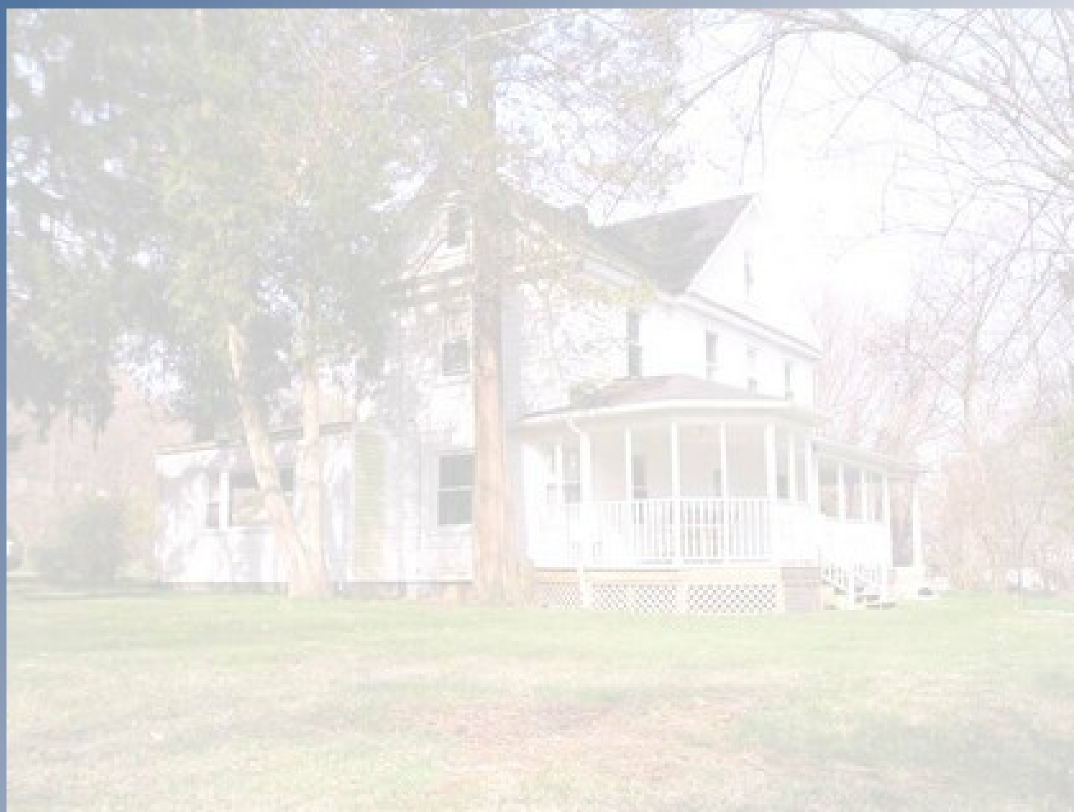
DRAFT ENVIRONMENTAL IMPACT STATEMENT

FOR

Kiruv Estates

Subdivision Application



Volume 2 of 2

Appendices B-N

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JUNE 2006

DRAFT
ENVIRONMENTAL IMPACT STATEMENT

KIRUV ESTATES

Subdivision Application

Hamlet of Huntington, Town of Huntington
Suffolk County, New York

Volume 2 of 2
Appendices B-N

NP&V Project No. 97110

June 2006

Draft Environmental Impact Statement

KIRUV ESTATES
Subdivision Application

Hamlet of Huntington, Town of Huntington
Suffolk County, New York

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APPENDIX B

SONIR COMPUTER MODEL RESULTS

Appendix B-1
Model User's Guide

SONIR MODEL USER'S GUIDE

Simulation of Nitrogen in Recharge (SONIR)
Nelson, Pope & Voorhis, LLC Microcomputer Model

INTRODUCTION

SONIR is a microcomputer model developed by Charles Voorhis for use by Nelson, Pope & Voorhis, LLC in order to simulate the hydrologic water budget of a site and determine total nitrogen and nitrogen present in recharge in connection with land use projects. The model was developed on the Microsoft Excel Spreadsheet (trademark of Microsoft Products) for IBM (trademark of International Business Machines, Inc.) or compatible Personal Computers capable of running Excel.

Nitrogen has been identified as a source of contamination primarily from sanitary discharge and lawn fertilization. Nitrogen is of concern as a drinking water contaminant, and there is an established health limit of 10 milligrams per liter (mg/l) in drinking water. Nitrogen is also of concern in surface water, as it is a nutrient that when present in high concentrations can cause algal blooms, resulting in biological oxygen demand as algae is biologically decomposed. Depleted oxygen in surface waters causes conditions unfavorable to fish species and can result in extremely undesirable aesthetic impacts, primarily related to odors. Accordingly, it is necessary to understand the concentration of nitrogen recharge as related to a proposed site development.

Utilizing a mass-balance concept, and applying known hydrologic facts and basic assumptions, it is possible to predict the concentration of nitrogen in recharge to the shallow aquifer underlying a given site. This prediction can in turn be used to determine impacts and significance of impacts in consideration of hydrogeologic factors. Similar techniques have been used to simulate nitrogen in recharge as published by the New York State Water Resources Institute, Center for Environmental Research at Cornell University, Ithaca, New York (**Hughes and Pacenka, 1985**). SONIR is intended to provide a more versatile model based upon the BURBS Mass-Balance concept. SONIR allows for use of the model to predict nitrogen impact from many sources including sewage treatment plants, and further allows for determination of a wider variety site recharge components under the hydrologic water budget section. SONIR has more versatility in the input of information, and also provides a printout of each step performed by the model, in order for regulatory agencies and review entities to understand how values are derived.

This text describes in detail the definition of terms, supported by referenced information regarding input of data for the simulation. The concept of determining the concentration of nitrogen in recharge involves a predication of the weight of nitrogen introduced to the site, as compared to the quantity of recharge resulting from precipitation and wastewater water discharge. Losses due to evapotranspiration and runoff must be accounted for in the simulation. The values and relationship associated with these parameters determines the quantity of recharge which enters the site. The prediction is generally annualized due to the availability of average annual hydrologic data; however, data input can be determined on a seasonal basis if information is available.

The model includes four (4) data sheets identified as follows:

* Data Input Field - Sheet 1
* Site Recharge Computations - Sheet 2
* Site Nitrogen Budget - Sheet 3
* Nitrogen in Recharge Output Field - Sheet 4

All information required by the model is input in Sheet 1 - Data Input Field. Sheets 2 and 3 utilize data from Sheet 1 to compute the Site Recharge and the Site Nitrogen Budget. Sheet 4 utilizes the total values from Sheets 2 and 3 to perform the final Nitrogen in Recharge computations. Sheet 4 also includes tabulations of all conversion factors utilized in the model.

It should be noted that the simulation is only as accurate as the data which is input into the model. An understanding of hydrologic principles is necessary to determine and justify much of the data inputs used for water budget parameters. Further principles of environmental science and engineering are applied in determining nitrogen sources, application and discharge rates, degradation and losses, and final recharge. Users must apply caution in arriving at assumptions in order to ensure justifiable results.

SITE RECHARGE COMPUTATIONS

Overview

SONIR utilizes the basic hydrologic equation for determining the quantity of recharge anticipated by subtracting recharge losses from total precipitation. The quantity of recharge resulting from a given site is determined using the hydrologic budget equation **(Koszalka, 1984; p. 19):**

$$R = P - (E + Q)$$

where: R = recharge
P = precipitation

E = evapotranspiration
Q = overland runoff

The quantity of recharge must be determined for each type of land use existing on a site, in order to determine the resultant site recharge. Surfaces commonly considered include: impervious surfaces; turfed areas; and natural areas; however, SONIR allows for a variety of land cover types to be considered in the model. In addition, site recharge occurs as a result of irrigation and wastewater discharge. In cases where water is imported to a site via a public water system, this quantity of recharge must be considered as additional water recharged on site. SONIR allows for all of these recharge components to be included in the simulation. Many sites have fresh surface water in the form of lakes and ponds. Precipitation falls upon these surfaces; however, such features generally act as a mechanism for water loss as a result of evaporation. SONIR includes a Water Area Loss component in determining the site Hydrologic Water Budget and in computing recharge nitrogen.

Data Input - Sheet 1

The following provides a discussion of data sources and assumptions associated with the hydrologic water budget, corresponding to the Data Input Field in Sheet 1 of SONIR:

1. *Area of Site* - The total area of the site (in acres) which is capable of recharging precipitation is entered in this data cell. For sites which include tidal wetlands, the area which is inundated by tidal waters should be excluded, as recharge from these areas should not be considered in the context of nitrogen simulation. For sites which include surface water, the area can be included, provided evaporative water loss from surface water is considered by entering the acreage of surface water in Data Cell 15 noted below.

2. *Precipitation Rate* - Precipitation in the form of rainfall and snowmelt is determined using long term recorded values from local weather stations. Cornell University maintains the Northeast Regional Climate Center, from which long term precipitation data for Long Island weather stations is available. Monthly precipitation averages are published for the period 1951-1980 in Thornthwaite and Mather's Climatic Water Budget Method **(Snowden and Pacenka, 1985)**. A tabulation of monthly and annual precipitation averages excerpted from this reference is included in the table cited for Evapotranspiration values. Data entry is in inches.

3. *Acreage of Lawn* - The total area of lawn (in acres) is entered in this Data Cell. This area includes all lawn area whether it is irrigated, fertilized or unmaintained. If there is no lawn area, a value of zero (0) is entered.

4. *Fraction of Land in Lawn* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Lawn by dividing the lawn area by total area.

5. *Evapotranspiration from Lawn* - Evapotranspiration is the natural water loss attributed to evaporation and plant utilization. Rainwater which is evaporated and transpired by plants is returned to the atmosphere as vapor. There are various methods for determining evapotranspiration, including direct measure and calculation. A commonly recognized method is the Thornthwaite and Mather Climatic Water Budget Method. Evapotranspiration rates for various locations on Long Island have been determined by the U.S. Geological Survey as documented in Ground-Water-Recharge Rates in Nassau and Suffolk Counties, New York **(Peterson, 1987; p. 10).** The following general rates as a percent of total precipitation are excerpted from that reference:

Location	Soil Type	Vegetation	ET(in)	ET(%)
Bridgehampton	sandy loam	shallow root	21.2	46.6
	silt loam	shallow root	21.4	47.2
LaGuardia	sand	shallow root	24.2	52.9
	clay loam	shallow root	25.4	55.5
	sandy loam	moderate root	26.2	57.2
JFK Airport	sand	shallow root	22.5	53.8
	clay loam	shallow root	23.9	57.3
	sandy loam	moderate root	25.0	60.0
Mineola	sand	shallow root	22.4	47.8
	sand-silt	shallow root	23.8	51.0
	sandy loam	moderate root	25.1	53.7
	sandy loam	orchards	25.5	54.5
Patchogue	fine sand	mature forest	25.5	53.5
Riverhead	sandy loam	shallow root	22.4	49.3
		orchards	24.8	54.7
Setauket	sandy loam	mature forest	26.8	57.9
Upton	silt loam	deep root	23.9	48.4
	sandy loam	moderate root	23.0	46.5

6. *Runoff from Lawn* - Runoff is the quantity of water which travels overland during a precipitation event. Soil infiltration capacity is the critical factor in determining runoff; however, factors such as slope and vegetation also determine runoff characteristics to a lesser extent on Long Island because of soil conditions. Less urbanized areas of Long Island with characteristically dry soils with groundcover will have a low runoff percentage as a function of total precipitation, as compared to the more urbanized portions of western Long Island. Peterson **(1984; p. 14)** estimates runoff as a percent of total precipitation for Nassau County (2.1 percent); Suffolk County (0.7 percent), and

Long Island in general (1.0 percent). If an average precipitation rate of 45 inches per year is assumed, runoff will vary from 0.31 to 0.94 inches. Lawn areas would be expected to be in the lower end of the range. Judgements of higher and lower runoff can be made on a site specific basis depending upon slope and groundcover types.

7. *Acreage of Impervious* - The total area of impervious surface (in acres) is entered in this Data Cell. This area includes paved driveways, parking areas, roofs, roads, etc. If there are no impervious surfaces, a value of zero (0) is entered.

8. *Fraction of Land Impervious* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Impervious by dividing the impervious area by total area.

9. *Evaporation from Impervious* - Impervious surfaces will allow water to evaporate, particularly during summer months. There is no vegetation, therefore there is no transpiration by plants. Evaporation from Impervious is estimated to be approximately 10 percent of total precipitation **(Hughes and Porter, 1983; p. 10).** This value accounts for evaporation from parking lots and other surfaces during summer months, averaged over the entire year. This indicates that recharge/runoff would comprise the remaining 90 percent of precipitation. This assumption coincides with most drainage computations required by Code Subdivision Regulations for determined leaching pool capacity.

10. *Runoff from Impervious* - The approximation of Evaporation from Impervious would indicate that recharge/runoff would comprise the remaining 90 percent of precipitation as there are no other losses from impervious surfaces. In consideration of paved areas, runoff is not transported off the site or to surface water as a loss. Runoff is diverted to leaching pools and allowed to re-enter the hydrologic system beneath a given site. Therefore, in terms of site recharge computations, the value for Runoff from Impervious is zero (0).

11. *Acreage of Unvegetated* - The total acreage of unvegetated area is entered in this Data Cell. This area includes sand, barren soils, and porous drives and trails. If there is no unvegetated area, a value of zero (0) is used.

12. *Fraction of Land Unvegetated* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Unvegetated by dividing the unvegetated area by total area.

13. *Evapotranspiration from Unvegetated* - Evapotranspiration from Unvegetated areas is determined in the same manner as described for Data Cell 5 above.

14. *Runoff from Unvegetated* - The runoff coefficients noted in the discussion for Data Cell 6 above, are applied to unvegetated areas on a site specific basis. Runoff in the middle to higher end of the range (0.7 to 2.1 percent of precipitation) are expected due to lack of groundcover vegetation.

15. *Acreage of Water* - SONIR considers evaporation from surface water in the computation of site recharge. Surface water, particularly groundwater fed lakes and ponds are a source of water loss in the water budget. The quantity of fresh surface water (in acres) is entered in this Data Cell.

16. *Fraction of Land in Water* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Water on the site by dividing the water area by total area.

17. *Evaporation from Water* - Surface water features will cause evaporation of water in excess of normal evapotranspiration as documented by **Warren et al, 1968,** Hydrology of Brookhaven National Laboratory and Vicinity Suffolk County, New York. It is estimated that the upper limit of evaporation from a large free-water surface is approximately 30.00 inches per year **(Warren et al, 1968; p. 26).** This value is entered in Data Cell 17 as the most accurate approximation.

18. *Makeup Water* - SONIR allows for consideration of the impact of man-made lakes on site recharge. Lakes are generally lined with an impermeable material. Evaporation occurs from the surface of the lake at a rate of 30.00 inches per year. In order to maintain a constant water level, an on-site well is generally installed to provide make-up water to the lake or pond. The quantity of make-up water is equivalent to the quantity of evaporation, given the fact that the function of the well is to replace water which is evaporated. Therefore, for cases where make-up water is used to maintain a constant water level, a value of 30.00 inches per year is entered in Data Cell 18.

19. *Acreage of Natural* - The total quantity of natural area (in acres) is entered in this Data Cell. This area includes naturally vegetated areas such as woodland, meadow, etc. If there is no natural area, a value of zero (0) is entered.

20. *Fraction of Land Natural* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Natural by dividing the natural area by total area.

21. *Evapotranspiration from Natural* - Evapotranspiration from Natural areas is determined in the same manner as described for Data Cell 5 above.

22. *Runoff from Natural* - The runoff coefficients noted in the discussion for Data Cell 6 above, are applied to natural areas on a site specific basis. Generally lower values in the

range of 0.7 percent of precipitation are expected due to groundcover and canopy vegetation.

23. *Acreage of Other Area* - This is a general category which can be used to include additional groundcover types in the simulation. Acreage of Other Area is entered (in acres). This Data Cell can be used to include site recharge considerations from a portion of the site which has different hydrologic properties, such as a moist hardwood forest or vegetated freshwater wetland, where evapotranspiration would be high and runoff would be extremely low.

24. *Fraction of Land in Other Area* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land in Other Area by dividing the land in other area by total area.

25. *Evapotranspiration from Other Area* - Evapotranspiration from Other areas is determined in the same manner as described for Data Cell 5 above. Value can be varied depending upon the hydrologic properties of the groundcover type.

26. *Runoff from Other Area* - The runoff coefficients noted in the discussion for Data Cell 6 above, are applied to Other Areas on a site specific basis. Value can be varied depending upon the hydrologic properties of the groundcover type.

27. *Acreage of Land Irrigated* - Imported water for irrigation purposes is an additional site recharge component not considered in any of the Data Cells above. The quantity of land irrigated on a given site is entered in this Data Cell (in acres).

28. *Fraction of Land Irrigated* - No entry need be made in this Data Cell. SONIR will compute the Fraction of Land Irrigated by dividing the land irrigated area by total area.

29. *Irrigation Rate* - The rate of irrigation must be entered in this Data Cell (in inches). Hughes and Porter **(1983; p. 10)** have indicated that lawn irrigation is estimated to be about 5.5 inches per year. This value is entered in Data Cell 29 as the most accurate approximation.

30. *Number of Dwellings* - The number of dwellings is entered in this Data Cell in order to allow for computation of wastewater disposal from residential use. Wastewater imported to a site, or even withdrawn from on site wells and recharged through sanitary effluent is an additional recharge component which must be considered. If the project is for a commercial use or utilizes a denitrification system, the number of dwellings should not be entered in the Data Entry Field, as the wastewater flow will include recharge and nitrogen components.

31. *Water Use per Dwelling* - The water use should correspond to the total site non-irrigation water use, divided by the number of units.

32. *Wastewater Design Flow* - No entry need be made in this Data Cell. SONIR will compute the Wastewater Design Flow by multiplying the Number of Dwellings by the Water Use per Dwelling.

33. *Commercial/STP Design Flow* - SONIR permits the consideration of recharge from commercial projects, denitrification systems and sewage treatment plants. The Commercial/STP Design Flow is entered in this Data Cell as per County Health Department or engineering design standards.

Site Recharge Computations - Sheet 2

Once data entry is complete for Site Recharge Parameters, SONIR will complete a series of detailed Water Budget computations for the overall site. The following describes the computations which are performed by the model:

A. *Lawn Area Recharge* - Lawn Area Recharge is determined by use of the basic Hydrologic Budget Equation [$R = P - (E + Q)$] as defined previously. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Lawn Area to determine the component of Lawn Area Recharge in overall site recharge.

B. *Impervious Area Recharge* - Impervious area recharge is also determined using the Hydrologic Budget Equation; however, the value for runoff is zero (0) due to the fact that runoff is controlled by conveyance to on site leaching facilities or is allowed to runoff into depressions where runoff is recharged on site.

C. *Unvegetated Area Recharge* - Unvegetated Area Recharge is determined by use of the basic Hydrologic Budget Equation. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Unvegetated Area to determine the component of Unvegetated Area Recharge in overall site recharge.

D. *Water Area Loss* - The Hydrologic Budget Equation is modified to consider Water Area Loss. This is particularly useful in water quantity stressed areas of Long Island. If runoff (Q) is considered be zero (0), then lake storage/recharge without make-up water would be Precipitation minus Evaporation (P - E). The resultant quantity of lake storage/recharge is then reduced by the amount of make-up water (M). The final quantity of loss is then multiplied by that portion of the site occupied by water to determine the component of water loss as related to the overall site water budget.

E. *Natural Area Recharge* - Natural Area Recharge is determined by use of the basic Hydrologic Budget Equation. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Natural Area to determine the component of Natural Area Recharge in overall site recharge.

F. *Other Area Recharge* - Other Area Recharge is determined by use of the basic Hydrologic Budget Equation. The quantity of recharge determined by this method is then multiplied by that portion of the site occupied by Other Area to determine the component of Other Area Recharge in overall site recharge.

G. *Irrigation Recharge* - Irrigation recharge is an additional recharge component artificially added on sites where irrigation occurs. This quantity is determined in the same manner as the Hydrologic Water Budget except that the irrigation rate (in inches) is substituted for precipitation. The resultant recharge is multiplied by the area of the site which is irrigated in order to determine the Irrigation Recharge in overall site recharge.

H. *Wastewater Recharge* - Wastewater is also a recharge component artificially added to a site. SONIR annualizes the wastewater design flow and assumes it is applied over the entire by multiplying Wastewater Design Flow by the Area of the Site, resulting in a per foot measure of wastewater over the site. This is converted to inches to be included in overall site recharge.

Once the eight (8) series of Site Recharge Computations are complete, SONIR totals each individual component to determine Total Site Recharge. The sum of these recharge contributions, is that quantity of water which is expected to enter the site on an annual basis due to precipitation, after the development is completed. This value is important in determining the concentration of nitrogen in recharge, and is important as a means of determining hydrologic impacts of a project in terms of changes to site recharge.

SITE NITROGEN BUDGET

Overview

The total nitrogen released on a given site must be determined in order to provide a means of simulating nitrogen in recharge. Nitrogen sources include: sanitary nitrogen; fertilizer nitrogen; pet waste nitrogen; precipitation nitrogen; and water supply nitrogen (wastewater and irrigation). The total of these quantities represents total site nitrogen.

Data Input - Sheet 1

The following provides a discussion of data sources and assumptions associated with the nitrogen budget, corresponding to the Data Input Field in Sheet 1 of SONIR:

1. *Persons per Dwelling* - The number of persons per dwelling is a demographic multiplier used in the determination of human population of a site. Based on multipliers listed in "The New Practitioner's Guide to Fiscal Impact Analysis", **(Rutgers, 1985)**, the average number of residents is calculated at 0.00/unit (Existing Conditions), and will be 4.1/unit (Proposed Conditions).

2. *Nitrogen per Person per Year* - Annual nitrogen per person is a function of nitrogen bearing waste in wastewater. For residential land use the population of the development

is determined and the nitrogen generated is assumed to be 10 pounds per capita per year **(Hughes and Porter, 1983; p. 8).**

3. *Sanitary Nitrogen Leaching Rate* - For normal residential systems, Porter and Hughes report that 50 percent of the nitrogen entering the system is converted to gaseous nitrogen and the remainder leaches into the soil **(Porter and Hughes, 1983; p. 14).**

4. *Area of Land Fertilized 1* - The area of land fertilized is input in Data Cell 4. This value may correspond to the Acreage of Lawn and/or the Acreage of Land Irrigated, but is not necessarily the same value. This entry should be determined on a site-specific basis.

5. *Fertilizer Application Rate 1* - Fertilizer nitrogen is determined by a fertilizer application rate over a specified area of the site. The fertilizer application rates vary depending upon the type of use. The following table indicates the rate of fertilization as a function of use as excerpted from the Nonpoint Source Management Handbook **(Koppelman, 1984; Chapter 5, p.6):**

Residential (contract)	1.5 lbs/1000 sq ft
Residential (unmanaged)	2.3 lbs/1000 sq ft
Commercial	3.5 lbs/1000 sq ft
Golf Course	3.5 lbs/1000 sq ft
Sod Farms	4.0 lbs/1000 sq ft
Recreational Lands	0.2 lbs/1000 sq ft

A commercial landscaping firm has been interviewed to determine trends in commercial fertilizer application. Various fertilizer formulations are used including 10-6-4, 16-4-8 and 20-10-5 (nitrogen-phosphate-potash) depending upon season. Heavier nitrogen application rates are generally used in the spring. Fertilizer used is 50 percent organic nitrogen. This is applied in a dry form approximately 2-3 times per year, and a 50 pound bag is applied over approximately 16,000 square feet. Based on this rate if 20- 10-5 nitrogen were applied in the spring, and 16-4-8 were applied during summer and fall, this would result in an application rate of 1.5-2.1 pounds per 1000 square feet. The high of this range is a conservative value based on three applications of relatively high nitrogen fertilizer, which will be used for nitrogen in recharge simulation.

In addition, it is noted that the Nonpoint Source Management Handbook indicates that application rates as low as 1.0 lb/1000 sq ft can be achieved with proper fertilizer management control.

6. *Fertilizer Nitrogen Leaching Rate 1* - Nitrogen applied as fertilizer is subject to plant uptake (20 to 80%; 50% on average) and storage in thatch and soils (36 to 47%), thereby reducing the total amount of nitrogen leached. The percentage of plant uptake and storage are based on studies cited in the LIRPB's Special Groundwater Protection Area

Plan. Based on those studies, a conservative nitrogen leaching rate of 14% has been applied in the model.

7. *Area of Land Fertilized 2* - More than one fertilizer nitrogen input is provided in order allow consideration of mixed use and/or golf course projects where land is fertilized at different rates.

8. *Fertilizer Application Rate 2* - Fertilizer Application Rates for this entry can be determined based upon Data Cell 5 above.

9. *Fertilizer Nitrogen Leaching Rate 2* - Fertilizer Nitrogen Leaching Rates can be determined based upon Data Cell 6 above.

10. *Pet Waste Application Rate* - Pet Waste Nitrogen results from the excretion of domestic pets in the outside environment. There is relatively little definitive information concerning this nitrogen source; however, several references were located and are analyzed herein. The 208 Study provides a table of nitrogen concentration in manure for various animals, not including dogs or cats. Total nitrogen values in the range of 0.30-0.43 lbs/day/1000 lbs live weight are reported for cattle, sheep and horses **(Koppelman, 1978; Animal Waste report p. 3).** It is assumed that dogs constitute the major source of animal waste which would be present in the yards of residential developments. Cat waste would be significantly less due to the lesser live weight of cats and the fact that many cat owners dispose of cat waste in solid waste by using an indoor litter box. If an average of 0.35 lbs of nitrogen is assumed for dogs, and an average of 25 pounds live weight is assumed per dog, then the total annual nitrogen per pet would be 3.19 lbs/year. The only other reference located which approximates nitrogen in pet waste is Land Use and Ground-Water Quality in the Pine Barrens of Southampton **(Hughes and Porter, 1983; p. 10).** This reference assumed an application rate of 6.5 lbs/acre of nitrogen. Pet waste was assumed to be deposited evenly over all turf. This assumption was not correlated to population density or pet density, but only to turfed acreage. In comparison of the two values, the per pet value corresponds to approximately 2 turfed acres. For the purpose of this model, the value of 3.19 lbs/pet/year is considered to be the most justifiable value for pet waste and is entered in this Data Cell.

11. *Pet Waste Nitrogen Leaching Rate* - Pet waste is also subject to a leaching rate factor whereby, 50 percent of the nitrogen applied to the ground is removed as a gas.

12. *Area of Land Irrigated* - No entry need be made in this Data Cell. This value is the same as Data Cell 27 of the Site Recharge Parameters and SONIR will transfer the data entry to this Cell.

13. *Irrigation Rate* - No entry need be made in this Data Cell. This value is the same as Data Cell 29 of the Site Recharge Parameters and SONIR will transfer the data entry to this Cell.

14. *Irrigation Nitrogen Leaching Rate* - Hughes and Porter **(1983; p. 10)** indicate that "plant uptake and gaseous losses are assumed to remove 85% of the nitrogen entering in precipitation". Irrigation nitrogen would be expected to be subject to the same losses, therefore, a leaching rate of 15% is entered in this Data Cell.

15 *Nitrogen in Precipitation* - Groundwater nitrogen is partially derived from rainwater. Nitrate-nitrogen concentrations in precipitation have been reported to be on the order of 1-2 mg/l in Nassau and Suffolk Counties **(SCDHS, 1987; p. 6-4).**

16. *Precipitation Nitrogen Leaching Rate* - As indicated above, a nitrogen leaching rate of 15% is applied to precipitation nitrogen.

17. *Nitrogen in Water Supply* - The concentration of Nitrogen in Water Supply determines the quantity of nitrogen which enters the site as a result of irrigation nitrogen and wastewater flow. Local water supply data should be utilized if available, otherwise a value of between 1 and 2 mg/l could be utilized.

18. *Nitrogen in Commercial/STP Flow* - This data entry allows SONIR to compute the quantity of nitrogen resulting from commercial discharge, denitrification systems and/or sewage treatment plants. Total nitrogen in community wastewater is identified as having a total nitrogen concentration of 20 mg/l in weak effluent; 40 mg/l in medium strength effluent, and 85 mg/l in strong effluent **(Metcalf & Eddy, Inc, 1991).** It is recommended that a value of 40 mg/l be used for total nitrogen concentration in commercial sanitary systems. Properly functioning denitrification systems and sewage treatment plants are capable of reducing total nitrogen to less than 10 mg/l in accordance with discharge limitations. A value of 10 mg/l can be entered in this data cell for such systems. The SONIR model computes the number of pounds of nitrogen in sanitary discharge as a function of concentration. The absolute nitrogen is utilized in the model; however. it must recognized that from the discharge point, nitrogen is nitrified through conversion of ammonia to nitrate in the leaching area beneath the discharge point. Further natural transformation in the form of denitrification occurs as a result of bacteria. This causes release of nitrogen gas and may account for further reduction of 50 percent or more subsequent to discharge **(Canter and Knox, 1979; pp. 77-78; Hughes and Porter, 1983; p. 14).** As a result SONIR is conservative in predicting the concentration of nitrogen in recharge, and when natural denitrification of sanitary effluent is considered, actual concentration would be less.

Site Nitrogen Budget - Sheet 2

Once data entry is complete for Nitrogen Budget Parameters, SONIR will complete a series of detailed computations to determine the individual component of nitrogen from each source and the total nitrogen for the overall site and use. The following describes the computations which are performed by the model:

A. *Sanitary Nitrogen - Residential* - SONIR establishes the site population using the number of units on the site, and the demographic multiplier. The nitrogen load factor is then applied and reduced by the leaching rate, resulting in the total residential nitrogen component. If the project is for a commercial use or utilizes a denitrification system, the number of dwellings should not be entered in the Data Entry Field, in which case the total nitrogen from this source will be zero (0).

B. *Pet Waste Nitrogen* - The pet waste nitrogen was determined on a per pet basis; however, the number of pets for a given residential project must be determined. In order to correlate the number of pets to human population, a ratio was determined using information contained in the 208 Study, wherein it was estimated that there is 1 dog per 5 residents in suburban areas and 1 dog per 7 residents in urban areas **(Koppelman, 1978; Animal Waste Report, pp. 6).** This results in an average number of dogs based upon of 17 percent of the human population. Accordingly, this multiplier is used based upon the population of a land use project in order to estimate the nitrogen waste from pets. The pet waste nitrogen is subject to reduction as a function of the leaching rate, leading to the total pet waste nitrogen in pounds.

C. *Sanitary Nitrogen (Commercial/STP)* - SONIR utilizes the Commercial/STP Flow which is converted to liters and multiplied by the nitrogen concentration in waste. This provides a weight of nitrogen in milligrams which is converted to pounds for the total nitrogen from this component.

D. *Water Supply Nitrogen* - SONIR utilizes the residential wastewater design flow to compute the weight of nitrogen contributed from the water supply. The method of calculation is the same as Sanitary Nitrogen (Commercial/STP). For commercial projects, this value is accounted for in the Commercial/STP Flow.

E. *Fertilizer Nitrogen 1* - This calculation utilizes data entry from the Area of Land Fertilized 1, in the Data Input Field, to determine the weight of fertilizer nitrogen applied to the area. The area is multiplied by the application rate and reduced by the leaching rate documented previously to arrive at total weight.

F. *Fertilizer Nitrogen 2* - If fertilization rates vary, the Area of Land Fertilized 2, is utilized to determine nitrogen from this source.

G. *Precipitation Nitrogen* - Nitrogen in precipitation is considered by determining the liters of Natural Recharge entering the site, multiplied by the concentration of nitrogen in precipitation. SONIR uses the sum of natural recharge components from the Site Recharge Computations to establish the natural recharge. A precipitation nitrogen leaching rate of 15% is utilized as referenced above.

H. *Irrigation Nitrogen* - Although a very small component, the Irrigation Nitrogen is determined using the Irrigation Recharge R(irr) computed in the Site Recharge Computations, over the irrigated area of the site to produce a volume of irrigation recharge. The Irrigation Recharge value is used in order to account for reduction of recharge due to evapotranspiration, since this component is only intended to determine nitrogen leaching into soil as a result of irrigation nitrogen in the water supply. This value is converted to liters and multiplied by the concentration of nitrogen in irrigation water supply. The Irrigation Nitrogen Leaching Rate (expected to the same as for precipitation), is applied to the weight to determine the total nitrogen from this source.

Once the eight (8) series of Site Nitrogen Budget computations are complete, SONIR totals each individual component to determine the Total Site Nitrogen. This value is used in determining the weight per volume ratio of nitrogen in recharge as computed in Sheet 4 of the SONIR model.

FINAL COMPUTATIONS AND SUMMARY

SONIR utilizes data generated in Sheets 2 and 3 of the model to compute a mass/volume ratio for nitrogen in recharge. Nitrogen in recharge is converted from pounds to milligrams in order to provide units compatible for mass/volume concentration. Likewise, the quantity of site recharge is applied over the site in order to determine an overall volume number for site recharge. This is then converted to liters. The final computation divides the total weight of nitrogen in milligrams, by the total volume of recharge in liters, to arrive at the Nitrogen in Recharge ratio in milligrams per liter (mg/l). This concentration represents the Final Concentration of Nitrogen in Recharge which is highlighted on Sheet 4.

Sheet 4 also provides a site recharge summary in order to compare recharge between natural conditions, a proposed project and/or alternatives. Total Site Recharge is presented in both inches, and as a volume in cubic feet/year, gallons/year and million gallons/year (MGY).

The final field summarizes the Conversions Used in SONIR. Conversions are standard conversion multipliers as found in standard engineering references.

SONIR is a valuable tool allowing for versatile determination of site recharge as determined from many components of site recharge. SONIR determines the weight of nitrogen applied to a site from a variety of sources as well. SONIR is a fully referenced model utilizing basic hydrologic and engineering principals, in a simulation of nitrogen in recharge. Input data should be carefully justified in order to achieve best results. SONIR can be used effectively in comparing land use alternatives and relative impact upon groundwater due to nitrogen. By running the model for Existing Conditions, Proposed Project conditions and/or alternative land uses comparison of impacts can be made for consideration in land use decision-making. Questions, comments or suggestions concerning this model should be addressed to Nelson, Pope & Voorhis, LLC, 572 Walt Whitman Road, Melville, New York 11747.

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

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Appendix B-2
Existing Conditions/Alternative 1

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT **Kiruv Property**

DATA INPUT FIELD **Existing Conditions/Alternative I** **SHEET 1**

A	*Site Recharge Parameters*	*Value*	*Units*
1	Area of Site	7.07	acres
2	Precipitation Rate	42.82	inches
3	Acreage of Lawn	1.77	acres
4	Fraction of Land in Lawn	0.250	fraction
5	Evapotranspiration from Lawn	24.20	inches
6	Runoff from Lawn	0.90	inches
7	Acreage of Impervious	0.26	acres
8	Fraction of Land Impervious	0.037	fraction
9	Evaporation from Impervious	4.28	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.12	acres
12	Fraction of Land Unvegetated	0.017	fraction
13	Evapotrans. from Unvegetated	24.20	inches
14	Runoff from Unvegetated	0.89	inches
15	Acreage of Water	0.27	acres
16	Fraction of Site in Water	0.038	fraction
17	Evaporation from Water	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	4.65	acres
20	Fraction of Land Natural	0.658	fraction
21	Evapotrans. from Natural Area	24.20	inches
22	Runoff from Natural Area	0.30	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	24.20	inches
26	Runoff from Other Area	0.90	inches
27	Acreage of Land Irrigated	1.77	acres
28	Fraction of Land Irrigated	0.250	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	10	units
31	Water Use per Dwelling	0	gal/day
32	Wastewater Design Flow	600	gal/day
33	Commercial /STP Design Flow	0	gal/day

B	*Nitrogen Budget Parameters*	*Value*	*Units*
1	Persons per Dwelling	0.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	0.00	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	0.00	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	1.77	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.00	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	1.00	mg/l
18	Nitrogen in Commercial/STP Flow	40.00	mg/l

C	*Comments*
1)	Please refer to user manual for data input instructions.
2)	Sanitary based on Suffolk County design flow rate (300 gallons/day/dwelling).

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS Existing Conditions/Alternative 1 SHEET 2

A	*Lawn Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Lawn	0.250	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(l) = P - (E + Q)	17.72	inches
6	R(L) = R(l) x A	4.44	inches

B	*Impervious Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Impervious	0.037	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	4.28	inches
4	Q = Runoff Rate	0.00	inches
5	R(i) = P - (E + Q)	38.54	inches
6	R(I) = R(i) x A	1.42	inches

C	*Unvegetated Area Recharge*		
1	A = Fraction of Land Unveg.	0.017	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.89	inches
5	R(u) = P - (E + Q)	17.73	inches
6	R(U) = R(u) x A	0.30	inches

D	*Water Area Loss*		
1	A = Fraction of Site in Water	0.038	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(w) = {P - (E+Q)} - M	12.82	inches
7	R(W) = R(w) x A	0.49	inches

E	*Natural Area Recharge*		
1	A = Fraction of Land in Natural	0.658	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.30	inches
5	R(n) = P - (E + Q)	18.32	inches
6	R(N) = R(n) x A	12.05	inches

F	*Other Area Recharge*		
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(o) = P - (E + Q)	17.72	inches
6	R(O) = R(o) x A	0.00	inches

G	*Irrigation Recharge*		
1	A = Fraction of Land Irrigated	0.250	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evaptranspiration Rate	3.11	inches
4	Q = Runoff Rate	0.90	inches
5	R(irr) = I - (E + Q)	1.49	inches
6	R(IRR) = R(irr) x A	0.37	inches

H	*Wastewater Recharge*		
1	WDF = Wastewater Design Flow	600	gal/day
2	WDF = Wastewater Design Flow	29,280.30	cu ft/yr
3	A = Area of Site	307,969	sq ft
4	R(ww) = WDF/A	0.10	feet
5	R(WW) = Wastewater Recharge	1.14	inches

Total Site Recharge			
R(T) =	R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)		
R(T) =	**20.21**	**inches**	

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET **Existing Conditions/Alternative 1** **SHEET 3**

A	*Sanitary Nitrogen-Residential*	*Value*	*Units*
1	Number of Dwellings	10	units
2	Persons per Dwelling	0.00	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	10	lbs
5	LR = Leaching Rate	50	percent
6	N(S) = P x N x LR	0.00	lbs
7	N(S) = Sanitary Nitrogen	0.00	lbs

B	*Pet Waste Nitrogen*	*Value*	*Units*
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	0	capita
3	Pets = 17 percent of capita	0	pets
4	N(p) = AR x pets	0.00	lbs
5	LR = Leaching Rate	0	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N(P) = Pet Waste Nitrogen	0.00	lbs

C	*Sanitary Nitrogen (Commercial/STP)*		
1	CF = Commercial/STP Flow	600	gal/day
2	CF = Commercial/STP Flow	828,915	liters/yr
3	N = Nitrogen in Commercial	40.00	mg/l
4	N(S) = CF x N	33,156,600	milligrams
5	N(S) = Sanitary Nitrogen	73.11	lbs

D	*Water Supply Nitrogen*		
1	WDF = Wastewater Design Flow	600	gal/day
2	WDF = Wastewater Design Flow	828,915	liters/yr
3	N = Nitrogen in Water Supply	1.00	mg/l
4	N(WW) = WDF x N	828,915	milligrams
5	N(WW) = Wastewater Nitrogen	1.83	lbs

E	*Fertilizer Nitrogen 1*		
1	A = Area of Land Fertilized 1	0	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F1) = A x AR x LR	0.00	lbs
5	N(F1) = Fertilizer Nitrogen	0.00	lbs

F	*Fertilizer Nitrogen 2*		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F2) = A x AR x LR	0.00	lbs
5	N(F2) = Fertilizer Nitrogen	0.00	lbs

G	*Precipitation Nitrogen*		
1	R(n) = Natural Recharge (feet)	1.56	feet
2	A = Area of Site (sq ft)	307,969	sq ft
3	R(N) = R(n) x A	479,747	cu ft
4	R(N) = Natural Recharge (liters)	13,586,444	liters
5	N = Nitrogen in Precipitation	1.00	mg/l
6	LR = Leaching Rate	15	percent
7	N(ppt) = P(S) x N x LR	135,864	milligrams
8	N(ppt) = Precipitation Nitrogen	0.30	lbs

H	*Irrigation Nitrogen*		
1	R = Irrigation Recharge (inches)	1.49	inches
2	R = Irrigation Rate (feet)	0.12	feet
3	A = Area of Land Irrigated	77,101	sq ft
4	R(I) = R(irr) x A	9,584	cu ft
5	R(I) = Site Precipitation (liters)	271,417	liters
6	N = Nitrogen in Water Supply	1.00	mg/l
7	LR = Leaching Rate	15	percent
8	N(irr) = R(I) x N x LR	40,713	milligrams
9	N(irr) = Irrigation Nitrogen	0.09	lbs

Total Site Nitrogen	
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)
N=	75.33 lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Kiruv Property
Existing Conditions/Alternative 1

FINAL COMPUTATIONS

SHEET 4

A	*Nitrogen in Recharge*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	75.33	lbs
2	N = Total Nitrogen (milligrams)	34,198,645	milligrams
3	R(T) = Total Recharge (inches)	20.21	inches
4	R(T) = Total Recharge (feet)	1.68	feet
5	A = Area of Site	307,969	sq ft
6	R = R(T) x A	518,612	cu ft
7	R = Site Recharge Volume	14,687,080	liters
9	NR = N/R	2.33	mg/l

FINAL CONCENTRATION OF
NITROGEN IN RECHARGE

2.33

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	20.21	inches/yr
2	R = Site Recharge Volume	518,612	cu ft/yr
3	R = Site Recharge Volume	3,879,484	gal/yr
4	R = Site Recharge Volume	3.88	MG/yr

Conversions used in SONIR
Acres x 43,560 = Square Feet
Cubic Feet x 7.48052 = Gallons
Cubic Feet x 28.32 = Liters
Days x 365 = Years
Feet x 12 = Inches
Gallons x 0.1337 = Cubic Feet
Gallons x 3.785 = Liters
Grams / 1,000 = Milligrams
Grams x 0.002205 = Pounds
Milligrams / 1,000 = Grams

Appendix B-3
Proposed Project (Sewer & On-Site Detention)

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT — **Kiruv Property**

DATA INPUT FIELD — **Proposed - Sewer & On-Site Detention** **SHEET 1**

A	*Site Recharge Parameters*	*Value*	*Units*
1	Area of Site	7.07	acres
2	Precipitation Rate	42.82	inches
3	Acreage of Lawn	2.06	acres
4	Fraction of Land in Lawn	0.291	fraction
5	Evapotranspiration from Lawn	0.00	inches
6	Runoff from Lawn	0.00	inches
7	Acreage of Impervious	1.00	acres
8	Fraction of Land Impervious	0.141	fraction
9	Evaporation from Impervious	0.00	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.02	acres
12	Fraction of Land Unvegetated	0.003	fraction
13	Evapotrans. from Unvegetated	24.20	inches
14	Runoff from Unvegetated	0.89	inches
15	Acreage of Water	0.27	acres
16	Fraction of Site in Water	0.038	fraction
17	Evaporation from Water	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	3.72	acres
20	Fraction of Land Natural	0.526	fraction
21	Evapotrans. from Natural Area	24.20	inches
22	Runoff from Natural Area	0.30	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	24.20	inches
26	Runoff from Other Area	0.90	inches
27	Acreage of Land Irrigated	2.06	acres
28	Fraction of Land Irrigated	0.291	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	0	units
31	Water Use per Dwelling	0	gal/day
32	Wastewater Design Flow	0	gal/day
33	Commercial /STP Design Flow	0	gal/day

B	*Nitrogen Budget Parameters*	*Value*	*Units*
1	Persons per Dwelling	0.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	0.00	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	0.00	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	2.06	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.00	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	1.00	mg/l
18	Nitrogen in Commercial/STP Flow	10.00	mg/l

C	*Comments*
1)	Please refer to user manual for data input instructions.
2)	Sanitary based on Suffolk County design flow rate (300 gallons/day/dwelling).
3)	All runoff generated on impervious and landscaped surfaces will be collected in an on-site stormwater filtration and detention system and diverted off-site for controlled overflow to the municipal stormwater system.

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS

Proposed - Sewer & On-Site Detention

SHEET 2

A	*Lawn Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Lawn	0.000	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	R(l) = P - (E + Q)	42.82	inches
6	R(L) = R(l) x A	0.00	inches

B	*Impervious Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Impervious	0.000	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	R(i) = P - (E + Q)	42.82	inches
6	R(I) = R(i) x A	0.00	inches

C	*Unvegetated Area Recharge*		
1	A = Fraction of Land Unveg.	0.003	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.89	inches
5	R(u) = P - (E + Q)	17.73	inches
6	R(U) = R(u) x A	0.05	inches

D	*Water Area Loss*		
1	A = Fraction of Site in Water	0.038	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(w) = {P - (E+Q)} - M	12.82	inches
7	R(W) = R(w) x A	0.49	inches

E	*Natural Area Recharge*		
1	A = Fraction of Land in Natural	0.526	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.30	inches
5	R(n) = P - (E + Q)	18.32	inches
6	R(N) = R(n) x A	9.64	inches

F	*Other Area Recharge*		
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(o) = P - (E + Q)	17.72	inches
6	R(O) = R(o) x A	0.00	inches

G	*Irrigation Recharge*		
1	A = Fraction of Land Irrigated	0.000	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evaptranspiration Rate	0.00	inches
4	Q = Runoff Rate	0.00	inches
5	R(irr) = I - (E + Q)	5.50	inches
6	R(IRR) = R(irr) x A	0.00	inches

H	*Wastewater Recharge*		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0.00	cu ft/yr
3	A = Area of Site	307,969	sq ft
4	R(ww) = WDF/A	0.00	feet
5	R(WW) = Wastewater Recharge	0.00	inches

Total Site Recharge			
R(T) =	R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)		
R(T) =	**10.18**	**inches**	

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET Proposed - Sewer & On-Site Detention **SHEET 3**

A	*Sanitary Nitrogen-Residential*	*Value*	*Units*
1	Number of Dwellings	0	units
2	Persons per Dwelling	3.14	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	10	lbs
5	LR = Leaching Rate	50	percent
6	N(S) = P x N x LR	0.00	lbs
7	N(S) = Sanitary Nitrogen	0.00	lbs

B	*Pet Waste Nitrogen*	*Value*	*Units*
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	0	capita
3	Pets = 17 percent of capita	0	pets
4	N(p) = AR x pets	0.00	lbs
5	LR = Leaching Rate	0	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N(P) = Pet Waste Nitrogen	0.00	lbs

C	*Sanitary Nitrogen (Commercial/STP)*		
1	CF = Commercial/STP Flow	0	gal/day
2	CF = Commercial/STP Flow	0	liters/yr
3	N = Nitrogen in Commercial	10.00	mg/l
4	N(S) = CF x N	0	milligrams
5	N(S) = Sanitary Nitrogen	0.00	lbs

D	*Water Supply Nitrogen*		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	liters/yr
3	N = Nitrogen in Water Supply	1.00	mg/l
4	N(WW) = WDF x N	0	milligrams
5	N(WW) = Wastewater Nitrogen	0.00	lbs

E	*Fertilizer Nitrogen 1*		
1	A = Area of Land Fertilized 1	0	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F1) = A x AR x LR	0.00	lbs
5	N(F1) = Fertilizer Nitrogen	0.00	lbs

F	*Fertilizer Nitrogen 2*		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F2) = A x AR x LR	0.00	lbs
5	N(F2) = Fertilizer Nitrogen	0.00	lbs

G	*Precipitation Nitrogen*		
1	R(n) = Natural Recharge (feet)	0.85	feet
2	A = Area of Site (sq ft)	174,676	sq ft
3	R(N) = R(n) x A	148,475	cu ft
4	R(N) = Natural Recharge (liters)	4,204,801	liters
5	N = Nitrogen in Precipitation	1.00	mg/l
6	LR = Leaching Rate	15	percent
7	N(ppt) = P(S) x N x LR	42,048	milligrams
8	N(ppt) = Precipitation Nitrogen	0.09	lbs

H	*Irrigation Nitrogen*		
1	R = Irrigation Recharge (inches)	0.00	inches
2	R = Irrigation Rate (feet)	0.00	feet
3	A = Area of Land Irrigated	89,734	sq ft
4	R(I) = R(irr) x A	0	cu ft
5	R(I) = Site Precipitation (liters)	0	liters
6	N = Nitrogen in Water Supply	1.00	mg/l
7	LR = Leaching Rate	15	percent
8	N(irr) = R(I) x N x LR	0	milligrams
9	N(irr) = Irrigation Nitrogen	0.00	lbs

Total Site Nitrogen		
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N=	0.09	lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Kiruv Property
Proposed - Sewer & On-Site Detention

FINAL COMPUTATIONS

SHEET 4

A	*Nitrogen in Recharge*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	0.09	lbs
2	N = Total Nitrogen (milligrams)	42,093	milligrams
3	R(T) = Total Recharge (inches)	10.18	inches
4	R(T) = Total Recharge (feet)	0.85	feet
5	A = Area of Site	307,969	sq ft
6	R = R(T) x A	261,238	cu ft
7	R = Site Recharge Volume	7,398,261	liters
9	NR = N/R	0.01	mg/l

FINAL CONCENTRATION OF NITROGEN IN RECHARGE

0.01

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	10.18	inches/yr
2	R = Site Recharge Volume	261,238	cu ft/yr
3	R = Site Recharge Volume	1,954,196	gal/yr
4	R = Site Recharge Volume	1.95	MG/yr

Conversions used in SONIR
Acres x 43,560 = Square Feet
Cubic Feet x 7.48052 = Gallons
Cubic Feet x 28.32 = Liters
Days x 365 = Years
Feet x 12 = Inches
Gallons x 0.1337 = Cubic Feet
Gallons x 3.785 = Liters
Grams / 1,000 = Milligrams
Grams x 0.002205 = Pounds
Milligrams / 1,000 = Grams

Appendix B-4
Alternative 2

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT — Kiruv Property

DATA INPUT FIELD — Alt. 2: 10 Units, Detached, Septic — SHEET 1

A	*Site Recharge Parameters*	*Value*	*Units*
1	Area of Site	7.07	acres
2	Precipitation Rate	42.82	inches
3	Acreage of Lawn	1.91	acres
4	Fraction of Land in Lawn	0.270	fraction
5	Evapotranspiration from Lawn	24.20	inches
6	Runoff from Lawn	0.90	inches
7	Acreage of Impervious	0.83	acres
8	Fraction of Land Impervious	0.117	fraction
9	Evaporation from Impervious	4.28	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.02	acres
12	Fraction of Land Unvegetated	0.003	fraction
13	Evapotrans. from Unvegetated	24.20	inches
14	Runoff from Unvegetated	0.89	inches
15	Acreage of Water	0.27	acres
16	Fraction of Site in Water	0.038	fraction
17	Evaporation from Water	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	4.04	acres
20	Fraction of Land Natural	0.571	fraction
21	Evapotrans. from Natural Area	24.20	inches
22	Runoff from Natural Area	0.30	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	24.20	inches
26	Runoff from Other Area	0.90	inches
27	Acreage of Land Irrigated	1.91	acres
28	Fraction of Land Irrigated	0.270	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	0	units
31	Water Use per Dwelling	0	gal/day
32	Wastewater Design Flow	3,000	gal/day
33	Commercial /STP Design Flow	0	gal/day

B	*Nitrogen Budget Parameters*	*Value*	*Units*
1	Persons per Dwelling	0.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	0.00	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	0.00	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	1.91	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.00	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	1.00	mg/l
18	Nitrogen in Commercial/STP Flow	40.00	mg/l

C	*Comments*
1)	Please refer to user manual for data input instructions.
2)	Sanitary based on Suffolk County design flow rate (300 gallons/day/dwelling).

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS Alt. 2: 10 Units, Detached, Septic SHEET 2

A	*Lawn Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Lawn	0.270	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(l) = P - (E + Q)	17.72	inches
6	R(L) = R(l) x A	4.79	inches

B	*Impervious Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Impervious	0.117	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	4.28	inches
4	Q = Runoff Rate	0.00	inches
5	R(i) = P - (E + Q)	38.54	inches
6	R(I) = R(i) x A	4.52	inches

C	*Unvegetated Area Recharge*		
1	A = Fraction of Land Unveg.	0.003	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.89	inches
5	R(u) = P - (E + Q)	17.73	inches
6	R(U) = R(u) x A	0.05	inches

D	*Water Area Loss*		
1	A = Fraction of Site in Water	0.038	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(w) = {P - (E+Q)} - M	12.82	inches
7	R(W) = R(w) x A	0.49	inches

E	*Natural Area Recharge*		
1	A = Fraction of Land in Natural	0.571	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.30	inches
5	R(n) = P - (E + Q)	18.32	inches
6	R(N) = R(n) x A	10.47	inches

F	*Other Area Recharge*		
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(o) = P - (E + Q)	17.72	inches
6	R(O) = R(o) x A	0.00	inches

G	*Irrigation Recharge*		
1	A = Fraction of Land Irrigated	0.270	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evaptranspiration Rate	3.11	inches
4	Q = Runoff Rate	0.90	inches
5	R(irr) = I - (E + Q)	1.49	inches
6	R(IRR) = R(irr) x A	0.40	inches

H	*Wastewater Recharge*		
1	WDF = Wastewater Design Flow	3,000	gal/day
2	WDF = Wastewater Design Flow	146,401.50	cu ft/yr
3	A = Area of Site	307,969	sq ft
4	R(ww) = WDF/A	0.48	feet
5	R(WW) = Wastewater Recharge	5.70	inches

Total Site Recharge		
R(T) =	R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)	
R(T) =	**26.43** inches	

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET Alt. 2: 10 Units, Detached, Septic **SHEET 3**

A	*Sanitary Nitrogen-Residential*	*Value*	*Units*
1	Number of Dwellings	0	units
2	Persons per Dwelling	0.00	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	10	lbs
5	LR = Leaching Rate	50	percent
6	N(S) = P x N x LR	0.00	lbs
7	N(S) = Sanitary Nitrogen	0.00	lbs

B	*Pet Waste Nitrogen*	*Value*	*Units*
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	0	capita
3	Pets = 17 percent of capita	0	pets
4	N(p) = AR x pets	0.00	lbs
5	LR = Leaching Rate	0	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N(P) = Pet Waste Nitrogen	0.00	lbs

C	*Sanitary Nitrogen (Commercial/STP)*		
1	CF = Commercial/STP Flow	3,000	gal/day
2	CF = Commercial/STP Flow	4,144,575	liters/yr
3	N = Nitrogen in Commercial	40.00	mg/l
4	N(S) = CF x N	165,783,000	milligrams
5	N(S) = Sanitary Nitrogen	365.55	lbs

D	*Water Supply Nitrogen*		
1	WDF = Wastewater Design Flow	3,000	gal/day
2	WDF = Wastewater Design Flow	4,144,575	liters/yr
3	N = Nitrogen in Water Supply	1.00	mg/l
4	N(WW) = WDF x N	4,144,575	milligrams
5	N(WW) = Wastewater Nitrogen	9.14	lbs

E	*Fertilizer Nitrogen 1*		
1	A = Area of Land Fertilized 1	0	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F1) = A x AR x LR	0.00	lbs
5	N(F1) = Fertilizer Nitrogen	0.00	lbs

F	*Fertilizer Nitrogen 2*		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F2) = A x AR x LR	0.00	lbs
5	N(F2) = Fertilizer Nitrogen	0.00	lbs

G	*Precipitation Nitrogen*		
1	R(n) = Natural Recharge (feet)	1.69	feet
2	A = Area of Site (sq ft)	307,969	sq ft
3	R(N) = R(n) x A	521,494	cu ft
4	R(N) = Natural Recharge (liters)	14,768,704	liters
5	N = Nitrogen in Precipitation	1.00	mg/l
6	LR = Leaching Rate	15	percent
7	N(ppt) = P(S) x N x LR	147,687	milligrams
8	N(ppt) = Precipitation Nitrogen	0.33	lbs

H	*Irrigation Nitrogen*		
1	R = Irrigation Recharge (inches)	1.49	inches
2	R = Irrigation Rate (feet)	0.12	feet
3	A = Area of Land Irrigated	83,200	sq ft
4	R(I) = R(irr) x A	10,342	cu ft
5	R(I) = Site Precipitation (liters)	292,885	liters
6	N = Nitrogen in Water Supply	1.00	mg/l
7	LR = Leaching Rate	15	percent
8	N(irr) = R(I) x N x LR	43,933	milligrams
9	N(irr) = Irrigation Nitrogen	0.10	lbs

Total Site Nitrogen		
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N=	375.11	lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Kiruv Property
Alt. 2: 10 Units, Detached, Septic

FINAL COMPUTATIONS

SHEET 4

A	*Nitrogen in Recharge*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	375.11	lbs
2	N = Total Nitrogen (milligrams)	170,301,222	milligrams
3	R(T) = Total Recharge (inches)	26.43	inches
4	R(T) = Total Recharge (feet)	2.20	feet
5	A = Area of Site	307,969	sq ft
6	R = R(T) x A	678,231	cu ft
7	R = Site Recharge Volume	19,207,511	liters
9	NR = N/R	8.87	mg/l

FINAL CONCENTRATION OF NITROGEN IN RECHARGE

8.87

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	26.43	inches/yr
2	R = Site Recharge Volume	678,231	cu ft/yr
3	R = Site Recharge Volume	5,073,523	gal/yr
4	R = Site Recharge Volume	5.07	MG/yr

Conversions used in SONIR
Acres x 43,560 = Square Feet
Cubic Feet x 7.48052 = Gallons
Cubic Feet x 28.32 = Liters
Days x 365 = Years
Feet x 12 = Inches
Gallons x 0.1337 = Cubic Feet
Gallons x 3.785 = Liters
Grams / 1,000 = Milligrams
Grams x 0.002205 = Pounds
Milligrams / 1,000 = Grams

Appendix B-5
Alternative 3

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT **Kirnv Property**

DATA INPUT FIELD **Alt. 3: 10 Units, Attached, Septic** **SHEET 1**

A	*Site Recharge Parameters*	*Value*	*Units*
1	Area of Site	7.07	acres
2	Precipitation Rate	42.82	inches
3	Acreage of Lawn	3.06	acres
4	Fraction of Land in Lawn	0.433	fraction
5	Evapotranspiration from Lawn	24.20	inches
6	Runoff from Lawn	0.90	inches
7	Acreage of Impervious	1.00	acres
8	Fraction of Land Impervious	0.141	fraction
9	Evaporation from Impervious	4.28	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.02	acres
12	Fraction of Land Unvegetated	0.003	fraction
13	Evapotrans. from Unvegetated	24.20	inches
14	Runoff from Unvegetated	0.89	inches
15	Acreage of Water	0.27	acres
16	Fraction of Site in Water	0.038	fraction
17	Evaporation from Water	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	3.95	acres
20	Fraction of Land Natural	0.559	fraction
21	Evapotrans. from Natural Area	24.20	inches
22	Runoff from Natural Area	0.30	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	24.20	inches
26	Runoff from Other Area	0.90	inches
27	Acreage of Land Irrigated	3.06	acres
28	Fraction of Land Irrigated	0.430	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	0	units
31	Water Use per Dwelling	0	gal/day
32	Wastewater Design Flow	3,000	gal/day
33	Commercial /STP Design Flow	0	gal/day

B	*Nitrogen Budget Parameters*	*Value*	*Units*
1	Persons per Dwelling	0.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	0.00	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	0.00	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	3.06	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.00	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	1.00	mg/l
18	Nitrogen in Commercial/STP Flow	40.00	mg/l

C	*Comments*
1)	Please refer to user manual for data input instructions.
2)	Sanitary based on Suffolk County design flow rate (300 gallons/day/dwelling).

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS Alt. 3: 10 Units, Attached, Septic SHEET 2

A	*Lawn Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Lawn	0.433	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(l) = P - (E + Q)	17.72	inches
6	R(L) = R(l) x A	7.67	inches

B	*Impervious Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Impervious	0.141	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	4.28	inches
4	Q = Runoff Rate	0.00	inches
5	R(i) = P - (E + Q)	38.54	inches
6	R(I) = R(i) x A	5.45	inches

C	*Unvegetated Area Recharge*		
1	A = Fraction of Land Unveg.	0.003	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.89	inches
5	R(u) = P - (E + Q)	17.73	inches
6	R(U) = R(u) x A	0.05	inches

D	*Water Area Loss*		
1	A = Fraction of Site in Water	0.038	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(w) = {P - (E+Q)} - M	12.82	inches
7	R(W) = R(w) x A	0.49	inches

E	*Natural Area Recharge*		
1	A = Fraction of Land in Natural	0.559	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.30	inches
5	R(n) = P - (E + Q)	18.32	inches
6	R(N) = R(n) x A	10.24	inches

F	*Other Area Recharge*		
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(o) = P - (E + Q)	17.72	inches
6	R(O) = R(o) x A	0.00	inches

G	*Irrigation Recharge*		
1	A = Fraction of Land Irrigated	0.430	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evaptranspiration Rate	3.11	inches
4	Q = Runoff Rate	0.90	inches
5	R(irr) = I - (E + Q)	1.49	inches
6	R(IRR) = R(irr) x A	0.64	inches

H	*Wastewater Recharge*		
1	WDF = Wastewater Design Flow	3,000	gal/day
2	WDF = Wastewater Design Flow	146,401.50	cu ft/yr
3	A = Area of Site	307,969	sq ft
4	R(ww) = WDF/A	0.48	feet
5	R(WW) = Wastewater Recharge	5.70	inches

Total Site Recharge		
R(T) =	R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)	
R(T) =	30.24	inches

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET Alt. 3: 10 Units, Attached, Septic **SHEET 3**

A	*Sanitary Nitrogen-Residential*	*Value*	*Units*
1	Number of Dwellings	0	units
2	Persons per Dwelling	0.00	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	10	lbs
5	LR = Leaching Rate	50	percent
6	N(S) = P x N x LR	0.00	lbs
7	N(S) = Sanitary Nitrogen	0.00	lbs

B	*Pet Waste Nitrogen*	*Value*	*Units*
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	0	capita
3	Pets = 17 percent of capita	0	pets
4	N(p) = AR x pets	0.00	lbs
5	LR = Leaching Rate	0	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N(P) = Pet Waste Nitrogen	0.00	lbs

C	*Sanitary Nitrogen (Commercial/STP)*		
1	CF = Commercial/STP Flow	3,000	gal/day
2	CF = Commercial/STP Flow	4,144,575	liters/yr
3	N = Nitrogen in Commercial	40.00	mg/l
4	N(S) = CF x N	165,783,000	milligrams
5	N(S) = Sanitary Nitrogen	365.55	lbs

D	*Water Supply Nitrogen*		
1	WDF = Wastewater Design Flow	3,000	gal/day
2	WDF = Wastewater Design Flow	4,144,575	liters/yr
3	N = Nitrogen in Water Supply	1.00	mg/l
4	N(WW) = WDF x N	4,144,575	milligrams
5	N(WW) = Wastewater Nitrogen	9.14	lbs

E	*Fertilizer Nitrogen 1*		
1	A = Area of Land Fertilized 1	0	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F1) = A x AR x LR	0.00	lbs
5	N(F1) = Fertilizer Nitrogen	0.00	lbs

F	*Fertilizer Nitrogen 2*		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F2) = A x AR x LR	0.00	lbs
5	N(F2) = Fertilizer Nitrogen	0.00	lbs

G	*Precipitation Nitrogen*		
1	R(n) = Natural Recharge (feet)	1.99	feet
2	A = Area of Site (sq ft)	307,969	sq ft
3	R(N) = R(n) x A	613,264	cu ft
4	R(N) = Natural Recharge (liters)	17,367,631	liters
5	N = Nitrogen in Precipitation	1.00	mg/l
6	LR = Leaching Rate	15	percent
7	N(ppt) = P(S) x N x LR	173,676	milligrams
8	N(ppt) = Precipitation Nitrogen	0.38	lbs

H	*Irrigation Nitrogen*		
1	R = Irrigation Recharge (inches)	1.49	inches
2	R = Irrigation Rate (feet)	0.12	feet
3	A = Area of Land Irrigated	133,294	sq ft
4	R(I) = R(irr) x A	16,569	cu ft
5	R(I) = Site Precipitation (liters)	469,229	liters
6	N = Nitrogen in Water Supply	1.00	mg/l
7	LR = Leaching Rate	15	percent
8	N(irr) = R(I) x N x LR	70,384	milligrams
9	N(irr) = Irrigation Nitrogen	0.16	lbs

Total Site Nitrogen		
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N=	375.23	lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Kirus Property
Alt. 3: 10 Units, Attached, Septic

FINAL COMPUTATIONS

SHEET 4

A	*Nitrogen in Recharge*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	375.23	lbs
2	N = Total Nitrogen (milligrams)	170,353,719	milligrams
3	R(T) = Total Recharge (inches)	30.24	inches
4	R(T) = Total Recharge (feet)	2.52	feet
5	A = Area of Site	307,969	sq ft
6	R = R(T) x A	776,126	cu ft
7	R = Site Recharge Volume	21,979,900	liters
9	NR = N/R	7.75	mg/l

FINAL CONCENTRATION OF NITROGEN IN RECHARGE

7.75

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	30.24	inches/yr
2	R = Site Recharge Volume	776,126	cu ft/yr
3	R = Site Recharge Volume	5,805,829	gal/yr
4	R = Site Recharge Volume	5.81	MG/yr

Conversions used in SONIR
Acres x 43,560 = Square Feet
Cubic Feet x 7.48052 = Gallons
Cubic Feet x 28.32 = Liters
Days x 365 = Years
Feet x 12 = Inches
Gallons x 0.1337 = Cubic Feet
Gallons x 3.785 = Liters
Grams / 1,000 = Milligrams
Grams x 0.002205 = Pounds
Milligrams / 1,000 = Grams

Appendix B-6
Alternative 4

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT **Kiruv Property**

DATA INPUT FIELD **Alternative 4** **SHEET 1**

A	Site Recharge Parameters	Value	Units
1	Area of Site	7.07	acres
2	Precipitation Rate	42.82	inches
3	Acreage of Lawn	1.03	acres
4	Fraction of Land in Lawn	0.146	fraction
5	Evapotranspiration from Lawn	24.20	inches
6	Runoff from Lawn	0.90	inches
7	Acreage of Impervious	0.71	acres
8	Fraction of Land Impervious	0.100	fraction
9	Evaporation from Impervious	4.28	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.02	acres
12	Fraction of Land Unvegetated	0.003	fraction
13	Evapotrans. from Unvegetated	24.20	inches
14	Runoff from Unvegetated	0.89	inches
15	Acreage of Water	0.27	acres
16	Fraction of Site in Water	0.038	fraction
17	Evaporation from Water	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	5.04	acres
20	Fraction of Land Natural	0.713	fraction
21	Evapotrans. from Natural Area	24.20	inches
22	Runoff from Natural Area	0.30	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	24.20	inches
26	Runoff from Other Area	0.90	inches
27	Acreage of Land Irrigated	1.03	acres
28	Fraction of Land Irrigated	0.146	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	0	units
31	Water Use per Dwelling	0	gal/day
32	Wastewater Design Flow	0	gal/day
33	Commercial /STP Design Flow	3,000	gal/day

B	Nitrogen Budget Parameters	Value	Units
1	Persons per Dwelling	0.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	0.00	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	0.00	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	1.03	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.00	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	1.00	mg/l
18	Nitrogen in Commercial/STP Flow	40.00	mg/l

C	Comments
1)	Please refer to user manual for data input instructions.
2)	Sanitary based on Suffolk County design flow rate (300 gallons/day/dwelling).

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS Alternative 4 SHEET 2

A	Lawn Area Recharge	Value	Units
1	A = Fraction of Land in Lawn	0.146	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(l) = P - (E + Q)	17.72	inches
6	R(L) = R(l) x A	2.58	inches

B	Impervious Area Recharge	Value	Units
1	A = Fraction of Land in Impervious	0.100	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	4.28	inches
4	Q = Runoff Rate	0.00	inches
5	R(i) = P - (E + Q)	38.54	inches
6	R(I) = R(i) x A	3.87	inches

C	Unvegetated Area Recharge		
1	A = Fraction of Land Unveg.	0.003	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.89	inches
5	R(u) = P - (E + Q)	17.73	inches
6	R(U) = R(u) x A	0.05	inches

D	Water Area Loss		
1	A = Fraction of Site in Water	0.038	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(w) = {P - (E+Q)} - M	12.82	inches
7	R(W) = R(w) x A	0.49	inches

E	Natural Area Recharge		
1	A = Fraction of Land in Natural	0.713	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.30	inches
5	R(n) = P - (E + Q)	18.32	inches
6	R(N) = R(n) x A	13.06	inches

F	Other Area Recharge		
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(o) = P - (E + Q)	17.72	inches
6	R(O) = R(o) x A	0.00	inches

G	Irrigation Recharge		
1	A = Fraction of Land Irrigated	0.146	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evaptranspiration Rate	3.11	inches
4	Q = Runoff Rate	0.90	inches
5	R(irr) = I - (E + Q)	1.49	inches
6	R(IRR) = R(irr) x A	0.22	inches

H	Wastewater Recharge		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0.00	cu ft/yr
3	A = Area of Site	307,969	sq ft
4	R(ww) = WDF/A	0.00	feet
5	R(WW) = Wastewater Recharge	0.00	inches

Total Site Recharge		
R(T) =	R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)	
R(T) =	**20.27**	**inches**

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET — Alternative 4 — SHEET 3

A	*Sanitary Nitrogen-Residential*	*Value*	*Units*
1	Number of Dwellings	0	units
2	Persons per Dwelling	0.00	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	10	lbs
5	LR = Leaching Rate	50	percent
6	N(S) = P x N x LR	0.00	lbs
7	N(S) = Sanitary Nitrogen	0.00	lbs

B	*Pet Waste Nitrogen*	*Value*	*Units*
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	0	capita
3	Pets = 17 percent of capita	0	pets
4	N(p) = AR x pets	0.00	lbs
5	LR = Leaching Rate	0	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N(P) = Pet Waste Nitrogen	0.00	lbs

C	*Sanitary Nitrogen (Commercial/STP)*		
1	CF = Commercial/STP Flow	0	gal/day
2	CF = Commercial/STP Flow	0	liters/yr
3	N = Nitrogen in Commercial	40.00	mg/l
4	N(S) = CF x N	0	milligrams
5	N(S) = Sanitary Nitrogen	0.00	lbs

D	*Water Supply Nitrogen*		
1	WDF = Wastewater Design Flow	0	gal/day
2	WDF = Wastewater Design Flow	0	liters/yr
3	N = Nitrogen in Water Supply	1.00	mg/l
4	N(WW) = WDF x N	0	milligrams
5	N(WW) = Wastewater Nitrogen	0.00	lbs

E	*Fertilizer Nitrogen 1*		
1	A = Area of Land Fertilized 1	0	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F1) = A x AR x LR	0.00	lbs
5	N(F1) = Fertilizer Nitrogen	0.00	lbs

F	*Fertilizer Nitrogen 2*		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F2) = A x AR x LR	0.00	lbs
5	N(F2) = Fertilizer Nitrogen	0.00	lbs

G	*Precipitation Nitrogen*		
1	R(n) = Natural Recharge (feet)	1.67	feet
2	A = Area of Site (sq ft)	307,969	sq ft
3	R(N) = R(n) x A	514,603	cu ft
4	R(N) = Natural Recharge (liters)	14,573,545	liters
5	N = Nitrogen in Precipitation	1.00	mg/l
6	LR = Leaching Rate	15	percent
7	N(ppt) = P(S) x N x LR	145,735	milligrams
8	N(ppt) = Precipitation Nitrogen	0.32	lbs

H	*Irrigation Nitrogen*		
1	R = Irrigation Recharge (inches)	1.49	inches
2	R = Irrigation Rate (feet)	0.12	feet
3	A = Area of Land Irrigated	44,867	sq ft
4	R(I) = R(irr) x A	5,577	cu ft
5	R(I) = Site Precipitation (liters)	157,943	liters
6	N = Nitrogen in Water Supply	1.00	mg/l
7	LR = Leaching Rate	15	percent
8	N(irr) = R(I) x N x LR	23,691	milligrams
9	N(irr) = Irrigation Nitrogen	0.05	lbs

Total Site Nitrogen		
N=	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N=	**0.37**	lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Kiruv Property
Alternative 4

FINAL COMPUTATIONS

SHEET 4

A	*Nitrogen in Recharge*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	0.37	lbs
2	N = Total Nitrogen (milligrams)	169,608	milligrams
3	R(T) = Total Recharge (inches)	20.27	inches
4	R(T) = Total Recharge (feet)	1.69	feet
5	A = Area of Site	307,969	sq ft
6	R = R(T) x A	520,192	cu ft
7	R = Site Recharge Volume	14,731,829	liters
9	NR = N/R	0.01	mg/l

FINAL CONCENTRATION OF
NITROGEN IN RECHARGE

0.01

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	20.27	inches/yr
2	R = Site Recharge Volume	520,192	cu ft/yr
3	R = Site Recharge Volume	3,891,304	gal/yr
4	R = Site Recharge Volume	3.89	MG/yr

Conversions used in SONIR
Acres x 43,560 = Square Feet
Cubic Feet x 7.48052 = Gallons
Cubic Feet x 28.32 = Liters
Days x 365 = Years
Feet x 12 = Inches
Gallons x 0.1337 = Cubic Feet
Gallons x 3.785 = Liters
Grams / 1,000 = Milligrams
Grams x 0.002205 = Pounds
Milligrams / 1,000 = Grams

Appendix B-7
Alternative 5

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT **Kiruv Property**

DATA INPUT FIELD **Alternative 5** **SHEET 1**

A	***Site Recharge Parameters***	***Value***	***Units***
1	Area of Site	7.07	acres
2	Precipitation Rate	42.82	inches
3	Acreage of Lawn	3.60	acres
4	Fraction of Land in Lawn	0.509	fraction
5	Evapotranspiration from Lawn	24.20	inches
6	Runoff from Lawn	0.90	inches
7	Acreage of Impervious	0.94	acres
8	Fraction of Land Impervious	0.133	fraction
9	Evaporation from Impervious	4.28	inches
10	Runoff from Impervious	0.00	inches
11	Acreage of Unvegetated	0.02	acres
12	Fraction of Land Unvegetated	0.003	fraction
13	Evapotrans. from Unvegetated	24.20	inches
14	Runoff from Unvegetated	0.89	inches
15	Acreage of Water	0.27	acres
16	Fraction of Site in Water	0.038	fraction
17	Evaporation from Water	30.00	inches
18	Makeup Water (if applicable)	0.00	inches
19	Acreage of Natural Area	2.24	acres
20	Fraction of Land Natural	0.317	fraction
21	Evapotrans. from Natural Area	24.20	inches
22	Runoff from Natural Area	0.30	inches
23	Acreage of Other Area	0.00	acres
24	Fraction of Land Other Area	0.000	fraction
25	Evapotrans. from Other Area	24.20	inches
26	Runoff from Other Area	0.90	inches
27	Acreage of Land Irrigated	3.60	acres
28	Fraction of Land Irrigated	0.430	fraction
29	Irrigation Rate	5.50	inches
30	Number of Dwellings	0	units
31	Water Use per Dwelling	0	gal/day
32	Wastewater Design Flow	3,000	gal/day
33	Commercial /STP Design Flow	0	gal/day

B	***Nitrogen Budget Parameters***	***Value***	***Units***
1	Persons per Dwelling	0.00	persons
2	Nitrogen per Person per Year	10.0	lbs
3	Sanitary Nitrogen Leaching Rate	50	percent
4	Area of Land Fertilized 1	0.00	acres
5	Fertilizer Application Rate 1	2.30	lbs/1000 sq ft
6	Fertilizer Nitrogen Leaching Rate 1	14	percent
7	Area of Land Fertilized 2	0.00	acres
8	Fertilizer Application Rate 2	0.00	lbs/1000 sq ft
9	Fertilizer Nitrogen Leaching Rate 2	14	percent
10	Pet Waste Application Rate	0.00	lbs/pet
11	Pet Waste Nitrogen Leaching Rate	0	percent
12	Area of Land Irrigated	3.60	acres
13	Irrigation Rate	5.50	inches
14	Irrigation Nitrogen Leaching Rate	15	percent
15	Nitrogen in Precipitation	1.00	mg/l
16	Precipitation Nitrogen Leaching Rate	15	percent
17	Nitrogen in Water Supply	1.00	mg/l
18	Nitrogen in Commercial/STP Flow	40.00	mg/l

C	***Comments***
1)	Please refer to user manual for data input instructions.
0	Sanitary based on Suffolk County design flow rate (300 gallons/day/dwelling).

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE RECHARGE COMPUTATIONS Alternative 5 SHEET 2

A	*Lawn Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Lawn	0.509	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(l) = P - (E + Q)	17.72	inches
6	R(L) = R(l) x A	9.02	inches

B	*Impervious Area Recharge*	*Value*	*Units*
1	A = Fraction of Land in Impervious	0.133	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	4.28	inches
4	Q = Runoff Rate	0.00	inches
5	R(i) = P - (E + Q)	38.54	inches
6	R(I) = R(i) x A	5.12	inches

C	*Unvegetated Area Recharge*		
1	A = Fraction of Land Unveg.	0.003	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.89	inches
5	R(u) = P - (E + Q)	17.73	inches
6	R(U) = R(u) x A	0.05	inches

D	*Water Area Loss*		
1	A = Fraction of Site in Water	0.038	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evaporation Rate	30.00	inches
4	Q = Runoff Rate	0.00	inches
5	M = Makeup Water	0.00	inches
6	R(w) = {P - (E+Q)} - M	12.82	inches
7	R(W) = R(w) x A	0.49	inches

E	*Natural Area Recharge*		
1	A = Fraction of Land in Natural	0.317	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.30	inches
5	R(n) = P - (E + Q)	18.32	inches
6	R(N) = R(n) x A	5.80	inches

F	*Other Area Recharge*		
1	A = Fraction of Land in Other	0.000	fraction
2	P = Precipitation Rate	42.82	inches
3	E = Evapotranspiration Rate	24.20	inches
4	Q = Runoff Rate	0.90	inches
5	R(o) = P - (E + Q)	17.72	inches
6	R(O) = R(o) x A	0.00	inches

G	*Irrigation Recharge*		
1	A = Fraction of Land Irrigated	0.430	fraction
2	I = Irrigation Rate	5.50	inches
3	E = Evaptranspiration Rate	3.11	inches
4	Q = Runoff Rate	0.90	inches
5	R(irr) = I - (E + Q)	1.49	inches
6	R(IRR) = R(irr) x A	0.64	inches

H	*Wastewater Recharge*		
1	WDF = Wastewater Design Flow	3,000	gal/day
2	WDF = Wastewater Design Flow	146,401.50	cu ft/yr
3	A = Area of Site	307,969	sq ft
4	R(ww) = WDF/A	0.48	feet
5	R(WW) = Wastewater Recharge	5.70	inches

Total Site Recharge		
R(T) =	R(L) + R(I) + R(U) + R(W) + R(N) + R(O) + R(IRR) + R(WW)	
R(T) =	**26.84**	**inches**

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

SITE NITROGEN BUDGET | Alternative 5 | SHEET 3

A	Sanitary Nitrogen-Residential	Value	Units
1	Number of Dwellings	0	units
2	Persons per Dwelling	0.00	capita
3	P = Population	0.00	capita
4	N = Nitrogen per person	10	lbs
5	LR = Leaching Rate	50	percent
6	N(S) = P x N x LR	0.00	lbs
7	N(S) = Sanitary Nitrogen	0.00	lbs

B	Pet Waste Nitrogen	Value	Units
1	AR = Application Rate	0.00	lbs/pet
2	Human Population	0	capita
3	Pets = 17 percent of capita	0	pets
4	N(p) = AR x pets	0.00	lbs
5	LR = Leaching Rate	0	percent
6	N(P) = N(p) x LR	0.00	lbs
7	N(P) = Pet Waste Nitrogen	0.00	lbs

C	Sanitary Nitrogen (Commercial/STP)		
1	CF = Commercial/STP Flow	3,000	gal/day
2	CF = Commercial/STP Flow	4,144,575	liters/yr
3	N = Nitrogen in Commercial	40.00	mg/l
4	N(S) = CF x N	165,783,000	milligrams
5	N(S) = Sanitary Nitrogen	365.55	lbs

D	Water Supply Nitrogen		
1	WDF = Wastewater Design Flow	3,000	gal/day
2	WDF = Wastewater Design Flow	4,144,575	liters/yr
3	N = Nitrogen in Water Supply	1.00	mg/l
4	N(WW) = WDF x N	4,144,575	milligrams
5	N(WW) = Wastewater Nitrogen	9.14	lbs

E	Fertilizer Nitrogen 1		
1	A = Area of Land Fertilized 1	0	sq ft
2	AR = Application Rate	2.30	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F1) = A x AR x LR	0.00	lbs
5	N(F1) = Fertilizer Nitrogen	0.00	lbs

F	Fertilizer Nitrogen 2		
1	A = Area of Land Fertilized 2	0	sq ft
2	AR = Application Rate	0.00	lbs/1000 sf
3	LR = Leaching Rate	14	percent
4	N(F2) = A x AR x LR	0.00	lbs
5	N(F2) = Fertilizer Nitrogen	0.00	lbs

G	Precipitation Nitrogen		
1	R(n) = Natural Recharge (feet)	1.71	feet
2	A = Area of Site (sq ft)	307,969	sq ft
3	R(N) = R(n) x A	525,887	cu ft
4	R(N) = Natural Recharge (liters)	14,893,115	liters
5	N = Nitrogen in Precipitation	1.00	mg/l
6	LR = Leaching Rate	15	percent
7	N(ppt) = P(S) x N x LR	148,931	milligrams
8	N(ppt) = Precipitation Nitrogen	0.33	lbs

H	Irrigation Nitrogen		
1	R = Irrigation Recharge (inches)	1.49	inches
2	R = Irrigation Rate (feet)	0.12	feet
3	A = Area of Land Irrigated	156,816	sq ft
4	R(I) = R(irr) x A	19,493	cu ft
5	R(I) = Site Precipitation (liters)	552,035	liters
6	N = Nitrogen in Water Supply	1.00	mg/l
7	LR = Leaching Rate	15	percent
8	N(irr) = R(I) x N x LR	82,805	milligrams
9	N(irr) = Irrigation Nitrogen	0.18	lbs

Total Site Nitrogen		
N =	N(S) + N(P) + N(WW) + N(F1) + N(F2) + N(ppt) + N(irr)	
N =	375.20	lbs

SIMULATION OF NITROGEN IN RECHARGE (SONIR)

NELSON, POPE & VOORHIS, LLC MICROCOMPUTER MODEL

NAME OF PROJECT

Kiruv Property
Alternative 5

FINAL COMPUTATIONS **SHEET 4**

A	*Nitrogen in Recharge*	*Value*	*Units*
1	N = Total Nitrogen (lbs)	375.20	lbs
2	N = Total Nitrogen (milligrams)	170,341,382	milligrams
3	R(T) = Total Recharge (inches)	26.84	inches
4	R(T) = Total Recharge (feet)	2.24	feet
5	A = Area of Site	307,969	sq ft
6	R = R(T) x A	688,749	cu ft
7	R = Site Recharge Volume	19,505,383	liters
9	NR = N/R	8.73	mg/l

FINAL CONCENTRATION OF
NITROGEN IN RECHARGE

8.73

B	*Site Recharge Summary*	*Value*	*Units*
1	R(T) = Total Site Recharge	26.84	inches/yr
2	R = Site Recharge Volume	688,749	cu ft/yr
3	R = Site Recharge Volume	5,152,204	gal/yr
4	R = Site Recharge Volume	5.15	MG/yr

Conversions used in SONIR
Acres x 43,560 = Square Feet
Cubic Feet x 7.48052 = Gallons
Cubic Feet x 28.32 = Liters
Days x 365 = Years
Feet x 12 = Inches
Gallons x 0.1337 = Cubic Feet
Gallons x 3.785 = Liters
Grams / 1,000 = Milligrams
Grams x 0.002205 = Pounds
Milligrams / 1,000 = Grams

APPENDIX C

STORMWATER MANAGEMENT SYSTEM ENGINEERING REPORT

N&P

December 2005

NELSON POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Stormwater Management System

Engineering Report

KIRUV ESTATES

Hamlet of Huntington, Town of Huntington
Suffolk County, New York

N&P Project No. 97110

Prepared for:	Kiruv Capital Corp. One Old Country Road Carle Place, NY 11514
For Submission to:	Town of Huntington Department of Planning and Environment Town Hall 100 Main Street Huntington, NY 11743
Prepared by:	Nelson & Pope, Engineers & Surveyors 572 Walt Whitman Road Melville, NY 11747 Contact: Thomas C. Dixon, P.E. (631) 427-5665

December 2005

STORMWATER MANAGEMENT SYSTEM
ENGINEERING REPORT

Kiruv Estates
Huntington, New York

TABLE OF CONTENTS

			Page
1.0	**INTRODUCTION**		1
	1.1	**Purpose of the Report**	1
	1.2	**Site Location**	1
	1.3	**Pre-Development Conditions**	1
		1.3.1 Land Use	1
		1.3.2 Topography	1
		1.3.3 Stormwater	1
		1.3.4 Surface Soils	2
	1.4	**Post-Development Conditions**	3
		1.4.1 Land Use	3
		1.4.2 Topography	3
		1.4.3 Stormwater	3
2.0	**STORMWATER RUNOFF MODEL INPUT**		7
	2.1	**Stormwater Runoff Design Software and Methodology**	7
	2.2	**Model Input Data**	7
		2.2.1 Design Storms	7
		2.2.2 Hydrologic Soil Groups	
		2.2.3 Pre-Development Curve Numbers	7
		2.2.4 Pre-Development Time of Concentration	8
		2.2.5 Post-Development Curve Numbers	8
		2.2.6 Post-Development Time of Concentration	8
3.0	**STORMWATER MANAGEMENT SYSTEM DESIGN**		10
	3.1	**Design Criteria**	10
	3.2	**Water Quality Volume**	10
	3.3	**Stormwater Detention System**	11
		3.3.1 Channel Protection	11
		3.3.2 Overbank Flood Control	11
		3.3.3 Extreme Storm Flood Control	11
		3.3.4 Emergency Overflow	11
4.0	**MAINTENANCE OF STORMWATER MANAGEMENT SYSTEM**		17
	4.1	**Recommended Maintenance**	17
5.0	**SUMMARY**		18
	5.1	**General**	18
	5.2	**Water Quality Volume**	18
	5.3	**Stream Channel Protection**	18
	5.4	**Overbank Flood Control**	18
	5.5	**Extreme Storm Flood Control**	18

5.6 Conclusion 18

TABLES

2-1 24 Hour Design Rainfalls 7
2-2 Pre-Development Curve Numbers 8
2-3 Post-Devlopment Curve Numbers 8

FIGURES

1-1 Location Map 4
1-2 Aerial Photograph 5
1-3 Soils Map 6
2-1 Rain Depth vs. Time, Type III 24-hr: 1, 10, 100 year Storms 9
3-1 Stormwater Detention Chamber 12
3-2 Outlet Control Structure 13
3-3 Post-Development 1 Year, 24 Hour Storm Event Hydrograph 14
3-4 Pre-Development and Post-Development 10 Year, 24 Hour Storm Event Hydrograph 15
3-5 Pre-Development and Post-Development 100 Year, 24 Hour Storm Event Hydrograph 16

APPENDICES

I Stormwater Modeling Software Package
II Time of Concentration Calculations
III Stormwater Filtration System
IV Stormwater Detention System

1.0 INTRODUCTION

1.1 PURPOSE OF THE REPORT

The purpose of this report is to size, design, select and locate a stormwater management system for the Kiruv Estates Subdivision in compliance with the *New York State Stormwater Management Design Manual, NYSDEC, October 2001* (NYS SMDM).

1.2 SITE LOCATION

The subject property is approximately 7.07 acres in size and is located at the southeast corner of Park Avenue (CR 35) and Woodhull Road in the hamlet of Huntington, Town of Huntington. The property lies along the south side of Park Avenue and the northeast side of Woodhull Road, giving the site frontage on two roadways. The property has approximately 861 feet of continuous frontage along Woodhull Road and approximately 770 feet of discontinuous frontage along Park Avenue. **Figure 1-1** provides a general location of the subject property.

1.3 PRE-DEVELOPMENT CONDITIONS

1.3.1 LAND USE

The subject site is presently occupied and improved with a single-family dwelling, cottage, access driveway and man-made pond in the northeast portion of the site. A cow barn with attached silo is located in the central portion of the site. An emergent marsh and freshwater wetlands, which flow into the man-made pond, are also located along the eastern edge of the site. The southwest portion of the site contains two historic residential dwellings along the frontage of Woodhull Road. An unpaved driveway currently extends from Woodhull Road to access the four existing dwellings. **Figure 1-2** provides an aerial photograph of the pre-development conditions.

1.3.2 TOPOGRAPHY

The majority of the subject property slopes downward in a south-to-northeast direction, with a small portion of the property in the southwest sloping downward to the northwest and north. The highest point on the subject property, at 120 feet above sea level (asl), is located along the eastern boundary of Hilaire Woods, in the southern portion of the site. The lowest point, at approximately 49 feet asl, is located near the intersection of Park Avenue and Woodhull Road. The existing topography is illustrated on the **Overall Layout Plan**, located in the pocket in the rear.

1.3.3 STORMWATER

Stormwater runoff generally follows the topographic profile of the subject property where stormwater that is not infiltrated runs overland to natural detention areas or may eventually discharge to the pond and wetland areas located along the eastern property boundary as well as the ponded area in the northern corner of the site. Stormwater deposited in the wetlands area eventually drains into the on-site pond. Water in the pond is transferred through an overflow into the County roadside catch basin system located on the west side of Park Avenue. Water entering this system is conveyed by piping in Park Avenue towards the north where it discharges to a shallow stream located in an open Town park north of Woodhull Road. Water entering this surface water system is eventually deposited into Hecksher Pond, which lies approximately 2,000 feet northwest of the subject site.

1.3.4 SURFACE SOILS

The USDA Soil Survey of Suffolk County, New York **(Warner et al., 1975)** identifies the subject site as lying within an area characterized by Montauk-Haven-Riverhead Association soils **(Warner et al., 1975).** These are deep, nearly level to strongly sloping, well drained to moderately well drained, with moderately coarse textured and medium-textured soils on glacial moraines.

A total of three (3) soil types have been identified on-site; the locations of these soils are depicted in **Figure 1-3.** Specific descriptions of the soils found on-site are presented below **(Warner et al., 1975)**.

> Carver and Plymouth sands, 15-35% slopes (CpE) - *The Carver series consists of deep, excessively drained coarse-textured soils. This soil type is found almost exclusively on moraines except for a few steep areas on side slopes along some of the more deeply cut drainage channels on outwash plains. The hazard for erosion is moderate to severe. These soils are droughty with naturally low fertility. The primary limitation to use is due to moderately steep to steep slopes.*
>
> Montauk Soils, graded, 0-8% slopes (MlB) - *consists of areas of Montauk sandy loam, Montauk silt loam or both. The areas have been altered by grading and are used for housing developments, shopping centers, industrial parks or similar non-farm purposes.*
>
> Riverhead and Haven soils, graded, 0 to 8 % slopes (RhB) - *This map unit consists of Riverhead sandy loam, of Haven loam, or of both. The areas have been altered by grading for use as housing developments, shopping centers, industrial parks and similar non-farm uses.*

In addition, soil borings were performed at the site to characterize the surface soils and subsurface geology at the subject property. Review of the geologic borings indicates that the surface soils [surface material from approximately 0 to 2 feet (bgs)] overlying the site generally consist of a mix of sand and loam which overly a mix of sands and clayey sands. This characterization of the on-site surface soil is consistent with the on-site soil classifications derived from the Suffolk County Soil Survey. The soil boring logs are shown on the **Grading and Drainage Plan**, located in the pocket in the rear.

1.4 Post-Development Conditions

1.4.1 Land Use

The proposed development consists of a 10 unit residential clustered subdivision. The units will be accessed from a new road off of Woodhull Road. The maintenance of the roadway, common areas, and stormwater management system will be the responsibility of the homeowners and not the Town of Huntington.

1.4.2 Topography

The proposed development will disturb approximately 3.12 acres of the 7.07 acre site. The remaining 3.95 acres will be left undisturbed and remain in its natural state. The proposed grading limits the amount of required clearing through the use of retaining walls and walk out basements for some of the units. The proposed grading also provides swales and depressions to collect stormwater runoff from the proposed development and prevent off-site runoff.

1.4.3 Stormwater

A stormwater management system is proposed that will collect runoff from the development and off-site tributary areas. The contributing drainage area for the proposed development is approximately 4.07 acres. The stormwater management system will be designed to handle the runoff from this contributing area only. The undisturbed areas that naturally drain away from the site will not be included in the design of the system.

The stormwater will be collected through a series of landscape area drains and roadside catch basins. The stormwater will be conveyed through buried piping to an underground filtration and detention system located in the northern portion of the site. The stormwater will ultimately be released into the Town drainage system on Woodhull Road that connects to the Park Avenue drainage system described in Section 1.3.3 above. The discharge of stormwater to the Town drainage system will be released at a controlled rate in compliance with the design criteria set forth set forth in the NYS SMDM.

