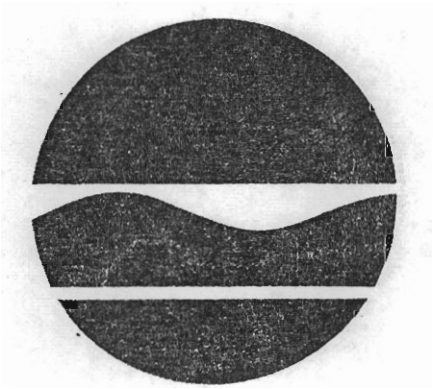
Dick B.
↓
Kevin K
FYI

PROPOSED REMEDIAL ACTION PLAN

TOWN OF VAN BUREN LANDFILL

ONONDAGA COUNTY, NEW YORK

ID NUMBER 734031



PREPARED BY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF HAZARDOUS WASTE REMEDIATION

DECEMBER 1991

EXECUTIVE SUMMARY
PROPOSED REMEDIAL ACTION PLAN

STATEMENT OF PURPOSE

This document describes the remedial alternatives considered for the Town of Van Buren Landfill and identifies the New York State Department of Environmental Conservation's (NYSDEC) preferred remedial alternative, developed in accordance with the New York State Environmental Conservation Law (ECL), and consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 USC Section 9601, et., seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). Exhibit A identifies the documents that comprise the Administrative Record for the site and includes the final Remedial Investigation and Feasibility Study (RI/FS) reports. The documents in the Administrative Record are the basis for the proposed remedial action.

This document provides some background information on the Van Buren Landfill, briefly describes the alternatives which were considered to remediate the site and presents the Department's preferred alternative. For a detailed description and evaluation of the alternatives considered, the RI/FS report mentioned above should be consulted.

This proposed plan is being distributed to solicit public comments regarding the Department's proposal to remediate the site. Changes to the preferred remedy may be made if public comments or additional data indicate that such a change will result in a more appropriate action. The final decision regarding the selected remedy will be made after NYSDEC has taken into consideration all comments received from the public.

SITE NAME AND LOCATION

Town of Van Buren Landfill
Town of Van Buren
Onondaga County, New York
Site Code: 734031
Funding Source: 1986 Environmental Quality Bond Act

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action described in this Proposed Remedial Action Plan (PRAP), present a current or potential threat to public health, welfare, and the environment.

STATEMENT OF BASIS

This proposal is based upon the administrative record for the Van Buren Landfill. A copy of the record is available for public review and/or copying at the following locations:

New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation: Brian H. Davidson
50 Wolf Road, Albany, NY 12233-7010
Hours: 8:30 AM - 4:45 PM Monday - Friday 518-457-1641

Van Buren Town Offices: Elizabeth McCarthy-Bowers, Clerk
7575 Van Buren Road
Baldwinsville, NY 13027
Hours: 8:00 AM - 3:30 PM Monday - Friday 315-635-3009

Documents are also be available for public review at the NYSDEC Regional Office at 615 Erie Boulevard West, Syracuse, NY, and the New York State Department of Health (NYSDOH) at 677 South Salina Street, Syracuse, NY. These offices are open from 8:30 to 4:45 Monday through Friday.

The following documents are the primary components of the administrative record:

A. "Town of Van Buren Landfill: Final Feasibility Study Report" November 1991; prepared by Clough, Harbour and Associates.

B. Town of Van Buren Landfill: "Final Remedial Investigation Report" November 1991; prepared by Clough, Harbour and Associates.

C. April 15, 1991 Correspondence from Frank LaVardera to Raymond Fetcho, Addendum to RI/FS Supplemental Work Plans.

D. "Work Plans Remedial Investigation-Phase II Feasibility Study" February 1991 prepared by Clough Harbour and Associates.

E. February 22, 1989 Correspondence from David W. Stoner to Brian H. Davidson - Remedial Investigation/Feasibility Study (RI/FS) Work Plan Addendum.

F. "Remedial Investigation/Feasibility Study Work Plan for the Town of Van Buren Landfill" January 1989 prepared by Stearns and Wheler Engineers and Scientists.

G. "Phase II Investigation Town of Van Buren Landfill" January 1987 prepared by Stearns and Wheler.

SUMMARY OF GOVERNMENT PROPOSAL

The proposed remedy for the Van Buren Landfill, Alternatives 2 and 3 combined, consists of a landfill cap and closure in accordance with 6 NYCRR Part 360, New York State's Solid Waste Management Facility regulations, effective December 31, 1988, as well as institutional controls. The landfill cap will cover the area where waste is known to have been disposed, approximately 16 acres. The landfill cap will consist of a properly graded multi-layered cover system including a gas venting layer, a low permeability soil layer or impermeable geosynetic membrane, a protective barrier layer, and topsoil to be seeded, fertilized, and maintained. A leachate collection system maybe installed with the cap. Any leachate collected will be properly stored in a tank on site, and periodically trucked off site for treatment at a local Publicly-Owned Treatment Works (POTW). It is anticipated that the collection of leachate would be short-term, as the landfill cap will eliminate infiltration through the landfill, thereby greatly reducing or eliminating leachate generation. The effectiveness and overall benefit of leachate collection at the site will be reexamined during Remedial Design.

The site will be fenced and will have deed restrictions to prevent future uses of the site that would interfere with the remedial measures. The existing drainage system, which conveys upgradient drain tile runoff through the landfill will be grouted and abandoned with drainage being redirected around the landfill or it will be completely reconstructed with water tight HDPE pipe. The proposed remedy will also include providing and maintaining individual water purification units on the three residential wells on Kingdom Road which have consistently shown elevated concentrations of iron. Groundwater in the vicinity of the site will be monitored for 30 years. The total present worth cost of the proposed remedy, including 30 years of operation and maintenance is estimated to be $3,660,000.

TABLE OF CONTENTS

	PAGE(S)
Executive Summary	i-iii
I. Site Location and Description	1
II. Site History	1-2
III. Enforcement Status	2-3
IV. Current Site Status	3
A. Summary of Field Investigations	3
B. Summary of Site Conditions/Contaminants of Concern & Risk	3-5
V. Goals for the Remedial Actions	5-6
VI. Summary of the Evaluation of the Alternatives	6
A. Initial Screening of the Alternatives	6-7
B. Evaluation of the Alternatives	7-8
C. Selection of the Preferred Alternative	8-9
VII. Summary of the Government's Proposal	9
VIII. Proposed Remediation Schedule	10

FIGURES

1.	Site Location Map	11
2.	Stages of Landfill Development	12
3.	Well Locations and Sampling Locations	13
4.	Bedrock Surface Contours	14
5.	Water Table - Low	15
6.	Bedrock Potentiometric Surface - Low	16
7.	Water Table - High	17
8.	Bedrock Potentiometric Surface - High	18

TABLES

1.	Cost of Remedial Alternatives	19

EXHIBITS

A.	Administrative Record	20-23
B.	Project Chronology	24-25
C.	Excerpt from Registry of Inactive Hazardous Waste Sites	26-27

I. Site Location and Description

The Town of Van Buren Landfill is located on Kingdom Road in the Town of Van Buren, Onondaga County, New York (Figure 1). The total landfill property is approximately 32 acres, approximately 16 of which have been landfilled. It is an unlined former municipal landfill which can be separated into two distinct fill areas. The older area, covering the western third of the site (Area 1), is a former gravel pit which has been filled with refuse to a depth of approximately 50 feet. In the newer area (Areas 2-6), filling has primarily been above grade and reaches a maximum height of approximately 30 feet (Figure 2). Groundwater flow beneath the site is to the north-northwest toward a small stream, Tributary 22 to the Seneca River. There are a number of residences in the vicinity of the site which depend upon private wells for water supply.

II. Site History

Aerial photographs indicate that the western portion of the site was mined for sand and gravel beginning some time prior to 1938. In the early 1950's, the Town began leasing the property for sand and gravel mining, but by that time, the resources had been nearly depleted. Exactly when the site became a landfill is uncertain, but it probably happened slowly over a period of time, beginning in the 1950's.

By July 1963, the Town was operating the site as a refuse dump for its residents. In February 1973, daily operation of the landfill was turned over to a contractor in order to comply with New York State regulations governing landfill operations. On September 1, 1973, the Onondaga County Solid Waste Disposal Authority (OCSWDA) took over the landfill operations as part of a plan to control and monitor all refuse disposal in Onondaga County. Operations were discontinued in the former gravel pit, and landfilling of the eastern portion of the site began.

In 1977, operation of the landfill was turned back over to the Town of Van Buren from the Onondaga County Solid Waste Disposal Authority, and in 1978 the NYSDEC issued a permit to operate a sanitary landfill to the Town of Van Buren.

In August of 1979, Stearns and Wheler was contracted by the Town of Van Buren to initiate a hydrogeologic investigation of the landfill and to develop plans for closure by mid-1989. In December 1981, as a response to concerns regarding local groundwater contamination from the landfill, the Onondaga County Health Department began sampling and testing nearby homeowners' wells. In 1982, five shallow monitoring wells were installed as part of an initial hydrogeologic investigation of the site in preparation for normal closure.

In 1984, in response to a waste disposal questionnaire from NYSDEC, Syroco Inc., disclosed that between 1963 and 1978 they disposed of waste paint and paint booth filters at the landfill. Syroco disclosed that approximately 30 gallons per month of industrial waste, both liquid and solids, were deposited at the landfill. For 15 years of dumping, this amounts to a total of 5,400 gallons. This disclosure prompted the NYSDEC to list the landfill as a "Class 2a" waste site, or a site which potentially poses a significant threat to public health or the environment.

In 1986, a "Phase II" investigation was conducted, and five well pairs were installed. In 1987, the site was reclassified as a "Class 2" waste site, or a site which poses a significant threat to public health or the environment.

On September 16, 1988, a Consent Order was entered into between the Town of Van Buren and NYSDEC, which put into effect a timetable for completion of an RI/FS, the remedial design, and the final construction and closure of the landfill. In November 1988, the RI/FS Work Plan was submitted to NYSDEC. On March 1, 1989, the Work Plan was approved and the Remedial Investigation was initiated. On July 1, 1989, the landfill officially closed its gates.

