Hudson South, NY

Scale: 1" = 2000'
Contour Interval: 10 feet

Latitude: 42°13'37"
Longitude: 73°51'53"

GEOSCIENCE CORP



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NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION WORK ASSIGNMENT No. D002520-7

FERRO SITE SKETCH WITH SAMPLING LOCATIONS

NYSDEC SITE INVESTIGATION
Town of Catskill, N.Y.

PROJECT NO.	DATE	SCALE	FIGURE NO.
00296-01860	October 1991	1" = 100'	ES - 2

EC-19C OC791

NYSDEC personnel. The impact of this gasoline release with respect to the Ferro site was not able to be fully assessed without a subsurface investigation (i.e., monitoring wells).

The New York Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH), Village of Catskill, Smith and Mahoney, P.C., C.T. Male Associates, P.C. and several private laboratories sampled air, leachate, water, waste and nearby drinking water wells. Approximate sampling locations of historical data are presented in Figure ES-3.

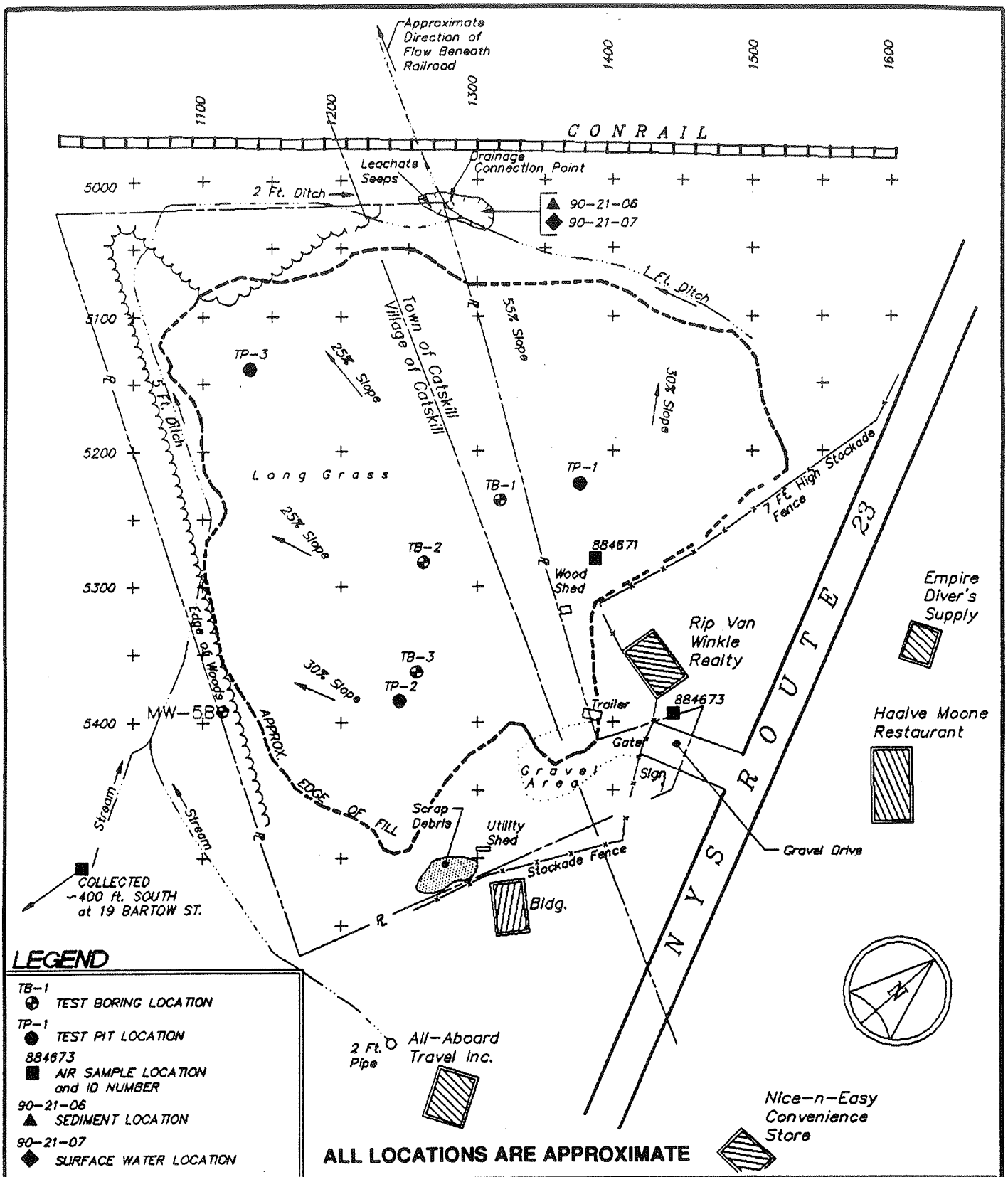
The emission of volatile organic compounds from a gas and odor abatement system installed at the Ferro site is likely to occur with insufficient replacement of carbon filters. During DUNN's site reconnaissance of November, 1990, leachate was observed at the toe of the western section adjacent to the railroad tracks flowing into a drainage ditch. In addition, slight hydrogen sulfide (H_2S) odors were noticeable, but undetectable with the H_2S detector, on top of the fill area and near residential development to the south. The western toe of the landfill exhibited a similar odor and 2-3 ppm of hydrogen sulfide was detected. Small breaks or cracks in the landfill cover were observed in the western and southeastern section of the site.