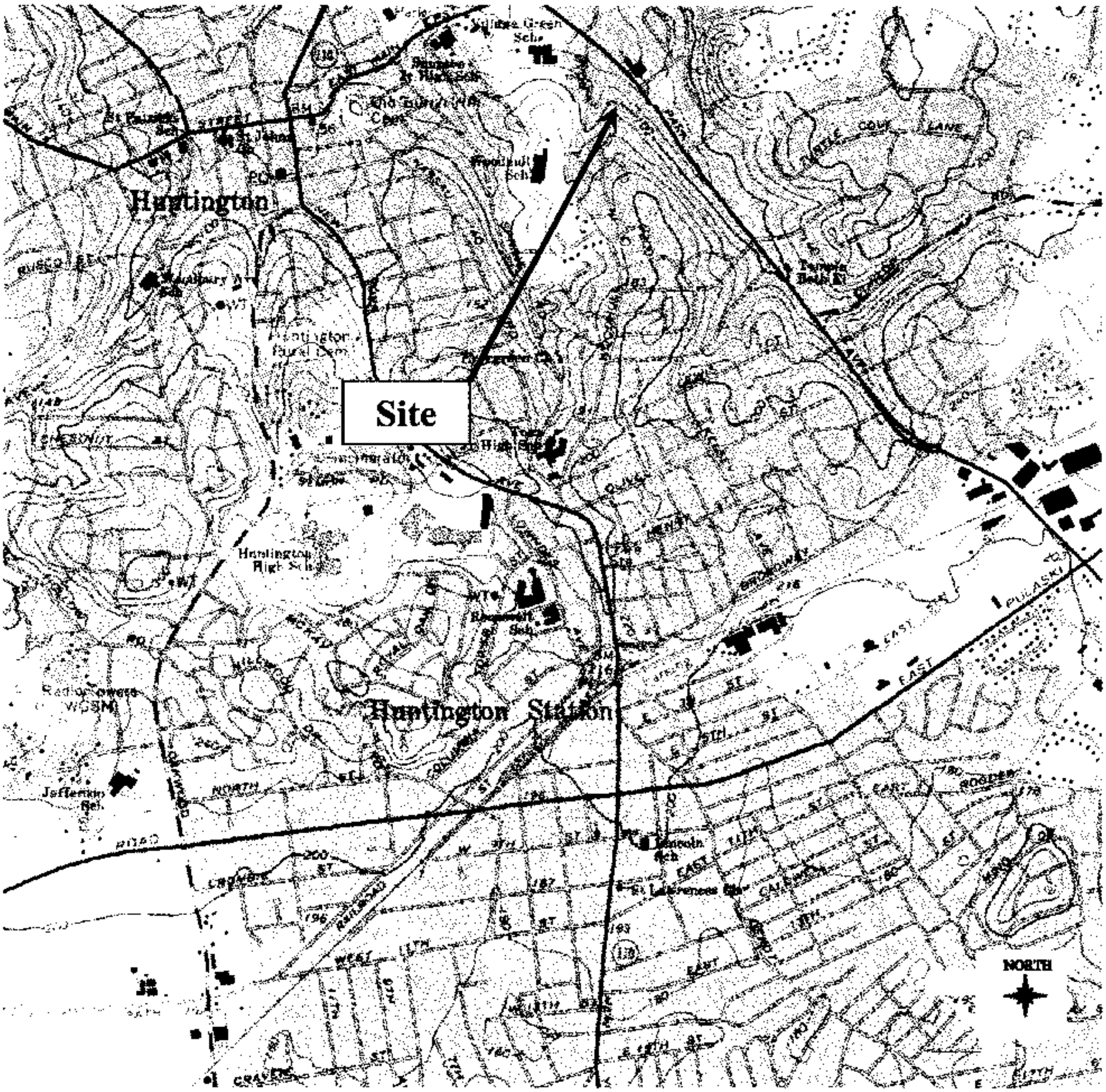


Figure 1-1
Location Map

Source: USGS Topographic Map, Huntington 7.5 Minute Quadrangle, 1979

FIGURE 1-2

AERIAL PHOTOGRAPH

Source: NYSGIS Orthoimagery Program, 2001
Scale: 1' = 200'

NORTH

FIGURE 1-3

SOILS MAP

Source: Suffolk County Soil Survey
Scale: 1' = 1,000'

NORTH

2.0 STORMWATER RUNOFF MODEL INPUT

2.1 STORMWATER RUNOFF DESIGN SOFTWARE AND METHODOLOGY

CivilStorm Version 8.0 by Haestad Methods software was used to model the stormwater runoff for the pre-development and post-development conditions. This software uses the methodology outlined in *Technical Release 55 – Urban Hydrology for Small Watersheds, USDA, June 1986* (TR-55) to estimate stormwater runoff and peak discharges based on characteristics input by the user. The software was used in designing an underground detention and filtration system for the proposed development in compliance with the requirement of the *New York State Stormwater Management Design Manual, NYSDEC, October 2001* (NYS SMDM).

2.2 MODEL INPUT DATA

2.2.1 DESIGN STORMS

The NYS SMDM sets forth design criteria for the 1, 10, and 100 year, 24 hour storm events. The 24-hour rainfall depths for these storm events are shown in **Table 2-1**.

Table 2-1
24-Hour Design Rainfalls

Design Storm (Years)	24-Hour Rainfall (Inches)
1	2.7
10	5.0
100	7.5

Appendix B in TR-55 indicates that the site is located in a Type III rainfall distribution area. **Figure 2-1** represents the rain depth versus time for the type III 1, 10, and 100 year, 24 hour storm events.

2.2.2 HYDROLOGIC SOIL GROUPS

The majority of the site is underlain by soils classified as Group B according to Appendix A in TR-55.

2.2.3 PRE-DEVELOPMENT CURVE NUMBERS

Table 2-2 lists the pre-development coverage type and corresponding area, soil group, and curve number. The total area and weighted curve number is also shown in the table.

Table 2-2
Pre-Development Curve Numbers

Coverage	Area (acres)	Soil Group	Curve Number
Impervious	0.22	B	98
Woods	2.03	B	60
Landscaped	1.82	B	69
Total Area	**4.07**	**Weighted CN**	**66**

2.2.4 Pre-Development Time of Concentration

The time of concentration used for the pre-development condition is 67 minutes. The Hathaway equation was used to calculate the time of concentration for overland flow. **Appendix II** provides detailed time of concentration calculations for the pre-development condition.

2.2.5 Post-Development Curve Numbers

Table 2-3 lists the post-development coverage type and corresponding area, soil group, and curve number. The total area and weighted curve number is also shown in the table.

Table 2-3
Post-Development Curve Numbers

Coverage	Area (acres)	Soil Group	Curve Number
Impervious	0.91	B	98
Woods	1.14	B	60
Landscaped	2.02	B	69
Total Area	**4.07**	**Weighted CN**	**73**

2.2.6 Post-Development Time of Concentration

The time of concentration used for the post-development condition is 15 minutes. The Hathaway equation was used to calculate the time of concentration for overland flow and the Manning equation was used to calculate the time of concentration for pipe flow. **Appendix II** provides detailed time of concentration calculations for the post-development condition.

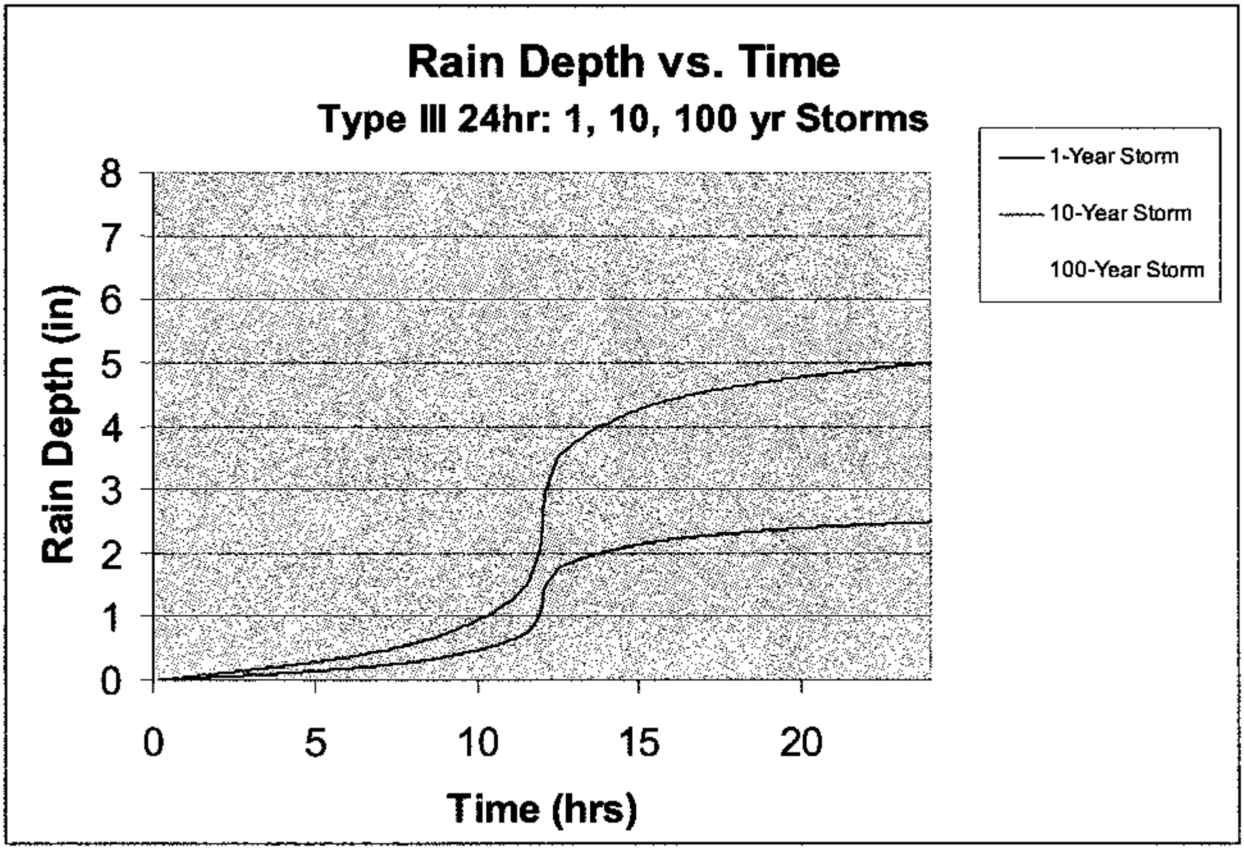


Figure 2-1
Rain Depth vs. Time

3.0 STORMWATER MANAGEMENT SYSTEM DESIGN

3.1 DESIGN CRITERIA

The *New York State Stormwater Management Design Manual, NYSDEC, October 2001* (NYS SMDM) sets forth design criteria for sizing stormwater management systems. Table 4.1 from this manual outlines sizing criteria to meet pollutant removal goals, reduce channel erosion, prevent overbank flooding, and help control extreme storm flooding. The following are the four sizing criteria outlined in the manual:

1) Water Quality Volume Requirement (WQv) - Volume required to capture and treat 90% of the average annual stormwater runoff volume.

2) Channel Protection Volume Requirement (CPv) – Provide 24 hour extended detention of the post-development 1 year, 24 hour storm event.

3) Overbank Flood Control Criteria (Qp) – Control the post-development 10 year, 24 hour peak discharge rate to pre-development rate.

4) Extreme Storm Control Criteria (Qf) – Control the post-development 10 year, 24 hour peak discharge rate to pre-development rate.

3.2 WATER QUALITY VOLUME

The required water quality volume (WQv) is calculated using the following equation:

Water Quality Volume (WQ_v) Formula

$$WQv = \frac{(P)(Rv)(A)}{12}$$

WQv = water quality volume (in acre-feet)
P = 90% Rainfall Event Number
Rv = 0.05 + 0.009(I), where I is percent impervious cover (includes semi-pervious cover, therefore I = 0.91 ac / 4.07 ac = 22%)
A = contributing drainage area (acres)

WQv Required

$$WQv = \frac{(1.2)(0.248)(4.07)}{12} = \mathbf{0.1009\ acre\ ft.}$$

WQv = **4,397 cubic feet (c.f.)**

P = 1.2 inches
Rv = 0.05 + 0.009 (22) = 0.248
A = 4.07 acres

A stormwater filtration system will be provided to meet the water quality volume requirement. **Appendix III** includes an engineering sizing proposal from a manufacturer of a state approved filtration system with a water quality volume of 4,766 cf.

3.3 Stormwater Detention System

The NYS SMDM requirements for channel protection, overbank flood control, and extreme storm flood control require detention of post-development runoff and controlled release at the specified criteria. A subsurface detention system and outlet control structure will be provided to meet the requirements. **Figure 3-1** provides information and a layout of the proposed detention system. Additional details are provided in **Appendix IV**. The outlet control structure will be located inside the detention system and will be designed to control the release of stormwater. **Figure 3-2** provides a detail of the outlet control structure and shows the peak water surface elevations for the 1, 10, and 100 year, 24 hour storm events.

3.3.1 Channel Protection

The NYS SMDM requirement for stream channel protection is to provide 24 hour extended detention of the 1 year, 24 hour storm event. To meet this requirement a 6 inch low flow orifice on the outlet control structure is proposed. **Figure 3-3** represents the post-development 1 year, 24 hour storm event hydrograph. This figure shows that with the low flow orifice the release rate is extended over a 24 hour period.

3.3.2 Overbank Flood Control

The NYS SMDM requirement for overbank flood control is to provide detention to attenuate the post-development 10 year, 24 hour peak discharge rate to the pre-development rate. To meet this requirement an 8 inch orifice above the low flow orifice is proposed on the outlet control structure. **Figure 3-4** represents the pre-development and post-development hydrographs for the 10 year, 24 hour storm event. This figure shows that the controlled post-development peak discharge rate is lower than the pre-development peak discharge rate.

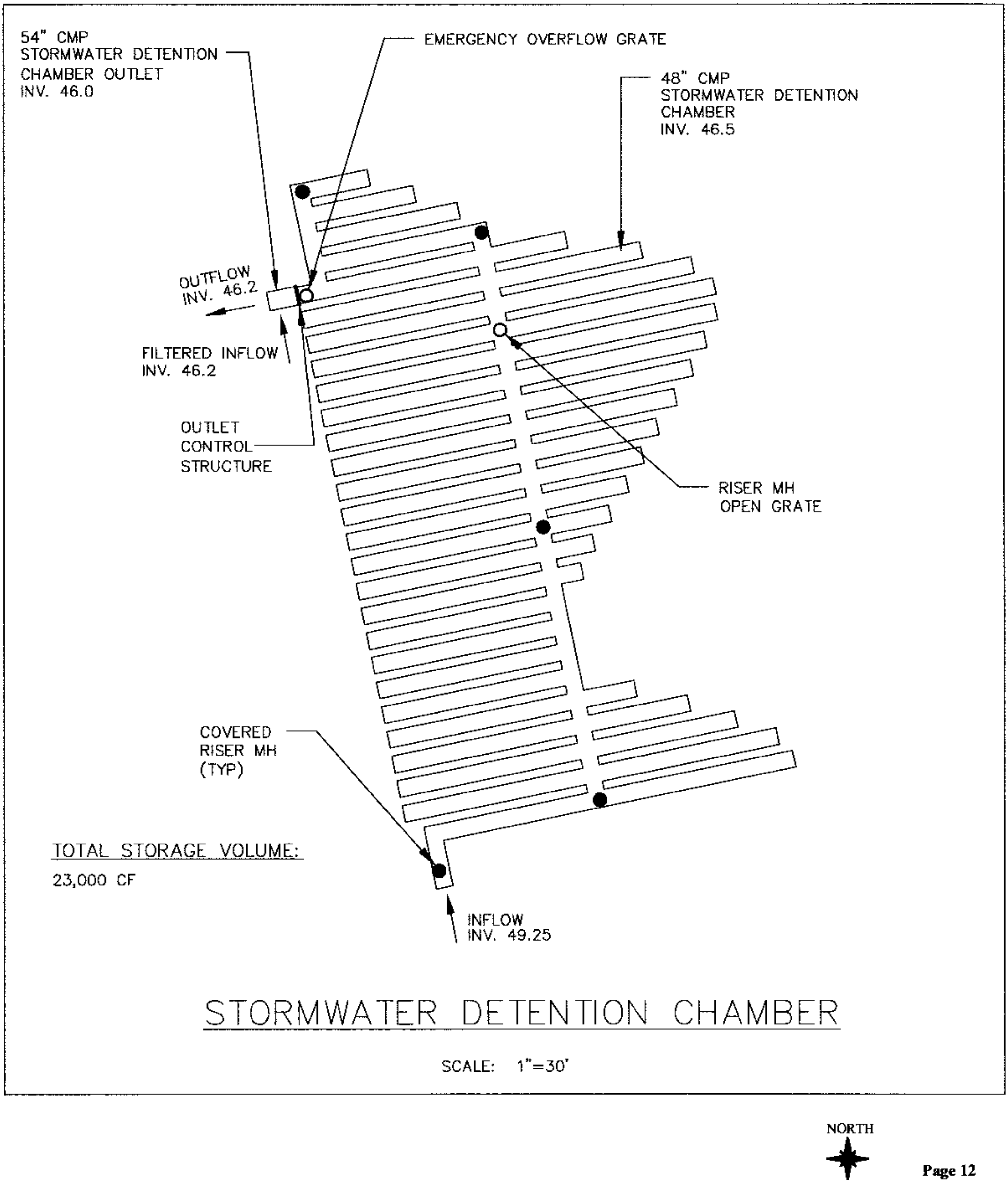
3.3.3 Extreme Storm Flood Control

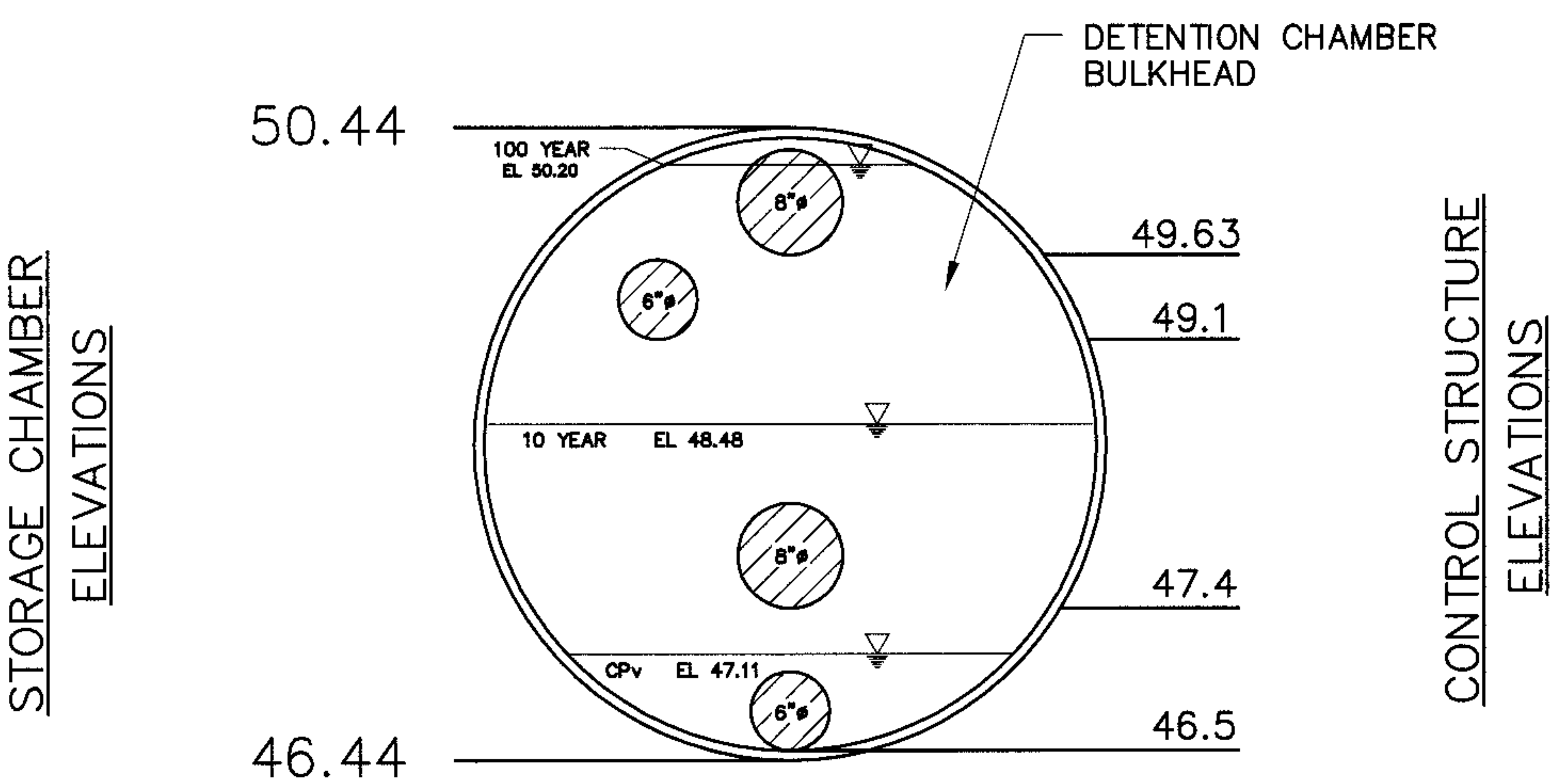
The NYS SMDM requirement for extreme storm flood control is to provide detention to attenuate the post-development 100 year, 24 hour storm event peak discharge to the pre-development rate. To meet this requirement an additional 6 inch orifice and an 8 inch orifice are proposed at the top of the proposed outlet control structure. **Figure 3-5** represents the pre-development and post-development hydrographs for the 100 year, 24 hour storm events. This figure shows that the controlled post-development peak discharge rate is lower than the pre-development peak discharge rate.

3.3.4 Emergency Overflow

An emergency overflow is provided on the detention system in the event of a storm greater than the 100 year, 24 hour storm. There is an open grate on the system just upstream of the outlet control structure that will serve as an emergency relief.

FIGURE 3-1


54" CMP
STORMWATER DETENTION
CHAMBER OUTLET
INV. 46.0
EMERGENCY OVERFLOW GRATE
48" CMP
STORMWATER DETENTION
CHAMBER
INV. 46.5
OUTFLOW
INV. 46.2
FILTERED INFLOW
INV. 46.2
OUTLET
CONTROL
STRUCTURE
RISER MH
OPEN GRATE
COVERED
RISER MH
(TYP)
TOTAL STORAGE VOLUME:
23,000 CF
INFLOW
INV. 49.25
STORMWATER DETENTION CHAMBER
SCALE: 1"=30'
NORTH



OUTLET CONTROL STRUCTURE

Scale: 1" = 1'

Figure 3–2

Figure 3-3
Post-Development 1 Year
24 Hour Storm Event Hydrograph

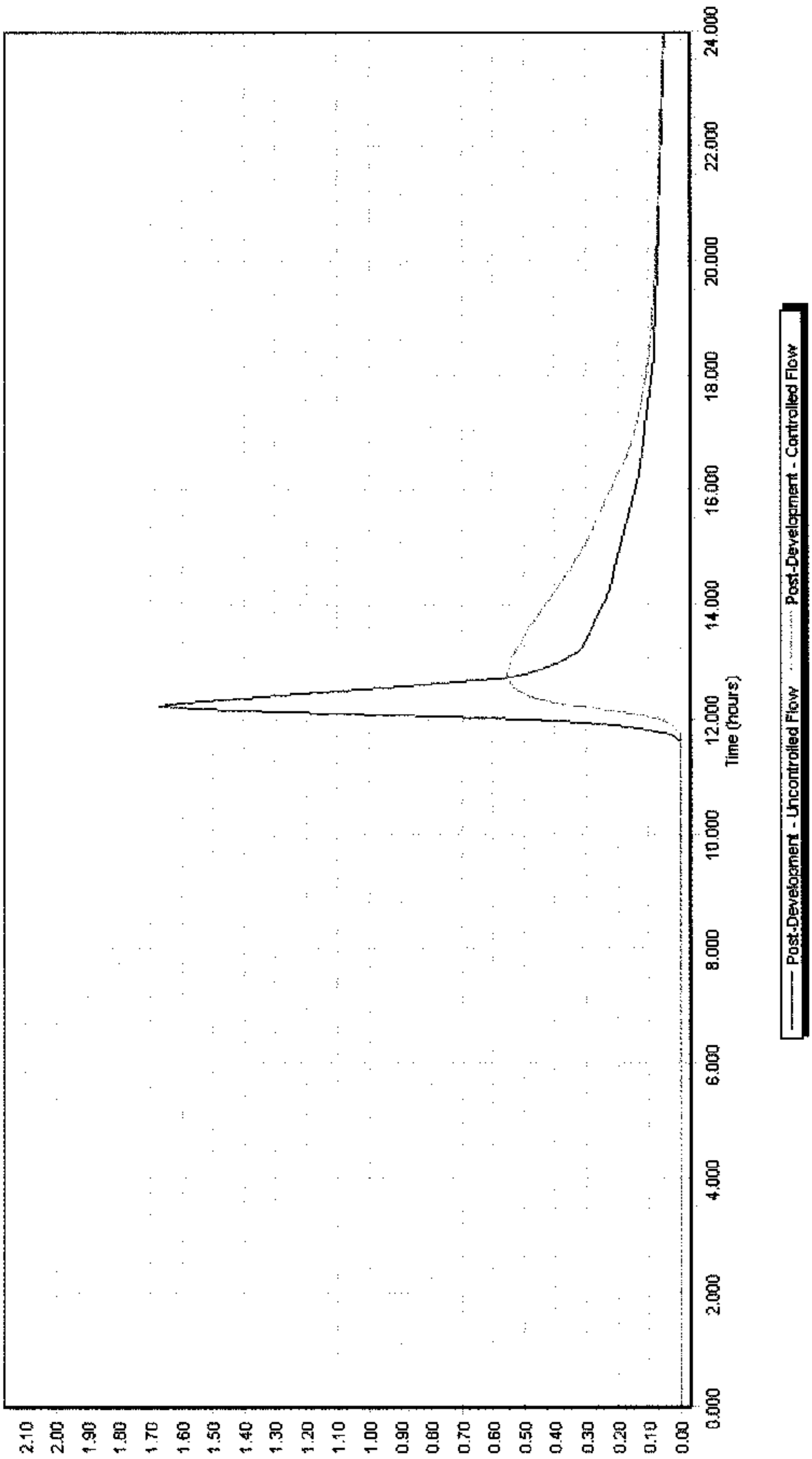


Figure 3-4
Pre-Development and Post-Development 10-year
24-Hour Storm Event Hydrograph

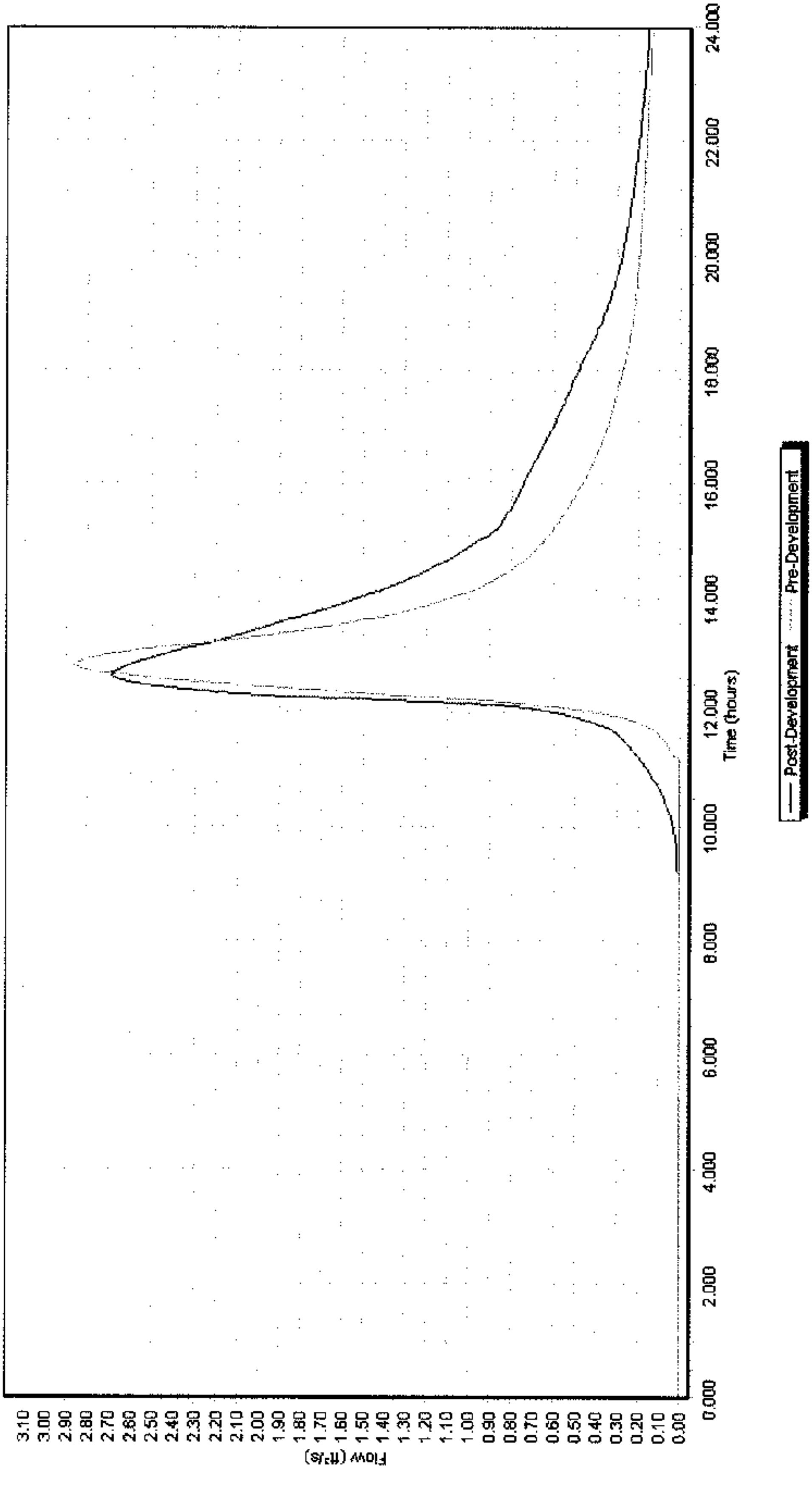
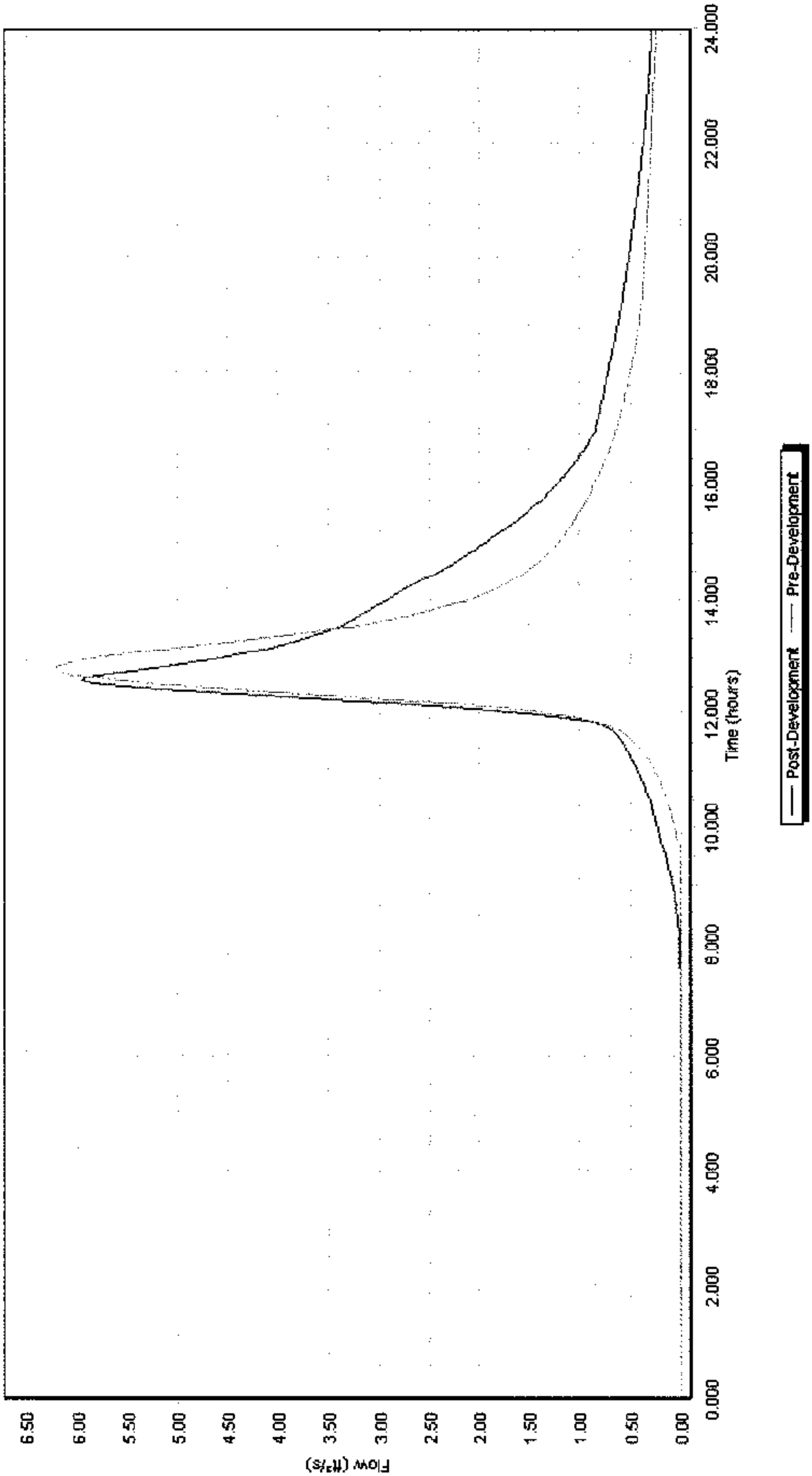


Figure 3-5
Pre-Development and Post-Development 100-year
24-Hour Storm Event Hydrograph



4.0 MAINTENANCE OF STORMWATER MANAGEMENT SYSTEM

4.1 Recommended Maintenance

Maintenance of all permanent stormwater management controls and drainage structures will be the responsibility of the homeowners association upon the completion of construction activities. Routine maintenance responsibilities for permanent stormwater structures and practices include:

1. Monitoring of the drainage inlets should be completed routinely, particularly following rainfall events with significant rainfall (2-year storm [defined as 3.5 inches of rainfall over a 24 hour period] or greater is recommended as a minimum).
2. Drainage grates should be kept free from obstruction of leaves, trash, and other debris.
3. Drainage structures should be initially inspected annually to determine if sediment removal is necessary to ensure drainage structures are properly functioning and permitting adequate conveyance throughout the system and establish the frequency of future maintenance. The manufacturer's specifications for maintenance procedures and frequency should be strictly followed (**EPA, 2002**).
4. Stormwater treatment filters must be replaced as per the manufacturer's specifications.
5. All seeded and landscaped areas should be maintained, reseeded, and mulched as necessary to maintain a dense vegetative cover (**Soil and Water Conservation Society, 1997**).

Appendix III provides the manufacturer's maintenance guidelines for the stormwater filtration system.

5.0 SUMMARY

5.1 General

The purpose of this report was to size, design, select and locate a stormwater management system for the proposed Kiruv Estates Subdivision in compliance with the *New York State Stormwater Management Design Manual, NYSDEC, October 2001* (NYS SMDM). The report shows that the engineered system will meet the requirements for water quality volume, stream channel protection, overbank flood control, and extreme storm flood control.

5.2 Water Quality Volume

The required water quality volume is 4,397 cf and the volume of the stormwater filtration system is 4,766 cf.

5.3 Stream Channel Protection

The report shows that the proposed system will provide the required 24 hour extended detention of the post-development 1 year, 24 hour storm event.

5.4 Overbank Flood Control

The report shows that the proposed system will control the peak discharge from the post-development 10 year, 24 hour storm event to the pre-development rate. The pre-development peak discharge rate is 2.86 cfs and the controlled post-development peak discharge rate is 2.69 cfs.

5.5 Extreme Storm Flood Control

The report shows that the proposed system will control the peak discharge from the post-development 100 year, 24 hour storm event to the pre-development rate. The pre-development peak discharge rate is 6.22 cfs and the controlled post-development peak discharge rate is 5.95 cfs

5.6 Conclusion

The report shows that the proposed stormwater management system for the Kiruv Estates subdivision is adequately designed to handle stormwater runoff from the development and is in compliance with the NYS SMDM.

APPENDIX I

STORMWATER MODELING SOFTWARE PACKAGE

CivilStorm™

CivilStorm is a ***fully-dynamic*** hydraulic model developed for the analysis of complex stormwater systems. It is unprecedented in its coupling of vast computational ability with a straightforward, feature-rich interface.

Why Use CivilStorm?

CivilStorm assists both engineers working on complex land development projects and municipal engineers involved with large-scale stormwater management studies by providing a solution to:

- Analyze drainage and detention facilities for systems with hydraulically-connected elements
- Develop stormwater master plans
- Perform water quality studies
- Prioritize the rehabilitation of an existing system
- Evaluate systems with stormwater pumping

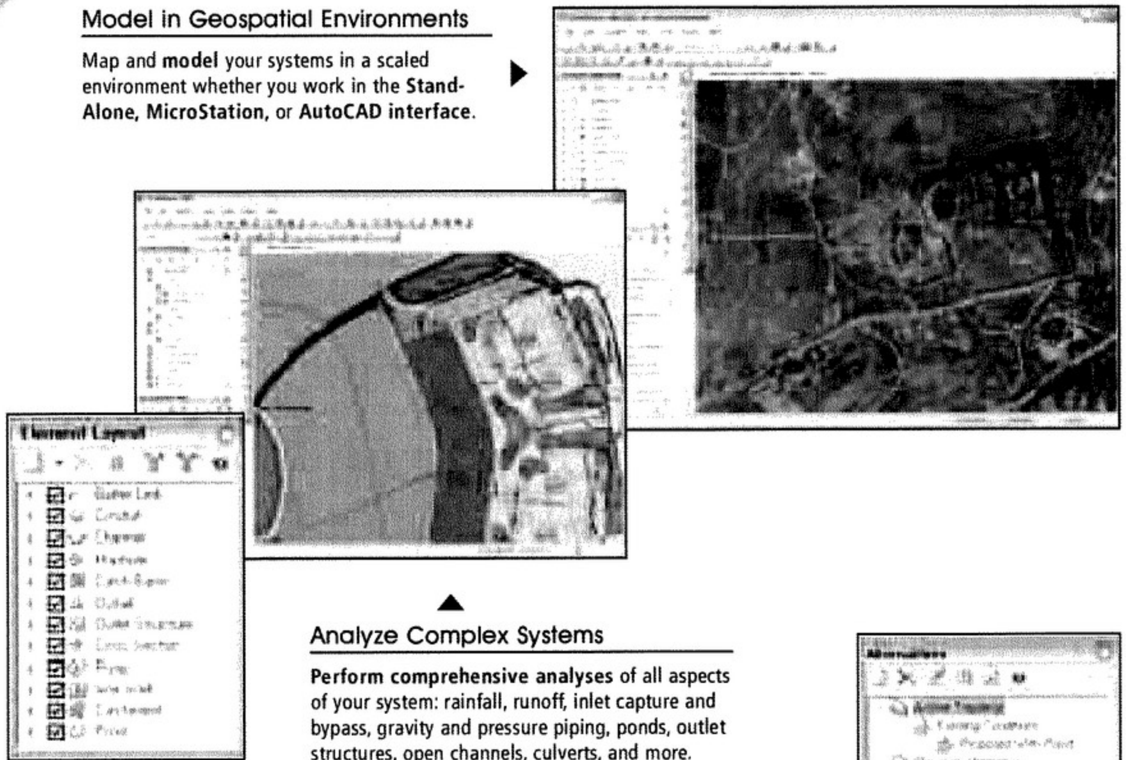
"As with all Haestad Methods products, the state-of-the-art CivilStorm software is the ultimate modeling software for stormwater modeling."

—City of Tucson, Arizona (USA)

www.bentley.com/civilstorm

Model in Geospatial Environments

Map and **model** your systems in a scaled environment whether you work in the **Stand-Alone, MicroStation,** or **AutoCAD interface**.

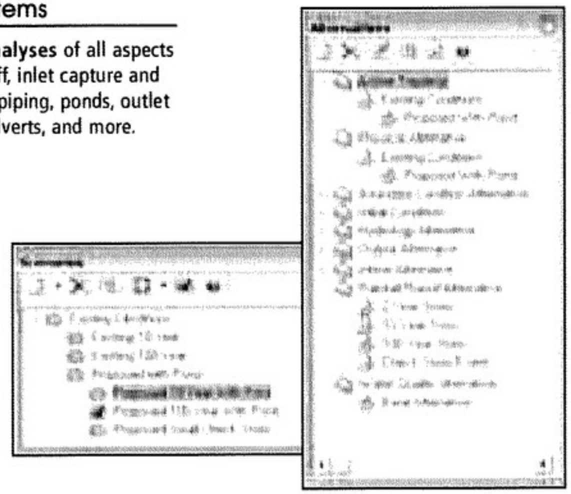


Analyze Complex Systems

Perform comprehensive analyses of all aspects of your system: rainfall, runoff, inlet capture and bypass, gravity and pressure piping, ponds, outlet structures, open channels, culverts, and more.

Optimize System Performance

Compare alternative designs or proposed rehabilitation methods for a variety of system conditions (including pre- and post-development).



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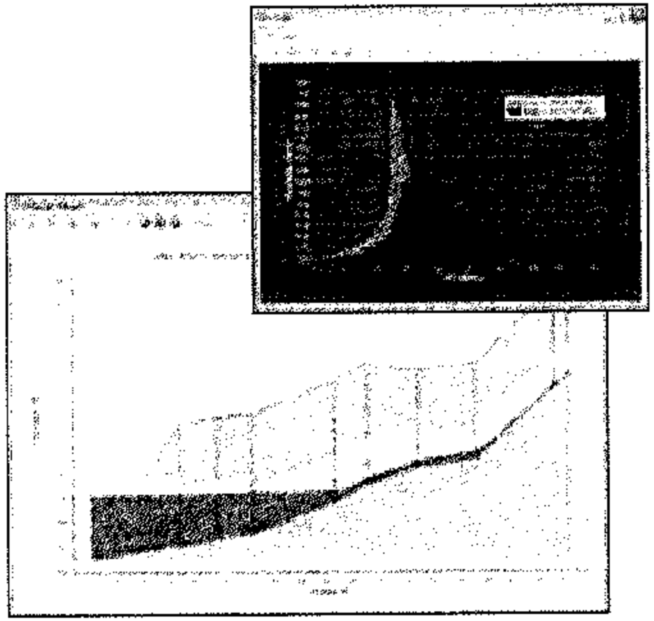


Present Comprehensive Results

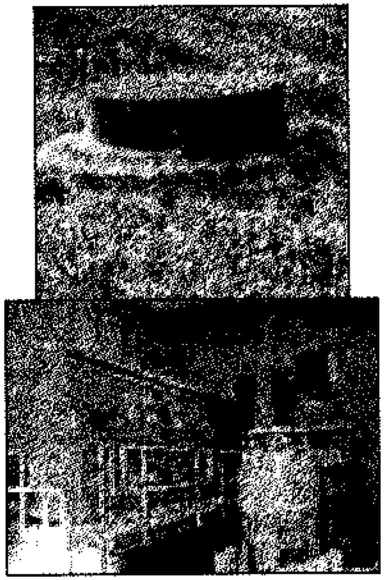
Develop comprehensive reports, including tables, dynamic graphs, profiles, maps, and more, for use with **system master plans** or studies and project plan sets.

Fully-dynamic modeling of systems with:

- **Inlets**
- **Storm Sewers**
- **Open Channels**
- **Streams**
- **Culverts**
- **Pump Stations**
- **Control Structures**
- **Overflows**
- **Detention Ponds**

Experience the Dynamic Calculation Engine

Calculate your model with the new fully-dynamic engine, which solves using either the **Saint Venant equations** or the globally-accepted **SWMM algorithm.**



See Pages 14 & 15 for product details and SELECT information.

Applying CivilStorm

Analyze Complex Systems

Drainage designs can be tricky, even for small sites. A storm sewer may discharge to a detention facility whose water surface elevation creates a tailwater condition on the upstream sewer, affecting its capacity. Additionally, the engineer may consider hydrograph attenuation due to storage. CivilStorm handles these complex issues with ease, preventing the inadvertent overdesigning that often accompanies less sophisticated analysis approaches.

Design for System Rehabilitation

In rehabilitating existing systems, engineers must find the most feasible and cost-effective solutions that maximize benefits. System flooding and overflows are a major concern. To alleviate the problems, engineers may consider measures such as parallel storm sewers or overflow channels. CivilStorm is the perfect solution for these types of challenges.

Simulate Pumping Systems

Pump stations are an integral part of many stormwater systems, especially in regions with low-lying or flat topography. CivilStorm integrates wet wells and pumps directly into the overall system model and allows for the review and development of pump operational strategies to improve efficiency.

City of Tucson, Arizona (USA) • Acuemudio (Colombia) • Withers & Ravenel (USA) • SCIP Pty Ltd (South Africa) • McKim & Creed (USA) •
Egnatia Odos A.E. (Greece) • McDowell & Associates (USA) • SAMAPA (Bolivia) • Tilton & Associates, Inc. (USA) • Consultants VFP (Canada)

Appendix II

Time of Concentration Calculations

Time of Concentration Calculations

Kerby-Hathaway Equation

$$T_c = \frac{(2 L n)^{0.47}}{(3 S^{1/2})^{0.47}}$$

Where,

T_c – time of concentration(hr)
L – channel length (ft)
S – slope (ft/ft)
n – Mannings's coefficient

Manning Equation

$$V = \frac{1.49 \; R^{2/3} \; S_0^{1/2}}{n}$$

$$T_c = L / V$$

Where,

V – velocity (ft/sec)
A – area (ft^2)
R – hydraulic radius (ft)
= Wetted Perimeter / A
S_0 – slope (ft/ft)
L – channel length (ft)
n – Manning's coefficient

Pre-Development Conditions

Kerby-Hathaway Equation					
Segment	Length (ft)	Slope (ft/ft)	Ground Cover	Manning's n	Tt (hr)
1	400	0.14	Woods	0.8	0.329
2	200	0.06	Grass	0.4	0.209
3	200	0.03	Grass	0.4	0.246
4	120	0.003	Grass	0.4	0.333
				Tc =	1.117 hr
				Tc =	67 min

Post-Development Conditions

Kerby-Hathaway Equation					
Segment	Length (ft)	Slope (ft/ft)	Ground Cover	Manning's n	Tt (hr)
1	180	0.18	Woods	0.8	0.213
Manning's Equations					
Segment	Length (ft)	Size (in)	Slope (ft/ft)	Velocity (ft/sec)	Tt (hr)
1	20	18	0.02	7.2	0.000772
2	115	18	0.02	7.2	0.004437
3	145	24	0.01	6.2	0.006496
4	55	24	0.015	7.4	0.002065
5	45	24	0.003	3.4	0.003676
6	75	24	0.003	3.4	0.006127
7	40	24	0.003	3.4	0.003268
8	30	24	0.003	3.4	0.002451
9	62	24	0.003	3.4	0.005065
10	44	24	0.003	3.4	0.003595
				Tc =	0.251 hr
				Tc =	15 min

APPENDIX III

STORMWATER FILTRATION DETAILS

Stormwater360
A CONTECH Company

Kiruv Estates, Huntington NY
Stormwater Treatment System – Engineering Sizing Proposal

Information provided:

- Total contributing area = 4.00 acres
- Impervious area = 0.90 acres
- Water Quality Volume = 4,766 ft^3
- 75% live storage volume = 3,575 ft^3
- 25% pretreatment volume = 1,192 ft^3
- Presiding agency = NYDEC

Assumptions:

- Design storm = 90% Rainfall WQv method
- Media = Extra Fine Leaf Compost (XFCSF)
- Maximum cartridge operating flowrate = 7.5 gallons per minute (1.06 GPM/ft^2)

Size Estimates:

The NYDEC requires the StormFilter to be sized according to the Department of the Environment's "capture and treat" methodology as an organic filter pursuant to Chapter 6.4. Attached is the NYDEC StormFilter sizing synopsis which outlines the approved design methodology and calculations utilized. Following this synopsis is a spreadsheet delineating the appropriate StormFilter vault.

The basic system configuration consists of a Volume StormFilter vault preceded by a pre-treatment structure and a WQv storage vessel. A proposed sketch is included in this package.

Filtration system:

- Based on the attached calculations, our recommendation is a 8'x16' precast Volume StormFilter system with 20 filter cartridges filled with Leaf Compost (CSF) media. (Standard detail drawing attached)

Pre-treatment system:

- Based on the attached calculations, our recommendation is an in-pipe pretreatment vessel consisting of 43 LF of 72" dia. CMP with an internal baffle wall and a 2 ft. wet sump.

Additional WQv Storage

- The MDE requires that 75% of the water quality volume be temporarily stored within the system. In order to meet this requirement we recommend 176 LF of 48" dia. CMP as configured in the attached sketch.

Maintenance:

The StormFilter requires regular maintenance to operate effectively. The expected maintenance interval for systems in New York is 12-18 months, but may vary depending on weather and site conditions. Stormwater 360 offers full maintenance services to all of our clients, as well as a cartridge exchange program to facilitate owner provided maintenance. Additional information is available in this package. Feel free to contact Stormwater360 or navigate to www.stormwater360.com for more information in this regard.

Thank you for the opportunity to present this information to you and your client.

7020 Troy Hill Drive, Suites A-B, Elkridge, MD 21075 Toll-free. 866.740.3318 Fax. 866.376.851?

Sizing the StormFilter to Meet the 2003 New York State Department of Environmental Conservation Stormwater Criteria

The Stormwater Management StormFilter® is accepted by the New York State Department of Environmental Protection (NYSDEC) as a stand-alone Stormwater Management Practice. The StormFilter, with CSF® leaf compost media, is recognized as an F-4 Organic Filter when designed in accordance with the methods outlined in Section 6.4.4 of the 2003 NYSDEC manual.

The following methodology for calculating the required number of filter cartridges has been approved by the State to meet the requirements set forth in the manual:

$A_f =$ $(WQ_v)(d_f) / [\,(k)(h_f + d_f)(t_f)\,]$

Where:

$A_f =$ filter bed surface area in square feet

$WQ_v =$ Water Quality Volume in cubic feet = variable

$d_f =$ filter bed depth in feet = annular radius of StormFilter cartridge = 7" = 0.58 feet

$k =$ coefficient of permeability of filter media in feet per day = 8.7 feet per day for leaf compost

$h_f =$ average height of water above filter bed = average filter cartridge activation height = 9" = 0.75 feet

$t_f =$ design filter bed drain down time in days = 1.67 days

Once the required filter bed surface area is determined, that area is divided by 7.3 square feet per cartridge (surface area per filter cartridge) to determine the required number of cartridges. The worksheets provided to the design engineer by Stormwater360 outline all of the above constants and variables and the results of the calculations.

StormFilter Sizing Based on the NYDEC Design Methodology

Project Name: Kiruv Estates - Huntington, NY

Date: 12/16/2005

Input	XXX
Result	XXX

SITE CHARACTERISTIC INPUT

Design Storm, P (inches)	1.30
Total Area, A_T (acres)	4.00
Impervious Area, A_I (acres)	0.90
Percent of WQv to be temporarily stored in system	75%

WQv CALCULATIONS

Percent Impervious Cover, I	23%
Volumetric Runoff Coefficient, Rv	0.25
Water Quality Volume, WQv (ac-ft)	0.109
Water Quality Volume, WQv (cu ft)	4,766
Required Live Storage Volume (75% of WQv) (cu ft)	3,575
Required Pretreatment Volume (25% of WQv) (cu ft)	1,192

STORMFILTER DESIGN CONSTANTS (PER NYDEC MANUAL)

Filter Bed Depth, D_f (ft)	0.58
Coeff. of Perm. of Filter Media, k (ft/day)	8.7
Avg. Height of Water above Filter Bed, H_f (ft)	0.75
Design Filter Bed Drain Time, T_f (days)	1.67
Surface Area of StormFilter Cartridge (sq ft)	7.3

SIZING CALCULATIONS

Surface Area of Equivalent Filter Bed (sq ft)	143.1
Number of Filter Cartridges Required	20
Maximum Filtration Rate (cfs)	0.33

SYSTEM DESIGN

Diameter of Storage Pipe (in)	48
Water Surface Elevation (ft.)	6.00

VOLUME STORMFILTER

Vault Size	8x16
Live Storage Volume Provided (cu ft)	514

PRETREATMENT STRUCTURE

Depth of Settling pool (ft.)	2.0
Pipe Diameter	72
Length of Structure	43
Live Storage Volume (cu ft)	861
Dead Storage (Permanent Pool) Volume (cu ft)	355
Total Pretreatment Provided (cu ft)	1,216

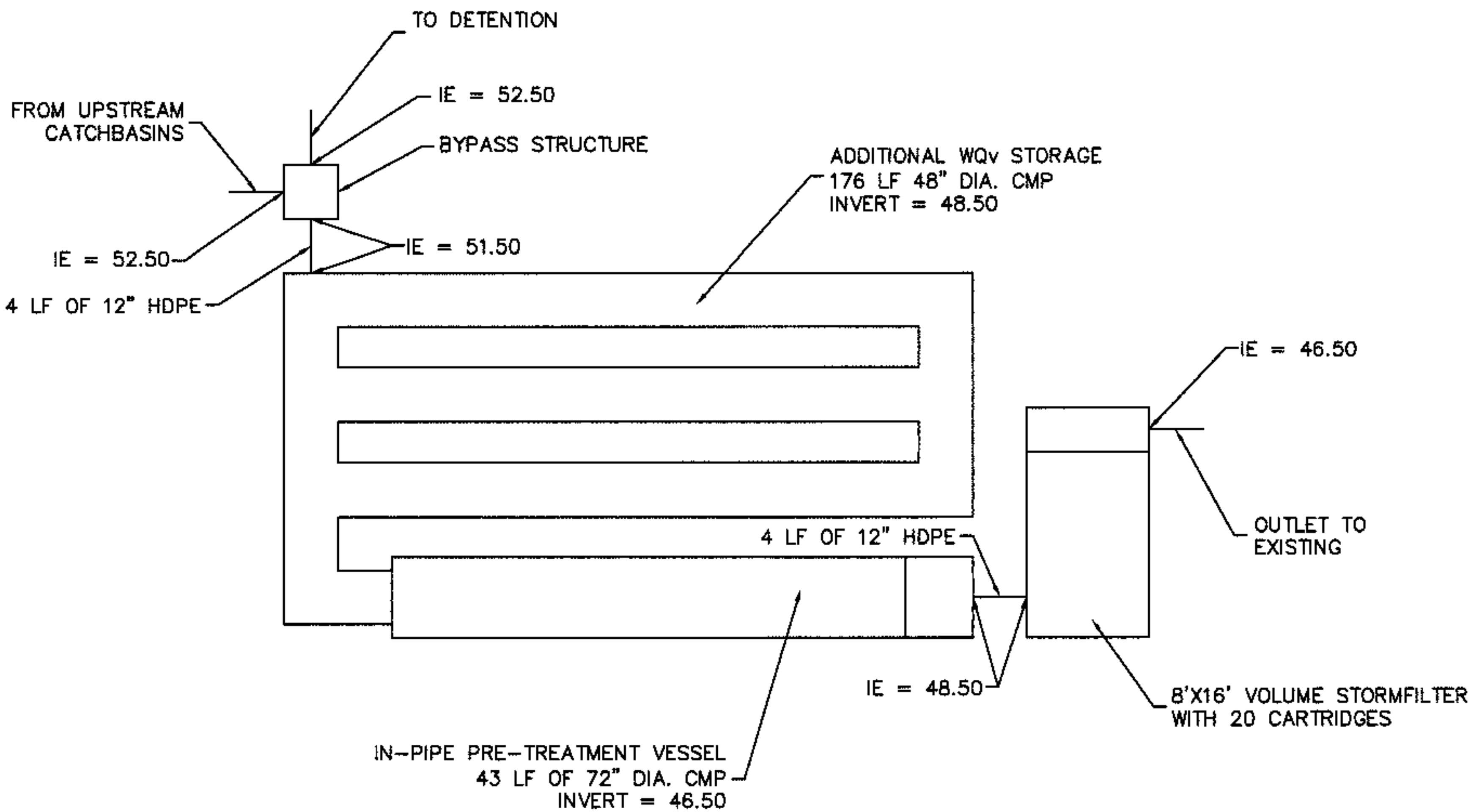
STORAGE SUMMARY

Total Live Storage Provided in System (cu ft)	1,375
Additional WQv Storage Required (cu ft)	2,199
Length of Storage Pipe Required (ft)	176
Percent of Pipe full	100%
Volume stored in pipe	2,212

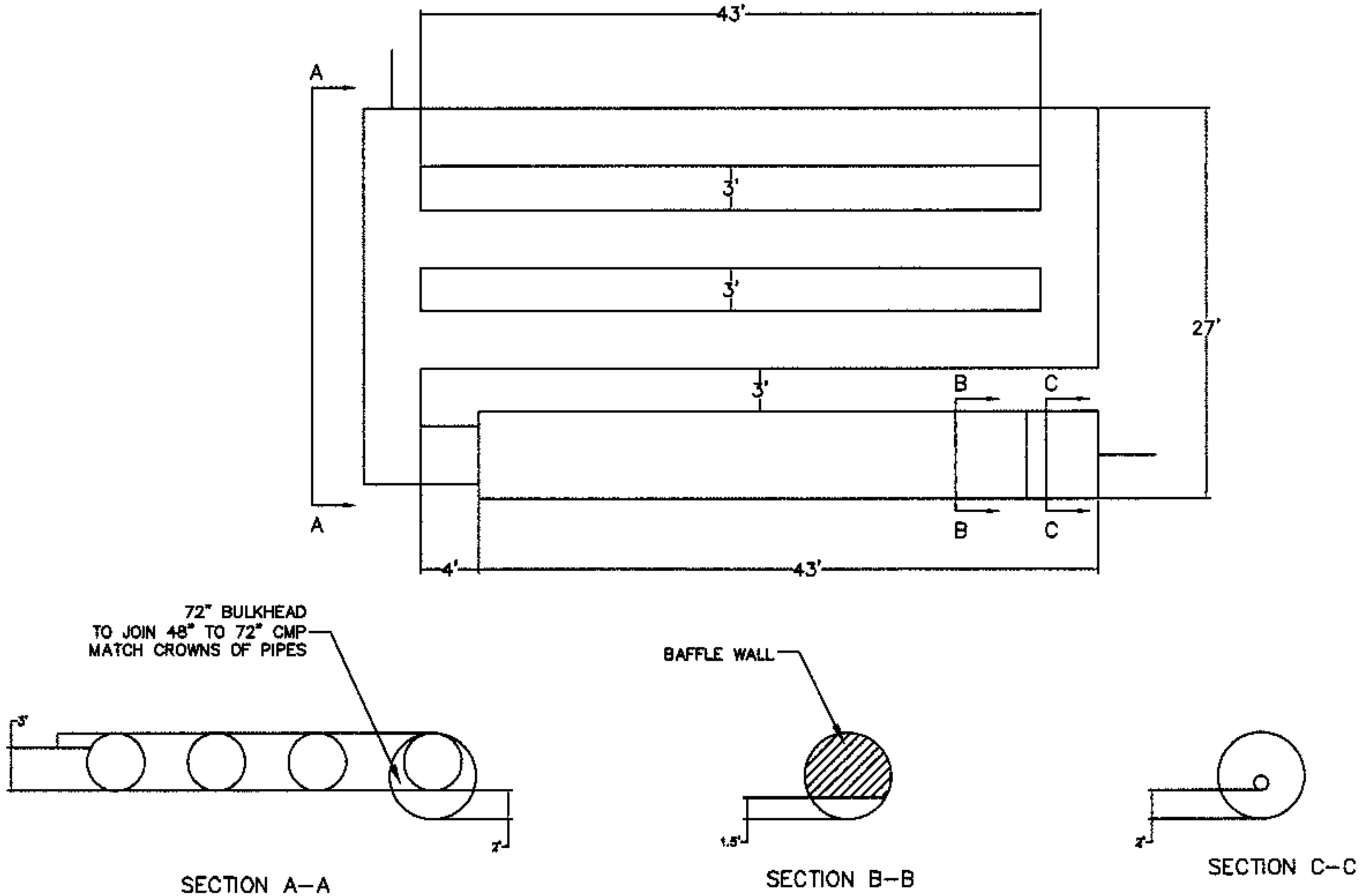
**All volumes are based upon 6' water surface elevation

SMI ENGINEER : A. WOLOVICK
CLIENT: THOMAS DIXON - NELSON POPE

Stormwater360



Stormwater360 www.stormwater360.com	KIRUV ESTATES - HUNTINGTON NY STORMWATER MANAGEMENT SYSTEM 12-16-05				DRAWING 1 1/1
	DATE: 10/25/05	SCALE: NONE	FILE NAME:	DRAWN: ACW	CHECKED: ACW



Stormwater360

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KIRUV ESTATES - HUNTINGTON NY
PIPE STORAGE DETAIL
12-16-05

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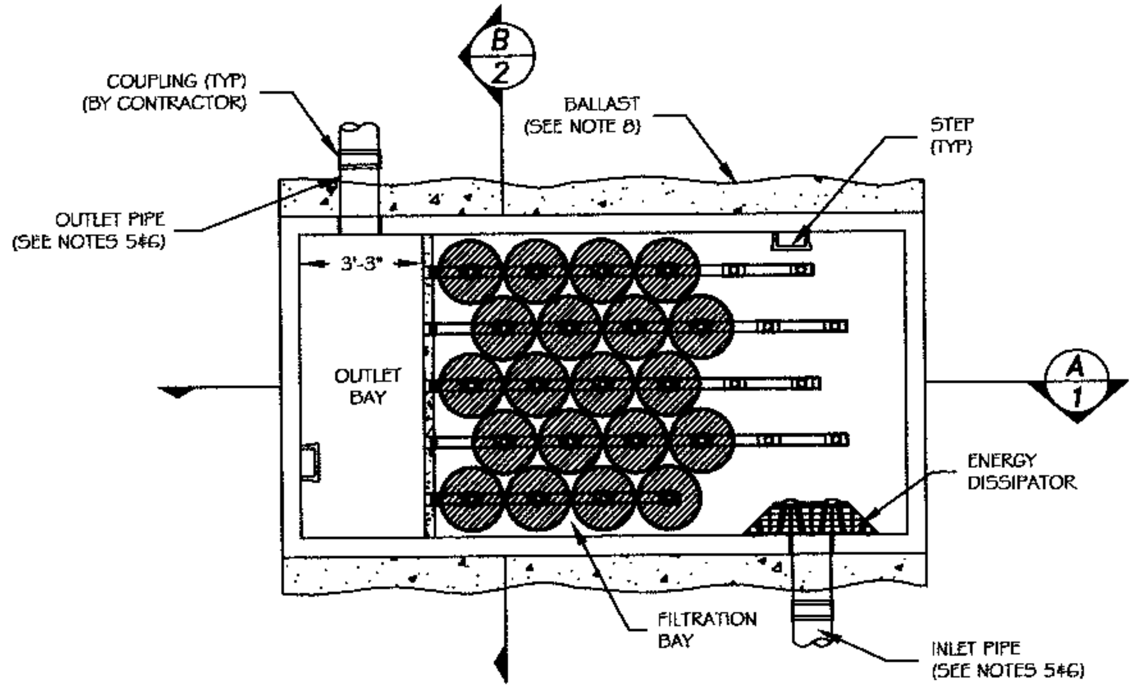
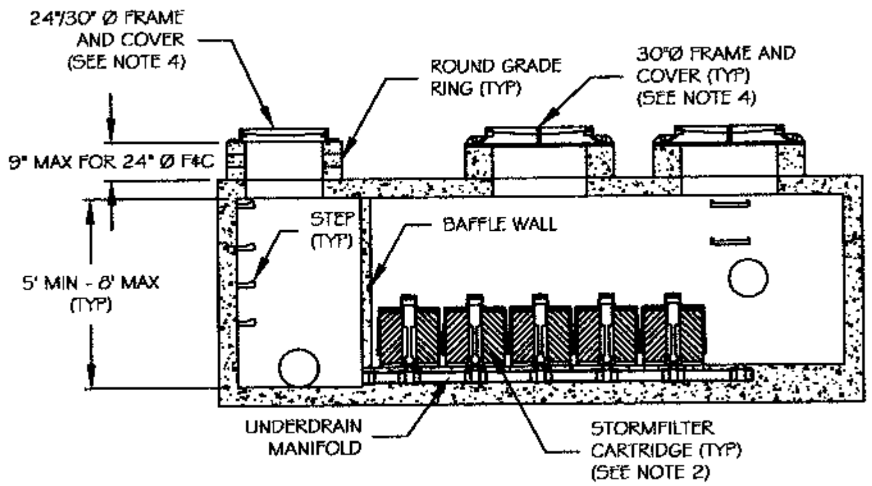


8' x 16' VOLUME STORMFILTER – PLAN VIEW 1/1
SCALE: N.T.S.



8' x 16' VOLUME STORMFILTER – SECTION VIEW A/1
SCALE: N.T.S.

THE STORMWATER MANAGEMENT
StormFilter®
U.S. PATENT No. 5,322,629,
No. 5,707,527, No. 6,027,639
No. 6,649,048, No. 5,624,576,
AND OTHER U.S. AND FOREIGN
PATENTS PENDING

Stormwater360
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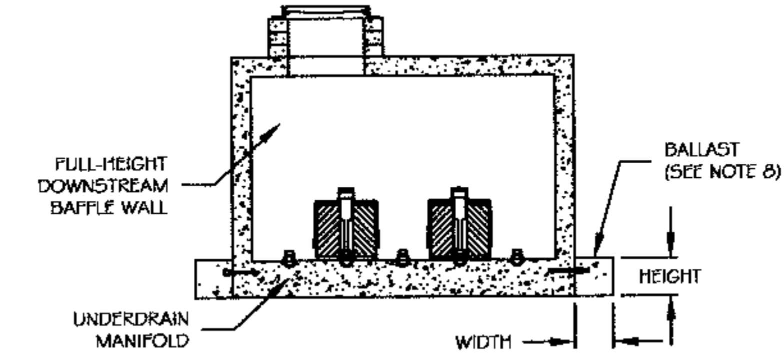
www.stormwater360.com

8' x 16' PRECAST VOLUME STORMFILTER
PLAN AND SECTION VIEWS
STANDARD DETAIL

DATE: 09/29/05	SCALE: NONE	FILE NAME: SF816-VOLUME	DRAWN: MJW	CHECKED: ARG	DRAWING 1 (1/2)

GENERAL NOTES

1) VOLUME STORMFILTER BY STORMWATER MANAGEMENT INC. (SMI), PORTLAND, OREGON (800) 548-4667.
2) FILTER CARTRIDGE(S) TO BE SIPHON-ACTUATED AND SELF-CLEANING. STANDARD DETAIL DRAWING SHOWS MAXIMUM NUMBER OF CARTRIDGES. ACTUAL NUMBER REQUIRED TO BE SPECIFIED ON SITE PLANS OR IN DATA TABLE BELOW
3) PRECAST VAULT TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C857 AND C858. DETAIL DRAWING REFLECTS DESIGN INTENT ONLY. ACTUAL DIMENSIONS AND CONFIGURATION OF STRUCTURE WILL BE SHOWN ON PRODUCTION SHOP DRAWING.
4) STRUCTURE AND ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
5) VOLUME STORMFILTER REQUIRES 2.0 FEET OF DROP FROM INLET TO OUTLET. IF LESS DROP IS AVAILABLE, CONTACT SMI.
6) INLET AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
7) PROVIDE MINIMUM CLEARANCE FOR MAINTENANCE ACCESS. IF A SHALLOWER SYSTEM IS REQUIRED, CONTACT SMI FOR OTHER OPTIONS.
8) ANTI-FLOTATION BALLAST TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR, IF REQUIRED. BALLAST TO BE SET ALONG ENTIRE LENGTH OF BOTH SIDES OF THE STRUCTURE.
9) ALL STORMFILTER SYSTEMS REQUIRE REGULAR MAINTENANCE. REFER TO OPERATION AND MAINTENANCE GUIDELINES FOR MORE INFORMATION.



8' x 16' VOLUME STORMFILTER – SECTION VIEW (B/2)
SCALE: N.T.S.

8' x 16' PRECAST VOLUME STORMFILTER DATA

STRUCTURE ID	XXX
WATER QUALITY VOLUME (ft^3)	XXX
STORAGE IN STORMFILTER (ft^3)	XXX
# OF CARTRIDGES REQUIRED	XX
CARTRIDGE FLOW RATE (15 OR 7.5 gpm)	7.5
MEDIA TYPE	CSF

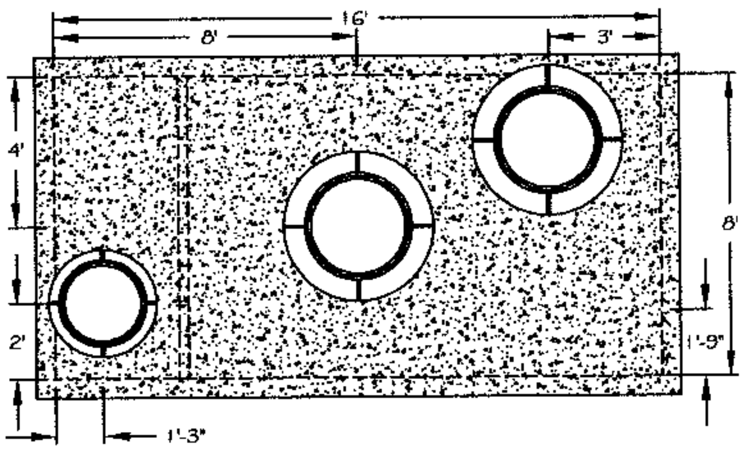
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	XXX.XX'	XXX	XX"
INLET PIPE #2	XXX.XX'	XXX	XX"
OUTLET PIPE	XXX.XX'	XXX	XX"

RIM XXX.XX'

XXX.XX' FLOW XXX.XX'

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	XX"	XX"

NOTES/SPECIAL REQUIREMENTS:



8' x 16' VOLUME STORMFILTER – TOP VIEW (1/2)
SCALE: N.T.S.

THE STORMWATER MANAGEMENT
StormFilter®
U.S. PATENT No. 5,322,629,
No. 5,707,527, No. 6,027,639
No. 6,649,048, No. 5,624,576,
AND OTHER U.S. AND FOREIGN
PATENTS PENDING

Stormwater360
A CONTECH Company
www.stormwater360.com

8' x 16' PRECAST VOLUME STORMFILTER
TOP AND SECTION VIEWS, NOTES AND DATA
STANDARD DETAIL

DRAWING 2
2/2

DATE: 09/29/05	SCALE: NONE	FILE NAME: SF816-VOLUME	DRAWN: MJW	CHECKED: ARG

STORMWATER™ MANAGEMENT INC.

The Stormwater Management StormFilter®

Cast-In-Place, Precast, and Linear Units

Important: These guidelines should be used as a part of your site stormwater management plan.

Description

The Stormwater Management StormFilter® (StormFilter) is a passive, flow-through, stormwater filtration system. The system is comprised of one or more vaults that house rechargeable, media-filled, filter cartridges. The StormFilter works by passing stormwater through the media-filled cartridges, which trap particulates and adsorb materials such as dissolved metals and hydrocarbons. Once filtered through the media, the treated stormwater is directed to a collection pipe or discharged into an open channel drainage way.

The StormFilter is offered in multiple configurations, including precast, linear, catch basin, manhole, and cast-in-place. The precast, linear, manhole, and catch basin models utilize pre-manufactured units to ease the design and installation processes. The cast-in-place units are customized for larger flows and may be either covered or uncovered underground units.

Purpose

The StormFilter is a passive, flow-through, stormwater filtration system designed to improve the quality of stormwater runoff from the urban environment before it enters receiving waterways. It is intended to function as a Best Management Practice (BMP) to meet federal, state, and local requirements for treating runoff in compliance with the Clean Water Act.

Through independent third party studies, it has been demonstrated that the StormFilter is highly effective for treatment of first flush flows and for treatment of flow-paced flows during the latter part of a storm. In general, the StormFilter's efficiency is highest when pollutant concentrations are highest. The primary non-point source pollutants targeted for removal by the StormFilter are: suspended solids (TSS), oil and grease, soluble metals, nutrients, organics, and trash and debris.

Sizing

The StormFilter is sized to treat the peak flow of a water quality design storm. The peak flow is determined from calculations based on the contributing watershed hydrology and from a design storm magnitude set by the local stormwater management agency. The particular size of a StormFilter unit is determined by the number of filter cartridges (see Figure 1) required to treat this peak flow.

The flow rate through each filter cartridge is adjustable, allowing control over the amount of contact time between the influent and the filter media. The maximum flow rate through each cartridge can be adjusted to between 5 and 15 gpm using a calibrated restrictor disc at the base of each filter cartridge. Adjustments to the cartridge flow rate will affect the number of cartridges required to treat the peak flow.

Basic Function

The StormFilter is designed to siphon stormwater runoff through a filter cartridge containing media. A variety of filter media is available and can be customized for each site to target and remove the desired levels of sediments, dissolved phosphorus, dissolved metals, organics, and oil and grease. In many cases, a combination of media is recommended to maximize the effectiveness of the stormwater pollutant removal.

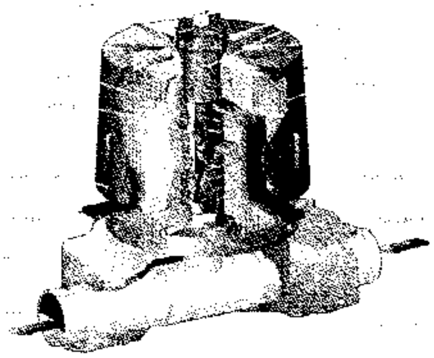


Figure 1. The StormFilter Cartridge

Priming System Function

When stormwater in the StormFilter unit enters a StormFilter cartridge, it percolates horizontally through the cartridge's filter media and collects in the center tube of the cartridge, where the float in the cartridge is in a closed (downward) position.

Water continues to pass through the filter media and into the cartridge's center tube. The air in the cartridge is displaced by the water and purged from beneath the filter hood through the one-way check valve located in the cap. Once the center tube is filled with water (approximately 18 inches deep), there is enough buoyant force on the float to open the float valve and allow the treated water in the center tube to flow into the under-drain manifold. This causes the check valve to close, initiating a siphon that draws polluted water throughout the full surface area and volume of the filter. Thus, the entire filter cartridge is used to filter water throughout the duration of the storm, regardless of the water surface elevation in the unit. This siphon continues until the water surface elevation drops to the elevation of the hood's scrubbing regulators.

The cartridges are connected to the under-drain manifold with a plastic connector. Since some media used is potentially buoyant, a threaded connector affixed to the under-drain manifold (with glue or other adhesive) is necessary to ensure that the cartridge isn't lifted out of place. For the heavier compost media, a slip connector is used.

The StormFilter is also equipped with flow spreaders that trap floating debris and surface films, even during overflow conditions. Depending on individual site characteristics, some systems are equipped with high and/or base flow bypasses. High flow bypasses are installed when the calculated peak storm event generates a flow that overcomes the overflow capacity of the system. This is especially important for precast systems. Base flow bypasses are sometimes installed to bypass continuous inflows caused by ground water seepage, which usually do not require treatment. All StormFilter units are designed with an overflow. The overflow operates when the inflow rate is greater than the treatment capacity of the filter cartridges.

Maintenance Guidelines

The primary purpose of the StormFilter is to filter out and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site.

Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is also good practice to inspect the system after severe storm events.

Types of Maintenance

Presently, procedures have been developed for two levels of maintenance:

- Inspection/minor maintenance
- Major maintenance.

Inspection/minor maintenance activities are combined since minor maintenance does not require special equipment and typically little or no materials are in need of disposal.

Inspection/minor maintenance typically involves:

- Inspection of the vault itself
- Removal of vegetation and trash and debris.

Major maintenance typically includes:

- Cartridge replacement
- Sediment removal

Important: Applicable safety (OSHA) and disposal regulations should be followed during all maintenance activities.

Maintenance Activity Timing

Two scheduled inspections/maintenance activities should take place during the year.

First, an inspection/minor maintenance activity should be done. During the minor maintenance activity (routine inspection, debris removal), the need for major maintenance should be determined and, if disposal during major maintenance will be required, samples of the sediments and media should be obtained.

Second, if required, a major maintenance activity (replacement of the filter cartridges and associated sediment removal) should be performed.

In addition to these two scheduled activities, it is important to check the condition of the StormFilter unit after major storms for damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the maintenance activity schedule depending on the actual operating conditions encountered by the system.

In general, minor maintenance activities will occur late in the rainy season, and major maintenance will occur in late summer to early fall when flows into the system are not likely to be present.

Maintenance Activity Frequency

The primary factor controlling timing of maintenance for the StormFilter is sedimentation.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media. The flow through the system will naturally decrease as more and more solids are trapped. Eventually the flow through the system will be low enough to require replacement of the cartridges. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on an as-needed basis in order to prevent material from being re-suspended and discharged to the system.

Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction should be inspected and maintained more often than those in fully stabilized areas.

The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after large storms.

Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system. It is recommended that the maintenance agency develop a database to properly manage StormFilter maintenance programs.

Prior to the development of the maintenance database, the following maintenance frequencies should be followed:

Inspection/minor maintenance

- One time per year
- After Major Storms

Major maintenance

- One time per year
- In the event of a chemical spill

Frequencies should be updated as required.

The recommended <u>initial</u> frequency for inspection/minor maintenance is two times per year for the precast unit. StormFilter units should be inspected after all major storms. Sediment removal and cartridge replacement on an annual basis is recommended until further knowledge is gained about a particular system.

Once an understanding of site characteristics has been established, maintenance may not be needed for one to two years, but inspection is warranted.

Maintenance Methods

Inspection/Minor Maintenance

The primary goal of a maintenance inspection is to assess the condition of the cartridges relative to the level of sediment loading. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, it is likely that the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and Stormwater Management Inc. immediately.

To conduct an inspection and/or minor maintenance:

Important: Maintenance must be performed by a utility worker familiar with StormFilter units.

1. If applicable, set up safety equipment to protect pedestrians from fall hazards due to open vault doors or when work is being done near walkways or roadways.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.

3. Open the doors to the vault and allow the system to air out for 5-10 minutes.
4. Without entering the vault, inspect the inside of the unit, including components.
5. Take notes about the external and internal condition of the vault.

   Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the level of water and estimate the flow rate per drainage pipe. Record all observations.
6. Remove large loose debris and trash using a pole with a grapple or net on the end.
7. Close and fasten the door.
8. Remove safety equipment.
9. Make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
10. Finally, review the condition reports from the previous minor and major maintenance visits, and schedule cartridge replacement if needed.

Major Maintenance

Depending on the configuration of the particular system, a worker may be required to enter the vault to perform some tasks.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows exist. Standing water present in the vault should be regarded as polluted and should be contained during this operation by temporarily capping the manifold connectors.

Replacement cartridges will be delivered to the site. Information concerning how to obtain the replacement cartridges is available from Stormwater Management, Inc.

> **Warning:** In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and Stormwater Management Inc. immediately.

To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect pedestrians from fall hazards due to open vault doors or when work is being done near walkways or roadways.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors to the vault and allow the system to air out for 5-10 minutes.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault.

   Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Remove large loose debris and trash using a pole with a grapple or net on the end.
7. Using a boom, crane, or other device (dolly and ramp), offload the replacement cartridges (up to 150 lbs. each) and set aside.
8. Remove used cartridges from the vault using one of the following methods:

Important: This activity will require that workers enter the vault to remove the cartridges from the drainage system.

Method 1:

a. Using an appropriate sling, attach the cable from the boom, crane, or tripod to the cartridge being removed. Contact SMI for specifications on appropriate attachment devices.

This activity will require that workers enter the vault to remove the cartridges from the drainage system and place them under the vault opening for lifting.

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

b. Remove the used cartridges (250 lbs. each) from the vault.

Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner unless Stormwater Management performs the maintenance activities and damage is not related to discharges to the system.

c. Set the used cartridge aside or load onto the hauling truck.

d. Continue steps a through c until all cartridges have been removed.

Method 2:

a. Unscrew the cartridge cap.

b. Remove the cartridge hood.

c. Tip the cartridge on its side.

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

d. Empty the cartridge onto the vault floor.

e. Set the empty, used cartridge aside or load onto the hauling truck.

f. Continue steps a through e until all cartridges have been removed.

9. Remove deposited sediment from the floor of the vault and, if large amounts are present, from the forebay. This can usually be accomplished by shoveling the sediment into containers, which, once full, are lifted mechanically from the vault and placed onto the hauling truck. If Method 2 in Step 8 is used to empty the cartridges, or in cases of extreme sediment loading, a vactor truck may be required.

10. Once the sediments are removed, assess the condition of the vault and the condition of the manifold and connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude above the floor of the vault.
    a. If required, apply a light coating of FDA approved silicon grease to the outside of the exposed portion of the connectors. This ensures a watertight connection between the cartridge and the drainage pipe.
    b. Replace any damaged connectors.

11. Using the boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.

12. Close and fasten the door.

13. Remove safety equipment.

14. Make notes about the local drainage area relative to ongoing construction, erosion problems, or high loadings of other materials to the system.

15. Finally, dispose of the residual materials in accordance with applicable regulations. Make arrangements to return the used cartridges to Stormwater Management, Inc.

Related Maintenance Activities
(Performed on an as-needed basis)

StormFilter units are often just one of many components in a more comprehensive stormwater drainage and treatment system. The entire system may include catch basins, detention vaults, sedimentation vaults and manholes, detention/retention ponds, swales, artificial wetlands, and other miscellaneous components.
In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil and grease loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in a manner that will not allow the material to affect surface or ground water. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. It is not appropriate to discharge untreated materials back to the stormwater drainage system.

Part of arranging for maintenance to occur should include coordination of disposal of solids (landfill coordination) and liquids (municipal vacuum truck decant facility, local wastewater treatment plant, on-site treatment and discharge).

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals. Stormwater Management Inc will determine disposal methods or reuse of the media contained in the cartridges. If the material has been contaminated with any unusual substance, the cost of special handling and disposal will be the responsibility of the owner.

StormFilter Minor Maintenance and Inspection Data Sheet

Date: ______________ **Personnel:** ______________________________

Location: __________________________________ **System Size:** ____________

System Type: Cast-In-Place Precast Linear

System Observations

Media Months in Service: ______________________________

Oil and Grease in Forebay: **Yes** **No** ______________________________

Sediment Depth in Forebay: ______________________________

Sediment Depth on Vault Floor: ______________________________

Structural Damage: ______________________________

Estimated Flow from Drainage Pipes (if available): ______________________________

Cartridges Submerged: **Yes** **No** How Deep: ______________________________

StormFilter Minor Maintenance Activities (check off if done and give description)

Trash and Debris Removal: ______________________________

Minor Structural Repairs: ______________________________

Drainage Area Report

Excessive Oil and Grease Loading: **Yes** **No** Source: ______________________________

Sediment Accumulation on Pavement: **Yes** **No** Source: ______________________________

Erosion of Landscaped Areas: **Yes** **No** Source: ______________________________

Items Needing Further Work: ______________________________

Other Comments: ______________________________

Review the condition reports from the previous minor and major maintenance visits.

StormFilter Major Maintenance/Cartridge Replacement Data Sheet

Date: ________________ **Personnel:**___________________________________

Location: ______________________________________ **System Size:** _______________

System Type: Cast-In-Place Precast Linear

List Safety Procedures and Equipment Used: _______________________________________

____

____

System Observations

Media Months in Service:____

Oil and Grease in Forebay: **Yes** **No** ____

Sediment Depth in Forebay: ____

Sediment Depth on Vault Floor:____

Structural Damage: ____

Drainage Area Report

Excessive Oil and Grease Loading: **Yes** **No** Source:______________________________

Sediment Accumulation on Pavement: **Yes** **No** Source: ___________________________

Erosion of Landscaped Areas: **Yes** **No** Source:_________________________________

StormFilter Cartridge Replacement Maintenance Activities

Remove Trash and Debris: **Yes** **No** Details: ____________________________________

Replace Cartridges: **Yes** **No** Details: ____

Sediment Removed: **Yes** **No** Details: ____

Quantity of Sediment Removed (estimate?):____

Minor Structural Repairs: **Yes** **No** Details:____________________________________

Residuals (debris, sediment) Disposal Methods:______________________________________

Notes:____

APPENDIX IV

STORMWATER DETENTION DETAILS

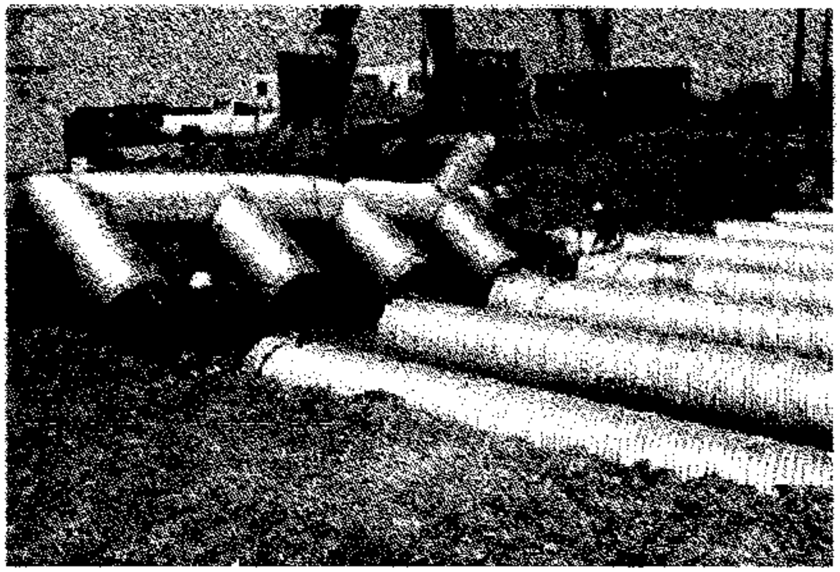
CONTECH
INNOVATIVE CIVIL ENGINEERING SOLUTIONS

CONTECH Corrugated Metal Pipe Products

Introduction to Storm Water Detention/Recharge Systems

Today with fast growing urban and suburban development there are increased runoff volumes and peak flows. This has effected water quality all across the country, which has made Storm Water Management a necessity. The National Pollutant Discharge Elimination System (NPDES) Act mandates pollutants i.e. silt runoff be controlled.

In addition with public dollars for new or bigger downstream storm sewers being limited, many cities and storm water management districts are adopting ordinances that mandate a "zero increase in storm water runoff" when a property is developed. In many cases even if the dollars are available for bigger downstream storm sewers theinstallation of these sewers would cause major disruption to the traveling public as well hurt the commercial businesses in the area.



Detention ponds either natural or man-made have served us for many years to control the downstream runoff. As the cost of develop land becomes expensive it is not feasible to store the excess storm water runoff in above ground ponds. In many cases the required area for storage is just not available.

Above ground detention

Pros:

- Low initial cost
- Aesthetically pleasing.

Cons:

- Additional land cost
- Lost of usable land
- Annual property tax
- High maintenance cost to keep
- Fencing needed
- High liability with open ponds.

Below ground detention:

Pros:

- Full use of the land
- Low maintenance
- Aesthetically pleasing
- Flexible configurations
- Out of sight- out of mind.

Cons:

- Possibly higher initial cost.

Installation Guidelines

Introduction

The quality of installation of any underground detention structures is vitally important to the long-term performance of the system. Additionally, the configuration of these systems often requires special construction practices that are not normally encountered in conventional flexible pipe construction. While this document will cover many of the procedures that must be followed, there may be cases that require additional considerations. It is always good practice to consult your local CONTECH Sales Engineer prior to the installation of these systems.

The following are areas that need to be considered and planned for each system installed.

- Foundation
- Bedding
- In-situ trench wall
- Backfill material
- Backfill placement
- Construction loading
- Special

Foundation Considerations

A stable foundation must be constructed prior to the placement of the bedding material. It is important that the foundation is not only capable of supporting the design load applied by the pipe and it's adjacent backfill weight, but also be capable of maintaining it's integrity during the construction sequence.

When soft or unsuitable soils are encountered, corrective measures need to be taken. The unsuitable material needs to be removed down to a suitable depth and then built up to the appropriate elevation with a suitable structural backfill material. It is important to make sure that this added structural fill material has a gradation that will not allow the migration of fines, causing possible settlement of the detention system or the pavement above. In cases where the structural fill material is not compatible with the underlying soils an engineering fabric can be used as a separator.

In some cases a stiff reinforcing geogrid can be used to reduce the undercut. It is important to properly analyze the underlying soils to make sure that the applied loads do not exceed the capacity of the underlying soils causing settlement when geogrids are used.

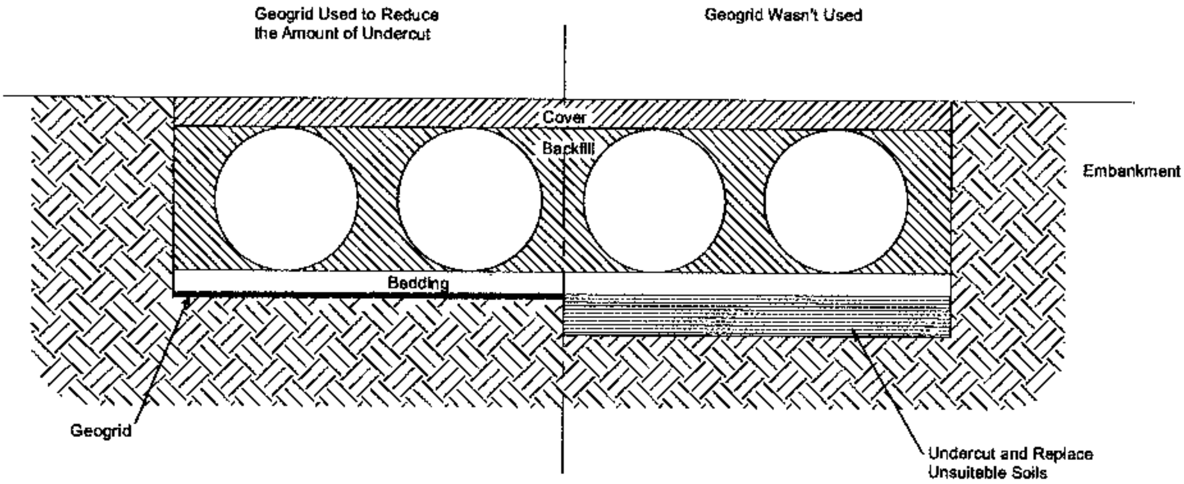


Figure 1

The foundation subgrade needs to be graded to a uniform or slightly sloping grade prior to the placement of the bedding material. If the subgrade is a clay or is relatively non-porous and the construction sequence will last for an extended period of time, it is best to slope the grade to one end of the system. This will enable excess water to be drained quickly, preventing saturation of the subgrade.

Bedding Considerations

The use of a well-graded granular material placed 4" to 6" inches in depth works best for the bedding. If construction equipment is expected to operate for an extended period of time on the bedding, the use of either an engineering fabric or a stiff geogrid is good insurance to make sure the bedding material maintains its integrity.

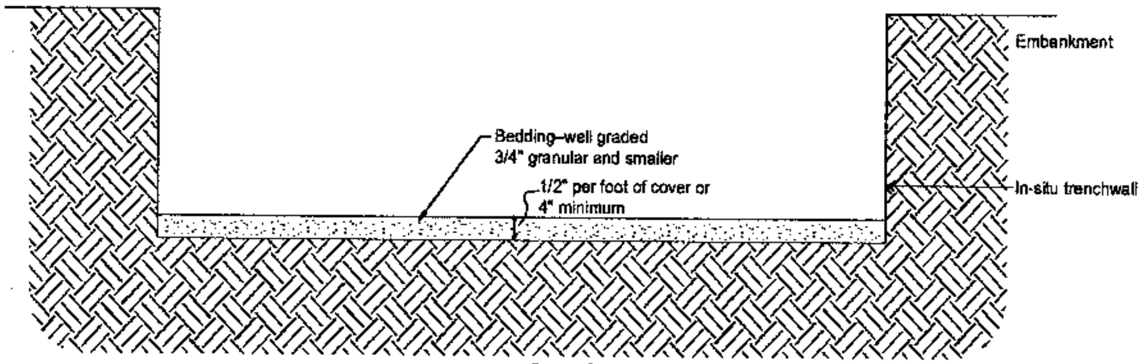


Figure 2

The use of an open graded bedding material is acceptable; however, an engineering fabric separator is required between the bedding and the subgrade.

The bedding shall be graded to a smooth consistent uniform grade to allow for the placement of the pipe on the proper line and grade.