In October 1990, the Town of Van Buren elected to replace their Town Engineers, Stearns and Wheler Engineers and Scientists, with the firm Clough, Harbour and Associates (CHA). At the time of the replacement, a draft Remedial Investigation Report had been submitted to the NYSDEC. The document had been reviewed, the State's comments received, and an acceptable course of action had been outlined to address those comments.

In April 1991, the NYSDEC approved a technical work plan prepared by CHA to complete the RI/FS. The Final Remedial Investigation Report was approved by the NYSDEC in November 1991 with the concurrence of the New York State Department of Health. The Final Feasibility Report was determined to be acceptable for public review and comment in December 1991.

III. Enforcement Status:

Orders on Consent

Date	Index No.	Subject of Order
September 16, 1988	A6-0114-87-07	Implementation of a Remedial Program

The 1986 Environmental Quality Bond Act is being used to reimburse the Town for up to 75 percent (75%) of the costs for the remedial program. An amendment to the Order on Consent, dated September 8,

1989, provided a 90-day period for the Town to place 2700 cubic yards of compacted construction and demolition debris on the north slope of the site to lessen the severity of the grade in that area. However, the Town never exercised the option.

IV. Current Site Status

A. Summary of Field Investigations:

The following paragraphs summarize the components and conclusions of the field investigations performed at the site. The Remedial Investigation was conducted in accordance with plans formally approved by the NYSDEC in March 1989 and April 1991. For more detailed information regarding the Remedial Investigation or for additional regional information, refer to the Remedial Investigation Report, dated November 1991, or the appropriate reports or correspondences listed in the Administrative Record (Exhibit 1).

B. Summary of Site Conditions/Contaminants of Concern and Risk:

The Remedial Investigation (RI) was conducted by two consultants, Stearns and Wheler Engineers and Scientists who carried the program through the initial investigations and risk assessment and who wrote the Draft Remedial Investigation Report, and Clough, Harbour and Associates who have completed additional investigations required by the NYSDEC and who finalized the Remedial Investigation Report.

Various site investigation activities were undertaken to completely characterize the subsurface conditions at the site, to identify the soil and bedrock character, to delineate groundwater flow patterns and chemistries, examine the air contaminant pathway, and to establish any impacts that the landfill might be having on the environment. These include historical research, an explosive gas investigation, a three-phased organic vapor investigation, drilling of 35 borings and construction of 34 monitoring wells, in-situ hydraulic conductivity testing of the completed wells, topographic mapping of the landfill, groundwater and surface water flow monitoring, determination of groundwater flow velocities, and three rounds of sampling for chemical analysis of groundwater, surface water, leachate and/or solids samples (Figure 3). The two later rounds of samples collected were analyzed for a reduced list of compounds identified as potential contaminants of concern during the first round of sampling.

The subsurface investigation revealed the bedrock to be Vernon Shale which is composed of soft red and green shale with

layers and fracture fillings of gypsum and halite. Natural bedrock groundwater quality in the area is poor, with high levels of hardness, sulfate, and several metals. The overburden consists of varying thicknesses of glacial deposits consisting of, in order of decreasing age, dense lodgement till, and loose melt-out till interbedded with gravelly ice-contact deposits and sandy-silty rythmites. Groundwater flow within the overburden is to the north toward the Seneca River, closely controlled by the bedrock surface topography (Figures 4 through 8).

Crushed Vernon Shale was used as daily cover and makes up 20 to 25 percent of the landfill mass. Distinguishing between leachate-contaminated groundwater and naturally poor-quality groundwater is difficult. It was determined that organic compounds are not of concern with respect to migration from the landfill as none were detected in the groundwater. Five metals, arsenic, barium, iron, manganese and mercury, were determined to be of concern, as concentrations of these metals were elevated in some groundwater samples. A small plume of groundwater contamination in the overburden was identified downgradient of the former gravel pit where about ten feet of refuse is below the water table. Groundwater standards are exceeded only for iron and manganese. In the bedrock aquifer, MW-1-D shows elevated levels of some metals and in the remainder of the bedrock wells, only iron is elevated above background concentrations. The elevated iron concentrations could be resulting from the reducing conditions in the landfill which alter the geochemical conditions in the bedrock aquifer, thereby allowing more iron to go into solution from the rock matrix. Further downgradient of the landfill, these reducing conditions dissipate, and iron concentrations return to background levels.

The extent of the contaminant plume in the overburden is much less than would be expected from the calculated flow velocities due to geochemical controls on the solubility of iron and manganese which result in attenuated concentrations in the groundwater. Similar trends noted in the bedrock aquifer are also controlled by the geochemical environment of the bedrock aquifer, as noted above. By reducing infiltration through the waste mass, it is anticipated that the influence of the landfill on the local geochemical gradient will be reduced which will, over time, result in lowered concentrations of trace metals downgradient of the site.

There is only a relatively minimal public health risk associated with the Van Buren Landfill. There is some carcinogenic risk associated with ingesting well water from the bedrock, underlying the site, based on arsenic concentrations observed in MW-1D. Arsenic, however, is believed to be present at this location due to reducing conditions and is not attributed directly to waste disposed of at the landfill.

The incremental health risk associated with compsumption of groundwater within the limited area of iron and maganese contamination identified in the overburden is very small since the overburden does not yield potable water due to a naturally high inorganic chemical content. The bedrock aquifer is protected in this area by a low permeability lodgement till and an upper weathered zone in the bedrock. In addition, vertical gradients are upward in the bedrock in this area, and this should preclude contaminates from moving directly downward.

There is some health risk associated with direct repeated contact with surficial landfill leachate present on site. This exposure route would be eliminated by a landfill cap.

V. Goals for the Remedial Actions

The remedial alternative proposed for the site by the Department was developed in accordance with the New York State Environmental Conservation Law (ECL) and is consistent with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 USC Section 9601, et., seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The criteria used in evaluating the potential remedial alternatives can be summarized as follows:

1. Compliance with Applicable or Relevant and Appropriate New York State Standards, Criteria and Guidelines (SCGs)--SCGs are divided into the categories of chemical-specific (e.g., groundwater standards), action-specific (e.g., design of a landfill), and location-specific (e.g., protection of wetlands).

2. Protection of Human Health and the Environment--This criterion is an overall and final evaluation of the health and environmental impacts to assess whether each alternative is protective. This is based upon a composite of factors assessed under other criteria, especially short/long-term effectiveness and compliance with SCGs.

3. Short-term Impacts and Effectiveness--The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment is evaluated. The length of time needed to achieve the remedial objectives is estimated and compared with other alternatives.

4. Long-term Effectiveness and Permanence--If wastes or residuals will remain at the site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude and nature of the risk presented by the remaining wastes; 2) the adequacy of the controls intended to limit the risk to protective levels; and 3) the reliability of these controls.

5. Reduction of Toxicity, Mobility, and Volume--Department policy is to give preference to alternatives that permanently and significantly reduce the toxicity, mobility, and volume of the wastes at the site. This includes assessing the fate of the residues generated from treating the wastes at the site.

6. Implementablity--The technical and administrative feasibility of implementing the alternative is evaluated. Technically, this includes the difficulties associated with the construction and operation of the alternative, the reliability of the technology, and the ability to effectively monitor the effectiveness of the remedy. Administratively, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining special permits, rights-of-way for construction, etc.

7. Cost--Capital and operation and maintenance costs are estimated for the alternatives and compared on a present worth basis. Although cost is the last criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, lower cost can be used as the basis for final selection.

The overall objective of the remediation is to reduce the concentrations of contaminants and the routes of exposure to levels which are protective of human health and the environment. The site-specific goals for remediating the site can be summarized in general as follows:

- Reduce, control, or eliminate the contamination present in the shallow saturated zone (leachate water) within the fill mass.
- Eliminate the threat to surface waters by containing any future surface leaching from the fill mass.
- Redirect and reconstruct the existing drainage system to allow clean upgradient shallow groundwater to pass through the site without picking up contamination from the site.
- Eliminate the potential for direct human or animal contact with the waste mass and leachate seeps.

The following section addresses the alternatives that have been evaluated to achieve these goals.

VI. Summary of the Evaluation of the Remedial Alternatives

A. Initial Screening of the Alternatives:

The Town of Van Buren Landfill has been evaluated as a single "operable unit." That is, the site consists essentially of a single contaminated area and the evaluations would not benefit from dividing the site into separate pieces.

The FS screened different alternatives for technical implementability in achieving the remedial goals. The following section describes the alternatives considered in the detailed analysis. More complete descriptions of the alternatives can be found in the RI/FS Report.

The FS Report presents four (4) conceivable alternatives. The first alternative is No Action. The second alternative involves applying limited action by providing institutional controls. The third alternative is a source control employing an impermeable cap on the site per 6 NYCRR Part 360 regulations. The fourth alternative emphasizes upgradient groundwater control strategies in conjunction with a 6 NYCRR Part 360 closure.

B. Evaluation of Alternatives

Alternative 1 involves No Action at the site other than annual monitoring of on-site wells and downgradient residential wells. Alternative 1 provides no control of exposure to the landfilled wastes, and allows for the possible continued migration of the contaminate plume and further degradation of the groundwater supply in the area. Alternative No. 1 would not meet applicable or relevant and appropriate requirements (ARARs).

Alternative 2, Institutional Controls, addresses the risk of exposure pathways be restricting site access with a perimeter fence. Alternative 2 also includes individual treatment systems and the three residential wells across from the landfill which, based on iron levels, may have been impacted by the landfill. Another alternative for a water supply for the potentially affected residences would be to extend municipal water mains. This would involve constructing pump stations and storage towers in addition to extending mains. The final component of Alternative 2 to place deed restrictions on the site. Alternative 2 could also include a long-term monitoring program.

Although Alternative 2 reduces risks associated with direct exposure by fencing, and individual water treatment systems will help protect human health, Alternative 2 is not fully protective of human health and the environment. Leachate seeps will continue unabated and infiltration though the landfill mass will be a continuing source of leachate generation and potential groundwater contamination. The existing drainage system, which conveys upgradient drain tile runoff through the landfill will continue to pick up low levels of contamination from the landfill. Alternative 2 will also not satisfy ARAR's.