Site Assessment

The purpose of the Environmental Site Assessment at the Ferro C&D Site is to determine if hazardous wastes, as defined by the New York Code of Rules and Regulations (NYCRR) Part 371, have been disposed at the site, and to determine the impact on human health or the environment. NYSDEC or NYSDOH will determine if the site poses a threat to the environment or public health.

State and County Department of Health files, NYSDEC Region 4 and Central Office files, aerial photographs and topographic maps were reviewed to gather information regarding site history, previous regulatory activities, documented contamination, proximity to potential receptors, geology/hydrogeology and topography. A site reconaissance was conducted by DUNN, NYSDEC and NYSDOH personnel to supplement and confirm the review and evaluation of existing data. The results of these initial assessment activities were used to plan subsequent field investigations.

Geophysical and soil gas investigations were undertaken to assist in delineation of the landfill boundary, to identify anomalous areas within the fill due to the density of magnetic variation and to identify the presence of gross contamination by Volatile Organic Compounds(VOCs). An initial environmental sampling program, which



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FERRO SITE SKETCH
HISTORIC SAMPLING LOCATIONS
NYSDEC SITE INVESTIGATION
Town of Catskill, N.Y.

PROJECT NO.	DATE	SCALE	FIGURE NO.
00296-01860	October 1991	1" = 100'	ES - 3

EC-19E OCT91

included surface water/sediment sampling and air sampling, and a subsurface investigation, which included monitoring well installation and groundwater sampling, were implemented based on the results of these preliminary investigations.

Initial environmental sampling included collection of five sediment samples, five surface water samples and additionally, air sampling. Surface water and sediment sampling revealed that Target Compound List (TCL) pesticide and PCB compounds were not detected. The detections in upstream surface water sample FESW-1 and sediment sample FESED-1 could be attributed to a possible off-site source(s) responsible for the release of petroleum products. Downstream sediment sample FESED-5, located west of the site and the bordering railroad tracks, exhibited polynuclear aromatics (PNAs) which are coal and petroleum related constituents. The lack of detections in on-site sediment samples indicate an off-site source for the contamination found in the downstream sample.

Two air sampling events were performed on July 17, 1991 and July 24, 1991 for hydrogen sulfide and volatile organic analysis. Hydrogen sulfide was not detected by the Method 701 analysis during either event. Duplicate samples from the July 17 event analyzed by NYSDOH exhibited hydrogen sulfide at levels of 0.8 to 1.0 ppb in ambient air. Volatile organic analyses indicated no site-related releases.

Three overburden and four bedrock wells were installed to assist in characterizing site hydrogeology and groundwater quality. The geologic units at the site consist of a glaciolacustrine silt and clay unit and a glacial till unit overlying graywacke and shale of the Austin Glen formation. Well MW-2S was screened in the glaciolacustrine unit, wells MW-1S and MW-4S were screened in the glacial till, and wells MW-1B, MW-2B, MW-3B, and MW-5B were bedrock wells. Bedrock wells were nested with shallow wells at two locations (MW-1S/1B and MW-2S/2B) to evaluate the vertical hydraulic relationship between the overburden and bedrock systems. Monitoring wells MW-2S and MW-4S were dry over the duration of the investigation.

Hydraulic conductivity tests indicate an average horizontal hydraulic conductivity of the glacial till unit at 1.1×10^{-4} cm/sec (0.30 ft/day) and the average hydraulic conductivity of the bedrock is 5.2×10^{-5} cm/sec (0.15 ft/day).

Groundwater moves through the bedrock in a westward direction, from the top of the landfill towards Tributary 193-1 of Catskill Creek. There was insufficient data to determine flow direction in the overburden, but it would be expected to be parallel to the westward slope of the ground surface.

Analytical results from the groundwater sampling revealed that TCL pesticide and PCB compounds were not detected in these samples. Several organic contituents related to an off-site source of petroleum products exceeded groundwater standards in MW-1S and MW-1B. The presence of elevated metals in all total matrix samples were below standards when filtered with the exception of sodium, reflecting the potential effect from on-site or off-site sources.

Conclusions

Based on historic information, the Ferro C&D site consists primarily of C&D waste with a low percentage of solid waste and non-hazardous industrial waste as defined by 6 NYCRR Part 360. The concentrations of hydrocarbon compounds found in the upgradient wells, and the upstream surface water and sediment samples could be attributed to a leaking underground tank located east of the site in December 1988.

Based on the site history, data search and the preliminary site assessment field investigation, the disposal of hazardous waste as defined by 6 NYCRR Part 371, has not been documented for this site.

Recommendations

- The landfill should be properly closed in accordance with NYSDEC Part 360 regulations. The closure should include a cap to reduce infiltration and surface water drainage control.

- Groundwater quality and flow directions should be monitored for the on-site wells to better define the flow direction and potential long term changes in water quality. Additional wells at selected locations may be necessary to better define local groundwater flow direction adjacent to the fill area.

- Surface water and sediment characteristics should be further explored in upstream, off-site locations to identify sources associated with the observed chemistry. Furthermore, a similar study of locations downstream and off-site should be assessed to determine whether the observed chemistry adversely impacts aquatic life support systems of Tributary 193-1.

- Hydrogen sulfide monitoring should be further performed to evaluate seasonal fluctuations, in order to determine maintenance schedules for the

existing gas and odor abatement system. The system should be evaluated to determine if the historical lack of maintenance has impacted its operating efficiency. The system should be activated to control ongoing and future emissions.

- Further soil gas and groundwater moniotoring should be performed on- and off-site to delineate the source and transport route(s) of groundwater/soil gas contaminants found in wells MW-1S and MW-1B.