In-Situ Trench Wall Considerations

In the event that excavation is required in order to get the pipe placed on the proper line and grade, consideration needs to be given to the quality of the soils in the surrounding in-situ soil. The trench wall needs to be stable and capable of supporting the load that the pipe sheds as the system is loaded. Soils that are weak and not capable of supporting these loads will allow the pipe to deflect. A simple soil pressure check will provide the designer with the applied loads that can be used to determine the limits of excavation required beyond the spring line of the outer most pipes. It should be noted that in most cases the requirements for a safe work environment and providing enough space for proper backfill placement and compaction take care of this concern.

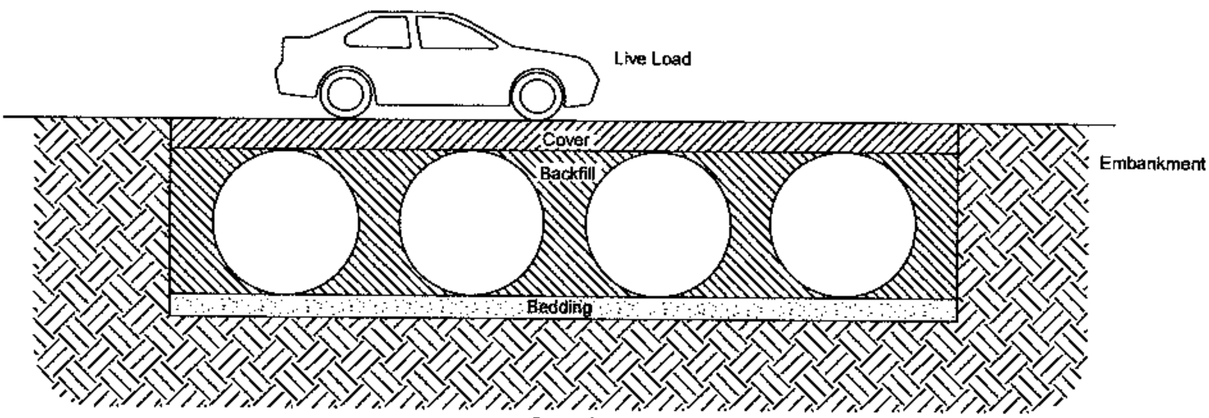


Figure 3

Backfill Material Considerations

All other considerations aside, the best backfill material is an angular, clean, well-graded granular fill meeting the requirements of AASHTO A-1-a. However, other backfill types can be used (consult your local CONTECH Sales Engineer). If a uniformly graded (particles all one size) bedding is used, then a geotextile separation fabric should be used to prevent the migration of fines.

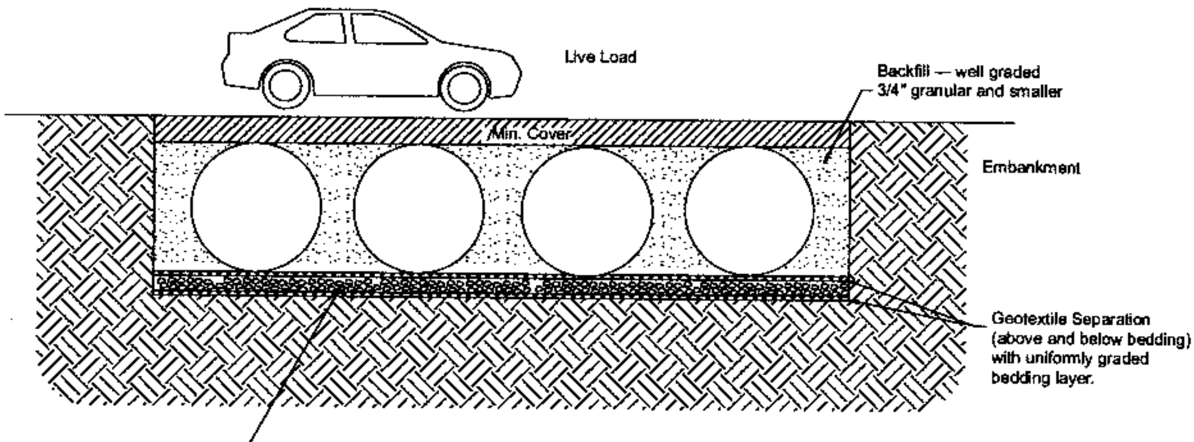


Figure 4

Depending on the size of the pipe and the spacing, it is at times desirable to use a uniformly graded material for the first 18 to 24 inches (ref. Figure 5). The maximum particle size should not be more than 3/4 inch. This type of material is easier to place under the haunches of the pipe and requires little compactive effort. In the event that this type of material is used, then a separation geotextile needs to be used above and below these initial lifts depending again on the bedding material.

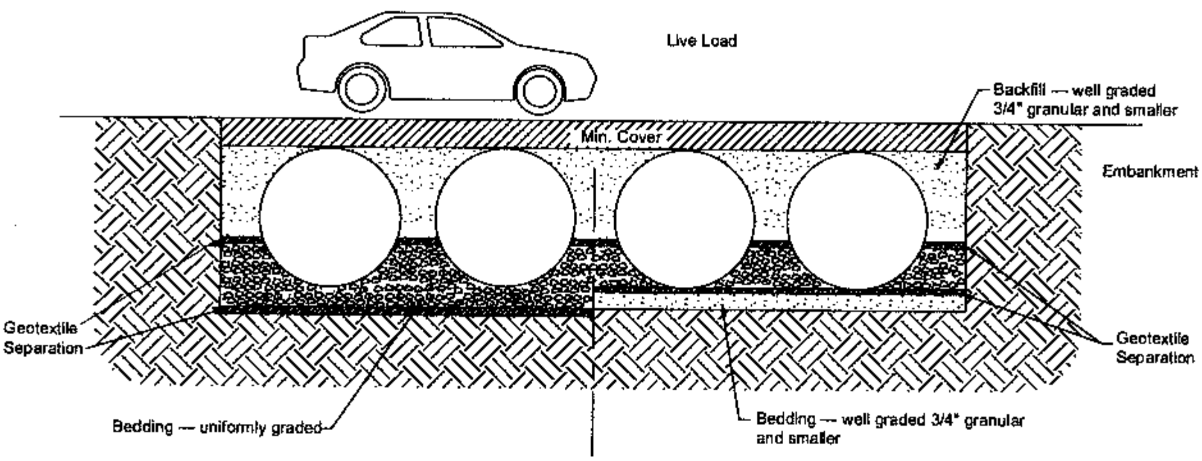


Figure 5

It is not desirable to use an open graded fill beyond the initial 18 to 24 inches because the proposed fill often does not provide adequate confining restraint to the pipes in these types of systems.

The use of a CLSM (controlled low-strength material) can be used when the spacing between the pipes will not allow for adequate compaction of the backfill. If this type of backfill is used, then special considerations need to be made during the placement of the CLSM to ensure balanced loading and prevent the pipe from floating.

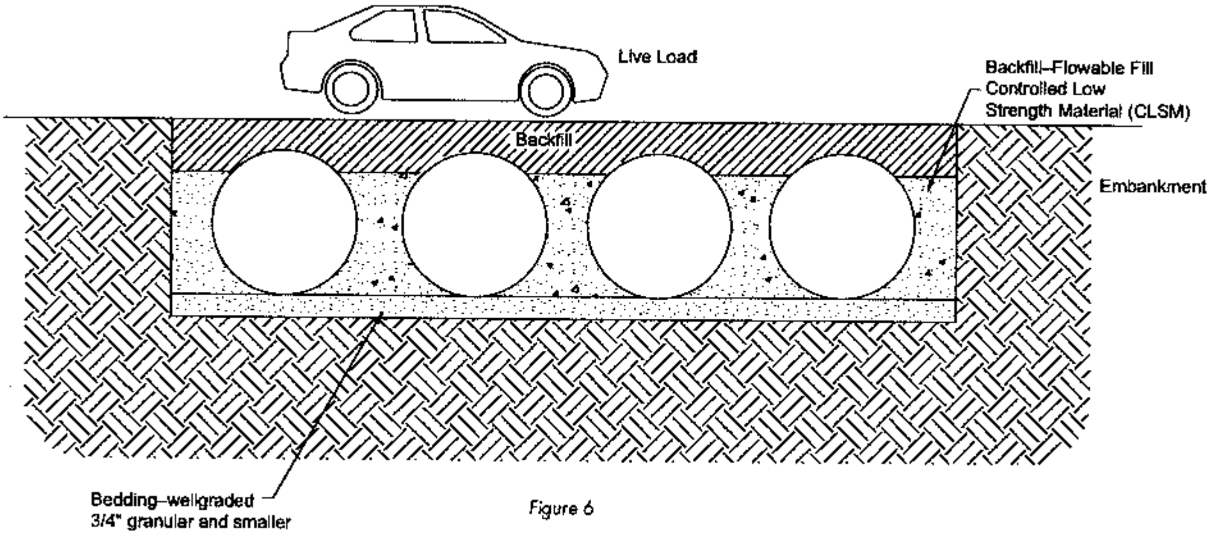


Figure 6

Backfill Placement Considerations

The backfill shall be placed in 8" loose lifts and compacted to 90% AASHTO T99 standard proctor density. The backfill shall be placed in a balanced manner making sure that no more than a two-lift differential is present from one pipe side to the other during the backfilling process. Backfill differential heights from one side of the pipe to the other in excess of the above recommendations can cause pipe distortions or unwanted movement.

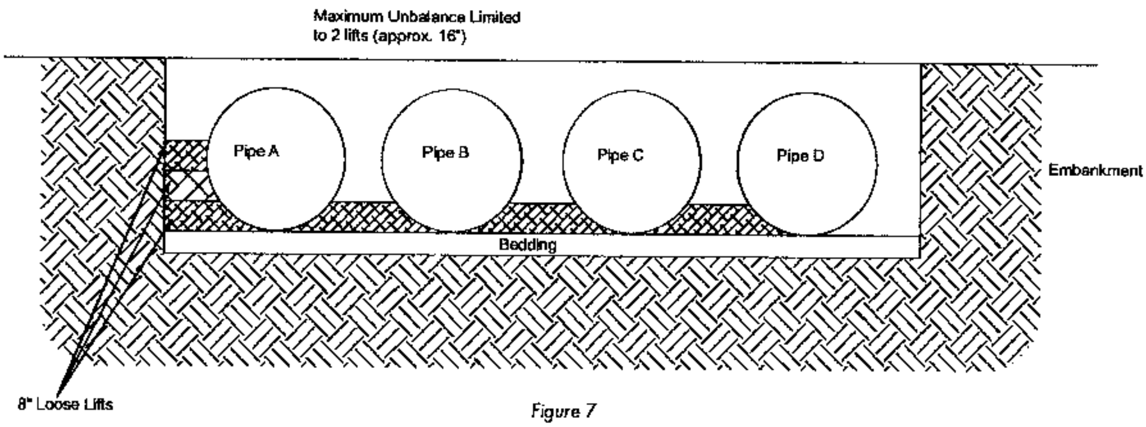


Figure 7

As backfill is placed between the pipes it must be kept balanced from side to side as well as advanced at the same rate along the length of the detention system. In other words if you place the first lift between pipe A and B for a distance of 25 feet along the length of the system, then 25 feet of fill needs to be placed between pipes B and C and so forth until all pipes are backfilled equally.

Typical Backfill Sequence

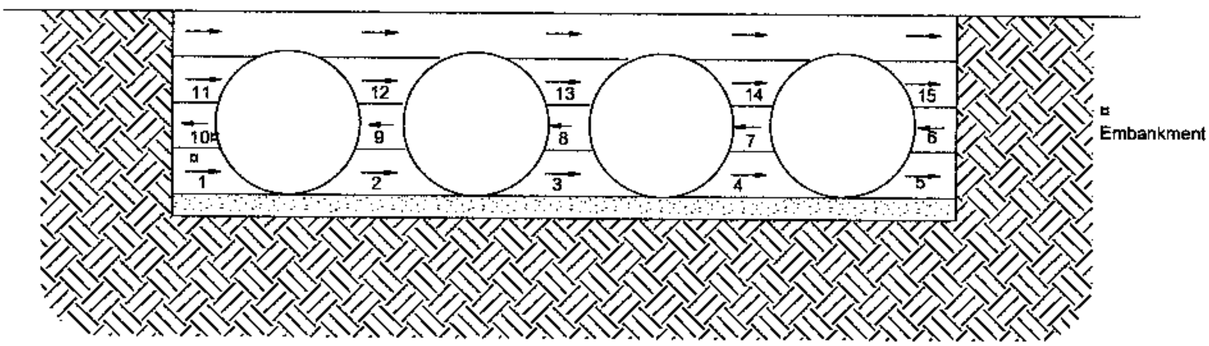


Figure 8

For large systems, conveyor systems have been used to place the fill effectively. Backhoes with long reaches or draglines with stone buckets have also been used effectively to place the fill along the pipe lengths until minimum cover is reached for construction loading across the entire width of the system. On long parallel sections of pipe, the contractor may need to backfill in stages along the pipe lengths. Once the required cover is reached the initial section, then the equipment advances forward to the end of the recently placed fill and the sequence begins over again until the system is completely backfilled. This type of construction sequence will provide room for stockpiled backfill directly behind the backhoe as well as the movement of construction traffic. Material stockpiles on top of the backfilled detention system should be limited to 8-10 ft maximum height and must provide balanced loading across all barrels. To determine the proper cover over the pipes to allow the movement of construction equipment see Table 1, or contact your local CONTECH sales engineer.

Corrugated Steel Pipe General Guidelines for Minimum Cover Required for Heavy Off-Road Construction Equipment				
Pipe Span, Inches	**Minimum Cover (feet) for Indicated Axle Loads (kips)**			
	18-50	**50-75**	**75-110**	**110-150**
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

Table 1

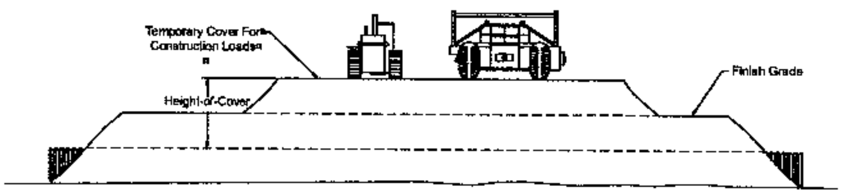


Figure 9

When flowable fill is used, care needs to be taken to prevent pipe flotation. Typically, small lifts are placed between the pipes and then allowed to set up prior to the placement of the next lift. The allowable thickness of the CLSM lift is a function of two factors. The first is a proper balance between the uplift force due to the CLSM and the opposing force due to the weight of the pipe and the effect of other restraining measures that are incorporated to resist flotation. The second constraint on CLSM lift thickness is the ability of the pipe to carry the fluid pressure without pipe distortion or displacement. Contact your local CONTECH sales engineer for help in determining the proper lift thickness. The backfill sequence needs to be balanced as described above.

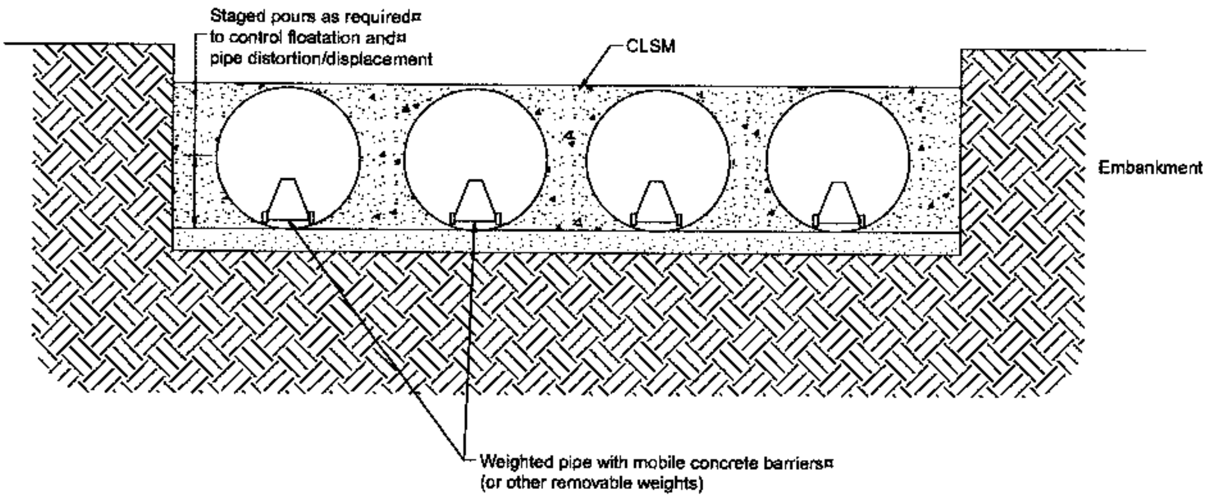


Figure 10

Construction Loading Considerations

Typically, the minimum cover specified for the project is for standard H-20 live loads. Construction loads can greatly exceed those loads for which the pipe is designed in its completed state. In many cases, increased temporary minimum cover requirements are necessary to facilitate construction loading. Since construction equipment varies from job to job, it is best to discuss the minimum cover requirements during construction with the contractor at the preconstruction meeting. (Reference Table #1, and Figure 9 and 11.)

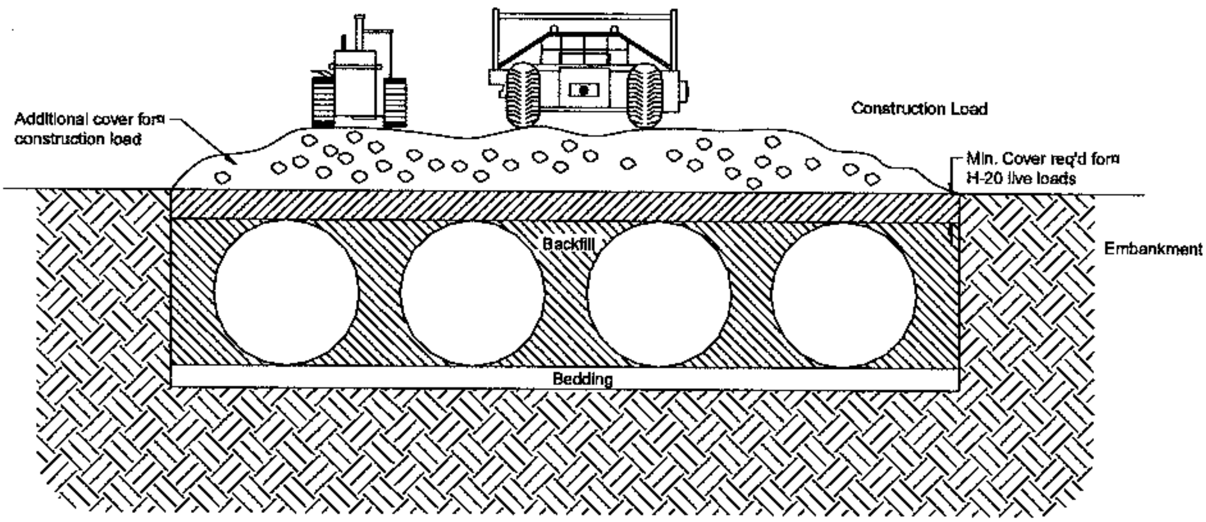


Figure 11

Special Considerations

Since most of these systems are constructed at a grade below elevation for the surrounding site, rainfall can cause the excavation to fill with water rapidly. This rapid influx of water can potentially cause floatation and movement of the previously placed pipes. To help mitigate potential problems, it is best to start the system at the outlet or down stream end with the outlet already constructed to allow a route for the water to escape. Temporary diversion measures to handle flow may be required due to the restricted nature of the outlet pipe.

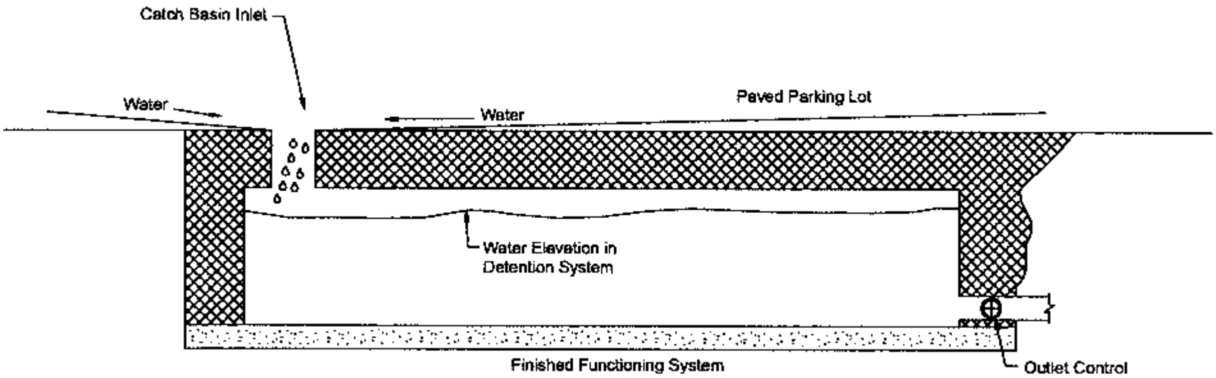


Figure 12

Installation Specification

Pre-Construction Meeting

Prior to installation of the detention system a pre-construction meeting shall be conducted. Those required to attend are the supplier of the detention system, the general contractor, sub contractors and the engineer.

Foundation/Bedding Preparation

Prior to placing the bedding, the foundation must be constructed to a uniform and stable grade. In the event that unsuitable foundation materials are encountered during excavation, they shall be removed and brought back to grade with a fill material as approved by the engineer. Once the foundation preparation is complete, then 4 inches of a well-graded granular material shall be placed as the bedding.

Backfill

The backfill shall be an A1, A2 or A3 granular fill per AASHTO M-145 or a well-graded granular fill as approved by the engineer (see Installation Guidelines). The material shall be placed in 8-inch loose lifts and compacted to 90% AASHTO T99 standard proctor density. When placing the first lifts of backfill it is important to make sure that the backfill is properly compacted under and around the pipe haunches. Backfill shall be placed such that there is no more than a two lift differential between any of the pipes at any time during the backfill process. The backfill shall be advanced along the length of the detention system at the same rate to avoid differential loading on the pipe.

Minimum Cover

Backfill shall be placed to the proper elevation over the system as outlined in the plans. Minimum cover for construction loading needs to be determined based on the type of equipment that is planned for construction. Proper cover for construction equipment shall be determined prior to the pre construction meeting by the engineer.

Corrugated Steel Pipe General Guidelines for Minimum Cover Required for Heavy Off-Road Construction Equipment

Pipe Span, Inches	Minimum Cover (feet) for Indicated Axle Loads (kips)			
	18-50	50-75	75-110	110-150
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

Table 1

APPENDIX D

WATER RESOURCE/WATERSHED ANALYSIS STUDY

NP&V, LLC

September 2005
Revised December 2005

Water Resource/Watershed Analysis Study

KIRUV ESTATES

Hamlet of Huntington, Town of Huntington
Suffolk County, New York

NP&V Project No. 97110

September 2005
Revised December 2005

Water Resource/Watershed Analysis Study

KIRUV ESTATES

Hamlet of Huntington, Town of Huntington
Suffolk County, New York

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NELSON POPE & VOORHIS LLC
ENVIRONMENTAL • PLANNING • CONSULTING

WATER RESOURCE/WATERSHED ANALYSIS STUDY

Kiruv Estates

Huntington, New York

TABLE OF CONTENTS

				Page
1.0	**INTRODUCTION**			1
	1.1	**Site Location and Description**		1
	1.2	**Natural Features of Watershed Area**		1
2.0	**STUDY AREA WATERSHED CHARACTERISTICS**			2
	2.1	**Watershed Boundaries and Area Character**		2
	2.2	**Topography and Drainage**		2
	2.3	**Geology**		3
		2.3.1	Surface Soils	3
		2.3.2	Subsurface Geology	4
	2.4	**Hydrogeology**		5
		2.4.1	Surface Water/Wetlands	5
		2.4.2	Groundwater	6
		2.4.3	Surface Water/Groundwater Interaction	8
3.0	**STORMWATER RUNOFF/WATERSHED ANALYSIS**			13
	3.1	**Analysis Purpose and Procedure**		13
	3.2	**Analysis Results**		13
4.0	**SUMMARY AND CONCLUSIONS**			15

TABLES

1	Site Coverages	7
2	Land/Water Elevations of Soil Borings	11
3A	Watershed Area 1 Storm Event Runoff Volumes	13
3B	Watershed Area 2 Storm Event Runoff Volumes	14
4	Watershed Area 3 Storm Event Runoff Volumes	14

ATTACHMENTS

Attachment A **Figures**

1 Location Map
2 Aerial Photograph with Hydrological Features
3 Soils Map
4 Geologic Cross-Section
5 Water Table Map
6 Regional Topographic Elevations
7 Watershed & Hydrological Features

Attachment B **Nelson & Pope Watershed Study**

1.0 INTRODUCTION

This purpose of this document is to present a discussion on the hydrogeolgic character of the site which includes a detailed analysis of the watershed area surrounding the subject property as well as the existing surface water and groundwater resources present at the site. Also presented is an analysis of existing stormwater runoff conditions as well as the impact that development of the project site will have on the volume and pattern of runoff following the proposed development of the subject property.

1.1 SITE LOCATION AND DESCRIPTION

The subject property is approximately 7.07 in size and is located at the southeast corner of Park Avenue (CR 35) and Woodhull Road in the hamlet of Huntington, Town of Huntington. The property lies along the south side of Park Avenue and the northeast side of Woodhull Road, giving the site frontage on two roadways. The property has approximately 861 feet of continuous frontage along Woodhull Road and approximately 770 feet of discontinuous frontage along Park Avenue. **Figure 1 (Attachment A)** provides a general location of the subject property.

The subject site is presently occupied and improved with a single-family dwelling, cottage, access driveway and man-made pond in the northeast portion of the site. A cow barn with attached silo is located in the central portion of the site. An emergent marsh and freshwater wetlands which flow into the man-made pond are also located along the eastern edge of the site. The southwest portion of the site contains two historic residential dwellings along the frontage of Woodhull Road. An unpaved driveway currently extends from Woodhull Road to access the four existing dwellings.

1.2 NATURAL FEATURES OF WATERSHED AREA

A watershed can be defined as a natural unit of land upon which water from direct precipitation flows as runoff downhill to a common outlet or outlets at which water discharges. This runoff can discharge to surface water bodies or may collect in low lying areas where it is subject to evapotransipirational processes or directly recharge to the underlying aquifer system. Discharges may also be diverted to man-made collection facilities for direct groundwater recharge or deposition into nearby surface water bodies. Components of a watershed consist primarily of topography, land use, soil type, geology, hydrogeological character surface area coverages and artificial drainage facilities. All of these features affect the rate and volume of surfacewater runoff over a watershed area as well as its ability to transfer precipitation to its eventual surface or subsurface point of discharge.

2.0 STUDY AREA WATERSHED CHARACTERISTICS

2.1 WATERSHED BOUNDARIES AND AREA CHARACTER

The watershed study area is approximately 23 acres in size and is within an approximately 450 foot wide area which extends along the length of Woodhull Road between Hilaire Drive and Park Avenue. The area within the watershed is occupied by single family homes, paved surface area, woodlands and surface water bodies.

2.2 TOPOGRAPHY AND DRAINAGE

The majority of the subject property slopes downward in a south-to-northeast direction, with a small portion of the property in the southwest sloping downward to the northwest and north. The highest point on the subject property, at 120 feet above sea level (asl), is located along the eastern boundary of Hilaire Woods, in the southern portion of the site. The lowest point, at approximately 49 feet asl, is located near the intersection of Park Avenue and Woodhull Road. Approximately 55% of the site (3.89 acres) has slopes that range between 0 and 10%, with approximately 15% (1.06 acres) in the range 10-15% and approximately 30% of the site at 15% and greater (2.12 acres). Significant slopes exist in the southern and southwestern portions of the property. Approximately 0.93 acres of the steep slope area will be conveyed to the Town by sale. An emergent marsh and freshwater wetlands, which flows into the man-made pond, are located along the eastern edge of the site. These areas occupy approximately 1.10 acres of the site. The existing topography is illustrated on the **Overall Layout Plan** (in a pocket at the end of Volume 1 of the DEIS).

Stormwater drainage generally follows the topographic profile of the subject property where stormwater that is not infiltrated runs overland to natural detention areas or may eventually discharges to the pond and wetland areas located along the eastern property boundary as well as the ponded area in the northern corner of the site. Stormwater deposited in the wetlands area eventually drains into the on-site pond. Water in the pond is transferred through an overflow into the County roadside catch basin system located on the west side of Park Avenue. Water entering this system is conveyed by piping in Park Avenue towards the north where it discharges to a shallow stream located in an open Town park north of Woodhull Road. Water entering this surface water system is eventually deposited into Hecksher Pond which lies approximately 2,000 feet northwest of the subject site.

Due to prior drainage problems associated with the property, a perforated drainage culvert was installed approximately 2 years ago to alleviate flooding of the existing structure which periodically occurred at the property during periods of excessive rainfall. The system, which is located in the northern end of the site, collects runoff which percolates slowly through the overlying low permeability soils and transfers it to the northern corner of the property and into a subsurface leaching pool. Overflow from the leaching pool is eventually discharged to the County roadside catch basin system where it is eventually transferred to Hecksher Pond. This system has also reduced the degree of ponding which occurs in the northern corner of the site but this area still has been observed to collect run-off during periods of excessive precipitation. The drainage pattern of the site is illustrated in **Figure 2 (Attachment A)**.

2.3 GEOLOGY

2.3.1 Surface Soils

The USDA Soil Survey of Suffolk County, New York **(Warner et al., 1975)** provides a complete categorization, mapping and description of soil types found in Suffolk County. Soils are classified by similar characteristics and depositional history into soil series, which are in turn grouped into associations. These classifications are based on profiles of the surface soils down to the parent material, which is changed little by leaching or the action of plant roots. An understanding of soil character is important in environmental planning as it aids in determining vegetation type, slope, engineering properties and land use limitations. These descriptions are general, however, and soils can vary greatly within an area, particularly soils of glacial origin. The slope identifiers noted in this subsection are generalized based upon regional soil types; the more detailed subsection on topography should be consulted for analysis of slope constraints.

The soil survey identifies the subject site as lying within an area characterized by Montauk-Haven-Riverhead Association soils **(Warner et al., 1975).** These are deep, nearly level to strongly sloping, well drained to moderately well-drained, with moderately coarse textured and medium-textured soils on glacial moraines.

A total of three (3) soil types have been identified on-site; the locations of these soils are depicted in **Figure 3 (Attachment A)**. Specific descriptions of the soils found on-site are presented below **(Warner et al., 1975)**.

> *Carver and Plymouth sands, 15-35% slopes (CpE)* - The Carver series consists of deep, excessively drained coarse-textured soils. This soil type is found almost exclusively on moraines except for a few steep areas on side slopes along some of the more deeply cut drainage channels on outwash plains. The hazard for erosion is moderate to severe. These soils are droughty with naturally low fertility. The primary limitation to use is due to moderately steep to steep slopes.
>
> *Montauk Soils, graded, 0-8% slopes (MlB)* - consists of areas of Montauk sandy loam, Montauk silt loam or both. The areas have been altered by grading and are used for housing developments, shopping centers, industrial parks or similar non-farm purposes.
>
> *Riverhead and Haven soils, graded, 0 to 8 % slopes (RhB)* - This map unit consists of Riverhead sandy loam, of Haven loam, or of both. The areas have been altered by grading for use as housing developments, shopping centers, industrial parks and similar non-farm uses.

In addition, borings were installed at the site to characterize the surface soils and subsurface geology at the subject property. Review of the geologic borings indicate that the surface soils [surface material from approximately 0 to 2 feet (bgs)] overlying the site generally consist of a mix of sand and loam which overly a mix of sands and clayey sands. This characterization of the on-site surface soil is consistent with the on-site soil classifications derived from the Suffolk County Soil Survey.

2.3.2 Subsurface Geology

Long Island is located within the Atlantic Coastal Plain, a general physiographic province in which substantial sediment deposits overlie the base, or bedrock **(Fuller, 1914)**. The surface topography of the Island is primarily a product of glacial history and subsequent human activity. Understanding the geologic history and stratigraphy of Long Island is important in relating potential impacts of the project to hydrogeologic resources and their importance in Long Island's future.

The bedrock beneath Long Island consists of a complex of igneous and metamorphic rock of Precambrian age that strikes to the east-northeast with a southeastward trending slope of Approximately 80 feet per mile. The elevation of the top of the bedrock is approximately 1,000 feet below sea level (bsl) in the area of the site. Bedrock is overlain by sediments of Cretaceous and Quaternary age containing three major aquifers consisting of the Lloyd, Magothy and Upper Glacial **(Lubke, 1964)**. **Figure 4 (Attachment A)** provides a cross section of Long Island for a profile running from Long Island Sound to the Atlantic Ocean in the vicinity of the project site **(Jensen and Soren, 1974)**.

The primary Cretaceous deposits on Long Island are the Raritan and Magothy Formations, which were deposited atop the bedrock during the mid to late Cretaceous period (138 to 65 million years ago) as a result of sediment transport from highlands to the north of the Island **(Koszalka, 1983)**. The deposits directly overlying the bedrock consist of the Raritan formation that is comprised of the Lloyd Sand Member and the overlying Raritan Clay **(Lubke, 1964)**. The Lloyd Aquifer is contained within the Lloyd Sand Member and rests unconformably on bedrock at an elevation of approximately 800 feet bsl in the area of the site indicating a thickness of 200 feet. Sediments within this formation consist of white to pale yellow fine to coarse-grained sands and gravel with some clay and layers of silt and clay. The clay member of the Raritan formation that overlies the Lloyd Sand Member is located at an elevation of 700 feet bsl and indicating a thickness of 100 feet. This deposit is composed chiefly of beds of gray, white and red variegated clay and silt, with interbedded layers of sand in some places. The material of this clay layer is of relatively low permeability and acts as an aquiclude which confines the water in the underlying Lloyd and retards interchange of water from overlying formations **(Lubke, 1964)**.

Resting above the Raritan Clay lies the Magothy Formation and Matawan Group which form the Magothy Aquifer, and were deposited in the late Cretaceous approximately 75 million years ago following a period of erosion of the Raritan Clay. These deposits are found in the vicinity of the site at an elevation equivalent to sea level indicating a thickness of approximately 700 feet **(Lubke, 1964)**. The lower portion of the Magothy rests directly on the clay member of the Raritan formation and consists largely of brown and gray coarse sand, gravel with some clay. The upper portion of the Magothy includes white, gray and brown interbedded clay, fine to medium sand and silt and some lignite.

During the Tertiary period (65 million to 2 million years ago) there was erosion of Cretaceous deposits over much of Long Island due to hydrologic processes such as stream formation. Sea level was low, and a large valley formed north of Long Island in what is now Long Island Sound. Most of the surface sediments evident on Long Island were deposited during the glacial advances of the Pleistocene epoch, Quaternary period (2 million years ago to 10,000 years ago). The Pleistocene was marked by cycles of glacial advance and subsequent retreat producing morainal and glaciofluvial (outwash) sediments on top of the Magothy Formation and Matawan Group. These Quaternary sediments, which consist of clay, silt, sand, gravel, and boulders, comprise the deposits of the Upper Glacial Aquifer. The glacial outwash deposits of the Upper Glacial Aquifer are found at an elevation of 150 feet asl corresponding to the land surface indicating a thickness of 150 feet **(Lubke, 1964)**. These sediments predominantly consist of brown, yellow and gray sands and gravels with localized clay lenses. The Ronkonkoma and Harbor Hills Terminal Moraines were deposited as part of this Upper Glacial deposit along the spine and the North Shore of Long Island as the glaciers retreated during the Wisconsin stage of the Late Pleistocene (approximately 25,000 to 10,000 years ago) **(Koszalka, 1983, p. 15)**. Low, flat outwash plains formed southward as erosional processes carried sediments away from the moraines, and coastal processes formed barrier beaches along the south shore as sea level rose.

Subsurface geological data was obtained from the property through the installation of several soil borings at strategic locations on the subject property. The locations of these borings as well as individual boring log profiles are provided on the **Grading and Drainage Plan** (in a pocket at the end of Volume 1). Review of the on-site boring logs indicate that subsurface soils generally consist of semi-permeable silty to clayey sands from depths of approximately 2 to 14 feet below ground surface (bgs). Soils underlying this silty/clayey sand layer are found to generally consist of fine sands with traces of silt and gravel.

2.4 HYDROGEOLOGY

2.4.1 Surface Water/Wetlands

The subject property contains wetlands which originate in a 54 foot elevation area near Park Avenue toward the easternmost part of the subject site which has frontage on Park Avenue. The wetlands follow the land surface northwest, to a culvert which transmits water under a driveway for a house on the subject property and to a pond area. The pond has lined sides and discharges through an overflow to the 54 inch drainage system which runs down the south side of Park Avenue.

The surface water on the subject property lies at an elevation above the regional water table and is therefore considered a "perched" water body and does not intersect the underlying water table.

Occasional ponding is evident in a low point at the northwest corner of the Kiruv site and receives water from the watershed area associated with Woodhull Road, as well as a primitive dewatering system installed on the subject property to divert water which seeps from hillsides on the site or is trapped in shallow soils, from the houses located on the subject property. This ponding area receives large quantities of water from off-site and on-site, and ultimately overflows to the municipal pipe drainage system at the corner of Woodhull Road and Park Avenue. This area is not a permanent surface water or wetland feature, but is important as a privately owned drainage retention area which receives area runoff.

2.4.2 Groundwater

The major water bearing units beneath the subject site are the Upper Glacial, Magothy and Lloyd Aquifers **(Jensen and Soren, 1974; Smolensky et al., 1989).**

Groundwater on Long Island is derived from precipitation. Precipitation entering the soils in the form of recharge passes through the unsaturated zone to a level below which all strata are saturated. This level is referred to as the groundwater table. The groundwater table coincides with sea level on the north and south shores of Long Island, and rises in elevation toward the center of the island. The high point of the parabola is referred to as the groundwater divide.

The changes in elevation of the groundwater table create a hydraulic gradient which causes groundwater to flow in a direction perpendicular to the contour lines of equal elevation **(Freeze and Cherry, 1979).** Contour lines are lines of equal elevation of groundwater as inferred between observation well points mapped by the SCDHS. The lines of equal elevation assist in determining the generalized direction of groundwater flow in the water table aquifer. In an isotropic aquifer (an aquifer where the conductivity is the same in the horizontal and vertical directions), groundwater moves perpendicular to the contour lines **(Freeze and Cherry, 1979).** Although the hydrogeologic units are not isotropic on Long Island, this principle may be used to approximate the direction of groundwater flow. The configuration of the water table and the location of the groundwater divide will change as groundwater elevations fluctuate.

The subject parcel lies north of the regional groundwater divide, based upon the USGS water table map from 1999 shown in **Figure 5 (Attachment A).** The flow of groundwater for areas north of the regional groundwater divide is generally to the north; for the project site, groundwater flow is toward the north-northwest. Review of the 2000 USGS water table map indicates that the upper surface of the groundwater table in the area of the site lies at approximately 28 feet above mean sea level (msl). This is substantially below water table elevations identified in on-site boring logs which identifies groundwater at an elevation of approximately 45 feet above msl in the northern end of the property; this indicates that the water identified in these borings is "perched" as will be discussed herein. Based on the results from these borings as well as property elevations which range from 48 to 120 feet above msl it is estimated that the water table lies at depths ranging from between 20 to 92 feet bgs at the site.

Review of logs for additional borings installed in other portions of the site further supports the finding that "groundwater" noted in soil borings is "perched" water given the presence of subsurface water at significantly higher elevations within the range of 50 to 70 feet above msl. Further examination of the boring logs reveal the presence of semi-impermeable layers of clayey sands and hardpan material consisting of silty sands that retards the downward migration of recharge to the underlying water table and ultimately results in the creation of perched water zones at the site.

The groundwater budget for an area is expressed in the hydrologic budget equation, which states that recharge equals precipitation minus evapotranspiration plus overland runoff **(SCDHS, 1987-2; p. 5-29).** This indicates that not all rain falling on the land is recharged. Loss in recharge is represented by the sum of evapotranspiration and overland runoff. The equation for this concept is expressed as follows:

$$\mathbf{R = P - (E + Q)}$$

where: **R** = recharge
P = precipitation
E = evapotranspiration
Q = overland runoff

Nelson, Pope & Voorhis, LLC has utilized a microcomputer model developed for exclusive use of NP&V for the purpose of predicting both the water budget of a site and the concentration of nitrogen in recharge. The model, referred to as SONIR (Simulation of Nitrogen in Recharge), utilizes a mass-balance concept to determine nitrogen in recharge. Critical in the determination of nitrogen concentration is a detailed analysis of the various components of the hydrologic water budget, including recharge, precipitation, evapotranspiration and overland runoff. The basis for this method of nitrogen budget analysis is well established, and similar techniques have been used to simulate nitrogen in recharge as published by the New York State Water Resources Institute, Center for Environmental Research at Cornell University, Ithaca, New York (BURBS - A Simulation of the Nitrogen Impact of Residential Development on Groundwater; **Hughes et al., 1985).** The SONIR model includes four (4) sheets of computations: 1) Data Input Field; 2) Site Recharge Computations; 3) Site Nitrogen Budget; and, 4) Final Computations. There are a number of variables, values and assumptions concerning hydrologic principles, which are discussed in detail in a user manual developed for the SONIR Model and provided in **Appendix B-1.**

The model has been run for water budget and nitrogen parameters for Existing Conditions. The results of this analysis are presented in **Appendix B-2**. The SONIR model was run for the project site based on current site conditions (**Table 1**) in order to provide a basis for comparison. The 7.07-acre site currently has a total site recharge of 20.21 inches per year, or 3.88 million gallons per year (MGY) over the entire site.

TABLE 1
SITE COVERAGES

Parameter	Existing Conditions
Coverages (acres):	---
Buildings	0.24
Paved	0.02
Gravel/Pervious	0.12
Mapped Wetlands (2)	0.89
Lawn (3)	1.77
Successional Forest	4.03
TOTAL	7.07

2.4.3 Surface Water/Groundwater Interaction

The groundwater and surface water relationship of the Kiruv Estates site is a function of many physical resource conditions including:

- topographic elevations;
- water table elevations;
- the resultant depth to the regional water table;
- surface soils and land cover;
- site and area drainage patterns;
- subsurface geology;
- precipitation and vertical/horizontal transport of recharge;
- presence and source of surface water; and
- perched water if present due to precipitation and subsurface geology.

These physical conditions are described in the preceding sections of this report; however, the inter-relationship of all of these factors must be considered together in determining groundwater, surface water interaction. The physical environmental factors which includes these conditions, can be very complex. A summary of each physical factor is provided herein, in order to document and analyze groundwater and surface water interaction on the subject site.

<u>Topography</u>
The subject site is located within a regional topographic feature area that is a glacial meltwater swale forming a southeast to northwest trending valley that leads to Heckscher Pond and Huntington Harbor. Park Avenue was placed in the low point of the natural feature valley. Woodhull Road is placed in a south to north trending valley of the same geologic origin, which connects with the larger valley associated with Park Avenue. The Kiruv Estates project site is located at the confluence of these two natural features; the south part of the site straddles the "divide" between these features resulting in topography that slopes west toward Woodhull Road in the southwest part of the site, and east toward Park Avenue in the southeast part of the site. These are the areas of steeper slopes that are protected either through dedication or restrictive covenants as part of the proposed Kiruv Estates subdivision plan. Moving northward on the site, the topographic becomes significantly less steep and the topographic trend becomes more north, northwest toward the more dominant natural valley associated with Park Avenue. The regional topographic elevation is illustrated in **Figure 6 (Attachment A)**. The on-site topographic elevations were determined using photogrammetric methods specific to the site and are illustrated on the Preliminary Map of Kiruv Estates prepared by Nelson & Pope and included as the **Overall Layout Plan**. The topographic elevation varies from nearly 120 feet above mean seal level (msl) in the south part of the site, to the base of the steeper slope area with topography in the range 75 feet above msl, to a low of approximately 48 feet above msl in the northwest corner of the site.

<u>Water Table Elevations</u>
The regional water table elevation at the subject site is determined by review of water table maps prepared by government agencies based on synoptic annual monitoring of a large number of regional wells. The water table elevation measurements are used to complete a contour map of the water table, which illustrates the lines of equal elevation of groundwater over a large area.

The water table elevations may vary somewhat from year to year as a result of the quantity of precipitation, but the general shape of the water table remains similar. In addition, the water table elevations near the coast tend to vary less given the parabolic shape of the water table which essentially has a "fixed" elevation of zero (0) at mean sea level on the north and south shores. The water table rises toward the top of the parabola, roughly down the center "spine" of Long Island; this forms the regional groundwater divide which results in a gradient down the slope of the parabola to the north and south. The subject site lies north of the regional groundwater divide, indicating that groundwater flow is generally toward the north due to the gradient caused by the slope of the water table. The fluctuation of water table elevations is greater toward the center of the Island (or the top of the slope) given the parabolic shape and the angle or gradient formed at the north and south shores.

The source for this information is the Suffolk County Department of Health Services (SCDHS) an agency which performs water level monitoring and periodically publishes a water table contour map. **Figure 1 (Attachment A)** provides an illustration of the water table map for the area of the Huntington Harbor complex south to beyond the regional groundwater divide. The maximum elevation contour shown is 100 feet above msl, with the water table decreasing in elevation toward the north and south. The zero (0) contour is at the coastline, with contour intervals of 10 feet shown. The 10 foot contour is nearest the coast, the 20 foot contour is north of Route 25A, and the 30 foot contour is south of Route 25A. The subject site lies in the area between the 20 and 30 foot contours, and is estimated to have a regional water table elevation of approximately 28 feet.

Depth to Water

Given the topographic elevations of the land surface, the depth to groundwater varies from as shallow as 20 feet at the northwest part of the site, to as deep as 92 feet in the south part of the site. As indicated the depth to water may vary from year to year depending upon annual precipitation and precipitation preceding the monitoring event, but given the location of the site with respect to the coast, fluctuations of several feet at most would be anticipated, where greater fluctuations would occur toward the center of the Island.

Surface Soils and Land Cover

Surface soils determine land cover vegetation types (based on fertility, slope, etc.) and the combination of soil permeability and vegetation determine the amount of evapotranspiration (transfer of water to the atmospheric), surface runoff (overland flow) and recharge (vertical migration of water to the water table). The north and east parts of the subject site are located in Riverhead and Haven soils (RhB), which are soils associated with areas of development and may be comprised of Carver, Plymouth, Haven and Riverhead soils subject to modification due to development. Regional development, and particularly areas developed prior to today's drainage containment standards, tends to increase runoff as a result of impervious surfaces. The south part of the site is located in Carver and Plymouth sands with steep slopes (CpE); these soils are coarse-textured and well-drained and are found on the sides of meltwater swales, such as the Woodhull Road valley area. Soils on site are illustrated in **Figure 3 (Attachment A)**.

The historic construction of roads at the base of the Park Avenue and Woodhull Road valleys would increase runoff, as would additional development of residential, commercial, institutional and transportation related uses, particularly if built decades ago. This is the case in the areas south of and "upslope" of the subject site.

Drainage Patterns

The volume of runoff is dependent upon the surface soils and land cover, and the transport of surface runoff is dependent upon area topography. The watershed which includes the subject property is illustrated in **Figure 7 (Attachment A).** The blue line was constructed by interpolating watershed divides based on topographic ridges and depicts the general "upslope" area which contributes overland flow toward the subject site. A primary watershed contributing factor is the Woodhull Road valley, which comprises a large area where runoff is directed to the base of the valley and flows downward as a result of gravity toward the subject site. The Park Avenue valley is very large as well; however, drainage features in the road collect and transport runoff northwest toward outfall areas at lower elevations than that of the Kiruv site.

An interesting drainage feature is the wetland/surface water area located partially on the subject property. Drainage is expected to be a partial source of water to this feature given the proximity to Park Avenue, similar elevation to Park Avenue, and the substantial volume of water generated in the Park Avenue watershed to the southeast. The drainage patterns on the subject site are such that some overland flow on the southeast part of the site is directed toward the wetland/surface water area; however, there is a divide on the property where overland flow would bypass the pond and be directed toward the low point in the northwest corner of the Kiruv Estates site. In general drainage patterns are such that water flows downslope as illustrated in blue arrows in **Figure 2 (Attachment A)**.

Surface Water

The subject property contains wetlands which originate in a 54 foot elevation area near Park Avenue toward the easternmost part of the subject site which has frontage on Park Avenue. The wetlands follow the land surface northwest, to a culvert which transmits water under a driveway for a house on the subject property and to a pond area. The pond has lined sides and discharges through an overflow to the 54 inch drainage system which runs down the south side of Park Avenue. During visits to the site, the pond overflow was observed in catch basins downstream of the overflow. This is important in considering the origin of water to the wetlands and pond which is further described below.

The surface water on the subject property lies at an elevation above the regional water table and is therefore a "perched" water body. Given the elevation of the water table in the range of 28 feet, and the topographic elevations surrounding the wetlands and pond on site in the range of 54 feet, the depth to water in this area of the site is 26 feet, therefore, the pond could not achieve a depth to intersect the regional water table and the water table would not rise to the elevation of the land surface.

The conclusion that the wetlands and pond are perched features is supported by the overflow of pond water to the street drainage system, which physically shows the elevated nature of this water feature as it overflows, dropping in elevation to the stormwater pipe. Given the finding that the regional water table is 26 feet below the land surface in this location, this condition is not unexpected.

Occasional ponding is evident in the 48 foot low point at the northwest corner of the Kiruv site. This low point receives water from the watershed area associated with Woodhull Road, as well as a primitive dewatering system installed on the subject property to divert water which seeps from hillsides on the site or is trapped in shallow soils, from the houses located on the subject property. This ponding area is a logical collection area which receives large quantities of water from off-site and on-site, and ultimately overflows to the municipal pipe drainage system at the corner of Woodhull Road and Park Avenue. This area is not a permanent surface water or wetland feature, but is important as a privately owned drainage retention area which receives area runoff.

Subsurface Geology

Subsurface geology, and particularly geology effecting groundwater, surface water interaction, is best determined by on-site test borings. Test borings were completed on the site on two occasions by two different geotechnical contractors, both with reputable standing in the environmental engineering field. Borings were installed on November 19, 1998 by Soil Mechanics Drilling Corp. and on December 14, 2004 by MacDonald Geoscience. Borings were installed in different locations, though in some cases the 2004 borings were installed near prior 1998 borings. The profiles prepared as a result of these borings are illustrated on the **Grading and Drainage Plan** (in a pocket at the end of Volume 1).

Test borings were reviewed primarily for the purpose of determining the groundwater, surface water inter-relationship. The silt content as described in vertical intervals is important in determining the potential for water retention in the soils underlying the property. Each boring installed by independent contractors in 1998 and 2004 make note of groundwater at various depths within the boring. These notations are tabulated together below **(Table 2)** in order of increasing land surface elevation where the boring was installed, and the observed water in the boring:

TABLE 2
LAND/WATER ELEVATIONS OF SOIL BORINGS

Boring	B-1A	B-1B	B-2A	B-2B	B-3A	B-4A	B-3B	B-4B	B-5A
Ground*	48.8	49.0	50.1	53.5	53.7	59.1	62.2	72.8	73.3
Water**	42.6	46.6	45.2	52.7	48.0	51.7	59.8	62.7	62.0

Notes: * Ground refers to land surface elevation above msl at location of boring based on profiles in **Grading and Drainage Plan.**
** Water refers to observed water elevation above msl in soil borings installed.

Several findings are evident in review of the soil borings. First, the results are highly variable with little correlation between borings that are at similar elevations and in similar locations. This would be expected to some extent given the fact that two different contractors installed the borings approximately 6 years apart; however, the degree of variability is suspicious. Second, the elevation of groundwater beneath the site is in the range of 28 feet, and is not expected to exceed 30 feet. All borings noted water at elevations well above the regional water table.

Review of the soil profiles finds extreme variability and various layers of silt-bearing soils

Precipitation and Recharge

The soils on site will recharge water; however, downward migration is retarded by the permeability of these soils and dependent upon the depth of the lower permeability barrier, the soils will retain moisture. As a result, horizontal flow of perched water may occur in the form of surface seepage of water, flow toward the pond and wetlands and subsurface movement or retention of water in the soils.

Subsurface Perched Water

The degree to which these soils retain moisture would also be highly variable dependent upon: preceding precipitation events; season and temperature; location on site; and depth on site. As a result, it is expected that water trapped in soils would be found at variable depths, in different locations, during separate sampling events. It is also expected that surface manifestations of water (surface seeps) would be variable on site depending upon the inspection date and the factors noted above.

Findings

The following findings are relevant to this portion of the study with respect to the inter-relationship of groundwater and surface water:

- Regional groundwater is found at an elevation of approximately 28 feet, and the land surface varies from 48 feet to 120 feet resulting in a depth to groundwater of 20 to 92 feet.
- Based on the information analyzed herein, it is concluded that the wetlands and pond on site are "perched" above the regional water table which is approximately 20 feet below the lowest point on the property and 26 feet below the average pond elevation.
- Perched water may be found beneath the subject site dependent upon the subsoils present which are variable but do show evidence of low permeability properties in many areas.
- Perched water migrate horizontally and become a surface seep or outflow to the pond/wetlands.
- Notations which indicate "groundwater" on the soil borings contained on the **Grading and Drainage Plan** refer to perched water as all such notations are at an elevation above regional groundwater.
- Subsoils do recharge to groundwater; however, this occurs at a slower rate than unconstrained soils resulting in retention of water in the constrained soils, evident as perched water and seeps.
- It is necessary to design a drainage system which addresses the soil characteristics noted herein.

3.0 STORMWATER RUNOFF/WATERSHED ANALYSIS

3.1 ANALYSIS PURPOSE AND PROCEDURE

Nelson & Pope has prepared a Stormwater Runoff Study to analyzed the pre and post development conditions of the watershed area that contributes runoff to the subject property. The focus of the study was to analyze the runoff, ponding and collection of stormwater for the ponding area in the northwest corner of the property as well as the catch basins at the intersection of Woodhull Road and Park Avenue

To conduct the analysis, PondPack Version 10.0 by Haestad Methods software package was used to model stormwater runoff. This software generated runoff hydrographs for two, ten, fifty and one hundred-year design storms (SCS TR-55 method) based on drainage basin characteristics input by the user. The software was used to model the pre-developed and post-developed conditions in order to analyze the impact on the town drainage system at the corner of Woodhull Road and Park Avenue by developing the subject site.

The model used a variety of inputs which included design storm events, site hydrologic soil group classifications, runoff curve numbers and time of concentrations to generate data outputs required for an analysis of the study watershed area. The complete study analysis is provided in **Attachment B.**

3.2 ANALYSIS RESULTS

The model was run to assess the effect that 2, 10, 50 and 100 year storm events would have on runoff generated along the watershed area. Under existing conditions the watershed consists of two (2) sub-shed areas which are separated by Woodhull Road. Results of the existing conditions indicate Stormwater runoff from Area 1 (west of Woodhull Road) collects and ponds in the northwest corner of the Kiruv Estates Site and, depending on the storm event, overflows to the corner of Park Avenue and Woodhull Road. Stormwater enters the subject site on the east side of Woodhull Road between the two existing homes where there is no curbing present. Some of the gutter-flow along the east side of Woodhull Road bypasses this location but the majority flows onto the Kiruv Estates Site. **Table 3A** shows the peak flows and cumulative runoff for each storm event.

TABLE 3A
WATERSHED AREA 1 STORM EVENT RUNOFF VOLUMES

Storm Event	Peak Flow	Cumulative Runoff Volume
2	10 cfs	40,685 CF
10	20 cfs	82,198 CF
50	37 cfs	146,057 CF
100	41 cfs	163,002 CF

cfs – cubic feet per second
CF – cubic feet

Stormwater runoff from Area 2 drains to the corner of Park Avenue and Woodhull Road through a valley gutter on the west side of Woodhull Road and is collected at the catch basins at the corner. **Table 3-2B** shows the peak flow and cumulative runoff for each storm event.

TABLE 3B
WATERSHED AREA 2 STORM EVENT RUNOFF VOLUMES

Storm Event	Peak Flow	Cumulative Runoff Volume
2	9 cfs	38,376 CF
10	21 cfs	81,414 CF
50	39 cfs	149,280 CF
100	44 cfs	167,488 CF

cfs – cubic feet per second
CF – cubic feet

Development of the site proposes a drainage system to detain on-site runoff and runoff from off-site tributary areas. There is a small portion of woods at the south end of the site that is not contained due to the steep topography. This area is to remain in its natural state and will continue to runoff onto Woodhull Road. The project proposes to install new curbing and drainage inlets along the east side of Woodhull Road, fronting the Kiruv Estates site, to contain and collect stormwater runoff and prevent it from draining onto the Kiruv Estates Site. The new curbing and drainage along the east side of Woodhull Road will increase the amount of flow to the collection system at the corner of Park avenue and Woodhull Road. **Table 4** shows the post-development flow.

TABLE 4
WATERSHED AREA 3 STORM EVENT RUNOFF VOLUMES

Storm Event	Peak Flow	Cumulative Runoff Volume
2	17 cfs	72,005 CF
10	38 cfs	150,151 CF
50	70 cfs	272,381 CF
100	79 cfs	305,094 CF

cfs – cubic feet per second
CF – cubic feet

There are seven existing reticuline grates at the corner of Woodhull Road and Park Avenue. Woodhull Road has a 4" crown allowing a maximum head of 4" over the inlet grates. Results of the analysis indicates that the rate of flow for a 4" head is 13.41 cfs per grate. Therefore the total cfs for seven grates is 93.87 cfs. This total inlet capacity is more than adequate to contain up to a 100 year storm event. This far exceeds the town's standard for sizing collection systems, which only requires a 3-year storm event. In addition, the inlet capacity neglects the existing 4 curb inlets and proposed drainage inlets that will also increase the capacity.

4.0 SUMMARY AND CONCLUSIONS

The subject site is located within a regional topographic feature area that is a glacial meltwater swale forming a southeast to northwest trending valley that leads to Heckscher Pond and Huntington Harbor. Park Avenue was placed in the low point of the natural feature valley. Woodhull Road is placed in a south to north trending valley of the same geologic origin, which connects with the larger valley associated with Park Avenue. The Kiruv Estates project site is located at the confluence of these two natural features; the south part of the site straddles the "divide" between these features resulting in topography that slopes west toward Woodhull Road in the southwest part of the site, and east toward Park Avenue in the southeast part of the site.

The Kiruv property lies in an area with a regional water table elevation of approximately 28 feet and north of the regional groundwater divide, indicating that groundwater flow is generally toward the north due to the gradient caused by the slope of the water table.

Given the topographic elevations of the land surface, the depth to groundwater varies from as shallow as 20 feet at the northwest part of the site, to as deep as 92 feet in the south part of the site. The depth to water may vary from year to year depending upon annual precipitation and precipitation preceding the monitoring event, but given the location of the site with respect to the coast, fluctuations of several feet at most would be anticipated, where greater fluctuations would occur toward the center of the Island.

The north and east parts of the subject site are located in Riverhead and Haven soils (RhB), which are soils associated with areas of development and may be comprised of Carver, Plymouth, Haven and Riverhead soils subject to modification due to development. Regional development, and particularly areas developed prior to today's drainage containment standards, tends to increase runoff as a result of impervious surfaces. The south part of the site is located in Carver and Plymouth sands with steep slopes (CpE); these soils are coarse-textured and well-drained and are found on the sides of meltwater swales, such as the Woodhull Road valley area.

The historic construction of roads at the base of the Park Avenue and Woodhull Road valleys would increase runoff, as would additional development of residential, commercial, institutional and transportation related uses, particularly if built decades ago. This is the case in the areas south of and "upslope" of the subject site.

The volume of runoff is dependent upon the surface soils and land cover, and the transport of surface runoff is dependent upon area topography. The watershed study area is approximately 23 acres in size and is within an approximately 450 foot wide area which extends along the length of Woodhull Road between Hilaire Drive and Park Avenue. A primary watershed contributing factor to this area is the Woodhull Road valley, which comprises a large area where runoff is directed to the base of the valley and flows downward as a result of gravity toward the subject site. The Park Avenue valley is very large as well; however, drainage features in the road collect and transport runoff northwest toward outfall areas at lower elevations than that of the Kiruv site.

Drainage is expected to be a partial source of water to the surface water feature found on the property given the proximity to Park Avenue, similar elevation to Park Avenue, and the substantial volume of water generated in the Park Avenue watershed to the southeast. The drainage patterns on the subject site are such that some overland flow on the southeast part of the site is directed toward the wetland/surface water area; however, there is a divide on the property where overland flow would bypass the pond and be directed toward the low point in the northwest corner of the Kiruv Estates site. In general drainage patterns are such that water flows downslope.

The subject property contains wetlands which originate in a 54 foot elevation area near Park Avenue toward the easternmost part of the subject site which has frontage on Park Avenue. The wetlands follow the land surface northwest, to a culvert which transmits water under a driveway for a house on the subject property and to a pond area. The pond has lined sides and discharges through an overflow to the 54 inch drainage system which runs down the south side of Park Avenue. During visits to the site, the pond overflow was observed in catch basins downstream of the overflow.

The surface water on the subject property lies at an elevation above the regional water table and is therefore a "perched" water body. Given the elevation of the water table in the range of 28 feet, and the topographic elevations surrounding the wetlands and pond on site in the range of 54 feet, the depth to water in this area of the site is 26 feet, therefore, the pond could not achieve a depth to intersect the regional water table and the water table would not rise to the elevation of the land surface.

The conclusion that the wetlands and pond are perched features is supported by the overflow of pond water to the street drainage system, which physically shows the elevated nature of this water feature as it overflows, dropping in elevation to the stormwater pipe. Given the finding that the regional water table is 26 feet below the land surface in this location, this condition is not unexpected.

Occasional ponding is evident in the 48 foot low point at the northwest corner of the Kiruv site. This low point receives water from the watershed area associated with Woodhull Road, as well as a primitive dewatering system installed on the subject property to divert water which seeps from hillsides on the site or is trapped in shallow soils, from the houses located on the subject property. This ponding area is a logical collection area which receives large quantities of water from off-site and on-site, and ultimately overflows to the municipal pipe drainage system at the corner of Woodhull Road and Park Avenue. This area is not a permanent surface water or wetland feature, but is important as a privately owned drainage retention area which receives area runoff.

Subsurface geology, and particularly geology effecting groundwater, surface water interaction, is best determined by on-site test borings. Test borings were completed on the site on two occasions by two different geotechnical contractors on November 19, 1998 by Soil Mechanics Drilling Corp. and on December 14, 2004 by MacDonald Geoscience. Borings were installed in different locations, though in some cases the 2004 borings were installed near prior 1998 borings.

Test borings were reviewed primarily for the purpose of determining the groundwater, surface water inter-relationship. The silt content as described in vertical intervals is important in determining the potential for water retention in the soils underlying the property. Each boring installed by independent contractors in 1998 and 2004 make note of groundwater at various depths within the boring.

Several findings are evident in review of the soil borings. First, the results are highly variable with little correlation between borings that are at similar elevations and in similar locations. This would be expected to some extent given the fact that two different contractors installed the borings approximately 6 years apart; however, the degree of variability is suspicious. Second, the elevation of groundwater beneath the site is in the range of 28 feet, and is not expected to exceed 30 feet. All borings noted water at elevations well above the regional water table.

Review of the soil profiles finds extreme variability and various layers of silt-bearing soils.

The soils on site will recharge water; however, downward migration is retarded by the permeability of these soils and dependent upon the depth of the lower permeability barrier, the soils will retain moisture. As a result, horizontal flow of perched water may occur in the form of surface seepage of water, flow toward the pond and wetlands and subsurface movement or retention of water in the soils.

The degree to which these soils retain moisture would also be highly variable dependent upon: preceding precipitation events; season and temperature; location on site; and depth on site. As a result, it is expected that water trapped in soils would be found at variable depths, in different locations, during separate sampling events. It is also expected that surface manifestations of water (surface seeps) would be variable on site depending upon the inspection date and the factors noted above.

The following findings are relevant to this portion of the study with respect to the inter-relationship of groundwater and surface water:

- Regional groundwater is found at an elevation of approximately 28 feet, and the land surface varies from 48 feet to 120 feet resulting in a depth to groundwater of 20 to 92 feet.
- Based on the information analyzed herein, it is concluded that the wetlands and pond on site are "perched" above the regional water table which is approximately 20 feet below the lowest point on the property and 26 feet below the average pond elevation.
- Perched water may be found beneath the subject site dependent upon the subsoils present which are variable but do show evidence of low permeability properties in many areas.
- Perched water migrate horizontally and become a surface seep or outflow to the pond/wetlands.
- Notations which indicate "groundwater" on the soil borings contained on the **Grading and Drainage Plan** refer to perched water as all such notations are at an elevation above regional groundwater.
- Subsoils do recharge to groundwater; however, this occurs at a slower rate than unconstrained soils resulting in retention of water in the constrained soils, evident as perched water and seeps.
- It is necessary to design a drainage system which addresses the soil characteristics noted herein.

The results of the watershed analysis study demonstrate that the existing drainage inlets at the corner of Woodhull Road and Park Avenue are capable of handling the additional flow from

Woodhull Road caused by constructing new curbing along the east side of the road. Although the existing drainage was determined to be adequate, new drainage inlets and piping are proposed to decrease the gutter flow along the east side of the road.

The study results also indicate that by providing an on-site stormwater collection and detention system as a part of development the site would be removed from the watershed tributary to the corner of Park Avenue and Woodhull Road. The proposed system will collect and detain stormwater on-site and eliminate the current overflow at the northwest corner of the site onto Park Avenue.

In Summary, the development of the proposed subdivision will have no adverse impacts on the Town's drainage system at the corner of Park Avenue and Woodhull Road. The proposed development will in fact help to improve the existing stormwater collection system on Woodhull Road and at the intersection with Park Avenue.

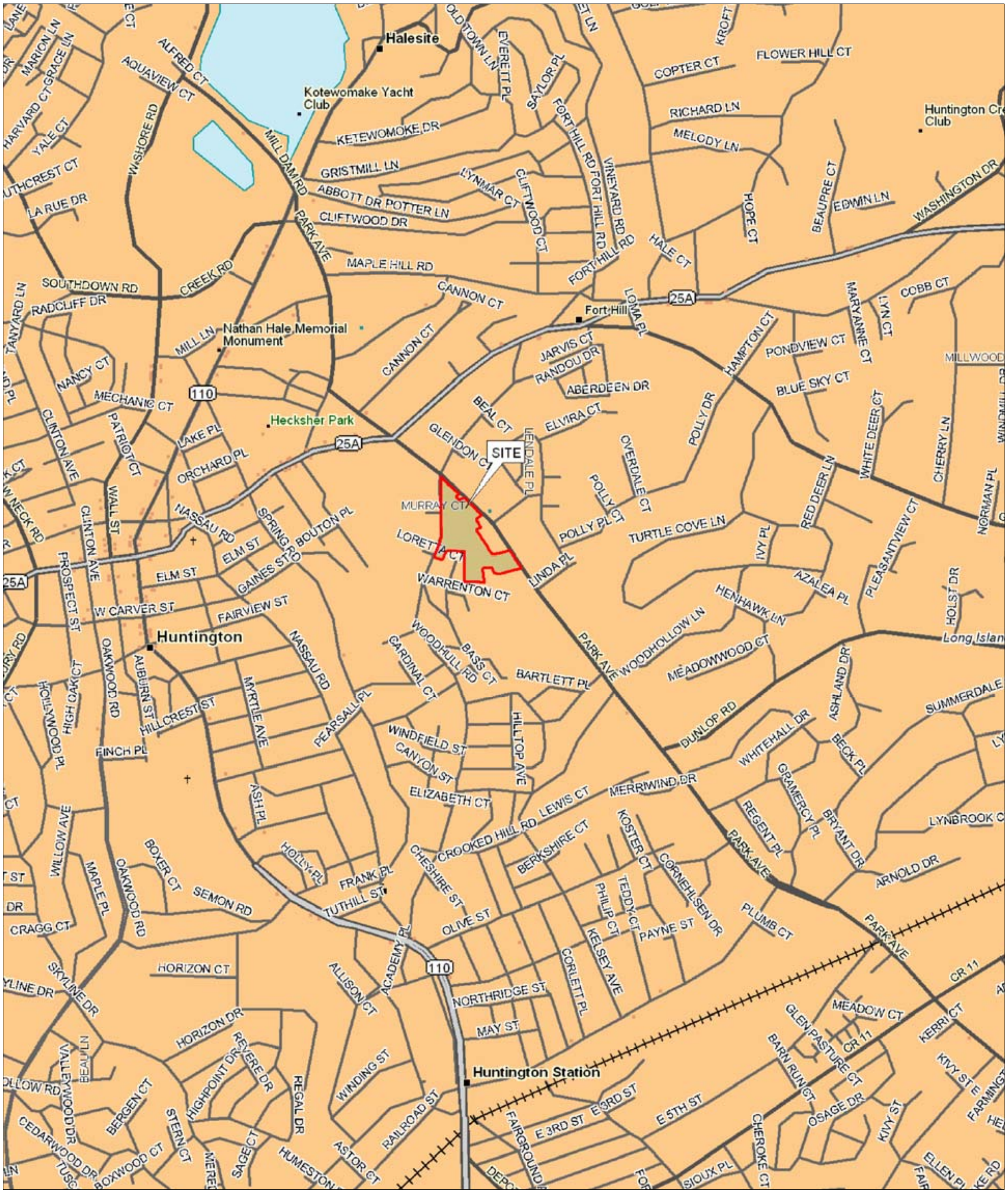
ATTACHMENTS

Attachment A

Figures

FIGURE 1

LOCATION MAP



Source: DeLorme Street Atlas
Scale: Not to Scale

NORTH

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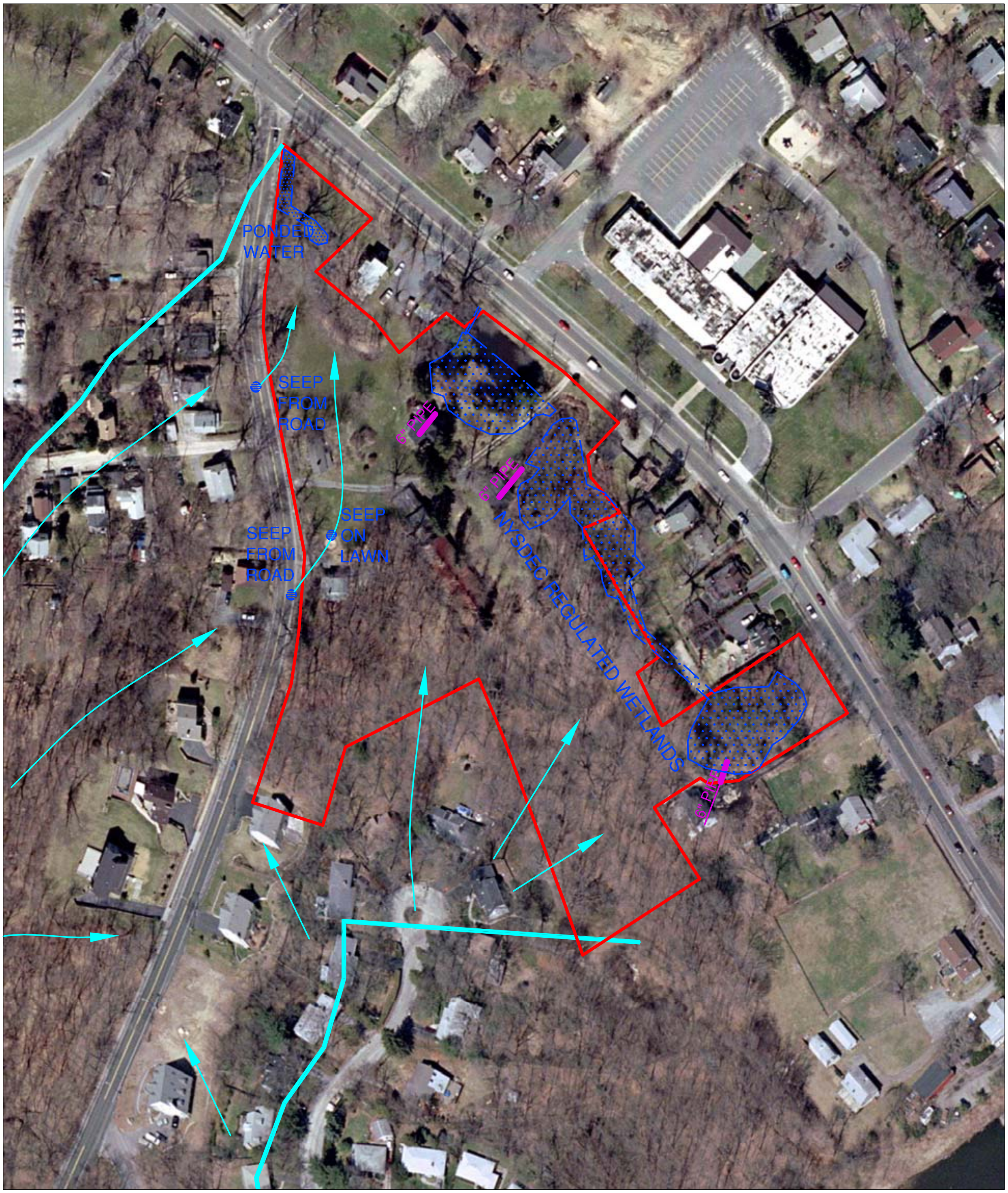
FIGURE 2

AERIAL PHOTOGRAPH



Source: NYSGIS Orthoimagery Program, 2001
Scale: 1' = 200'

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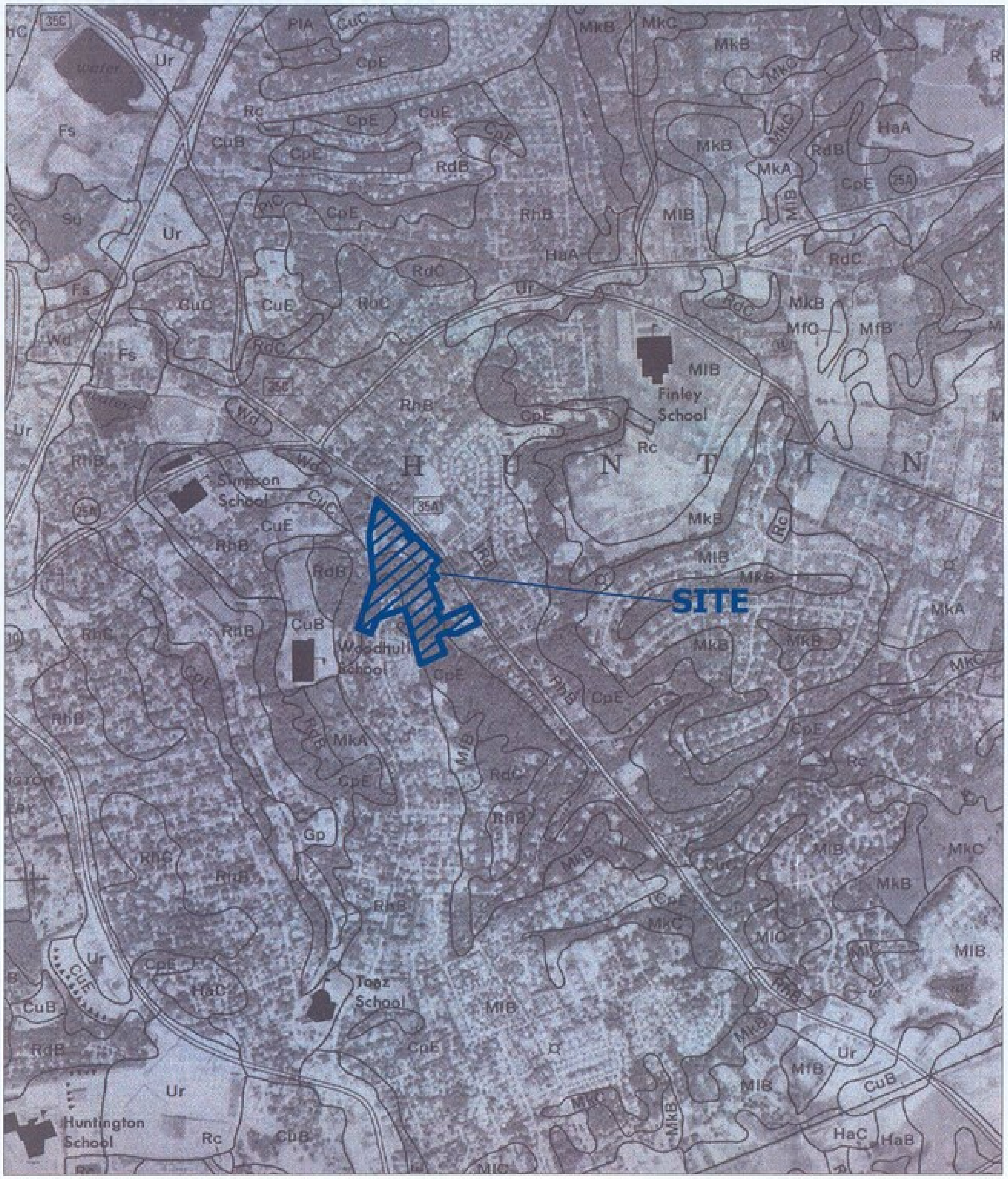
FIGURE 3

SOILS MAP



Source: Suffolk County Soil Survey
Scale: 1' = 1,000'

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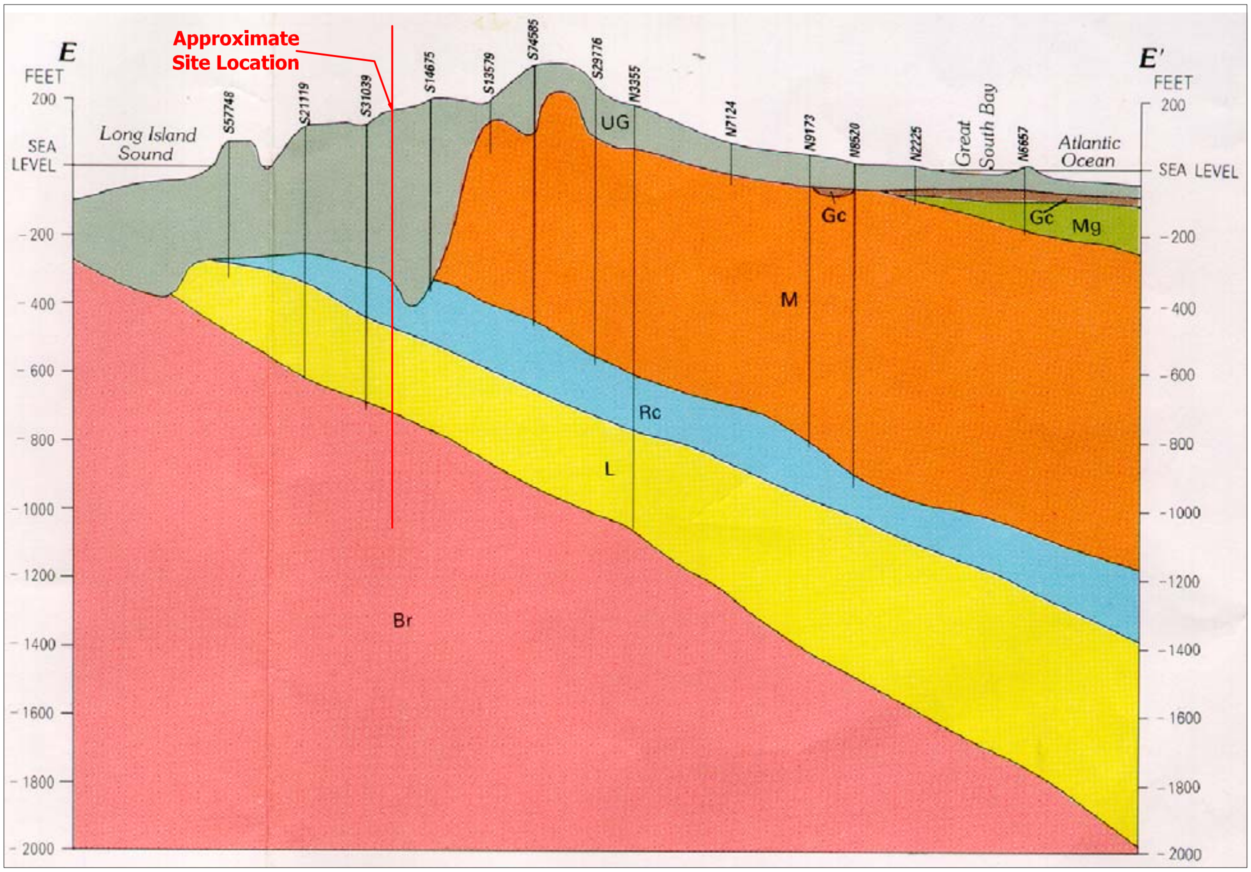
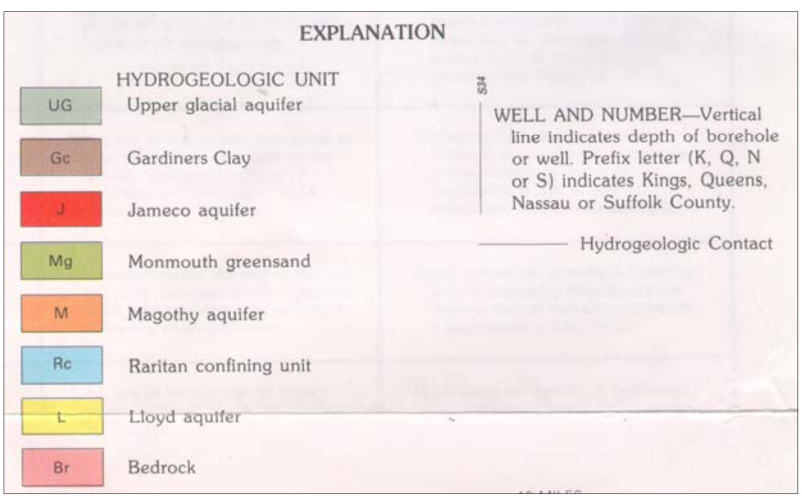
FIGURE 4

GEOLOGIC CROSS-SECTION





Source: Smolensky, Bruxton & Shernoff
Scale: Not to Scale

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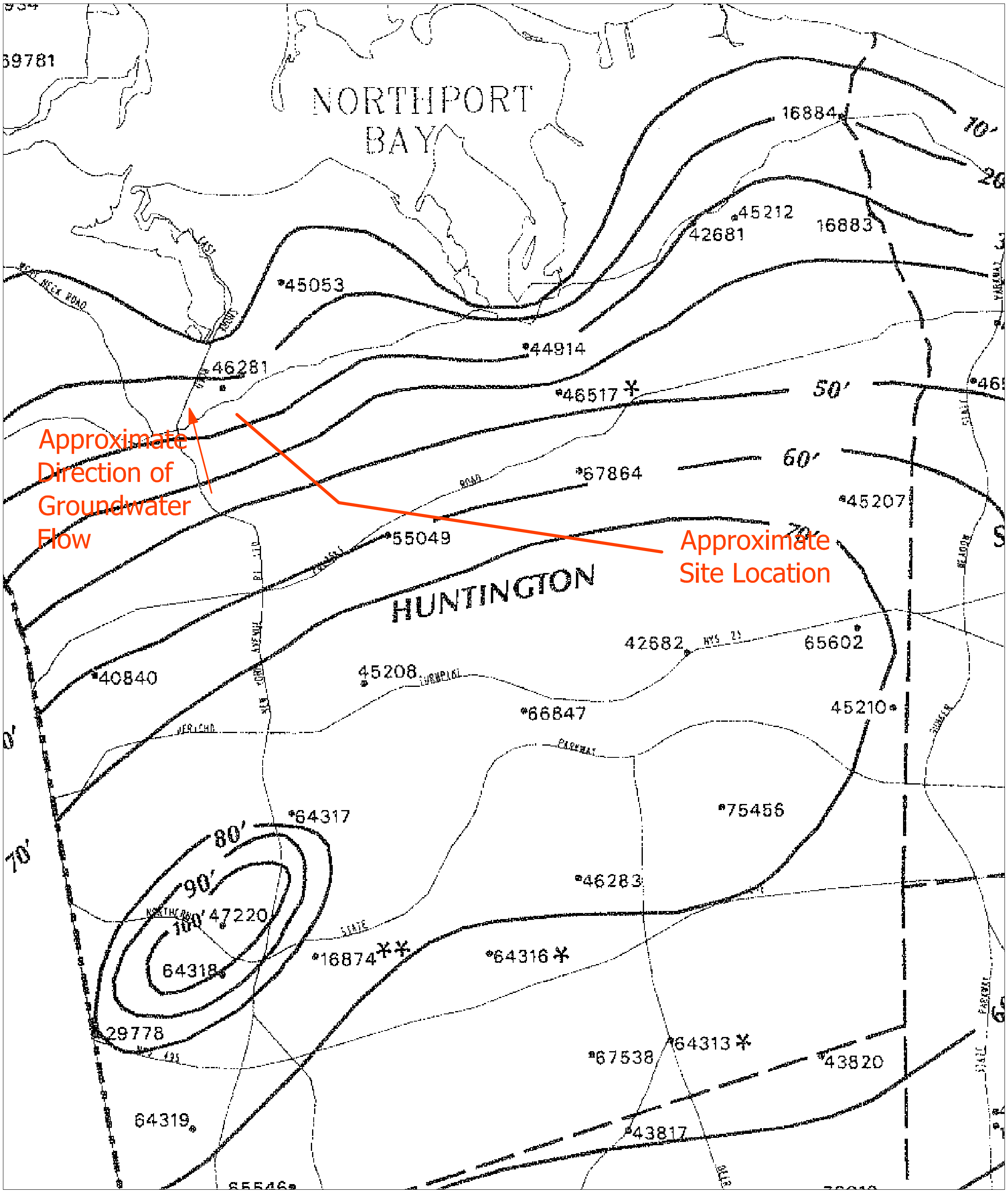
FIGURE 5

WATER TABLE CONTOUR MAP



Source: SCDHS Water Table Contour Map, 1999
Scale: 1' = 8,000'

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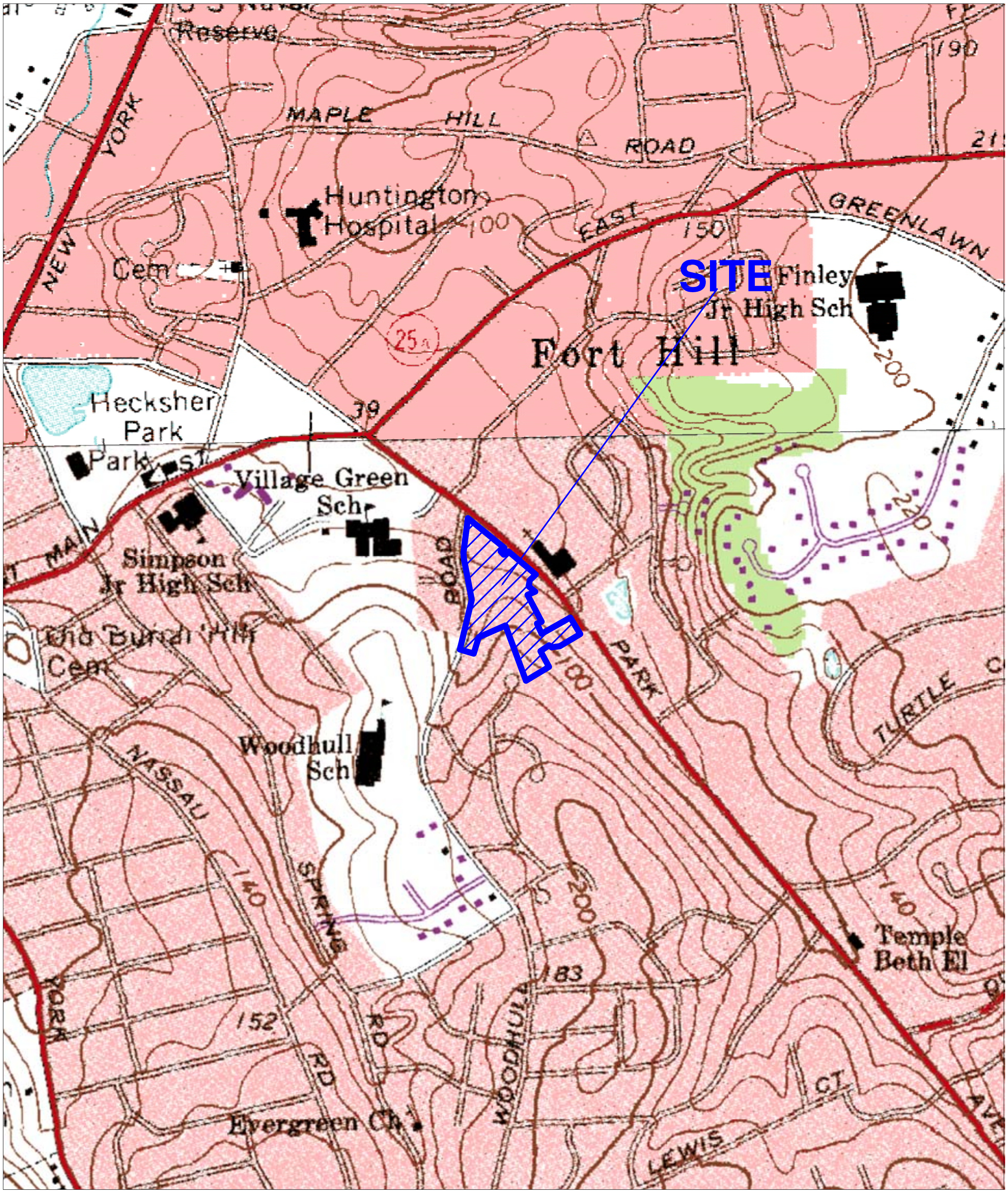
FIGURE 6

TOPOGRAPHIC MAP



Source: USGS Topographic Quadrangle, Huntington & Lloyd Harbor
Scale: 1' = 1,000'

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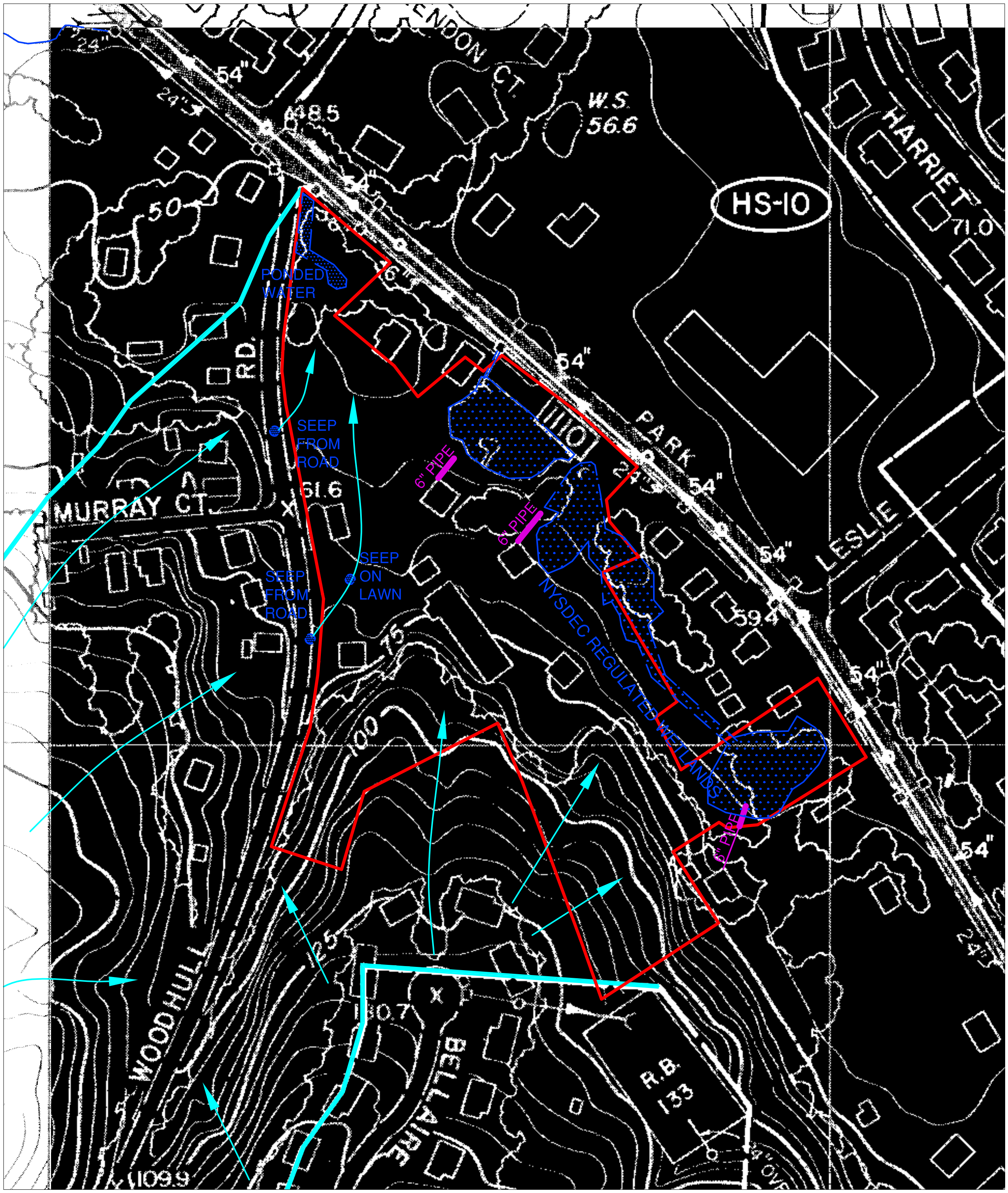
FIGURE 7

WATER SHED & HYDROLOGICAL FEATURES



Source: Comprehensive Storm Drainage Study Plan for Town of Huntington, 1980
Scale: 1' = 300'

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Attachment B

Nelson & Pope Watershed Study

Stormwater Runoff Study

Nelson & Pope

Kiruv Estates
Huntington

Town of Huntington
Suffolk County, New York

Prepared for:	Kiruv Capital Corp. One Old Country Road Carle Place, NY 11514
For Submission to:	Town of Huntington Planning Board Town Hall 100 Main Street Huntington, NY 11743
Prepared by:	Nelson, Pope & Voorhis, LLC Nelson & Pope 572 Walt Whitman Road Melville, NY 11747 Contact: Charles J. Voorhis, CEP, AICP (631) 427-5665

KIRUV ESTATES, HUNTINGTON
STORMWATER RUNOFF STUDY

Table of Contents

		Page
Section 1	Introduction	1
Section 2	Stormwater Runoff Model Input	3
Section 3	Pre-Development Stormwater Runoff Output Data	5
Section 4	Post-Development Stormwater Runoff Output Data	6
Section 5	Summary	7

Tables

Table 2-1 24-Hour Design Rainfalls
Table 2-2 CN Values – Pre-development
Table 2-3 Time of Concentration – Pre-development
Table 2-4 CN Values – Post-development
Table 2-5 Time of Concentration – Post-development
Table 3-1 Area 1 Peak Flow and Cumulative Runoff Volume
Table 3-2 Area 2 Peak Flow and Cumulative Runoff Volume
Table 4-1 Area 3 Peak Flow and Cumulative Runoff Volume

Figures

Figure 1-1 Watershed and Land Use Map
Figure 1-2 Soil Areas Map
Figure 2-1 Pre-developed Shed Areas
Figure 2-2 Post-developed Shed Area
Figure 3-1 Area 1 Runoff Hydrograph – 2 year storm
Figure 3-2 Area 1 Runoff Hydrograph – 10 year storm
Figure 3-3 Area 1 Runoff Hydrograph – 50 year storm
Figure 3-4 Area 1 Runoff Hydrograph – 100 year storm
Figure 3-5 Area 2 Runoff Hydrograph – 2 year storm
Figure 3-6 Area 2 Runoff Hydrograph – 10 year storm
Figure 3-7 Area 2 Runoff Hydrograph – 50 year storm
Figure 3-8 Area 2 Runoff Hydrograph – 100 year storm
Figure 4-1 Area 3 Runoff Hydrograph – 2 year storm
Figure 4-2 Area 3 Runoff Hydrograph – 10 year storm
Figure 4-3 Area 3 Runoff Hydrograph – 50 year storm
Figure 4-4 Area 3 Runoff Hydrograph – 100 year storm
Figure 4-5 Rate of Flow Calculations (Campbell Foundry Company)

Appendices

Appendix I	PondPack Version 10.0 by Haestad Methods
Appendix II	Design Storms Summary – SCS TR-55
Appendix III	Pre-developed Runoff Curve Number Data
Appendix IV	Pre-developed Time of Concentration
Appendix V	Post-developed Runoff Curve Number Data
Appendix VI	Post-developed Time of Concentration
Appendix VII	Pre-developed Unit Hydrograph Summary 2, 10, 50, and 100 year storms
Appendix VIII	Post-developed Unit Hydrograph Summary 2, 10, 50, and 100 year storms

KIRUV ESTATES, HUNTINGTON
STORMWATER RUNOFF STUDY

SECTION 1 INTRODUCTION

1.1 Purpose of Stormwater Runoff Study

The purpose of this study is to analyze the Pre-developed and Post-developed conditions of the watershed tributary to the Kiruv Estates Project and the corner of Park Avenue and Woodhull Road. This study analyzes the runoff, ponding, and collection of stormwater for the following:

a. The ponding area in the northwest corner of the Kiruv Estates site and the catch basins at the intersection of Woodhull Road and Park Avenue during pre-developed conditions.

b. The ponding area in the northwest corner of the Kiruv Estates site and the catch basins at the intersection of Woodhull Road and Park Avenue during post-developed conditions.