Alternative 3, Landfill Closure, consists of landfill capping and closure per 6 NYCRR Part 360 regulations. The landfill cap would consist of a gas venting layer, including gas riser vents

keyed into the refuse, a barrier layer, a barrier protection layer and a topsoil layer. A leachate collection system is also anticipated with this option. Due to the limited effective life of the system and the relatively high capitol costs associated with on-site treatment, off-site treatment at a local POTW is anticipated. Alternative 3 would also include a long-term monitoring and inspection plan as required to comply with NYSDEC post-closure O&M criteria.

Closure of the landfill in accordance with 6 NYCRR Part 360 would comply with ARARs and would be protective of human health and the environment.

Although some of the contaminants of concern may still persist in the downgradient monitoring and water supply wells at levels slightly above their respective chemical specific ARARs, the closure/capping of the landfill would allow the existing contamination to be naturally attenuated due to the elimination of its driving force. If it is deemed necessary, individual drinking water purification systems could be installed on any downgradient domestic drinking water supplies during the attenuation period. The quarterly groundwater monitoring program required under 6 NYCRR Part 360 would enable the NYSDEC to monitor the attenuation of the existing contamination and to determine the point at which the need for the purification of drinking water is no longer needed. Although capping the Van Buren Landfill would not reduce the volume or toxicity of the landfilled waste, the mobility of the contaminants associated with the waste would be significantly reduced. Alternative 3 would comply with ARARs.

Alternative 4 essentially consists of Alternative 3 with upgradient groundwater controls. Groundwater controls would consist of either an upgradient extraction well system which would intercept the groundwater before it flows through the landfill and pump it around the landfill to prevent its contact with the site for disposal, or a soil/bentonite slurry wall which would direct the flow of the groundwater around the landfill to prevent its contact with the landfilled waste. Alternative 4 would comply with ARARs.

The alternatives are evaluated in detail in Section 4 of the FS Report.

The costs associated with Alternatives 1, 2, 3 and 4 are shown on Table 1.

C. Selection of the Preferred Alternative:

The selected alternative must result in a remedy which is both protective health and the environment and which recognizes the unique conditions associated with the landfill.

Only two of the four alternatives presented in the FS Report comply with ARARs and are protective of human health and the environment. They are Alternatives 3 and 4.

The present worth cost of Alternative 4 is $5,253,000 with a slurry wall and $4,052,000 with groundwater extraction. These groundwater control technologies may, in fact, be difficult to implement due to site-specific conditions such as the relatively low permeability of on-site soils and the absence of a continuous highly impermeable "key" layer underlying the site. Their effectiveness would also be limited by the relatively slow rate of groundwater flow through the landfill and the naturally occurring poor quality groundwater in the area.

VII. Summary of the Government's Proposal

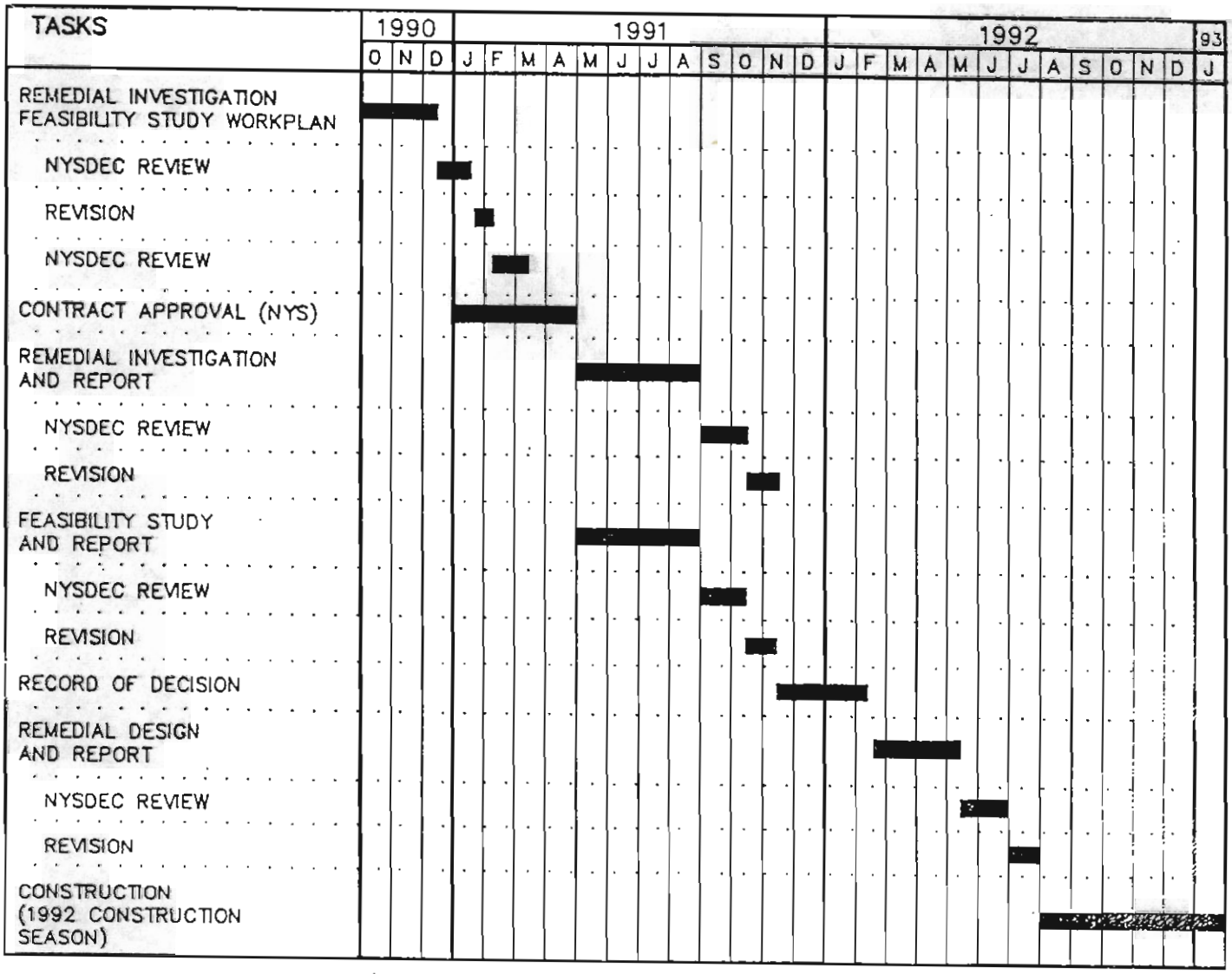
The proposed remedial action is Alternative 3 together with the institutional controls of Alternative 2.

Alternative 3 consists of a 6 NYCRR Part 360 closure/cap, and redirecting the upgradient field drainage culvert around the landfill. A leachate collection system may also be installed. The institutional controls include fencing and site deed restrictions, in addition to providing and maintaining individual water treatment systems on the three residential wells on Kingdom Road which have consistently shown elevated concentrations of iron.

Alternative 3 implemented together with Alternative 2 will prevent human exposure to waste or leachate, will protect the environment from further contamination, and will be effective and permanent in the long term. The actions are easily implemented with common construction practices and costs are appropriate based upon the costs associated with the closure of similar landfills. Other alternatives or combinations may meet the criteria set-forth, but the recommended alternative is thought to be the most effective and economical.

Since quarterly sampling is included in both estimates of Alternatives 2 and 3, evaluation of the recommended alternative requires a separate cost analysis. Alternative 3 has a present worth cost of $3,480,000. If Alternative 2, with individual purification units, is examined without quarterly sampling the 30 year present worth becomes $180,000. Therefore, the inclusive present worth cost of the recommended alternative is $3,660,000.

PROJECT SCHEDULE



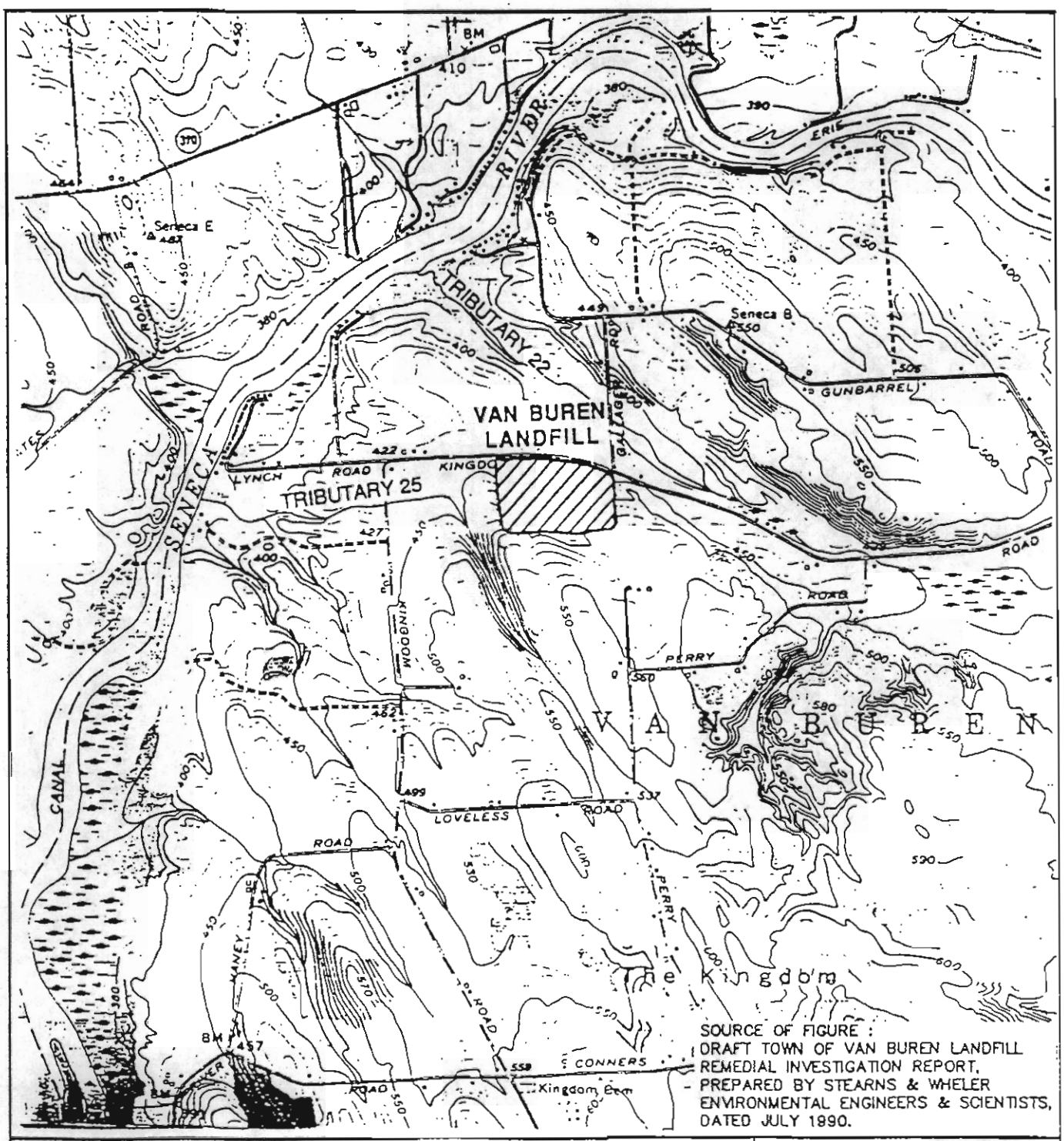
CHA
CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS, SURVEYORS & PLANNERS
91 WINNERS CIRCLE ALBANY, NEW YORK, 12205