1.2 Watershed Characteristics

1.2.1 Watershed Boundary

The boundary of the watershed is indicated in **Figure 1-1**. The total watershed area is approximately 23 acres.

1.2.2 Land Uses

The land uses of the watershed consist mainly of single-family residences, overgrown brush and woods. **Figure 1-1** indicates the land uses within the study area.

1.2.3 Soils

The soils within the study area can all be classified into hydrologic groups using the soils conservation service groups A through D. Group A represents soils with the lowest runoff potential and D represents the highest runoff potential. All soils within the study area are either A or B. **Figure 1-2** indicates the soils classifications for the study area.

1.2.4 Stormwater Drainage Facilities

The stormwater drainage facilities within the area of study include drainage swales, catch basins, conveyance piping, and a natural retention ponding area.

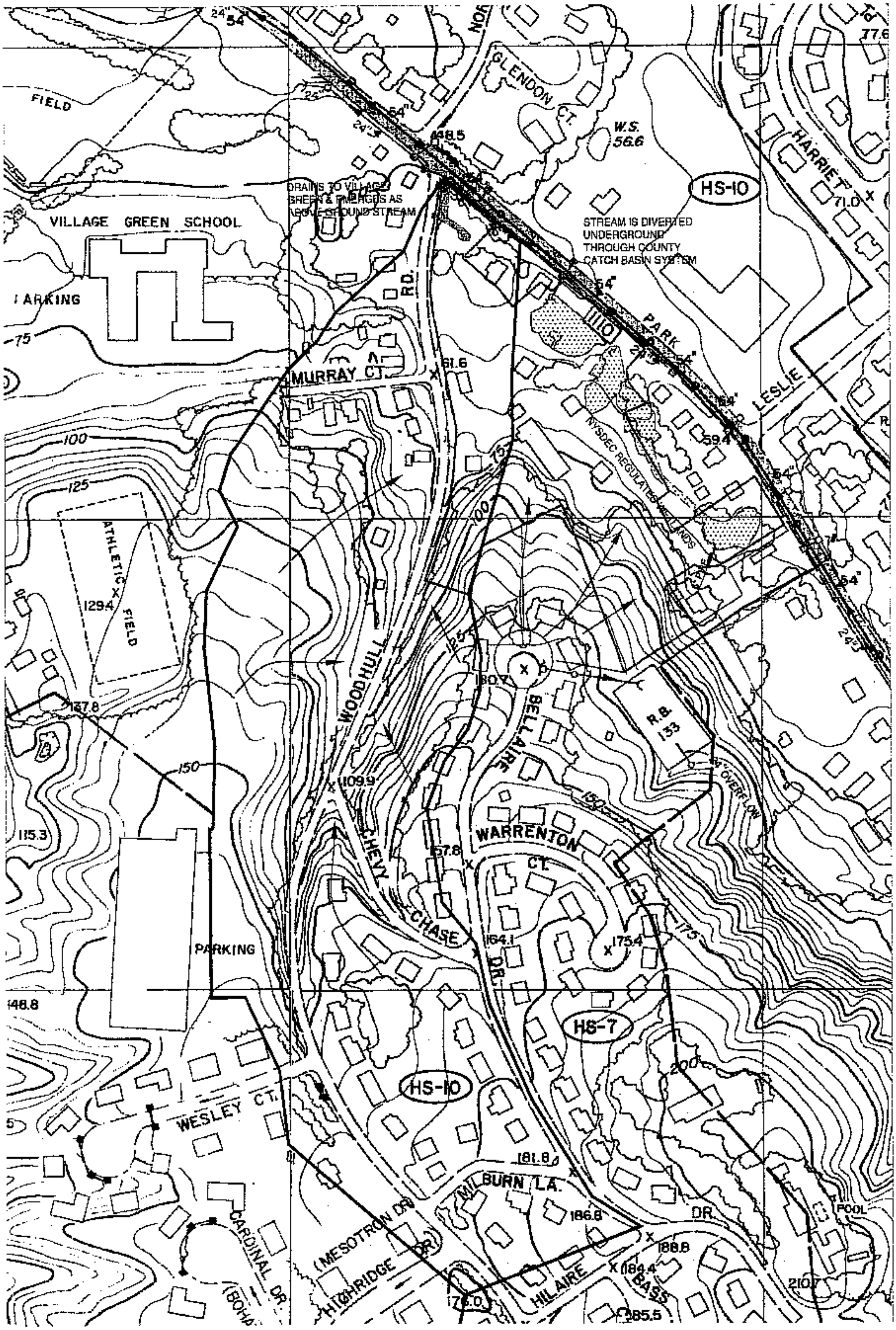


FIGURE 1—1
WATERSHED AND LAND USE MAP

SCALE 1" = 300'

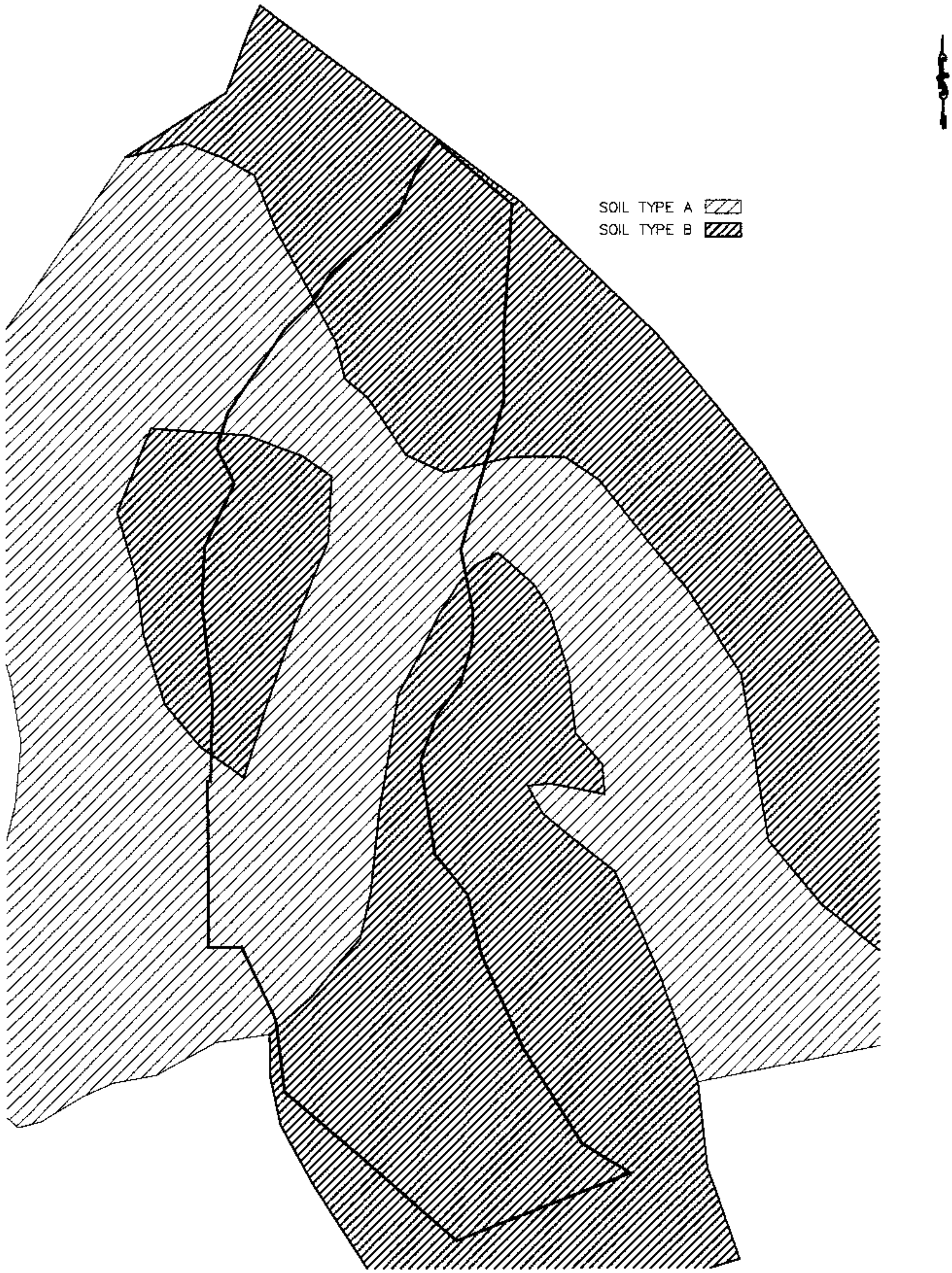


FIGURE 1–2
SOIL AREAS MAP

SCALE 1" = 300'

1.2.5 Topography

The watershed area has a hilly topography that flattens out to the north at the intersection of Woodhull Road and Park Avenue. Elevations in this area range from 190 feet to approximately 50 feet above sea level. See **Figure 1-1** for a clear presentation of this topography.

SECTION 2 STORMWATER RUNOFF MODEL INPUT

2.1 Stormwater Runoff Design Software & Methodology

To model the stormwater runoff, PondPack Version 10.0 by Haestad Methods software package was used (**See Appendix I**). This software generated runoff hydrographs for two, ten, fifty and one hundred-year design storms (SCS TR-55 method) based on drainage basin characteristics input by the user. The software was used to model the pre-developed and post-developed conditions to analyze the impact on the town drainage system at the corner of Woodhull Road and Park Avenue by developing the Kiruv Estates site.

2.2 Model Input Data

2.2.1 Design Storms

SCS TR-55 – Appendix B indicates that the watershed is located in a Type III rainfall distribution area. The 24-hour rainfall depths are shown in Table 2.1 **(See Appendix II)**

Table 2-1
24-Hour Design Rainfalls

Design Storm (Years)	24-Hour Rainfall (Inches)
2	3.5
10	5.0
50	7.0
100	7.5

2.2.2 Hydrologic Soil Groups

The project site is underlain by soils classified as Groups A and B according to SCS TR-55 Appendix A.

2.2.3 Pre-developed Runoff Curve Numbers and Time of Concentration

The Pre-developed condition consists of two sub-shed areas. **Figure 2-1** indicates the boundaries of the two areas. **Appendix III** provides a detailed description of the different soil and surface characteristics for each of the two areas. **Table 2-2** lists the calculated weighted curve numbers for the two areas.

Table 2-2
CN Values Pre-development

Sub-shed Area	CN Values
1	70
2	67

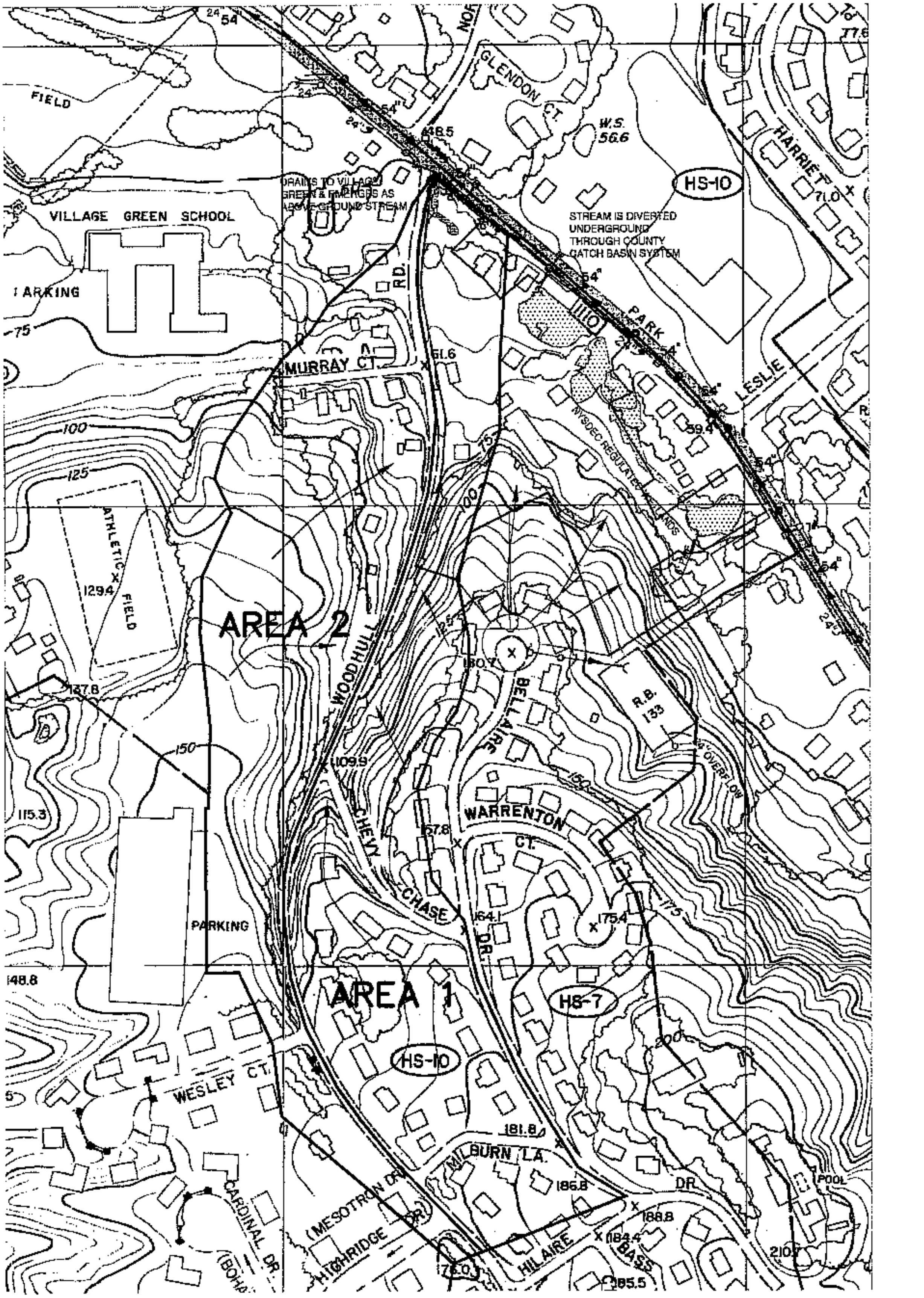


FIGURE 2—1
PRE—DEVELOPED SHED AREAS

SCALE 1" = 300'

The time of concentration calculations for the two areas are included in **Appendix IV. Table 2-3** lists the time of concentration for the pre-developed areas.

Table 2-3
Time of Concentration Pre-development

Sub-shed Area	Time of Concentration
1	12 min.
2	10 min.

2.2.4 Post-developed Runoff Curve Numbers and Time of Concentration

The Post-developed condition consists of a single shed area. **Figure 2-2** indicates the boundary of the area. **Appendix V** provides a detailed description of the different soil and surface characteristics for the area. **Table 2-4** lists the calculated weighted curve numbers for the area.

Table 2-4
CN Values Post-development

Sub-shed Area	CN Values
3	68

The time of concentration calculation for this area is included in **Appendix VI. Table 2-5** lists the time of concentration for the post-developed area.

Table 2-5
Time of Concentration Post-development

Sub-shed Area	Time of Concentration
3	11 min.

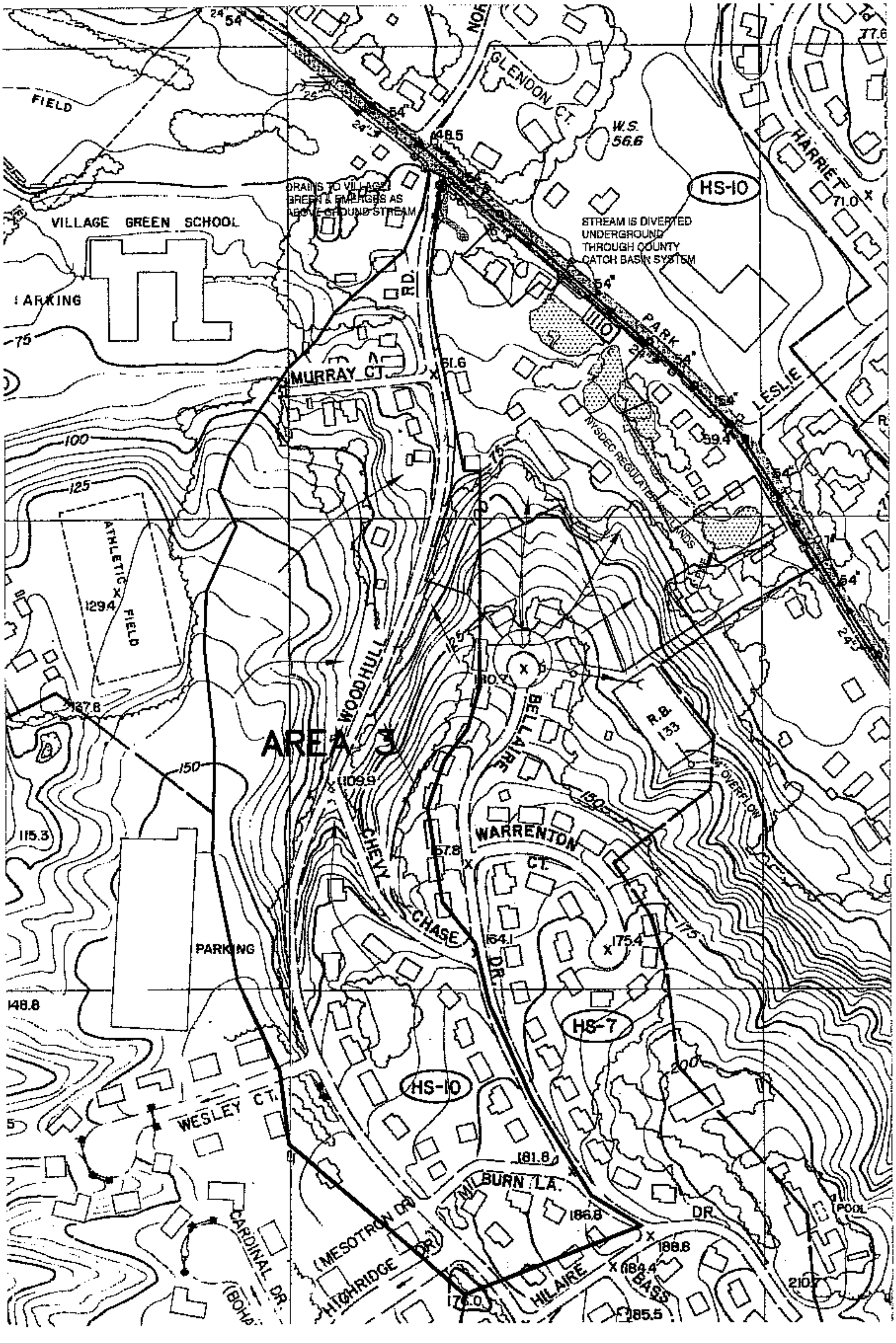


FIGURE 2-2
POST-DEVELOPED SHED AREA

SCALE 1" = 300'

SECTION 3 PRE-DEVELOPMENT STORMWATER RUNOFF OUTPUT DATA

3.1 Pre-Developed Areas 1 and 2 Runoff Hydrographs

Figures 3-1 thru 3-8 represent the pre-developed area runoff hydrographs for the two, ten, fifty and one hundred year storms for areas 1 and 2 respectively (**See Appendix VII**).

3.2 Analysis of Pre-Development Stormwater Runoff

Stormwater runoff from Area 1 collects and ponds in the northwest corner of the Kiruv Estates Site and, depending on the storm event, overflows to the corner of Park Avenue and Woodhull Road. Stormwater enters the Kiruv Estates Site on the east side of Woodhull Road between the two existing homes where there is no curbing present. Some of the gutter-flow along the east side of Woodhull Road bypasses this location but the majority flows onto the Kiruv Estates Site. **Table 3-1** shows the peak flows and cumulative runoff for each storm event.

Table 3-1 (Area 1)

Storm Event	Peak Flow	Cumulative Runoff Volume
2	10 cfs	40,685 C.F.
10	20 cfs	82,198 C.F.
50	37 cfs	146,057 C.F.
100	41 cfs	163,002 C.F.

Stormwater runoff from Area 2 drains to the corner of Park Avenue and Woodhull Road through a valley gutter on the west side of Woodhull Road and is collected at the catch basins at the corner. **Table 3-2** shows the peak flow and cumulative runoff for each storm event.

Table 3-2 (Area 2)

Storm Event	Peak Flow	Cumulative Runoff Volume
2	9 cfs	38,376 C.F.
10	21 cfs	81,414 C.F.
50	39 cfs	149,280 C.F.
100	44 cfs	167,488 C.F.

FIGURE 3-1
AREA 1 RUNOFF HYDROGRAPH - 2 YEAR STORM

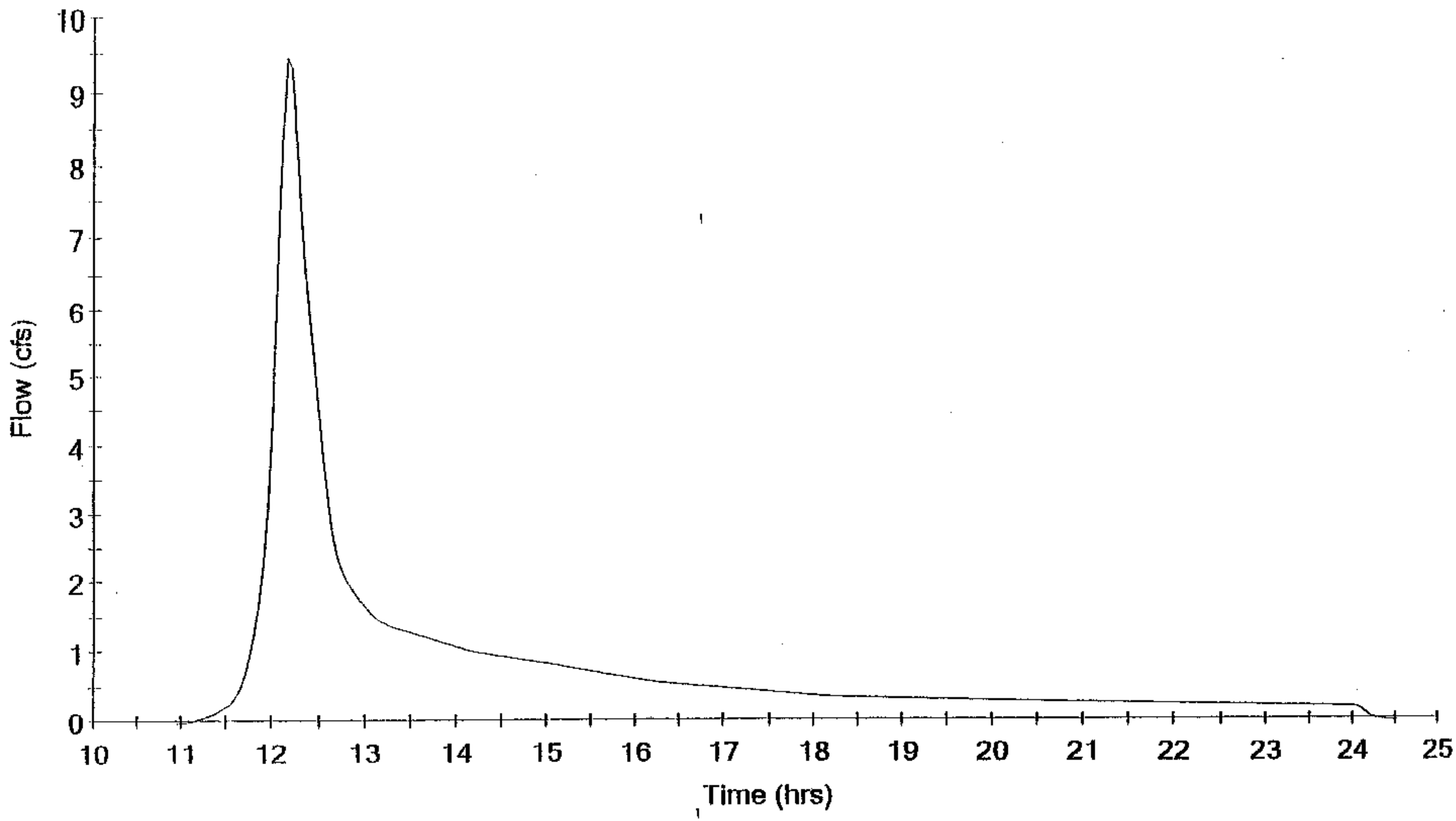


FIGURE 3-2
AREA 1 RUNOFF HYDROGRAPH - 10 YEAR STORM

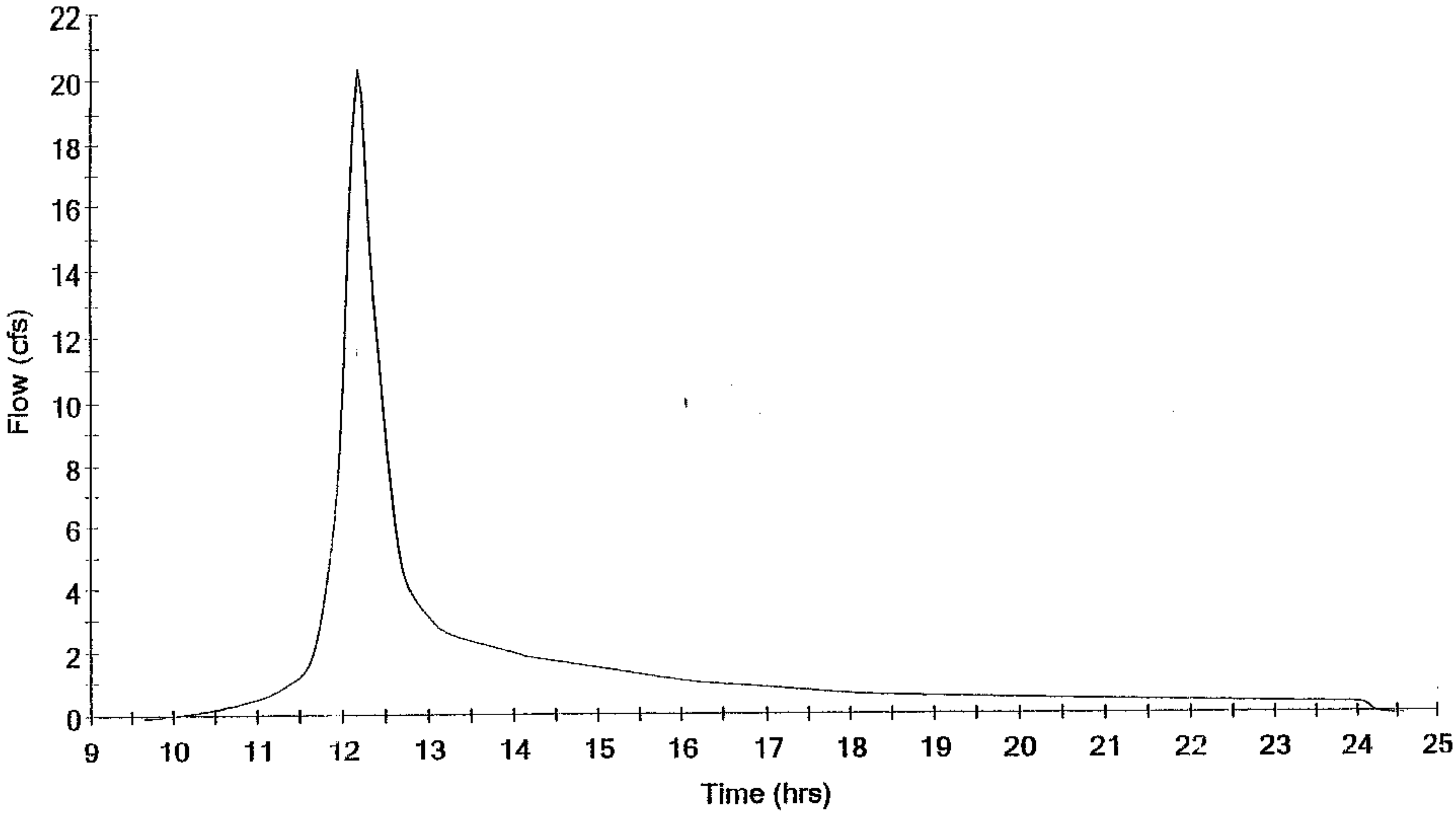


FIGURE 3-3
AREA 1 RUNOFF HYDROGRAPH - 50 YEAR STORM

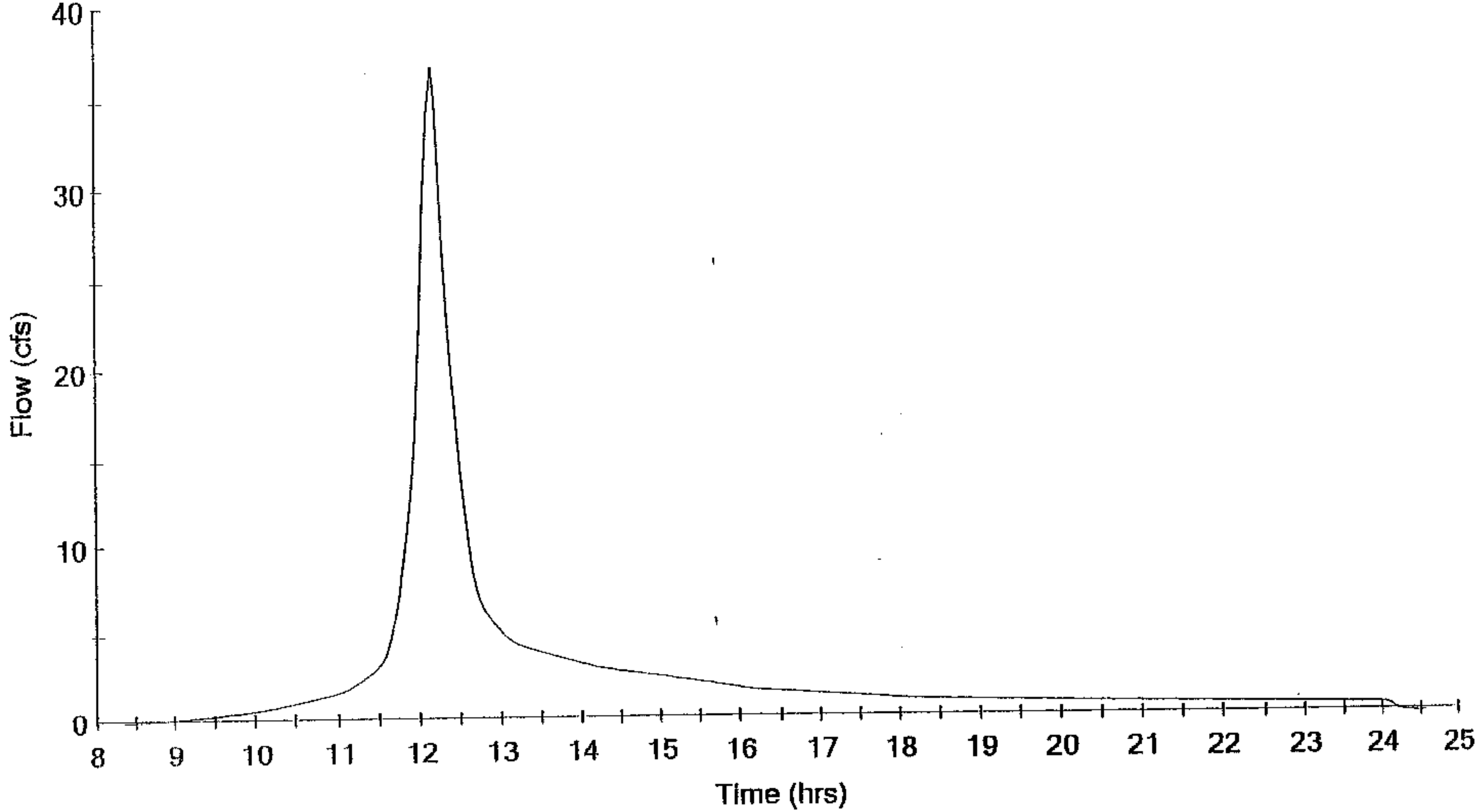


FIGURE 3-4
AREA 1 RUNOFF HYDROGRAPH - 100 YEAR STORM

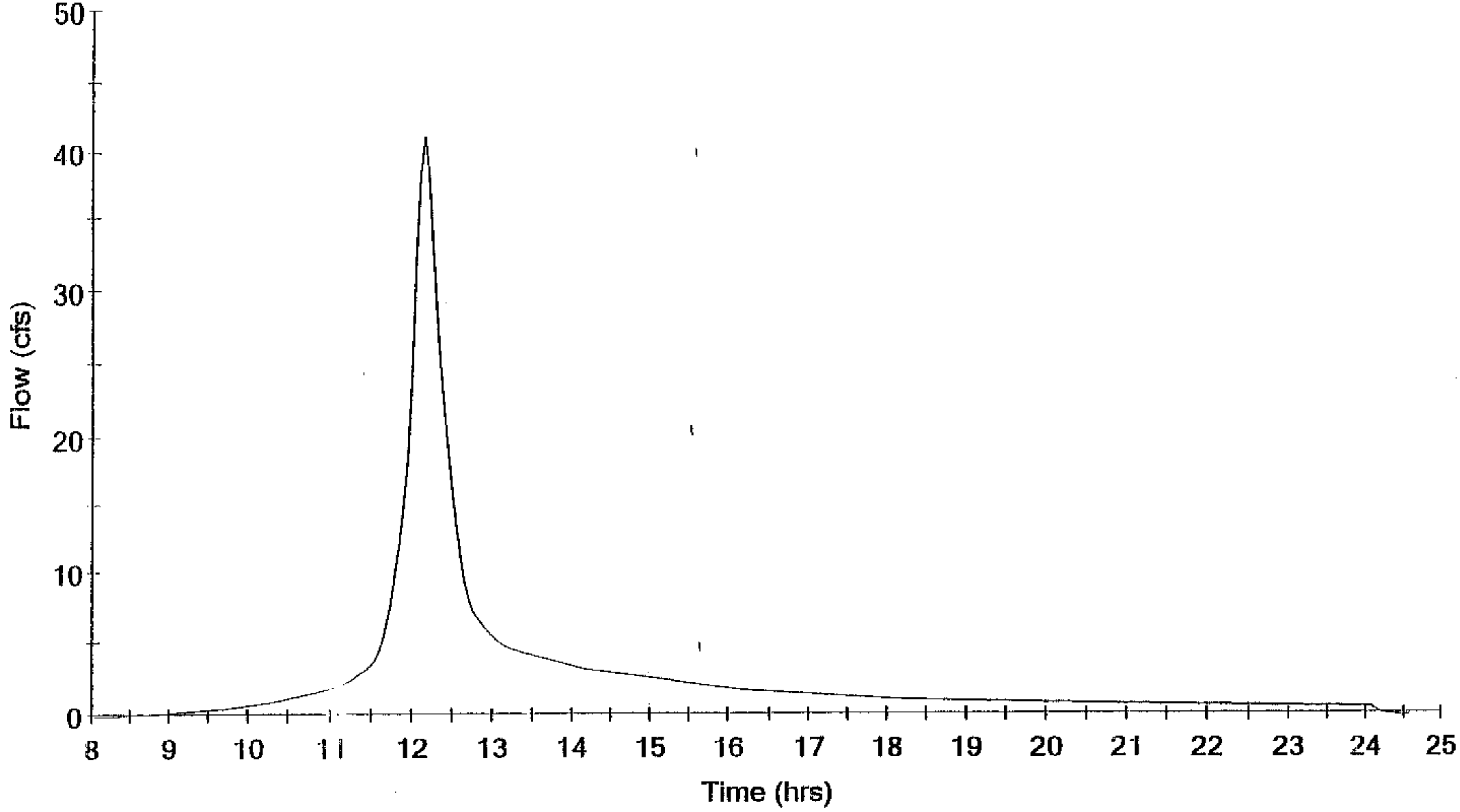


FIGURE 3-5
AREA 2 RUNOFF HYDROGRAPH - 2 YEAR STORM

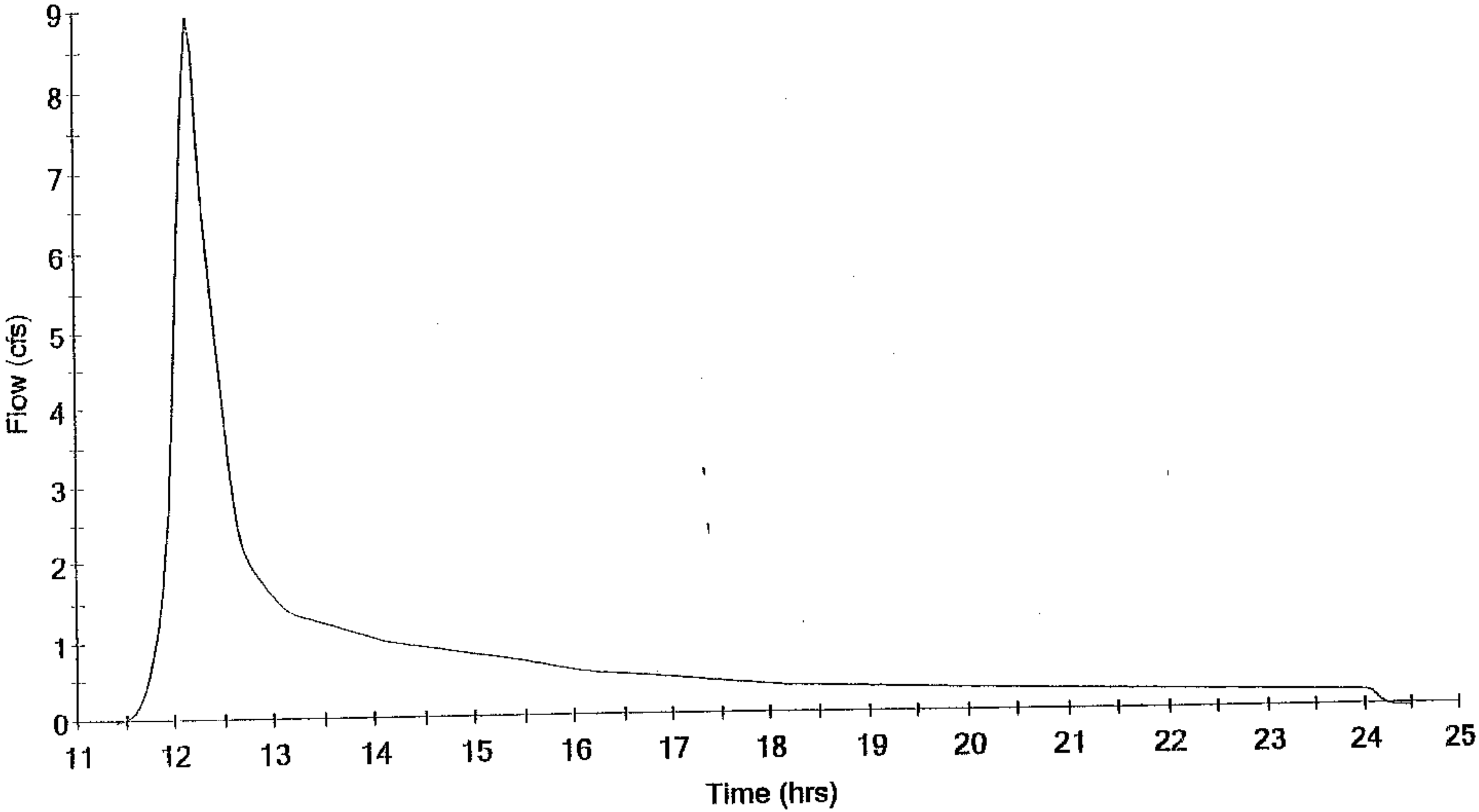


FIGURE 3-6
AREA 2 RUNOFF HYDROGRAPH - 10 YEAR STORM

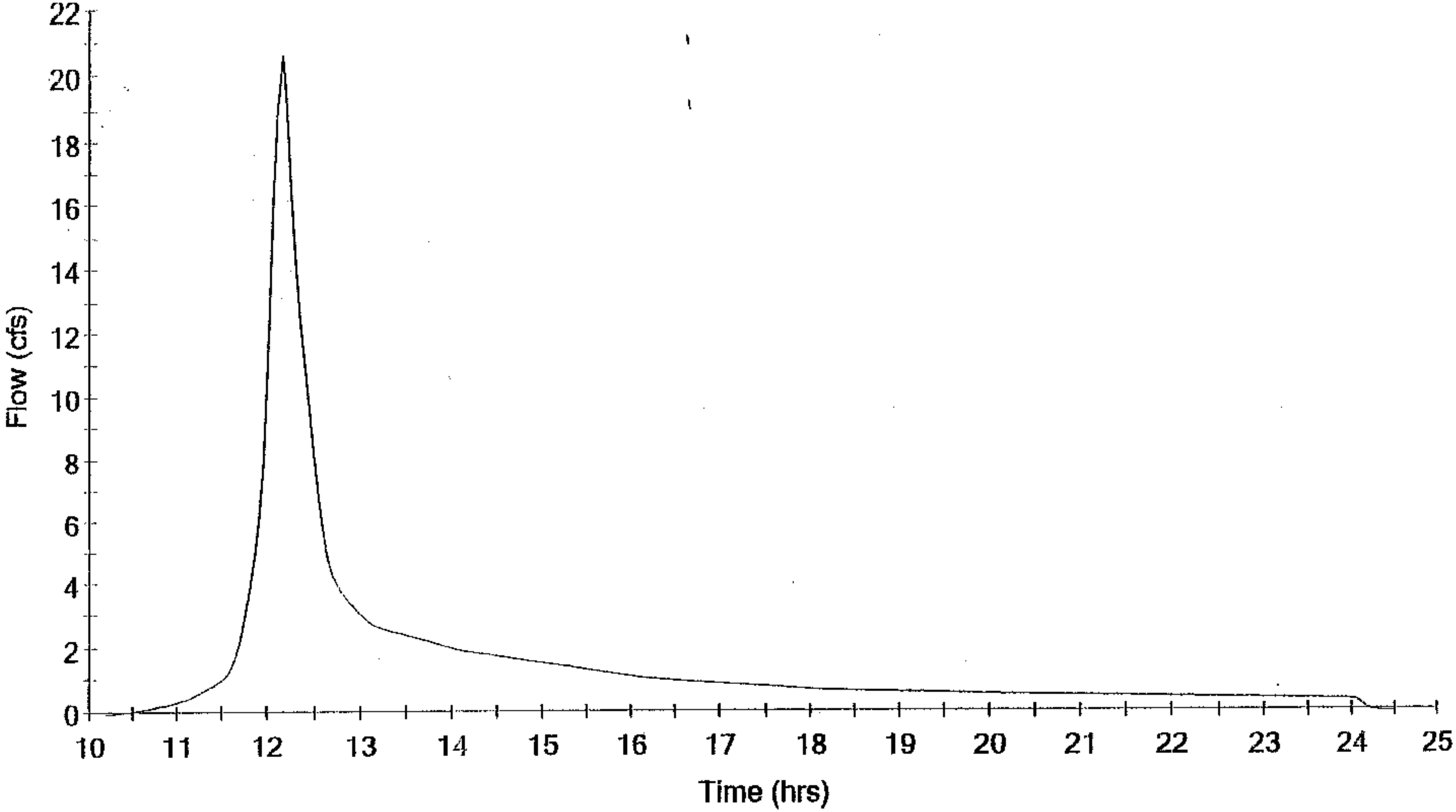


FIGURE 3-7
AREA 2 RUNOFF HYDROGRAPH - 50 YEAR STORM

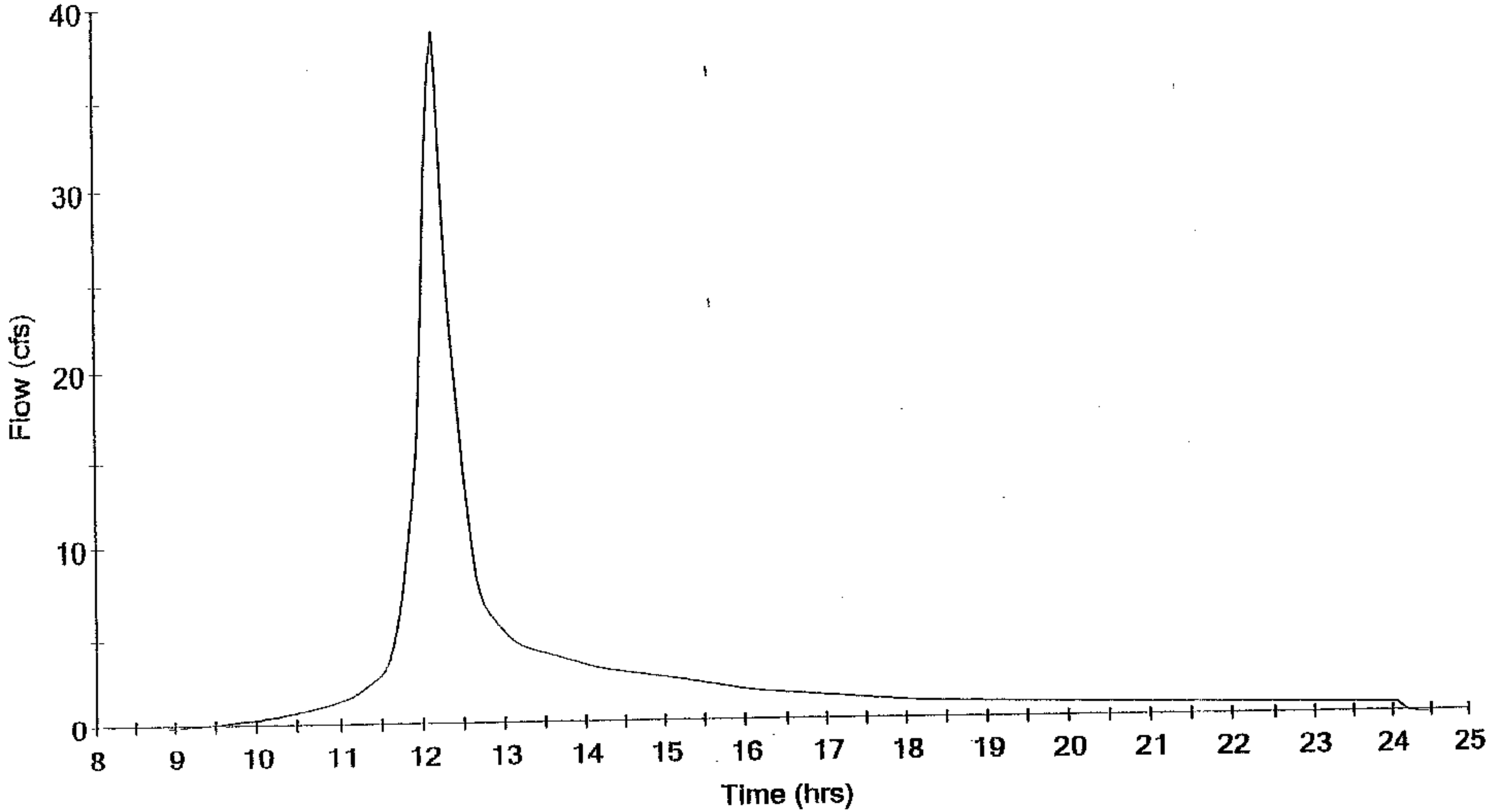
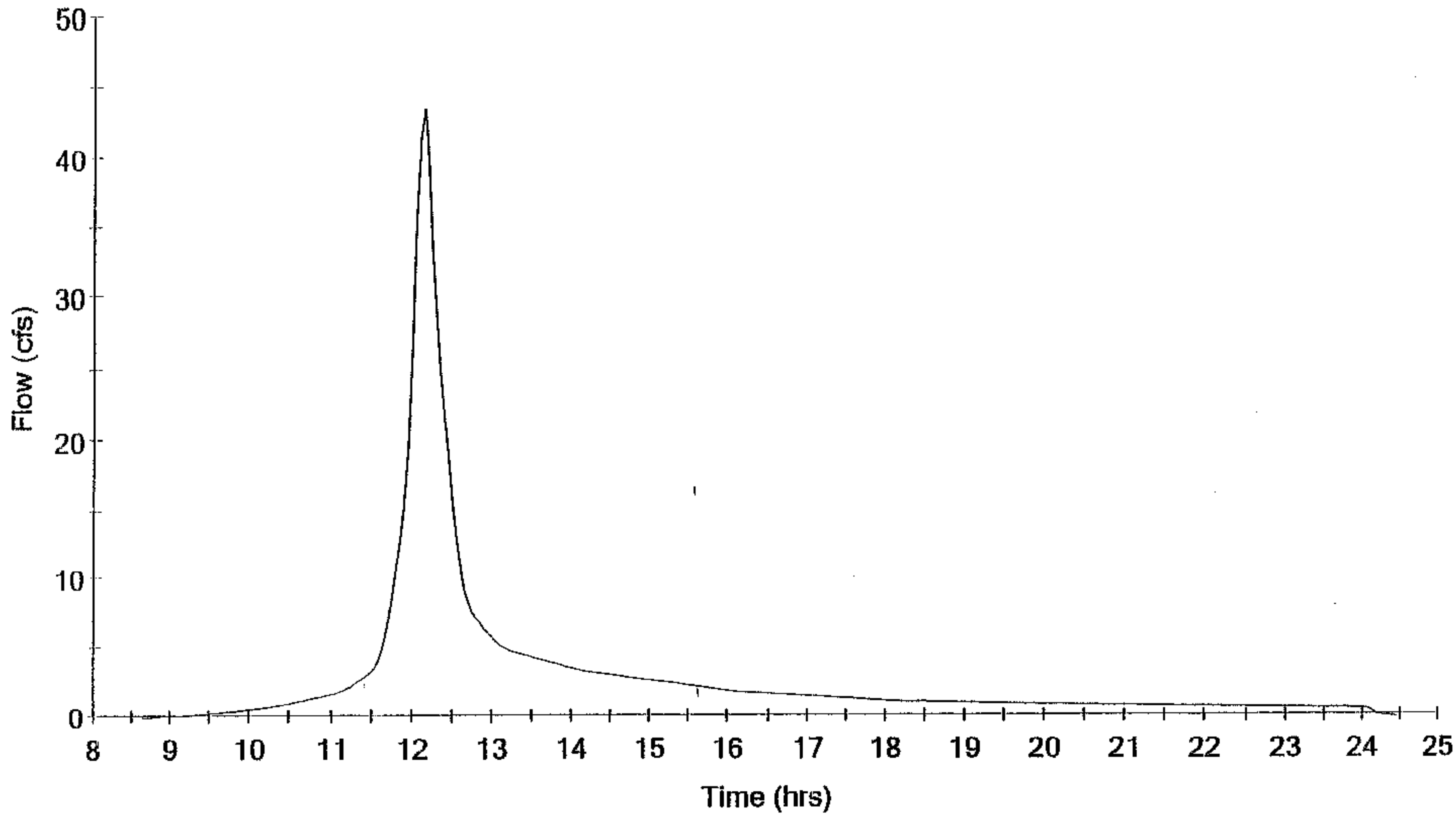


FIGURE 3-8
AREA 2 RUNOFF HYDROGRAPH - 100 YEAR STORM



SECTION 4 POST-DEVELOPMENT STORMWATER RUNOFF OUTPUT DATA

4.1 Post-Development Area Runoff Hydrographs

Figures 4-1 thru 4-4 represent the post-development area runoff hydrographs for two, ten, fifty and one hundred-year storms (**See Appendix VIII**).

4.2 Analysis of Post-Development Stormwater Runoff

The Kiruv Estates site proposes a drainage system to detain on-site runoff and runoff from off-site tributary areas (see **Stormwater Management System Engineering Report**). There is a small portion of woods at the south end of the site that is not contained due to the steep topography. This area is to remain in its natural state and will continue to runoff onto Woodhull Road. The project proposes to install new curbing and drainage inlets along the east side of Woodhull Road, fronting the Kiruv Estates site, to contain and collect stormwater runoff and prevent it from draining onto the Kiruv Estates Site. The new curbing and drainage along the east side of Woodhull Road will increase the amount of flow to the collection system at the corner of Park avenue and Woodhull Road. **Table 4-1** shows the post-development flow.

Table 4-1 (Area 3)

Storm Event	Peak Flow	Cumulative Runoff Volume
2	17 cfs	72,005 C.F.
10	38 cfs	150,151 C.F.
50	70 cfs	272,381 C.F.
100	79 cfs	305,094 C.F.

There are seven existing reticuline grates at the corner of Woodhull Road and Park Avenue. Woodhull Road has a 4" crown allowing a maximum head of 4" over the inlet grates. **Figure 4-5** represents the rate of flow for each grate's inlet capacity for a measured head. Based on this figure the rate of flow for a 4" head is 13.41 cfs per grate. Therefore the total cfs for seven grates is 93.87 cfs. This total inlet capacity is more than adequate to contain up to a 100 year storm event. This far exceeds the town's standard for sizing collection systems, which only requires a 3-year storm event. In addition, the inlet capacity neglects the existing 4 curb inlets and proposed drainage inlets that will also increase the capacity.

FIGURE 4-1
AREA 3 RUNOFF HYDROGRAPH - 2 YEAR STORM

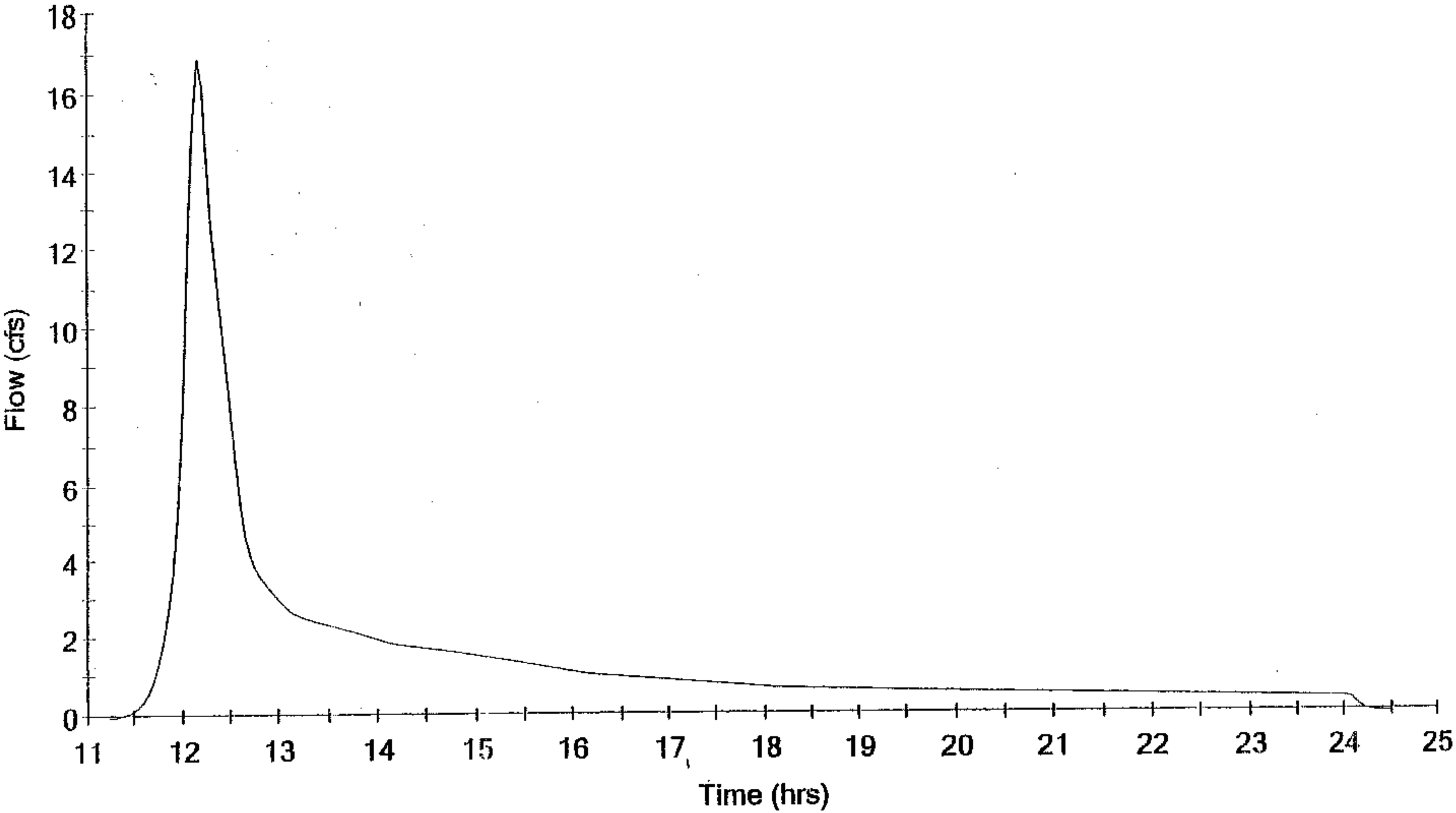


FIGURE 4-2
AREA 3 RUNOFF HYDROGRAPH - 10 YEAR STORM

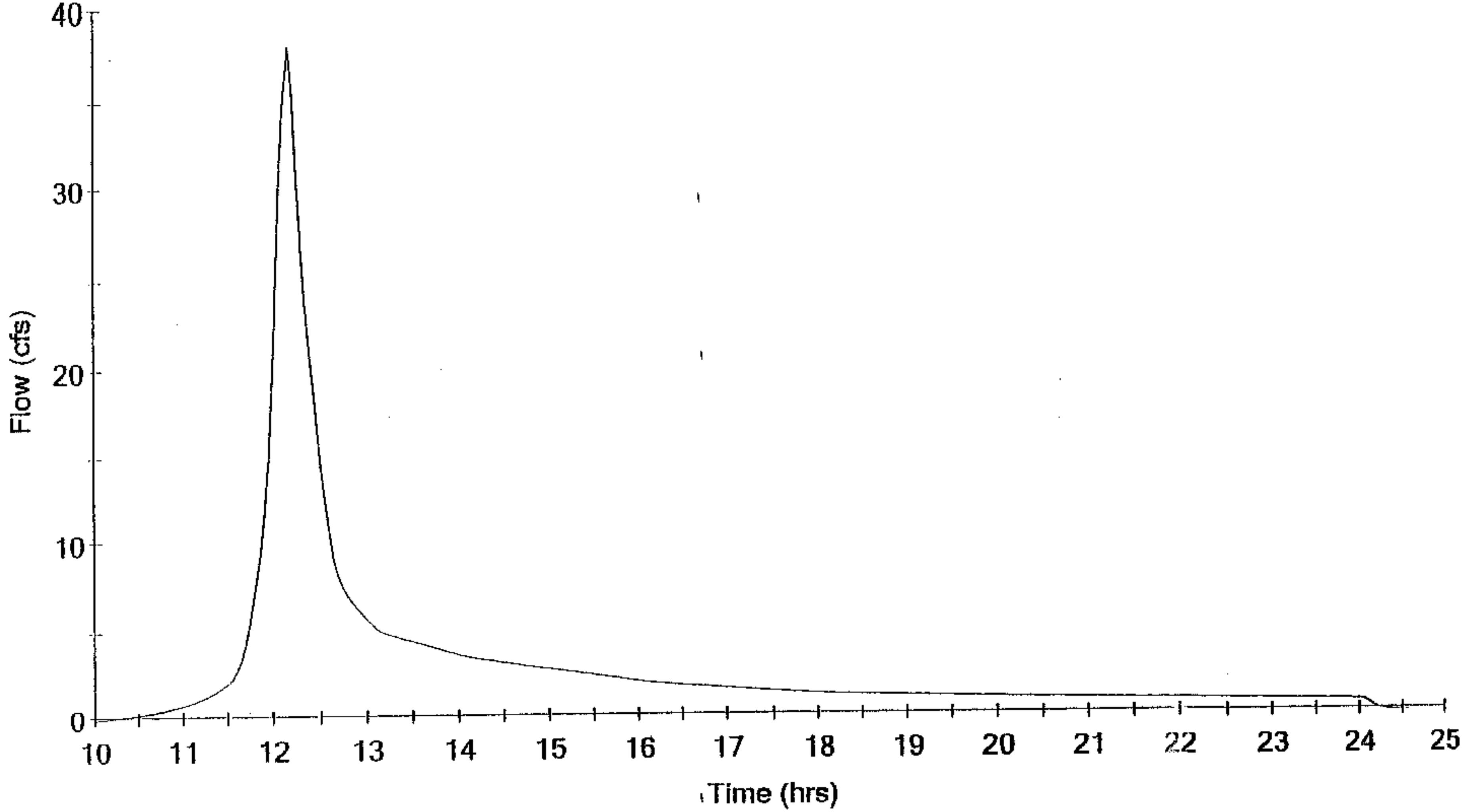


FIGURE 4-3
AREA 3 RUNOFF HYDROGRAPH - 50 YEAR STORM

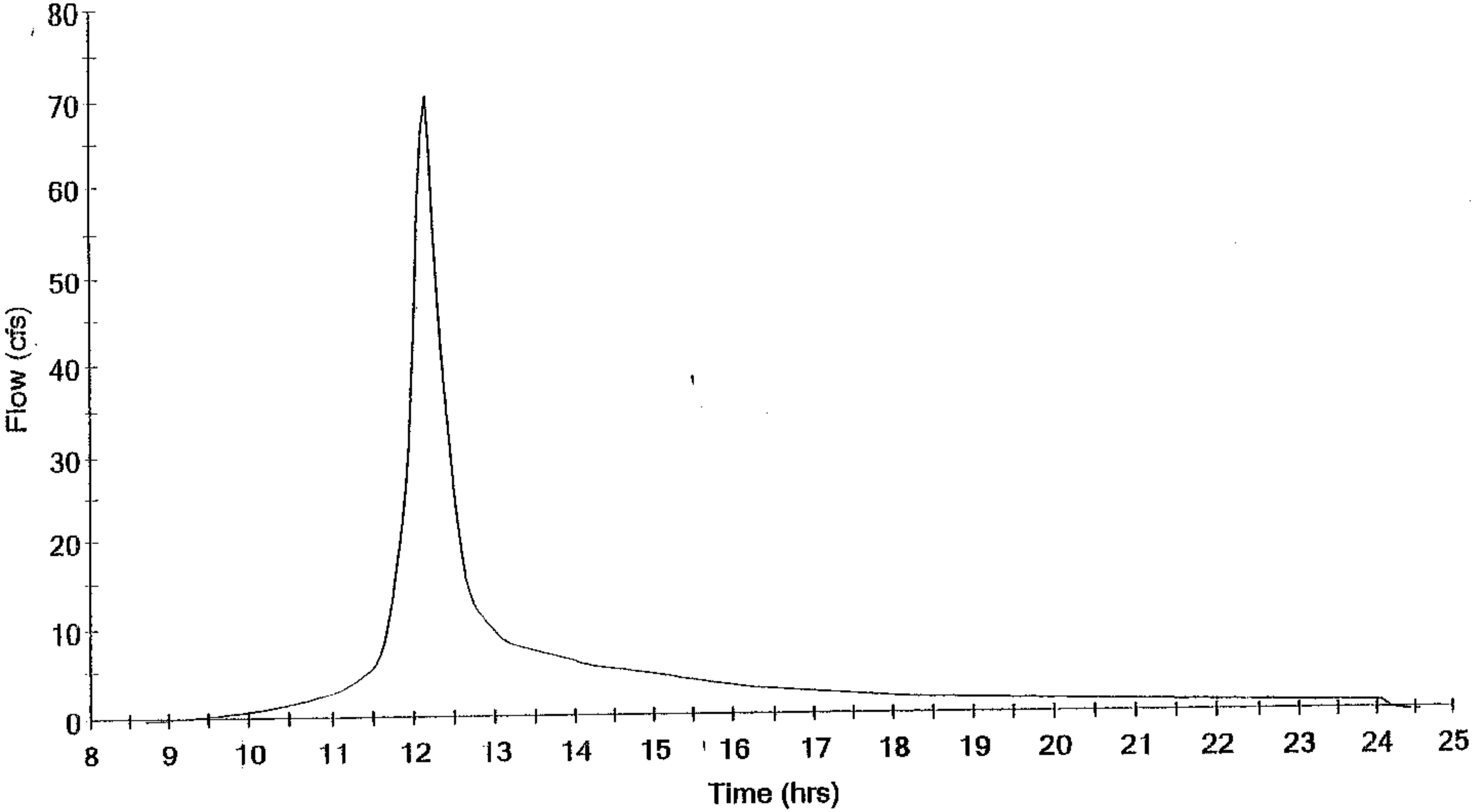
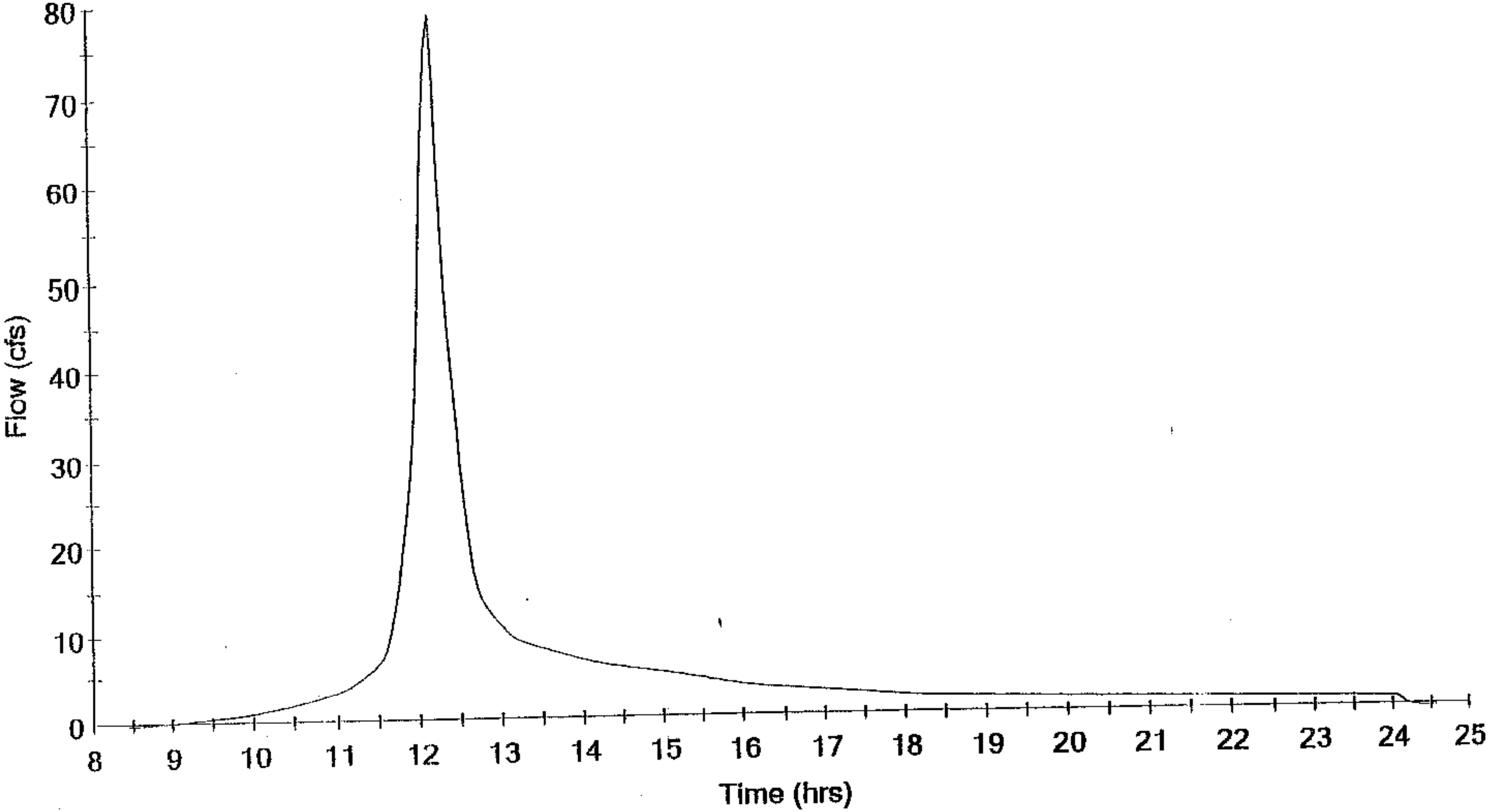


FIGURE 4-4
AREA 3 RUNOFF HYDROGRAPH - 100 YEAR STORM



RATE OF FLOW CALCULATIONS
FOR #3131C / 3135C WIDE RETICULINE GRATE

A	7.91	sq. ft.	OPEN AREA OF GRATE
c	0.60		ORIFICE COEFFICIENT (Square Edges)
f	0.66		CLOGGING FACTOR
g	32.20	ft./sec.^{2}	ACCELERATION OF GRAVITY
h		ft.	MEASURED HEAD OF WATER ON GRATE
Q		cu. ft./sec.	DISCHARGE OF WATER

CALCULATE FLOW RATE USING THE FOLLOWING FORMULA :

$$Q = (c A \sqrt{2 g h}) f$$

HEAD (in.)	RATE OF FLOW (cu. ft./sec.)
1	6.71
2	9.48
3	11.62
$\boxed{4}$	$\boxed{13.41}$
5	15.00
6	16.43

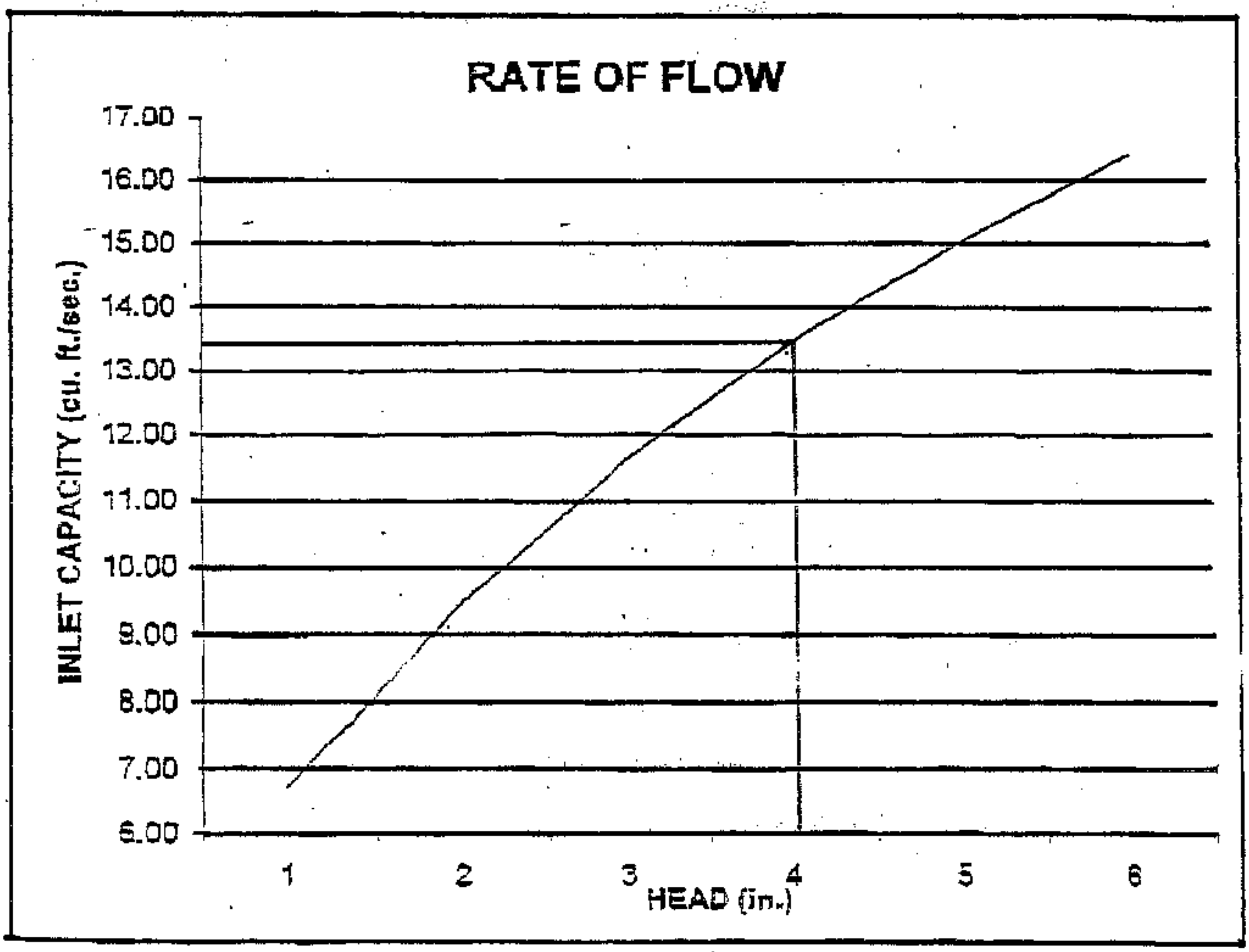


FIGURE 4-5
RATE OF FLOW CALCULATIONS

SECTION 5 SUMMARY

The purpose of this watershed study was to determine the impacts on the Town's drainage system at the corner of Park Avenue and Woodhull Road by developing the Kiruv Estates Site. The study showed that the existing drainage inlets at the corner are capable of handling the additional flow from Woodhull Road caused by constructing new curbing along the east side of the road. Although the existing drainage was determined to be adequate, new drainage inlets and piping are proposed to decrease the gutter flow along the east side of the road.

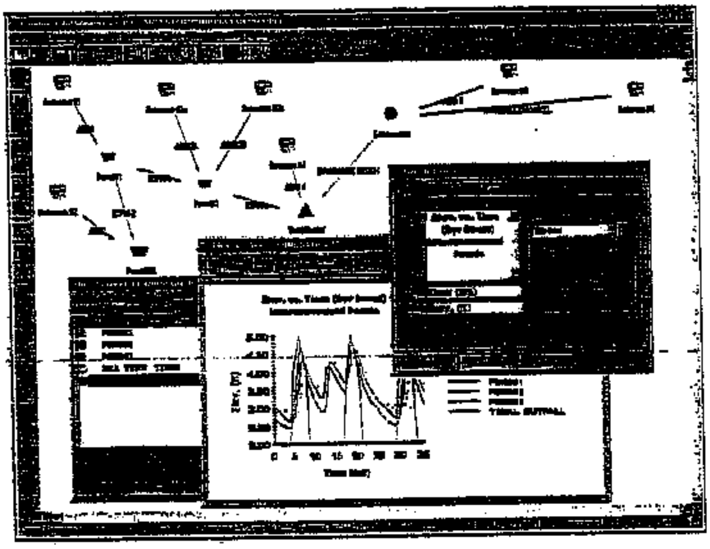
The study also showed that by providing an on-site stormwater collection and detention system, the Kiruv Estates site would be removed from the watershed tributary to the corner of Park Avenue and Woodhull Road. The proposed system will collect and detain stormwater on-site and eliminate the current overflow at the northwest corner of the site onto Park Avenue.

In Summary, the development of the Kiruv Estates subdivision will have no adverse impacts on the Town's drainage system at the corner of Park Avenue and Woodhull Road. The proposed development will in fact help to improve the existing stormwater collection system on Woodhull Road and at the intersection with Park Avenue.

APPENDIX 1

PondPack®

PondPack® is a powerful stormwater program that analyzes a tremendous range of situations — from simple sites to complex networked watersheds. The program analyzes pre- and post-developed watershed conditions and sizes ponds. It also computes



outlet rating curves with tailwater effects, accounts for pond infiltration, calculates pond detention times, and analyzes channels. PondPack for Windows even handles interconnected pond routing with divergent (multiple) outfalls.

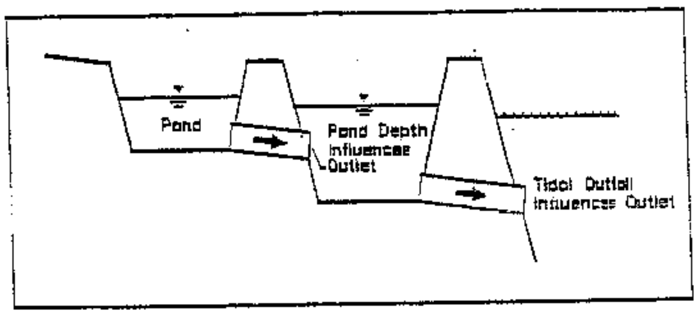
PondPack's new Windows® interface includes point and click toolbar controls that allow for quick and easy layout of complete watershed network systems. Simply use the mouse to insert runoff areas, ponds, channels, diversions, and tidal outfalls. Use the mouse to select, drag, drop, and move any element in the system. Double-click any element of the network to display and edit the selected item. The tutorials will guide you through the software, or you can access the extensive context sensitive Help system to instantly view details concerning the current task. Work in Metric, English, or mixed units.

At the press of a button, fully scalable color graphs display multiple scenarios on your screen. PondPack for Windows graphically displays such items as watershed diagrams, hydrographs, rainfall curves, I-D-F curves, outlet rating curves, volume curves, elevation versus time, volume versus time, cross sections, channel rating curves, and a wide variety of other input and output parameters. All graphics are fully AutoCAD® compatible.

PondPack for Windows builds customized reports (organized by category), and automatically creates section and page numbers, table of contents, and index. Quickly create an executive summary for an entire watershed, or build an elaborate drainage report showing any or all report items.

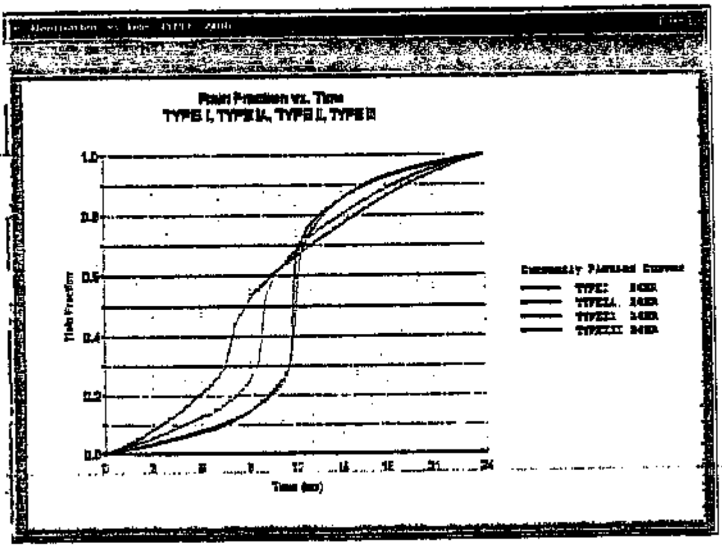
Watershed Networks and Interconnected Pond Modeling (ICPM)

- Model fully networked watershed scenarios with multiple areas, reaches, and ponds, including interconnected diversions.



- Analyze multiple connected ponds with backwater effects.
- Model tidal outfalls.
- Calculate reverse flow automatically (or prevent reverse flow by incorporating flap gates).

- Maintain model stability through the exclusive STABIT™ technology. This provides computational robustness for even the most complex networks.

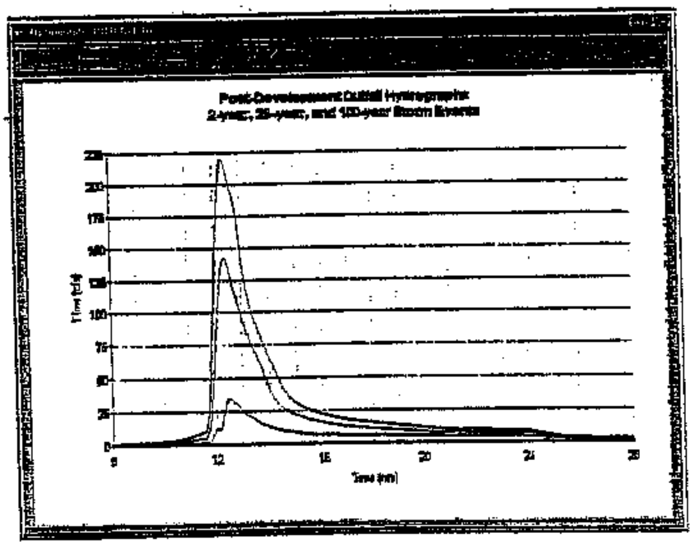


Rainfall and Runoff Computations

- Model any duration or distribution, for synthetic or real storm events. There is no limit to the number of storm events that can be modeled within any run.
- Incorporate Bulletin 70 and 71 rainfall distribution data for the Midwest U.S.
- Compute runoff volume from SCS Curve Numbers (CNs). PondPack can also automatically adjust CN values.
- Model average infiltration.
- Use the SCS Graphical Peak Discharge method.
- Generate rainfall distributions from tabular I-D-F data, or from I-D-F equations.
- Compute peak discharge with the Rational Method, using various watershed coefficients (C values). PondPack automatically weights C coefficients.

Hydrograph Procedures

- Choose the SCS Unit Hydrograph method (for both triangular & curvilinear methods), and make use of the SCS unit hydrograph shape factor adjustment.
- Use Rational Method Q/Qp templates or the Modified Rational Method to compute I-D-F-based hydrographs.
- Compute an instantaneous hydrograph and route it using the Santa Barbara Urban Hydrograph procedure.
- Take advantage of the Dekalb County Methods.
- Add unlimited hydrographs at any junction, pond, or outfall.



Time of Concentration

- Define the time of concentration directly, or by choosing from the built-in computations for all popular methods, including: Carter, Eagleson, Espey/Winslow, FAA, Kerby/Hathaway, Kirpich, Length/Velocity, SCS Lag, and TR-55 (sheet, shallow concentrated and channel flow).

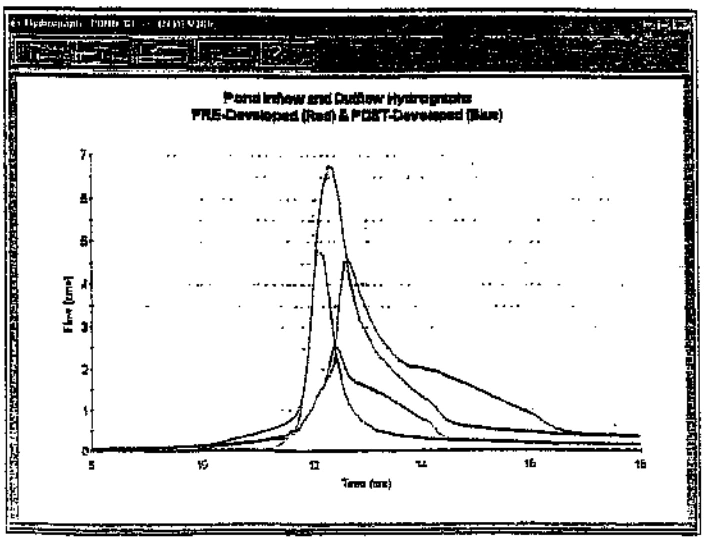
PONDPACK®

- Use the "Quick-Tc" pop-up calculator to compute times of concentration.

User Defined
Carter
Eagleson
Espey/Winslow
FAA Equation
Kerby/Hathaway
Kirpich (PA)
Kirpich (TN)
Length & Velocity
SCS Lag
TR-55 Sheet Flow
TR-55 Shallow Conc.
TR-55 Channel Flow

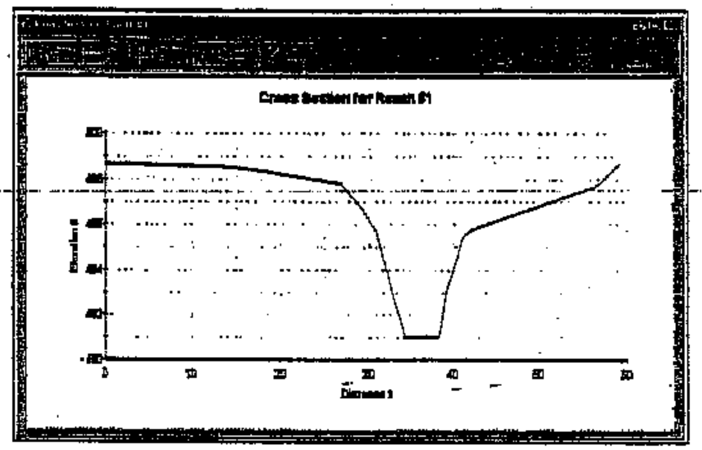
Routing

- Take advantage of PondPack's interconnected pond support to model multiple detention ponds in series or within complex networks.
- Perform channel routing for all types of channels (including pipes and natural channels).
- Use diversions to compute flow splits for ponds with multiple outfalls.
- Include retention ponds in your model.
- Automatically account for pond and reach infiltration from the watershed systems.



Pond Volumes

- Define your pond by several available methods, including elevation versus contour area, elevation versus planimeter area, and elevation versus volume data.
- Model underground sloped, upsized pipes for detention.
- Enter trapezoidal basin geometry, if applicable.

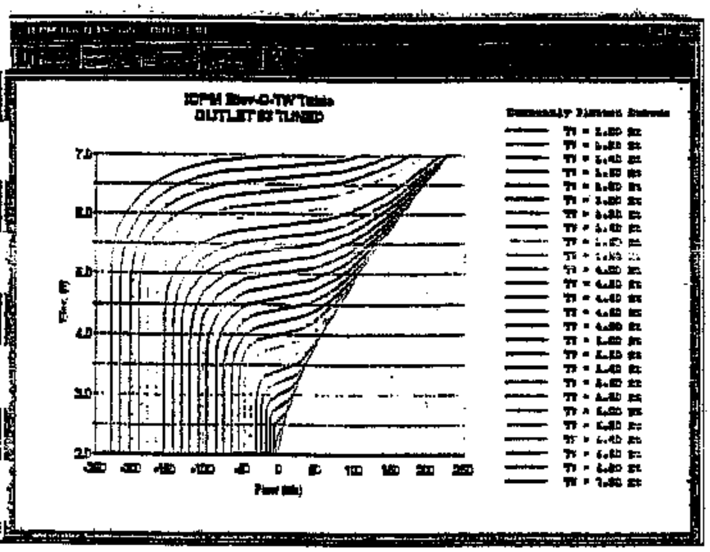


Channels

- Perform routing through prismatic open channels such as parabolic, rectangular, triangular, and trapezoidal sections.
- Model natural channels (irregular shaped sections with variable Manning's roughness values).
- Route hydrographs through pipes.

Outlet Structures

- Model any combination of outlet structures, including the following: HDS-5 culverts, orifices, broad-crested weirs, v-notch weirs, irregular weirs, standpipes, perforations, inlet boxes, or any user-defined structure.



· Generate comprehensive multiple rating curve displays for interconnected pond routing.

· Test comprehensively for tailwater flow dependence.

Vater Quality Best Management Practices (BMPs)

• Account for pond infiltration and reach infiltration automatically.

• Determine the minimum drain time.

· Analyze detention times.

· Compute first flush volumes.

Reporting and Graphing

· Make use of PondPack's exclusive "Automated Report Building" technology to automatically create a complete drainage report, including comprehensive table of contents and index.

Organize output by category.

- Customize your reports fully - present the level of detail that you want (from a summary to a complete report).

• Customize your units (English, Metric, or mixed).

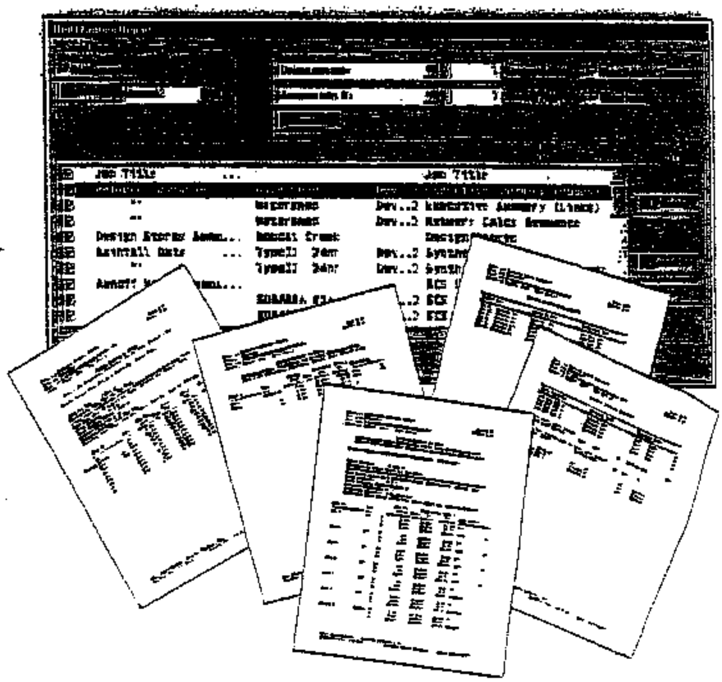
• Create full graphics for network diagrams, rainfall curves, I-D-F curves, hydrographs, infiltration hydrographs, time vs. pond elevation, time vs. pond volume, channel cross sections, flow rating curves, volume rating curves, coefficient curves, and interconnected pond results.

• Compare multiple curves on a single graph.

• Export all graphics (including schematic watershed diagrams) to a DXF file, for import into AutoCAD, Microstation, or any other drafting program.

System Requirements

• PondPack for Windows requires a Pentium processor 200Mhz or above, 64 MB RAM, a CD-ROM drive, and Windows NT, Windows 95, Windows 98, or Windows 2000.



PONDPACK® *feature list*

Powerful Windows User Interface

4.0	5.0	6.0	7.0	Feature
			✓	Displays editable watershed diagram.
			✓	Makes data entry easy via Windows dialogs.
			✓	Features drag and drop network layout.
			✓	Enables user to insert, move, edit, or delete watershed elements.
			✓	Provides right click pop-up menus for graphical editing tools.
		✓	✓	Handles Metric and English units.
			✓	Includes layout toolbars.
			✓	Offers zoom and pan buttons.
			✓	Provides new streamlined menu system.
			✓	Automatically prompts user for pertinent data during layout.
			✓	Includes context-sensitive help with quick links to related topics.
			✓	Features a help button on every entry form.
			✓	Contains on-line help lessons for using the software.
			✓	~~Provides one-button access to the extensive Haestad Methods KnowledgeBase web site.~~
			✓	Enables user to copy and paste tables and graphs from WYSIWYG reports to other Windows applications.
			✓	Features one-button access to software updates.
			✓	Prints high-resolution color graphics.
			✓	Allows renaming individual links and nodes.
			✓	Provides tool for global renaming of links and nodes.
			✓	Includes zoom window and zoom find element.
			✓	Provides improved print preview for watershed networks.
			✓	Moveable labels for nodes.
			✓	Provides step-by-step pond design worksheet.

Extensive Rainfall Capabilities

4.0	5.0	6.0	7.0	Feature
	✓	✓	✓	Handles Intensity-Duration-Frequency (IDF) Tables.
		✓	✓	Models standard IDF equations.
		✓	✓	Accommodates any duration event.
		✓	✓	Employs any synthetic distribution.
			✓	Incorporates Bulletin 70 data.
			✓	Includes Bulletin 71 distributions.
			✓	Includes Circular 173/90 distributions.
		✓	✓	Creates rainfall distributions from I-D-F data.
		✓	✓	Imports rainfall data from TR-20 and PondPack v5.
			✓	Simulates unlimited rainfall frequencies in a single batch run.
			✓	Imports ASCII rain table.

Comprehensive Runoff Procedures

4.0	5.0	6.0	7.0	Feature
	✓	✓	✓	Automatically weights runoff parameters for composite subareas.
			✓	Weights unlimited number of composite subareas.
	✓	✓	✓	Models Modified Rational Method.
	✓	✓	✓	Models Rational Method Q/Qp hydrographs.
			✓	Models Rational Method within watershed diagram.
			✓	Provides pre- and post-development management tools for Rational Method.
✓	✓	✓	✓	Calculates TR-55 Graphical Peak Discharge.
✓	✓	✓	✓	Offers TR-55 Tabular Hydrograph Method.
	✓	✓	✓	Models Santa Barbara Urban Hydrograph Procedure (SBUH)
		✓	✓	Models SCS Unit Hydrograph Method.
		✓	✓	Allows SCS Unit Hydrograph Method shape factor adjustment.
		✓	✓	Offers both curvilinear and triangular SCS hydrograph options.
		✓	✓	Handles user-defined unit hydrographs.
	✓	✓	✓	Weights runoff CN values.
		✓	✓	Adjusts CN for % imperviousness.
		✓	✓	Handles subarea base flow.
			✓	Utilizes user defined truncation threshold.
		✓	✓	Includes pop-up Tc calculator.
✓	✓	✓	✓	Calculates TR-55 Tc equations.
		✓	✓	Calculates Tc using: Carter, Eagleson, Espey/Winslow, FAA Equation, Kerby/Hathaway, Kirpich, Length & Velocity, SCS Lag, TR-55 Sheet Flow, TR-55 Shallow Concentrated Flow, TR-55 Channel Flow, and User Defined.

Pond Volumes

4.0	5.0	6.0	7.0	Feature
✓	✓	✓	✓	Provides basic storage estimates.
		✓	✓	Provides advanced storage estimates using several methods, with data readily presented for comparison.
✓	✓	✓	✓	Handles planimeter data volume calculations.
		✓	✓	Handles elevation vs. area data.
		✓	✓	Handles user defined volume curves.
		✓	✓	Models rectangular and trapezoidal ponds.
		✓	✓	Includes sloped, underground pipes.

Routing

4.0	5.0	6.0	7.0	Feature
		✓	✓	Analyzes complex watershed networks.
		✓	✓	Models unlimited ponds in series, including interconnected ponds.
		✓	✓	Handles unlimited interconnected diversions.
		✓	✓	Performs channel routing for all types of channels (including natural channels).
		✓	✓	Routes hydrographs through piping.
		✓	✓	Uses diversions to compute flow splits for ponds with multiple outfalls.
		✓	✓	Models retention ponds as part of a watershed network.
		✓	✓	Accounts for infiltration losses through bottom of pond or reach.
		✓	✓	Routes hydrographs using the Modified Puls, Muskingum, or pure translational methods.

URBAN HYDROLOGY & DETENTION POND DESIGN

Version

4.0 5.0 6.0 7.0 OUTLET STRUCTURES

- ✓ ✓ ✓ ✓ Creates outlet structure rating curves.
- ✓ ✓ ✓ ✓ Models multi-stage structures comprised of outlets such as:
  [illegible] culverts, orifices, broad-crested weirs, V-notch weirs, irregular weirs, standpipes, perforations, inlet boxes, or any user-defined structure.
- ✓ ✓ Models low flow conditions within circular orifices.
- ✓ ✓ Handles partially full or full riser conditions for inlet boxes and standpipes.
- ✓ ✓ Tests for outlet control situations.
- ✓ ✓ Models TW effects from downstream channels, backwater data, or tidal outfalls.
- ✓ ✓ Creates comprehensive multiple rating curve displays for interconnected pond routing.

4.0 5.0 6.0 7.0 CHANNELS

- ✓ ✓ Routes hydrographs through natural channels (irregular sections with variable Manning's roughness values).
- ✓ ✓ Performs routing through prismatic channels such as triangular, rectangular, trapezoidal, and parabolic sections.
- ✓ ✓ Routes hydrograph through pipes.
- ✓ ✓ Creates channel flow rating curves.
- ✓ ✓ Creates channel velocity rating curves.

4.0 5.0 6.0 7.0 WATERSHED NETWORKS AND INTERCONNECTED POND MODELING (ICPM)

- ✓ ✓ Models fully networked watersheds with multiple areas, reaches, and ponds, including interconnected diversions.
- ✓ ✓ Analyzes multiple connected ponds with backwater effects.
- ✓ ✓ Models tidal outfalls.
- ✓ ✓ Calculates reverse flow automatically (or prevents reverse flow by incorporating flap gates).
- ✓ ✓ Maintains model stability through the exclusive STABIT technology, providing computational robustness for even the most complex networks.
- ✓ ✓ Adds unlimited hydrographs at any junction or pond.
- ✓ Provides advanced error checking for network data.

4.0 5.0 6.0 7.0 WATER QUALITY BEST MANAGEMENT PRACTICES (BMPs)

- ✓ ✓ Accounts for pond and reach infiltration automatically.
- ✓ ✓ Determines minimum drain time.
- ✓ ✓ Calculates plug flow detention time.
- ✓ ✓ Computes centroid-to-centroid detention time.
- ✓ ✓ Calculates first flush volume.
- ✓ ✓ Handles wet pond routing situations.
- ✓ ✓ Handles water quality adverse grade outlet designs.

Version

4.0 5.0 6.0 7.0 EXTRAORDINARY PERFORMANCE OPTIMIZATION FEATURES

- ✓ Attains across-the-board increases in calculation speed.
- ✓ Achieves 1000%+ performance increase for outlet structure calculations.
- ✓ Handles unlimited number of outlet rating points.
- ✓ Models unlimited number of watershed elements.
- ✓ Handles unlimited number of storms.
- ✓ Provides instant access to data via the network diagram editor.

4.0 5.0 6.0 7.0 REPORTING AND GRAPHING

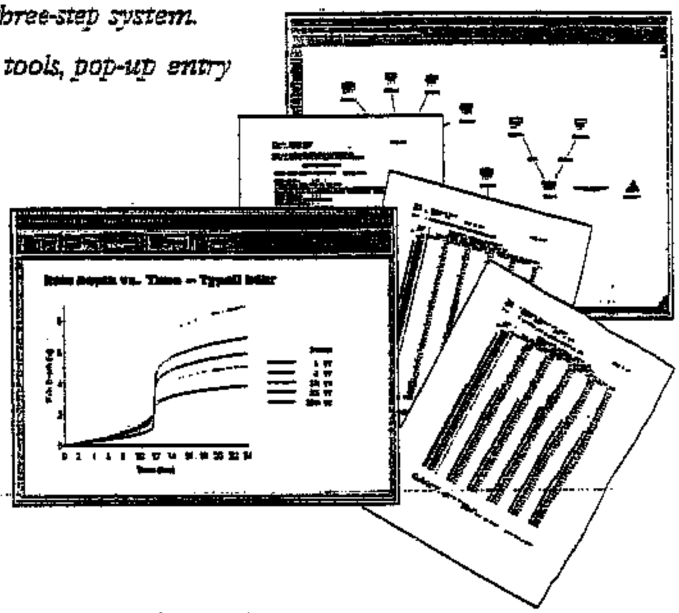
- ✓ ✓ Includes "Automated Report Building" technology to automatically create a complete drainage report, including comprehensive table of contents and index.
- ✓ ✓ Organizes reports by category.
- ✓ ✓ Enables the user to fully customize reports to present any level of detail — from short executive summaries to comprehensive reports.
- ✓ Includes attractive Windows font for reports.
- ✓ Prints directly to Windows-based printers.
- ✓ Includes pop-up calculator for interpolating values from rating curves.
- ✓ ✓ Provides tools for graphically comparing results.
- ✓ ✓ Handles different units — English, Metric, or mixed units.
- ✓ Provides WYSIWYG print preview.
- ✓ Provides advanced search tools.
- ✓ Includes zoom tool for reports.
- ✓ ✓ Creates full graphics for rainfall curves, I-D-F curves, hydrographs, infiltration hydrographs, time-elevation, time-volume, channel cross sections, flow rating curves, volume rating curves, coefficient curves, interconnected pond results and more.
- ✓ Provides scrollable thumbnail view of all graphs.
- ✓ Gives user full control over graph axis scales, titles, fonts, grids, and colors.
- ✓ ✓ Exports all graphics (including watershed diagram) to .DXF file, which can be imported into AutoCAD, Microstation, and any other drafting program.
- ✓ Creates Master Network Summary: All nodes for all storms.

PONDPACK®

URBAN HYDROLOGY & DETENTION POND DESIGN

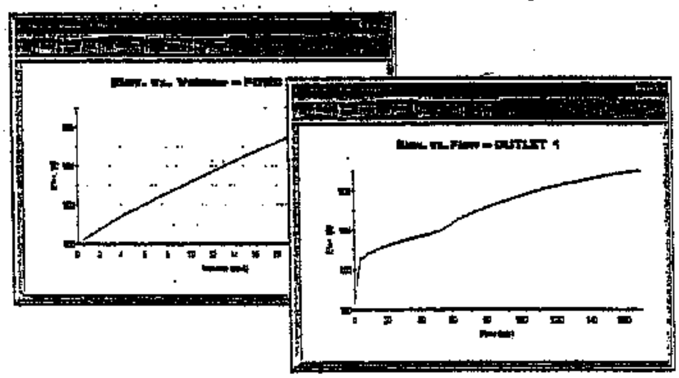
EASY-TO-USE THREE-STEP SYSTEM

Design detention ponds quickly using PondPack's exclusive three-step system. You will streamline the design process with easy-to-use layout tools, pop-up entry forms, extensive graphics, and powerful analysis capabilities.



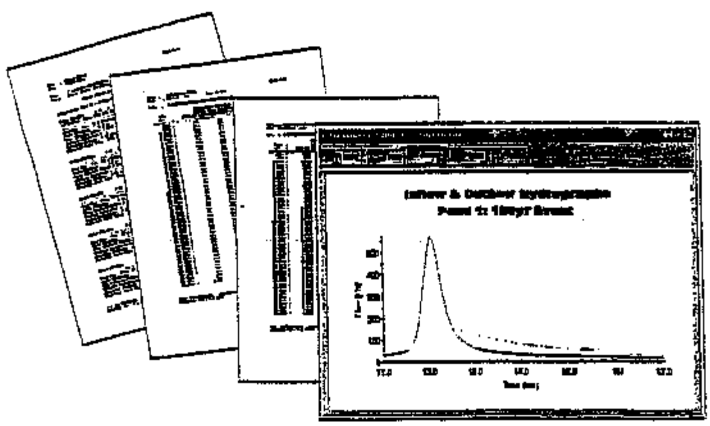
1 ANALYZE PRE- AND POST-DEVELOPED CONDITIONS

Apply any rainfall duration or distribution to quickly assess differences between pre- and post-developed runoff rates. Graphically view rainfall data and create custom reports to establish target outflow rates for your ponds.



2 SIZE PONDS & OUTLETS

Trim hours off grading plan efforts by estimating storage requirements before laying out the first pond contour. Next, use automated volume and outlet structure calculation tools to see if the contour layout and outlet design meet the expected storage requirements and target flow rates.



3 ROUTE WATERSHED HYDROGRAPHS

Analyze anything from a single pond to complex watershed networks with channels, pipes, and hundreds of interconnected ponds with unlimited diversions. Quickly assess results by creating custom reports based on user-defined criteria. Each report is automatically paginated, complete with table of contents and index.

PRICING

INDIVIDUAL LICENSE

Number of Users			
1	2	5	10
$4,995	$7,995	$9,995	$14,995

NETWORK LICENSE

Base Price & ...	Per Additional

APPENDIX 2

DESIGN STORMS SUMMARY

Design Storm File,ID =   Suffolk County

```
Storm Tag Name       = 1
-------------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency     = 1 yr
Total Rainfall Depth= 2.7000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs

Storm Tag Name       =      2
-------------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency     = 2 yr
Total Rainfall Depth= 3.5000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs

Storm Tag Name       =      5
-------------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency     = 5 yr
Total Rainfall Depth= 4.5000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs

Storm Tag Name       =     10
-------------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency     = 10 yr
Total Rainfall Depth= 5.0000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs

Storm Tag Name       =     25
-------------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency     = 25 yr
Total Rainfall Depth= 6.0000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs
```

DESIGN STORMS SUMMARY

Design Storm File,ID = Suffolk County

```
Storm Tag Name       =     50
----------------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency     = 50 yr
Total Rainfall Depth= 7.0000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


Storm Tag Name       =    100
----------------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency     = 100 yr
Total Rainfall Depth= 7.5000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs
```

APPENDIX 3

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Woods - good	30	.654			30.00
Residential Districts - 1 acre	51	.726			51.00
Impervious Areas - Paved parking lo	98	1.900			98.00
Residential Districts - 1 acre	68	7.840			68.00

COMPOSITE AREA & WEIGHTED CN ---> 11.120 69.78 (70)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
Residential Districts - 1 acre	51	5.350			51.00
Residential Districts - 1 acre	68	4.470			68.00
Impervious Areas - Paved parking lo	98	2.616			98.00
COMPOSITE AREA & WEIGHTED CN --->		12.436			67.00 (67)

APPENDIX 4

File.... I:\1990\97110\2005\Kiruv Watershed pre development.ppw

:::
TIME OF CONCENTRATION CALCULATOR
:::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110
Hydraulic Length	300.00 ft
2yr, 24hr P	3.5000 in
Slope	.056000 ft/ft

Avg.Velocity 2.71 ft/sec

Segment #1 Time: .0308 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	1900.00 ft
Slope	.058000 ft/ft
Paved	

Avg.Velocity 4.90 ft/sec

Segment #2 Time: .1078 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	600.00 ft
Slope	.035000 ft/ft
Unpaved	

Avg.Velocity 3.02 ft/sec

Segment #3 Time: .0552 hrs

Total Tc: .1938 hrs

Tc Equations used...

SCS TR-55 Sheet Flow

```
Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where:  Tc = Time of concentration, hrs
        n  = Mannings n
        Lf = Flow length, ft
        P  = 2yr, 24hr Rain depth, inches
        Sf = Slope, %
```

SCS TR-55 Shallow Concentrated Flow

```
Unpaved surface:
V  = 16.1345 * (Sf**0.5)

Paved surface:
V  = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where:  V  = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft
```

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110
Hydraulic Length	300.00 ft
2yr, 24hr P	3.5000 in
Slope	.027000 ft/ft

Avg.Velocity 2.02 ft/sec

Segment #1 Time: .0412 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	2200.00 ft
Slope	.054000 ft/ft
Paved	

Avg.Velocity 4.72 ft/sec

Segment #2 Time: .1294 hrs

Total Tc: .1706 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ====

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ====

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

APPENDIX 5

File.... I:\1990\97110\2005\Kiruv Watershed post development.ppw

RUNOFF CURVE NUMBER DATA

::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Woods - good	30	.654			30.00
Residential Districts - 1 acre	51	6.650			51.00
Impervious Areas - Paved parking lo	98	4.500			98.00
Residential Districts - 1 acre	68	10.200			68.00

COMPOSITE AREA & WEIGHTED CN ---> 22.004 67.87 (68)

::

APPENDIX 6

File.... I:\1990\97110\2005\Kiruv Watershed post development.ppw

---

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: TR-55 Sheet

Mannings n	.0110
Hydraulic Length	300.00 ft
2yr, 24hr P	3.5000 in
Slope	.056000 ft/ft

Avg.Velocity 2.71 ft/sec

Segment #1 Time: .0308 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	2450.00 ft
Slope	.053000 ft/ft
Paved	

Avg.Velocity 4.68 ft/sec

Segment #2 Time: .1454 hrs

Total Tc: .1762 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ====

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ====

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

APPENDIX 7

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs   Rain Depth = 3.5000 in
Rain Dir = I:\1990\97110\2005\
Rain File -ID = - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = I:\1990\97110\2005\
HYG File - ID = Kiruv Wa.HYG - AREA 1 2
Tc = .1938 hrs
Drainage Area = 11.120 acres Runoff CN= 70

Computational Time Increment	=	.02584 hrs
Computed Peak Time	=	12.1721 hrs
Computed Peak Flow	=	9.58 cfs
Time Increment for HYG File	=	.0500 hrs
Peak Time, Interpolated Output	=	12.1500 hrs
Peak Flow, Interpolated Output	=	9.45 cfs

DRAINAGE AREA

ID:AREA 1
CN = 70
Area = 11.120 acres
S = 4.2857 in
0.2S = .8571 in

Cumulative Runoff

1.0081 in
.934 ac-ft

HYG Volume... .934 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .19382 hrs (ID: AREA 1)
Computational Incr, Tm = .02584 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak,	qp	=	65.00 cfs
Unit peak time	Tp	=	.12922 hrs
Unit receding limb,	Tr	=	.51686 hrs
Total unit time,	Tb	=	.64608 hrs

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration          = 24.0000 hrs     Rain Depth = 5.0000 in
Rain Dir          = I:\1990\97110\2005\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir           = I:\1990\97110\2005\
HYG File - ID = Kiruv Wa.HYG - AREA 1 10
Tc                = .1938 hrs
Drainage Area = 11.120 acres  Runoff CN= 70

-----------------------------------------------------
Computational Time Increment   =   .02584 hrs
Computed Peak Time             =  12.1463 hrs
Computed Peak Flow             =    20.37 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =    20.37 cfs
-----------------------------------------------------

                    DRAINAGE AREA
                 -------------------
                 ID:AREA 1
                 CN    =   70
                 Area =       11.120 acres
                 S     =   4.2857 in
                 0.2S =     .8571 in

                  Cumulative Runoff
                 -------------------
                        2.0363 in
                         1.887 ac-ft

HYG Volume...            1.887 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .19382 hrs (ID: AREA 1)
Computational Incr, Tm =   .02584 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,            qp =    65.00 cfs
Unit peak time        Tp =   .12922 hrs
Unit receding limb, Tr =   .51686 hrs
Total unit time,      Tb =   .64608 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 50 year storm
Duration      = 24.0000 hrs    Rain Depth = 7.0000 in
Rain Dir      = I:\1990\97110\2005\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir       = I:\1990\97110\2005\
HYG File - ID = Kiruv Wa.HYG - AREA 1 50
Tc            = .1938 hrs
Drainage Area = 11.120 acres  Runoff CN= 70

============================================
Computational Time Increment  =   .02584 hrs
Computed Peak Time            =  12.1463 hrs
Computed Peak Flow            =    36.85 cfs

Time Increment for HYG File   =    .0500 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =    36.80 cfs
============================================

              DRAINAGE AREA
              -------------------
              ID:AREA 1
              CN   =   70
              Area =      11.120 acres
              S    =   4.2857 in
              0.2S =    .8571 in

              Cumulative Runoff
              -------------------
                    3.6184 in
                     3.353 ac-ft

HYG Volume...          3.354 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .19382 hrs (ID: AREA 1)
Computational Incr, Tm =   .02584 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =    65.00 cfs
Unit peak time      Tp =   .12922 hrs
Unit receding limb, Tr =   .51686 hrs
Total unit time,    Tb =   .64608 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration        = 24.0000 hrs    Rain Depth = 7.5000 in
Rain Dir        = I:\1990\97110\2005\
Rain File -ID   = - TypeIII 24hr
Unit Hyd Type   = Default Curvilinear
HYG Dir         = I:\1990\97110\2005\
HYG File - ID   = Kiruv Wa.HYG - AREA 1 100
Tc              = .1938 hrs
Drainage Area = 11.120 acres  Runoff CN= 70

=============================================
Computational Time Increment   =    .02584 hrs
Computed Peak Time             =   12.1463 hrs
Computed Peak Flow             =     41.15 cfs

Time Increment for HYG File    =     .0500 hrs
Peak Time, Interpolated Output =   12.1500 hrs
Peak Flow, Interpolated Output =     41.09 cfs
=============================================

              DRAINAGE AREA
              ------------------
              ID:AREA 1
              CN   =    70
              Area =       11.120 acres
              S    =    4.2857 in
              0.2S =     .8571 in

               Cumulative Runoff
              ------------------
                     4.0378 in
                      3.742 ac-ft

HYG Volume...           3.742 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .19382 hrs (ID: AREA 1)
Computational Incr, Tm =   .02584 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =    65.00 cfs
Unit peak time       Tp =   .12922 hrs
Unit receding limb,  Tr =   .51686 hrs
Total unit time,     Tb =   .64608 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir       = I:\1990\97110\2005\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = I:\1990\97110\2005\
HYG File - ID  = Kiruv Wa.HYG - AREA 2 2
Tc             = .1706 hrs
Drainage Area  = 12.436 acres  Runoff CN= 67

==============================================
Computational Time Increment   =   .02275 hrs
Computed Peak Time             =  12.1701 hrs
Computed Peak Flow             =     8.93 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =     8.92 cfs
==============================================

                DRAINAGE AREA
              -------------------
              ID:AREA 2
              CN   =   67
              Area =       12.436 acres
              S    =   4.9254 in
              0.2S =    .9851 in

               Cumulative Runoff
              -------------------
                        .8501 in
                         .881 ac-ft

HYG Volume...            .881 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .17061 hrs (ID: AREA 2)
Computational Incr, Tm =   .02275 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =    82.59 cfs
Unit peak time       Tp =   .11374 hrs
Unit receding limb,  Tr =   .45496 hrs
Total unit time,     Tb =   .56869 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 5.0000 in
Rain Dir       = I:\1990\97110\2005\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = I:\1990\97110\2005\
HYG File - ID  = Kiruv Wa.HYG - AREA 2 10
Tc             = .1706 hrs
Drainage Area  = 12.436 acres  Runoff CN= 67

Computational Time Increment    =   .02275 hrs
Computed Peak Time              =  12.1473 hrs
Computed Peak Flow              =    20.69 cfs

Time Increment for HYG File     =    .0500 hrs
Peak Time, Interpolated Output  =  12.1500 hrs
Peak Flow, Interpolated Output  =    20.66 cfs

              DRAINAGE AREA
           ------------------
           ID:AREA 2
           CN    =    67
           Area  =       12.436 acres
           S     =    4.9254 in
           0.2S  =     .9851 in

            Cumulative Runoff
           ------------------
                  1.8030 in
                   1.869 ac-ft

HYG Volume...          1.869 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .17061 hrs (ID: AREA 2)
Computational Incr, Tm =   .02275 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,            qp =    82.59 cfs
Unit peak time        Tp =   .11374 hrs
Unit receding limb,   Tr =   .45496 hrs
Total unit time,      Tb =   .56869 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 50 year storm
Duration        = 24.0000 hrs     Rain Depth = 7.0000 in
Rain Dir        = I:\1990\97110\2005\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir         = I:\1990\97110\2005\
HYG File - ID = Kiruv Wa.HYG - AREA 2 50
Tc              = .1706 hrs
Drainage Area = 12.436 acres  Runoff CN= 67

Computational Time Increment    =    .02275 hrs
Computed Peak Time              =   12.1473 hrs
Computed Peak Flow              =     38.85 cfs

Time Increment for HYG File     =     .0500 hrs
Peak Time, Interpolated Output =   12.1500 hrs
Peak Flow, Interpolated Output =     38.74 cfs

              DRAINAGE AREA
            ------------------
            ID:AREA 2
            CN   =    67
            Area =       12.436 acres
            S    =    4.9254 in
            0.2S =     .9851 in

             Cumulative Runoff
            ------------------
                    3.3070 in
                     3.427 ac-ft

HYG Volume...          3.428 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .17061 hrs (ID: AREA 2)
Computational Incr, Tm =    .02275 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =      .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,           qp =     82.59 cfs
Unit peak time       Tp =    .11374 hrs
Unit receding limb, Tr =    .45496 hrs
Total unit time,     Tb =    .56869 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 7.5000 in
Rain Dir       = I:\1990\97110\2005\
Rain File -ID  =  - TypeIII 24hr
Unit Hyd Type  = Default Curvilinear
HYG Dir        = I:\1990\97110\2005\
HYG File - ID  = Kiruv Wa.HYG - AREA 2 100
Tc             = .1706 hrs
Drainage Area  = 12.436 acres  Runoff CN= 67

Computational Time Increment   =    .02275 hrs
Computed Peak Time             =   12.1473 hrs
Computed Peak Flow             =     43.64 cfs

Time Increment for HYG File    =     .0500 hrs
Peak Time, Interpolated Output =   12.1500 hrs
Peak Flow, Interpolated Output =     43.51 cfs

                   DRAINAGE AREA
                 -------------------
                 ID:AREA 2
                 CN   =   67
                 Area =       12.436 acres
                 S    =   4.9254 in
                 0.2S =     .9851 in

                  Cumulative Runoff
                 -------------------
                        3.7101 in
                         3.845 ac-ft

HYG Volume...            3.845 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .17061 hrs (ID: AREA 2)
Computational Incr, Tm =    .02275 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =      .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,            qp =     82.59 cfs
Unit peak time        Tp =    .11374 hrs
Unit receding limb,   Tr =    .45496 hrs
Total unit time,      Tb =    .56869 hrs
```

APPENDIX 8

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration       = 24.0000 hrs     Rain Depth = 3.5000 in
Rain Dir       = I:\1990\97110\2005\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = I:\1990\97110\2005\
HYG File - ID = Kiruv Wa.HYG - AREA 3 2
Tc             = .1762 hrs
Drainage Area = 22.004 acres  Runoff CN= 68

------------------------------------------------------------
Computational Time Increment  =   .02350 hrs
Computed Peak Time            =  12.1712 hrs
Computed Peak Flow            =    16.90 cfs

Time Increment for HYG File   =    .0500 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =    16.86 cfs
------------------------------------------------------------

                  DRAINAGE AREA
              -------------------
              ID:AREA 3
              CN    =    68
              Area =        22.004 acres
              S     =   4.7059 in
              0.2S =     .9412 in

               Cumulative Runoff
              -------------------
                        .9013 in
                        1.653 ac-ft

HYG Volume...           1.653 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .17622 hrs (ID: AREA 3)
Computational Incr, Tm =   .02350 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,           qp =   141.48 cfs
Unit peak time       Tp =   .11748 hrs
Unit receding limb, Tr =   .46993 hrs
Total unit time,     Tb =   .58741 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 10 year storm
Duration       = 24.0000 hrs     Rain Depth = 5.0000 in
Rain Dir       = I:\1990\97110\2005\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = I:\1990\97110\2005\
HYG File - ID = Kiruv Wa.HYG - AREA 3 10
Tc             = .1762 hrs
Drainage Area = 22.004 acres  Runoff CN= 68

============================================
Computational Time Increment  =    .02350 hrs
Computed Peak Time            =   12.1477 hrs
Computed Peak Flow            =     38.07 cfs

Time Increment for HYG File   =     .0500 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =    38.02 cfs
============================================

                 DRAINAGE AREA
               -------------------
               ID:AREA 3
               CN   =    68
               Area =       22.004 acres
               S    =    4.7059 in
               0.2S =     .9412 in

                Cumulative Runoff
               -------------------
                       1.8796 in
                        3.447 ac-ft

HYG Volume...           3.447 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .17622 hrs (ID: AREA 3)
Computational Incr, Tm =   .02350 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,            qp =   141.48 cfs
Unit peak time        Tp =   .11748 hrs
Unit receding limb,   Tr =   .46993 hrs
Total unit time,      Tb =   .58741 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 50 year storm
Duration        = 24.0000 hrs     Rain Depth = 7.0000 in
Rain Dir        = I:\1990\97110\2005\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir         = I:\1990\97110\2005\
HYG File - ID = Kiruv Wa.HYG - AREA 3 50
Tc              = .1762 hrs
Drainage Area = 22.004 acres  Runoff CN= 68

Computational Time Increment   =   .02350 hrs
Computed Peak Time             =  12.1477 hrs
Computed Peak Flow             =    70.49 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =    70.34 cfs

              DRAINAGE AREA
            -------------------
            ID:AREA 3
            CN    =    68
            Area =       22.004 acres
            S     =    4.7059 in
            0.2S =     .9412 in

             Cumulative Runoff
            -------------------
                   3.4102 in
                    6.253 ac-ft

HYG Volume...          6.255 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .17622 hrs (ID: AREA 3)
Computational Incr, Tm =   .02350 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,            qp =   141.48 cfs
Unit peak time        Tp =   .11748 hrs
Unit receding limb, Tr =   .46993 hrs
Total unit time,      Tb =   .58741 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 7.5000 in
Rain Dir       = I:\1990\97110\2005\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = I:\1990\97110\2005\
HYG File - ID = Kiruv Wa.HYG - AREA 3 100
Tc             = .1762 hrs
Drainage Area = 22.004 acres  Runoff CN= 68

-----------------------------------------------------
Computational Time Increment    =   .02350 hrs
Computed Peak Time              =  12.1477 hrs
Computed Peak Flow              =    79.01 cfs

Time Increment for HYG File     =    .0500 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =    78.83 cfs
-----------------------------------------------------

                 DRAINAGE AREA
              -------------------
              ID:AREA 3
              CN   =   68
              Area =       22.004 acres
              S    =   4.7059 in
              0.2S =    .9412 in

               Cumulative Runoff
              -------------------
                    3.8188 in
                     7.002 ac-ft

HYG Volume...         7.004 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .17622 hrs (ID: AREA 3)
Computational Incr, Tm =   .02350 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,            qp =   141.48 cfs
Unit peak time        Tp =   .11748 hrs
Unit receding limb, Tr =   .46993 hrs
Total unit time,      Tb =   .58741 hrs
```

```
SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration       = 24.0000 hrs     Rain Depth = 7.5000 in
Rain Dir       = I:\1990\97110\2005\
Rain File -ID =  - TypeIII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir        = I:\1990\97110\2005\
HYG File - ID = Kiruv Wa.HYG - AREA 3 100
Tc             = .1762 hrs
Drainage Area = 22.004 acres  Runoff CN= 68

Computational Time Increment   =   .02350 hrs
Computed Peak Time             =  12.1477 hrs
Computed Peak Flow             =    79.01 cfs

Time Increment for HYG File    =    .0500 hrs
Peak Time, Interpolated Output =  12.1500 hrs
Peak Flow, Interpolated Output =    78.83 cfs

              DRAINAGE AREA
            ------------------
            ID:AREA 3
            CN   =   68
            Area =        22.004 acres
            S    =   4.7059 in
            0.2S =    .9412 in

            Cumulative Runoff
            ------------------
                  3.8188 in
                   7.002 ac-ft

HYG Volume...         7.004 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =   .17622 hrs (ID: AREA 3)
Computational Incr, Tm =   .02350 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

Unit peak,          qp =   141.48 cfs
Unit peak time      Tp =   .11748 hrs
Unit receding limb, Tr =   .46993 hrs
Total unit time,    Tb =   .58741 hrs
```

APPENDIX E

SEWER DISTRICT EXPANSION PETITION AND RESPONSE

LAW OFFICES
VIDERS & WIESEN
ONE OLD COUNTRY ROAD
CARLE PLACE, NEW YORK 11514-1870
(516) 742-1666
(718) 895-3061
FAX: (516) 747-6384
jvids49@yahoo.com
kwiesen@viders-wiesen.com
mlidowsky@viders-wiesen.com

JAY R. VIDERS*
KENNETH B. WIESEN°
ELAINE M. VIDERS
MITCHEL LIDOWSKY
*ADMITTED N.Y., CONN. AND FLA.
°ADMITTED N.Y. & N.J.

OF COUNSEL
HOWARD I. GETZ
MICHAEL I. BRAVERMAN
KAREN BRAVERMAN
ROBERT C. GOTTLIEB

November 24, 2004

97110

The Town Board
Town of Huntington
100 Main Street
Huntington, New York 11743-6991

re: **Sewer Extension Request - Kiruv Estates**
West Side of Park Avenue
SCTM 0400-073-1.00-038.000, 041.0001 & 042.0000
SCTM 0400-097.00-2.00-107.0000

To The Honorable Town Board:

I am hereby submitting to this Honorable Board, the Petition of Kiruv Capital Corp. for permission to extend the Huntington Sewer District so as to include the premises situated at the southwest corner of Park Avenue and Woodhull Road in the Town.

Because of the high ground watertable which exists in this location, the existing homes owned by Kiruv Capital Corp., as well as two adjoining residences, are all subject to periodic septic tank failures which require frequent pumping. There is therefore a compelling public health and environmental reason for granting the extension request, which would mean a connection to the existing sanitary sewer line which is less than 200 feet from the subject parcel. In addition, the connection would benefit the two significantly historic homes located on Woodhull Road, which the Town has indicated a strong interest in purchasing from the developer.

I have therefore enclosed for your review five (5) copies of the Petition which is accompanied by a metes and bounds description of the property, a property survey and a stamped, scale drawing indicating the location of the proposed sewer line and the point of connection to the collection system of the Sewer District.

On behalf of the Petitioner, I respectfully request that the Petition be granted.

Respectfully submitted,

Jay R. Viders

cc: *(w/enclosures)*
Honorable Frank P. Petrone, Supervisor
Ken Feustel
Richard Machtay

TOWN OF HUNTINGTON

FRANK P. PETRONE, *Supervisor*

VIRONMENTAL WASTE MANAGEMENT

January 6, 2005

Mr. Jay R. Viders
Viders & Wiesen
One Old Country Road
Carle Place, New York 11514-1870

Re: Sewer Extension Petition
Kiruv Estates
SCTM 0400-073-1.00-038.000, 041.0001 & 042.0000
SCTM 0400-097.00-2.00-107.0000

Dear Mr. Viders:

We are in receipt of your petition to the Town Board for extension of Huntington Sewer District boundaries to include the aforementioned premises located at the southwest corner of Park Avenue and Woodhull Road.

Please be advised that the Huntington Sewer District has determined, based on analysis of flow capacity undertaken in March of 2004, that the District's sanitary sewage flow is approaching the limits of both the Huntington Sewage Treatment Plant's design and permitted flows. To address this matter, Town Board resolution # 821 of December 16, 2004 (attached) authorized the execution of an agreement with H2M Group to provide professional engineering services for the preparation of a sewer capacity study for the Huntington Sewer District.

In December of 2004 we were advised by our Planning Department that a positive declaration pursuant to the State Environmental Quality Review Act (SEQRA) had been issued by the Town Planning Board for the proposed Kiruv Estates subdivision, and an environmental impact statement will be prepared. SEQRA prohibits an involved agency from undertaking, funding, or approving an action until all provisions of SEQRA have been complied with.

Therefore, for the above-mentioned reasons your petition to The Town Board will not be considered at this time. If you have any questions concerning this matter do not hesitate to contact my office.

100 MAIN STREET • HUNTINGTON, N.Y. 11743-6991 • (631) 351-3186 • TELEFAX (631) 351-3330

Sincerely yours,

Philip C. Nolan

Philip Nolan, Director
Environmental Waste Management

PN:KF:kf
Attachment
cc: Supervisor
Members of Town Board
Laure Nolan
Ken Feustel

APPENDIX F

SOIL REMEDIATION LETTER

NP&V, LLC

December 13, 2005

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

CHARLES J. VOORHIS, CEP, AICP • VICTOR BERT, P.E. • ARTHUR J. KOERBER, P.E.
JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E. • PAUL M. RACZ, P.L.S.
THOMAS F. LEMBO, P.E. • GREGORY D. PETERMAN, P.L.S.
GARY S. BECKER, P.E. • ERIC J. McFERRAN, P.E.

December 13, 2005

Brian Donovan
New York State Department
of Environmental Conservation
Oil Spill Unit
SUNY Building 40
Stony Brook, New York 11790

Re: Kiruv Property
Spill #0505994
NP&V# 97110

Dear Mr. Donovan:

At the request of Tim DeMeo, I have revised my previous letter dated November 19, 2005 in order to provide more detailed information regarding the remediation of the contaminated soils related to the spill number presented above.

During August of 2005 a Phase II ESA was prepared for the subject property in response to recommendations issued in a previous Phase I ESA dated December 23, 2004 which recommended sampling of soils in the area of a former gasoline storage tank that was located adjacent to the northeast corner of the on-site barn as well as soils within the hole of the concrete basement floor of the house located in the southwest corner of the property. A copy of the Phase II ESA has been included with this letter. Results of the soil sampling detected several semi-volatile organic compounds above their respective recommended soil cleanup objectives identified in TAGM 4046 in samples collected from both areas.

As a result it was recommended that both areas be excavated and soils be transported to an appropriate facility for disposal. A figure illustrating the location of each excavation is provided as an attachment to this letter. Both areas were excavated by hand on September 22, 2005 and all excavated material was placed on and covered with plastic pending waste characterization analysis. An estimated 0.5 yards of soil was removed from the area of the former gasoline storage tank and approximately 0.25 yards of soil was removed from the basement of the residence in the southwestern corner of the property. On September 27, 2005, Brian Donovan of the NYSDEC arrived on-site and inspected the excavated areas, was satisfied with the extent of material removed and did not request any end point sampling.

572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620 WWW.NELSONPOPE.COM

The soils were then transferred to 55-gallon drums and shipped to General Environmental Management of Cleveland Ohio for disposal. The drums were collected and transported to General Environmental Management by Rapid Waste Disposal, Inc. and Piper Trucking on November 26, 2005 and delivered to the facility on November 31, 2005.

Enclosed please find the waste manifests generated for the disposal of the contaminated soil related to the above referenced property and spill number. This information has been provided at your request and if satisfactory we ask that the incident be closed by your department.

Should you have any questions or require any additional information please contact either Steve McGinn or myself at the number provided below.

Very truly yours,

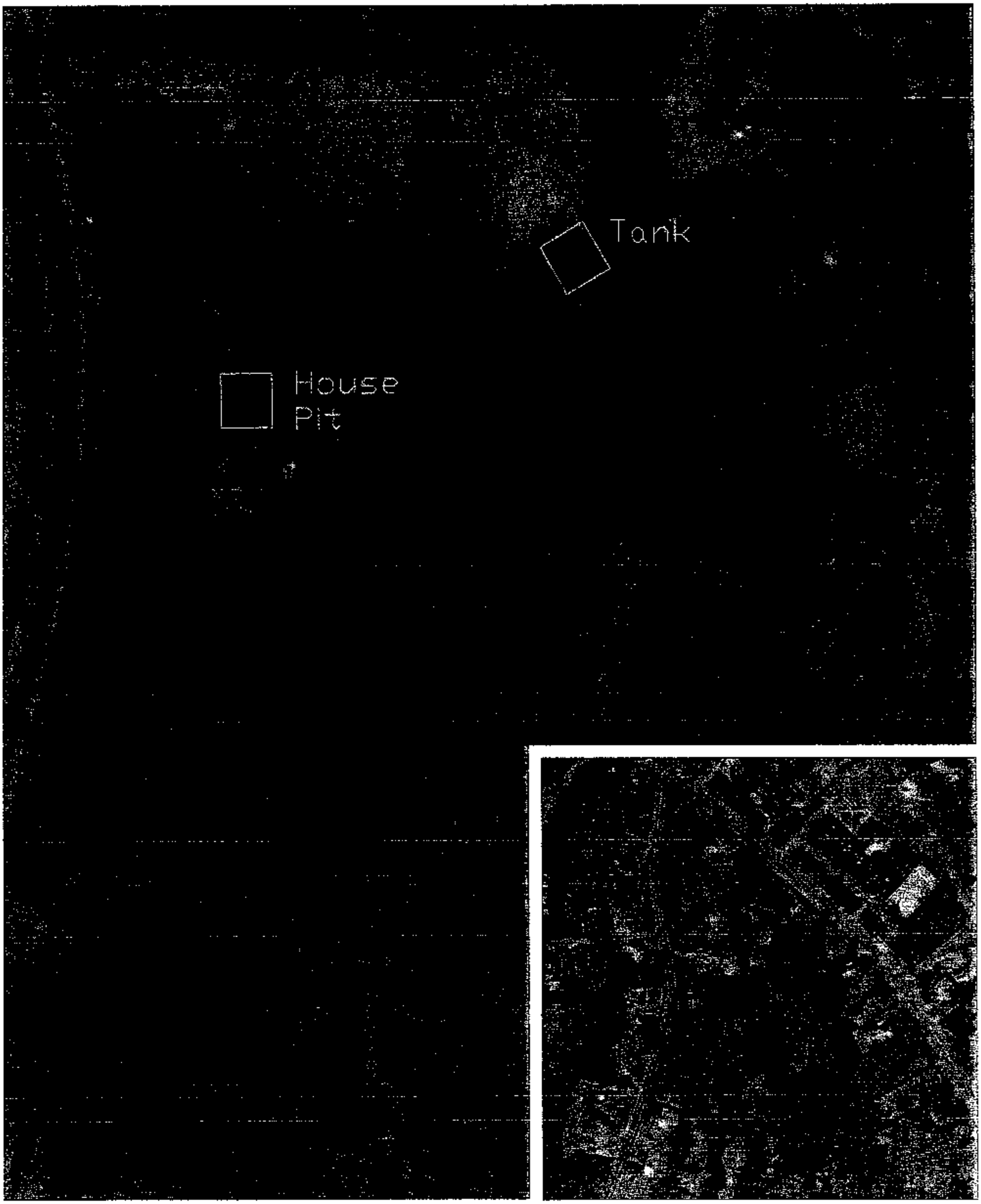
NELSON, POPE & VOORHIS

Eric Arnesen, RPG

Enc.

Attachments

REMEDIATED AREAS



Source: NYSGIS Orthoimagery Program, 2004
Scale: 1" = 50' (Inset 1" = 400')

NELSON POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. N / A		Manifest Document No. 23593	2. Page 1 of 1
3. Generator's Name and Mailing Address Residence 171 Woodhull Road Huntington, NY		N/A	
4. Generator's Phone ( )			
5. Transporter 1 Company Name Rapid Waste Disposal, INC.	6. US EPA ID Number N Y R 0 0 0 0 7 6 1 4 1	A. State Transporter's ID	1A-615
		B. Transporter 1 Phone	(631) 935-0131
7. Transporter 2 Company Name Piper Trucking	8. US EPA ID Number N / A	C. State Transporter's ID	PUV 2544
		D. Transporter 2 Phone	(888) 965-6051
9. Designated Facility Name and Site Address General Environmental Management, 2727 Transport Road Cleveland, OH 44115	10. US EPA ID Number O H D 0 0 4 1 7 8 6 1 2	E. State Facility's ID	
		F. Facility's Phone	(216) 621-3694

11. WASTE DESCRIPTION	12. Containers No.	Type	13. Total Quantity	14. Unit Wt./Vol.
a. #2 Fuel Oil/Soil	3	DM	00900	P
b.	0			
c.	0			
d.	0			

G. Additional Descriptions for Materials Listed Above

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

In case of emergency call 621-935-0131 24Hrs

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date Month	Day	Year
Fred J. Catapano (As Agent)		10	26	05

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Fred J. Catapano		10	26	05

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
Robert Williams		10	27	05

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.

Printed/Typed Name	Signature	Date Month	Day	Year
Greg Redmer		10	31	05

GENERATOR / TRANSPORTER / FACILITY

NON-HAZARDOUS WASTE

APPENDIX G

WILDLIFE INFORMATION

Appendix G-1
Projection of Wildlife Ecological Response Model

Species List

PROJECTION OF WILDLIFE ECOLOGICAL RESPONSE (POWER)

NELSON, POPE & VOORHIS, LLC, MICROCOMPUTER MODEL

SPECIES LIST

Appendix G-1

INTRODUCTION

This appendix has been included to present the results of a computer model used to investigate the various wildlife species which can be expected to be found on the site considering the habitats established. This model was developed by and for the use of Nelson, Pope & Voorhis, LLC using available information and references for the various species. The model utilizes the Lotus 1-2-3 spreadsheet to identify wildlife species commonly found in various Long Island habitats, based upon thorough research of available literature. The habitats investigated consisted of Successional Woodland, Terrestrial Cultural, Freshwater Pond, Emergent Marsh and Forested Swamp. Some of the species listed in this model would not be expected on the property given the surrounding development, but are present in similar habitats.

The first column identifies the common name of the species, presented with the main common name in alphabetical order (for example: red-tailed hawk would come before blue jay). The scientific name of particular species is in the second column. The third column shows the legal status of the species, of which there are four possible entries (Endangered, Threatened, Special Concern and Local Concern). The fourth column indicates the seasons during which the species might be expected to be present and the fifth column, of particular importance to the environmental setting, contains information on frequency of the species in the habitat (abundant, common, rare and non expected); the species activity in the habitat (nesting, hunting and resting). References are provided with the reference list provided at the end of the appendix. The printout contained in this appendix, coupled with the discussions provided in the main body of the report, provides significant information of the wildlife found, or expected to be found on site.

Successional Woodland Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency / Habitat Use	References
Birds								
gray catbird	*Dumetella carolinensis*	none		Late	X		C / N,F	4 9
black capped chickadee	*Parus atricapillus*	none	X	X	X	X	A / N,F	4 11
brown-headed cowbird	*Molothrus ater*	none		X	X	Early	A / N,F	4 6
brown creeper	*Certhia familiaris*	none		X	X	Early	C / N,F	4 9
American crow	*Corvus brachyrhynchos*	none	X	X	X	X	A / N,H	4 11
yellow-billed cuckoo	*Coccyzus americanus*	none		Late	X		C / N,F	4 12
mourning dove	*Zenaida macroura*	none	X	X	X	X	C / N,H	4 8
rock dove	*Columba livia*	none	X	X	X	X	C / N,F	4 8
house finch	*Carpodacus mexicanus*	none		X	X	X	A / N,F	4 20
common flicker	*Colaptus auratus*	none	X	X	X	X	A / N,F	4 14
common grackle	*Quiscalus quiscula*	none	X	X	X	X	A / N,F	4 6
ruffed grouse	*Bonasa umbellus*	none	X	X	X	X	R / N,F	4 8
rose-breasted grosbeak	*Pheucticus ludovicianus*	none		Late	X	Early	R / N,F	4 20
Cooper's hawk	*Accipiter cooperii*	special concern		X	X		N / N,H	4 17
red-tailed hawk	*Buteo jamaicensis*	none	X	X	X	X	C / H	4 16
sharp-shinned hawk	*Accipiter striatus*	special concern	X	X	X	X	N / N,F	4 16
blue jay	*Cyanocitta cristatta*	none	X	X	X	X	A / N,F	4 10
Northern (dark-eyed) junco	*Junco hyemalis*	none	X			Late	C / N,F	4 21
American kestrel	*Falco sparverius*	none	X	X	X	X	C / N,H	4 17
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	C / N,F	4 15
golden-crowned kinglet	*Regulus satrapa*	none	X	X		X	R / N,H	4 7
ruby-crowned kinglet	*Regulus calendula*	none	X	X		X	R / N,H	4 7
Northern mockingbird	*Mimus polyglottos*	none	X	X	X	X	C / N,F	4 9
great-horned owl	*Bubo virginianus*	none	X	X	X	X	C / N,H	4 17
long-eared owl	*Asio otus*	none	X	X	X	X	C / N,H	4 17
American redstart	*Setophaga ruticilla*	none		Late	X	X	C / N,F	4 19
American robin	*Turdus migratorius*	none		X	X	Early	A / N,F	4 7
yellow-bellied sapsucker	*Sphyrapicus varius*	none		Late	X	Early	C / N,F	14
fox sparrow	*Passerella iliaca*	none	X	X		X	R / F	20 21
house sparrow	*Passer domesticus*	none	X	X	X	X	C / N,F	4 20
song sparrow	*Melospiza melodia*	none	X	X	X	X	A / N,F	4 22
white-throated sparrow	*Zonotrichia albicollis*	none	X	X	X	X	C / N,F	4 22

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency / Habitat Use	References
European starling	*Sturnus vulgaris*	none	X	X	X	X	A / N,F	4 23
barn swallow	*Hirundo rustica*	none		Late	X		C / N,F	4 15
brown thrasher	*Toxostoma rufum*	none		X	X	Early	C / N,F	4 9
hermit thrush	*Catharus guttatus*	none	X	X	X	X	R / N,F	4 7
wood thrush	*Hylocichla mustelina*	none		X	X	Early	C / N,F	4 7
rufous-sided towhee	*Pipilo erythrophthalmus*	none		Late	X	Early	A / N,F	4 20
red-eyed vireo	*Vireo olivaceus*	none		Late	X		C / N,F	4 23
black-and-white warbler	*Mniotilta varia*	none		X	X		C / N,F	4 18
blue-winged warbler	*Vermivora pinus*	none		Late	X		C / N,F	4 14
chestnut-sided warbler	*Dendroica pensylvanica*	none		Late	X		C / N,F	4 19
cedar waxwing	*Bombycilla cedrorum*	none		X	X	Early	C / N,F	4 23 32
whip-poor-will	*Caprimulgus vociferous*	special concern		Late	X		C / N	4 12
Eastern wood-peewee	*Contopus virens*	none		X	X		C / N,F	4 15
American woodcock	*Philhela minor*	none		X	X	X	R / N,F	4 30
downy woodpecker	*Picoides pubescens*	none	X	X	X	X	A / N,F	4 14
hairy woodpecker	*Picoides villosus*	none	X	X	X	X	R / N,F	4 14
red-bellied woodpecker	*Melanerpes carolinus*	none	X	X	X	X	R / N,F	4 14
Carolina wren	*Thryothorus ludovicianus*	none	X	X	X	X	C / N,F	4 9
house wren	*Troglodytes aedon*	none		Late	X	Early	C / N,F	4 9
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	C / N,F	1 29
hoary bat	*Lasiurus borealis*	none			Late	Early	C / N,F	45
Keen's bat	*Myotis keenii*	none			X	Early	R / N	1 29
Mammals								
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	C / N,F	1 29
red bat	*Lasiurus borealis*	none		Late	X	Early	C / N,F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			X		R / N,F	1 29
Eastern chipmunk	*Tamis striatus*	none	X	X	X	X	C / N,F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	A / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / N,H	1 29
Eastern mole	*Scalopus aquaticus*	none	X	X	X	X	C / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency / Habitat Use	References
masked shrew	*Sorex cinereus*	none	X	X	X	X	C / N,F	1 29
short-tailed shrew	*Blarina breuicauda*	none	X	X	X	X	A / N,F	1 29
striped skunk	*Mephitis mephitis*	none	X	X	X	X	N / N,F	1 29
Eastern gray squirrel	*Sciurus carolinensis*	none	X	X	X	X	C / N,F	1 29
meadow vole	*Microtus pennsylvanicus*	none	X	X	X	X	R / N,F	29 45
pine vole	*Microtus pinetorum*	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
woodchuck	*Marmota monax*	none	X	X	X	X	R / N,F	1 29
Herptiles								
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
eastern hognose snake	*Heterodon platyrhinos*	special concern	X	X	X	X	R / N,H	38
eastern milk snake	*Lampropettis d. triangulum*	none	X	X	X	X	C / N,F	38 39

Terrestrial Cultural Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	References
Birds								
red-winged blackbird	*Agelaius phoeniceus*	none		X	X	Early	C / N,F	4 6
Eastern bluebird	*Sialia sialis*	special concern		X	X	Early	R / N,F	4 7
common bobwhite	*Colinus virginianus*	none	X	X	X	X	C / N,F	4 8
indigo bunting	*Passerina cyanea*	none		Late	X	Early	N / F	4 20
Northern cardinal	*Cardinalis cardinalis*	none	X	X	X	X	C / N,F	4 20
gray catbird	*Dumetella carolinensis*	none		Late	X		C / F	4 9
brown-headed cowbird	*Molothrus ater*	none		X	X	Early	A / H	4 6
American crow	*Corvus brachyrhynchos*	none	X	X	X	X	A / N,H	4 11
mourning dove	*Zenaida macroura*	none	X	X	X	X	A / N,H	4 8
rock dove	*Columba livia*	none	X	X	X	X	A / N,F	4 8
great-crested flycatcher	*Myiarchus crinitus*	none		Late	X		C / N,F	4 15
common grackle	*Quiscalus quiscula*	none	X	X	X	X	A / N,F	4 6
Northern harrier	*Circus cyaneus*	threatened	X	X	X	X	R / H	4 16
Cooper's hawk	*Accipiter cooperii*	special concern		X	X		N / N,H	4 17
red-tailed hawk	*Buteo jamaicensis*	none	X	X	X	X	C / H	4 16
sharp-shinned hawk	*Accipiter striatus*	none	X	X	X	X	N / N,F	4 16
blue jay	*Cyanocitta cristatta*	none	X	X	X	X	A / N,F	4 10
American kestrel	*Falco sparverius*	none	X	X	X	X	C / N,H	4 17
killdeer	*Charadrius vociferus*	none		X	X	X	C / N,F	4 31 32
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	A / N,F	4 15
Eastern meadowlark	*Sturnella magna*	none		Late	X		C / N,F	4 6
Northern mockingbird	*Mimus polyglottos*	none	X	X	X	X	A / N,F	4 9
common nighthawk	*Chordeiles minor*	special concern		Late	X		R / N,F	4 12
barn owl	*Tyto alba*	special concern	X	X	X	X	R / N,H	4 17
great-horned owl	*Bubo virginianus*	none	X	X	X	X	R / N,H	4 17
ring-necked pheasant	*Phasianus colchicus*	none	X	X	X	X	C / N,F	4 8
black-bellied plover	*Pluvialis squatarola*	none		Early	X	Early	R / F	31 32
American robin	*Turdus migratorius*	none		X	X	Early	A / N,F	4 7
chipping sparrow	*Spizella passerina*	none	X	X	X	X	C / N,F	4 21
field sparrow	*Spizella pusilla*	none		X	X	X	R / N,F	4 21
grasshopper sparrow	*Ammodramus savannarum*	special concern		X	X	Early	R / N,F	4 20
house sparrow	*Passer domesticus*	none	X	X	X	X	A / N,F	4 20

Common Name	Scientific Name	Status	Found During				Frequency/	References
			winter	spring	summer	fall	Habitat Use	
Savannah sparrow	*Passerculus sandwichensis*	none		X	X	Early	R / N,F	4 21
song sparrow	*Melospiza melodia*	none	X	X	X	X	C / N,F	4 22
white-crowned sparrow	*Zonotrichia leucophrys*	none	X	X		X	C / F	22 32
European starling	*Sturnus vulgaris*	none	X	X	X	X	A / N,F	4 23
barn swallow	*Hirundo rustica*	none		Late	X		A / N,F	4 15
chimney swift	*Chaetura pelagica*	none		X	X		C / F	4 42
brown thrasher	*Toxostoma rufum*	none		X	X	Early	R / N,F	4 9
chestnut-sided warbler	*Dendroica pensylvanica*	none		Late	X		N / N,F	4 19
cedar waxwing	*Bombycilla cedrorum*	none		X	X	Early	C / N,F	4 23 32
whip-poor-will	*Caprimulgus vociferous*	none		Late	X		C / F	4 12
American woodcock	*Philhela minor*	none		X	X	X	R / N,F	4 30
red-headed woodpecker	*Melanerpes erythrocephalus*	none		X	X	Early	C / N,F	4 14
house wren	*Troglodytes aedon*	none		Late	X	Early	C / N,F	4 9
Mammals								
Eastern pipistrelle	*Pipistrellus subflavus*	none		X	X	Early	N / F	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	A / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / H	1 29
house mouse	*Mus musculus*	none	X	X	X	X	C / N,F	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / F	1 29
black rat	*Rattus rattus*	none	X	X	X	X	N / N,F	1 29
Norway rat	*Rattus norvegicus*	none	X	X	X	X	C / N,F	1 29
least shrew	*Cryptotis parva*	none	X	X	X	X	N / N,F	1 29
striped skunk	*Mephitis mephitis*	none	X	X	X	X	N / N,F	1 29
pine vole	*Microtus pinetorum*	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
Heptiles								
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
eastern milk snake	*Lampropettis d. triangulum*	none	X	X	X	X	C / N,F	38 39
Fowler's toad	*Bufo woodhousei fowleri*	none	X	X	X	X	C / F	33 37

Wooded Swamp Species: Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
Birds								
red-winged blackbird	*Agelaius phoeniceus*	none		X	X	Early	A / N,F	4 6
Northern cardinal	*Cardinalis cardinalis*	none	X	X	X	X	C / N,F	4 20
wood duck	*Aix sponsa*	none		X	X	Early	C / N,F	4 27
great-crested flycatcher	*Myiarchus crinitus*	none		Late	X		C / N,F	4 15
blue-grey gnatcatcher	*Polioptila caerulea*	none		X	X		R / N,F	4 7
rose-breasted grosbeak	*Pheucticus ludovicianus*	none		Late	X	Early	R / N,F	4 20
yellow-crowned night-heron	*Nycticorax violaceus*	none	X	X	X	X	C / N,H	4 26
mallard	*Anas platyrhynchos*	none		X	X	X	C / N,F	4 27
white-breasted nuthatch	*Sitta carolinensis*	none	X	X	X	X	A / N,F	4 9
osprey	*Pandion haliaetus*	threatened		X	X	Early	C / N,H	4 16
great-horned owl	*Bubo virginianus*	none	X	X	X	X	C / N,H	4 17
saw-whet owl	*Aegolius acadicus*	none	X	X	X	X	C / N,H	4 17
Eastern phoebe	*Sayornis phoebe*	none		X	X	Early	C / N,F	4 15
spotted sandpiper	*Actitus macularia*	none		X	X	Early	R / N,F	4 31 32
swamp sparrow	*Melospiza georgiana*	none	X	X	X	X	C / N,F	4 22
European starling	*Sturnus vulgaris*	none	X	X	X	X	R / N,F	4 23
tree swallow	*Tachycineta bicolor*	none		X	X		C / N,F	4 15
tufted titmouse	*Parus bicolor*	none	X	X	X	X	C / N,F	4 11
veery	*Catharus fuscescens*	none		Late	X		C / N,F	4 7
yellow warbler	*Dendrocica petchia*	none		Late	X		C / N,F	4 18
American woodcock	*Philhela minor*	none		X	X	X	C / N,F	4 30
downy woodpecker	*Picoides pubescens*	none	X	X	X	X	A / N,F	4 14
hairy woodpecker	*Picoides villosus*	none	X	X	X	X	C / N,F	4 14
red-bellied woodpecker	*Melanerpes carolinus*	none	X	X	X	X	C / N,F	4 14
Mammals								
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	R / H	1 29
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	R / H	1 29
Eastern cottontail	*Sylvilagus floridanus*	none	X	X	X	X	A / F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / H	1 29
mink	*Mustela vison*	none	X	X	X	X	C / N,F	1
star-nosed mole	*Condylura cristata*	none	X	X	X	X	R / N,F	1 29

Common Name	Scientific Name	Status	Found During				Frequency/ Habitat Use	Reference
			winter	spring	summer	fall		
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
muskrat	*Ondarta zibethicus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
Norway rat	*Rattus norvegicus*	none	X	X	X	X	C / N,F	1 29
masked shrew	*Sorex cinereus*	none	X	X	X	X	C / N,F	1 29
short-tailed shrew	*Blarina breuicauda*	none	X	X	X	X	A / N,F	1 29
Eastern gray squirrel	*Sciurus carolinensis*	none	X	X	X	X	A / N,F	1 29
southern-flying squirrel	*Glaucimys volans*	none	X	X	X	X	C / N,F	1 29
meadow vole	*Microtus pennsylvanicus*	none	X	X	X	X	R / N,F	29 45
pine vole	*Microtus pinetorum*	none	X	X	X	X	R / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
Herptiles								
bull frog	*Rana catesbeiana*	none	X	X	X	X	C / N,H	33 34 35 37
common gray treefrog	*Hyla versicolor*	none	X	X	X	X	C / N,F	33 37
green frog	*Rana clamitans*	none	X	X	X	X	C / N,H	33 35 37
Southern leopard frog	*Rana pipiens sphenocephala*	special concern	X	X	X	X	R / N,F	35 37 38
wood frog	*Rana sylvatica*	none	X	X	X	X	C / N,F	33 37
red-spotted newt	*Notophthalmus viridescens*	none	X	X	X	X	C / N,F	36 38
spring peeper	*Hyla crucifer*	none	X	X	X	X	A / N,F	33 35 38
spotted salamander	*Ambystoma maculatum*	special concern	X	X	X	X	C / N,F	34 36 38
Eastern tiger salamander	*Ambystoma tigrinum tigrinum*	endangered	X	X	X	X	R / N,F	36 38
marbled salamander	*Ambystoma opacum*	none	X	X	X	X	R / N,F	34 36 38
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
eastern milk snake	*Lampropettis d. triangulum*	none	X	X	X	X	C / N,F	38 39
Eastern ribbon snake	*Thamnophis s. sauritus*	none	X	X	X	X	C / N,F	38 40
Northern brown snake	*Storeria dekayi*	none	X	X	X	X	C / N,H	38
Northern ringneck snake	*Diadophis punctatus*	none	X	X	X	X	C / H	38
Northern water snake	*Natrix sipedon sipedon*	none	X	X	X	X	C / N,F	38 39
painted turtle	*Chrysemys picta*	none	X	X	X	X	N / N,F	38 40

Marsh Species : Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
Birds								
American bittern	*Botaurus lentiginosus*	none		X	X	X	C / N,F	4 26
least bittern	*Ixobrychus exilis*	special concern		Late	X		R / N,F	4 26
red-winged blackbird	*Agelaius phoeniceus*	none		X	X	Early	A / N,F	4 6
brant	*Brant bernicla*	none		March			C / F	28
canvasback	*Aythya valisineria*	none	X			Late	R / F	4 27
American coot	*Fulica americana*	none		X	X	Early	C / N,F	4 26
double-crested cormorant	*Phalacrocorax auritus*	none		Late	X		C / N,H	4 32
fish crow	*Corvus ossifragus*	none	X	X	X	X	C / N,H	4 11
short-billed dowitcher	*Limnodromus griseus*	none		X	X	Early	R / F	32
American black duck	*Anas rubripes*	none	X	X	X	X	C / N,F	4 27
ring-necked duck	*Aythya collaris*	none	X			X	R / F	4 27
ruddy duck	*Oxyura jamaicensis*	none		X	X	Early	C / N,F	4 28
great egret	*Casmerodius albus*	none		X	X		C / N,F	4 26
snowy egret	*Egretta thula*	none		Late	X	Early	C / N,F	4 26
peregrine falcon	*Falco peregrinus*	endangered	X			X	R / N,H	4 17
gadwall	*Anas strepera*	none		Late	X	X	N / N,F	4 27
Canada goose	*Branta canadensis*	none	X	X	X	X	C / N,F	4 28
pied-billed grebe	*Podilymbus podiceps*	none		X		Early	R / F	32
Bonaparte's gull	*Larus philadelphia*	none	X	X		X	R / F	24
Northern harrier	*Circus cyaneus*	threatened	X	X	X	X	R / N,H	4 16
black-crowned night-heron	*Nycticorax nycticorax*	none	X	X	X	X	C / N,H	4 26
great blue heron	*Ardea herodias*	none		Late	X		R / M	4 26
green heron	*Butorides striatus*	none		X	X	Early	C / N,F	4 26
tricolored heron	*Egretta tricolor*	none		X	X		R / N,F	4 26
yellow-crowned night-heron	*Nycticorax violaceus*	none	X	X	X	X	C / N,H	4 26
glossy ibis	*Plegadis falcinellus*	none		Late	X		R / N,F	4 26
belted kingfisher	*Megaceryle alcyon*	none	X	X	X	X	C / N,F	4 12
mallard	*Anas platyrhynchos*	none		X	X	X	C / N,F	4 27
red-breasted merganser	*Mergus serrator*	none	X	X	X	X	R / N,F	4 27
osprey	*Pandion haliaetus*	threatened		X	X	Early	C / N,H	4 16
saw-whet owl	*Aegolius acadicus*	none	X	X	X	X	C / N,H	4 17
short-eared owl	*Asio flammeus*	special concern	X	X	X	X	C / N,H	4 17

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
black-bellied plover	*Pluvialis squatarola*	none		Early	X	Early	N / N,H	4 17
clapper rail	*Rallus longirostris*	none	X	X	X	X	N / F	31 32
Virginia rail	*Rallus limicola*	none		Late	X	Early	C / N,F	4 26 32
least sandpiper	*Calidris minutilla*	none			X		R / N,F	4 26 32
semipalmated sandpiper	*Calidris pusilla*	none		X	X	Early	C / F	32
spotted sandpiper	*Actitus macularia*	none		X	X	Early	R / F	32
greater scaup	*Aythya marila*	none	X			X	R / N,F	4 31 32
lesser scaup	*Aythya affinis*	none	X			X	C / F	32 44
Northern shoveler	*Anas clypeata*	none		X	X	Early	C / F	32 44
common snipe	*Gallinago gallinago*	none	X	X	X	X	C / N,F	4 27
seaside sparrow	*Ammodramus maritimus*	none	X	X	X	X	C / N,F	4 30
sharp-tailed sparrow	*Ammodramus caudacutu*	none		Late	X	Early	C / N,F	4 21
swamp sparrow	*Melospiza georgiana*	none	X	X	X	X	C / N,F	4 22
European starling	*Sturnus vulgaris*	none	X	X	X	X	R / N,F	4 22
barn swallow	*Hirundo rustica*	none		Late	X		R / N,F	4 23
tree swallow	*Tachycineta bicolor*	none		X	X		C / N,F	4 15
green-winged teal	*Anas crecca*	none		X	X	X	C / N,F	4 15
American widgeon	*Anas americana*	none		X	X		C / N,F	4 27
willet	*Catoptrophorus semipalm*	none		X	X	Early	C / N,F	4 27
long-billed marsh wren	*Cistothorus palustris*	none	X	X	X	X	C / F	4 31
greater yellowlegs	*Tringa melanoleuca*	none		X	X	Early	C / N,F	4 9
lesser yellowlegs	*Triniga flavipes*	none	X	Early		X	C / N,F	30 32
Mammals								
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	30 32
red fox	*Vulpes vulpes*	none	X	X	X	X	C / F	1 25 29
mink	*Mustela vison*	none	X	X	X	X	C / H	1 29
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	C / N,F	1
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	R / N,F	1 29
muskrat	*Ondarta zibethicus*	none	X	X	X	X	R / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / N,F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
Norway rat	*Rattus norvegicus*	none	X	X	X	X	C / N,F	1 29
least shrew	*Cryptotis parva*	none	X	X	X	X	C / N,F	1 29
masked shrew	*Sorex cinereus*	none	X	X	X	X	N / N,F	1 29
short-tailed shrew	*Blarina breuicauda*	none	X	X	X	X	C / N,F	1 29

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference
pine vole	*Microtus pinetorum*	none	X	X	X	X	C / N,F	1 29
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,F	1 29
Herptiles								
bull frog	*Rana catesbeiana*	none	X	X	X	X	R / N,H	1 29
Southern leopard frog	*Rana pipiens sphenocepl*	special concern	X	X	X	X	R / N,H	33 34 35 37
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	N / N,F	35 37 38
eastern milk snake	*Lampropettis d. triangulur*	none	X	X	X	X	R / N,F	38 40
Eastern ribbon snake	*Thamnophis s. sauritus*	none	X	X	X	X	R / N,F	38 39
Northern water snake	*Natrix sipedon sipedon*	none	X	X	X	X	C / N,F	38 40
diamond backed terrapin	*Malaclemys terrapin*	special concern	X	X	X	X	C / N,F	38 39
Eastern mud turtle	*Kinosternon subrubrum*	threatened	X	X	X	X	R / N,F	38 41
Eastern mud turtle	*Kinosternon subrubrum*	threatened	X	X	X	X	R / N,F	38

Fresh Water Pond Species - Inventory and Characteristics

Common Name	Scientific Name	Status	Found During winter	spring	summer	fall	Frequency/ Habitat Use	Reference Numbers
Birds								
red-winged blackbird	*Agelaius phoeniceus*	none		X	X	Early	A / N,F	4 6
canvasback	*Aythya valisineria*	none	X			Late	R / F	4 27
American coot	*Fulica americana*	none		X	X	Early	R / N,F	4 26
American black duck	*Anas rubripes*	none	X	X	X	X	R / N,F	4 27
ring-necked duck	*Aythya collaris*	none	X			X	C / F	4 27
wood duck	*Aix sponsa*	none		X	X	Early	C / N	4 27
great egret	*Casmerodius albus*	none		X	X		C / N,F	4 26
gadwall	*Anas strepera*	none		Late	X	X	C / N,F	4 27
blue-grey gnatcatcher	*Polioptila caerulea*	none		X	X		R / N,F	4 7
Canada goose	*Branta canadensis*	none	X	X	X	X	C / N,F	4 28
horned grebe	*Podiceps auritus*	none	X	Early		X	C / N,F	32 42
pied-billed grebe	*Podilymbus podiceps*	none		X		Early	R / F	32
great blue heron	*Ardea herodias*	none		Late	X		R / M	4 26
green heron	*Butorides striatus*	none		X	X	Early	C / N,F	4 26
Eastern kingbird	*Tyrannus tyrannus*	none		X	X	Early	A / N,F	4 15
belted kingfisher	*Megaceryle alcyon*	none	X	X	X	X	C / N,F	4 12
mallard	*Anas platyrhynchos*	none		X	X	X	C / N,F	4 27
hooded merganser	*Lophodytes cucullatus*	none	X	X	X	X	C / N,F	4 27
common screech owl	*Otus asio*	none	X	X	X	X	C / N,H	4 17
semipalmated plover	*Charadrius semipalmatus*	none		Late	X	Early	R / F	31 32
least sandpiper	*Calidris minutilla*	none			X		R / F	32
spotted sandpiper	*Actitus macularia*	none		X	X	Early	R / N,F	4 31 32
greater scaup	*Aythya marila*	none	X			X	C / F	32 44
lesser scaup	*Aythya affinis*	none	X			X	C / F	32 44
fox sparrow	*Passerella iliaca*	none	X	X		X	R / F	20 21
European starling	*Sturnus vulgaris*	none	X	X	X	X	R / N,F	4 23
barn swallow	*Hirundo rustica*	none		Late	X		C / N,F	4 15
rough-winged swallow	*Stelgidopteryx ruficollis*	none		Late	X		R / N,F	4 15
tree swallow	*Tachycineta bicolor*	none		X	X		C / N,F	4 15
mute swan	*Cygnus olor*	none	X	X	X	X	C / N,F	4
green-winged teal	*Anas crecca*	none		X	X	X	C / N,F	4 27
common tern	*Sterna hirundo*	threatened		Late	X		R /N,F	4 24

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Common Name	Scientific Name	Status	Found During				Frequency/	Reference
			winter	spring	summer	fall	Habitat Use	Numbers
American widgeon	*Anas americana*	none		X	X		C / N,F	4 27
lesser yellowlegs	*Triniga flavipes*	none	X	Early		X	R / F	30 32
Mammals								
big-brown bat	*Eptesicus fuscus*	none	X	X	X	X	R / H	1 29
Keen's bat	*Myotis keenii*	none			X	Early	R / N	1 29
little-brown bat	*Myotis lucifugus*	none	X	X	X	X	C / H	1 29
red bat	*Lasiurus borealis*	none		Late	X	Early	R / F	1 29
Eastern pipistrelle	*Pipistrellus subflavus*	none		X	X	Early	R / F	1 29
silver-haired bat	*Lasionycteris noctivagans*	none			X		R / N,F	1 29
white-tailed deer	*Odocoileus virginianus*	none	X	X	X	X	C / F	1 25 29
red fox	*Vulpes vulpes*	none	X	X	X	X	C / H	1 29
mink	*Mustela vison*	none	X	X	X	X	C / N,F	1
meadow-jumping mouse	*Zapus hudsonicus*	none	X	X	X	X	R / N,F	1 29
white-footed mouse	*Peromyscus leucopus*	none	X	X	X	X	C / N,F	1 29
muskrat	*Ondarta zibethicus*	none	X	X	X	X	C / N,F	1 29
Virginia opossum	*Didelphis virginiana*	none	X	X	X	X	C / F	1 29
racoon	*Procyon lotor*	none	X	X	X	X	C / N,F	1 29
Norway rat	*Rattus norvegicus*	none	X	X	X	X	C / N,F	1 29
striped skunk	*Mephitis mephitis*	none	X	X	X	X	N / F	1 29
meadow vole	*Microtus pennsylvanicus*	none	X	X	X	X	R / N,F	29 45
long-tailed weasel	*Mustela frenata*	none	X	X	X	X	R / N,H	1 29
bull frog	*Rana catesbeiana*	none	X	X	X	X	C / N,H	33 34 35 37
Herptiles								
common gray treefrog	*Hyla versicolor*	none	X	X	X	X	C / N,F	33 37
green frog	*Rana clamitans*	none	X	X	X	X	C / N,H	33 35 37
wood frog	*Rana sylvatica*	none	X	X	X	X	C / N,F	33 37
red-spotted newt	*Notophthalmus viridescens*	none	X	X	X	X	C / N,F	36 38
spring peeper	*Hyla crucifer*	none	X	X	X	X	R / N,F	33 35 38
spotted salamander	*Ambystoma maculatum*	special concern	X	X	X	X	R / N	34 36 38
Eastern tiger salamander	*Ambystoma tigrinum tigrinum*	endangered	X	X	X	X	R / N,F	36 38
marbled salamander	*Ambystoma opacum*	none	X	X	X	X	R / F	34 36 38
Eastern garter snake	*Thamnophis sirtalis*	none	X	X	X	X	C / N,F	38 40
eastern milk snake	*Lampropettis d. triangulum*	none	X	X	X	X	C / N,F	38 39
Eastern ribbon snake	*Thamnophis s. sauritus*	none	X	X	X	X	C / N,F	38 40
Northern ringneck snake	*Diadophis punctatus*	none	X	X	X	X	C / H	38

Common Name	Scientific Name	Status	Found During				Frequency/ Habitat Use	Reference Numbers
			winter	spring	summer	fall		
Northern water snake	*Natrix sipedon sipedon*	none	X	X	X	X	C / N,F	38 39
stink pot	*Sternotherus odoratue*	none	X	X	X	X	C / N,F	38
Fowler's toad	*Bufo woodhousei fowleri*	none	X	X	X	X	C / N,F	33 37
Eastern box turtle	*Terrepene carolina*	none	X	X	X	X	C / N,F	41
painted turtle	*Chrysemys picta*	none	X	X	X	X	C / N,F	38
snapping turtle	*Chelydra serpentina*	none	X	X	X	X	C / N,F	38 41
spotted turtle	*Chlemys guttata*	special concern	X	X	X	X	R / N,F	38 41

Appendix G-2
Projection of Wildlife Ecological Response Model

Species Adaptability

PROJECTION OF WILDLIFE ECOLOGICAL RESPONSE (POWER)

NELSON, POPE & VOORHIS, LLC, MICROCOMPUTER MODEL

SPECIES ADAPTABILITY

Appendix G-2

This portion of the appendix has been included to present the results of a computer program to identify "Species Adaptability". This list is another component of the program developed for use by Nelson, Pope & Voorhis, LLC used for the preparation of **Appendix G-2**, however, in this application the "Adaptability" of the observed and expected species are shown. The "adaptability" as indicated in the table, refers to whether an individual species may potentially benefit from (+) a habitat change from natural to urban/suburban setting; or, be impacted (-), or remain constant (=), as a result of this change. These values are not intended to represent the dynamics of actual species on the subject site under post-development conditions. The column entitled "Comments" provides relevant information which was obtained from the literature, as regards special habits of the particular species, such as adaptability, nesting, food, etc. This column is particularly important in assessing the potential impacts to the species as a result of the proposed project. The preceding text considers the site specific aspects of the proposed development in regard to individual species. This Appendix is included to provide the reader with the benefit of what the literature which was consulted in connection with the Habitat Suitability Model suggests, in terms of generalized species dynamics resulting from land use. References are those used in previous appendix.

Successional Woodland Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
gray catbird	*Dumetella carolinensis*	=	abundant around parks, urban and suburban areas	4 9
black capped chickadee	*Parus atricapillus*	=	abundant around parks, urban and suburban areas	4 11
brown-headed cowbird	*Molothrus ater*	=	lays eggs in other bird's nests; some stay during winter	4 6
brown creeper	*Certhia familiaris*	-	prefers predominantly deciduous wooded areas	4 9
American crow	*Corvus brachyrhynchos*	=	extremely adaptable; omnivorous	4 11
yellow-billed cuckoo	*Coccyzus americanus*	-	avoids heavy urban areas; prefers wooded open or edges for nests	4 12
mourning dove	*Zenaida macroura*	=	abundant around parks, urban and suburban areas	4 8
rock dove	*Columba livia*	+	nests almost entirely on buildings; considered a pest species	4 8
house finch	*Carpodacus mexicanus*	+	nests almost entirely on buildings; considered a pest species	4 20
common flicker	*Colaptus auratus*	=	abundant around parks, suburban and urban areas	4 14
common grackle	*Quiscalus quiscula*	=	adapts well to urban and suburban habitats	4 6
ruffed grouse	*Bonasa umbellus*	-	prefers dense cover, thick woods; avoids humans	4 8
rose-breasted grosbeak	*Pheucticus ludovicianus*	=	mainly found on north shore	4 20
Cooper's hawk	*Accipiter cooperii*	-	no atlas sightings (non-breeder) on LI; needs extensive woodland	4 17
red-tailed hawk	*Buteo jamaicensis*	-	needs 100 foot radius undisturbed area for nest	4 16
sharp-shinned hawk	*Accipiter striatus*	-	avoids humans; nests in heavily forested areas	4 16
blue jay	*Cyanocitta cristatta*	=	extremely adaptable to human activity and other stresses	4 10
Northern (dark-eyed) junco	*Junco hyemalis*	-	prefers forested area with elevation >300 meters; no LI atlas record	4 21
American kestrel	*Falco sparverius*	-	adaptable; prefers open areas and parks; will nest near humans	4 17
Eastern kingbird	*Tyrannus tyrannus*	=	very adaptable to human activities; prefers open areas	4 15
golden-crowned kinglet	*Regulus satrapa*	-	prefers spruce vegetation; no atlas sightings on Long Island	4 7
ruby-crowned kinglet	*Regulus calendula*	-	occurs as non-breeding species; present during migration	4 7
Northern mockingbird	*Mimus polyglottos*	+	prefers to nest near humans	4 9
great-horned owl	*Bubo virginianus*	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
long-eared owl	*Asio otus*	-	nocturnal; prefers dense forested areas near water	4 17
American redstart	*Setophaga ruticilla*	-	urbanization and agriculture have negative effects	4 19
American robin	*Turdus migratorius*	=	very adaptable; abundant in parks; nests in man-made structures	4 7
yellow-bellied sapsucker	*Sphyrapicus varius*	=	nests in tree cavity; found in parks, yards and gardens	14
fox sparrow	*Passerella iliaca*	-	boreal species, winters here in edge, thickets, brushy areas	20 21
house sparrow	*Passer domesticus*	+	prefers buildings, urban, suburban, gardens; considered a pest	4 20
song sparrow	*Melospiza melodia*	=	common to most habitats except deep forest, open field and marsh	4 22

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Common Name	Scientific Name	Adapt.	Comments	References
white-throated sparrow	*Zonotrichia albicollis*	-	prefers brushy areas and thick undergrowth	4 22
European starling	*Sturnus vulgaris*	+	extremely adaptable to human activity; considered a pest	4 23
barn swallow	*Hirundo rustica*	+	nests almost entirely on buildings	4 15
brown thrasher	*Toxostoma rufum*	=	common in parks,suburban areas, wooded edges, dry open areas	4 9
hermit thrush	*Catharus guttatus*	=	not common on Long Island; when present, prefers pine barrens	4 7
wood thrush	*Hylocichla mustelina*	=	prefers vacant wood (trees >40 feet); may adapt of wooded suburban	4 7
rufous-sided towhee	*Pipilo erythrophthalmus*	-	may be present year round on Long Island	4 20
red-eyed vireo	*Vireo olivaceus*	=	found in parks and suburban areas with shade trees and undergrowth	4 23
black-and-white warbler	*Mniotilta varia*	-	builds nests under shrubs and/or trees	4 18
blue-winged warbler	*Vermivora pinus*	-	primarily abandoned and overgrown field, and thickets	4 14
chestnut-sided warbler	*Dendroica pensylvanica*	-	prefers first growth woods, with some open brush area	4 19
cedar waxwing	*Bombycilla cedrorum*	+	prefers open woodlands, orchards and residential areas	4 23 32
whip-poor-will	*Caprimulgus vociferous*	-	nocturnal; prefers open woods with adjacent fields	4 12
Eastern wood-peewee	*Contopus virens*	=	prefers suburban areas, parks and villages with shade trees	4 15
American woodcock	*Philhela minor*	-	prefers moist woodland and thicket near open fields	4 30
downy woodpecker	*Picoides pubescens*	=	found in parks and suburban areas	4 14
hairy woodpecker	*Picoides villosus*	=	found mainly in deciduous forests	4 14
red-bellied woodpecker	*Melanerpes carolinus*	=	prefers forest openings; mostly found on Long Island north shore	4 14
Carolina wren	*Thryothorus ludovicianus*	=	associated with woodland thickets and brushy areas, often near water	4 9
house wren	*Troglodytes aedon*	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
Mammals				
big-brown bat	*Eptesicus fuscus*	+	roosts in structures; found throughout LI; hunts over water	1 29
hoary bat	*Lasiurus borealis*	=	roosts in trees, sometimes found in parks	45
Keen's bat	*Myotis keenii*	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29
little-brown bat	*Myotis lucifugus*	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	*Lasiurus borealis*	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
silver-haired bat	*Lasionycteris noctivagans*	-	prefers wooded areas near water, primarily during summer months	1 29
Eastern chipmunk	*Tamis striatus*	=	prefers open woods, thickets, and rocky areas	1 29
Eastern cottontail	*Sylvilagus floridanus*	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	*Odocoileus virginianus*	-	requires range of one-half square mile	1 25 29
red fox	*Vulpes vulpes*	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
Eastern mole	*Scalopus aquaticus*	=	tunnels underground	1 29
meadow-jumping mouse	*Zapus hudsonicus*	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	*Peromyscus leucopus*	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	*Didelphis virginiana*	=	common in suburban areas, woods, marsh and coastal areas	1 29

Common Name	Scientific Name	Adapt.	Comments	References
racoon	*Procyon lotor*	+	nocturnal; very adaptive; found in urban and forest areas	1 29
masked shrew	*Sorex cinereus*	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	*Blarina breuicauda*	=	tunnels underground; abundant in a variety of habitats	1 29
striped skunk	*Mephitis mephitis*	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
Eastern gray squirrel	*Sciurus carolinensis*	=	found in parks, urban and suburban areas; very adaptable	1 29
meadow vole	*Microtus pennsylvanicus*	=	tunnels underground; prefers open woodland	29 45
pine vole	*Microtus pinetorum*	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	*Mustela frenata*	-	prefers dense wood, but may appear in all land habitats near water	1 29
woodchuck	*Marmota monax*	-	appears primarily in scrub woods and brushy areas; not common on LI	1 29
Herptiles				
Eastern garter snake	*Thamnophis sirtalis*	=	occupies a variety of habitats	38 40
eastern hognose snake	*Heterodon platyrhinos*	=	sandy soil and sunny roadside; feeds on herptiles and insects	38
eastern milk snake	*Lampropettis d. triangulum*	=	occupies a variety of habitats	38 39

Terrestrial Cultural Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
red-winged blackbird	*Agelaius phoeniceus*	=	needs water	4 6
Eastern bluebird	*Sialia sialis*	-	found almost entirely in nesting boxes, extremely rare in wild	4 7
common bobwhite	*Colinus virginianus*	-	somewhat tolerant of humans during spring and summer months	4 8
indigo bunting	*Passerina cyanea*	-	inhabits open woodlands with dense thickets for cover	4 20
Northern cardinal	*Cardinalis cardinalis*	=	found around gardens, yards, parks	4 20
gray catbird	*Dumetella carolinensis*	=	abundant around parks, urban and suburban areas	4 9
brown-headed cowbird	*Molothrus ater*	=	lays eggs in other bird's nests; some stay during winter	4 6
American crow	*Corvus brachyrhynchos*	=	extremely adaptable; omnivorous	4 11
mourning dove	*Zenaida macroura*	=	abundant around parks, urban and suburban areas	4 8
rock dove	*Columba livia*	+	nests almost entirely on buildings; considered a pest species	4 8
great-crested flycatcher	*Myiarchus crinitus*	-	prefers deciduous forests and deciduous open woodland	4 15
common grackle	*Quiscalus quiscula*	=	adapts well to urban and suburban habitats	4 6
Northern harrier	*Circus cyaneus*	-	avoids humans; extremely protective of nests	4 16
Cooper's hawk	*Accipiter cooperii*	-	no atlas sightings (non-breeder) on LI; needs extensive woodland	4 17
red-tailed hawk	*Buteo jamaicensis*	-	needs 100 foot radius undisturbed area for nest	4 16
sharp-shinned hawk	*Accipiter striatus*	-	avoids humans; nests in heavily forested areas	4 16
blue jay	*Cyanocitta cristatta*	=	extremely adaptable to human activity and other stresses	4 10
American kestrel	*Falco sparverius*	-	adaptable; prefers open areas and parks; will nest near humans	4 17
killdeer	*Charadrius vociferus*	=	grassland species prefers coastal and wet areas with sparse growth	4 31 32
Eastern kingbird	*Tyrannus tyrannus*	=	very adaptable to human activities; prefers open areas	4 15
Eastern meadowlark	*Sturnella magna*	-	found in marshes during winter months	4 6
Northern mockingbird	*Mimus polyglottos*	+	prefers to nest near humans	4 9
common nighthawk	*Chordeiles minor*	=	primarily a grassland specie; will nest in burnt areas and roofs	4 12
barn owl	*Tyto alba*	=	hunts in open areas, nests in man made structures and hollow trees	4 17
great-horned owl	*Bubo virginianus*	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
ring-necked pheasant	*Phasianus colchicus*	-	needs fields with cover along edge	4 8
black-bellied plover	*Pluvialis squatarola*	-	non-breeder on LI; may forage during summer, occasionally winter	31 32
American robin	*Turdus migratorius*	=	very adaptable; abundant in parks; nests in man-made structures	4 7
chipping sparrow	*Spizella passerina*	+	abundant around man made structures	4 21
field sparrow	*Spizella pusilla*	-	associated with grasslands, fields and brushy wooded edges	4 21
grasshopper sparrow	*Ammodramus savannarum*	-	requires grasslands	4 20
house sparrow	*Passer domesticus*	+	prefers buildings, urban, suburban, gardens; considered a pest	4 20
Savannah sparrow	*Passerculus sandwichensis*	-	found in shore areas; not expected inland	4 21

Common Name	Scientific Name	Adapt.	Comments	References
song sparrow	*Melospiza melodia*	=	common to most habitats except deep forest, open field and marsh	4 22
white-crowned sparrow	*Zonotrichia leucophrys*	=	often found in suburban areas and city parks	22 32
European starling	*Sturnus vulgaris*	+	extremely adaptable to human activity; considered a pest	4 23
barn swallow	*Hirundo rustica*	+	nests almost entirely on buildings	4 15
chimney swift	*Chaetura pelagica*	+	nests in chimneys, with few exceptions	4 42
brown thrasher	*Toxostoma rufum*	=	common in parks, suburban areas, wooded edges, dry open areas	4 9
chestnut-sided warbler	*Dendroica pensylvanica*	-	prefers first growth woods, with some open brush area	4 19
cedar waxwing	*Bombycilla cedrorum*	+	prefers open woodlands, orchards and residential areas	4 23 32
whip-poor-will	*Caprimulgus vociferous*	-	nocturnal; prefers open woods with adjacent fields	4 12
American woodcock	*Philhela minor*	-	prefers moist woodland and thicket near open fields	4 30
red-headed woodpecker	*Melanerpes erythrocephalus*	=	prefers open woodlands, parks and suburban areas	4 14
house wren	*Troglodytes aedon*	=	found in suburban areas and gardens; nests in crevices of buildings	4 9
Mammals				
Eastern pipistrelle	*Pipistrellus subflavus*	=	found near water in open woods, also found in buildings	1 29
Eastern cottontail	*Sylvilagus floridanus*	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	*Odocoileus virginianus*	-	requires range of one-half square mile	1 25 29
red fox	*Vulpes vulpes*	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
house mouse	*Mus musculus*	+	lives in association with man, not expected away from buildings	1 29
meadow-jumping mouse	*Zapus hudsonicus*	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	*Peromyscus leucopus*	=	common to most all habitats; does not adapt well to human activity	1 29
Virginia opossum	*Didelphis virginiana*	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	*Procyon lotor*	+	nocturnal; very adaptive; found in urban and forest areas	1 29
black rat	*Rattus rattus*	=	lives in association with man, mainly city water front buildings	1 29
Norway rat	*Rattus norvegicus*	+	nocturnal; usually associated with human activity	1 29
least shrew	*Cryptotis parva*	-	not commonly documented on Long Island	1 29
striped skunk	*Mephitis mephitis*	=	prefers mixed wood & brush within 2 miles of water; not expected on LI	1 29
pine vole	*Microtus pinetorum*	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	*Mustela frenata*	-	prefers dense wood, but may appear in all land habitats near water	1 29
Herptiles				
Eastern garter snake	*Thamnophis sirtalis*	=	occupies a variety of habitats	38 40
eastern milk snake	*Lampropettis d. triangulum*	=	occupies a variety of habitats	38 39
Fowler's toad	*Bufo woodhousei fowleri*	-	found in suburban areas, gardens; breeds in shallow permanent ponds	33 37