TOWN OF VAN BUREN LANDFILL
REMEDIAL INVESTIGATION FEASIBILITY STUDY

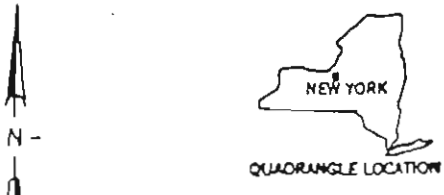
PROJECT SCHEDULE

FIGURE NO. 6.1 | DATE: JUNE 1991

FIGURES



SOURCE OF FIGURE :
DRAFT TOWN OF VAN BUREN LANDFILL REMEDIAL INVESTIGATION REPORT, - PREPARED BY STEARNS & WHELER ENVIRONMENTAL ENGINEERS & SCIENTISTS, DATED JULY 1990.



QUADRANGLE LOCATION

- N -

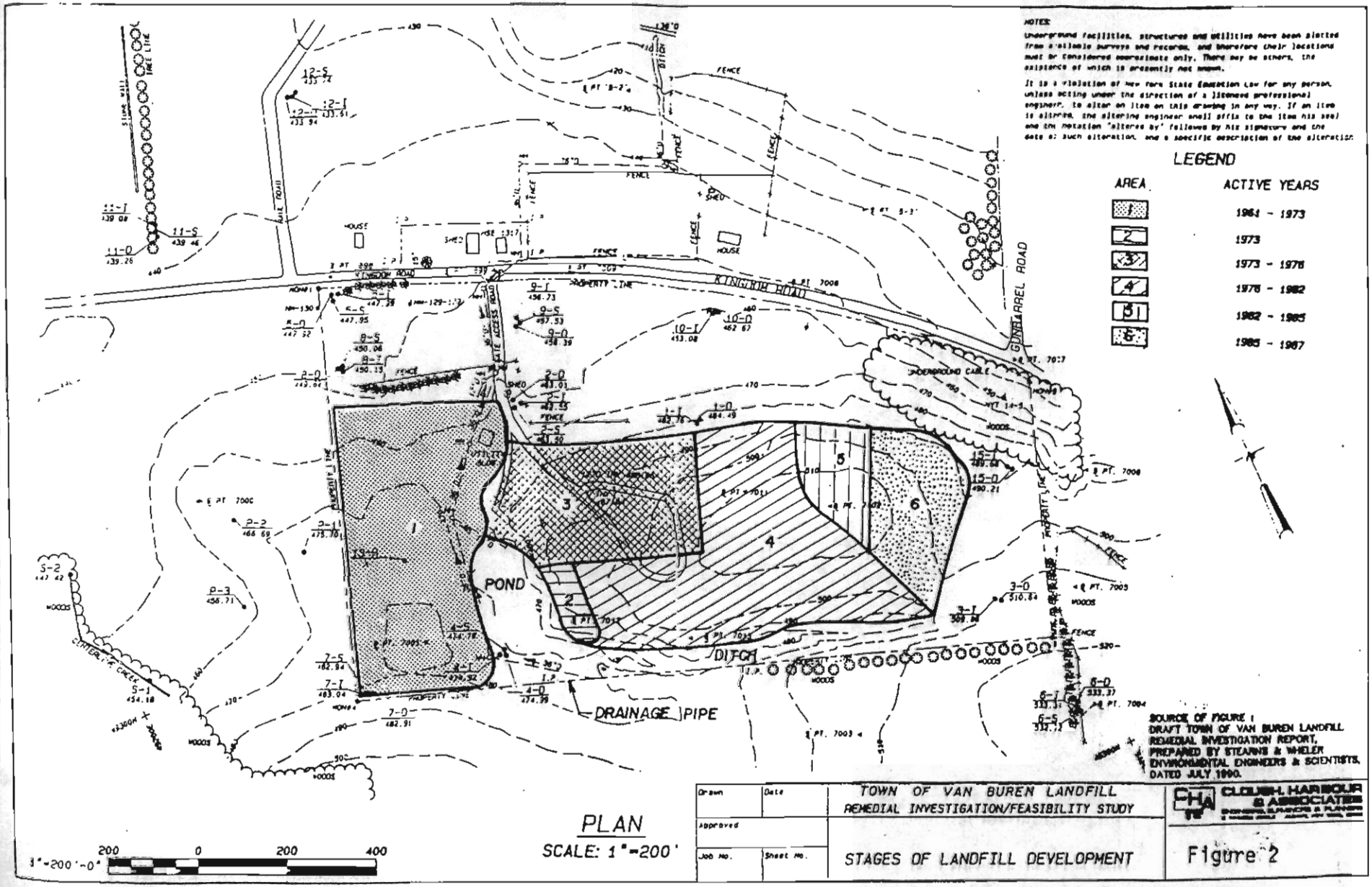
LYSANDER QUADRANGLE
USGS 7.5 SERIES, 1955