Wooded Swamp Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
red-winged blackbird	*Agelaius phoeniceus*	=	needs water	4 6
Northern cardinal	*Cardinalis cardinalis*	=	found around gardens, yards, parks	4 20
wood duck	*Aix sponsa*	-	prefers wooded rivers and ponds, and wooded swamps	4 27
great-crested flycatcher	*Myiarchus crinitus*	-	prefers deciduous forests and deciduous open woodland	4 15
blue-grey gnatcatcher	*Polioptila caerulea*	=	prefers dense foliated trees along water ways	4 7
rose-breasted grosbeak	*Pheucticus ludovicianus*	=	mainly found on north shore	4 20
yellow-crowned night-heron	*Nycticorax violaceus*	-	nests in low coastal shrubbery; prefers islands	4 26
mallard	*Anas platyrhynchos*	-	adaptable to human activity	4 27
white-breasted nuthatch	*Sitta carolinensis*	=	abundant in parks, urban and suburban areas	4 9
osprey	*Pandion haliaetus*	-	associated with seacoast, sometimes lakes and rivers	4 16
great-horned owl	*Bubo virginianus*	-	nocturnal; rare in wooded areas of less than 20 acres	4 17
saw-whet owl	*Aegolius acadicus*	-	nocuturnal; low moist coniferous; winter in parks, yards, thickets	4 17
Eastern phoebe	*Sayornis phoebe*	=	prefers open wood near stream; nests in log, building, bridge, cliff	4 15
spotted sandpiper	*Actitus macularia*	-	nests on ground in grassy areas	4 31 32
swamp sparrow	*Melospiza georgiana*	-	prefers fresh water marshes; may be found in weedy fields, parks	4 22
European starling	*Sturnus vulgaris*	+	extremely adaptable to human activity; considered a pest	4 23
tree swallow	*Tachycineta bicolor*	=	always nests near water	4 15
tufted titmouse	*Parus bicolor*	=	common in suburban areas	4 11
veery	*Catharus fuscescens*	-	prefers damp forest with undergrowth; affected by fragmentation	4 7
yellow warbler	*Dendrocica petchia*	=	rare breeder on LI, winter sps, abundant in parks & yards	4 18
American woodcock	*Philhela minor*	-	prefers moist woodland and thicket near open fields	4 30
downy woodpecker	*Picoides pubescens*	=	found in parks and suburban areas	4 14
hairy woodpecker	*Picoides villosus*	=	found mainly in deciduous forests	4 14
red-bellied woodpecker	*Melanerpes carolinus*	=	prefers forest openings; mostly found on Long Island north shore	4 14
Mammals				
big-brown bat	*Eptesicus fuscus*	+	roosts in structures; found throughout LI; hunts over water	1 29
little-brown bat	*Myotis lucifugus*	+	roosts in buildings and man made structures; hunts over water	1 29
Eastern cottontail	*Sylvilagus floridanus*	=	will adapt to suburban areas, if there is sufficient cover	1 29
white-tailed deer	*Odocoileus virginianus*	-	requires range of one-half square mile	1 25 29
red fox	*Vulpes vulpes*	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
mink	*Mustela vison*	-	prefers wetlands surrounded by forested areas	1
star-nosed mole	*Condylura cristata*	-	prefers wet, black, soil with earthworms	1 29
meadow-jumping mouse	*Zapus hudsonicus*	=	found around water in pine barrens; prefers open areas with grasses	1 29

TOPOGRAPHIC MAP

Source: USGS Topographic Maps, Huntington & Lloyd Harbor Quadrangles
Scale: 1" = 3,000'

NORTH

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Common Name	Scientific Name	Adapt.	Comments	References
white-footed mouse	*Peromyscus leucopus*	=	common to most all habitats; does not adapt well to human activity	1 29
muskrat	*Ondarta zibethicus*	-	prefers damp and marshy fresh and salt water habitats	1 29
Virginia opossum	*Didelphis virginiana*	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	*Procyon lotor*	+	nocturnal; very adaptive; found in urban and forest areas	1 29
Norway rat	*Rattus norvegicus*	+	nocturnal; usually associated with human activity	1 29
masked shrew	*Sorex cinereus*	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	*Blarina breuicauda*	=	tunnels underground; abundant in a variety of habitats	1 29
Eastern gray squirrel	*Sciurus carolinensis*	=	found in parks, urban and suburban areas; very adaptable	1 29
southern-flying squirrel	*Glaucimys volans*	-	common in deep mixed, deciduous and coniferous woods	1 29
meadow vole	*Microtus pennsylvanicus*	=	tunnels underground; prefers open woodland	29 45
pine vole	*Microtus pinetorum*	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	*Mustela frenata*	-	prefers dense wood, but may appear in all land habitats near water	1 29
Herptiles				
bull frog	*Rana catesbeiana*	-	strictly aquatic, wooded lakes	33 34 35 37
common gray treefrog	*Hyla versicolor*	-	prefer mossy trees near ponds	33 37
green frog	*Rana clamitans*	-	mainly aquatic species	33 35 37
Southern leopard frog	*Rana pipiens sphenocephala*	-	prefers shallow fresh to brackish pond; may be in meadow in summer	35 37 38
wood frog	*Rana sylvatica*	-	prefers leafy pools and transient pools in wooded areas	33 37
red-spotted newt	*Notophthalmus viridescens*	-	prefers shallow ponds in wooded areas; open moist woods	36 38
spring peeper	*Hyla crucifer*	=	prefers pools/marsh near woodland; found high in trees in summer	33 35 38
spotted salamander	*Ambystoma maculatum*	-	will breed in pond or vernal ponds in late March, early April	34 36 38
Eastern tiger salamander	*Ambystoma tigrinum tigrinum*	-	needs fishless pond or vernal pond with 500' vacant radius to breed	36 38
marbled salamander	*Ambystoma opacum*	=	moist to sandy areas; lays eggs in fall in low spots wet by rain	34 36 38
Eastern garter snake	*Thamnophis sirtalis*	=	occupies a variety of habitats	38 40
eastern milk snake	*Lampropettis d. triangulum*	=	occupies a variety of habitats	38 39
Eastern ribbon snake	*Thamnophis s. sauritus*	=	semi-aquatic specie seldom wanders far from wet areas	38 40
Northern brown snake	*Storeria dekayi*	=	prefers fresh marsh, moist woods, but, adapts to urban environment	38
Northern ringneck snake	*Diadophis punctatus*	=	prefers secluded moist areas under logs/stones; can adapt to suburb	38
Northern water snake	*Natrix sipedon sipedon*	-	common in swamp, bog, marsh, stream, pond and lake environments	38 39
painted turtle	*Chrysemys picta*	-	prefers small bodies of water	38

Marsh Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
American bittern	*Botaurus lentiginosus*	-	prefers seclusion and swamps of at least 10 acres	4 26
least bittern	*Ixobrychus exilis*	-	prefers freshwater cattail marshes	4 26
red-winged blackbird	*Agelaius phoeniceus*	=	needs water	4 6
brant	*Brant bernicla*	-	migratory only, does not nest in New York State	28
canvasback	*Aythya valisineria*	-	rarely winters in the area	4 27
American coot	*Fulica americana*	-	winters occasionally in area	4 26
double-crested cormorant	*Phalacrocorax auritus*	-	prefers undisturbed rocky coastal areas	4 32
fish crow	*Corvus ossifragus*	=	maritime species; prefers coniferous vegetation; less often inland	4 11
short-billed dowitcher	*Limnodromus griseus*	-	on-breeding species found in summer; some during winter months	32
American black duck	*Anas rubripes*	-	nests in thick vegetation within 1.2 meters of water	4 27
ring-necked duck	*Aythya collaris*	-	does not nest on Long Island	4 27
ruddy duck	*Oxyura jamaicensis*	-	prefers cat-tails and bulrush marshes	4 28
great egret	*Casmerodius albus*	-	common in south shore bays; nests in tall vegetation	4 26
snowy egret	*Egretta thula*	-	nests in vegetation 1 to 3 meters in height	4 26
peregrine falcon	*Falco peregrinus*	=	nests on ledges, tree cavities and buildings; rivers, lakes and coast	4 17
gadwall	*Anas strepera*	-	observed in south shore bays; may occupy pond and river areas	4 27
Canada goose	*Branta canadensis*	=	prefers lakes, rivers, bays and marshes	4 28
pied-billed grebe	*Podilymbus podiceps*	-	prefers brackish water in Long Island area	32
Bonaparte's gull	*Larus philadelphia*	=	occurs as non-breeding species during winters	24
Northern harrier	*Circus cyaneus*	-	avoids humans; extremely protective of nests	4 16
black-crowned night-heron	*Nycticorax nycticorax*	-	common in maritime shrubland	4 26
great blue heron	*Ardea herodias*	-	occurs as non-breeding species; present during migration	4 26
green heron	*Butorides striatus*	-	may be found near lakes, streams, ponds and marshes	4 26
tricolored heron	*Egretta tricolor*	=	maritime species, but rare on Long Island	4 26
yellow-crowned night-heron	*Nycticorax violaceus*	-	nests in low coastal shrubbery; prefers islands	4 26
glossy ibis	*Plegadis falcinellus*	-	maritime species but rarely found on Long Island	4 26
belted kingfisher	*Megaceryle alcyon*	-	nests in banks (rarely in trees), up to a mile from fishing area	4 12
mallard	*Anas platyrhynchos*	-	adaptable to human activity	4 27
red-breasted merganser	*Mergus serrator*	-	nests in shrubs and/or under driftwood, close to water	4 27
osprey	*Pandion haliaetus*	-	associated with seacoast, sometimes lakes and rivers	4 16
saw-whet owl	*Aegolius acadicus*	-	nocuturnal; low moist coniferous; winter in parks, yards, thickets	4 17
short-eared owl	*Asio flammeus*	-	coastal species; nests on sand beaches and beach grass, south shore	4 17
black-bellied plover	*Pluvialis squatarola*	-	non-breeder on LI; may forage during summer, occasionally winter	31 32

Common Name	Scientific Name	Adapt.	Comments	References
clapper rail	*Rallus longirostris*	-	common in south western LI salt marshes	4 26 32
Virginia rail	*Rallus limicola*	-	avoids humans; prefers marshes with woody and herbaceous growth	4 26 32
least sandpiper	*Calidris minutilla*	-	may occasionally winter on Long Island	32
semipalmated sandpiper	*Calidris pusilla*	-	prefers south shore of Long Island	32
spotted sandpiper	*Actitus macularia*	-	nests on ground in grassy areas	4 31 32
greater scaup	*Aythya marila*	-	winters in bay areas	32 44
lesser scaup	*Aythya affinis*	-	prefers ponds, lakes, rivers and sometimes marshes	32 44
Northern shoveler	*Anas clypeata*	-	prefers large protected marshes	4 27
common snipe	*Gallinago gallinago*	-	one possible nesting pair on Long Island recorded in atlas	4 30
seaside sparrow	*Ammodramus maritimus*	-	not expected on Long Island north shore	4 21
sharp-tailed sparrow	*Ammodramus caudacutus*	-	not expected on Long Island north shore	4 22
swamp sparrow	*Melospiza georgiana*	-	prefers fresh water marshes; may be found in weedy fields, parks	4 22
European starling	*Sturnus vulgaris*	+	extremely adaptable to human activity; considered a pest	4 23
barn swallow	*Hirundo rustica*	+	nests almost entirely on buildings	4 15
tree swallow	*Tachycineta bicolor*	=	always nests near water	4 15
green-winged teal	*Anas crecca*	-	nests in upland areas in proximity to water	4 27
American widgeon	*Anas americana*	-	rare on Long Island; some may be found during winter months	4 27
willet	*Catoptrophorus semipalmatus*	-	common on Long Island south shore	4 31
long-billed marsh wren	*Cistothorus palustris*	-	prefers large marshes; rarely found in other habitats	4 9
greater yellowlegs	*Tringa melanoleuca*	-	primarily salt marsh specie, sometimes along lakeshore	30 32
lesser yellowlegs	*Triniga flavipes*	-	does not nest on Long Island; considered a migratory shorebird	30 32
Mammals				
white-tailed deer	*Odocoileus virginianus*	-	requires range of one-half square mile	1 25 29
red fox	*Vulpes vulpes*	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
mink	*Mustela vison*	-	prefers wetlands surrounded by forested areas	1
meadow-jumping mouse	*Zapus hudsonicus*	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	*Peromyscus leucopus*	=	common to most all habitats; does not adapt well to human activity	1 29
muskrat	*Ondarta zibethicus*	-	prefers damp and marshy fresh and salt water habitats	1 29
Virginia opossum	*Didelphis virginiana*	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	*Procyon lotor*	+	nocturnal; very adaptive; found in urban and forest areas	1 29
Norway rat	*Rattus norvegicus*	+	nocturnal; usually associated with human activity	1 29
least shrew	*Cryptotis parva*	-	not commonly documented on Long Island	1 29
masked shrew	*Sorex cinereus*	=	tunnels underground; common in wood and wet habitats	1 29
short-tailed shrew	*Blarina breuicauda*	=	tunnels underground; abundant in a variety of habitats	1 29
pine vole	*Microtus pinetorum*	=	tunnels underground; prefers sandy soil in woods and field; can swim	1 29
long-tailed weasel	*Mustela frenata*	-	prefers dense wood, but may appear in all land habitats near water	1 29

Common Name	Scientific Name	Adapt.	Comments	References
Herptiles				
bull frog	*Rana catesbeiana*	-	strictly aquatic, wooded lakes	33 34 35 37
Southern leopard frog	*Rana pipiens sphenocephala*	-	prefers shallow fresh to brackish pond; may be in meadow in summer	35 37 38
Eastern garter snake	*Thamnophis sirtalis*	=	occupies a variety of habitats	38 40
eastern milk snake	*Lampropettis d. triangulum*	=	occupies a variety of habitats	38 39
Eastern ribbon snake	*Thamnophis s. sauritus*	=	semi-aquatic specie seldom wanders far from wet areas	38 40
Northern water snake	*Natrix sipedon sipedon*	-	common in swamp, bog, marsh, stream, pond and lake environments	38 39
diamond backed terrapin	*Malaclemys terrapin*	-	prefers brackish salt water estuaries and bays	38 41
Eastern mud turtle	*Kinosternon subrubrum*	-	prefers shallow muddy bottom ponds, wet meadow and marshes	38

Freshwater Pond Species - Adaptability and Comments

Common Name	Scientific Name	Adapt.	Comments	References
Birds				
red-winged blackbird	*Agelaius phoeniceus*	=	needs water	4 6
canvasback	*Aythya valisineria*	-	rarely winters in the area	4 27
American coot	*Fulica americana*	-	winters occasionally in area	4 26
American black duck	*Anas rubripes*	-	nests in thick vegetation within 1.2 meters of water	4 27
ring-necked duck	*Aythya collaris*	-	does not nest on Long Island	4 27
wood duck	*Aix sponsa*	-	prefers wooded rivers and ponds, and wooded swamps	4 27
great egret	*Casmerodius albus*	-	common in south shore bays; nests in tall vegetation	4 26
gadwall	*Anas strepera*	-	observed in south shore bays; may occupy pond and river areas	4 27
blue-grey gnatcatcher	*Polioptila caerulea*	=	prefers dense foliated trees along water ways	4 7
Canada goose	*Branta canadensis*	=	prefers lakes, rivers, bays and marshes	4 28
horned grebe	*Podiceps auritus*	-	prefers southeast shores, oceans, and bays	32 42
great blue heron	*Ardea herodias*	-	occurs as non-breeding species; present during migration	4 26
green heron	*Butorides striatus*	-	may be found near lakes, streams, ponds and marshes	4 26
Eastern kingbird	*Tyrannus tyrannus*	=	very adaptable to human activities; prefers open areas	4 15
belted kingfisher	*Megaceryle alcyon*	-	nests in banks (rarely in trees), up to a mile from fishing area	4 12
mallard	*Anas platyrhynchos*	-	adaptable to human activity	4 27
hooded merganser	*Lophodytes cucullatus*	-	not expected on Long Island	4 27
common screech owl	*Otus asio*	=	nocturnal; nests in hollow trees, abandoned buildings, nest boxes	4 17
spotted sandpiper	*Actitus macularia*	-	nests on ground in grassy areas	4 31 32
greater scaup	*Aythya marila*	-	winters in bay areas	32 44
lesser scaup	*Aythya affinis*	-	prefers ponds, lakes, rivers and sometimes marshes	32 44
fox sparrow	*Passerella iliaca*	-	boreal species, winters here in edge, thickets, brushy areas	20 21
European starling	*Sturnus vulgaris*	+	extremely adaptable to human activity; considered a pest	4 23
barn swallow	*Hirundo rustica*	+	nests almost entirely on buildings	4 15
rough-winged swallow	*Stelgidopteryx ruficollis*	=	common to streams & rivers; nests in low banks, buildings, cavities	4 15
tree swallow	*Tachycineta bicolor*	=	always nests near water	4 15
mute swan	*Cygnus olor*	=	common in bays, very adaptable	4
green-winged teal	*Anas crecca*	-	nests in upland areas in proximity to water	4 27
American widgeon	*Anas americana*	-	rare on Long Island; some may be found during winter months	4 27
lesser yellowlegs	*Triniga flavipes*	-	does not nest on Long Island; considered a migratory shorebird	30 32
Mammals				
big-brown bat	*Eptesicus fuscus*	+	roosts in structures; found throughout LI; hunts over water	1 29
Keen's bat	*Myotis keenii*	+	roosts in buildings, crevices and bark; more common on eastern LI	1 29

little-brown bat	*Myotis lucifugus*	+	roosts in buildings and man made structures; hunts over water	1 29
red bat	*Lasiurus borealis*	-	feeds in marsh area; nests within 1000 yards of marsh in trees	1 29
Eastern pipistrelle	*Pipistrellus subflavus*	=	found near water in open woods, also found in buildings	1 29
silver-haired bat	*Lasionycteris noctivagans*	-	prefers wooded areas near water, primarily during summer months	1 29
white-tailed deer	*Odocoileus virginianus*	-	requires range of one-half square mile	1 25 29
red fox	*Vulpes vulpes*	-	builds den in wooded areas with loose-sandy soil and good drainage	1 29
mink	*Mustela vison*	-	prefers wetlands surrounded by forested areas	1
meadow-jumping mouse	*Zapus hudsonicus*	=	found around water in pine barrens; prefers open areas with grasses	1 29
white-footed mouse	*Peromyscus leucopus*	=	common to most all habitats; does not adapt well to human activity	1 29
muskrat	*Ondarta zibethicus*	-	prefers damp and marshy fresh and salt water habitats	1 29
Virginia opossum	*Didelphis virginiana*	=	common in suburban areas, woods, marsh and coastal areas	1 29
racoon	*Procyon lotor*	+	nocturnal; very adaptive; found in urban and forest areas	1 29
Norway rat	*Rattus norvegicus*	+	nocturnal; usually associated with human activity	1 29
meadow vole	*Microtus pennsylvanicus*	=	tunnels underground; prefers open woodland	29 45
long-tailed weasel	*Mustela frenata*	-	prefers dense wood, but may appear in all land habitats near water	1 29
Herptiles				
bull frog	*Rana catesbeiana*	-	strictly aquatic, wooded lakes	33 34 35 37
common gray treefrog	*Hyla versicolor*	-	prefer mossy trees near ponds	33 37
green frog	*Rana clamitans*	-	mainly aquatic species	33 35 37
wood frog	*Rana sylvatica*	-	prefers leafy pools and transient pools in wooded areas	33 37
red-spotted newt	*Notophthalmus viridescens*	-	prefers shallow ponds in wooded areas; open moist woods	36 38
spring peeper	*Hyla crucifer*	=	prefers pools/marsh near woodland; found high in trees in summer	33 35 38
spotted salamander	*Ambystoma maculatum*	-	will breed in pond or vernal ponds in late March, early April	34 36 38
Eastern tiger salamander	*Ambystoma tigrinum tigrinum*	-	needs fishless pond or vernal pond with 500' vacant radius to breed	36 38
marbled salamander	*Ambystoma opacum*	=	moist to sandy areas; lays eggs in fall in low spots wet by rain	34 36 38
Eastern garter snake	*Thamnophis sirtalis*	=	occupies a variety of habitats	38 40
eastern milk snake	*Lampropettis d. triangulum*	=	occupies a variety of habitats	38 39
Eastern ribbon snake	*Thamnophis s. sauritus*	=	semi-aquatic specie seldom wanders far from wet areas	38 40
Northern ringneck snake	*Diadophis punctatus*	=	prefers secluded moist areas under logs/stones; can adapt to suburb	38
Northern water snake	*Natrix sipedon sipedon*	-	common in swamp, bog, marsh, stream, pond and lake environments	38 39
stink pot	*Sternotherus odoratue*	-	not common on LI; prefers lake, pond and sluggish streams	38
Fowler's toad	*Bufo woodhousei fowleri*	-	found in suburban areas, gardens; breeds in shallow permanent ponds	33 37
Eastern box turtle	*Terrepene carolina*	-	terrestrial based species	41
painted turtle	*Chrysemys picta*	-	prefers small bodies of water	38
snapping turtle	*Chelydra serpentina*	-	sometimes found on land near water	38 41
spotted turtle	*Chlemys guttata*	-	found in bogs and ponds; may be in brooks and pools	38 41

Appendix G-3
NYSDEC/Natural Heritage Program letter

NP&V, LLC

February 4, 2005

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

CHARLES J. VOORHIS, CEP, AICP • ARTHUR J. KOERBER, P.E. • VICTOR BERT, P.E.
JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
PAUL M. RACZ, P.L.S. • THOMAS F. LAMBO, P.E.

February 4, 2005

Jean Petrusiak, Director
New York State Department of Environmental Conservation
Information Services
New York Natural Heritage Program
625 Broadway, 5th floor
Albany, NY 12233-4757

Re: Request for Significant Habitat Program/Natural Heritage Program File Review for a 7.07-acre site located on the southeast corner of Woodhull Road and Park Avenue in the Town of Huntington, Suffolk County, New York. NPV #97110.

Dear Ms. Petrusiak:

My firm has been retained by the owner of the above referenced parcel to prepare a Draft Environmental Impact Statement (DEIS) for a site plan application involving the proposed construction of nine (9) 3-bedroom condominiums, which shall be attached in two (2) and three (3) unit clusters and a cul-de-sac extension from Woodhull Road to provide access to the units. The 7.07 acre site is located on the southeast corner of Woodhull Road and Park Avenue, Town of Huntington, New York and is more particularly identified as Suffolk County Tax Map Numbers 0400-073-01-38, 41.1, and 42 and 0400-097-02-107. The site is currently composed of improved landscaped areas, forest, and freshwater wetlands. A cottage, single family dwelling and a man-made pond are located on the northeastern portion of the site, a cow barn in the central portion of the site, and two (2) historic single family dwellings in the western portion of the site fronting Woodhull Road. Freshwater wetlands currently exist along the northeast portion of the site and will remain undisturbed. A sewer extension is proposed and the project will be serviced with public water. I am interested in determining whether any protected, threatened and/or endangered wildlife species are active in the vicinity of the site so as to advise my client of the ecological sensitivity of the area.

It would be beneficial to consult the Significant Habitat Program and Natural Heritage Program files for any information you may have regarding unique habitats, and/or species of vegetation and wildlife. Enclosed is a copy of the USGS Quadrangle showing the location of the project site. Please provide any information you may have on this specific site or other unique ecological features within the vicinity. Your attention to this request would be greatly appreciated. Please do not hesitate to call if you have any questions regarding this correspondence. Thank you.

Sincerely,

NELSON, POPE & VOORHIS, LLC

Sara N. da Silva

Enc.: location map

572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620 WWW.NELSONPOPE.COM

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925
Website: www.dec.state.ny.

Erin M. Crotty
Commissioner

March 10, 2005

RECEIVED
MAR 14 2005

Sara N. da Silva
Nelson, Pope & Voorhis
572 Walt Whitman Rd
Melville, NY 11747

Dear Ms. da Silva:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to an Environmental Assessment for the proposed Condominium Construction, Project 97110, site as indicated on the map you provided, located in the Town of Huntington, Suffolk County.

> Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and other significant habitats, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site. The information contained in this report is considered <u>sensitive</u> and may not be released to the public without permission from the New York Natural Heritage Program.

The presence of rare species may result in this project requiring additional permits, permit conditions, or review. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environment impact assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

Sincerely,
Heidi Krahling JP
Heidi J. Krahling, Information Services
NY Natural Heritage Program

Encs.
cc: Reg. 1, Wildlife Mgr.

Natural Heritage Report on Rare Species and Ecological Communities

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor,
Albany, NY 12233-4757
(518) 402-8935

The plants, animals or ecological communities listed below were found within one mile of your project site and may also occur at the project site if appropriate habitat is available.

is report contains **SENSITIVE** information that may not be released to the public without permission from the NY Natural Heritage Program.
fer to the User's Guide for explanations of codes, ranks and fields.

SCULAR PLANTS

esmodium ciliare — Office Use

ittle-leaf Tick-trefoil **NY Legal Status:** Threatened **NYS Rank:** Imperiled 7962

Federal Listing: **Global Rank:** Demonstrably secure M

Habitat: Oak openings; open woods in sandy soil. Dry sandy woods and clearings.

umex hastatulus — Office Use

eart Sorrel **NY Legal Status:** Endangered **NYS Rank:** Critically imperiled 2883

Federal Listing: **Global Rank:** Demonstrably secure M

Habitat: Sandy soil.

Records Processed

USERS GUIDE TO NY NATURAL HERITAGE DATA

New York Natural Heritage Program, 625 Broadway, 5th Floor, Albany, NY 12233-4757 phone: (518) 402-8935

NATURAL HERITAGE PROGRAM: The NY Natural Heritage Program is a partnership between the NYS Department of Environmental Conservation (NYS DEC) and The Nature Conservancy. Our mission is to enable and enhance conservation of rare animals, rare plants, and significant communities. We accomplish this mission by combining thorough field inventories, scientific analyses, expert interpretation, and the most comprehensive database on New York's distinctive biodiversity to deliver the highest quality information for natural resource planning, protection, and management.

DATA SENSITIVITY: The data provided in the report are ecologically sensitive and should be treated in a sensitive manner. The report is for your in-house use and should not be released, distributed or incorporated in a public document without prior permission from the Natural Heritage Program.

EO RANK: A letter code for the quality of the occurrence of the rare species or significant natural community, based on population size or area, condition, and landscape context.

A-E = Extant: A=Excellent, B=Good, C=Fair, D=Poor, E=Extant but with insufficient data to assign a rank of A-D.
F = Failed to find. Did not locate species during a limited search, but habitat is still there and further field work is justified.
H = Historical. Historical occurrence without any recent field information.
X = Extirpated. Field/other data indicates element/habitat is destroyed and the element no longer exists at this location.
U = Extant/Historical status uncertain.
Blank = Not assigned.

LAST REPORT: The date that the rare species or significant natural community was last observed at this location, as documented in the Natural Heritage databases. The format is most often YYYY-MM-DD.

NY LEGAL STATUS – Animals:
Categories of Endangered and Threatened species are defined in New York State Environmental Conservation Law section 11-0535. Endangered, Threatened, and Special Concern species are listed in regulation 6NYCRR 182.5.

E - **Endangered Species**: any species which meet one of the following criteria:
- Any native species in imminent danger of extirpation or extinction in New York.
- Any species listed as endangered by the United States Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

T - **Threatened Species**: any species which meet one of the following criteria:
- Any native species likely to become an endangered species within the foreseeable future in NY.
- Any species listed as threatened by the U.S. Department of the Interior, as enumerated in the Code of the Federal Regulations 50 CFR 17.11.

SC - **Special Concern Species**: those species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York. Unlike the first two categories, species of special concern receive no additional legal protection under Environmental Conservation Law section 11-0535 (Endangered and Threatened Species).

P - **Protected Wildlife** (defined in Environmental Conservation Law section 11-0103): wild game, protected wild birds, and endangered species of wildlife.

U - **Unprotected** (defined in Environmental Conservation Law section 11-0103): the species may be taken at any time without limit; however a license to take may be required.

G - **Game** (defined in Environmental Conservation Law section 11-0103): any of a variety of big game or small game species as stated in the Environmental Conservation Law; many normally have an open season for at least part of the year, and are protected at other times.

NY LEGAL STATUS – Plants:
The following categories are defined in regulation 6NYCRR part 193.3 and apply to NYS Environmental Conservation Law section 9- 1503.

E - **Endangered Species**: listed species are those with:
- 5 or fewer extant sites, or
- fewer than 1,000 individuals, or
- restricted to fewer than 4 U.S.G.S. 7 ½ minute topographical maps, or
- species listed as endangered by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.

T - **Threatened**: listed species are those with:
- 6 to fewer than 20 extant sites, or
- 1,000 to fewer than 3,000 individuals, or
- restricted to not less than 4 or more than 7 U.S.G.S. 7 and ½ minute topographical maps, or
- listed as threatened by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.

R - **Rare**: listed species have:
- 20 to 35 extant sites, or
- 3,000 to 5,000 individuals statewide.

continued on back

V - **Exploitably vulnerable**: listed species are likely to become threatened in the near future throughout all or a significant portion of their range within the state if causal factors continue unchecked.
U - **Unprotected**; no state status.

FEDERAL STATUS (PLANTS and ANIMALS): The categories of federal status are defined by the United States Department of the Interior as part of the 1974 Endangered Species Act (see Code of Federal Regulations 50 CFR 17). The species listed under this law are enumerated in the Federal Register vol. 50, no. 188, pp. 39526 - 39527. The codes below without parentheses are those used in the Federal Register. The codes below in parentheses are created by Heritage to deal with species which have different listings in different parts of their range, and/or different listings for different subspecies or varieties.

(blank) = No Federal Endangered Species Act status.
LE = The element is formally listed as endangered.
LT = The element is formally listed as threatened.
PE = The element is proposed as endangered.
PT = The element is proposed as threatened.
C= The element is a candidate for listing.
LE,LT = The species is formally listed as endangered in part of its range, and as threatened in the other part; or, one or more subspecies or varieties is listed as endangered, and the others are listed as threatened.
LT,PDL = Populations of the species in New York are formally listed as threatened, and proposed for delisting.
(LE) = If the element is a full species, all subspecies or varieties are listed as endangered; if the element is a subspecies, the full species is listed as endangered.
LT,T(S/A) = One or more subspecies or populations of the species is formally listed as threatened, and the others are treated as threatened because of similarity of appearance to the listed threatened subspecies or populations.
PS = Partial status: the species is listed in parts of its range and not in others; or, one or more subspecies or varieties is listed, while the others are not listed.

GLOBAL AND STATE RANKS (animals, plants, ecological communities and others): Each element has a global and state rank as determined by the NY Natural Heritage Program. These ranks carry no legal weight. The global rank reflects the rarity of the element throughout the world and the state rank reflects the rarity within New York State. Infraspecific taxa are also assigned a taxon rank to reflect the infraspecific taxon's rank throughout the world. ? = Indicates a question exists about the rank. Range ranks, e.g. S1S2, indicate not enough information is available to distinguish between two ranks.

GLOBAL RANK:
G1 - Critically imperiled globally because of extreme rarity (5 or fewer occurrences), or very few remaining acres, or miles of stream) or especially vulnerable to extinction because of some factor of its biology.
G2 - Imperiled globally because of rarity (6 - 20 occurrences, or few remaining acres, or miles of stream) or very vulnerable to extinction throughout its range because of other factors.
G3 - Either rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some of its locations) in a restricted range (e.g. a physiographic region), or vulnerable to extinction throughout its range because of other factors.
G4 - Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5 - Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
GH - Historically known, with the expectation that it might be rediscovered.
GX - Species believed to be extinct.

NYS RANK:
S1 - Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.
S2 - Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.
S3 - Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.
S4 - Apparently secure in New York State.
S5 - Demonstrably secure in New York State.
SH - Historically known from New York State, but not seen in the past 15 years.
SX - Apparently extirpated from New York State.
SZ - Present in New York State only as a transient migrant.

SxB and SxN, where Sx is one of the codes above, are used for migratory animals, and refer to the rarity within New York State of the breeding (B)populations and the non-breeding populations (N), respectively, of the species.

TAXON (T) RANK: The T-ranks (T1 - T5) are defined the same way as the Global ranks (G1 - G5), but the T-rank refers only to the rarity of the subspecific taxon.
T1 through T5 - See Global Rank definitions above.
Q - Indicates a question exists whether or not the taxon is a good taxonomic entity.

APPENDIX H

NYS BREEDING BIRD ATLAS INFORMATION

Breeding Bird Atlas Block 6252B

1 Mile

Scale is approximately 1:25,000, but may vary on your printer.

NYS Breeding Bird Atlas

ATLAS 2000

2000-2004

Navigation Tools
Perform Another Search Show All Records Sort by Field Card Order Sort by Taxonomic Order View 1985 Data

Block 6252B Summary	
Total Species:	56
Possible:	5
Probable:	23
Confirmed:	28

Click on column heading to sort by that category.

Common Name	Scientific Name	Behavior Code	Date	NY Legal Status	Vol
American Black Duck	*Anas rubripes*	X1	5/4/2001	Game Species	KF
American Crow	*Corvus brachyrhynchos*	NE	5/18/2001	Game Species	KF
Canada Goose	*Branta canadensis*	NE	4/5/2001	Game Species	KF
Gadwall	*Anas strepera*	FL	6/13/2003	Game Species	KF
Mallard	*Anas platyrhynchos*	P2	4/6/2001	Game Species	KF
Mallard x Am. Black Duck Hybrid	*Anas platyrhynchos x A. rubripes*	P2	5/4/2001	Game Species	KF

American Goldfinch	*Carduelis tristis*	S2	7/3/2001	Protected	KF
American Redstart	*Setophaga ruticilla*	T2	5/25/2004	Protected	KF
American Robin	*Turdus migratorius*	NE	5/4/2001	Protected	KF
Baltimore Oriole	*Icterus galbula*	FY	6/8/2001	Protected	KF
Barn Swallow	*Hirundo rustica*	NE	5/31/2001	Protected	KF
Belted Kingfisher	*Ceryle alcyon*	X1	7/11/2002	Protected	KF
Black-and-white Warbler	*Mniotilta varia*	X1	6/6/2001	Protected	KF
Black-capped Chickadee	*Poecile atricapillus*	FL	7/3/2001	Protected	KF
Blue Jay	*Cyanocitta cristata*	D2	5/15/2001	Protected	KF
Brown-headed Cowbird	*Molothrus ater*	S2	5/18/2001	Protected	KF
Carolina Wren	*Thryothorus ludovicianus*	S2	5/4/2001	Protected	KF
Cedar Waxwing	*Bombycilla cedrorum*	P2	7/2/2001	Protected	KF
Chimney Swift	*Chaetura pelagica*	FY	7/1/2004	Protected	KF
Chipping Sparrow	*Spizella passerina*	T2	6/14/2001	Protected	KF
Common Grackle	*Quiscalus quiscula*	FL	5/31/2001	Protected	KF
Common Yellowthroat	*Geothlypis trichas*	T2	7/13/2001	Protected	KF
Downy Woodpecker	*Picoides pubescens*	FY	6/6/2001	Protected	KF
Eastern Kingbird	*Tyrannus tyrannus*	FL	7/2/2001	Protected	KF
Eastern Screech-Owl	*Megascops asio*	P2	2/29/2004	Protected	KF

Eastern Towhee	*Pipilo erythrophthalmus*	P2	6/20/2002	Protected	KF
Fish Crow	*Corvus ossifragus*	FL	6/14/2001	Protected	KF
Gray Catbird	*Dumetella carolinensis*	FY	6/5/2001	Protected	KF
Great Horned Owl	*Bubo virginianus*	P2	3/10/2002	Protected	KF
Green Heron	*Butorides virescens*	P2	6/5/2001	Protected	KF
Hairy Woodpecker	*Picoides villosus*	D2	4/5/2002	Protected	KF
House Finch	*Carpodacus mexicanus*	FY	5/17/2001	Protected	KF
House Wren	*Troglodytes aedon*	T2	2/6/2001	Protected	KF
Killdeer	*Charadrius vociferus*	NE	5/15/2001	Protected	KF
Mourning Dove	*Zenaida macroura*	NE	4/30/2001	Protected	KF
Mute Swan	*Cygnus olor*	NE	4/5/2001	Protected	KF
Northern Cardinal	*Cardinalis cardinalis*	FY	5/18/2001	Protected	KF
Northern Flicker	*Colaptes auratus*	ON	6/5/2001	Protected	KF
Northern Mockingbird	*Mimus polyglottos*	FY	5/31/2001	Protected	KF
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*	N2	5/4/2001	Protected	KF
Orchard Oriole	*Icterus spurius*	T2	5/31/2001	Protected	KF
Red-bellied Woodpecker	*Melanerpes carolinus*	T2	5/15/2001	Protected	KF
Red-eyed Vireo	*Vireo olivaceus*	S2	6/20/2002	Protected	KF
Red-tailed Hawk	*Buteo jamaicensis*	FL	6/25/2004	Protected	KF
Red-winged	*Agelaius*				

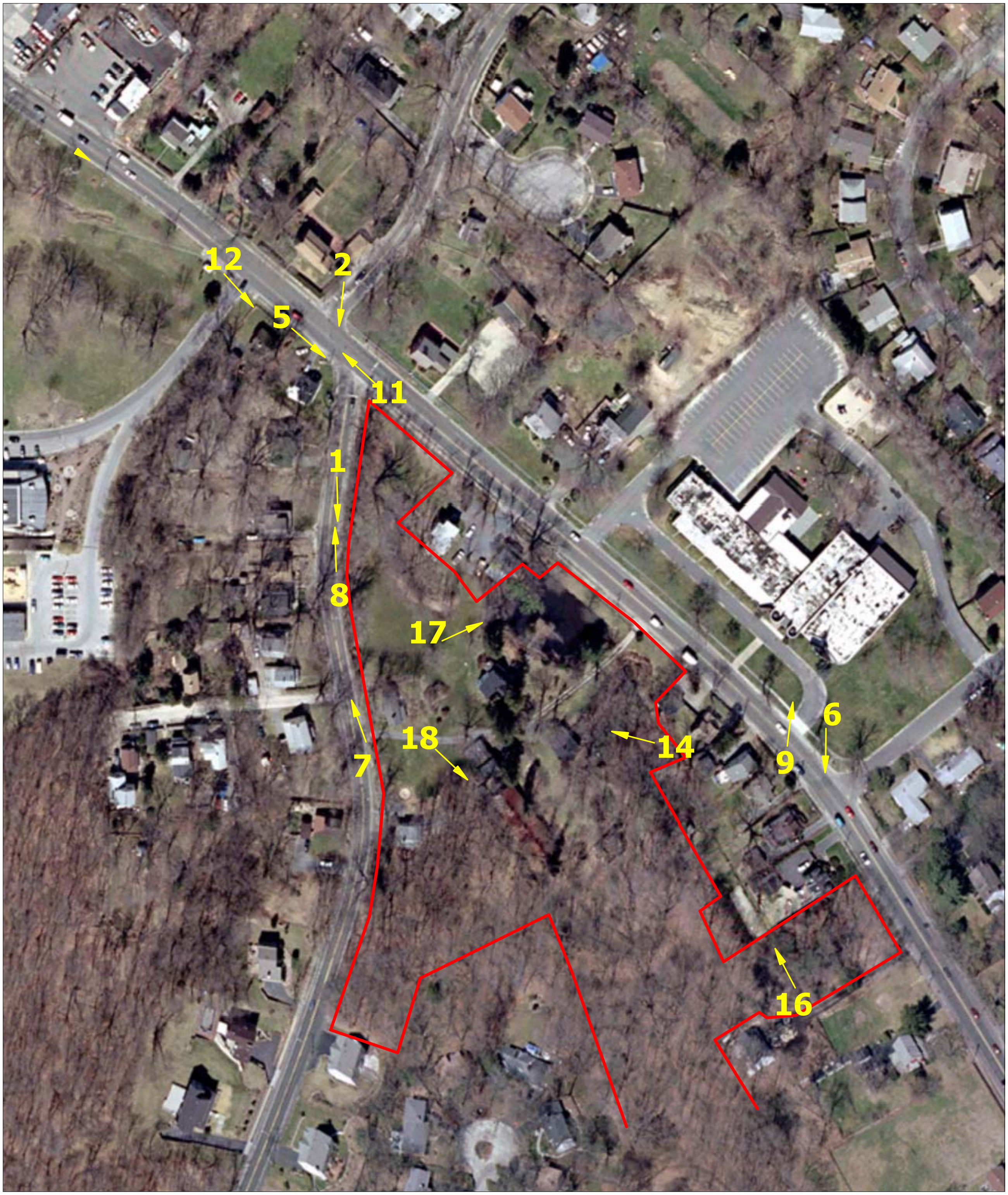
Blackbird	*phoeniceus*	FY	5/31/2001	Protected	KF
Song Sparrow	*Melospiza melodia*	FY	7/3/2001	Protected	KF
Spotted Sandpiper	*Actitis macularia*	X1	6/3/2003	Protected	KF
Tufted Titmouse	*Baeolophus bicolor*	FL	6/20/2001	Protected	KF
Warbling Vireo	*Vireo gilvus*	T2	6/6/2001	Protected	KF
White-breasted Nuthatch	*Sitta carolinensis*	T2	5/4/2001	Protected	KF
White-eyed Vireo	*Vireo griseus*	X1	6/6/2001	Protected	KF
Willow Flycatcher	*Empidonax traillii*	T2	6/6/2001	Protected	KF
Yellow Warbler	*Dendroica petechia*	FY	6/5/2001	Protected	KF
European Starling	*Sturnus vulgaris*	ON	4/5/2001	Unprotected	KF
House Sparrow	*Passer domesticus*	NE	4/5/2001	Unprotected	KF
Rock Pigeon	*Columba livia*	ON	4/5/2001	Unprotected	KF

Current Date: 3/21/2005

APPENDIX I

PHOTOGRAPHS OF SITE AND VICINITY

PHOTOGRAPH LOCATION KEY



Source: GeoMpas
Scale: 1" = 200'

NORTH

NELSON POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Photo 1.
View of the western property boundary, and single family dwellings along Woodhull west of the site.

Photo 2.
View of southbound Woodhull Road.

Photo 3.
View on Park Avenue, looking southeast from the site. The first building from the left is Park Avenue Deli. Photo also shows several historic houses on Park Avenue.

Photo 4.
View of the west side of Park Avenue north of the subject site (Huntington Cinema Art Center is in the distance).

Photo 5.
View south at the intersection of Park Avenue and Woodhull Road.

Photo 6.
View of single family residences to the east of the site, on Park Avenue, looking south.

Photo 7.
View north along Woodhull Road (western property boundary).

Photo 8.
View of intersection at Woodhull and Park Avenue from northwestern property boundary.

Photo 9.
View of Huntington Jewish Center, located across from the property on the east side of Park Avenue.

Photo 10.
View south on Park Avenue, just south of Woodhull Road.

Photo 11.
View north from northern portion of subject property.

Photo 12.
View south along Park Avenue.

Photo 13.
View of cottage and existing unpaved driveway, looking northeast.

Photo 14.
View from central portion of property towards existing cottage and barn in the distance.

Photo 15.
View of narrow portion of freshwater wetland facing Park Avenue, looking northeast.

Photo 16.
View of wetland area on south portion of property, looking northwest.

Photo 17.
View adjacent to the existing single family dwelling, looking towards the pond.

Photo 18.
View from the interior of site looking towards existing barn.

APPENDIX J

COMMUNITY SERVICES LETTERS

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
npv@nelsonpope.com

March 8, 2005

Mr. John J. Finello
Superintendent
Huntington Union Free School District
155 Lowndes Avenue
Huntington Station, NY 11746

Re: Kiruv Estates, Huntington
S/E c/o Park Avenue and Woodhull Road
Town of Huntington, Suffolk County
NP&V #97110

Dear Mr. Finello:

Nelson, Pope & Voorhis (NP&V) has been retained by the owner of the above referenced parcel to investigate the environmental and planning resources associated with this site as part of a proposed land use application to the Town of Huntington. Attached is a map which shows the location of the project site and indicates its location within the Huntington School District.

The 7-acre site is currently developed with two (2) occupied residential dwellings (one is a cottage) and (2) historic houses. The proposed redevelopment of the site will reflect its current R-Residence-7 (7,500 square foot lot) zoning. The proposed project under zoning would establish a total of ten (10) 3-bedroom single-family homes on the 7-acre site. These 10 homes would include the preservation of (1) existing detached single-family dwelling and the construction of nine (9) new 3-bedroom single-family condominiums arranged in two and three-unit clusters. An existing cottage will be demolished and the existing historic houses will be purchased by the Town.

Based on standard multipliers, the proposed project would generate 8 school-aged children. However, based on our research of other attached residence communities in the area, the proposed development is expected to generate fewer than 8 students. In addition, it is our understanding that a high school student resides in the cottage and two younger children reside in one of the other homes. Therefore the increase in school-aged children generated by this project may be adjusted to account for these children.

Your input on the potential impact of this redevelopment project would be appreciated and will be included in analysis for preparation of the Environmental Impact Statement for the project. We would appreciate your review and assessment of the potential impact of this project on your school district. We would also be interested in the following information which will assist in our analyses:

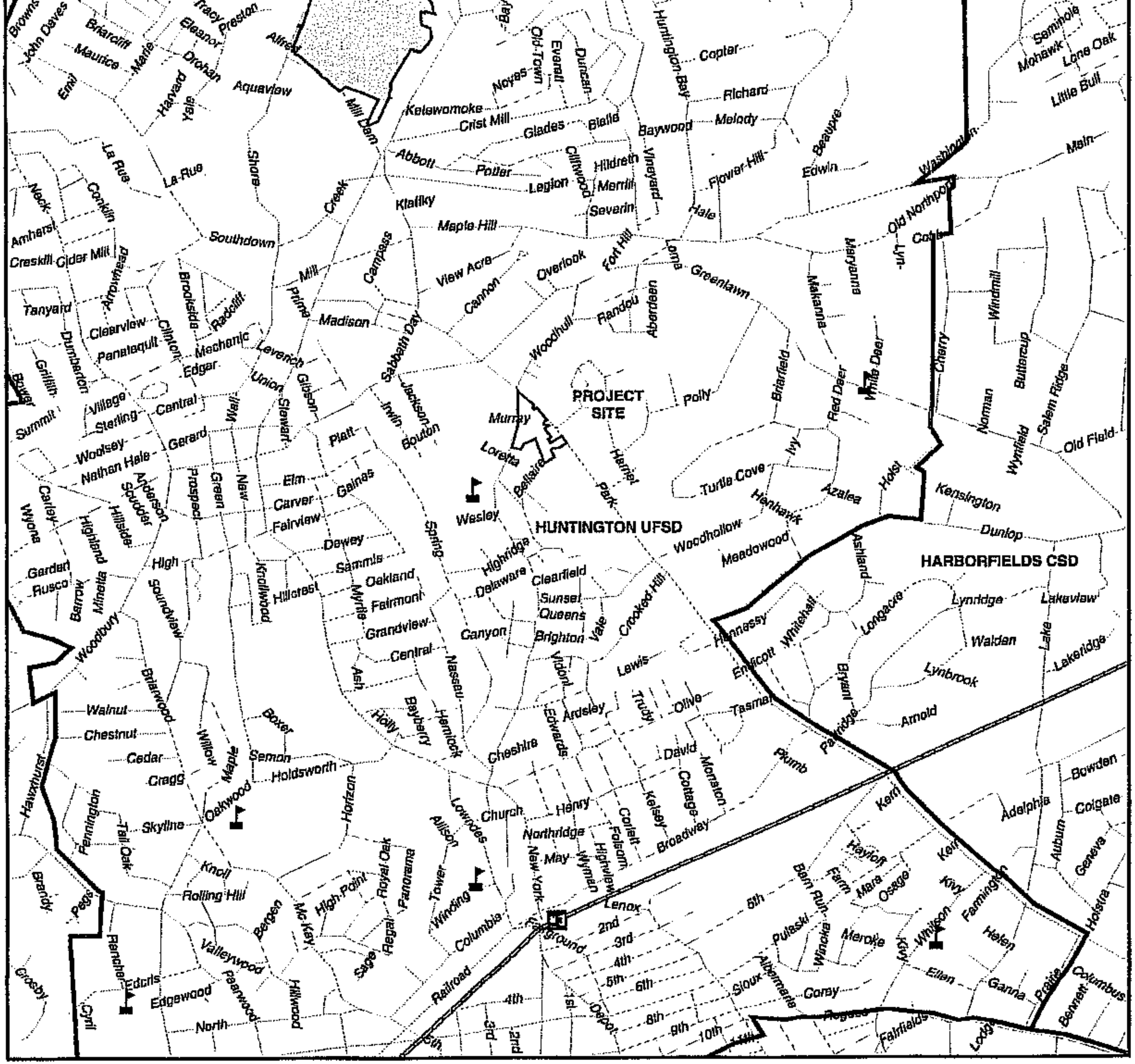
- Availability of bus services in this area;
- Listing of specific schools which children from this area attend; and
- Cost per child for current educational services.

We appreciate your input on this matter. If you have any questions regarding the details of the project or the information contained in this letter, I would be happy to speak with you. I would be pleased to meet with you or correspond by email or phone on this matter at any time. If you have any questions please feel free to contact me at (631) 427-5665 or keiseman@nelsonpope.com.

Sincerely,

NELSON, POPE & VOORHIS, LLC

Kathryn J. Eiseman, AICP
Division Manager
Environmental & Community Planning



Kiruv Estates at Huntington

Suffolk County, New York

SCHOOLS AND SCHOOL DISTRICTS

SOURCE: TIGER File 2000
NP&V GIS Library

LEGEND

- Roads
- Project Site
- Public Schools
- School Districts
- Railroad
- Railroad Stations

N W E S

1 inch equals 2,000 feet

Nelson, Pope & Voorhis, LLC
Environmental Planning Consulting

Huntington Union Free School District

"A Tradition of Excellence Since 1657"

David H. Grackin

Assistant Superintendent for Finance and Management Services

March 22, 2005

RECEIVED
MAR 24 2005
NELSON & POPE

Ms. Kathryn J. Eiseman, AICP
Nelson, Pope & Voorhis, LLC
Environmental and Community Planning
572 Walt Whitman Road
Melville, NY 11747-2188

Dear Ms. Eiseman:

The Huntington Schools is in receipt of your letter of March 8, 2005 where you ask us to comment on your file NP&V #97110. Those lots which are proposed for the southeast corner of Park Avenue and Woohull Road could generate children that would go to the following schools:

Washington Primary School Grades K-3	Whitson Road Huntington Station, New York 11746
Huntington Intermediate School Grades 4-6	Lowndes Avenue Huntington Station, New York 11746
Finley Middle School Grades 7 and 8	Greenlawn Road Huntington, New York 11743
Huntington High School Grades 9-12	Oakwood and McKay Roads Huntington, New York 11743

Those children who attend Washington Primary, Huntington Intermediate, and Huntington High School would qualify for a bus to school. However, any children in this subdivision who would attend Finley Middle School would be walkers. The current cost per child for our educational services in regular education in grades 7-12 is approximately $14,775.

The district is aware that we are obligated to provide educational services to any resident in the school district. Should you have any questions, please do not hesitate to contact me. Thank you.

Yours truly,

David H. Grackin

DHG/lt
H:\Correspondence\2004-2005\EnvironmentalPlanningMarch.doc

NELSON, POPE & VOORHIS, LLC
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CHARLES J. VOORHIS, CEP, AICP • ARTHUR J. KOERBER, P.E. • VICTOR BERT, P.E.
JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
PAUL M. RACZ, P.L.S. • THOMAS F. LAMBO, P.E.

February 4, 2005

Richard Dormer
Commissioner
Suffolk County Police Department
30 Yaphank Avenue
Yaphank, NY 11980

Re: Kiruv Estates, Huntington
SE c/o Park Avenue and Woodhull Road
Town of Huntington, Suffolk County
NP&V #97110

Dear Commissioner Dormer:

Nelson, Pope & Voorhis (NP&V) has been retained by the owner of the above referenced parcel to investigate the environmental and planning resources associated with this site as part of a proposed land use application to the Town of Huntington. Enclosed is a map with the location of the project site superimposed. The 7-acre site is currently in use with two (2) occupied residential dwellings and (2) historic houses. The proposed project seeks to use the site in conformance with its current R-Residence-7 (7,500 square foot lot) zoning. The proposed project under zoning would establish a total of ten (10) 3-bedroom single-family homes on the 7-acre site.

The following information would be helpful to us regarding police protection in the area and the potential impact of this project on your department:

- Precinct number (presumably Precinct #2)
- Station's address and phone number
- Commanding officer of the precinct
- Patrol sector that is assigned to the site
- Expected impact of the proposed project on the department (potential change in the amount of protection necessary with this addition of homes; potential need for additional patrol cars or additional personnel etc.)
- Additional information related to the potential impact this project may have on the department

I would be pleased to meet with you or correspond by email or phone on this matter at any time. If you have any questions please feel free to contact me at (631) 427-5665 or sdasilva@nelsonpope.com.

Sincerely,

NELSON, POPE & VOORHIS, LLC

Sara N. da Silva

572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620 WWW.NELSONPOPE.COM

Sara DaSilva

From: Cameron, Stuart [camerstu@suffolkcountyny.gov]
Sent: Tuesday, February 22, 2005 12:30 PM
To: sdasilva@nelsonpope.com
Subject: Letter regarding Kiruv Estates

Dear Ms. da Silva,

I'm replying to your letter regarding the Kiruv Estates on behalf of Police Commissioner Dormer. The property you cited is located within the 217 sector of the Second Precinct. The Second Precinct is located at 1071 Park Avenue in Huntington New York 11743. The Commanding Officer is Inspector Joseph Blaettler. The addition of ten single family homes in this area should have a negligible impact upon this sector. If you have any further questions please feel free to contact me.

Deputy Inspector Stuart K. Cameron
Executive Officer
Suffolk County Police
Second Precinct
1071 Park Avenue
Huntington, NY 11743
camerstu@suffolkcountyny.gov
631.854.8202
fax: 631.854.8206

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

CHARLES J. VOORHIS, CEP, AICP • ARTHUR J. KOERBER, P.E. • VICTOR BERT, P.E.
JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
PAUL M. RACZ, P.L.S. • THOMAS F. LAMBO, P.E.

February 4, 2005

Huntington Fire Department
ATTN: Fire Chief
1 Leverich Place
Huntington, NY 11743

Re: Kiruv Estates, Huntington
SE c/o Park Avenue and Woodhull Road
Town of Huntington, Suffolk County
NP&V #97110

Dear Chief:

Nelson, Pope & Voorhis (NP&V) has been retained by the owner of the above referenced parcel to investigate the environmental and planning resources associated with this site as part of a proposed land use application to the Town of Huntington. Attached is a map with the location of the project site superimposed. The 7.07-acre site is currently improved with four (4) residential dwellings consisting of a single-family dwelling, small cottage, and two (2) historic dwellings which are unoccupied. The proposed project seeks to use the site in conformance with its current R-Residence-7 (7,500 square foot lot) zoning. The two historic dwellings will be preserved and purchased by the Town. Of the two occupied structures, only the single-family dwelling will remain. An additional nine (9) 3-bedroom condominiums, which shall be attached in two (2) and three (3) unit clusters, are proposed. The project would ultimately result in a total of ten (10) single-family residential dwellings on a 7.07 acre site.

I am writing to obtain information in regard to Huntington Fire District facilities, services, and capabilities that may be pertinent to the project. Specifically, I am requesting the following:

- The location of the substation(s) which would serve the site (if pertinent);
- Firefighting equipment at each facility (if pertinent);
- Firefighters assigned to each facility (if pertinent);
- Indicate any specialized firefighting capabilities or concerns with regards to the project or site; and
- Indicate whether the firefighters are volunteers or full-time.

Thank you for your attention to this matter. I would be pleased to meet with you or correspond by email or phone on this matter at any time. If you have any questions please feel free to contact me at (631) 427-5665 or sdasilva@nelsonpope.com.

Sincerely,

NELSON, POPE & VOORHIS, LLC

Sara N. da Silva

572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620 WWW.NELSONPOPE.COM

FIGURE 1

LOCATION MAP

Source: DeLorme Street Atlas
Scale: Not to Scale

NORTH

NELSON POPE & VOORHIS, LLC
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NP&V

NELSON, POPE & VOORHIS, LLC
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JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
PAUL M. RACZ, P.L.S. • THOMAS F. LAMBO, P.E.

February 4, 2005

Town of Huntington
Department of Environmental Waste Management
100 Main Street
Huntington, New York 11743
ATTN: Mr. Phillip C. Nolan, Director

Re: Kiruv Estates, Huntington
SE c/o Park Avenue and Woodhull Road
Town of Huntington, Suffolk County
NP&V #97110

Dear Mr. Nolan:

Nelson, Pope & Voorhis (NP&V) has been retained by the owner of the above referenced parcel to investigate the environmental and planning resources associated with this site as part of a proposed land use application to the Town of Huntington. Enclosed is a map with the location of the project site superimposed. The 7-acre site is currently in use with two (2) occupied residential dwellings and (2) historic houses. The proposed project seeks to use the site in conformance with its current R-Residence-7 (7,500 square foot lot) zoning. The proposed project under zoning would establish a total of ten (10) 3-bedroom single-family homes on the 7-acre site. It is anticipated that the project will generate a total of 100 pounds of solid waste daily.

I am writing to obtain information in regard to the solid waste facilities, which may be pertinent to the project. Specifically, I am requesting the following:

- The yearly tonnage of solid waste disposed of at this facility Resource Recovery Facility 316,000 TONS last year
- The percentage or tonnage breakdown of waste disposition (i.e. recycled, incinerated, landfilled), and where is waste disposed of via these routes?
- Confirmation that the Town will accept waste from the project; and are there any waste regulations specific to this use that should be considered in connection with this application?

Thank you for your attention to this matter. I would be pleased to meet with you or correspond by email or phone on this matter at any time. If you have any questions please feel free to contact me at (631) 427-5665 or sdasilva@nelsonpope.com.

Sincerely,

NELSON, POPE & VOORHIS, LLC

Sara N. da Silva

RECORD OF TELEPHONE CONVERSATIONS

YOUR INITIALS:	SD	DATE:	~~2/4/05~~ 2/14/05
PERSON SPOKEN TO:	Phil Nolan	TIME:	
FROM:	Town of Huntington, Dep't Envi. Waste Mgmt	JOB NUMBER:	~~#~~ #97110
PHONE:	631-351-3186	JOB NAME:	Kirov Estates

Notes of Conversation:

Gave verbal response to our letter sent to him on 2/4/05

- yearly tonnage of solid waste disposed of at this facility (Resource Recovery Fac
  316,000 tons (last year)
- Breakdown of waste disposition
  1. landfill component (ash) → sent to Brookhaven and Babylon
  2. Incinerator " → " " Northport Facility
  3. Recycling " → sold to multiple sources; currently being sold + sent to OMNI in Westbury

  (can call Audrey Gallow 754-4990 for further recycling breakdown)

- Verbally confirmed that the Town will accept waste from the project. It is located within the garbage collection district and it is expected that only normal household garbage will be produced.

Only waste regulation that may be problematic is with regard to sewage. (See his 4/6/05 letter regarding sewer extension petition)

List of tasks to be completed, by whom, target date, etc.

NELSON, POPE & VOORHIS, LLC
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NP&V

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

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JOSEPH R. EPIFANIA, P.E. • ROBERT G. NELSON, JR., P.E.
PAUL M. RACZ, P.L.S. • THOMAS F. LAMBO, P.E.

February 4, 2005

Barbara Ross
Construction Department
Suffolk County Water Authority
2045 Route 112, Suite 1
Coram, NY 11727-3085

Re: Kiruv Estates, Huntington
SE c/o Park Avenue and Woodhull Road
Town of Huntington, Suffolk County
NP&V #97110

Dear Ms. Ross:

Nelson, Pope & Voorhis (NP&V) has been retained by the owner of the above referenced parcel to investigate the environmental and planning resources associated with this site as part of a proposed land use application to the Town of Huntington. Enclosed is a map with the location of the project site superimposed. The 7-acre site is currently in use with two (2) occupied residential dwellings and (2) historic houses. The proposed project seeks to use the site in conformance with its current R-Residence-7 (7,500 square foot lot) zoning. The proposed project under zoning would establish a total of ten (10) 3-bedroom single-family homes on the 7-acre site.

We are interested in receiving input from the Suffolk County Water Authority to determine whether the proposed housing development would have an impact on the District or if the site presents unique challenges related to provision of water services. We are also interested in any District requirements/recommendations that should be considered at this stage. It is anticipated that the project will consume 3,000 gallons of water daily. I am writing to obtain information in regard to the water supply facility that may be pertinent to the project. Specifically, I am requesting the following:

- A Letter of Water Availability for the project.

Thank you for your attention to this matter. I would be pleased to meet with you or correspond by email or phone on this matter at any time. If you have any questions please feel free to contact me at (631) 427-5665 or sdasilva@nelsonpope.com.

Sincerely,

NELSON, POPE & VOORHIS, LLC

Sara N. da Silva

SCWA

SUFFOLK COUNTY WATER AUTHORITY

Steven T. Burns, P.E.
Director of Distribution

4060 Sunrise Highway, Oakdale, NY 11769
(631) 563-0205
Fax (631) 589-5273

May 6, 2005

Mr. Stephen Costa, P.E., Chief Engineer
Division of Environmental Quality
Suffolk County Department of Health
County Center
Riverhead, N.Y. 11901

Dear Mr. Costa:

The proposed installation of a six (6) inch main on Woodhill Road, and a six (6) inch main on Kiruv Court, as shown on Preliminary Map of Kiruv Estates, situated in Huntington, in the Town of Huntington, as prepared by Nelson & Pope, dated April 2004, is adequate to supply water for domestic and fire protection purposes.

The Authority will undertake the installation of this water main under the terms of its standard Construction Contract, but such agreement has not yet been executed by the Authority and the developer.

The time required for the completion of the proposed work is necessarily determined by the Authority's ability to obtain delivery of the required materials, easements for maintaining the mains in the streets that are private, weather conditions, and the existence of adequate supply works at the time the work is done.

This letter of availability is not to be considered an Action by the Suffolk County Water Authority as defined by SEQRA regulations, and this response does not commit Suffolk County Water Authority to commence, engage or otherwise participate or approve an action where SEQRA is applicable until all aspects of the SEQRA process are complete and the Lead Agency has made a final determination and finding as related to the project.

Very truly yours,

Steven T. Burns, P.E.
Director of Distribution

cc: J. Pokorny
S. Romano
P. Ponturo

Auth: 05-05-192 C

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
npv@nelsonpope.com

February 4, 2005

Robert Parkinson
Regional Supervisor
KeySpan Energy
Long Island Lighting Authority
1650 Islip Avenue
Brentwood, NY 11717

Re: Kiruv Estates, Huntington
SE c/o Park Avenue and Woodhull Road
Town of Huntington, Suffolk County
NP&V #97110

Dear Mr. Parkinson:

Nelson, Pope & Voorhis (NP&V) has been retained by the owner of the above referenced parcel to investigate the environmental and planning resources associated with this site as part of a proposed land use application to the Town of Huntington. Enclosed is a map with the location of the project site superimposed. The 7-acre site is currently in use with two (2) occupied residential dwellings and (2) historic houses. The proposed project seeks to use the site in conformance with its current R-Residence-7 (7,500 square foot lot) zoning. The proposed project under zoning would establish a total of ten (10) 3-bedroom single-family homes on the 7-acre site.

The Town of Huntington has requested that the applicant prepare this document to analyze the potential benefits and impacts for constructing new homes on the site. We are interested in receiving input from your office to determine whether the proposed development would have an impact on the area or if the site presents unique challenges, specifically any issues of meeting peak energy demands. We are also interested in any requirements/recommendations that should be considered at this stage. Please indicate the ability or LIPA to supply electrical energy services to the proposed project site

Sincerely,

NELSON, POPE & VOORHIS, LLC

Sara N. da Silva

LIPA
Long Island Power Authority

1650 Islip Avenue
Brentwood, NY 11717

RECEIVED
FEB 28 2005
NELSON & POPE
TD

February 22, 2005

Nelson & Pope & Voorhis, LLC
Engineers & Surveyors
572 Walt Whitman Road
Melville, NY 11747-2188

Re: Letter of Availability – Map of Kiruv Estates
LIPA Job Ref.# T100468610

Dear Sir or Madam:

As requested, please be advised that the Long Island Power Authority will provide service to the above referenced project in accordance with our filed tariff and schedules in effect at the time service is required.

Please feel free to contact Lori Murphy at (631) 348-6044 if you require any further information.

Very truly yours,

Randy Bassen

Randy Bassen
Regional Supervisor
Western Suffolk Division

RB/ljm

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING
572 WALT WHITMAN ROAD, MELVILLE, NY 11747 - 2188
(631) 427-5665 FAX (631) 427-5620
npv@nelsonpope.com

February 4, 2005

Jim Madsen
KeySpan
Gas Sales & Marketing
175 E. Old Country Road
Hicksville, NY 11801

Re: Kiruv Estates, Huntington
SE c/o Park Avenue and Woodhull Road
Town of Huntington, Suffolk County
NP&V #97110

Dear Mr. Madsen:

Nelson, Pope & Voorhis (NP&V) has been retained by the owner of the above referenced parcel to investigate the environmental and planning resources associated with this site as part of a proposed land use application to the Town of Huntington. Enclosed is a map with the location of the project site superimposed. The 7-acre site is currently in use with two (2) occupied residential dwellings and (2) historic houses. The proposed project seeks to use the site in conformance with its current R-Residence-7 (7,500 square foot lot) zoning. The proposed project under zoning would establish a total of ten (10) 3-bedroom single-family homes on the 7-acre site.

The Town of Huntington has requested that the applicant prepare this document to analyze the potential benefits and impacts for constructing a development on the site. The State Environmental Quality Review Act requires that a Letter of Availability be provided in the DEIS. Further, we are interested in receiving input from your office to determine whether the proposed development would have an impact on the area or if the site presents unique challenges, specifically any issues of meeting peak energy demands. We are also interested in any requirements/recommendations that should be considered at this stage. Please indicate the location and size of the nearest gas main and the ability of KeySpan to provide gas services to the site.

Thank you for your attention to this matter. I would be pleased to meet with you or correspond by email or phone on this matter at any time. If you have any questions please feel free to contact me at (631) 427-5665 or sdasilva@nelsonpope.com.

Sincerely,

NELSON, POPE & VOORHIS, LLC

Sara N. da Silva

APPENDIX K

TRAFFIC ANALYSIS LETTER

N&P

March 30, 2005

AERIAL PHOTOGRAPH

Source: NYSGIS Orthoimagery Program, 2001
Scale: 1" = 200'

NORTH

NELSON POPE & VOORHIS LLC
ENVIRONMENTAL • PLANNING • CONSULTING

NELSON & POPE
ENGINEERS & SURVEYORS

VICTOR BERT, P.E. • ARTHUR J. KOERBER, P.E. • JOSEPH R. EPIFANIA, P.E.
ROBERT G. NELSON JR., P.E. • PAUL M. RACZ, P.L.S. • THOMAS F. LEMBO, P.E.
GARY S. BECKER, P.E. • GREGORY D. PETERMAN, P.L.S. • ERIC J. McFERRAN, P.E.

March 30, 2005

Richard Machtay
Director of Planning and Environment
Town of Huntington
100 Main Street
Huntington, NY 11743

Re: Kiruv Estates Subdivision
N&P Job # 97110

Dear Mr. Machtay:

The applicant has retained Nelson & Pope to conduct a traffic assessment regarding this application for a modified subdivision of a 7.07 acre property currently zoned R-7 Residence District within a Town Historic District (Old Huntington Green) in order to construct nine single family homes. The following represents our assessment of the traffic issues associated with the proposed project, and two alternative site plans.

Roadway Conditions

The 7.07 acre site is located on the southwest corner of a signalized intersection at CR 35/Park Avenue and Woodhull Road in the Village Green area of Huntington Village. CR 35 is a north-south arterial roadway under the jurisdiction of the Suffolk County Department of Public Works (SCDPW). Within the vicinity of the site CR 35 has one travel lane in each direction with designated turn lanes at the intersection with NYS Route 25A/Main Street. A second northbound travel lane is introduced at the south intersection with Woodhull Road. This lane becomes a shared through/right turn lane on the approach to Main Street. The posted speed limit is 35 mph. CR 35 provides access to and from numerous properties and a variety of land uses. According to counts obtained from SCDPW, Park Avenue carries an average of 27,940 vehicles per day peaking at approximately 2,200 vehicles between 8:00-9:00 AM in the morning and 2,300 vehicles between 4:00-5:00 PM in the evening, along the section just south of Broadway. The section of Park Avenue, north of NYS Route 110 carries 4,456 vehicles per day with 425 vehicles per hour during the PM peak and 200 vehicles during the AM peak. Woodhull Road is an east-west collector roadway with one lane in each direction under the jurisdiction of the Town of Huntington. Woodhull Road extends from NYS Route 110 in the south-west direction to NY 25A in the north-east direction and has a posted speed limit of 30 mph within the vicinity of the site.

Existing Site Operation

The site currently contains one single family home, a framed shed, and a barn, which will all remain as shown on the site plan. An existing gravel driveway on the south side of Woodhull Road provides access. The remaining portion of the site is predominately sloped open lawn, wetland, and woodland.

572 WALT WHITMAN ROAD, MELVILLE, NY 11747-2188
(631) 427-5665 • FAX (631) 427-5620 • www.nelsonpope.com

Trip Generation

The trip generation estimates for the additional traffic to be created by the proposed nine single family homes were calculated using the statistical data provided in the manual, *Trip Generation, 7th Edition*, published by the Institute of Transportation Engineers (ITE) in 2003. It is expected that the proposed single family homes will generate 7 trips during the AM peak hour (2 entering, 5 exiting), 9 trips during the PM peak hour (6 entering, 3 exiting), and 9 trips during the Saturday peak hour (5 entering, 4 exiting). The trip generation volumes are presented in the table below.

Estimated Trip Generation
(vehicle trips)

	AM Peak Hour	*PM Peak Hour*	*Saturday Peak Hour*
Enter	2	6	5
Exit	5	3	4
Total	7	9	9

As shown in the table above, the proposed single family homes are not expected to generate a significant number of trips during the AM, PM, or the Saturday peak hours. The most trips expected to be generated are nine during the PM and Saturday peak hours or an average of one trip every seven minutes. It is assumed that the distribution of these residential single family trips will follow the typical commuter distribution pattern. Therefore the projected trips will disperse more towards the south in the morning peak period where the major highways (LIE and Northern State Parkway) and LIRR train station are located, with the reverse pattern from the north occurring in the evening peak hour. It is not expected that these trips will generate any significant traffic impact on Park Avenue considering the relatively low projected site volumes compared to the current roadway volumes.

Site Access Analysis

As previously stated the application includes a site plan for the proposed project as well as two alternative plans. All three site plans consist of 9 single family homes with varying locations of access onto Woodhull Road. No access is proposed on Park Avenue. An intersection sight distance measurement was performed at the proposed driveways in accordance with the recommendation contained in *A Policy on Geometric Design of Highways and Streets*, published by the American Association of State Highway and Transportation Officials (AASHTO). AASHTO states that for the most critical movement, a vehicle making a left-turn from the driveway, an intersection sight distance of 335 feet is recommended for a design speed of 30 mph.

The site plan for the proposed project illustrates a driveway on the south side of Woodhull Road approximately 300 feet west of CR 35 labeled Kiruv Court. Kiruv Court will be a 30 foot wide two-way private roadway providing access to the proposed homes. The available sight distance for drivers exiting Kiruv Court was recorded at approximately 170 feet to the east and 400 feet to the west. A utility pole and heavy brush limit the sight distance to the east. However, we are proposing to relocate the utility pole and cut back the brush as part of the project. These measures will provide the maximum available sight distance by creating a clear sight line to the intersection with Park Avenue.

Alternative 2 consists of Kiruv Court located approximately 450 feet west of CR 35 and two driveways intersecting Woodhull Road, east of Kiruv court as shown on the site plan. Lot 9 has a driveway located approximately 730 feet west of CR 35 and Lot 10 will access Woodhull Road via a private driveway approximately 830 feet west of CR 35. The sight distance measured at each of these driveways was recorded at distances greater than the AASHTO recommended 330 feet in either direction. A minor obstruction is created by a utility pole near the driveway for Lot 9. However, it does not warrant relocation of the pole since the obstruction is present for a small portion of the driver's view.

The site plan for Alternative 3 consists of Kiruv Court located 450 feet south of CR 35 and no additional driveways on Woodhull Road. The intersection sight distance was recorded at 406 feet to the west and 330 feet to the east with some minor clearing of brush. An existing utility pole to the east creates a minor obstruction but is not significant enough to warrant relocation.

Accident History

Accident data for the most recent three-year period available, June 1999 through May 2002, was obtained from the NYSDOT for the intersection of CR 35 at North and South Woodhull Road as well as the roadway segments just north and south of the intersections along CR 35 and combined with data from SCDPW for intersections along CR 35.

Accident Summary
By Severity of Injury

Location	Accident Severity				
	Fatality	Injury	Property Damage	TOTAL	
CR 35 - Leslie Lane to S. Woodhull Rd	1	2	1	4	7%
CR 35 at S. Woodhull Rd	0	2	10	12	22%
CR 35 - S. Woodhull Rd to N. Woodhull Rd	0	1	6	7	13%
CR 35 at N. Woodhull Rd	0	4	12	16	29%
CR 35 between N. Woodhull Road and NY 25A	0	4	10	14	25%
S. Woodhull Rd - Chevy Chase Rd to Murray Ct	0	0	1	1	2%
S. Woodhull Road - Murray Ct to CR 35	0	0	1	1	2%
ACCIDENTS (%)	1%	24%	75%	55	100%

A total of 55 accidents, an average annual frequency of 18 accidents per year, occurred at the intersection over the 3-year period. One of the accidents involved a fatality and the majority, 75%, was property damage only. Only 2 accidents occurred in the section of Woodhull Road between CR 35 and Chevy Chase Road, where Kiruv Court is proposed. The table below contains the accident data by type of collision. The majority of the accidents involved right angle collisions, with the second-highest consisting of rear end accidents.

Accident Summary
By Type of Collision

Location	Accident Type										
	Right Angle	Rear End	Head On	Left Turn	Right Turn	Fixed Object	Ped/ Bicycle	Over-Taking	Side-Swipe	*Other/ Unknown	TOTAL	
CR 35 - Leslie Lane to S. Woodhull Rd	1	2	0	0	0	1	0	0	0	0	4	7%
CR 35 at S. Woodhull Rd	5	4	0	0	1	0	0	1	0	1	12	22%
CR 35 - S. Woodhull Rd to N. Woodhull Rd	4	1	0	1	0	1	0	0	0	0	7	13%
CR 35 at N. Woodhull Rd	6	3	0	0	1	0	0	3	0	3	16	29%
CR 35 - N. Woodhull Rd To NY 25A	5	4	0	1	0	0	0	1	0	3	14	25%
S. Woodhull Rd - Chevy Chase Rd to Murray Ct	0	0	0	0	0	1	0	0	0	0	1	2%
S. Woodhull Rd - Murray Ct to CR 35	0	0	0	0	0	1	0	0	0	0	1	2%
TOTAL	21	14	0	2	2	4	0	5	0	7	55	
	38%	25%	0%	4%	4%	7%	0%	9%	0%	13%	100%	

Conclusion

It is our professional opinion that the limited traffic generated by the proposed project will not create significant impacts to the adjacent roadway and intersections during the peak periods. The location of the access roadway, Kiruv Court, in the proposed plan and the two alternatives will provide sufficient sight distance as outlined above. Kiruv Court will intersect a section of Woodhull Road with a very low frequency of accidents, less than one per year. Therefore, we recommend that the application for a subdivision to allow for the construction of nine single family homes be approved.

Please contact me if you require additional information or if you have any questions.

Respectfully,
NELSON & POPE
Kerri M. Collins
Kerri M. Collins, PE

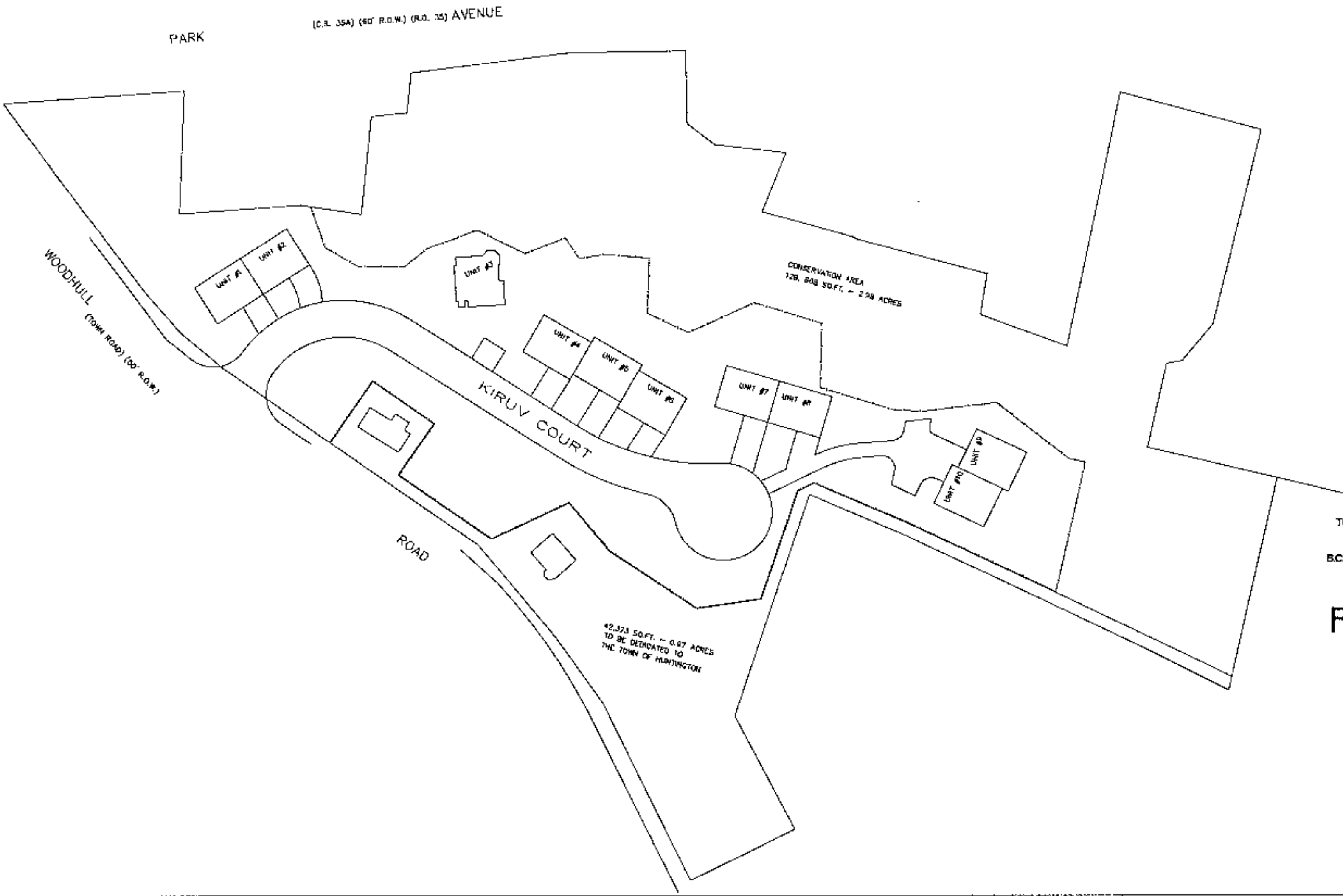
cc: Thomas Abbate, Esq.

Attachments

I:\1990\97110\TRAFFIC\050328-Letter Report.DOC

AERIAL PHOTOGRAPH

Proposed & Alternative Site Plans



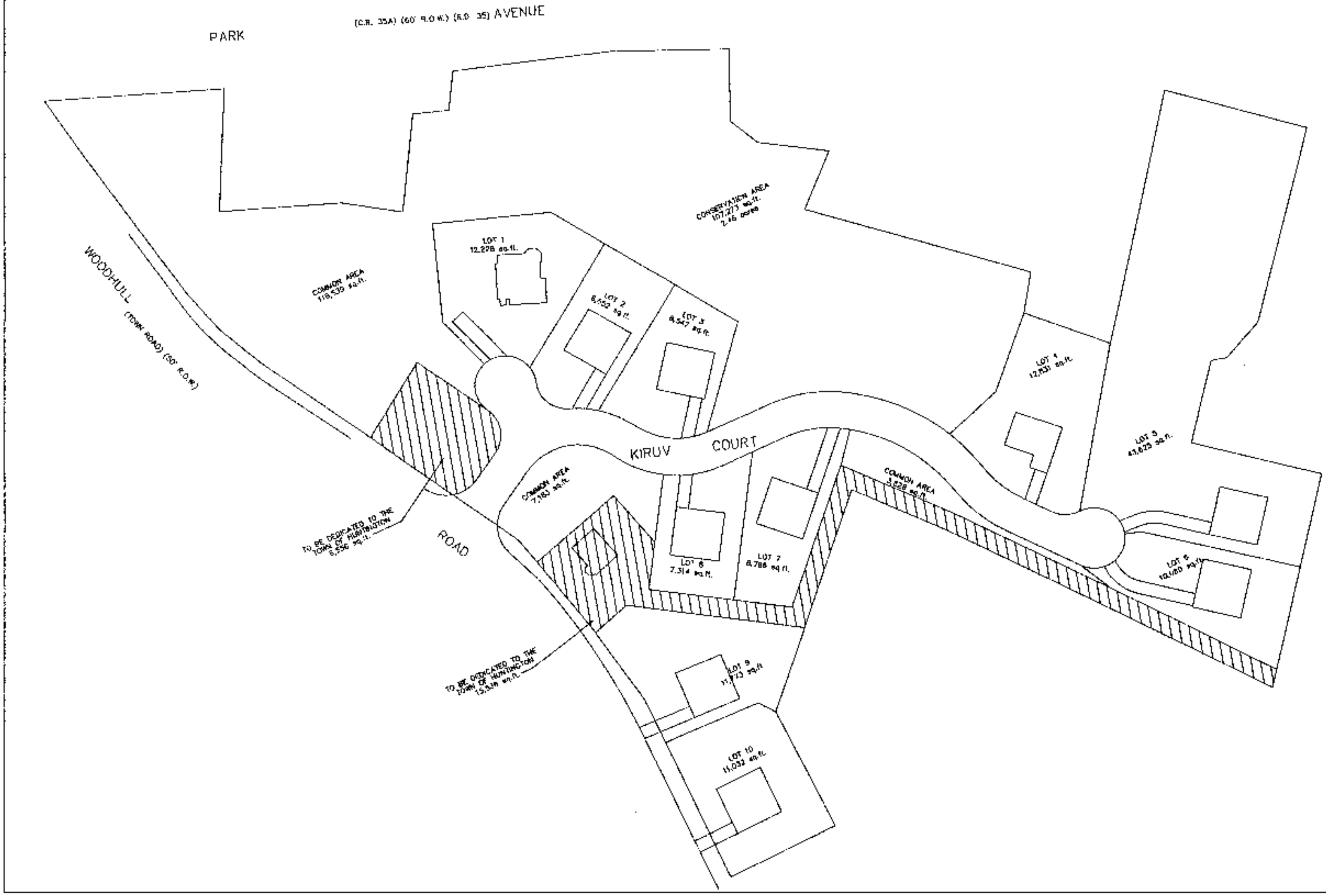
KIRUV ESTATES

LOCATED AT
HUNTINGTON
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M. DIST. 0400, SECT. 073.00, BLK. 01.00
LOTS 038.000, 041.0001, AND 042.0000
S.C.T.M. DIST. 0400, SECT. 097.00, BLK. 02.00, LOT 107.0000

PROPOSED PLAN

N&P
NELSON & POPE
ENGINEERS • DESIGNERS • SURVEYORS
572 WALT WHITMAN ROAD
MELVILLE, N.Y. 11747-2188
(631) 427-5665 FAX (631) 427-5620

FILE NO.	JOB NO. 27110
DATE: APRIL 2004	SHEET 2 OF 3



KIRUV ESTATES

LOCATED AT

HUNTINGTON

TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK

S.C.T.M. DIST. 0400, SECT. 073.00, BLK. 01.00

LOTS 038.000, 041.0001, AND 042.0000

S.C.T.M. DIST. 0400, SECT. 097.00, BLK. 02.00, LOT 107.0000

ALTERNATIVE 2

N&P

NELSON & POPE

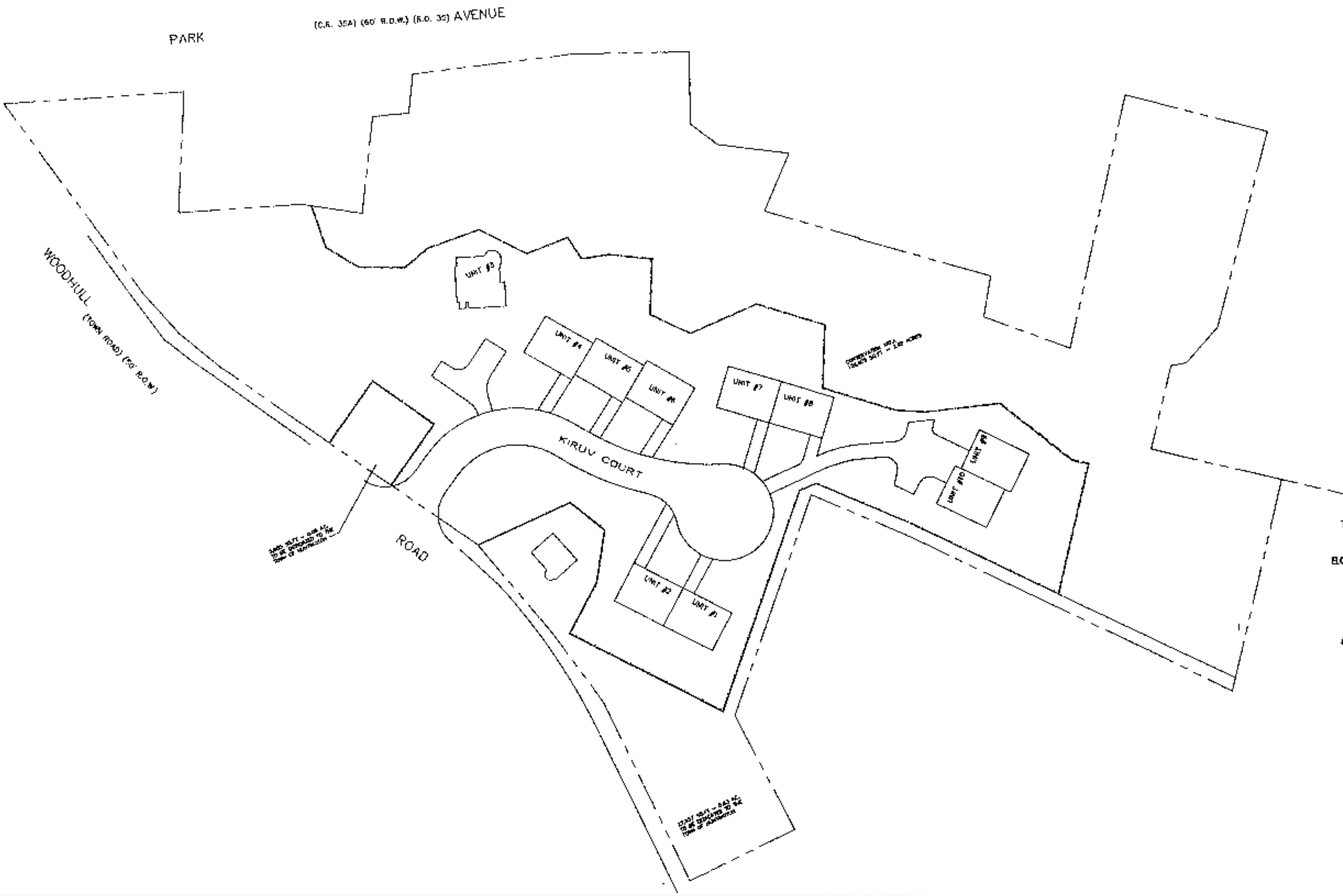
ENGINEERS • DESIGNERS • SURVEYORS

572 WALT WHITMAN ROAD

MELVILLE, N.Y. 11747-2188

(631) 427-5665 FAX (631) 427-5620

FILE NO.	JOB NO. 87110
DATE: APRIL 2004	SHEET 1 OF 1



KIRUV ESTATES

LOCATED AT
HUNTINGTON
TOWN OF HUNTINGTON, SUFFOLK COUNTY, NEW YORK
S.C.T.M. DIST. 0400, SECT. 073.00, BLK. 0100
LOTS 039.000, 041.0001, AND 042.0000
S.C.T.M. DIST. 0400, SECT. 087.00, BLK. 02.00, LOT 107.0000

ALTERNATIVE 3

NELSON & POPE
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MELVILLE, N.Y. 11747-2188
(631) 427-5665 FAX (631) 427-5620

FILE NO.	JOB NO. 97110
DATE: MARCH 2005	SHEET 1 OF 1

Traffic Count Information

New York State Department of Transportation

PGM. VERSION 3.5 / 4.0

RC/STATION **078119** COVERAGE AND SPECIAL COUNT HOURLY REPORT

LOCAL ROAD # **0350** ROAD NAME : MILEPOINT **0579** NHS **9** COUNTY : **SUFFOLK**
SECTION FROM : **SR 110** TO : **WEST SHORE RD** TOWN : **HUNTINGTON**
FEDERAL DIR. **1** FACTOR GRP **30** FUNCTIONAL CLASS **16** HPMS NUMBER: BIN NUMBER:

COUNT DATE : **10/30/01** WEEK OF YR **44** RECORDER PLACEMENT: **MILL DAM RD.200'N.OF NY 110** REFERENCE MKR: **NA**
RECORDER SERIAL #: **2207**

NOTES: **NORTHBOUND** **TUBE COUNT** ADDITIONAL DATA:

DY MO	D W	D R	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7 AM	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7 PM	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAY TOTAL	HI COUNT	HI HOUR
30	2	1																		212	141	179	73	47	46	20			
31	3	1	21	5	3	3	5	19	68	129	160	177	147	138	140	161	135	181	215	149	105	96	88	73	42	29	2289	215	17
1	4	1	23	10	10	4	7	10	73	131	155	168	153	204	202	195	167	216	216	200	202	146	79	56	44	35	2706	216	16
2	5	1	19	9	7	2	5	11	61	102	148	170	152	193	206	147	174	230	224	242	181	165	129	62	67	51	2757	242	18
3	6	1	26	19	13	11	10	19	45	117	186	200	180	221	208	209	211	205	228	147	123	77	64	64	56	52	2691	228	17
4	7	1	45	23	15	5	14	23	40	80	178	260	238	249	276	240	236	227	178	101	72	72	44	28	16	27	2687	276	13
5	1	1	10	3	5	4	7	6	45	102	141	138	138	143	166	132	156	177	177	195	122	132	84	68	37	42	2230	195	18
6	2	1	24	14	2	3	5	29	86	163	176	209	162	207	199	190	225	240	258	223	210	187	108	65	45	27	3057	258	17
7	3	1	16	11	4	2	5	9	51	113	148	149	151	140	133	182	185	159	194	221	155	114	73	51	46	23	2335	221	18
8	4	1	11	5	4	1	6	14	57	116	147	159	142	119	174	153	118												

AVERAGE WEEKDAY HOUR (MON 6AM THRU FRI 12 NOON) ADT

																								ADT
19	9	5	3	6	15	63	122	154	167	149	163	169	169	164	195	212	200	156	142	84	60	43	29	2498

AXLE - FACTORED (VEHICLES) AVG WEEKDAY HOUR (FACTOR USED = 0.989)

																								ADT
19	9	5	3	6	15	62	121	152	165	147	161	167	167	162	193	210	198	154	140	83	59	43	29	2470

HRS COUNTED	DAYS COUNTED	AVG HI HR	% AVG DAY	FACTORED HI HOUR	% FACTORED DAY	SEASONAL FACTOR
214	10	212	8.5%	210	8.5%	1.100

SEASONALLY FACTORED
ESTIMATED AADT
1-WAY COUNT
2245

LOCAL ROAD # **0350** ON FROM **SR 110** TO **WEST SHORE RD**
STATION: **078119** COUNT DATE: **10/30/01** ST. DIR: **1** RECORDER PLACEMENT: **MILL DAM RD.200'N.OF NY 110**

New York State Department of Transportation

PGM. VERSION 3.5 / 4.0

RC/STATION **078119**

COVERAGE AND SPECIAL COUNT HOURLY REPORT

LOCAL ROAD # **0350** ROAD NAME : MILEPOINT **0579** NHS **9** COUNTY : **SUFFOLK**

SECTION FROM : **SR 110** TO : **WEST SHORE RD** TOWN : **HUNTINGTON**

FEDERAL DIR. **5** FACTOR GRP **30** FUNCTIONAL CLASS **16** HPMS NUMBER: BIN NUMBER:

COUNT DATE : **10/30/01** WEEK OF YR **44** RECORDER PLACEMENT: **MILL DAM RD.200'N.OF NY 110** REFERENCE MKR: **NA**

RECORDER SERIAL #: **2150**

NOTES: **SOUTHBOUND** **TUBE COUNT** ADDITIONAL DATA:

DY MO	D W	D R	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7 (AM)	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7 (PM)	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAY TOTAL	HI COUNT	HI HOUR
30	2	2																		215	125	143	95	65	44	27			
31	3	2	11	6	3	1	7	21	55	121	152	140	135	131	162	156	148	181	230	184	115	89	65	62	55	31	2261	230	17
1	4	2	13	12	3	4	5	14	52	114	134	118	132	135	188	206	163	227	266	244	172	153	113	59	44	42	2613	266	17
2	5	2	31	8	9	4	5	19	59	117	136	137	130	154	194	172	198	189	267	285	182	140	104	104	79	48	2771	285	18
3	6	2	43	17	11	9	4	10	32	62	115	187	209	192	205	230	176	209	223	188	204	97	71	42	50	58	2644	230	14
4	7	2	24	22	7	9	6	12	22	63	122	145	199	206	273	231	229	220	214	144	96	70	42	27	9	17	2409	273	13
5	1	2	14	3	5	1	6	11	53	83	130	123	106	133	172	152	153	166	202	223	152	135	82	64	51	25	2245	223	18
6	2	2	27	9	1	2	6	20	78	137	173	183	165	197	200	196	210	236	256	272	199	138	137	73	50	31	2996	272	18
7	3	2	16	4	0	1	4	13	64	102	142	114	119	132	137	160	196	194	211	211	131	99	96	34	77	17	2274	211	17
8	4	2	12	9	2	0	6	19	58	103	136	122	107	139	156	167	117												

AVERAGE WEEKDAY HOUR (MON 6AM THRU FRI 12 NOON)

12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	ADT
18	8	3	2	6	18	60	111	143	134	128	146	169	173	165	201	233	225	149	126	98	60	54	29	2459

AXLE - FACTORED (VEHICLES) AVG WEEKDAY HOUR (FACTOR USED = 0.989)

12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	ADT
18	8	3	2	6	18	59	110	141	133	127	144	167	171	163	199	230	223	147	125	97	59	53	29	2432

HRS COUNTED	DAYS COUNTED	AVG HI HR	% AVG DAY	FACTORED HI HOUR	% FACTORED DAY	SEASONAL FACTOR
214	10	233	9.5%	230	9.5%	1.100

SEASONALLY FACTORED

ESTIMATED AADT
1-WAY COUNT
2211

LOCAL ROAD # **0350** ON FROM **SR 110** TO **WEST SHORE RD**

STATION: **078119** COUNT DATE: **10/30/01** ST. DIR: **2** RECORDER PLACEMENT: **MILL DAM RD.200'N.OF NY 110**

PGM. VERSION 3.5 / 4.0

New York State Department of Transportation

RC/STATION **078118** COVERAGE AND SPECIAL COUNT HOURLY REPORT

LOCAL ROAD #	**0350**	ROAD NAME :	**CR35**	MILEPOINT	**S078118**	NHS **9**	COUNTY : **SUFFOLK**
SECTION FROM :	**CR 11**			TO :	**SR 25A**		TOWN : **HUNTINGTON**
FEDERAL DIR.	**1**	FACTOR GRP	**30**	FUNCTIONAL CLASS	**16**	HPMS NUMBER:	BIN NUMBER:

COUNT DATE : **12/01/01** WEEK OF YR **48** RECORDER PLACEMENT: **CR35 100'N/O PARTRIDGE LA** REFERENCE MKR: **NA**

RECORDER SERIAL #: **2213**

NOTES: **NORTHBOUND** **TUBE COUNT** ADDITIONAL DATA:

DY MO	D W	D R	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7 AM	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7 PM	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAY TOTAL	HI COUNT	HI HOUR
1	6	1														898	905	885	841	741	765	753	474	352	324	280			
2	7	1	190	90	59	42	58	60	154	214	411	491	639	700	713	719	727	706	654	615	500	402	346	262	188	108	9048	727	15
3	1	1	51	28	17	31	73	270	646	1043	1339	1162	896	895	918	881	980	1021	1143	1112	939	653	412	320	265	127	15222	1339	9
4	2	1	68	37	33	26	92	278	654	1066	1230	1217	917	927	971	838	927	1027	1149	1048	934	730	491	364	257	144	15425	1230	9
5	3	1	61	37	13	29	86	283	629	1036	1287	1160	940	907	897	817	936	963	1094	1065	1006	727	453	375	287	165	15253	1287	9
6	4	1	78	54	31	35	91	269	651	1092	1236	1140	976	941	890	863	979	1067	1113	1116	985	693	481	385	307	142	15615	1236	9
7	5	1	92	52	31	39	87	261	617	1038	1253	1164	949	929	964	931	973	1102	1090	1055	986	777	504	389	352	254	15889	1253	9
8	6	1	170	95	54	44	51	114	294	567	719	876	934	999	999	842	830	830	759	643	673	578	370	327	303	233	12304	999	12
9	7	1	178	95	62	34	41	64	133	176	317	477	576	677	693	698	718	684	630	545	536	401	293	258	176	108	8570	718	15
10	1	1	44	26	29	32	94	267	622	1015	1266	1172	962	917	1000	894													

AVERAGE WEEKDAY HOUR (MON 6AM THRU FRI 12 NOON)

																								ADT
75	45	27	32	89	273	637	1048	1269	1169	940	919	935	859	956	1020	1125	1085	966	701	459	361	279	145	15414

AXLE - FACTORED (VEHICLES) AVG WEEKDAY HOUR (FACTOR USED = 0.989)

																								ADT
74	45	27	32	88	270	630	1036	1255	1156	930	909	925	850	945	1009	1113	1073	955	693	454	357	276	143	15245

HRS COUNTED	DAYS COUNTED	AVG HI HR	% AVG DAY	FACTORED HI HOUR	% FACTORED DAY	SEASONAL FACTOR
217	10	1269	8.2%	1255	8.2%	**1.049**

SEASONALLY FACTORED

ESTIMATED AADT
1-WAY COUNT
14533

LOCAL ROAD # **0350** ON **CR35** FROM **CR 11** TO **SR 25A**

STATION: **078118** COUNT DATE: **12/01/01** ST. DIR: **1** RECORDER PLACEMENT: **CR35 100'N/O PARTRIDGE LA**

New York State Department of Transportation

PGM. VERSION 3.5 / 4.0

RC/STATION **078118** COVERAGE AND SPECIAL COUNT HOURLY REPORT

LOCAL ROAD #	**0350**	ROAD NAME :	**CR35**	MILEPOINT	**S078118**	NHS	**9**	COUNTY :	**SUFFOLK**
SECTION FROM :	**CR 11**			TO :	**SR 25A**			TOWN :	**HUNTINGTON**
FEDERAL DIR.	**5**	FACTOR GRP	**30**	FUNCTIONAL CLASS	**16**	HPMS NUMBER:		BIN NUMBER:	

COUNT DATE : **12/01/01** WEEK OF YR **48** RECORDER PLACEMENT: **CR35 100'N/O PARTRIDGE LA** REFERENCE MKR: **NA**

RECORDER SERIAL #: **2147**

NOTES: **SOUTHBOUND** **TUBE COUNT** ADDITIONAL DATA:

DY MO	D W	D R	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	12 TO 1	1 TO 2	2 TO 3	3 TO 4	4 TO 5	5 TO 6	6 TO 7	7 TO 8	8 TO 9	9 TO 10	10 TO 11	11 TO 12	DAY TOTAL	HI COUNT	HI HOUR
									AM												PM								
1	6	2														893	861	885	869	708	624	550	428	396	554	425			
2	7	2	338	162	137	81	54	72	101	189	264	388	539	591	634	697	672	735	665	629	469	432	407	290	221	161	8928	735	16
3	1	2	72	37	26	21	37	98	343	790	900	797	733	805	892	877	971	1149	1164	1101	921	655	543	423	315	209	13879	1164	17
4	2	2	99	46	19	19	29	91	334	822	900	845	715	894	894	863	951	1158	1136	1074	933	703	573	494	323	239	14154	1158	16
5	3	2	109	26	34	21	35	111	358	848	894	828	752	839	862	842	958	1112	1151	1098	906	755	587	491	363	272	14252	1151	17
6	4	2	117	54	25	23	43	98	346	755	904	764	777	821	877	899	961	1088	1166	1115	1026	728	577	477	376	273	14290	1166	17
7	5	2	158	53	45	33	32	111	314	804	896	883	817	885	926	919	1001	1137	1167	1110	895	676	508	552	435	358	14715	1167	17
8	6	2	268	131	85	57	44	79	146	335	478	638	820	958	951	953	872	866	772	704	612	496	347	412	332	346	11702	958	12
9	7	2	326	126	121	47	46	46	74	156	212	365	486	608	675	663	684	673	678	498	437	416	372	326	222	147	8404	684	15
10	1	2	66	32	32	19	28	110	310	726	948	781	749	879	944	912													

AVERAGE WEEKDAY HOUR (MON 6AM THRU FRI 12 NOON) ADT

121	45	31	24	35	103	334	791	907	816	757	854	894	879	960	1127	1154	1097	947	710	570	471	344	248	14219

AXLE - FACTORED (VEHICLES) AVG WEEKDAY HOUR (FACTOR USED = 0.989) ADT

120	45	31	24	35	102	330	782	897	807	749	845	884	869	949	1115	1141	1085	937	702	564	466	340	245	14064

HRS COUNTED	DAYS COUNTED	AVG HI HR	% AVG DAY	FACTORED HI HOUR	% FACTORED DAY	SEASONAL FACTOR
217	10	1154	8.1%	1141	8.1%	1.049

SEASONALLY FACTORED

ESTIMATED AADT
1-WAY COUNT
13407

LOCAL ROAD # **0350** ON **CR35** FROM **CR 11** TO **SR 25A**

STATION: **078118** COUNT DATE: **12/01/01** ST. DIR: **2** RECORDER PLACEMENT: **CR35 100'N/O PARTRIDGE LA**

Trip Generation

Kiruv Estates
Summary of Trip Generation Calculation
For 9 Dwelling Units of Single Family Detached Housing
March 29, 2005

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	9.57	3.69	1.00	86
7-9 AM Peak Hour Enter	0.19	0.00	1.00	2
7-9 AM Peak Hour Exit	0.56	0.00	1.00	5
7-9 AM Peak Hour Total	0.75	0.90	1.00	7
4-6 PM Peak Hour Enter	0.64	0.00	1.00	6
4-6 PM Peak Hour Exit	0.37	0.00	1.00	3
4-6 PM Peak Hour Total	1.01	1.05	1.00	9
Saturday 2-Way Volume	10.10	3.68	1.00	91
Saturday Peak Hour Enter	0.51	0.00	1.00	5
Saturday Peak Hour Exit	0.43	0.00	1.00	4
Saturday Peak Hour Total	0.94	0.99	1.00	8

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation, 7th Edition, 2003.

TRIP GENERATION BY MICROTRANS

APPENDIX L

STAGE I ARCHAEOLOGICAL SENSITIVITY EVALUATION AND SURVEY

Greenhouse Consultants

March 1998

STAGE 1 ARCHAEOLOGICAL SENSITIVITY EVALUATION AND SURVEY
TANNERY PARK SENIOR HOUSING
TOWN OF HUNTINGTON
SUFFOLK COUNTY, NEW YORK

Prepared for:
Hassett Belfer Senior Housing, LLC
80 Cutter Mill Road
Suite 200
Great Neck, New York 11021

Prepared by:
Greenhouse Consultants
40 Exchange Place, 13th Floor
New York, New York, 10005

March 1998

TABLE OF CONTENTS

	Page
Table of Contents	ii
List of Figures	iii
List of Personnel	iv
Introduction	1
Geography and Physical Setting	2
Prehistoric Sensitivity	4
Historic Sensitvity	6
Sensitivity Evaluation Conclusions	12
Field Methodology	14
Stratigraphic Summary	16
Artifact Analysis	18
Results	21
Conclusions and Recommendations	22
Bibliography	23

Appendix 1	Field Record Forms
Appendix 2	Artifact Inventories

LIST OF FIGURES

Figure 1 Location of the project area shown on portions of U.S.G.S. 7.5 minute series Huntington and Lloyd Harbor, N.Y. quadrangles, 1967, photorevised 1979 and 1967 respectively.

Figure 2 Locations of known prehistoric sites within two miles of the project area.

Figure 3 From the 1829 Burr map.

Figure 4 From the 1858 Chace map.

Figure 5 From the 1860 Slator map.

Figure 6 From the 1873 Beers atlas.

Figure 7 Diagram of the Park Avenue Dairy Farm in 1915 (Swezey and Swezey 1983).

Figure 8 1929 Survey of the Swezey Farm (Swezey 1969).

Figure 9 From the 1930 Sanborn Insurance Maps.

Figure 10 Diagram of the Park Avenue Dairy Farm in 1937 (Swezey and Swezey 1983).

Figure 11 Locations of shovel tests within the project area.

LIST OF PERSONNEL

William I. Roberts IV	-	Principal Investigator Co-Author
Paula M. Crowley	-	Laboratory Director Historian Artifact Analyst Word/Data Processor Co-Author
William Goldsmith	-	Field Supervisor
Lawrence Roper	-	Field Technician

INTRODUCTION

The purpose of this study is to document the potential prehistoric and historic sensitivity of the Tannery Park Senior Housing project through the review of existing archival, cartographic and published references. Once this part of the study is completed, an archaeological survey of any locations with the potential to preserve archaeological evidence will be conducted to determine the presence or absence of archaeological sites. Recommendations regarding possible further testing or excavation will be noted. To provide a context for evaluating any identified resources within the parcel itself, the survey will include a synthesis of published and unpublished prehistoric and historic sources in the immediate area surrounding the project area.

The Tannery Park Senior Housing project area is located in the Town and unincorporated village of Huntington, Suffolk County, New York. The project area comprises approximately seven acres of land lying to the southwest of Park Avenue and to the east of South Woodhull Street. Plans propose to demolish the dairy farm and replace it with a larger building and parking facilities. See Figure 1 for the location of the project area.

The organization of this study is as follows: first, a section describes the geography and physical setting of the project area; second, a section follows on the prehistoric sensitivity of the area; third, a review of the historic sensitivity of the area; and fourth, the conclusions to the sensitivity evaluation. This section is followed by the methodology used in the field survey; a summary of the stratigraphy encountered; a review of artifact processing and analysis; the results of the field survey; and finally, the conclusions and recommendations.

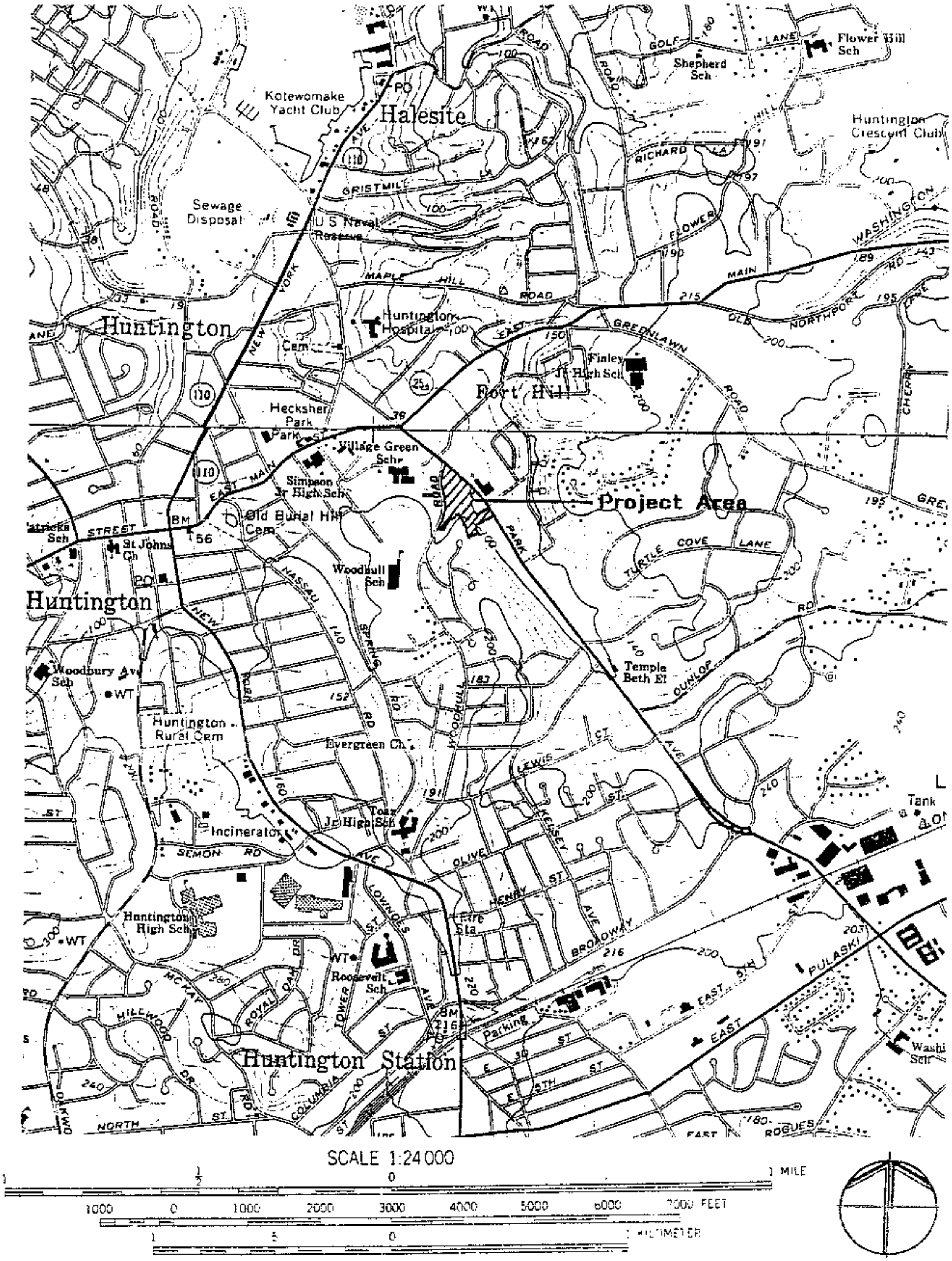

Figure 1 Location of the project area shown on portions of U.S.G.S. 7.5 minute series Huntington and Lloyd Harbor, N.Y. quadrangles, 1967, photorevised 1979 and 1967 respectively.

GEOGRAPHY AND PHYSICAL SETTING

The climate of Long Island is humid-continental. The diurnal and annual temperature has a reduced range. However, the inland section is different due to the sea breeze only penetrating the island from five to eight miles. There is also increased precipitation inland due to the rise in elevation. In general, the freeze-free growing season is 200-210 days (United States Department of Agriculture, Soil Conservation Service 1975:96).

The geomorphology of Long Island is primarily characterized by the Ronkonkoma moraine, which extends from the Nassau County line to Montauk Point. Bedrock is overlain by the Cretaceous Raritan formation and the Magothy formation. The Raritan is composed of the Lloyd Sand member and an upper clay member. In the southwest portion of Suffolk County the Magothy formation is overlain by Jameco gravel, while outside of this area it is overlain by the marine Gardiners clay (USDA, SCS 1975:98).

At the time of European settlement the vegetation of Long Island consisted of hardwood stands with a scattering of softwoods. On morainic deposits with finer texture soils around Smithtown and Huntington were red oak, white oak and black oak. Also present were yellow-poplar, red maple, black cherry, and American beech. The understory consisted of huckleberry, sassafras, dogwood, wood fern and mountain laurel (U.S.D.A. SCS 1975:96).

In the late 1830s the geologic character of the town was described by Thompson as being hilly and rough along the Sound and to three miles inland. Once inland the terrain became more level (Thompson 1962:2:402).

The project area is characterized by RhB soils: Riverhead and Haven, graded, 0-8 percent slopes. These soils are areas altered by grading. The original soils were Riverhead sandy loam or Haven loam or both. The grading operations have resulted in a man-made profile significantly different from either of the original soils. In some cases the surface layer and upper part of the subsoil have been removed. In other cases the surface and subsoil are intact but lie beneath fill removed from higher elevations. Some examples show no sign of the diagnostic profile, and the upper 40 inches are sand. Also included in the RhB classification are altered areas where most or all of the diagnostic horizons have been destroyed but contain at least twelve inches of loam, silt loam or sandy loam in the upper 40 inches. The twelve inches may be contained in one layer or several thin layers. (U.S.D.A. SCS 1975:83-84).

The Principal Investigator visited the project area during January 1998. A pedestrian survey was used to inspect the property. Several structures exist within the project area. These include the house, barns and outbuildings of the former Park Avenue Dairy Farm, and four other houses. The farm buildings include the farmhouse, the cow barn with attached garage/apartment, the silo, the milk house, the horse barn and three smaller ruined structures. The house site lies to the southwest of a small pond, and the other farm structures lie to the south and east. The farm had two entrance drives, one from Park Avenue and one from South Woodhull Street.

To the northwest of the pond are two houses facing Park Avenue. The southern one, 483 Park Avenue, is a two story wood frame house with clapboard siding and a hip roofed porch on the front. The northern house, 525 Park Avenue, is a two story wood frame house with a shed roof and imitation brick siding.

Two houses face Woodhull Street. The northern house is a small one and one-half story wood frame house with clapboard siding. The southern house is a two-story wood frame house with a front porch. South of the existing pond is second area labeled a pond on the maps, but resembling a marsh with more reeds than open water. This marsh feeds the pond to the north and is fed by a stream from the south. The northern end of the property is covered by lawns with occasional trees and shrubs. It is the lowest portion of the property and portions of it were wet during the inspection. The southwestern part of the property is the highest area. It is mostly forested. The southeastern part of the property abuts Park Avenue. It is also low and wet, with a number of trees.

PREHISTORIC SENSITIVITY

As part of the project evaluation process, this sensitivity study has surveyed published and unpublished sources in the files of the New York State Museum, Division of Historical Anthropological Services, the Research Branch of the New York Public Library, the files of the Historic Preservation Field Services Bureau of the New York State Office of Parks, Recreation and Historic Preservation, and data on file at Greenhouse Consultants. The area searched was a two mile radius centered on the project area.

A total of two confirmed prehistoric sites or site complexes are located within two miles of the project area. Both of these sites were reported by former New York State archaeologist, Arthur C. Parker, and both sites are briefly mentioned in his text.

The nearest site to the project area is N.Y.S.M. Site 4872A. This is Parker's site ACP-SUFK-3A which he describes as a village (Parker 1922:697). No description of artifacts recovered is offered. The date range for occupation of this site may included the Woodland period. This is based on the fact that villages are common during this period, but rare during the preceding Archaic and PaleoIndian periods. Site 4872A is located approximately 0.7 miles northwest of the project area and just south of Huntington Harbor. See **A** on Figure 2.

The other site found during this search is N.Y.S.M. site 4872B. This is Parker's site ACP-SUFK-3B (Parker 1922:697). He describes the site only as extensive shell heaps or middens. Since no other information is available no assignment of cultural affiliation or estimate of date range can be made. Site 4872B is located approximately 1.7 miles northwest of the project area. See **B** on Figure 2.

In terms of potential prehistoric sensitivity, the project impact area was evaluated from two points of view:

1. the proximity of known prehistoric sites in or near the project area; and,

2. the presence of fresh water drainage courses in general, and particularly the identification of river or stream confluence situations, where two or more drainages come together, providing access to both water and food supplies of both systems.

The project area has an abundant supply of fresh water. In addition to the stream along Park Avenue, there are several small springs on the property, so access to fresh water would have been easy. The portions of the project area most likely to have been used during prehistory would be relatively level well-drained locations within 100 yards

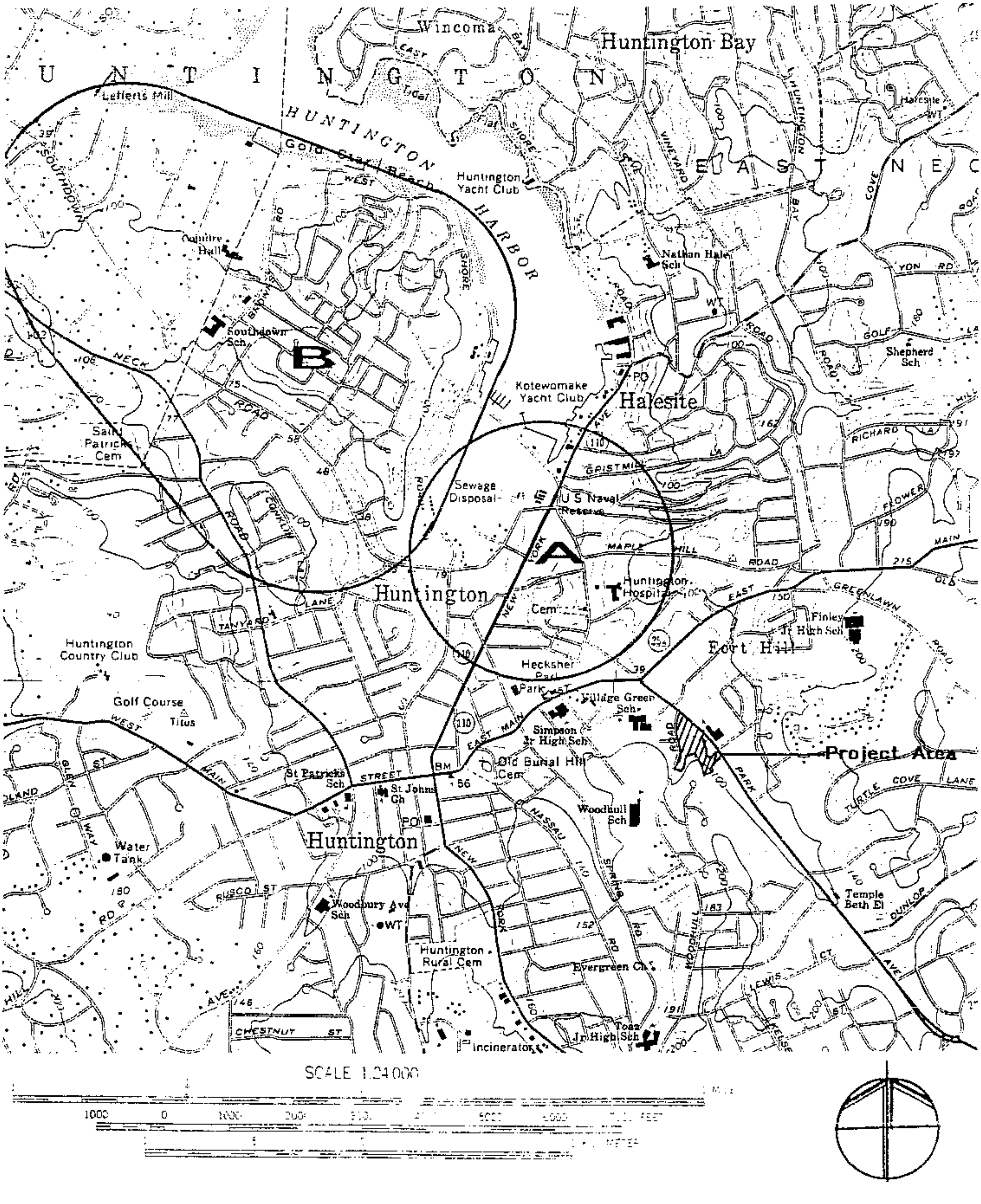

Figure 2 Locations of known prehistoric sites within two miles of the project area.

of a water source, excepting slopes of ten percent or steeper. This criterion includes most of the project area. However, this property has seen extensive use over the last 250 years. This makes it much less likely that deposits could survive undisturbed.

HISTORIC SENSITIVITY

At the time of European contact the Matinecock tribe occupied Long Island extending east from Newtown to the west line of Smithtown, probably to the west side of Nesaquake River. The tribe had large settlements at Huntington, Cold Spring, Cow Harbor, Glen Cove and Flushing (Thompson 1962:I:126).

In 1646 the Matinecocks gave a deed for the neck of land, Eaton's Neck, separating Huntington Bay from Smithtown Bay to Theophilus Eaton, Governor of New Haven. No European came to Huntington before 1653. A deed given by Ratiocan/Raskokan, sagamore of the Matinecocks to Richard Houlbrook, Robard Williams and Daniel Whitehead for six square miles on April 2, 1653 for land between Cold Spring and Northport. The land was exchanged for six coats, ten hatchets, ten knives, six bottles, thirty needles, six eel spears, and six fathoms of wampum (Flint 1967:251; Thompson 1962:2:385-386; Hazelton 1925:820). The 1653 deed included Lloyd's Neck, but the grantors changed their minds and conveyed Lloyd's Neck to three inhabitants of Oyster Bay in 1654. In 1656 another deed was obtained land from Northport Harbor to Nissequoque/Nesaquake River, and also extending south from Long Island Sound to the country road. Some of the south necks were purchased in 1657 and then the other necks in 1658 and the land south of the country road (Thompson 1962:2:386; Hazelton 1925:820). The town was bounded on the north by the Sound; south by the ocean; west by Cold Spring Habor and then by a line running from the head of the harbor to a creek west of the West Neck, down the creek to South Bay then to a monument on the beach; and east by a line running from Fresh Ponds to the Winnecomack Patent's northwest angle down to a creek that was east of Sunquam's Neck, down the creek to South Bay to the ocean (Thompson 1962:2:385).

Three groups of settlers came to Huntington. The first group of settlers came from New Haven, Branford and vicinity. Included among them was the Reverend Leveridge, the first minister. Other parties came from Hempstead and the Southold/Southampton area (Flint 1967:251). The first town minutes were 1659 (ibid.). In 1658, an initial attempt was made to place Huntington under the jurisdiction of Connecticut. The issue was not completed until April 10/May 17, 1660 when the town voted again for Connecticut and not until 1662 that this it was formally admitted as part of that colony (Flint 1967:252; Hazelton 1925:821; Thompson 1962:2:393). Huntington continued as part of Connecticut until 1664 when the English conquest of the Dutch altered the situation. The Governor immediately placed a moratorium upon any new purchases and demanded that patent's of confirmation be purchased from him (Thompson 1962:2:387).

The Nicolls Patent of 1666 named Jonas Wood, William Leveredge, Robert Seely, John Ketcham, Thomas Scidmore, Isaac Platt, Thomas Jones and Thomas Wickes as patentees (Thompson 1962:2:388). The list of freeholders included John Adams, George

Baldwin, Joseph Bayly, Thomas Benedict, Richard Brush, Thomas Brush, James Chichester, John Conkling, Timothy Conkling, Joseph Cory, Robert Cranfield, Richard Darling, Nathaniel Foster, John French, John Green, Edward Harnett, Jonas Houldsworth, Stephen Jarvis, Benjamin Jones, John Jones, John Ketcham, Gabriel Lynch, Caleb Leverich, Eleazer Leverich, William Leverich, William Ludlum, John Mathews, Mark Meggs, Isaac Platt, Jonathan Porter, Thomas Powell, Jonas Rogers, Thomas Scudamore (or Scudder), Jonathan Scudder, Robert Seely, Thomas Skidmore, William Smith, Henry Soper, John Strickling, Abial Titus, Content Titus, John Titus, Samuel Titus, John Todd, Edward Tredwell, John Westcote, Samuel Wheeler, Thomas Whitson, Thomas Wickes, Richard Williams, Robert Williams, Caleb Wood, Jonas Wood, Jonas Wood, Jr., and Samuel Wood (Thompson 1962:2:389). Other patents followed in 1685 with the Dongan patent and the Fletcher patent of October 5, 1694 (Thompson 1962:2:390, 391). Govenor Andros arrested Isaac Platt, Epenetus Platt, Samuel Titus, Jonas Wood and Thomas Wickes for protesting the governor's actions in levying taxes without establishing elective assemblies with representatives to oversee expenditures (Hazelton 1925:821).

Original settlement in Huntington began on the east side of the village of Huntington (Thompson 1962:2:395). The first Presbyterian church in the village was erected in 1665. The British converted its successor into a weapons depot during the Revolution and Benjamin Thompson, Count Rumford, pulled it down to make way for a fort (ibid.:404). Cattle were pastured on the common fields, and then at night they were held near the watchtower on the village green (Flint 1967:253). The southern part of the original town of Huntington along South Beach, Huntington had rights to drift whales and in fisheries (ibid.).

By 1870 the village contained 2,400 citizens. The village had several large stores, two hotels, a steam planing mill, professional offices, and mechanics shops. E.C. Prime established a thimble factory in 1837. The Brown Brother's Pottery manufactured stoneware ceramics: jugs, jars, butter and flower pots, pie platters, and saucepans. A pottery had been in operation in Huntington since before the Revolution (Hazelton 1925:824).

In 1872 the southern half of the Town of Huntington became the township of Babylon (Hazelton 1925:820; Thompson 1962:2:385). Lloyd's Neck which was annexed to Oyster Bay in 1691 was transferred to Huntington in 1886 (Thompson 1962:2:385).

Project Area History

Seventeenth and Eighteenth Centuries

The parcel that makes up the northern end of the project area was originally part of the home lot of Noah Rogers. He held it from 1653 through 1669, when it was sold to Thomas Wickes Jr. The Wickes family used it as a pasture. It was then sold to Nathanial Harrison during 1740. He established Huntington's first tannery on the parcel but held it for only seven years. During 1747 it was sold to David Rusco. David and his son Silas operated the tannery until around 1800. During the Rusco ownership part of the property was taken over to house Hessian soldiers. Six huts were constructed at the northern end adjacent to Park Avenue and the stream that flowed along it. These huts housed Hessians from 1779 through 1783. The huts were burned after the Hessians left. The Rusco family then sold the parcel to Benjamin Coddington circa 1800. Benjamin and his sons William and Jesse operated the tannery for another 50 years before closing it down. The Coddingtons then sold the land, evidently to Obadiah Platt who operated a shoemaking business there (Huntington Historical Society 1976).

The parcel to the south of the tannery lot was laid out as a separate home lot during the seventeenth century. Although this lot was laid out in 1653, it remained vacant until after 1666 when it became the land of Steven Jarvis, Jr. During April 1679, a blacksmith named Samuel Griffin was allowed to settle in the town. He had his smithy on the green and chose a house lot on the harbor. Since the harbor lot was next to Steven Jarvis, Sr., Griffin quickly traded his harbor lot with Steven Jarvis, Jr. for the three acres of land within the project area. This transaction notes that a house was included. Samuel Griffin married Elizabeth Platt during 1685. He probably held this lot into the eighteenth century, perhaps until 1740 (Metcalf 1998: pers. comm.). During that year the land became the property of Moses Rolph who set up a saddlery and harness shop. The house stood in the approximate location of the present main farmhouse, but was moved circa 1896 by Daniel Swezey westward to its present location on South Woodhull Street. By circa 1800 the property passed to Moses Rolph II, known as Judge Rolph. He continued the saddlery business on the property, but also served as Huntington Town Clerk from 1800 to 1838. Subsequently he became Justice of the Peace and later a Suffolk County judge. Reuben Rolph, son of the elder Moses Rolph and probably the father of Judge Rolph, lived on an adjacent lot to the south. His house had been built by the Revolutionary War when it was occupied by British officers. It burnt during 1848 (Swezey 1983:1-9). The Reuben Rolph house was the first structure built there. After it burnt, the property was owned by the Ketcham family. They built a second house on the old foundation. This house burnt around 1880. The land has remained vacant since that time, being used as a pasture (Metcalf 1998: pers. comm.).

Nineteenth and Twentieth Centuries

The history of land use within and adjacent to the project parcels is told by the series of maps and atlases examined as part of this research. The earliest of these is the 1829 Burr map presented here as Figure 3. This map is at a small scale and does not provide much detail. It does appear to show Park Avenue and settlement in the vicinity of the project area.

Figure 4, taken from the 1858 Chace map, is the earliest map presented here which provides evidence of structures within the project area. Unfortunately no names of property owners are shown. There appears to be three structures within the project area. Two are near Park Avenue and one is adjacent to South Woodhull Street.

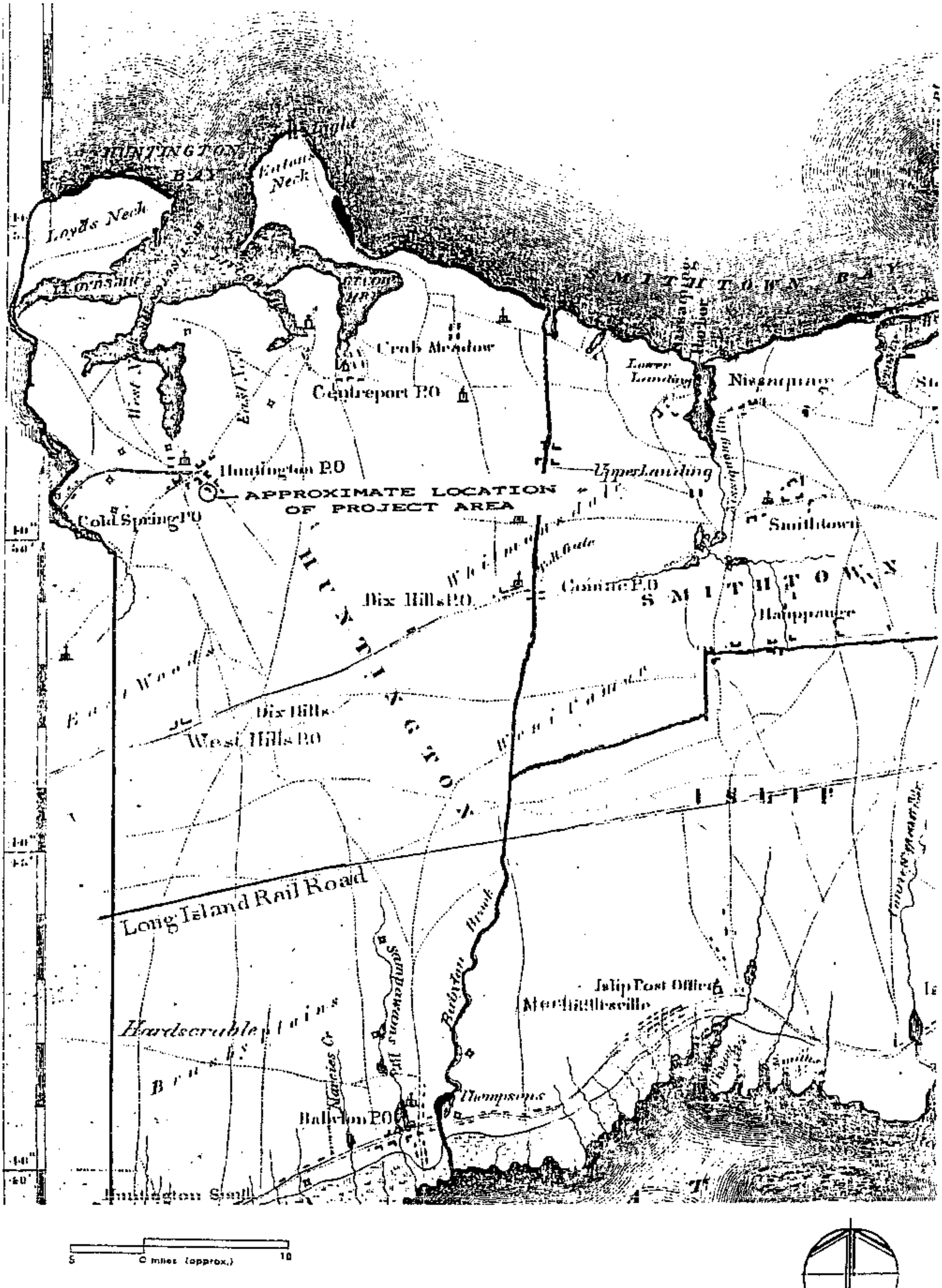

Figure 3 From the 1829 Burr map.

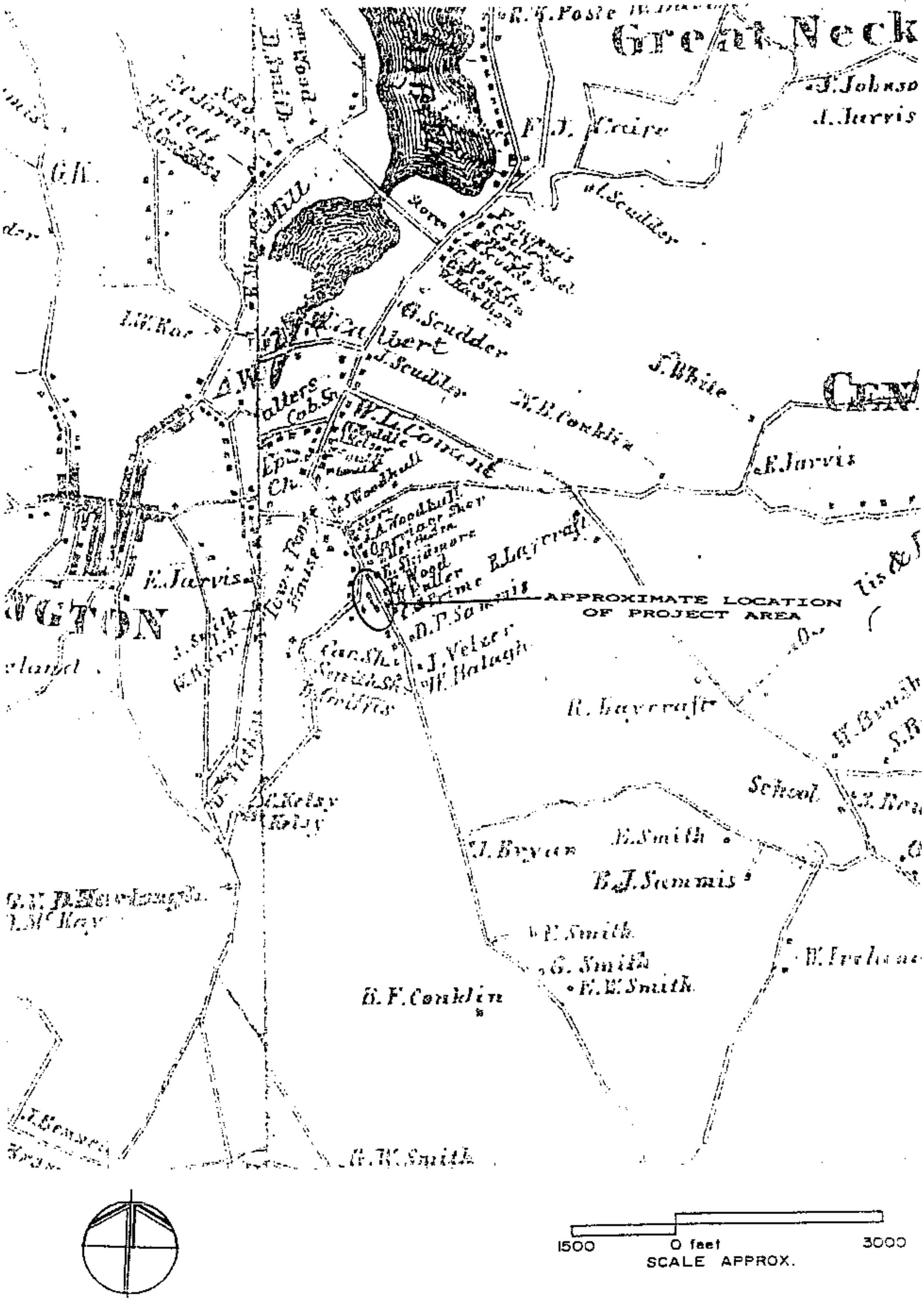

Figure 4 From the 1858 Chace map.

Further to the south on South Woodhull Street is a blacksmith shop. During 1858 the ponds and stream ceased to be a public watering place and were sold to William or H. Place who owned the adjacent lot earlier owned by Judge Rolph (Metcalf 1998: pers. comm.).

Figure 5 is taken from the 1860 Slater Map of the Village of Huntington. The project area consists of four parcels, each with one structure. The northernmost parcel is roughly **L**-shaped with more frontage on South Woodhull Street than on Park Avenue. One structure is shown adjacent to South Woodhull Street. Just to the southeast along Park Avenue, labeled Willow Street on this map, is a small roughly rectangular parcel. One structure is shown near its northwestern corner. Further to the southeast is a large parcel with an **L**-shaped structure in the north-central part of this lot. To the west of this a final parcel lies along Woodhull Street. One rectangular structure is shown at the north end adjacent to the street. No ponds or water courses are shown.

Part of the 1873 Beers Atlas is presented here as Figure 5. Both streets have their modern names. This is the earliest map found showing property ownership. One change is evident since 1860. The project area now includes five structures. A second structure has been built along Park Avenue in the small nearly rectangular parcel. The northernmost parcel still includes one structure near Woodhull Street. It is owned by J.A.W. who is J.A. Woodhull, based on other property nearby. The rectangular parcel along Park Avenue has been subdivided. The older house is in the northern part which is labeled J. Fields. The southern part is labeled Wm. Fields. The large parcel is owned by H. Place. The southern parcel along Woodhull Street is labeled Mrs. Skidmore. The stream running along Park Avenue is now shown, but no ponds are included.

During 1896 the majority of the project area was purchased by Daniel Hallock Swezey. The property included the large parcel owned by H. Place and the property of Mrs. Skidmore along South Woodhull Street during 1873. He established the Park Avenue Dairy there. The farmstead was laid out differently from the present time. The farmhouse was a smaller structure located just to the east of the present farmhouse. The only entry was a drive from Park Avenue. The barn was much smaller and stood where the milk house is now. Various other smaller outbuildings were included. This initial layout is illustrated in Figure 7, a diagram of the farm during 1915 (Swezey 1983:13-30, 120).

The original barn held only ten cows and four horses. Shortly after 1915 it was moved to the southeast and placed on a concrete slab foundation. It was then used to store hay and equipment. At this time a new barn was constructed to the southwest. It was 60 feet by 30 feet, had concrete walls with wooden beams and roof. A glazed tile silo was constructed at the south end. The new barn held 39 cows. A milk house was constructed fifty feet north of the new barn (Swezey 1983:13-30, 120).

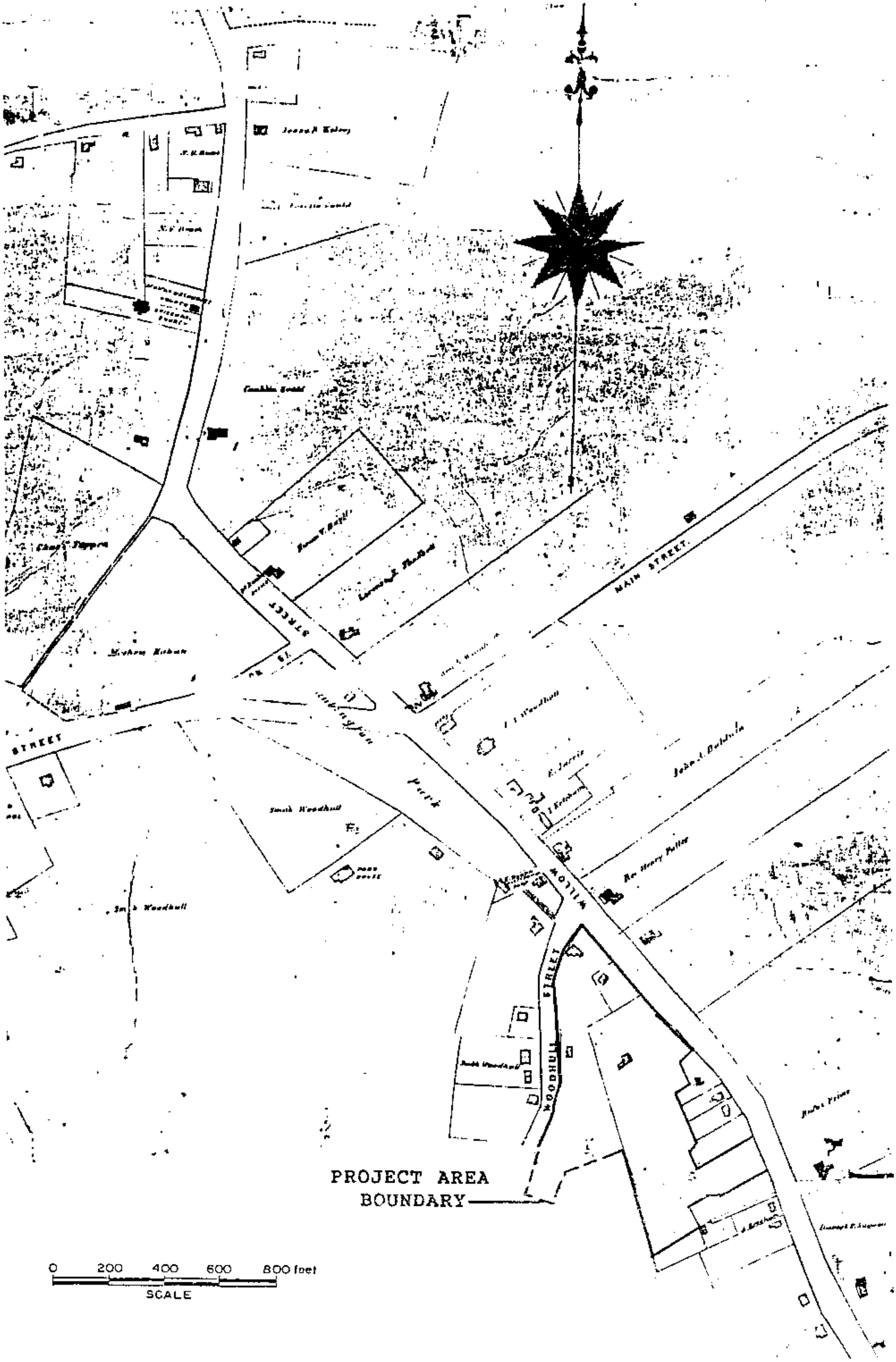

Figure 5 From the 1860 Slator map.

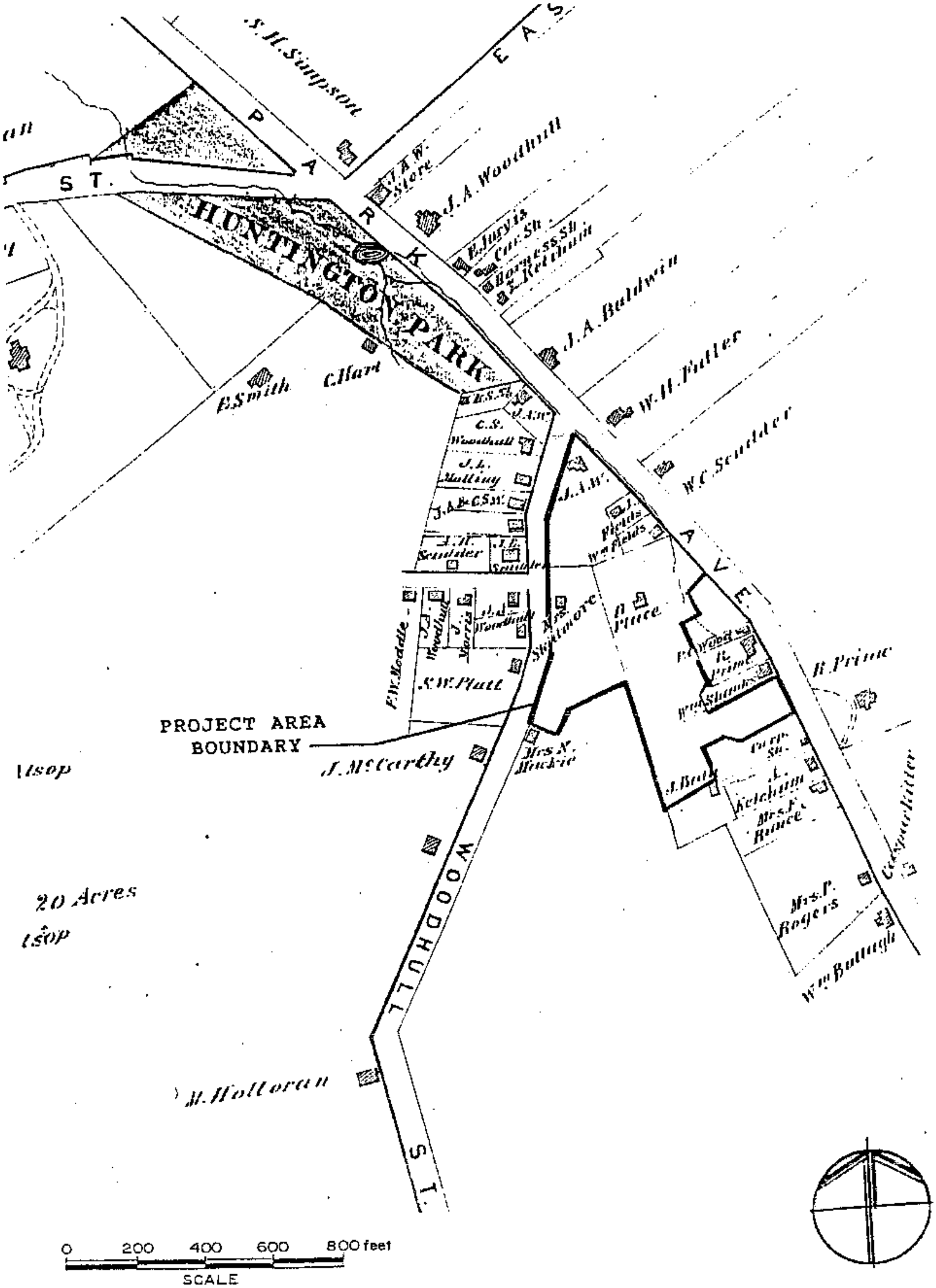

Figure 6 From the 1873 Beers atlas.

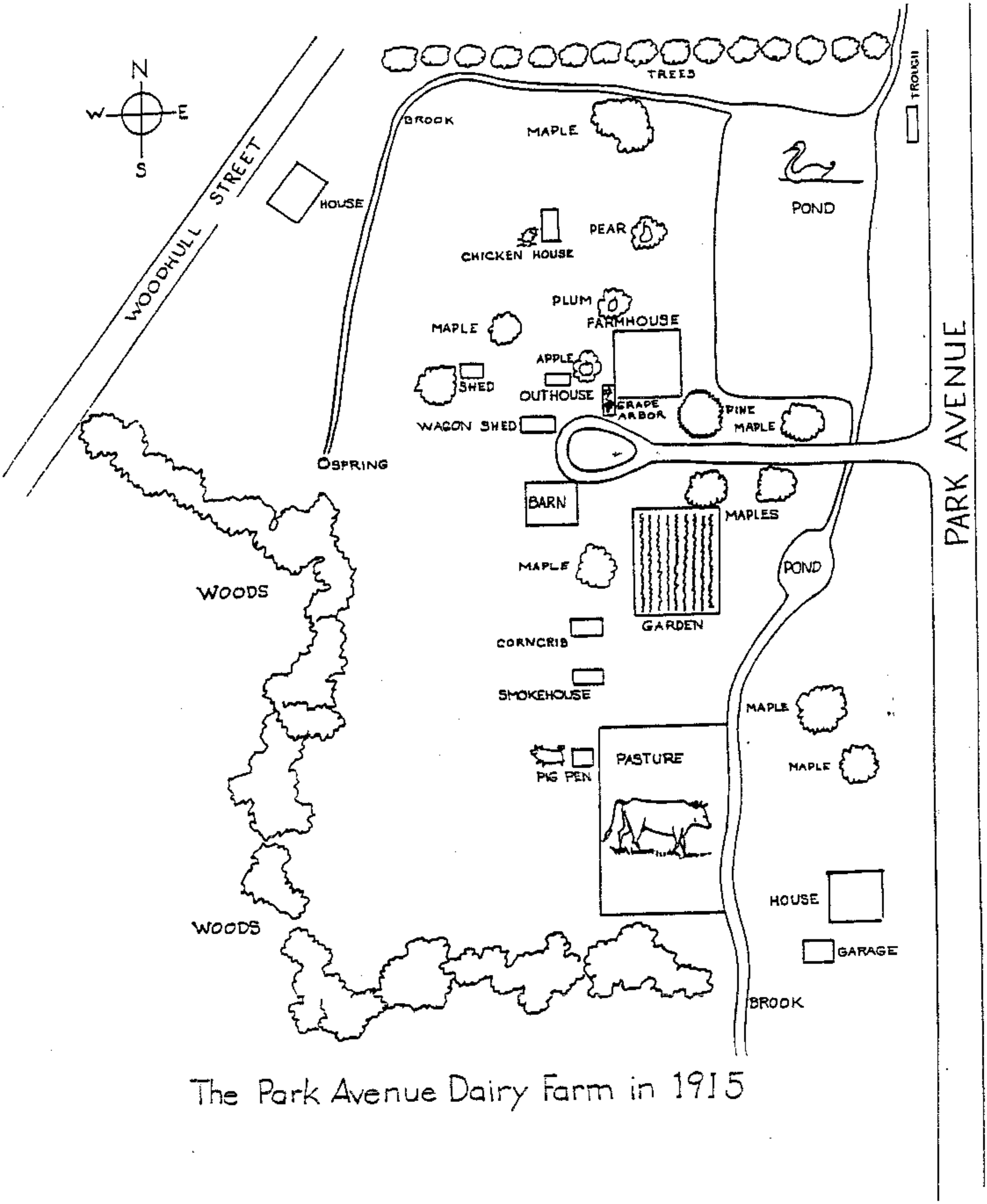

Figure 7 Diagram of the Park Avenue Dairy Farm in 1915 (Swezey and Swezey 1983).

The farm saw major changes during the early 1920s. The Swezeys decided that their farmhouse was too small. It had only two bedrooms. A larger house standing on the opposite side of South Woodhull Street was purchased. This house was moved to a location just west of the older farmhouse by professional house movers. They used a large horse-powered winch, heavy ropes and greased skids. A two-story addition was built on the south side of the "new" farmhouse. This included a parlor with a bedroom over it. Two porches were also built. The "old" farmhouse was then moved to the southwest adjacent to South Woodhull Street. The surroundings of the "new" farmhouse were landscaped by R. von Waldburg who had designed Hecksher Park during 1915-1920 (Swezey 1983:13-30, 120).

The pond was increased in size and a small island was constructed. The cow barn was expanded 40 feet to the northwest and attached to the milk house. The barn now held 52 cows. The new walls were of concrete blocks. The old barn was expanded to include six horse stalls. It became known as the horse barn (Swezey 1983:13-30, 120).

Figure 8 is taken from a survey of the Park Avenue Dairy made during July, 1929. By this time a chicken house, Structure J, had been built. Structures L and K are presently in an out-parcel.

Figure 9 shows only the eastern half of the project area. This 1930 Sanborn Insurance Map provides details of most of the farm structures and the houses fronting Park Avenue. During 1937 the Board of Health ruled that the milk house was too close to the barn. A new milk house was constructed to the east where the original barn had stood. The former milk house was converted to a garage.

Figure 10 presents a diagram of the farm after the changes of 1937. On January 2, 1939 the cow barn burnt. The fire was spotted by passers-by who alerted the family. This allowed all the cows to be saved. The barn was rebuilt with a corrugated steel roof. Circa 1940 the horse barn was remodeled Garage doors were added and it housed three milk trucks, as well as box stalls for ten cows. During April 1942 the Swezey's sold their milk trucks and routes. During the following September they sold the farm. One final change was made to the horse barn. The garage doors were removed and the barn held thirteen stalls and one pen (Swezey 1983:13-30, 120).

The project area currently includes eight standing structures, and four ruins. Two of the standing structures are within the northern end of the property, on what was at one time the tannery parcel. The northern one is 525 Park Avenue. This house appears on the 1860 Slator map. See Figure 5. During 1979 this house was nominated to the National and New York State Registers of Historic Places as part of the Old Huntington Green Historic District. It is listed as Structure HV54. It is a two-story dwelling with a shed roof. It is presently covered by imitation brick siding (NYSOPRHP 1979:Structure Form HV54). Just south of HV54 is another house also nominated as part of the Old Huntington Green Historic District. This is Structure HV53 at 483 Park

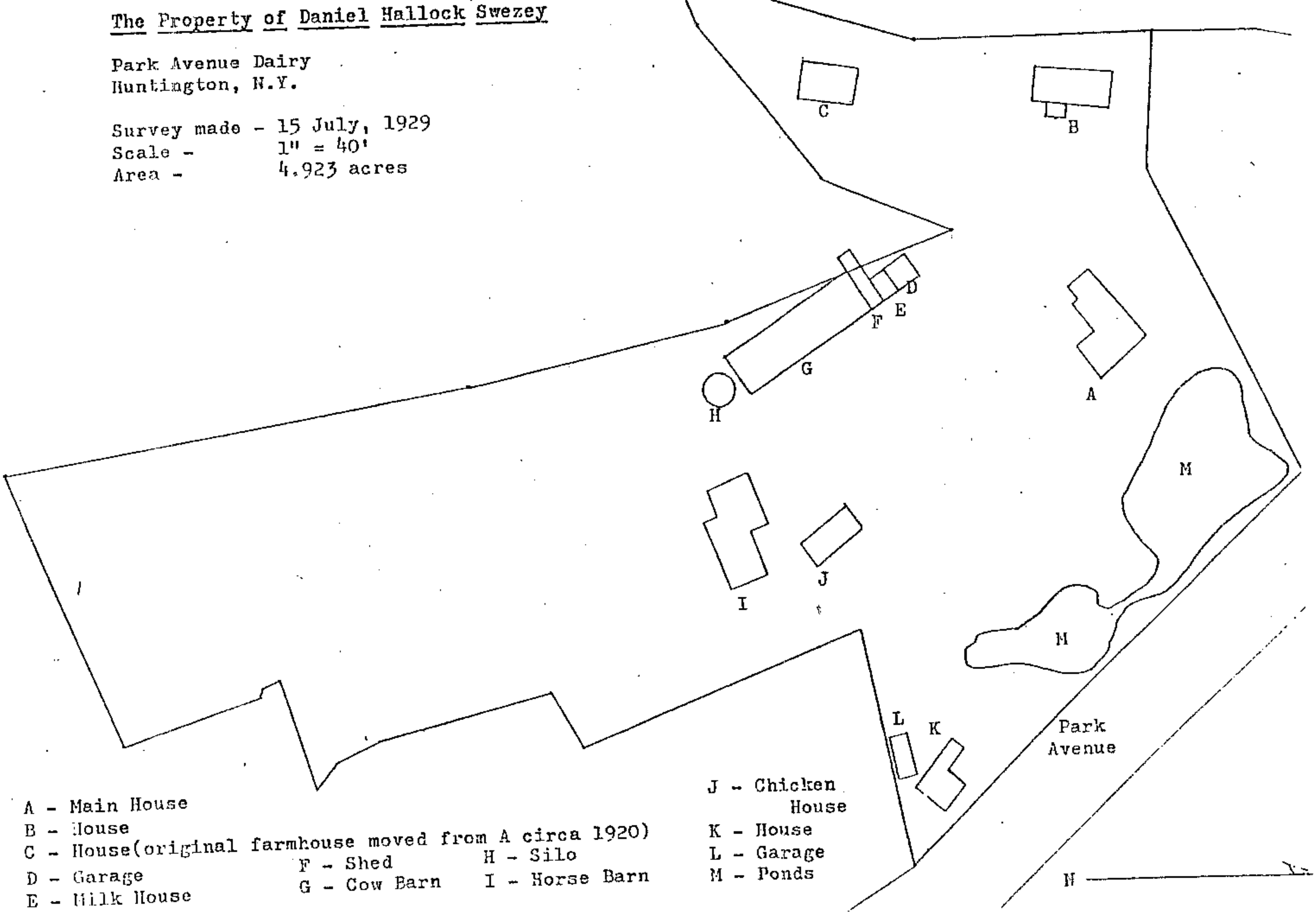

Figure 8 1929 Survey of the Swezey Farm (Swezey 1969).

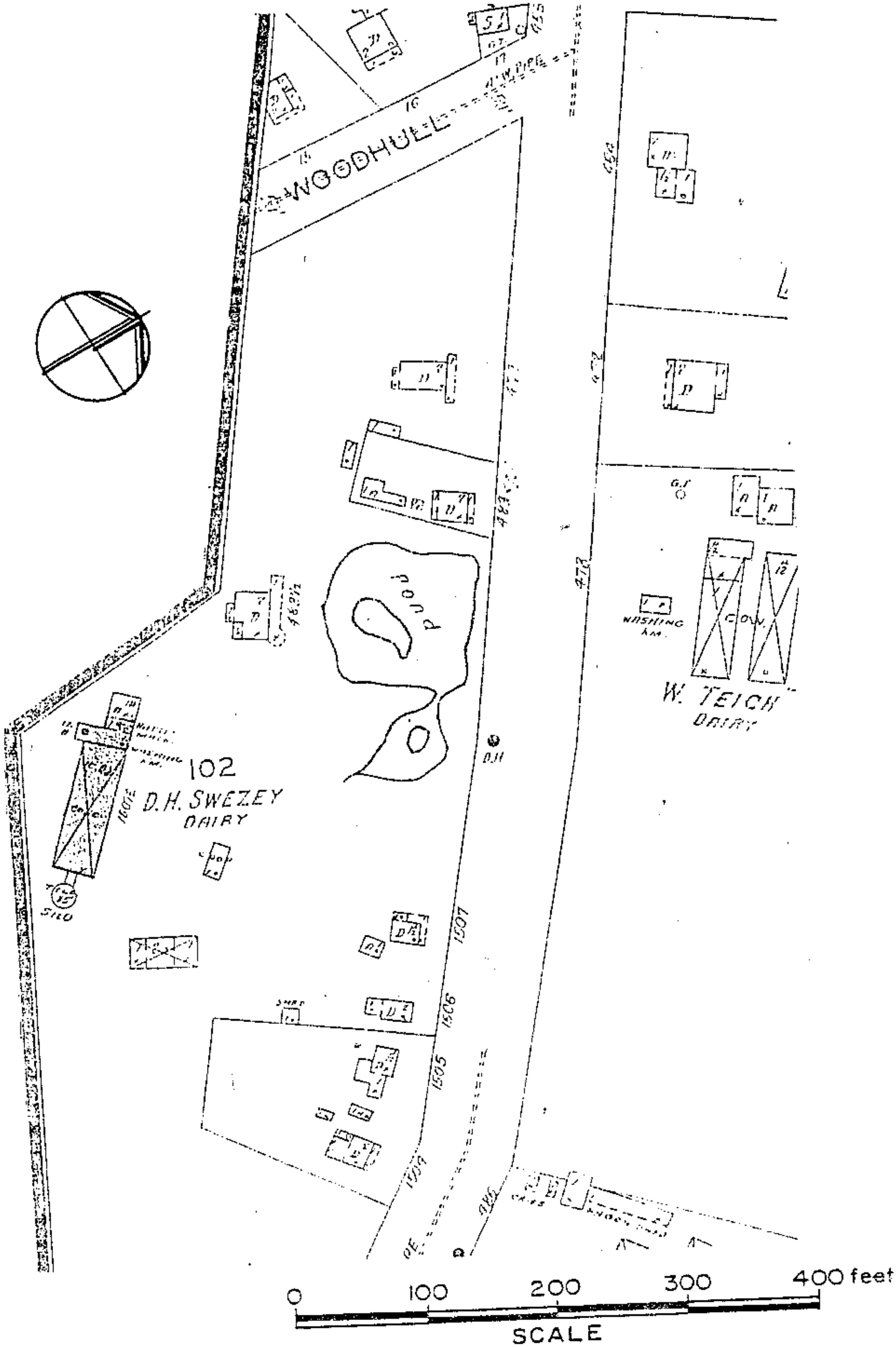

Figure 9 From the 1930 Sanborn Insurance Maps.

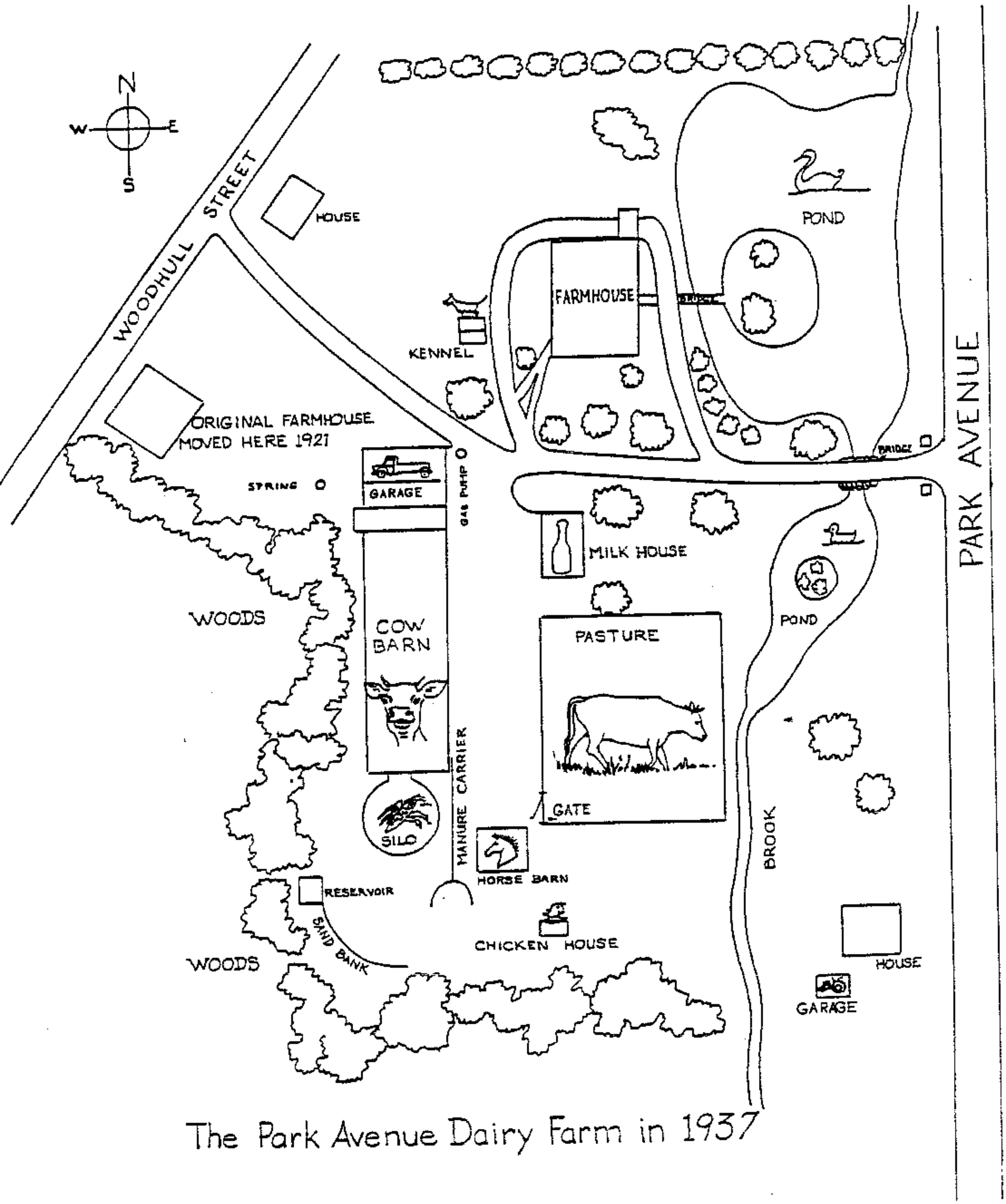

Figure 10 Diagram of the Park Avenue Dairy Farm in 1937 (Swezey and Swezey 1983).

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Avenue. This house appears on the 1873 Beers Atlas. This is a two-story house with a gable roof and clapboard siding. There is a one-story hip-roofed porch on the front (NYSOPRHP 1979: Structure Form HV53). While neither HV53 nor HV54 are of great historic significance individually, both are seen as contributing structures within the district.

The main farm parcel presently includes six standing structures and four ruins. Two of the standing structures were nominated as part of the Old Huntington Green Historic District. The main farmhouse at 471 Park Avenue is Structure HV52. This is a two and one-half story gable roofed house with clapboard siding. It has a one-story porch on two sides. It is thought to date from the late nineteenth or early twentieth century (NYSOPRHP 1979: Structure Form HV52). This is the "new" farmhouse moved to this location by the Swezey family circa 1921. West of HV52 is HV87 which fronts South Woodhull Street. This is a one and one-half story gable roofed house with a central chimney. The front door has sidelights and a pedimented entrance porch (NYSOPRHP 1979: Structure Form HV87). This is the Moses Rolph house. It was moved to this location circa 1896 by David Swezey. It originally stood where HV52 is now. It is though to have been built in part during 1687 by Steven Jarvis, Jr. It may be framed in the Dutch manner. The chimney was rebuilt after an 1829 fire. The upper Greek Revival style windows were added then or later (Metcalf 1988: pers. comm.). To the south of HV87 along South Woodhull Street is another house. This is the "old" farmhouse moved here circa 1921. It was constructed just southeast of HV52 by David Swezey circa 1896. It has two stories and a front porch. Also standing on the farm parcel are the cow barn, the silo, and the milk house. All date to 1915-1939 and were built by the Swezey family. The farm includes four ruined structures: the horse barn, the chicken house, the reservoir, and the manure dump. The first two are primarily of wood, and the others of concrete. All date to the twentieth century and were built by the Swezey family (Swezey 1893:13-30). Of the various farm structures, only the main farmhouse and the Moses Rolph house were nominated as part of the historic district. The farmhouse is a contributing element, but the Rolph house may be one of the oldest structures in the district.

Current plans would leave HV87 as it is. HV52, HV53, and HV54 would be demolished, as would the former Swezey barns and outbuildings.

SENSITIVITY EVALUATION CONCLUSIONS

It can now be seen that the Tannery Park Senior Housing project area consists of parts of three original home-lots. The northern lot was first occupied in 1653 by the Wickes family, but was not extensively used until 1740 when Nathanial Harrison built Huntington's first tannery there. The tannery was operated by the Rusco and Coddington families until about 1850. This northern lot was also the location of six huts used by Hessian soldiers during 1779-1783. The huts were then burnt.

The central lot was first occupied in 1679 by Steven Jarvis, Jr. He likely built the first house there. It was later occupied by Moses Rolph who began a saddlery business at the location. The Rolph family continued this business until the nineteenth century. The owners included the locally famous Judge Rolph. During the later nineteenth century this lot was owned by the Place family. By 1896 it was owned by the Swezey family who established the Park Avenue Dairy Farm at the location. The dairy operated until 1942. The Swezeys moved the old Rolph house to South Woodhull Street, and replaced it with first one farmhouse, and subsequently a larger one. They also constructed all of the other standing structures and ruins now there from 1915 to 1939.

The southeastern portion of the project area was part of a third home-lot. This lot was first occupied during the third quarter of the eighteenth century by Reuben Rolph. He built a house prior to the Revolutionary War. This house burned during 1848, and was replaced by a house occupied by the Ketcham family. This house also burned around 1880. Since that time the land has been used only as pasture.

It is clear that the northern lot has the highest potential for preserving historic archaeological deposits from both the tannery of 1740-1850 and the Hessian soldiers' huts of 1779-1783. The central lot may contain deposits relating to the Rolph family saddlery of 1740 to circa 1850, but these would likely be disturbed by the extensive improvements undertaken by the Swezey family during 1896 to 1942. The southeastern lot was the location of the Reuben Rolph house of circa 1770 to 1848, and the Ketcham house of circa 1860 to 1880. It should contain foundation remains and possibly other deposits probably relating to the Ketcham family.

This location was probably used during prehistory, given the presence of the stream, ponds and springs. Areas most likely to have been used would be those with well-drained soils on slopes of ten percent or less. However, the extensive use of this land from the seventeenth through the twentieth centuries makes it unlikely that any prehistoric archaeological deposits could survive undisturbed.

The project area is part of the Old Huntington Green Historic District. Four of the standing structures were included in the nomination. They are 525 Park Avenue, 493

Park Avenue, the main farmhouse at 471 Park Avenue and the Moses Rolph house on South Woodhull Street. The Rolph house is clearly important in its own right, and may be one of the oldest structures in the district. It is associated with the locally famous Judge Rolph. It is not on its original site, having been moved during 1896. The other three structures are seen as contributing elements to the district but not as individually important. These houses are not associated with famous people or events. They were not designed by noted architects are not considered notable examples of their styles of architecture. While there are clearly historic reasons for preserving the Rolph house, there are no such reasons for preserving the three houses at 471, 483, and 525 Park Avenue. Current plans call for retaining the Rolph house. The other three structures will be moved or demolished.

We recommend that archaeological testing for the presence or absence of historic and prehistoric resources be undertaken within the proposed impacts. This testing should include shovel tests on a 50 foot grid pattern in all undisturbed locations excepting slopes steeper than ten percent. This testing should be completed prior to any construction activity.

FIELD METHODOLOGY

The purpose of the Stage 1B archaeological survey is to document the presence or absence of potential prehistoric and/or historic archaeological resources within the Tannery Park Senior Housing development project area in Suffolk County, New York through the use of physical testing techniques.

The initial testing took place on January 14, 15, and 23, 1998. This parcel of approximately seven acres was investigated by excavating shovel tests on a fifty foot grid pattern or as close as possible to the grid intersections. Testing was limited to locations with medium to high potential for having been used during prehistory or history where these locations overlapped with the proposed development plans. Thirty-nine shovel tests were planned. Obstacles encountered were paved drives, rocks, water, trees and their roots. These conditions required the abandonment of five tests, leaving a total of 34 shovel tests excavated. See the Figure 11 for the locations of the shovel tests.

The methodology employed for the shovel tests was as follows. Roughly square tests approximately 1.5 feet across were excavated until 0.5 feet of subsoil was explored, or until the test was impeded by excessive ground water or by other obstacles. All soils from the shovel tests were screened through ¼-inch mesh for the recovery of artifacts. Soils were excavated and recorded by natural stratigraphic deposits. For all of the shovel tests, the strata encountered were measured, described, and recorded in terms of texture, inclusions and Munsell colors. See Appendix 1 for the original survey record forms.

Additional archaeological testing was undertaken on February 19 and 20, 1998. This testing was designed to test all impacts associated with the new development plans that were not included in our previous testing. A total of sixteen new shovel tests were planned to cover the new impacts with a 50 foot grid pattern. Fourteen of these tests were completed, and two were abandoned due to excessive water. In addition to the shovel tests, the surface of the added impact area was carefully inspected for possible features or artifacts.

The initial shovel testing and surface inspection resulted in the identification of five locations for more intensive investigation. These were shovel tests 36, 39, 43 and 49, and the location of the remains of a stone and mortar vat. Shovel Test 36 in the probable location of the Revolutionary War huts produced a fragment of bottle glass from a fill deposit. Two additional shovel tests were excavated ten feet from Shovel Test 36 to further investigate the fill deposit and search for possible eighteenth century remains. Shovel Test 39, located close to the probable Tannery location, produced shell fragments from a probable plowzone layer. Two additional shovel tests were excavated ten feet away from Shovel Test 39 to determine whether this deposit could

Figure 11 Locations of shovel tests within the project area.

represent destruction rubble from the Tannery building. Approximately 40 feet southeast of Shovel Test 39 are the remains of a circular vat. The remains of this stone and mortar vat are currently filled with water, leaves and other debris. A steel probe was employed to determine the extent of this feature. An excavation unit approximately 2.5 feet square was laid out on the exterior of the vat. Before the first layer was removed the unit began to fill with water. Excavation was abandoned at 0.3 feet below grade. Shovel Test 43 produced ceramic, glass and a nail. Four additional shovel tests each ten feet from Shovel Test 43 were excavated. Shovel Test 44 produced brick fragments. Three additional shovel tests each ten feet from Shovel Test 44 were completed. These last two locations were further investigated because of the building debris found. The additional tests were used to search for more building remains.

Surface inspection was used in areas of good surface visibility to supplement the shovel testing. Only a few locations such as along the edges of the driveways had sufficient visibility. Two artifacts were recovered from the Tannery Park Senior Housing surface collecting.

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STRATIGRAPHIC SUMMARY

From one to four layers were recorded in the 59 shovel tests completed. Three tests had one layer, seven tests had two layers, eight tests had four layers, and the remaining 41 tests had three layers. The ten tests with one or two layers were all stopped by rocks, debris, water or roots at 0.3 to 1.3 feet below grade.

The top layer in all tests except Shovel Tests 7, 35 and 38 was identified as topsoil. Texture ranged from a silty loam, through silt, sandy silt, and silty sand to sandy loam, usually with turf or roots. Silty loam was most common. Color ranged from black through very dark greyish brown, dark greyish brown, very dark brown to dark yellowish brown. Very dark brown was most common. Thickness ranged from 0.1 to 0.5 feet. It averaged 0.24 feet. Shovel Test 7 was located in a driveway. The top and only layer recorded in Shovel Test 7 was a gravel in some dark yellowish brown silt. The test was stopped by rocks at 0.3 feet below grade. The top layer in Shovel Tests 35 and 38 was fill.

The second or third layer in Shovel Tests 1, 2, 14-25, 27, 28, 31-34, 39-43, 46-54, and 59-59 had a texture ranging from sand through silty sand, sandy silt, and silt to clayey silt. Sandy silt was most common. Inclusions noted were gravel or pebbles in six tests. Color ranged from very dark greyish brown through dark brown and brown to dark yellowish brown. Dark yellowish brown was most common. Thickness ranged from 0.3 to 1.3 feet. It averaged 0.66 feet. This layer was identified as a former plowzone.

The bottom layer in Shovel Tests 1, 2, 9, 10, 14-25, 27, 30-32, 34, 37, 38, 40-51, and 56-59 had a texture ranging from sand through silty sand and sandy silt to silt and clayey silt. Sand was most common. Gravel or pebbles were noted in eleven tests, and were often profuse. Cobbles were noted in two tests. Clay inclusions appeared in two tests. Color ranged from very dark grey and grey through dark greyish brown and greyish brown, brown, dark yellowish brown, yellowish brown and brownish yellow to light olive brown. Dark yellowish brown was most common. The top of this layer was found between 0.3 and 1.6 feet below grade. It averaged 1.01 feet. This layer was identified as subsoil.

Shovel Tests 16, 20, 21, 25, 35-38, 45, 51, 59 and 55 had a third or fourth layer between the plowzone and the subsoil. Texture ranged from sand through silty sand, sandy silt and silt to clayey silt. Sand was most common. Pebbles were noted in one test. Color ranged from dark grey through dark brown to dark yellowish brown and yellowish brown. Yellowish brown and dark yellowish brown were most common. Thickness ranged from 0.2 to 1.3 feet. It averaged 0.55 feet. This layer was identified as subsoil, or subsoil redeposited as fill.

The bottom layer in Shovel Tests 3, 4, 8, 29, 38, 39, 44, 45, 52, and 54 had a texture ranging from clayey silt through silt to silty loam and sandy silt. Silt was most common. Inclusions were rare with gravel being noted in only one test. Color ranged from black through very dark brown to dark brown. Black was most common. The top of this layer was found between 0.2 and 1.9 feet below grade. It averaged 0.95 feet. This layer was identified as a buried topsoil.

The second layer in Shovel Tests 3-6, 8-10, 29, 30 had a texture ranging from sandy silt through silty sand to sand. Sandy silt was the most common. Inclusions were gravel in six cases, cobbles in four cases, concrete fragments in one case, and clay in one test. Color ranged from dark grey through greyish brown and yellowish brown to dark yellowish brown. The latter was most common. Thickness ranged from 0.1 to 1.7 feet. It averaged 0.79 feet. This layer was identified as fill. It was likely derived from local subsoil.

In summary it can be seen that the subsoil here was usually a dark yellowish brown sand with gravel. The layer identified as fill was usually a dark yellowish brown sandy silt with gravel. While this likely identifies the source of the fill as local subsoil, it makes differentiating between fill and subsoil quite difficult. Much of the fill material may have been taken from the area just south of the barns. This location is surrounded by steep slopes with sand and gravel presently eroding out.

ARTIFACT PROCESSING AND ANALYSIS

Laboratory Methodology

The artifacts recovered from the field work were returned to the Greenhouse Consultants Laboratory in New York City for processing. The cultural material was washed in room temperature tap water, dried, marked, and catalogued. The drying procedure was slow air drying on screens in the laboratory processing area. The artifacts were labeled with their appropriate context number.

Artifacts were identified using a modified form of the Cultural Material Data Base Taxonomy of the National Park Service. Artifacts were coded for their functional group, class and material. Technological and stylistic manufacturing ranges were assigned when an artifact exhibited a datable attribute. Establishing the range of manufacture of artifacts provides a time frame for establishing dates after which the refuse deposits were made. This information was recorded on a tyvek label which was inserted with the artifact into a clear polyethylene ziplock bag. The bags were also labeled with context and catalog numbers.

Subsequent to cataloguing, the information from all artifacts with their appropriate codes were inventoried using Paradox, a relational database software, which provides sorted inventory lists for contexts and artifact groups.

Contexts were assigned series numbers in accordance to the type of data recovery method. Shovel testing is identified by the 3000 series. Excavation units are identified by the 5000 series.

Stage 1B Testing

A total of 168 artifacts were returned to the Greenhouse laboratory for processing and analysis. Two artifacts were surface finds, six came from one excavation unit and 160 were from 20 shovel tests. Ten other shovel tests yielded burlap, asphalt, sheet metal, coal, slag, brick, or plastic, which were noted on field sheets and discarded in the field.

Several remains, which included quartz and slate, upon washing were natural rock, such as in shovel tests 4, 10 and 11. Discarded in the laboratory were coal, slag and styrofoam from shovel tests.

Two artifacts were from the surface, one a sample from the vat cap and the second was a half-pint milk bottle from the D.H. Swezey Park Avenue Dairy. This bottle is twentieth century in origin.

Six pieces of a green glass bottle were found in Excavation Unit 1. These appear to be twentieth century in origin.

The remaining 160 artifacts from the shovel tests can be divided into three major functional groups: Group 1) Kitchen/Domestic with 67, or 41.8 percent; Group 3) Architectural with 45 artifacts or 28.1 percent; and Group 9) Activities, with 20 artifacts or 12.5 percent. Seven artifacts fell into Group 4, Furnishings. Shell and the other miscellaneous material composed the rest of the assemblage.

Container glass (31 pieces) and bottle or jar glass (17 pieces) consisted of the bulk of the Kitchen group. Two pieces of glass may have been tableware in the form of plates, saucers, cups or bowls (Contexts 3015.02 and 3019.02).

Sixteen pieces of ceramics were present: nine sherds of ironstone in Contexts 3017.02, 3019.02, 3043.02, 3053.02, and 3056.02, three pieces of creamware in Contexts 3046.02, 3047.02 and 3049.02, three pieces of redware in 3047.02 and one piece of cobalt blue decorated stoneware in 3034.02.

Three small sherds of undecorated creamware were found in Contexts 3046.02, 3047.02 and 3049.02. Creamware was developed and manufactured from 1762-1820, whereupon its popularity as tableware waned under competion from pearlware and ironstone (South 1972:Figure 1; Brown 1982:15). It trailed on in utilitarian forms such as chamberpots and toiletware during the early nineteenth century. The small fragment of underglaze transfer-print black decorated ironstone was found in Context 3053.02. The style of the design is dated to 1828-1860 (Majewski and O'Brien 1987:145). The creamware in Context 3047.02 is mixed with a twentieth century embossed bottle fragment. The transfer-print black ironstone was found with styrofoam, indicating a mixed context between past and present. Three small fragments of redware decorated with a clear glaze were also found in Context 3047.02.

The discovery of excellent clay beds in the Town of Huntington led to the early establishment of pottery industries.The east side of East Neck had a white clay used for stoneware purposes. Other beds lay on West Neck, Lloyd's Neck, Eaton's Neck, and Little Neck (Thompson 1962:1:49). By 1751 Adam States made redware and stoneware in Huntington (Spargo 1926:91). States may have also made slip-decorated and sgraffito wares (ibid.: 157). Jonathan Titus made earthenware and stoneware, and possibly slip-decorated and sgraffito wares starting around 1784 (ibid.:119, 159). Moses Scudder may have made slip-decorated and sgraffito wares from 1805-06, while Benjamin Keeler may have done so in 1825 (ibid.:161, 214, 165). Adam States founded his pottery in 1751, making lead-glazed redware initially, then ca. 1758-1760, built an additional kiln for stoneware. Titus took over the pottery during the Revolution and then sold it to Timothy Williams, Scudder Samis, Samuel Fleet and Samuel Wetmore in 1805. The company became Samuel J. Wetmore & Company. Moses Scudder bought out his partners and became sole proprietor. In 1825, Scudder sold the pottery for $1,300 to Benjamin Keeler. Keeler sold the property for $3,100 in 1827 to Henry Lewis and Nathan Gardiner. Lewis became sole proprietor in 1829, operating until the

1854. Lewis made a scroddled ware combining the stoneware and redware clays. Isaac Scudder Ketcham and Francis S. Hoyt bought the pottery in 1854 and sold it in 1863. The Brown brothers bought the pottery and continued to make both stoneware and redware. Simple floral decorations were used on their stoneware but their main contribution was the use of stencils: rose, grapes, cow and eagle. The pottery operated until 1905 and was torn down in 1918. Profit came not only from making pottery but also selling $16,000 a year by 1860 to other potteries to mix with the New Jersey stoneware clay. The earliest marks on pottery are on the Lewis and Gardiner products (ibid.:111-114; Ketchum 1987:88-97).

The stoneware sherd from Context 3034.02 and the redware sherds from Context 3047.02 are small. As a result we are unable to state whether these pieceis of pottery was manufactured locally. The decoration on the stoneware is similar to that described fro the Brown Brothers pottery, but stoneware and redware manufacturers did not usually mark their wares since they were utilitarian in nature.

The architectural group had sixteen pieces of flat glass, twelve nails, brick (11), a piece of drainpipe (1), a brace (1), a door spring (1), strap hinge (1), and tile (2). The brick in Contexts 3044.02 and 3053.02 was distinctive for its quartz temper. Nodules measuring over 1 cm in length were noted. Brick yards existed on West Neck during the historical period, and four to five million bricks were manufactured a year in the nineteenth century (Thompson 1962:1:48). The brick remnants in Catalog #62 and 85 were so unrefined that they may be locally made, and early examples of such production.

The activities group included a washer (1), a disc (1), skeet (4), corroded metal (10), a pulley (1), painted/enameled can (2), and wire (1).

Furnishings included flowerpot remains (5), decorative layered/cased glass (1) and a possible furniture part (1).

While the historic collection produced by the initial testing, Shovel Tests 1-34 can best be described as twentieth century in origin, the second set of testing yielded objects in the form of ceramics and brick that could be datable to the second half of the eighteenth century and the nineteenth century.

No prehistoric remains were recovered.

RESULTS

The archaeological testing of the Tannery Park Senior Housing project area did not produce any evidence of prehistoric use of this land. No prehistoric artifacts or features were discovered in any of the shovel tests.

The archaeological testing produced some evidence of historic archaeological resources. Testing in the northern parcel located remains of the tannery. A stone and mortar vat, likely from the tannery was found. The tannery is clearly a significant historic archaeological resource since it represents the first establishment of what became a significant industry in eighteenth and nineteenth century Huntington. Testing of the other planned impact locations also did not produce any evidence of significant historic period features or deposits. Most of the artifacts recovered and all of the standing or ruined structures seen in the central portion of the project area relate to the 1896-1942 Park Avenue Dairy Farm. The history of this farm is available in the detailed recent publication by one of its occupants (Swezey 1983).

Fill deposits were found over the location of the Revolutionary War huts. Although no eighteenth century artifacts or features were found here, they could still exist since the shovel tests could not reach natural subsoil in this location.

CONCLUSIONS AND RECOMMENDATIONS

This report documents the procedures and results of the Stage 1 archaeological/historical sensitivity evaluation and survey of the proposed Tannery Park Senior Housing project area at Park Avenue and South Woodhull Road in the Village and Town of Huntington, Suffolk County, New York. Based on this objective subsurface testing, we conclude that no prehistoric archaeological sites exist within the planned impact area.

We also conclude that one significant historic site exists within the impact area. This is the Tannery Site used during 1740 through 1850. One substantial feature, a stone and mortar vat, probably used for soaking hides was found. This vat is approximately seventeen feet in diameter and three feet deep. Since this feature will be removed to construct the proposed parking lot, we recommend mitigation in the form of data recovery excavations. These excavations will include emptying the vat and examining the contents for artifacts, as well as the completion of a trench on the exterior of the vat to search for evidence of the date and methods of construction. The vat will be fully documented in photographs and drawings. Samples of the stone and mortar used will be taken.

We are also recommending monitoring of the excavation needed for the proposed drain line from the storm water retention basin to the catch basin on Park Avenue. This crosses the reported location of the six huts used by Hessian soldiers during 1779-1783. Shovel tests here did not locate any remains of the huts, but did indicate fill from 0.2 to 1.3 feet thick. The drain will likely penetrate this fill. Since the stream that formerly ran along this side of Park Avenue was converted into a storm drain within the last 50 years, this location most likely has been disturbed, but there is a slight possibility that remains from the huts survive. As a precaution, we recommend that a professional archaeologist monitor the construction excavation for the drain. The archaeologist would recover any eighteenth century artifacts present and takes photos and draw any hut-related features.

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APPENDIX 1

FIELD RECORD FORMS

APPENDIX 1
CONTEXT NUMBERING AND PROVENIENCE LABELING

A field recording system which encompasses a variety of conditions and situations is optimal for any archaeological project. Among these situations are the size of the project, the number of different field techniques and the number of expected artifacts. The field recording system used was developed by Greenhouse Consultants and was based on modifications of other accepted systems.

All contexts are numbered in the field and these numbers are applied to the artifacts. The format for numbering is XX-9999.99 where X is alphanumeric and 9 is numeric. The alphanumeric characters to the left of the hyphen are the prefix. The two digits to the right of the decimal point are used only when it is necessary to refer to strata within a context. The four digits between the prefix and decimal subdivision may be called the base code.

The prefix is a two character designation of the project parcel. The four digit numeric base code can be divided into two parts; the first digit being separate from the last three. The first numeric digit indicates the type of field technique used. The codes are as follows:

1000:	unprovenienced surface collection
2000:	provenienced surface collection
3000:	shovel testing
4000:	trenching
5000:	excavation units
6000:	feature excavation
7000:	borings
8000:	
9000:	transects

The three digits following the technique code are unique for each location and are assigned sequentially. Decimal subdivisions may be used for techniques three through six to indicate specific strata. For example, 01-3001.02 refers to Area 1 (01), shovel test (3), number 1 (001), at the second layer (.02).