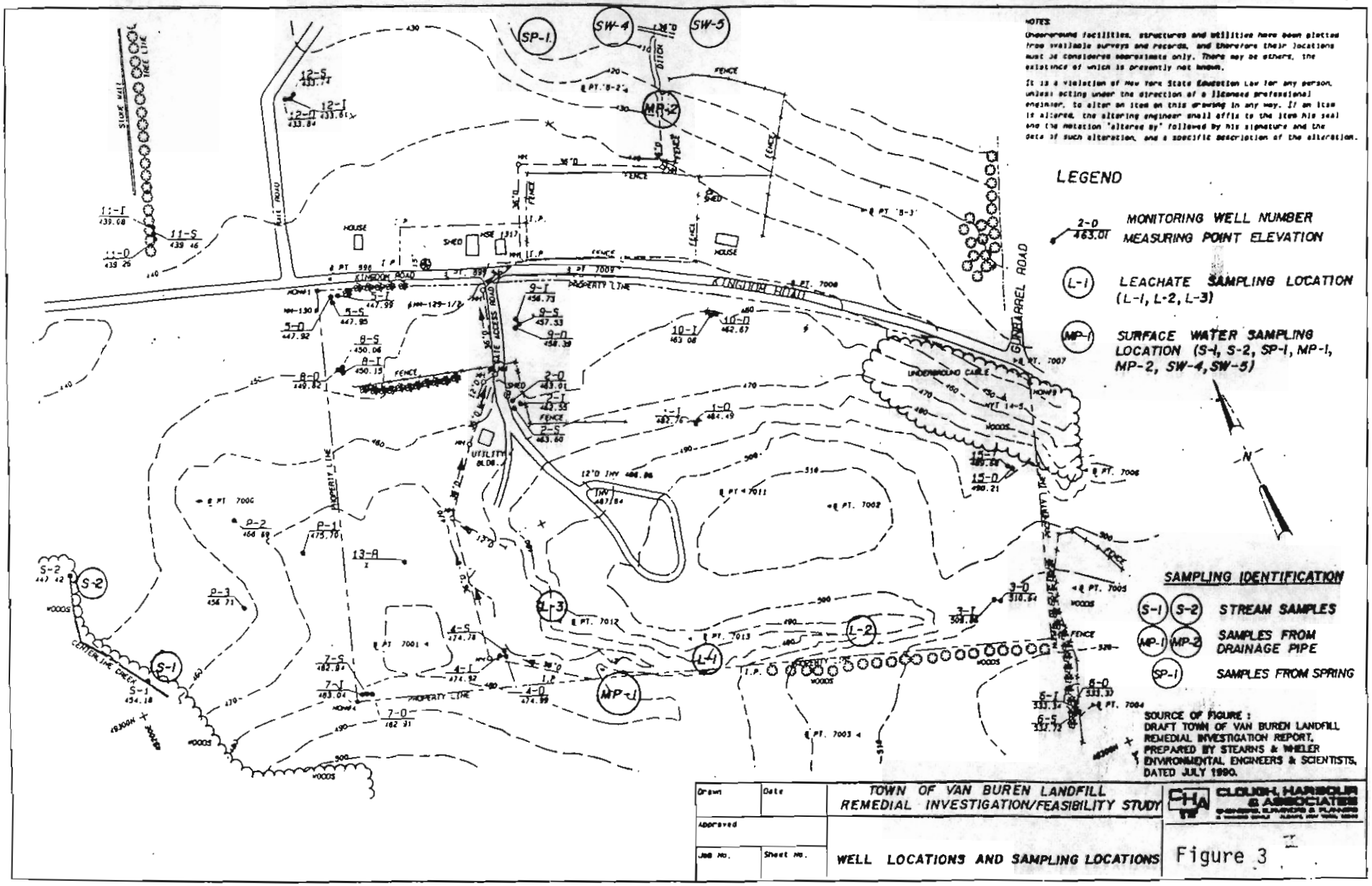
CLOUGH, HARBOUR & ASSOCIATES
ENGINEERS, SURVEYORS & PLANNERS

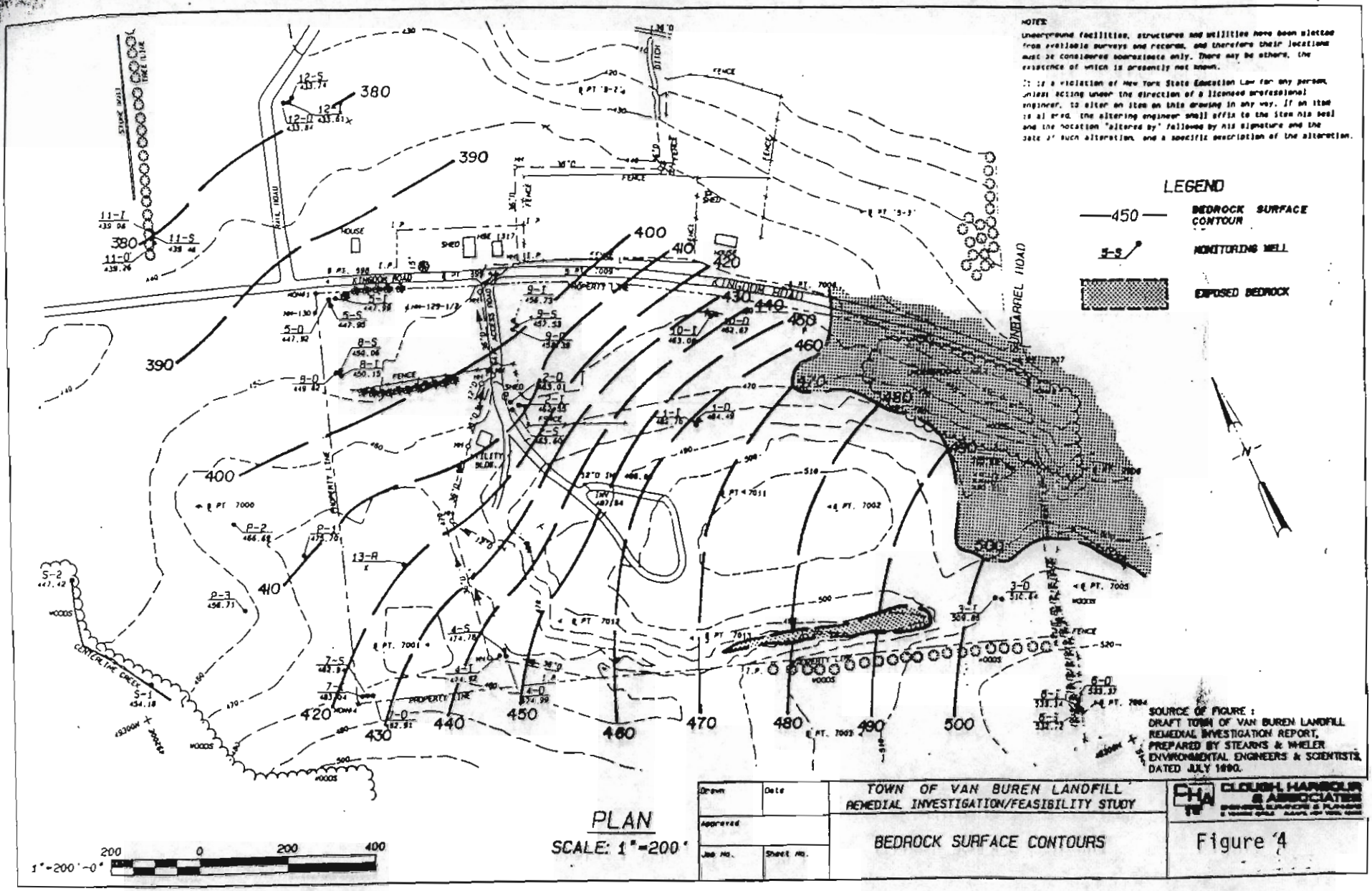
TOWN OF VAN BUREN LANDFILL RI/FS

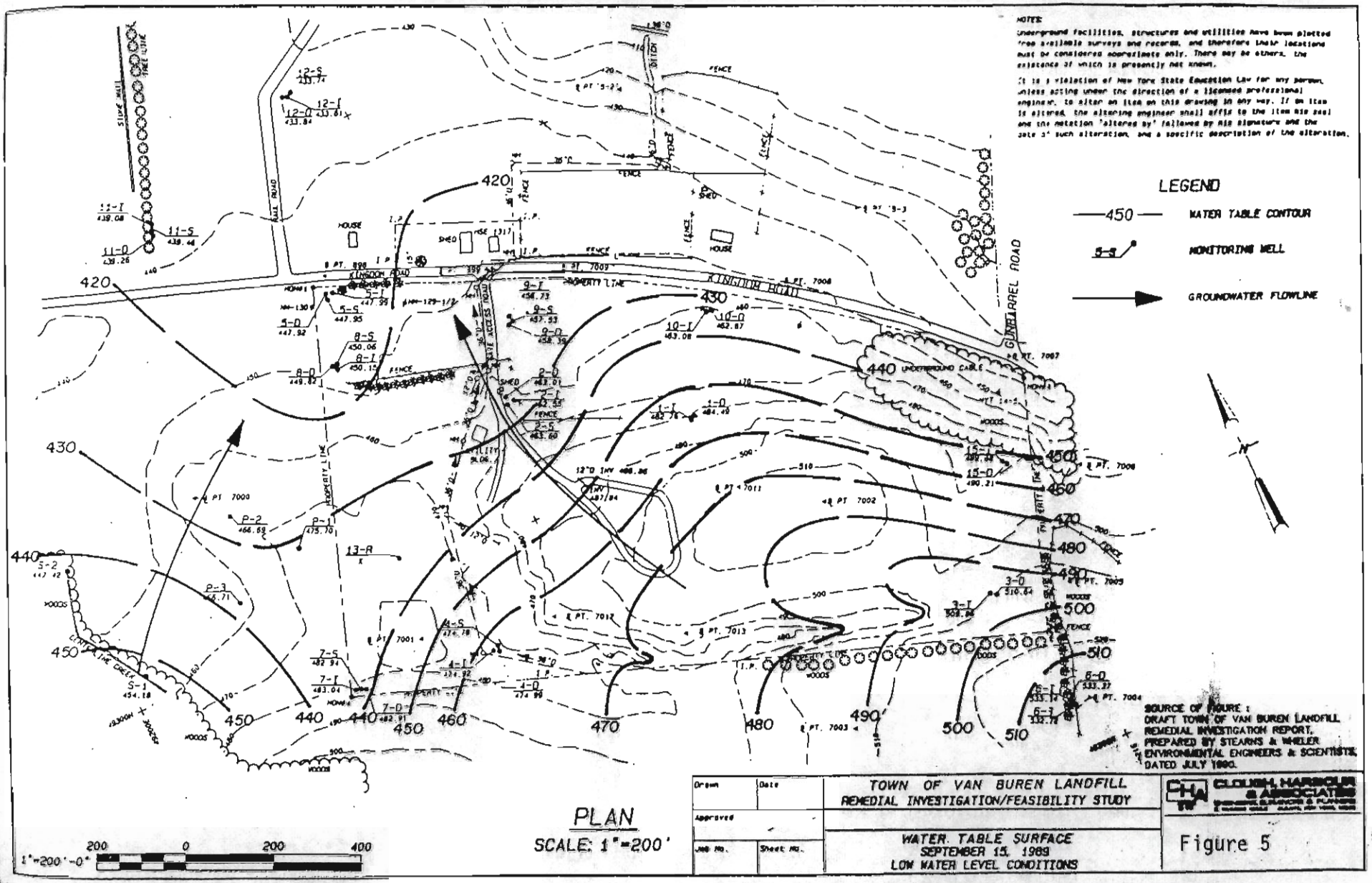
Figure 1

SITE LOCATION MAP


NOTES:
Underground facilities, structures and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. There may be others, the existence of which is presently not known.
It is a violation of New York State Education Law for any person, unless acting under the direction of a licensed professional engineer, to alter an item on this drawing in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.
LEGEND
AREA
ACTIVE YEARS
1 1961 - 1973
2 1973
3 1973 - 1978
4 1978 - 1982
5 1982 - 1985
6 1985 - 1987
KINGHORN ROAD
GOWANLOCH ROAD
SITE ACCESS ROAD
POND
DITCH
DRAINAGE PIPE
UNDERGROUND CABLE
PROPERTY LINE
FENCE
HOUSE
SHED
WOODS
SOURCE OF FIGURE 1
DRAFT TOWN OF VAN BUREN LANDFILL REMEDIAL INVESTIGATION REPORT, PREPARED BY STEARNS & WHELER ENVIRONMENTAL ENGINEERS & SCIENTISTS, DATED JULY 1990.
PLAN
SCALE: 1"=200'
1"=200'-0"
200 0 200 400
Drawn
Date
Approved
Job No.
Sheet No.
TOWN OF VAN BUREN LANDFILL
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
STAGES OF LANDFILL DEVELOPMENT
CLOUGH, HARBOUR & ASSOCIATES
Figure 2


NOTES:
Underground facilities, structures and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. There may be others, the existence of which is presently not known.
It is a violation of New York State Education Law for any person, unless acting under the direction of a licensed professional engineer, to alter an item on this drawing in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.
LEGEND
2-D 463.01 MONITORING WELL NUMBER MEASURING POINT ELEVATION
L-1 LEACHATE SAMPLING LOCATION (L-1, L-2, L-3)
MP-1 SURFACE WATER SAMPLING LOCATION (S-1, S-2, SP-1, MP-1, MP-2, SW-4, SW-5)
SAMPLING IDENTIFICATION
S-1 S-2 STREAM SAMPLES
MP-1 MP-2 SAMPLES FROM DRAINAGE PIPE
SP-1 SAMPLES FROM SPRING
SOURCE OF FIGURE : DRAFT TOWN OF VAN BUREN LANDFILL REMEDIAL INVESTIGATION REPORT, PREPARED BY STEARNS & WHEELER ENVIRONMENTAL ENGINEERS & SCIENTISTS, DATED JULY 1990.
Drawn
Date
Approved
Job No.
Sheet No.
TOWN OF VAN BUREN LANDFILL
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WELL LOCATIONS AND SAMPLING LOCATIONS
CLOUGH, HARBOUR & ASSOCIATES
Figure 3


NOTES:
Underground facilities, structures and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. There may be others, the existence of which is presently not known.
It is a violation of New York State Education Law for any person, unless acting under the direction of a licensed professional engineer, to alter an item on this drawing in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.
LEGEND
450
BEDROCK SURFACE CONTOUR
MONITORING WELL
EXPOSED BEDROCK
KINGDOM ROAD
RAIL ROAD
TUNNEL
CENTERLINE CREEK
PROPERTY LINE
FENCE
WOODS
SOURCE OF FIGURE :
DRAFT TOWN OF VAN BUREN LANDFILL REMEDIAL INVESTIGATION REPORT, PREPARED BY STEARNS & WHELER ENVIRONMENTAL ENGINEERS & SCIENTISTS, DATED JULY 1990.
PLAN
SCALE: 1"=200'
1"=200'-0"
200 0 200 400
Drawn
Date
Approved
Job No.
Sheet No.
TOWN OF VAN BUREN LANDFILL
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
BEDROCK SURFACE CONTOURS
CLOUGH, HARBOUR & ASSOCIATES
Figure 4


NOTE:
Underground facilities, structures and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. There may be others, the existence of which is presently not known.
It is a violation of New York State Education Law for any person, unless acting under the direction of a licensed professional engineer, to alter an item on this drawing in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation 'altered by' followed by his signature and the date of such alteration, and a specific description of the alteration.
LEGEND
450 WATER TABLE CONTOUR
S-S MONITORING WELL
GROUNDWATER FLOWLINE
KINGDOM ROAD
GUNNERREL ROAD
PLAN
SCALE: 1"=200'
1"=200'-0"
200 0 200 400
SOURCE OF FIGURE 1:
DRAFT TOWN OF VAN BUREN LANDFILL REMEDIAL INVESTIGATION REPORT, PREPARED BY STEARNS & WHELER ENVIRONMENTAL ENGINEERS & SCIENTISTS, DATED JULY 1990.
Drawn
Date
Approved
Job No.
Sheet No.
TOWN OF VAN BUREN LANDFILL
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WATER TABLE SURFACE
SEPTEMBER 15, 1989
LOW WATER LEVEL CONDITIONS
CLOUGH, HARBOUR & ASSOCIATES
Figure 5

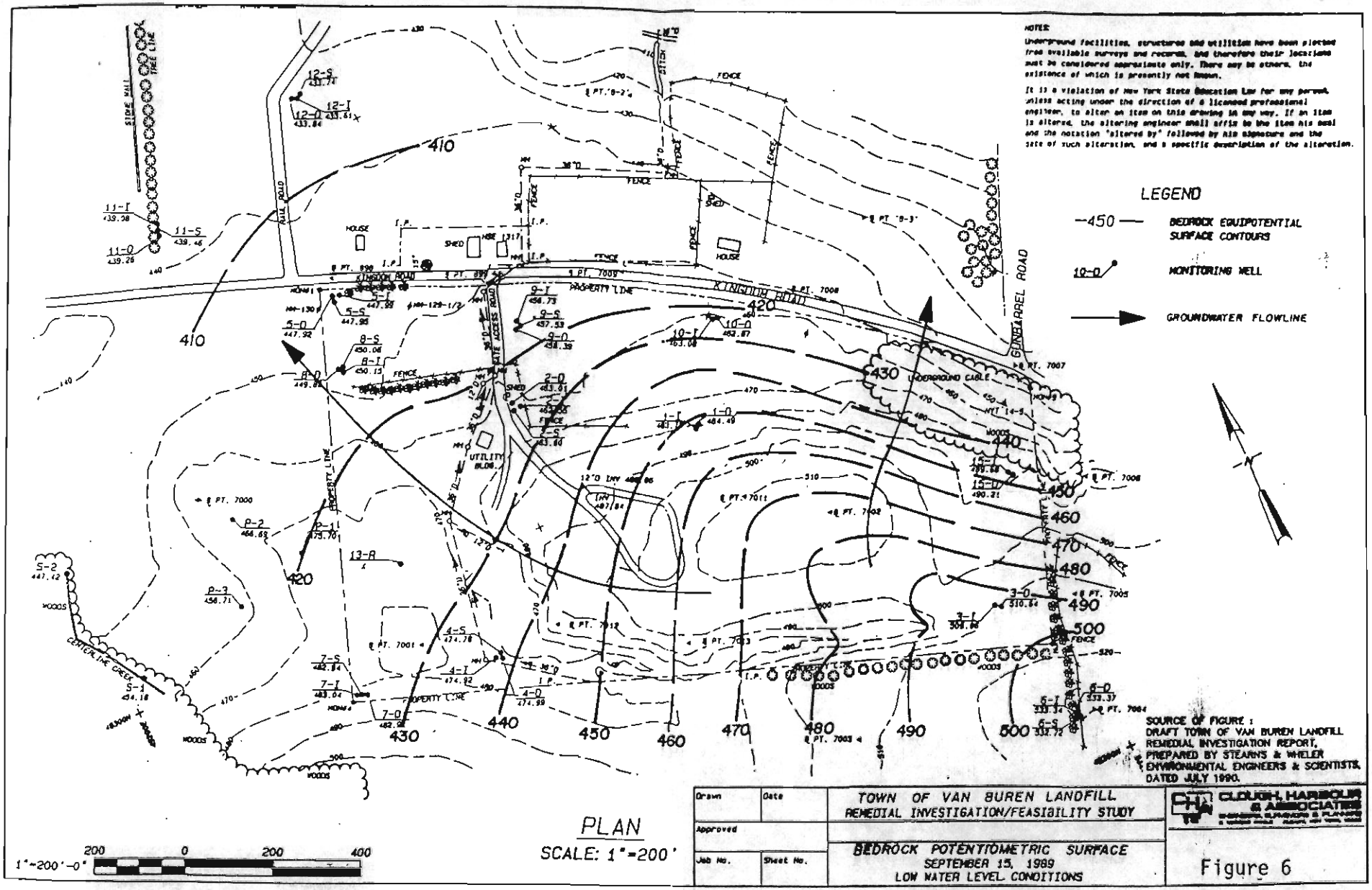
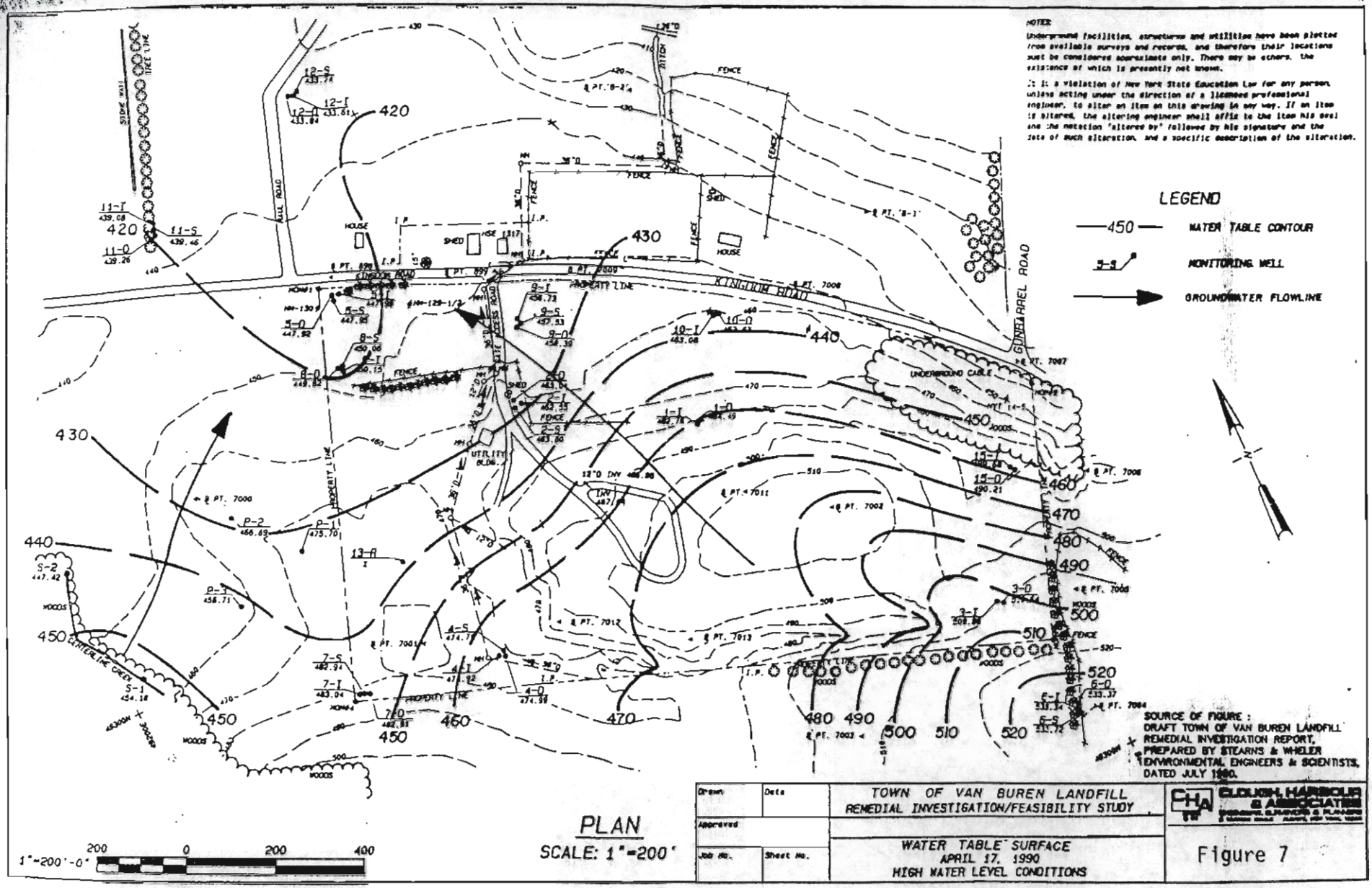
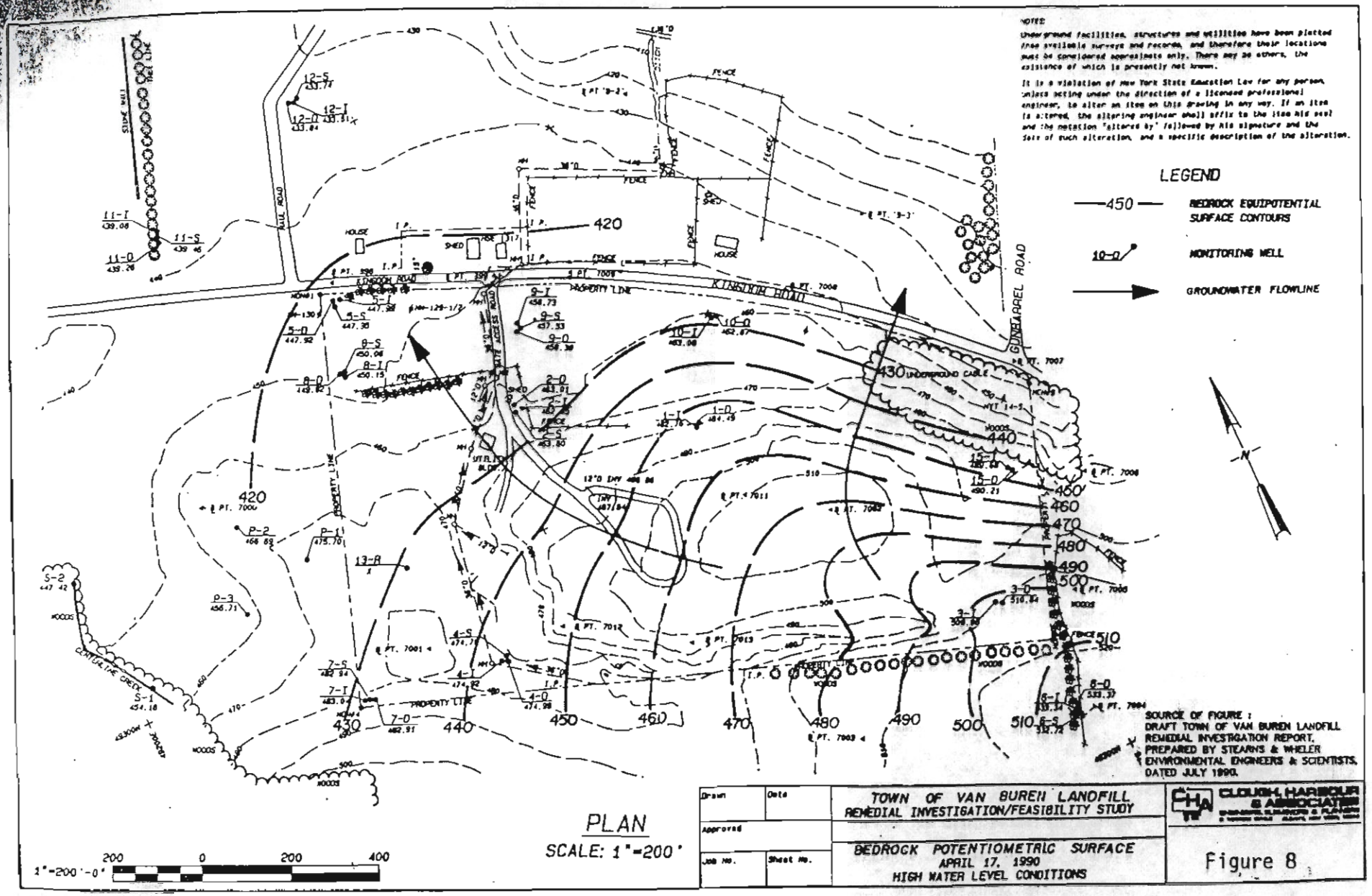

NOTES
Underground facilities, structures and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. There may be others, the existence of which is presently not known.
It is a violation of New York State Education Law for any person, unless acting under the direction of a licensed professional engineer, to alter an item on this drawing in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.
LEGEND
-450- BEDROCK EQUIPOTENTIAL SURFACE CONTOURS
10-O MONITORING WELL
GROUNDWATER FLOWLINE
KINGSTON ROAD
GUNBARREL ROAD
PROPERTY LINE
FENCE
HOUSE
SHED
UTILITY BLDG.
UNDERGROUND CABLE
WOODS
CENTERLINE CREEK
410
420
430
440
450
460
470
480
490
500
N
SOURCE OF FIGURE :
DRAFT TOWN OF VAN BUREN LANDFILL REMEDIAL INVESTIGATION REPORT, PREPARED BY STEARNS & WHELER ENVIRONMENTAL ENGINEERS & SCIENTISTS, DATED JULY 1990.
PLAN
SCALE: 1"=200'
1"=200'-0"
200 0 200 400
Drawn
Date
Approved
Job No.
Sheet No.
TOWN OF VAN BUREN LANDFILL
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
BEDROCK POTENTIOMETRIC SURFACE
SEPTEMBER 15, 1989
LOW WATER LEVEL CONDITIONS
CLOUGH, HARBOUR & ASSOCIATES

Figure 6


NOTES:
Underground facilities, structures and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. There may be others, the existence of which is presently not known.
It is a violation of New York State Education Law for any person, unless acting under the direction of a licensed professional engineer, to alter an item on this drawing in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.
LEGEND
450 WATER TABLE CONTOUR
S-S MONITORING WELL
GROUNDWATER FLOWLINE
KINGDOM ROAD
GUNNAREL ROAD
HILL ROAD
STONE WALL
TREE LINE
PROPERTY LINE
FENCE
HOUSE
SHED
WOODS
UNDERGROUND CABLE
UTILITY BLDG.
CENTERLINE CREEK
SOURCE OF FIGURE :
DRAFT TOWN OF VAN BUREN LANDFILL REMEDIAL INVESTIGATION REPORT, PREPARED BY STEARNS & WHEELER ENVIRONMENTAL ENGINEERS & SCIENTISTS, DATED JULY 1990.
PLAN
SCALE: 1"=200'
1"=200'-0"
200 0 200 400
Drawn
Date
Approved
Job No.
Sheet No.
TOWN OF VAN BUREN LANDFILL
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WATER TABLE SURFACE
APRIL 17, 1990
HIGH WATER LEVEL CONDITIONS
CLOUGH, HARBOUR & ASSOCIATES
Figure 7


NOTES:
Underground facilities, structures and utilities have been plotted from available surveys and records, and therefore their locations must be considered approximate only. There may be others, the existence of which is presently not known.
It is a violation of New York State Education Law for any person, unless acting under the direction of a licensed professional engineer, to alter an item on this drawing in any way. If an item is altered, the altering engineer shall affix to the item his seal and the notation "altered by" followed by his signature and the date of such alteration, and a specific description of the alteration.
LEGEND
450
BEDROCK EQUIPOTENTIAL SURFACE CONTOURS
10-0
MONITORING WELL
GROUNDWATER FLOWLINE
KINSMAN ROAD
GUNNAREL ROAD
KILL ROAD
PROPERTY LINE
CENTERLINE CREEK
FENCE
HOUSE
SHED
UNDERGROUND CABLE
N
SOURCE OF FIGURE :
DRAFT TOWN OF VAN BUREN LANDFILL REMEDIAL INVESTIGATION REPORT, PREPARED BY STEARNS & WHELER ENVIRONMENTAL ENGINEERS & SCIENTISTS, DATED JULY 1990.
PLAN
SCALE: 1"=200'
1"=200'-0"
200 0 200 400
Drawn
Date
Approved
Job No.
Sheet No.
TOWN OF VAN BUREN LANDFILL
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
BEDROCK POTENTIOMETRIC SURFACE
APRIL 17, 1990
HIGH WATER LEVEL CONDITIONS
CLOUGH, HARBOUR & ASSOCIATES
Figure 8

TABLES

Table 1
Cost of Remedial Alternatives

	Capital Cost	First Year Annual O&M Cost	Present Worth Cost
Alternative 1 No Action	$0	$32,000	$492,000
Alternative 2 Institutional Controls	W/purification: $ 85,000 W/extension: $1,675,000	W/purification: $38,000 W/extension: $35,000	W/purification: $670,000 W/extraction: $2,215,000
Alternative 3 Closure Per 6 NYCRR Part 360	$2,850,000	$41,000	$3,480,000
Alternative 4 Closure Per 6 NYCRR Part 360 Plus Upgradient Groundwater Controls	W/slurry wall: $4,600,000 W/extraction: $3,200,000	W/slurry wall: $42,500 W/extraction: $47,500	W/slurry wall: $5,253,000 W/extraction: $4,052,000

Total Present Worth Cost of the proposed remedy, Alternative 3 and Alternative 2 with purification systems $3,660,000.

EXHIBITS

EXHIBIT A

- Correspondence from David A. Haas, Supervisor, Town of Van Buren, to Norman H. Nosenchuck, Director, Division of Solid and Hazardous Waste, December 10, 1985.
- Correspondence from Norman H. Nosenchuck to David A. Haas, February 14, 1986.
- Phase II Investigation Town of Van Buren Landfill prepared by Stearns and Wheler, January 1987.
- Order on Consent Index No. AG-01114-87-07 executed September 16, 1988.
- Correspondence from Richard Fedigan, New York State Department of Health to Brian H. Davidson, December 19, 1988.
- EQBA Grant Application from the Town of Van Buren, January 26, 1989.
- "Remedial Investigation/Feasibility Study Work Plan for the Town of Van Buren Landfill" January 1989 prepared by Stearns and Wheler Engineers and Scientists.
- Correspondence from Michael J. O'Toole, Director, Division of Hazardous Waste Remediation to David A. Haas, Supervisor, Town of Van Buren, February 21, 1989.
- Correspondence from David W. Stoner to Brian H. Davidson, Remedial Investigation/Feasibility Study Work Plan Addendum, February 22, 1989.
- Correspondence from Brian H. Davidson to David W. Stoner, March 1, 1989.
- Correspondence from Paul Van Cott, NYSDEC, to Charles Farrell, May 15, 1989.
- Correspondence from Henriette Hamel to Brian H. Davidson, August 13, 1991. RE: Draft RI
- Town of Van Buren State Assistance Contract - Approved by the State Comptroller, August 22, 1989.
- Correspondence from Louis A. Inglis, Department of Agriculture and Markets to Charles N. Goddard, Division of Hazardous Waste Remediation, September 12, 1989.
- Correspondence from Robert J. Cozzy to David A. Haas, September 19, 1989. RE: Executed Contract

- Correspondence from Brian H. Davidson to Louis A. Inglis, October 10, 1989.
- Correspondence from Thomas R. Byrnes to Brian H. Davidson, December 14, 1989. RE: Second Round RI Sampling
- Town of Van Buren RI/FS Project Management Plan, December 1989.
- Correspondence from Edward Califano to Thomas Schlesser, July 6, 1990. RE: Payment No. 1
- Correspondence from Brian H. Davidson to Thomas R. Byrnes, August 29, 1990. RE: Draft RI Report
- Correspondence from Thomas R. Byrnes to Brian H. Davidson, September 18, 1990. RE: Draft RI Report
- Syracuse Post Standard Newspaper Article, October 11, 1990.
- Correspondence from Joseph F. Davoli to Commissioner Thomas C. Jorling, October 12, 1990.
- Correspondence from Brian H. Davidson to Edward R. Hallenbeck, October 12, 1990. RE: Termination of Stearns and Wheler
- Correspondence from Joseph F. Davoli to Brian H. Davidson, October 24, 1990.
- Correspondence from Brian H. Davidson to Edward R. Hallenbeck, November 7, 1990. RE: Procurement
- Correspondence from Edward Califano to Edward R. Hallenbeck, November 7, 1990. RE: Payment No. 2
- Correspondence from Meta R. Murray to Joseph F. Davoli, November 8, 1990.
- Correspondence from Frank LaVardera to Brian H. Davidson, November 16, 1990.
- Correspondence from Edward R. Hallenbeck to Brian H. Davidson, November 19, 1990.
- Correspondence from Frank LaVardera to Brian H. Davidson, December 14, 1990.
- Correspondence from Edward Califano to Edward Hallenbeck, December 24, 1990. RE: Payment No. 3

- Correspondence from Raymond Fetcho to Frank LaVardera, January 4, 1991.

- Correspondence from Brian H. Davidson to Edward R. Hallenbeck, Feburary 4, 1991.

- Correspondence from Thomas G. Marzullo to Brian H. Davidson, February 14, 1991. RE: EQBA Funding

- Correspondence from Robert J. Cozzy to Thomas G. Marzullo, February 22, 1991.

- "Work Plans Remedial Investigation Phase II Feasibility Study," February 1991 prepared by Clough, Harbour and Associates.

- Correspondence from Raymond Fetcho to Frank LaVardera, March 12, 1991.

- Correspondence from Brian H. Davidson to Henriette Hamel, April 1, 1991.

- Correspondence from Thomas G. Marzullo to Brian H. Davidson, April 16, 1991. RE: Breakdown of Work Completed

- Correspondence from Robert J. Cozzy to Douglas Boettner, April 19, 1991.

- Correspondence from Frank LaVardera to Raymond Fetcho, Addendum to RI/FS Supplemental Work Plans.

- Correspondence from Raymond Fetcho to Frank LaVardera, April 25, 1991. RE: Work Plan Modifications for Phase II

- Correspondece from John Dawson, OSC, to Robert J. Cozzy, May 1, 1991.

- Correspondence from Brian H. Davidson to Edward R. Hallenbeck, May 7, 1991. RE: EQBA Funding

- Correspondence from Henriette Hamel to Brian H. Davidson, June 21, 1991. RE: Supplemental Home Well Sampling

- Correspondence from Michael J. O'Toole to Edward R. Hallenbeck, August 16, 1991. RE: Contract Amendment No. 1 Transmittal

- Town of Van Buren Landfill "Final Remedial Investigation Report," August 1991 prepared by Clough Harbour and Associates.

- Correspondence from Henriette Hamel to Brian H. Davidson, September 16, 1991. RE: Final RI/Draft/FS

- Correspondence from Robert L. Burdick, OCDH, to Brian H. Davidson. RE: Final RI/Draft/FS Reports

- Correspondence from Brian H. Davidson to Frank LaVardera, October 8, 1991. RE: Final RI/Draft/FS

- Correspondence from Robert J. Cozzy to Edward R. Hallenbeck, November 4, 1991. RE: Contract Amendment No. 1

- Correspondence from Frank LaVardera to Brian H. Davidson, November 12, 1991. RE: Final RI/FS Transmittal

- Correspondence from Edward Califano to Edward R. Hallenbeck, November 15, 1991. RE: Payments No. 5 and 6

- Correspondence from Brian H. Davidson to Frank LaVardera, December 4, 1991. RE: RI/FS Reports

- Correspondence from Edward J. Califano to Edward R. Hallenbeck, December 4, 1991. RE: Payment No. 7

Exhibit B
Project Chronology
Town of Van Buren Landfill
Onondaga County, New York
ID Number 734031

1950's	Dumping began at the site.
2/73	Daily operation of the landfill was turned over to a contractor in order to comply with State regulations.
9/73	Onondaga County Solid Waste Disposal Authority (OCSWDA) took over landfill operations.
1977	Operation of the landfill was turned back to the Town.
1978	NYSDEC permit issued to operate a sanitary landfill.
8/79	Stearns and Wheler was contracted by the Town to initiate a hydrogeologic investigation.
12/81	Onondaga County Health Department began sampling nearby homeowners' wells.
1982	Five shallow monitoring wells installed.
1984	Syroco disclosed that between 1963 and 1978 waste paint and paint booth filters were disposed at the site, which prompted the listing of the site as - Class "2a."
1/87	Phase II Investigation Report issued. The site was subsequently listed as a Class "2" waste site, or a site which poses a significant threat to public health or the environment.
9/16/88	Order on Consent signed by the Commissioner of the NYSDEC. The Order put into effect a timetable for completion of an RI/FS, a remedial design and construction, and allowed the Town to apply for EQBA Title 3 funding.
1/26/89	The Town of Van Buren applied for EQBA Title 3 Funding.
3/1/89	Technical Work Plan for the RI/FS approved by the State.
5/89	Remedial Investigation field work began.
7/1/89	Landfill gates closed.
8/22/89	Town of Van Buren State Assistance Contract approved by the State Comptroller.

7/90	Draft Remedial Investigation Report submitted to the State for review.
10/90	Town of Van Buren terminated it's Engineering Contract with Stearns and Wheler.
4/91	The State approves a technical work plan, submitted by Clough, Harbour and Associates, for completion of the RI/FS.
5/91	The State Comptroller approves funding of Clough, Harbour's costs associated with performing the remedial program.
9/91	Final RI/Draft/FS Reports submitted to the State.
11/91	Final RI/FS Report submitted to the State.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS WASTE REMEDIATION
INACTIVE HAZARDOUS WASTE DISPOSAL REPORT

CLASSIFICATION CODE: 2 REGION: 7 SITE CODE: 734031
EPA ID:

NAME OF SITE : Van Buren Town Landfill
STREET ADDRESS: Kingdom Road

TOWN/CITY:	COUNTY:	ZIP:
Van Buren	Onondaga	13027

SITE TYPE: Open Dump- Structure- Lagoon- Landfill-X Treatment Pond-
ESTIMATED SIZE: 20+ Acres

SITE OWNER/OPERATOR INFORMATION:
CURRENT OWNER NAME....: Town of Van Buren c/o Mr. D. Haas
CURRENT OWNER ADDRESS.: P.O. Box 10, Baldwinsville, NY
OWNER(S) DURING USE...: Town of Van Buren
OPERATOR DURING USE...: Town of Van Buren c/o Mr. D. Haas
OPERATOR ADDRESS.....: P.O. Box 10, Baldwinsville, NY
PERIOD ASSOCIATED WITH HAZARDOUS WASTE: From unknown To

SITE DESCRIPTION:
A municipal landfill that was identified thru the Community Right-to-Know report. An inspection report indicates that a county inspector witnessed the dumping of drums from Syroco Inc. in this landfill. The Phase II Investigation done at this site shows that there is groundwater contamination attributable to the landfill. The highest concentrations of most solvents were in the downgradient wells. Analytical data from the Department of Health points out that several downgradient domestic wells may be impacted by a plume of contamination emanating from the landfill. Approximately 5400 gallons of waste paint from Syroco, Inc. were disposed of at this landfill over a period of 15 years of dumping. The landfill was closed on July 1, 1989. An RI/FS is currently underway. The Draft RI report is anticipated in April 1990.

HAZARDOUS WASTE DISPOSED: TYPE	Confirmed-X	Suspected- QUANTITY (units)
Paint thinner, paint spray, booth filter, waste paint		5400 gal. (waste paint)

SITE CODE: 734031

ANALYTICAL DATA AVAILABLE:
Air- Surface Water- Groundwater- Soil- Sediment-

CONTRAVENTION OF STANDARDS:
Groundwater-X Drinking Water- Surface Water- Air-

LEGAL ACTION:

TYPE...: Consent Order State- X Federal-
STATUS: Negotiation in Progress- Order Signed- X

REMEDIAL ACTION:

Proposed- Under design- In Progress- Completed-
NATURE OF ACTION:

GEOTECHNICAL INFORMATION:
SOIL TYPE:
GROUNDWATER DEPTH:

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:

Documented groundwater contamination. Residential wells in the area could be affected due to the local hydrogeology.

ASSESSMENT OF HEALTH PROBLEMS:

Elevated levels of selenium, arsenic and strontium in private wells appear to be naturally occurring. Repeated sampling of private wells by DOH has not indicated contamination attributable to the landfill.