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 30' North of Main House		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : W.R. L.R.	SCREENED ? 1/4"	DATE : 1-14-98	TEST TYPE AND NO. : ST 1

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.1'	Soil silty loam	10YR 2/2 v. dk. brn	N.C.M.	Topsoil
2	0.1' - 1.2'	sandy silt with small gravel	10YR 3/4 v. dk. brn	"	A (placed?)
3	1.2' - 1.7'	sand with gravel and cobbles	10YR 4/6 dk. yel. brn	"	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- ST located 7' North and 9' East of the drainage lines with plastic pipes

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 36' East of ST 1		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : W.R. L.R.	SCREENED ? 1/4"	DATE : 1-14-98	TEST TYPE AND NO. : ST 2

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.2'	silty loam with roots	10YR 2/1 black	N.C.M.	Topsoil
2	0.2' - 1.0'	silt with small gravel	10YR 3/? dk. br. B.N.	[illegible]	A
3	1.0' - 1.5'	sandy soil with gravel and small cobbles	10YR 4/4 dk. yel. brn	N.C.M.	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

5' west of spruce tree.

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50 North and 14' East of ST 2		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.F. W.R.	SCREENED ? 1/4"	DATE : 1-14-95	TEST TYPE AND NO. : ST 3

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	silt loam soil	10YR 3/4 dk yel BN.	N.C.M.	Topsoil
2	0.1'-0.7'	sandy silt with gravel	10YR 4/6 DK YW BN	coal discarded	Fill
3	0.7'-1.4'	slightly clayey silt	10YR 2/1 Black	N.C.M.	Buried topsoil
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- ST stopped by rocks at 1.1' (possible interface)

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50 North and 4' West of ST 1		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : W.R. L.R.	SCREENED ? 1/4"	DATE : 1-14-95	TEST TYPE AND NO. : ST 4

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	silty loam with sod	10YR 3/4 dk yel. BN.	N.C.M.	Topsoil
2	0.2'-1.1'	slightly sandy silt with gravel and cobbles	10YR 5/1 GRY BN	Flower pot frags, 1 glass frag, 1 possible flake	Fill
3	1.1'-1.7'	clayey silt with gravel	10YR 2/2 dk BN	1 green glass frag	Buried Topsoil
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- S.T. stopped by standing water at 1.7'
- S.T. offset 4' west to avoid iron pipe.

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' North and 6' West of ST 4		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : LR WR	SCREENED ? 1/4"	DATE : 1-14-98	TEST TYPE AND NO. : ST 5

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	Sod silty loam	10YR 3/4 dk yel BN	1 brick frag	Topsoil
2	0.3-1.3'	sandy silt with gravel and cobbles	10YR 4/6 dk yel BN	1 glass frag	Fill ?
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note If cult. material retained, and if soil samples are taken.)

ST stopped by standing water

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' North of ST 3		
SITE :	SUPERVISOR : W R.	EXCAVATOR : W R. L F.	SCREENED ? 1/4"	DATE : 1-14-98	TEST TYPE AND NO. : ST 6

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	Sod silty loam	10YR 3/4 dk yel BN	N.C.M.	Topsoil
2	0.3-1.0'	silty sand lots of gravel & cobble	10YR 4/6 dk yel BN	1 plastic discarded	Fill ?
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note If cult. material retained, and if soil samples are taken.)

ST stopped by rock at 1.0'

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' East of ST 6		
SITE :	SUPERVISOR : W F	EXCAVATOR : L F. W F.	SCREENED ? 1/4"	DATE : 1-19-98	TEST TYPE AND NO. : ST 7

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	gravel compact silt	10YR 3/4 on to 3/1	Brick frags discarded	Fill
2					
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- ST stopped by rock at 0.3' and located on a driveway.

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' North and 25' west of ST-6		
SITE :	SUPERVISOR : W.F.	EXCAVATOR : L F W.F.	SCREENED ? 1/4"	DATE : 1-19-98	TEST TYPE AND NO. : ST 8

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.5'	silty loam	10YR 2/1 black	* Bag plastic discarded	Topsoil
2	0.5'-0.6'	sand	10YR 5/6 yellowish brown	N.C.M.	lens of sand
3	0.6'-1.5'	silt	10YR 2/1 black	"	Topsoil ?
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by standing water at 1.5'

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing

COORDINATES : 45' west of ST 1

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	W.F.	L.F. W.F.	1/4"	1-14-96	ST 9

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.5'	sod silty loam	10YR 3/3 Dk. Brn	N.C.M.	Topsoil
2	0.5' - 1.2'	silty sand with gravel, cobbles, ...	10YR 4/6 Dk. Yel. Brn	... will 3/4, glass frags.	C.II.
3	1.2' - 1.8'	sand with gravel	10YR 5/2 Gry Brn	N.C.M.	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- ST stopped by water at 1.8'
- iron staining in subsoil.

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing

COORDINATES : 25' west of back steps of front...

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	W.F.	L.F. W.F.	1/4"	1-17-96	ST 16

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.1'	sod silty loam	10YR 3/4 Dk. Brn	N.C.M.	Topsoil
2	0.1 - 0.9'	sandy silt with ~~pebbles~~ gravel	10YR 4/6 Dk. Brn	slate ?	C.II ?
3	0.9' - 1.7'	sand with gravel [illegible]	10YR 5/6 [illegible]	N.C.M.	C.II ? B ?
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Mottled soils in 3rd layer.

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing
COORDINATES : 25' South of drive 30' East of Barn

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	WF	LR WF	1/4"	1-14-98	ST 11

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	sod silty loam	10YR 3/4 DK BN	N.C.M.	Topsoil
2	0.1'-0.5'	sand with gravel	10YR 4/4 DK YW BN	1 possible flake	Fill
3	0.5'-0.6'	cobbled surface sandy silt	10YR 4/1 DK GRY	N.C.M.	Drive
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST. stopped by rock at 0.6'

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing
COORDINATES : 50' South of ST 11

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	WF	LR WF	1/4"	1-14-98	ST 12

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	sod silty loam	10YR 3/4 DK BN	N.C.M.	Topsoil
2	0.1'-0.5'	sand with gravel	10YR 4/4 DK YW BN		Fill
3	0.5'-1.0'	sand with gravel and cobbles	10YR 4/1 DK GRY	coal slag discarded	Fill
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by rock at 1.0'

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50 South of ST 12		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.R. W.R.	SCREENED ? 1/4"	DATE : 1-14-98	TEST TYPE AND NO. : ST 13

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.2'	silty loam	10YR 3/4 dk yel br	N.C.M.	Topsoil
2	0.2' - 0.4'	sand with gravel	10YR 4/6 dk yel br	coal slag discarded	fill
3	0.4' - 2	sand with gravel	10YR 7/1 lt gy brn	N.C.M.	fill
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by rock at 0.9'

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' East of ST 12		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.R. W.R.	SCREENED ? 1/4"	DATE : 1-14-98	TEST TYPE AND NO. : ST 14

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.4'	Silty Loam	10YR 2/2 V dk br.	1 glass metal washer	Topsoil
2	0.4' - 1.5'	slightly clayey (some gravel) silt	10YR 3/4 dk yel brn	2 glass frags	A.
3	1.5' - 1.6'	silt	10YR 4/4 dk yel brn	N.C.M.	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by rock at 1.6'

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' South of ST 14		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.P. W.R.	SCREENED ? 1/4"	DATE : 1-15-95	TEST TYPE AND NO. : ST 15

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	silty loam	10YR 2/1 black	1 glass frag	Topsoil
2	0.1'-1.4'	sandy silt with gravel	10YR 3/4 dk yw. brn	10 1 glass frags 3 nails. metal frags	A
3	1.4'-1.8'	sandy silt	10YR 5/6 yw. brn.	N C M	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by rock at 1.8'

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' South of ST 15		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.R. W.R.	SCREENED ? 1/4"	DATE : 1-15-95	TEST TYPE AND NO. : ST 16

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	silty loam	10YR 2/1 Black	N C M.	Topsoil
2	0.2-0.5'	sandy silt with gravel	10YR 3/3 dk brn	glass frags, metal ceramic	A
3	0.5'-0.7'	silty sand	10YR 4/6 dk yw brn	N C M.	Fill
4	0.7-1.5'	silt	10YR 7/3 b/N	"	subsoil
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing

COORDINATES : 50' South of ST 16

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	W.R.	L.R. W.R.	1/4"	1-15-98	ST 17

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	silty loam	N/2 2/1 Black	N C M.	Topsoil
2	0.1'-1.4'	sandy silt	10YR 3/4 DK. YW. BN. mottled with 10YR 5/6 YW. BN.	glass, ceramic	A, fill?
3	1.4'-1.9	silty sand	10YR 5/6 YW. BN.	N C M	B subsoil
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing

COORDINATES : 50' South of ST 17

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	W.R.	L.R. W.R.	1/4"	1-15-98	ST 18

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	silty loam humus	10YR 2/2 V. DK. BN.	N.C.M.	Topsoil
2	0.2'-1.0'	sandy silt with gravel	10YR 4/3 BN.	2 glass frags	A.
3	1.0'-1.4'	silty sand with gravel	10YR 4/6 DK. YW. BN.	N C M.	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' South of ST 18		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.R. W.R.	SCREENED ? 1/4"	DATE : 1-15-98	TEST TYPE AND NO. : ST 19

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	silty loam (humus)	10YR 2/2 v. dk. brn	N.C.M.	Topsoil
2	0.2'-1.0'	sandy silt	10YR 3/4 dk. yel. brn	glass, ceramic, metal	A.
3	1.0'-1.5'	silty sand	10YR 4/6 dk. yel. brn	N.C.M.	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' West of ST 17		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.R. - W.R.	SCREENED ? 1/4"	DATE : 1-15-98	TEST TYPE AND NO. : ST 20

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	silty loam	10YR 2/1 black	1 metal pulley	Topsoil
2	0.2'-0.6'	silt	10YR 3/3 dk brn	metal, ceramic, glass	A
3	0.6'-1.0'	slightly clayey silt	10YR 4/4 dk brn	N.C.M.	subsoil
4	1.0'-1.5'	coarse sand with pebbles	10YR 6/6 brn yel.	N.C.M.	B subsoil
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- probable [illegible] with charcoal in 0.1 layer

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' West of ST 20		
SITE :	SUPERVISOR : W.Z	EXCAVATOR : L.R. W.Z	SCREENED ? 1/4"	DATE : 1-15-98	TEST TYPE AND NO. : ST 21

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	silty loam humus	10YR 2/2 dk brn	N.C.M.	Topsoil
2	0.3-0.6'	silt	10YR 3/3 brn	ceramic, glass	A.
3	0.6'-0.9'	medium grain sand	10YR 5/6 yel brn	N.C.M	B. subsoil
4	0.9'-1.3'	silty sand	10YR 6/6 brn yel	N.C.M.	subsoil
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' South of ST 19		
SITE :	SUPERVISOR : W.Z.	EXCAVATOR : W.Z. L.R.	SCREENED ? 1/4"	DATE : 1-15-98	TEST TYPE AND NO. : ST 22

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	silty loam (humus)	10YR 2/2 dk brn	N.C.M.	Topsoil
2	0.2'-0.9'	slightly sandy silt	10YR 3/3 brn	"	A.
3	0.9'-1.6'	sand with pebbles	10YR 4/4 dk brn	"	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing
COORDINATES : 50' South of ST 22

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	W.R	LR WR	1/4"	1-15-98	ST 23

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	silty loam (Humus)	10YR 2/2 v. dk. brn	N.C.M.	Topsoil
2	0.3-0.6'	slightly sandy silt	10YR 4/3 brn	coal discarded	A.
3	0.6'-1.2'	fine sand with pebbles	10YR 5/6 yel. brn	N.C.M.	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing
COORDINATES : 25' South 3 25' East of corner of Prop. on Park

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	W.R.	L.R. W.R.	1/4"	1-15-98	ST 24

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	silty loam Humus	10YR 2/1 black	N.C.M.	Topsoil
2	0.2'-1.6'	silt	10YR 3/2 v. dk. gry. brn.	"	A.
3	1.6'-1.9'	silty clay	10YR 3/1 v. dk. gry	"	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by water at 1.9'

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' west of ST 24		
SITE :	SUPERVISOR : W.R	EXCAVATOR : LR W.R	SCREENED ? 1/4"	DATE : 1-15-98	TEST TYPE AND NO. : ST 25

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.3	silty loam Humus	10YR 2/2 v. dk. br.	N.C.M.	Topsoil
2	0.3' - 0.6'	clayey silt	10YR 3/2 v. dk. gry br.	"	A.
3	0.6' - 1.1'	clayey silt with pebbles	10YR 4/1 dk. gry.	"	B subsoil
4	1.1' - 1.2'	slightly sandy silt	2.5Y 5/4 lt. olive br.	"	subsoil
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by rock at 1.2'

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' west of ST 25		
SITE :	SUPERVISOR : W.R	EXCAVATOR : LR W.R.	SCREENED ? 1/4"	DATE : 1-15-98	TEST TYPE AND NO. : ST 26

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.4'	Root mat silty loam	10YR 2/2 v. dk. br.	N.C.M.	Topsoil
2					
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by water and roots at 0.4'

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' West of ST 26		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : LR W.R.	SCREENED ? 1/4"	DATE : 1-15-98	TEST TYPE AND NO. : ST 27

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	silty loam Humus	10YR 2/2 v. dk. brn	N.C.M.	Topsoil
2	0.3'-0.8'	sandy silt	10YR 3/2 v. dk. gry. brn	"	A.
3	0.8'-1.2'	sand with small gravel	10YR 4/2 dk. gry brn.	"	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST. stopped by water at 1.2'

Cross Refs :

Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 50' South of ST 24		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : LR W.R.	SCREENED ? 1/4"	DATE : 1-15-99	TEST TYPE AND NO. : ST 28

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	silty loam (Humus)	10YR 2/2 v. dk. brn	N C M.	Topsoil
2	0.3'-1.3'	silt	10YR 4/3 brn	1 piece of [illegible]	A
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST. stopped by rock at 1.3'

Cross Refs :

Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 150' West of ST 28		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.R. W.R.	SCREENED ? 1/4"	DATE : 1-15-98	TEST TYPE AND NO. : ST 29

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	silty loam	10YR 3/2 v. dk. bn	N.C.M.	Topsoil
2	0.2'-1.9'	silty sand with clay inclusions	10YR 5/6 y'w bn.	"	Fill
3	1.9'-2.2	silty loam	10YR 3/2 v. dk. bn	"	Topsoil
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by water at 2.2'

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 9' West of Building		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.R. W.R.	SCREENED ? 1/4"	DATE : 1-14-98	TEST TYPE AND NO. : ST 30

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	sod silty loam	10YR 3/2 v. dk. bn.	N.C.M.	Topsoil
2	0.2'-0.6'	sand	10YR 3/1 v. dk. gry.	glass (sample only) iron, copper wire, metal	Fill
3	0.6'-1.1'	sand with pebbles	10YR 5/2 gry. bn	N.C.M.	subsoil
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing

COORDINATES : 25' S.W. of Barn extention corner

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	W.R	LR W.R.	1/4"	1-15-98	ST 31

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	silty loam	10YR 2/2 V. DK. BN	N.C.M.	Topsoil
2	0.3'-0.7'	silt	10YR 3/3 DK. BN.	"	A.
3	0.7-1.4'	sandy silt with pebbles	10YR 4/4 DK. BN	"	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing

COORDINATES : 50' S.W. of ST 31

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	W.R	L.R W.R	1/4"	1-15-98	ST 32

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	silty loam	10YR 2/2 V. DK. BN	N.C.M.	Topsoil
2	0.3'-0.8'	sandy silt	10YR 4/6 DK. YW. BN	"	A.
3	0.8'-1.3'	sandy silt	10YR 4/3 BN.	"	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : 30' S.W. of ST 32		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : LF LF	SCREENED ? 1/4"	DATE : 1-15-97	TEST TYPE AND NO. : ST 37

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	silty Loam	10YR 2/2 v. dk Br	N.C.M.	Topsoil
2	0.2'-1.3'	silt	10YR 3/3 dk Br	"	A
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by roots at 1.3'

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Senior Housing			COORDINATES : [illegible]		
SITE :	SUPERVISOR : WR	EXCAVATOR : WR	SCREENED ? 1/4"	DATE : 23 Jan. '98	TEST TYPE AND NO. : ST 34

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 – 0.3'	Silty loam w/ Turf	10 YR 3/3 Dk Br.	N.C.M.	Topsoil
2	0.3' – 0.9'	Silt w/ some gravel	10 YR 4/3 Br.	Ceramic	
3	0.9' – ?	Silty Sand w/ pebbles gravel	10 YR 5/6 Yl. Br.	N.C.M.	Subsoil
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Stopped @ 1.9 ft.

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tr[illegible]			COORDINATES : 50' [illegible] of S. [illegible]		
SITE :	SUPERVISOR : BG	EXCAVATOR : LF	SCREENED ? 1/4"	DATE : 4-19-96	TEST TYPE AND NO. : ST [illegible]

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-1.0'	silty sand	[illegible]	Recent brick [illegible]	B
2					
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- 0.1 and 0.2 levels absent due to construction disturbance.

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tr[illegible]			COORDINATES : [illegible]		
SITE :	SUPERVISOR : BG	EXCAVATOR : LF	SCREENED ? 1/4"	DATE : 4-17-96	TEST TYPE AND NO. : ST-[illegible]

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.4'	sod sandy silt	10YR 4/3 [illegible]	NCM	Topsoil
2	0-0.8'	silty sand	[illegible]	[illegible]	Fill
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- ST stopped by asphalt driveway at 0.8'

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tenney			COORDINATES : 59' SE of ST 36		
SITE :	SUPERVISOR : B G	EXCAVATOR : LR	SCREENED ? 1/4"	DATE : 2-19-96	TEST TYPE AND NO. : ST 37

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.5'	sod (0.05') silty sand	10YR 4/6 dk yw brown / 10YR 4/4 [illegible]	N.C.M.	Topsoil/F?
2	0.5-0.7'	sand	10YR 5/2 1 or 5/1 [illegible]	"	Hand Fill
3	0.7'-1.3'	sand	10YR 5/3 BN.	"	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- Fill layer approximately 0.2' in thickness
- ST filled with water at 1.3'

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tenney			COORDINATES : 59' S of ST 37		
SITE :	SUPERVISOR : B.G	EXCAVATOR : LR	SCREENED ? 1/4	DATE : 2-19-96	TEST TYPE AND NO. : ST 38

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.9'	sand	10YR 4/6 dk yw brn / 10YR 4/3 [illegible]	N.C.M.	F(gravel)
2	0.9-1.1'	silty sand	10YR 3/2 v. dk gr/. [illegible]		Fill
3	1.1'-1.3'	silt	10YR 2/1 Blk	"	A.
4	1.3'-1.6'	sand	10YR 5/3 Br.	"	B.
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- Asphalt layer at 0.9' to 1.0'

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington [illegible]			COORDINATES : 53' S.W. of ST 38		
SITE :	SUPERVISOR : B.G.	EXCAVATOR : L.P.	SCREENED ? 1/4"	DATE : 2-19-96	TEST TYPE AND NO. : ST 39

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.5'	sod sandy silt	10YR 2/2 v. dk. brn.	N.C.M.	Topsoil
2	0.5'-0.7'	sandy silt	7.5YR 4/6 dk. yel. brn.	[illegible]	Fill
3	0.7'-1.2'	silt	10YR 5/1 gray	N.C.M.	A
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by water at 1.2'

[illegible]

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Tannery			COORDINATES : 75' S of ST 39		
SITE :	SUPERVISOR : B.G.	EXCAVATOR : L.P.	SCREENED ? 1/4"	DATE : [illegible]-11-98	TEST TYPE AND NO. : ST 40

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.5'	sod silty sand	10YR 3/2 v. dk. gr. brn.	N.C.M.	Topsoil
2	0.5'-0.9'	silty sand	10YR 4/3 dk. brn.	"	A.
3	0.9'-1.1'	silty sand with clay	10YR 4/6 dk. yel. brn.	"	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : [illegible]			COORDINATES : [illegible]		
SITE :	SUPERVISOR : E.G	EXCAVATOR : L.F	SCREENED ? 1/4	DATE : 2-19-98	TEST TYPE AND NO. : ST 41

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	[illegible]	sod silty sand	[illegible]	N.C.M.	Typical
2	[illegible]	sand	[illegible]		A.
3	[illegible]	sand	[illegible]		B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- large quantity of stream gravels -

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : [illegible]			COORDINATES : [illegible]		
SITE :	SUPERVISOR : D.G	EXCAVATOR : L.R	SCREENED ? 1/4	DATE : 2-19-98	TEST TYPE AND NO. : ST 42

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	[illegible]	sod silty sand	[illegible]	N.C.M.	Typical
2	[illegible] - 0.8'	sand	[illegible]		A.
3	0.8' - 1.3'	sand	[illegible]		B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Township			COORDINATES : 5' [illegible] of ST 42		
SITE :	SUPERVISOR : B.G.	EXCAVATOR : L.R.	SCREENED ? 1/4"	DATE : [illegible] 19 98	TEST TYPE AND NO. : ST 42

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0'-0.1'	soil silty sand	[illegible]	N.C.M.	Topsoil
2	0.1'-0.2'	sand	[illegible]	[illegible]	A
3	0.2'-1.5'	sand	[illegible]	N.C.M.	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST [illegible] at 1.5'

[illegible] 15' East to avoid saturated soils

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Township			COORDINATES : 5' West of [illegible]		
SITE :	SUPERVISOR : [illegible]	EXCAVATOR : L.R.	SCREENED ? 1/4"	DATE : [illegible] 19 96	TEST TYPE AND NO. : ST 41

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.5'	soil [illegible]	[illegible]	N.C.M.	Topsoil
2	0.5'-0.7'	sandy silt	[illegible] black	[illegible]	Fill
3	0.7'-1.5'	sand [illegible] pebbles	[illegible]	N.C.M.	B ([illegible])
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : [illegible] Jamey			COORDINATES : 50' [illegible] of ST 30		
SITE :	SUPERVISOR : BG WR	EXCAVATOR : LR	SCREENED ? 1/4"	DATE : 2-20-96	TEST TYPE AND NO. : ST 45

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	sod silty sand	10YR 3/2 v dk gry brn	NCM	Topsoil
2	0.3'-0.7'	sand	10YR 4/6 dk yel brn	1 large piece of sheet metal (discarded)	Fill
3	0.7'-1.2'	silt	10YR 2/1 black	NCM	A
4	1.2'-1.6'	sand	10YR 5/1 gry	[illegible]	B
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : [illegible] Jamey			COORDINATES : 50' west of ST 45		
SITE :	SUPERVISOR : BG WR	EXCAVATOR : LR	SCREENED ? 1/4"	DATE : 2-20-97	TEST TYPE AND NO. : ST 46

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	sod silty loam	10YR 2/1 black	NCM	Topsoil
2	0.1'-1.3'	silt	10YR 3/2 v dk brn	7 shell frags, nails, [illegible] frag	A
3	1.3'-1.7'	sandy silt	10YR 4/6 dk yel brn	NCM	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by water at 1.7'

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Terrace			COORDINATES : 50' North of ST [illegible]		
SITE :	SUPERVISOR : WR BG	EXCAVATOR : LF BG	SCREENED ? 1/4'	DATE : [illegible] 97	TEST TYPE AND NO. : ST 47

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	sand silt	10YR 2/1 Black	NCM.	Topsoil
2	.1'-1.3'	slightly clayey silt	10YR 3/2 v dk gr br	shell, nails glass, ceramic	A.
3	1.3'-1.8'	sandy silt	10YR 4/6 dk yel br	NCM.	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington Terrace			COORDINATES : 115' South of ST [illegible]		
SITE :	SUPERVISOR : WL	EXCAVATOR : LF BG	SCREENED ? 1/4'	DATE : [illegible]-96	TEST TYPE AND NO. : ST 48

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	sandy loam	10YR 2/2 v dk br.	NCM.	Topsoil
2	.1'-.9'	silty sand	10YR 2/2 v dk br	1 [illegible] slag 1 glass frag	A
3	.9'-1.4'	sand	10YR 4/6 dk yel br	NCM.	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tammany			COORDINATES : 11' N.E. of ST 41		
SITE :	SUPERVISOR : W.F.	EXCAVATOR : L.R. B.G.	SCREENED ? 1/4"	DATE : 2-20-98	TEST TYPE AND NO. : ST 49

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.2'	soil sandy silt	10YR 3/3 dk br	N.C.M.	Topsoil
2	0.2' - 0.7'	sandy silt	10YR 3/2 v dk gry br	1 nail 1 ceramic frag.	A
3	0.7' - 1.2'	sandy silt with clay	10YR 3/3 dk br	N.C.M.	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tammany			COORDINATES : 12' SW of ST 41		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.R.	SCREENED ? 1/4"	DATE : 2-20-9	TEST TYPE AND NO. : ST 50

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0 - 0.1'	soil sandy silt	10YR 3/2 v dk gry br	N.C.M.	Topsoil
2	0.1' - 0.7'	silt	10YR 3/3 dk br	"	A.
3	0.7' - 1.2'	sandy silt	10YR 4/6 dk yw br	"	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tunney			COORDINATES : 10' SE of ST 41		
SITE :	SUPERVISOR : WF	EXCAVATOR : LF	SCREENED ? 1/4"	DATE : 2-20-98	TEST TYPE AND NO. : ST 51

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-02'	sod silty sand	10YR 3/2 v dk gry brn	NCM	Topsoil
2	02'-10'	silty sand	10YR 4/3 dk gry brn	"	A/Fill
3	10'-13'	sand	10YR 4/6	"	Fill
4	13'-14	sand	10YR 5/1 gry brn	"	B (subsoil)
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tunney			COORDINATES : 10' East of ST 51		
SITE :	SUPERVISOR : WR	EXCAVATOR : LR	SCREENED ? 1/4"	DATE : 2-20-98	TEST TYPE AND NO. : ST 52

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-01'	sod sandy silt	10YR 3/2 v dk gry brn	N.C.M.	Topsoil
2	01'-04'	silt	10YR 3/3 dk brn	N.C.M.	A
3	04'-09'	silt	10YR 2/1 Black	Brick, 1 piece coffee	
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)
ST stopped by water at 0.9'

Cross Refs : Dimensions of rat
16' in diameter
3' in depth
stones are 1" in width.

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Hudson Tannery			COORDINATES : 10' South of ST 39		
SITE :	SUPERVISOR : W.R.	EXCAVATOR : L.R.	SCREENED ? 1/4"	DATE : 8-20-98	TEST TYPE AND NO. : ST 53

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	sod silt	10YR 2/1 Black	N C M.	Topsoil
2	.01'-0.8'	silt	10YR 3/2 V Dk Brn.	3 brick frags, 1 ceramic, 1 nail, 1 piece of window glass, 1 metal frag	A.
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- ST stopped by rock and water at 0.8'.

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Hudson Tannery			COORDINATES : 10' S of ST 36		
SITE :	SUPERVISOR : WR	EXCAVATOR : LR.	SCREENED ? 1/4"	DATE : 8-20-98	TEST TYPE AND NO. : ST 59

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	sod sandy silt	10YR 3/3 Dk Bn	N C M.	Topsoil
2	.01'-1.3'	sandy silt	10YR 5/3 5/4 w/ 10YR 5/1	metal frags. (paint bucket?)	Fill
3	1.3'-1.4'	clayey silt	10YR 5/1 Gry	N C M.	Fill
4	1.4'-1.9'	silt	10YR 2/1 Black	N C M.	A.
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

ST stopped by water at 1.9'.

Cross Refs :	
Plan	Photos
Section	Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tannery

COORDINATES : 10' N.W. of ST 56

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	WR	LR BG	1/4"	2-20-98	ST 55

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	sod silt	10YR 3/2 v. dk. gry brn	N.C.M.	Topsoil
2	0.1'-0.8'	silt	10YR 4/6 dk. yel. brn.	asphalt.	Fill
3					
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

- ST stopped by asphalt and wood planks.

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington - Tannery

COORDINATES : 15' NW of ST 43

SITE :	SUPERVISOR :	EXCAVATOR :	SCREENED ?	DATE :	TEST TYPE AND NO. :
	W.R	L.R	1/4"	2-20-98	ST 56

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.3'	sod silty loam	10YR 3/3 dk. brn.	N.C.M.	Topsoil
2	0.3'-0.5'	Sandy silt	10YR 3/2 v. dk. gry brn	1 ceramic frag 1 glass frag	A
3	0.5'-1.3'	sand with small pebbles	10YR 4/6 dk. yel. brn	N.C.M.	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Hutchinson · Tr[illegible]			COORDINATES : 10' NE of ST 43		
SITE :	SUPERVISOR : W R	EXCAVATOR : LR	SCREENED ? 1/4"	DATE : 2-20-9[illegible]	TEST TYPE AND NO. : ST 57

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.1'	sod silty loam	10YR 3/3 DK BN.	N.C.M.	Topsoil
2	.1'-0.5'	sandy silt	10YR 5/3 [illegible]	"	A.
3	0.5'-1.2'	sand	10YR 4/6 DK YL BN	"	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Hutchinson · T[illegible]			COORDINATES : 10' SE of ST 43		
SITE :	SUPERVISOR : WE.	EXCAVATOR : LR	SCREENED ? 1/4"	DATE : 2-20-98	TEST TYPE AND NO. : ST · 56

STRATIGRAPHY :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-0.2'	sod silty loam	10YR 3/3 DK. BN.	N.C.M.	Topsoil
2	.2'-0.7'	sandy silt	10YR [illegible] DK GRY. [illegible]	1 glass frag	A.
3	0.7'-1.3'	sand with [illegible]	10YR 4/6 DK YL BN	N.C.M.	B
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :

Plan

Section

Photos

Notebook

SURVEY RECORD SHEET : Postholes, Auger holes, Shovel tests

PROJECT : Huntington. Tannery			COORDINATES : 10' SW of ST 28		
SITE :	SUPERVISOR : W.P.	EXCAVATOR : L.P. B.G.	SCREENED ? 1/4"	DATE : 4-20-98	TEST TYPE AND NO. : ST 29

STRATIGRAPHY. :

LAYER	DEPTH *	DESCRIPTION	COLOR	CULT. MAT.	NOTES
1	0-01'	sod silty loam	10 YR 3/3 DK BN.	N.C.M.	Topsoil
2	01'-03'	silty sand	10YR 4/4 DK YEL BN	"	A.
3	03'-0.8'	sand	10YR 4/6 DK YEL BN	"	B.
4					
5					
6					
7					
8					

* Give depths relative to ground surface

General Notes : (Note if cult. material retained, and if soil samples are taken.)

Cross Refs :	
Plan	Photos
Section	Notebook

APPENDIX 2

ARTIFACT INVENTORY

APPENDIX 2

COMPLETE ARTIFACT INVENTORY

TABLES FOR CODING MATERIAL CULTURE

A. Table for National Park Service Material Culture Data Base Coding Chart: Groups, Classes and Material

B. Table for Data Base Coding Chart: Groups and Classes

C. Table for Data Base Coding Chart: Prehistoric Artifacts - Class and Morphology

D. Table for Data Base Coding Chart: Ambiguous Items of Material Culture

APPENDIX 2

A. Table for National Park Service Material Culture Data Base Coding Chart: Groups, Classes and Materials

GROUPS AND CLASSES

01 KITCHEN GROUP
- 01 Dishes
- 02 Containers
- 03 Tableware
- 04 Kitchenware

02 FAUNAL/FLORAL GROUP
- 01 Mammalia
- 02 Aves
- 03 Reptilia
- 04 Amphibia
- 05 Pisces
- 09 Ethnofaunal/Zoological
- 16 Ethnobotanical

03 ARCHITECTURAL GROUP
- 01 Window glass
- 02 Nails
- 03 Spikes
- 04 Door & Window hardware
- 05 Other structural hardware
- 06 Construction materials

04 FURNITURE GROUP
- 01 Hardware
- 02 Materials
- 03 Lighting device
- 04 Decorative furnishings

05 ARMS GROUP
- 01 Projectiles
- 02 Cartridge case
- 03 Arms accessories
- 04 Gun parts

06 CLOTHING GROUP
- 01 Apparel
- 02 Ornamentation
- 03 Making and repair
- 04 Fasteners

07 PERSONAL GROUP
- 01 Coins
- 02 Keys
- 03 Writing paraphernalia
- 04 Grooming and hygiene
- 05 Personal ornamentation
- 06 Other personal items

08 TOBACCO PIPE GROUP
- 01 Kaolin pipe class
- 02 Nonkaolin pipe
- 03 Smoking accessories

09 ACTIVITIES GROUP
- 01 Construction tools
- 02 Farm tools
- 03 Leisure activities
- 04 Fishing gear
- 05 —
- 06 —
- 07 Pottery class
- 08 Storage items
- 09 —
- 10 Stable and barn
- 11 Miscellaneous hardware
- 12 Specialized activities
- 13 Military objects
- 14 Housekeeping
- 15 Public services

10 PREHISTORIC GROUP
- 01 Hunting and fishing activities
- 02 Domestic activities
- 03 Stone working
- 04 Wood working
- 05 Digging tools
- 06 Other fabricating or processing tools
- 07 Other general utility tools
- 08 Ceremonial & ornamental
- 09 Miscellaneous

11 SAMPLES
- – Charcoal samples for radiocarbon dating
- – Flotation samples
  - – light fraction
  - – heavy fraction
- – Soil samples

98 UNSPECIFIED GROUP

MATERIALS - COMMON LIST (CLASSIFIED)

INORGANIC MATERIALS

CERAMIC
- 001 Porcelain
- 002 Stoneware
- 003 Earthenware
- 004 Whiteware/ironstone/granite
- 134 Undifferentiated ceramic

CLAY
- 047 Clay
- 062 Kaolin
- 079 Red clay

CONSTRUCTION
- 069 Brick
- 071 Cement
- 070 Mortar
- 072 Plaster

GLASS
- 013 Milk glass
- 078 Glass
- 112 Slag and clinker

METALS
- 005 Tin
- 019 Silver
- 021 Gold
- 026 Cuprous metal
- 028 Ferrous alloy
- 029 Aluminum
- 032 Steel
- 034 Lead
- 035 Chrome
- 096 Mercury
- 136 Undifferentiated metal

STONE
- 129 Agate
- 075 Asbestos
- 133 Chalk
- 052 Chert
- 042 Granite
- 046 Gravel
- 109 Jet
- 038 Limestone
- 041 Marble
- 049 Mica
- 058 Obsidian
- 057 Ochre
- 068 Precious stone
- 053 Quartz
- 054 Quartzite
- 039 Sandstone
- 044 Shale
- 040 Slate
- 060 Steatite
- 043 Schist
- 126 Undifferentiated stone

ORGANIC MATERIALS

CELLULOSIC
- 115 Bark
- 108 Burlap
- 128 Charcoal
- 092 Cork
- 087 Cotton
- 131 Fiberboard/masonite
- 085 Hemp
- 011 Paper
- 006 Wood
- 121 Cellulose seeds/ seed covering

CONSTRUCTION
- 093 Asphalt
- 125 Formica
- 101 Linoleum
- 102 Tar paper

WAX
- 074 Wax

GUM/RESIN
- 010 Rubber, elastic
- 009 Rubber, hard

PETROCHEMICALS
- 073 Carbon
- 095 Coal
- 048 Graphite
- 116 Tar

PROTEIN
- 118 Chitin (arthropod, exoskeleton)
- 106 Felt
- 122 Flesh
- 016 Hair
- 117 Keratin (horns/fingernail/claws)
- 015 Leather
- 107 Silk
- 090 Sponge, natural
- 105 Wool

COMBINATION MATERIALS
- 017 Bone
- 132 Ivory
- 067 Pearl
- 089 Shell

SYNTHETIC MATERIALS
- 103 Celluloid
- 088 Nylon
- 008 Plastic
- 077 Soap
- 091 Sponge, synthetic
- 104 Synthetic

TEXTILE
- 151 Undifferentiated textile

APPENDIX 2

B. Table for Data Base Coding Chart: Groups and Classes

GROUPS AND CLASSES		SAMPLE ARTIFACTS
01	KITCHEN	
	01 Dishes	Plate, cup, salt cellar
	02 Containers	Bottle glass fragments
	03 Tableware	Eating utensils
	04 Kitchenware	Cooking utensils, pot, kettle
02	FAUNAL/FLORAL GROUP	
	01 Mammalia	Mammal
	02 Aves	Bird
	03 Reptilia	Reptile
	04 Amphibia	Amphibian
	05 Pisces	Fish
	09 Other ethnofaunal/zoological	Oyster, crab, egg shells
	16 Ethnobotanical	Seeds, nuts
03	ARCHITECTURAL GROUP	
	01 Window glass	Window pane glass
	02 Nails	Nails
	03 Spikes	Railroad spikes
	04 Door & Window hardware	Doorknob, door hinge
	05 Other Structural hardware	Pipe, fireplace tiles
	06 Construction materials	Brick, mortar, roofing
04	FURNITURE GROUP	
	01 Hardware	Handle, drawer pull, latch
	02 Materials	Stove parts, chair part, bedframe
	03 Lighting device	Candlestick, lamp base
	04 Decorative furnishings	Flowerpot, clock parts, vase
05	ARMS GROUP	
	01 Projectiles	Shot, bullets
	02 Cartridge case	Cartridge
	03 Arms accessories	Gun flints, bullet molds, powder horn
	04 Gun parts	Pistol barrel, flintlock assembly
06	CLOTHING GROUP	
	01 Apparel	Hat, coat, scarves, glove, shoe
	02 Ornamentation	Beads, sequin, hatpin, feather
	03 Making and Repair	Thimble, straight pin, scissors
	04 Fasteners	Buttons, snaps, buckles, cufflink
07	PERSONAL GROUP	
	01 Coins	Coins
	02 Keys	Door lock keys, padlock keys
	03 Writing paraphernalia	Quill, fountain pen nib, graphite pencil
	04 Grooming & hygiene	Hairbrush, razor, mirror, tweezers
	05 Personal ornamentation	Jewelry, ribbon, ornamental comb
	06 Other personal items	Pocket watch, key chain, pocket knife

GROUPS AND CLASSES		
08	TOBACCO PIPE GROUP	
	01 Kaolin pipe	Kaolin pipe
	05 Nonkaolin pipe	Corncob pipe
	06 Smoking accessories	Snuff tin, cuspidor, tobacco tin, pipe cleaner
09	ACTIVITIES GROUP	
	01 Construction tools	Axe head, drill bit, saw, paintbrush
	02 Farm tools	Hoe, rake, plow blade
	03 Leisure activities	Marbles, jew's harp, doll parts
	04 Fishing gear	Fish hooks, sinkers, crab trap
	05 —	
	06 —	
	07 Pottery class	Indian water jar, effigy pot
	08 Storage items	Crock, barrel staves, sacks
	09 —	
	10 Stable and barn	Stirrup, horseshoe, rein, harness bell
	11 Miscellaneous hardware	Rope, bolts, nuts, washers, chain
	12 Specialized activities	Button blanks, metallurgic debris, saggars
	13 Military objects	Insignia, bayonets
	14 Housekeeping	Broom, coal hanger, washboard
	15 Public services	Sewer pipe, water pipe
10	PREHISTORIC GROUP	
	01 Hunting and Fishing	Projectile point, atlatl hook
	02 Domestic	Vessel, mortar, pestle
	03 Stone working	Hammerstone, baton, flake, core
	04 Wood working	Celt, grooved axe
	05 Digging Tools	Hoe
	06 Other fabricating or processing tools	Drill, chisel, needle
	07 Other general utility tools	Knife, prismatic blade, chopper
	08 Ceremonial & ornamental	Sheet, gorget, bead
	09 Miscellaneous	Function unknown

APPENDIX 2

C. Table for Data Base Coding Chart: Prehistoric Artifacts - Class and Morphology

Class 01: Hunting and Fishing Activities

01 - Projectile point
02 - Birdstone
03 - Bannerstone
04 - Boatstone
05 - Fish hook
06 - Netsinker
07 - Atlatl hook

Class 02: Domestic Activities

13 - vessel
14 - mortar
15 - pestle
16 - muller
17 - groundstone fragment

Class 03: Stone Working

21 - Hammerstone
22 - Baton
23 - Tine
24 - Splinter
25 - Drift or "punch"
26 - Anvil
27 - Flake, primary
28 - Flake, secondary
29 - Bifacial thinning flake
30 - Core
31 - Blank
32 - Tested piece

Class 04: Wood Working

37 - Celt
38 - Grooved axe
39 - Spokeshave

Class 16: Ethnobotanical

Seeds
Nuts

Class 06: Other Fabricating or Processing Tools

51 - Perforator
52 - Drill
53 - Awl
54 - Reamer
55 - Chisel
56 - Microperforator
57 - Needle
58 - Graver

Class 07: General Utility Tools

67 - Knife
68 - Side scraper
69 - Core scraper
70 - Stemmed end scraper
71 - Other end scraper
73 - Prismatic blade
74 - Chopper
75 - Utilized/Retouched flake
76 - Pitted pebble
77 - Gouge
78 - Maul
79 - Abrader
80 - Whetstone
81 - Biface
82 - Adze
83 - Distolateral scraper
84 - Bifacial end scraper
85 - Bifacial scraper

Class 08: Ceremonial & Ornamental Objects

85 - Angled pipe
86 - Tube
87 - Platform pipe
88 - Cloud blower pipe
89 - Sheet
90 - Plates
91 - Comb
92 - Bead
93 - Gorget
\- - Hematite
\- - Ochre

APPENDIX 2

D. Table for Data Base Coding Chart: Ambiguous Items of Material Culture

Note: The items listed below may be ambiguous or hard to place in a taxonomic category, but as a convention, for inventory purposes, will be coded as follows:

Unidentified wood fragments	98	00	006
Construction wood	03	06	006
Pegs, Wood planks	03	06	006
Twigs, branches	09	16	006
Burned wood (partial)	Code as wood (above) and put "burnt wood" in the comments section		
Charcoal and all small fragments of completely burnt wood	Code as charcoal		
Coal	98	00	095
Slag, burned coal, vitrified metalworking or manufacturing by-products	98	00	112
Pantiles	03	06	003
Delft fireplace tiles, wall skirting, etc.	04	04	003
Porcelain bathroom tiles, other bathroom furniture (tub, toilet, etc.)	03	05	001
Chamber pot	04	02	00-
Flowerpot	04	04 002	00-
Teeth	02	-	132
Fish scales	02	09	118
Coral	04	04	119
Eggshell	02	09	119
Seeds, seed covering	02	16	121
Schist (construction)	03	06	043
Schist (unidentified)	98	00	043
Red brick	03	06	169
Yellow brick	03	06	155
Linoleum	03	06	101
Metal hardware (probably construction)	03	06	( )
Furniture hardware	04	01	( )
Miscellaneous hardware (other and unidentified including screws, car parts)	09	11	( )
Leather shoe parts	06	01	015
Unidentified leather scraps	98	00	015
Leather personal items	07	()	015

Artifact Inventory
Stage 1
Tannery Park Senior Housing
Huntington, New York

CONTEXT: 1001

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT
1001	01	02	006	078	Bottle glass	1	Complete: Embossed S; Half Pint Liquid, Park Ave. Dairy, D.H. Sweezey Registered, Huntington, L.I.			9

Subtotal : 1

CONTEXT: 1002

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
1002	03	06	022	070	Concrete/Mortar	1	Sample from vat cap			9

Subtotal : 1

CONTEXT: 3002.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3002.02	03	02		028	Nail	1				1

Subtotal : 1

CONTEXT: 3003.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3003.02	98			098	Coal					D

Subtotal :

CONTEXT: 3004.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3004.02	01	02		078	Container glass	1				3
3004.02	04	04		003	Flowerpot	5				2
3004.02	98			053	Quartz	1				4

Subtotal : 7

CONTEXT: 3004.03

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3004.03	01	02		078	Container glass	1	Amber			5

Subtotal : 1

CONTEXT: 3005.01

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3005.01	03	06	015	069	Brick	1				6

Subtotal : 1

CONTEXT: 3005.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3005.02	01	02		078	Container glass	1				7

Subtotal : 1

CONTEXT: 3006.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3006.02	09	11		008	Plastic					D
3006.02	98			098	Coal					D

Subtotal :

CONTEXT: 3007.01

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3007.01	03	06	015	069	Brick					D

Subtotal :

CONTEXT: 3008.01

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3008.01	09	11		008	Plastic					D

Subtotal :

CONTEXT: 3009.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3009.02	01	02		013	Jar	2	Molded milk glass			9
3009.02	03	01		078	Flat glass	1				8
3009.02	98			098	Coal					D
3009.02	98			112	Slag					D

Subtotal : 3

CONTEXT: 3010.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3010.02	98			040	Slate	1				10

Subtotal : 1

CONTEXT: 3011.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3011.02	98			053	Quartz	1				11

Subtotal : 1

CONTEXT: 3012.03

Artifact Inventory
Stage 1
Tannery Park Senior Housing
Huntington, New York

CONTEXT: 3012.03

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3012.03	98			098	Coal					D

Subtotal :

CONTEXT: 3013.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3013.02	98			098	Coal					D
3013.02	98			112	Slag					D

Subtotal :

CONTEXT: 3014.01

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3014.01	09	11	011	028	Washer	1				12

Subtotal : 1

CONTEXT: 3014.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3014.02	03	01		078	Flat glass	2				13

Subtotal : 2

CONTEXT: 3015.01

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3015.01	03	01		078	Flat glass	1				14

Subtotal : 1

CONTEXT: 3015.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3015.02	01	01		078	Tableware?	1	Plate? Saucer?			21
3015.02	01	02		078	Container glass	1				18
3015.02	01	02		078	Container glass	1	Base; Light green			20
3015.02	01	02		078	Container glass	1	Light aqua			19
3015.02	01	02		078	Container glass	1	Molded decoration			17
3015.02	03	01		078	Flat glass	2				16
3015.02	03	02		028	Nails	4				22
3015.02	09	11		028	Metal disc	1				15

Subtotal : 12

CONTEXT: 3016.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3016.02	01	02		078	Container glass	1				23

CONTEXT: 3016.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3016.02	01	02		078	Container glass	14	Amber brown			2
3016.02	09	03	027	047	Skeet	4				2
3016.02	09	11		028	Metal strip	1				2

Subtotal : 20

CONTEXT: 3017.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3017.02	01	01		004	Ironstone	4				2
3017.02	01	02		078	Container glass	1				3
3017.02	01	02		078	Container glass	1	Light green			2
3017.02	01	02		078	Container glass	1	Molded design			3
3017.02	03	01		078	Flat glass	2				2

Subtotal : 9

CONTEXT: 3018.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3018.02	01	02		078	Container glass	2				32

Subtotal : 2

CONTEXT: 3019.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3019.02	01	01		004	Ironstone	1	Plate rim			33
3019.02	01	01		013	Tableware	1	Bowl/cup rim; Milk glass			34
3019.02	03	02		028	Nail	1				35

Subtotal : 3

CONTEXT: 3020.01

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3020.01	09	03	045	028	Metal pulley	1				36

Subtotal : 1

CONTEXT: 3020.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3020.02	03	01		078	Flat glass	1				38
3020.02	03	01		078	Plate glass	1				39
3020.02	03	04		028	Brace	1				41
3020.02	03	04	050	028	Door? spring	1				42
3020.02	03	05	021	003	Drainpipe	1				37
3020.02	09	11		028	Metal	6				40

Subtotal : 11

CONTEXT: 3021.02

CONTEXT: 3021.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3021.02	03	01		078	Flat glass	1				43
3021.02	03	06		003	Tile	2	Glazed decoration			45
3021.02	03	06		069	Brick	1				44

Subtotal : 4

CONTEXT: 3028.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3028.02	09	11		028	Metal	1				46

Subtotal : 1

CONTEXT: 3028.03

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3028.03	98			098	Coal					D

Subtotal :

CONTEXT: 3030.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3030.02	01	02	006	078	Milk bottle	2	Mend			52
3030.02	01	02	006	078	Milk bottle	9	Some mend			51
3030.02	01	02	008	078	Medicine bottle	1	Sloped down, fluted shoulder, Automatic machine made			50
3030.02	04	02	005	032	Cap/Finial	1	Furniture finial?			49
3030.02	09	11		028	Metal	1				47
3030.02	09	11	032	032	Wire	1				48

Subtotal : 15

CONTEXT: 3034.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3034.02	01	02		002	Stoneware	1	Salt glazed interior & exterior; Cobalt blue decoration exterior			53

Subtotal : 1

CONTEXT: 3035.01

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3035.01	09	08	007	108	Burlap					D

Subtotal :

CONTEXT: 3036.02

CONTEXT: 3036.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3036.02	01	02		078	Container glass	1	Pale green			54
3036.02	98			112	Slag	1				D

Subtotal : 2

CONTEXT: 3039.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3039.02	02	09		089	Shell	3	Oyster			55

Subtotal : 3

CONTEXT: 3043.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3043.02	01	01		004	Ironstone	1				59
3043.02	01	01		004	Ironstone	2	Rim-1; Mend; Cup/Bowl			60
3043.02	01	02		078	Container glass	1	Pale blue			57
3043.02	03	01		028	Nail	1				56
3043.02	04	04	004	078	Cased/Layered glass	1	Turquoise and white			58

Subtotal : 6

CONTEXT: 3044.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3044.02	03	06	015	069	Brick	2	Quartz temper			62
3044.02	03	06	015	069	Brick	3				61

Subtotal : 5

CONTEXT: 3045.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3045.02	09	11		136	Sheet metal					D

Subtotal :

CONTEXT: 3046.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3046.02	01	01		003	Creamware	1		South 1972:Figure 1; Brown 1982:15	1762-1820	66
3046.02	02	09		089	Shell	7	Clam			63
3046.02	03	01		078	Flat glass	1				65
3046.02	03	02		028	Nails	2				64

Subtotal : 11

CONTEXT: 3047.02

CONTEXT: 3047.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3047.02	01	01		003	Creamware	1		South 1972:Figure 1; Brown 1982:15	1762-1820	69
3047.02	01	01		003	Redware	3	Clear glaze			70
3047.02	01	02		078	Bottle glass	1	Base; Embossed "EASTERN"			74
3047.02	01	02		078	Bottle glass	1	Olive green			75
3047.02	01	02		078	Container glass	2				73
3047.02	02	09		089	Shell	4	Clam			68
3047.02	03	01		078	Flat glass	1				72
3047.02	03	01		078	Flat glass	1	Light blue			71
3047.02	03	02		028	Nail	1				67
3047.02	98			095	Coal	1				D

Subtotal : 16

CONTEXT: 3048.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3048.02	01	02		078	Bottle glass	1	Light aqua; Rounded lip/blob top			76
3048.02	98			095	Coal	1				D

Subtotal : 2

CONTEXT: 3049.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3049.02	01	01		003	Creamware	1		South 1972:Figure 1; Brown 1982:15	1762-1820	78
3049.02	03	01		028	Nail	1				77

Subtotal : 2

CONTEXT: 3052.03

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3052.03	03	04	018	026	Hinge/Hasp	1				80
3052.03	03	06	015	069	Brick	1				79

Subtotal : 2

CONTEXT: 3053.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3053.02	01	01		004	Ironstone	1	Underglaze transfer print black	Majewski & O'Brien 1987:145	1828-1860	84
3053.02	03	02		028	Nail	1				82
3053.02	03	06	015	069	Brick	1				81
3053.02	03	06	015	069	Brick	2	Quartz temper			85
3053.02	09	11		136	Corroded metal	1				83
3053.02	98			137	Styrofoam	1				D

Subtotal : 7

CONTEXT: 3054.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3054.02	09	01	018	029	Painted can	2				86

Subtotal : 2

CONTEXT: 3055.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3055.02	09	15		093	Asphalt					D

Subtotal :

CONTEXT: 3056.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3056.02	01	01		004	Ironstone	1				87
3056.02	03	01		078	Flat glass	1				88

Subtotal : 2

CONTEXT: 3058.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
3058.02	03	01		078	Flat glass	1				89

Subtotal : 1

CONTEXT: 5001.02

CONTEXT	GP	CL	MPH	MAT	IDENTITY	COUNT	COMMENTS	REFERENCE	RANGE	CAT#
5001.02	01	02		078	Bottle glass	6	Green			90

Subtotal : 6

Total : 168

APPENDIX M

ENVIRONMENTAL SITE ASSESSMENT, PHASE I

NP&V, LLC

December 23, 2004

NELSON POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Phase I
Environmental Site Assessment

Kiruv Estates

Huntington, New York

NP&V Job# 97110

December 23, 2004

CONFIDENTIAL AND PRIVILEGED

Phase I

Environmental Site Assessment

Kiruv Estates

Huntington, New York

THIS DOCUMENT CONTAINS 30 PAGES OF TEXT

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Two (2) copies to client

One (1) copy retained in NP&V file

Prepared For:	Mr. Jay Viders Kiruv Capital Corporation 1 Old Country Road Carle Place, New York 11514
Prepared By:	Mr. Charles J. Voorhis, CEP, AICP Nelson, Pope & Voorhis, LLC 572 Walt Whitman Road Melville, New York 11747 (631) 427-5665

Nelson, Pope & Voorhis, LLC (NP&V) understands that our client (and their successors or assigns) are relying upon the contents of this Phase I Environmental Site Assessment report for the above referenced property in making a loan secured by or affecting the property and/or acquiring the property as the case may be. The format of this Phase I Environmental Site Assessment was predicated upon general guideline requirements established by individual lending institutions, American Society for Testing and Materials Standards (1527-00), various professional organizations, and our professional judgment.

NP&V

NELSON, POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Phase I
Environmental Site Assessment

Kiruv Estates

CONTENTS

1.0	**SUMMARY**	Page 1 of 30
2.0	**INTRODUCTION**	
	2.1 PURPOSE	Page 4 of 30
	2.2 SPECIAL TERMS AND CONDITIONS	Page 4 of 30
	2.3 LIMITATIONS AND EXCEPTIONS	Page 5 of 30
	2.4 AUDIT METHODOLOGY	Page 7 of 30
3.0	**SITE DESCRIPTION**	
	3.1 LOCATION AND LEGAL DESCRIPTION	Page 8 of 30
	3.2 SITE AND VICINITY CHARACTERISTICS	Page 8 of 30
	3.3 DESCRIPTION OF SITE IMPROVEMENTS	Page 8 of 30
	3.3.1 Site Conditions	Page 8 of 30
	3.3.2 Site User Information	Page 10 of 30
	3.3.3 Current Uses of the Property	Page 10 of 30
	3.3.4 Past Uses of the Property	Page 11 of 30
	3.3.5 Adjacent Land Uses	Page 11 of 30
	3.3.6 Site Map	Page 11 of 30
4.0	**ENVIRONMENTAL RECORDS REVIEW**	
	4.1 STANDARD ENVIRONMENTAL RECORD SOURCES	Page 13 of 30
	4.1.1 USEPA	Page 13 of 30
	4.1.2 NYSDEC	Page 15 of 30
	4.1.3 SCDHS	Page 17 of 30
	4.1.4 Local Agencies	Page 18 of 30
	4.2 PHYSICAL SETTING	Page 18 of 30
	4.2.1 Soils and Topography	Page 18 of 30
	4.2.2 Water Resources	Page 19 of 30
	4.3 SITE CLASSIFICATIONS	Page 21 of 30
	4.3.1 Wetlands	Page 21 of 30
	4.3.2 Coastal Barrier Improvements/Flood Plains	Page 21 of 30
	4.3.3 Critical Habitat/Endangered Species	Page 21 of 30
	4.4 HISTORICAL USE INFORMATION	Page 23 of 30

5.0 SITE RECONNAISSANCE AND INTERVIEW
5.1 HAZARDOUS SUBSTANCES Page 24 of 30
5.2 WASTEWATER DISPOSAL Page 24 of 30
5.3 ABOVEGROUND AND UNDERGROUND TANKS Page 24 of 30
5.4 DRUM STORAGE Page 25 of 30
5.5 POLYCHLORINATED BIPHENYLS (PCBs) Page 25 of 30
5.6 SOLID WASTE DISPOSAL Page 25 of 30
5.7 WELLS Page 25 of 30

6.0 FINDINGS AND CONCLUSIONS Page 26 of 30

7.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL Page 27 of 30

8.0 REFERENCES Page 28 of 30

APPENDICES Page 30 of 30

Phase I

Environmental Site Assessment

Kiruv Estates

1.0 SUMMARY

The subject property has been inspected and reviewed independently by Nelson, Pope & Voorhis, LLC in order determine if potential environmental or public health concerns are present. This report is intended to identify Recognized Environmental Conditions (as defined in ASTM Standards on Environmental Site Assessments for Commercial Real Estate) on the subject property based on the four (4) basic components of a Full Phase I Environmental Site Assessment (ESA): records review, site reconnaissance, interviews and evaluation and reporting.

The subject property lies in the Hamlet of Huntington, Town of Huntington, County of Suffolk, New York. The subject property is a 7.5 acre parcel of developed land. The property is located on the southwest corner of Park Avenue (CR 35A) and Woodhull Road. The property is more particularly described as Suffolk County Tax Map # 0400-073-01-38, 41.1, 42.

The subject property contains four (4) residential structures, an old barn and a silo. A small pond is located on the east side of the main house and a wetland area is located in the southeast portion of the property.

The main house is a two and a half (2½) story wood framed structure located in the north central portion of the property. This house is heated by an oil-fired boiler located in the basement; fuel oil is supplied by a 275 gallon above ground fuel oil storage tank situated in the southwest corner of the basement. Approximately 50 to 100 linear feet of suspected asbestos containing pipe wrap insulation was observed on overhead pipes in the basement. This house is connected to an on-site sanitary system and public water supply system. Three (3) sump pumps and several floor drains were observed in the basement. These sump pumps discharge through the eastern basement wall and into a black plastic corrugated pipe. This pipe was buried but appeared to be leading to the east towards the pond. No pipe outlet was found on the bank of the pond. The pond is identified as a New York State Department of Environmental Conservation (NYSDEC) designated wetland (H-35).

The second house is located to the south of the main house. This house is a single story wood framed structure on a concrete slab. A natural gas-fired heating/air conditioning unit is located in the attic. A natural gas-fired hot water heater is located in a closet in the northeast corner of the building. This unit is connected to an on-site sanitary system and the public water supply system.

The third house located in the southwest corner of the property on Woodhull Road is a two and a half (2½) story wood framed structure situated on a concrete foundation. This house was vacant and under renovation at the time of the site reconnaissance. No heating system was observed in the basement; however, two (2) copper lines that were connected to one of the two (2) above ground fuel oil storage tanks were observed. Based on the location of the copper line, it appears that the former oil burner was situated over a hole broken out of the concrete floor. At the time of the site reconnaissance, this hole contained concrete block with a metal plate on top of the blocks. A gas meter was observed in the northwest corner of the basement. A sump pump which discharged to the ground on the north side of the house is located in the northeast portion of the basement. Water stains were present on the concrete floor in the vicinity of the hole located in the center of the basement. This unit is connected to an on-site sanitary system and the public water supply system.

The fourth house located to the west of the main house, fronting on Woodhull Road is a one and a half (1½) story wood framed structure situated on a stone foundation. The house was heated by two (2) natural gas heaters located in the living room and kitchen. The small basement formed by the stone foundation was empty at the time of the site reconnaissance. This unit is connected to an on-site sanitary system and the public water supply system.

An old cow barn and silo are located in the south-central portion of the property. These structures are in a deteriorated condition. The barn contained the old metal barriers to hold the cows during the milking process and a lawn mower and other small pieces of equipment are stored within the barn. The remaining area of the property consisted of wooded land, wetland areas and lawn.

Historic aerial photographs and Sanborn Maps were reviewed to determine the prior uses of the subject property. Sanborn Map coverage from 1930, 1946 and 1969 was available for the eastern half of the subject property only. A review of the maps revealed the main house, the barn and the cottage to the south of the main house, as well as a barn that was later demolished. The 1969 map identified a gasoline storage tank off the northeast corner of the barn. The subject property was identified as P.H. Swezey Dairy in all of the maps. Aerial photographs from 1953, 1966, 1974, 1980, 1994 and 2001 were reviewed in order to determine if any prior uses occupied the subject property. This review revealed all of the existing buildings were present in all of the aerials. The building located off the southeast corner of the barn was also present. This structure had been demolished and removed from the property prior to the site reconnaissance.

An extensive government records search found no potential sources of environmental degradation on the subject property. Several Federal, State and County documented regulated sites were noted in the vicinity of the subject property. Specifically, one (1) Hazardous Substance Waste Disposal Site (HSWDS) and one (1) Inactive Hazardous Waste Disposal Site (IHWDS) are located within one (1.0) mile, fifty-one (51) active and closed spill incidents are located within one-half (0.5) mile and one (1) PBS facility are located in close proximity of the subject property.

In conclusion, this assessment has revealed evidence of the following recognized environmental conditions in connection with the subject property, subject to the methodology and limitations of this report.

1. The area of the former underground gasoline storage tank located off the northeast corner of the barn should be surveyed using Ground Penetrating Radar (GPR) in order to determine if the tank is present. If a tank is located, soil samples should be collected from around the tank to determine if a prior release has occurred. If no tank is identified, soil samples should be collected from the area of the suspected tank grave and analyzed for the presence of volatile organic compounds.

2. A flow study should be completed in order to identify the discharge point of the of the sump pumps located in the basement of the main house. Once identified, a soil sample should be collected from the discharge point and analyzed for the presence of semi-volatile organic compounds.

3. The asbestos wrap insulation located in the basement of the main house should be removed and properly disposed of at an approved facility. In accordance with the New York State Department of Labor Industrial Code 56, if any or all of the existing buildings are to be demolished, a complete asbestos survey should be completed for each structure situated on the subject property.

4. The discharge point of the sump pump and the soil situated within the hole of the concrete basement floor of the house located in the southwest corner of the property should be sampled and analyzed for the presence of volatile and semi-volatile organic compounds to determine if the surface soils in the vicinity of the discharge point have been impacted.

5. If one (1) or both of the above ground fuel oil storage tanks located on the east side of the house situated in the northwest corner of the property are not being used, these tank(s) should be removed and properly disposed of.

6. The former cesspools and drywells associated with the building that was razed from the southeastern portion of the property should be properly abandoned.

2.0 INTRODUCTION

2.1 PURPOSE

This report is intended to meet the format and requirements of the ASTM Standard Practice for Environmental Site Assessments, as published in ASTM E 1527-00. Banks, insurance companies and prospective property purchasers require an understanding of existing and past property conditions and uses in order to assess the potential liabilities associated with a site. This assessment has been completed by a qualified environmental professional as defined in ASTM Standards. The objectives of this Environmental Site Assessment are stated as follows:

- Establish a basis of understanding of past and present use in order to determine potential environmental and/or public health risk.
- Establish a basis of understanding of surrounding uses, and area environmental resources in order to determine if the property is affected by such uses or resources.
- Identify, to the extent feasible, recognized environmental conditions (i.e., potential risk caused by the presence of Hazardous Substances or Petroleum Products) in connection with the site and adjoining properties.
- Identify any known or potential items in noncompliance with applicable Local, State or Federal laws and regulations.
- Specify how any items in noncompliance with applicable Local, State or Federal laws and regulations can be brought into compliance.
- Confirm the absence of environmental problems or quantify potential environmental liabilities. In the event such findings cannot be made, recommend further environmental sampling.

The final purpose of the report is to utilize the information gained to report "Recognized Environmental Conditions", a very important term defined and utilized in the ASTM Standards. Recognized Environmental Conditions are defined as follows:

> The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include de minimus conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

2.2 SPECIAL TERMS AND CONDITIONS

It is the responsibility of the user of this report (for example, the purchaser, potential tenant, owner lender or property manager) to provide certain segments of information utilized in the report. This would include reporting of any environmental liens (i.e. consideration property for response action, cleanup or remediation of hazardous substances or petroleum product) encumbering the property or specialized knowledge or experience that would assist in identifying recognized environmental conditions.

It must be recognized that the level of inquiry is variable for each Phase I Environmental Site Assessment, depending upon the availability of information and quality of information received. As per the ASTM Standards, it should also be noted that the "environmental professional is not required to verify independently the information provided but may rely on information provided unless he or she has actual knowledge that certain information is incorrect or unless it is obvious that certain information is incorrect based on other information obtained in the Phase I Environmental Site Assessment or otherwise actually known to the environmental professional". Personnel involved in report preparation will make judgments on the accuracy of information and conduct additional research as necessary in order to meet the requirement of identifying recognized environmental conditions on the site. ASTM Standards provide a number of standards sources of historic information. Nelson, Pope & Voorhis, LLC will seek to research as many sources of historic information as may be available as a means cross confirmation. Based on ASTM Standards, the Phase I Environmental Site Assessment is not intended to include any sampling or testing of materials associated with the project site (i.e. soil, water, air or building materials). Accordingly, this report will conform with this intent and no testing will be conducted.

2.3 LIMITATIONS AND EXCEPTIONS

This report is dated, and is only valid for activities which occurred prior to the date of facility inspection. Activities, liabilities and alterations to environmental conditions documented in this report that may have occurred subsequent to the date of inspection are not included in this analysis.

There are several limitations of this study which should be understood. The study is intended to assess the potential for public health or environmental liabilities based upon examination of the subject property in accordance with the ASTM Standards. The ASTM Standards provide specific guidance with regard to radon, asbestos, lead in drinking water and lead based paint.

Analysis of the CERCLA implications with regard to the innocent purchaser defense under Superfund, finds that naturally occurring radon is not subject to CERCLA liability and is appropriately considered as a non-scope issue. Accordingly, this survey will not address radon gas, and will not involve or recommend air monitoring for radon gas. As a point of information for users of this report, radon is a colorless, odorless, inert gas which has become a common air contaminant of concern in certain geographic areas. Radon is a natural isotope, which is present most commonly in association with crystalline bedrock and at times other geologic deposits. Natural isotope decay, can emit radiation which causes health concerns due to inhalation **(Sax and Lewis, 1987).** Radon levels generally increase in areas where bedrock is close to the land surface, and generally creates a health related problem only where underground basements are constructed which may allow radon gas to accumulate in a manner which would cause exposure. Geographically, radon may be of concern in some portions of western Long Island, New York City and nearby counties. Similarly, the ASTM Standards do not recognize liability with regard to asbestos that is part of the building materials of a structure, in accordance with CERCLA innocent purchaser defense under Superfund. If asbestos containing material is disposed of on a site however, such practice would be subject to Superfund response actions and should be identified. In the interest of serving the client, and addressing the needs of lending institutions, this report will identify observed asbestos containing material (ACM) on the site which may cause a health danger or is considered friable, as a non-scope issue. This report is not a full asbestos survey as would be required for building demolition, or identification of all possible sources of ACM, regardless of health danger.

Lead in drinking water and lead based paint are also issues which are considered to be non–scope under CERCLA innocent purchaser defense under Superfund. Lead based paint has been in use for many years, and it is likely that most older buildings will contain this paint. As a general rule, painted surfaces should be maintained and ingestion of paint products should be avoided. If disposal of these materials is involved, disclosure of this practice would be subject to the scope of this environmental audit. Lead in drinking water occurs generally as a result of past use of high lead content solder. Water left stagnant in pipes overnight or longer, may leach lead from these joints and affect drinking water quality. As a general rule, water should be run for several minutes in the morning where such plumbing is present.

This report cannot identify all sources of PCB containing oils. Common sources of these materials include transformers and fluorescent lamp ballast. Electric service transformers may include ground level or pole mounted units. These transformers are owned and maintained by the Long Island Power Authority (LIPA), the entity responsible for their use and integrity. Transformers are inventoried and periodically inspected. LIPA environmental engineer Mike Lauro reported in conversation that LIPA transformers were not manufactured to contain PCB contaminated oils. Aggressive and destructive testing which would be required for definitive identification of PCB's is beyond the scope of this study. The study will however identify observed potential sources, fluid leaks, hazardous materials and/or petroleum substance disposal and other environmental or health hazards appropriate the scope of the survey.

It must be noted that the accuracy of any Environmental Site Assessment is limited to the information available during the time of the site survey, and from the records, files and drawings provided by the owner and released by governmental agencies; and, the accuracy and completeness of the information provided during interviews. **Appendix A** of this report contains a Supplemental Statement of Conditions for Phase I Environmental Audits. This list was established by the Environmental Assessment Association (EAA) in order to standardize procedures and understanding with regard to the scope of environmental audits. Charles J. Voorhis is an active member of the EAA and is a Certified Environmental Inspector (CEI). Nelson, Pope & Voorhis, LLC, may be contacted if there are any questions regarding this analysis or the methods involved. The resumes of key personnel involved in the preparation of this report are included in **Appendix B.**

2.4 AUDIT METHODOLOGY

This ESA has been completed by Nelson, Pope & Voorhis, LLC, in accordance with ASTM standards. The following documentation is intended to provide the financing institution with the information related to the environmental and public health integrity of the subject property.

The report was completed utilizing a variety of techniques and sources of information. The following is a procedural account of the methodology for report preparation:

1) Field inspection of the subject property was conducted including indoor and outdoor facilities and interview of site personnel, to document facilities and operations, and determine applicable Federal, State and Local laws and regulations.
2) Inspection of areas surrounding the subject property were conducted in order to document surrounding uses as related to the integrity of the subject property.
3) Federal government records were researched including the NPL site list, the CERCLIS site list, and RCRA Hazardous Waste TSD Facilities and Generator Lists, and ERNS lists to determine if the subject property or adjacent sites are included in listings.
4) State government records were researched (NYS Department of Environmental Conservation [NYSDEC]) including Inactive Hazardous Waste Disposal site lists, landfills and solid waste disposal facilities, registered underground storage tanks (USTs), wastewater disposal sites, air emission sources, and leaking USTs/materials spill lists, to determine if the site or adjacent sites are included in listings.
5) County government records were researched including tank and drum registration, violations/enforcement action files, and for sites in Suffolk County, the CLEARS remote sensing site inventory.
6) Local government records were researched including zoning and Certificate of Occupancy to determine site compliance and history.
7) Records involving Transfer of Property were reviewed as available to determine site ownership and history where possible.
8) Published literature concerning on-site soils, and groundwater resources were reviewed as related to environmental audits to establish environmental resource information.
9) Additional interviews were conducted as necessary.
10) Conclusions regarding the site were formulated based upon the above tasks.

The date of inspection, key personnel in the preparation of the report, and a list of persons interviewed is provided below in order to provide further insight into methodology:

Project Commenced:	November 1, 2004
Inspection Date:	December 3, 2004
Report Date:	December 23, 2004
Inspector/Preparer:	Charles J. Voorhis, CEP, AICP
	Steven J. McGinn, CEI, AICP
Persons Interviewed:	House Tenants

3.0 SITE DESCRIPTION

3.1 LOCATION AND LEGAL DESCRIPTION

The subject property lies in the Hamlet of Huntington, Town of Huntington, County of Suffolk, New York. The subject property is a 7.5 acre parcel of developed land. The property is located on the southwest corner of Park Avenue (CR 35A) and Woodhull Road. The property is more particularly described as Suffolk County Tax Map # 0400-073-01-38, 41.1, 42. **Figure 1** provides a location map depicting the subject property and the surrounding area. The subject property is generally square in shape.

3.2 SITE AND VICINITY CHARACTERISTICS

The subject property contains four (4) residential structures, an old barn and a silo. A small pond is located on the east side of the main house and a wetland area is located in the southeast portion of the property. The main house is a two and a half (2½) story wood framed structure located in the north central portion of the property. This house is heated by an oil-fired boiler located in the basement; fuel oil is supplied by a 275 gallon above ground fuel oil storage tank situated in the southwest corner of the basement. The second house is located to the south of the main house. This house is a single story wood framed structure on a concrete slab. A natural gas-fired heating/air conditioning unit is located in the attic. A natural gas-fired hot water heater is located in a closet in the northeast corner of the building. The third house located in the southwest corner of the property on Woodhull Road is a two and a half (2½) story wood framed structure situated on a concrete foundation. This house was vacant and under renovation at the time of the site reconnaissance. No heating system was observed in the basement. The fourth house located to the west of the main house, fronting on Woodhull Road is a one and a half (1½) story wood framed structure situated on a stone foundation. The house was heated by two (2) natural gas heaters located in the living room and kitchen. The small basement formed by the stone foundation was empty at the time of the site reconnaissance. Additional information concerning interior building observations and construction is presented in Section 3.3.1. Additional information concerning operations on the subject property is presented in Section 3.3.3. Additional information concerning site reconnaissance is presented in Section 5.0.

The area immediately surrounding the subject property is comprised of institutional and residential uses. These uses are described in more detail in Section 3.3.5.

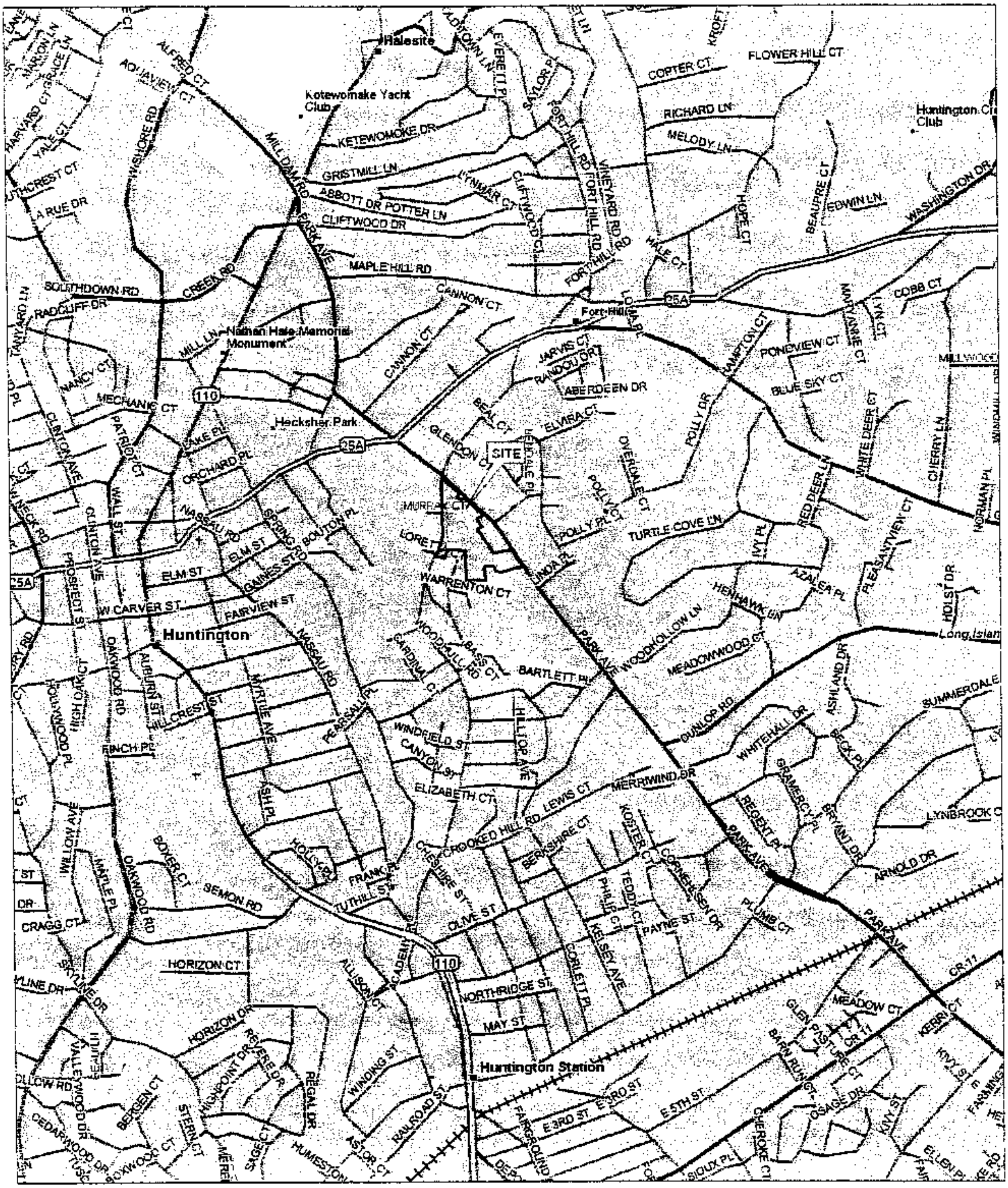
3.3 DESCRIPTION OF SITE IMPROVEMENTS

3.3.1 Buildings and Facilities

The subject property contains four (4) residential wood framed structures, a barn and a silo. Following, is a specific description of construction materials and building characteristics:

FIGURE 1

LOCATION MAP



Source: DeLorme Street Atlas
Scale: Not to Scale

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Construction - The residential houses consist of single or two story wood framed structures situated on poured concrete, concrete block or stone foundations/slabs. Interior walls and ceilings consist of painted plaster and/or sheetrock. The floors consist of carpeting, ceramic and vinyl composite tiles and hardwood flooring.

Heating and Air Conditioning Equipment - The main house is heated by an oil-fired boiler located in the basement. This unit was in good condition at the time of the site reconnaissance. The second house is heated by a natural gas-fired HVAC unit located in the attic. This unit was excellent condition at the time of the site reconnaissance. The third house in the northwest corner of the property had been heated by an oil-fired unit; however, no boiler was present at the time of the site reconnaissance. The fourth house was heated by two (2) natural gas-fired space heated situated in the kitchen and living room. Both of these units appeared to old but in working order.

Asbestos Containing Material (ACM) - The heating pipes in the basement of the main house were covered with a suspected asbestos pipe wrap insulation. There were no other suspected friable asbestos containing materials observed in connection with the on-site buildings during the property reconnaissance. According to Industrial Code 56, if major renovation or demolition of the building is contemplated, a complete asbestos survey for both friable and non-friable ACM is required. This report is not a substitute for a complete asbestos demolition survey.

Storage Tanks - A total of three (3) 275 gallon above ground fuel oil storage tanks are present on-site. One (1) tank is located in the basement of the main house and two (2) are located on the east side of the third house located in the northwest corner of the property. No other above or below ground storage tanks were observed on the subject property. However, the 1969 Sanborn Map identified a gasoline storage tank located off the northeast corner of the barn. No fill or vent pipe was observed during the site reconnaissance.

Drum Storage - No drum storage was observed on the subject property. However, an empty, rusted 55 gallon drum was located in the southeast portion of the property. No staining or stressed vegetation was observed in the vicinity of this drum.

Sanitary Disposal - The four houses situated on the subject property are connected to individual on-site septic systems.

Interior Air Quality - There were no noticeable odors of solvents or hazardous substances during the site reconnaissance.

Water Supply - The subject property is serviced by the Suffolk County Water Authority (SCWA) for water supply.

Floor Drains - Several floor drains are located in the basement of the main house. These floor drains are connected to the sump pump system in the basement which discharges out the eastern wall of the basement into a buried, black corrugated pipe.

Stormwater - No subsurface stormwater leaching pools were observed on the subject property.

Wells - No private water supply or groundwater monitoring wells were identified on the subject property.

3.3.2 Site User Information

The tenants of the two (2) occupied house were available to answer questions regarding the existing building and property. No other information was provided regarding the subject facility during site reconnaissance and interviews.

3.3.3 Current Uses of the Property

The four (4) houses located on the subject property are currently occupied or are being renovated in order to accommodate tenants. The barn and silo are deteriorated and not in use and have not been for many years.

3.3.4 Past Uses of the Property

Sanborn Map coverage from 1930, 1946 and 1969 was available for the eastern half of the subject property only. A review of the maps revealed the main house, the barn and the cottage to the south of the main house, as well as a barn that was demolished, were present in the three (3) maps. The 1969 map identified a gasoline storage tank off the northeast corner of the barn. The subject property was identified as P.H. Swezey Dairy in all of the maps. Aerial photographs from 1953, 1966, 1974, 1980, 1994 and 2001 were reviewed in order to determine if any prior uses occupied the subject property. This review revealed that all of the existing buildings were present in all of the aerials. The building located off the southeast corner of the barn was also present. This structure had been demolished and removed from the property prior to the site reconnaissance. The USGS Huntington Quadrangle Map dated 1957, photorevised in 1966 and field checked in 1967 depicts the subject property as being located in a developed area. Please refer to Section 4.3 for additional information regarding site history.

3.3.5 Adjacent Land Uses

Current land use at the subject property and surrounding area is described based on aerial photographs and visual observations. The subject property is surrounded by commercial and residential uses.

South: Vacant land and single family residential homes.
West: Woodhull Road beyond which are single family residential homes.
North: Woodhull Road beyond which are single family residential homes.
East: Park Avenue, beyond which is a Jewish Synagogue and single family residential homes.

Past uses in the vicinity of the subject property are described based on review of historic aerial photographs, Sanborn Maps and a field reconnaissance. The aerial photographs revealed the area surrounding the subject property has evolved into the existing institutional and residential uses.

3.3.6 Site Map

A copy of the site survey illustrating the development on the subject property is provided as **Figure 2**.

FIGURE 2

AERIAL PHOTOGRAPH

Source: NYSGIS Orthoimagery Program, 2001
Scale: 1" = 200'

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4.0 ENVIRONMENTAL RECORDS REVIEW

With the understanding of the facilities at the subject property, it is important to establish the environmental and regulatory conditions of the subject property and surrounding area, as related to public health and environmental issues. This section of the report includes a review of agency records, soils and groundwater resources. The site reconnaissance and the environmental and regulatory conditions form the basis for conclusions regarding the risks and liabilities associated with the subject property.

4.1 STANDARD ENVIRONMENTAL RECORD SOURCES

A search of Federal, State and Local databases was performed in order to provide a profile of the subject property and surrounding area with regard to published government agency records. The procedures employed adhere as closely as possible to ASTM standards.

Contact was made with the United States Environmental Protection Agency (USEPA), the New York State Department of Environmental Conservation (NYSDEC), the Suffolk County Department of Health Services (SCDHS), and local government regarding environmental and/or public health concerns associated with the subject property and surrounding uses.

4.1.1 United States Environmental Protection Agency (USEPA)

The United States Environmental Protection Agency (USEPA) was contacted in order to obtain information regarding the National Priorities List (NPL), and sites documented on the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS). The NPL defines all known hazardous material waste sites, which are described by the Federal Government as needing immediate cleanup action. All hazardous material waste sites considered for addition to the NPL are listed in the CERCLIS list.

Review of the NPL (search distance 1.0 mile) and the CERCLIS (search distance 0.5 mile) lists finds the following with respect to the subject property and surrounding area:

1. Subject property did not appear on the NPL or CERCLIS lists.
2. No sites appearing on the NPL were located within one (1.0) mile of the subject property.
3. There were no sites appearing on the CERCLIS list within one-half (0.5) mile of the subject property.

The CERCLIS list is a compilation of known or suspected uncontrolled or abandoned hazardous waste sites in the United States. These sites have either been investigated, or are currently under investigation by the EPA for the release, or threatened release of hazardous substances. Once a site is placed in CERCLIS, it may be subjected to several levels of review and evaluation and ultimately placed on the National Priorities List (NPL). It should be noted, however, that the presence of a site on this list does not confirm the presence of an environmental problem or a public health threat.

The USEPA was also contacted in order to obtain information concerning RCRA TSD facilities (treatment, storage, and disposal of hazardous wastes, as defined and regulated by the Resource Conservation and Recovery Act, RCRA), and RCRA Generators (of hazardous wastes as defined and regulated by RCRA). RCRA TSD facilities are sites that treat, store or dispose of wastes that can be toxic, flammable, corrosive, explosive or otherwise hazardous; and, RCRA Generators are sites that generate or transport wastes of the above noted characteristics. The search also included review of the Emergency Response Notifications System (ERNS) list, which is a list of reported releases or spills in quantities greater than reportable quantities, Federal Permit Compliance System Toxic Wastewater Discharges (PCSTWD) which permits toxic wastewater discharges and Federal Civil Enforcement Docket (CED) which lists judiciary cases filed on behalf of the EPA by the Department of Justice.

Review of the RCRA TSD Facilities List (search distance 1.0 mile), the PCSTWD and CED facilities (search distance 0.25 mile), the RCRA Generator List (search distance, subject property and adjoining properties), and the ERNS List (search distance, subject property only) finds the following with respect to the subject property and surrounding area:

1. Subject property did not appear on the RCRA TSD Facilities List, or the ERNS List.
2. Subject property was not listed as a RCRA Generator.
3. The subject property was not listed as a Civil Enforcement Docket Facility.
4. The subject property was not listed for Permit Compliance System Toxic Wastewater Discharges.
5. There were no sites listed as a RCRA TSD facility identified within one (1.0) mile of the subject property.
6. There were no RCRA Generators listed within close proximity to the subject property.
7. There were no CED facilities within one-quarter (0.25) mile of the subject property.
8. There were no PCSTWD facilities located within one-quarter (0.25) mile of the subject property.

The RCRA Generator program is intended to track the origin and destination of hazardous waste, and there is no indication that listing on this inventory constitutes an environmental threat.

In addition, the Federal Facilities Index that includes resources conservation and Recovery Corrective Action Sites (CORRACTS) was reviewed. No additional sites that could impact the subject property were identified. The results of the search are included in **Appendix C**. Applicable State and Federal sites are listed in Sections 4.1.1 and 4.1.2.

4.1.2 New York State Department of Environmental Conservation (NYSDEC)

The NYSDEC is charged with the responsibility of registering inactive hazardous waste disposal sites, and administering the investigation and cleanup of such sites. The NYSDEC inventory is contained in the publication, Inactive Hazardous Waste Disposal Sites in New York State. The inventory provides the location, extent of contamination and remediation status of each listed site in New York State. Accordingly, the registry of the NYSDEC was consulted for information on Inactive Hazardous Waste Disposal Sites (IHWDS). The NYSDEC provides information regarding Hazardous Substance Waste Disposal Sites (HSWDS) that are sites contaminated with toxic substances but are not eligible for state cleanup funding programs. Similarly, the NYSDEC is responsible for permitting Solid Waste Facilities (SWF) - these are facilities including landfills, incinerators, transfer stations and other solid waste management sites. The NYSDEC also registers Petroleum Bulk Storage (PBS) where the total storage capacity at the facility exceeds 1,100 gallons, Chemical Bulk Storage (CBS), Major Oil Storage Facilities (MOSF) and Toxic Release Inventory Sites (TRI). Finally, the NYSDEC regulates and monitors Air Discharges and NYS Toxic Spills which include Leaking Underground Storage Tanks (LUSTs).

Review of the IHWDS and HSWDS Lists List (search distance 1.0 mile), the SWF List (search distance 1.0 mile), PBS Lists (search distance, subject property and adjoining properties), CBS and MOSF lists, and LUST Lists (search distance 0.5 miles), and TRI and Air Discharge sites (search distance 0.25 miles), finds the following with respect to the subject property and surrounding area:

1. The subject property was not listed as an IHWD or HSWDS site.
2. The subject property was not listed on the PBS, CBS or MOSF Lists.
3. The subject property was not listed on the NYS Toxic Spill site list.
4. The subject property was not listed as a TRI Site.
5. The subject property was not listed on the NYS Air Discharge list.
6. The subject property was not listed as having a LUST incident.
7. There was one (1) IHWDS listing located within one (1.0) mile of the subject property.
    a. SCWA Wellfield - Huntington (Facility ID# 152071), located 4,061 feet to the northwest on Mill Lane was delisted since no hazardous waste was found.
8. There was one (1) HSWDS facility located within one (1.0) mile of the subject property.
    a. Manor Parkmore Cleaners (Facility ID# Not Issued), located 3,613 feet to the west northwest at 176 New York Avenue was removed from the Hazardous Substance Inventory.
9. There were no SWF listings identified within one-half (0.5) mile of the subject property. Information regarding the SWF facility located within one (1.0) mile is contained in **Appendix C**.
10. There was one (1) State Registered PBS facility in close proximity to the subject property. Information regarding the three (3) facilities located within one (1.0) mile is contained in **Appendix C**.

   a. Huntington Jewish Center (Facility ID# 4-0500), located 530 feet to the north northeast at 510 Park Avenue had a 1,000 and a 5,000 gallon underground fuel oil storage tanks removed in August 1996.

11. There were no State Registered CBS facilities identified within one-half (0.5) mile of the subject property.
12. There were no State Registered MOSF facilities within one-half (0.5) mile of the subject property.
13. There were no TRI sites within one-half (0.5) mile of the subject property.
14. There were no NYS Air Discharge sites within one-half (0.5) mile of the subject property.
15. There were three (3) active and seven (7) closed LUST incidents identified within one-half (0.5) mile of the subject property. Information regarding the cross and down gradient active and the closed spill incidents is contained in **Appendix C**. The one (1) active upgradient spill is described below:
    a. Woodhull School (Spill #0111101), located 1,120 feet to the southwest at 145 Woodhull Road experienced a tank test failure on 02/21/02. No other information was provided regarding the spill incident.

The NYSDEC also responds to incidents involving oil spills. The Department maintains a logbook and files on all reported and actual incidents at the NYSDEC offices at Stony Brook. This file was reviewed in conjunction with the subject property. Five (5) active and thirty-six (36) closed spill incidents were identified within one-half (0.5) mile of the subject property between 1985 and 2004. The following table provides information regarding the active upgradient spill incident.

DATE	LOCATION	EVENT	SPILL#
11/01/93	Woodhull School 145 Woodhull Road 1,120 feet to the southwest	A supply line was hit with a piece of machinery causing a leak. The equipment was shut down and the effected soil was to be dug up and investigated. No other information was provided.	9609704

The spill incident identified in the previous table represents the active upgradient spill incident located within one-half (0.5) mile of the subject property. This spill incident appeared to be relatively small in nature and cleanup was initiated. Information regarding the cross and down gradient and closed spill incidents located within one-half (0.5) mile is contained in **Appendix C**. None of the aforementioned spill incidents involved the subject property. None of the incidents are noted as major incidents that may have affected groundwater quality. The subject property is serviced by public water and is not expected to be adversely affected by any of these incidents.

The New York State DEC conducts review of permits for wastewater discharges under the State Pollutant Discharge Elimination System (SPDES) program. The enabling legislation for this program is under Article 17 of the New York State Environmental Conservation Law and Federal authority is granted under Sections 307, 318, 402 and 405 of the Clean Water Act. Records for discharges are maintained at the offices of the

NYSDEC. Permits are classified by type based upon the following categories: 01 - industrial and commercial process water; 02 - commercial sanitary discharges; 03 - major EPA regulated industrial discharges; 04 - non significant, non toxic industrial discharges; 05 - major municipal discharge points; and, 09 - private or commercial sewage treatment plants. With regard to potential environmental and public health concerns, only Class 01, 03, 05 and 09 type permits are of importance. Commercial sanitary discharges involve sewage only, and density limitations or sewage treatment requirements ensure that Class 04 discharges involve primarily non-contact cooling water and do not constitute a pollution threat.

The records for the vicinity surrounding the project site were consulted (search distance, subject property and adjoining properties) to determine if any important discharges are present. The following is noted:

1. The subject property is not listed as holding a significant SPDES permit.

4.1.3 Suffolk County Department of Health Department (SCDHS)

The SCDHS performs many important functions in environmental resource protection. These include inspection of facilities that use or store significant quantities of toxic or hazardous material or generate waste. SCDHS files specific to the subject property were not received prior to the completion of this report. Any pertinent information received will be forwarded in an addendum to this report.

Also of interest with regard to Health Department functions is a study completed in conjunction with Cornell University, referred to as the CLEARS study (Cornell Laboratory for Environmental Applications of Remote Sensing). This research involves stereoscopic analysis and interpretation of historic aerial photographs for the purpose of identifying past and present hazardous waste disposal sites, solid waste disposal sites, disturbed areas, chemical storage, and other potential sources of contamination. The study has been ongoing since approximately 1986. The CLEARS study was consulted with regard to the area surrounding the subject property.

No CLEARS study sites were identified within the general area of the subject property.

The CLEARS Study assists with an historical perspective of the site and surrounding area. Little interpretation can be made with regard to the findings of the CLEARS study. There is no confirmation of activities which may have caused environmental degradation with regard to any of the sites. The SCDHS contracted the CLEARS study and will continue to interpret the results and take remedial action as necessary. The subject property is not listed as a CLEARS study site.

4.1.4 Local Agencies

Freedom of Information requests were submitted to the Town of Huntington. The Building Department records contained information regarding the renovation of the "milk house" (building #2) in 2001. No other information was obtained regarding the subject property. The Planning and Zoning Department indicated the subject property is zoned R-7 Residential. The Town Tax Assessors indicated the property is owned by Kiruv Capital Corp.

4.2 PHYSICAL SETTING

4.2.1 Soils and Topography

The surficial geology of a site can often provide insight into the past activities on a given parcel of land. The Soil Survey of Suffolk County, conducted by the U.S. Department of Agriculture in 1975 is a useful source of soils information, which identifies soil types resulting from natural deposition and modification, as well as man-induced alterations associated with land use.

The subject property is comprised of soil types: RhB - Riverhead Haven Soils, graded, 0-8% slopes. The characteristics of this soil type is identified as follows **(Warner et al., 1975)**:

> *Riverhead and Haven soils, graded, 0 to 8% slopes (RhB) - This map unit consists of Riverhead sandy loam, of Haven loam, or of both. These areas have been altered by grating for use as housing developments, shopping centers, industrial parks and similar non-farm uses.*

The nature of the surrounding area is that of commercial and residential uses. The subject property has sloping topography with steep slopes along the southern portion of the property. Neither soils nor topography appear to pose a constraint to the current use of the subject property. Bedrock in the vicinity of the subject property is approximately 1,100 feet below grade.

4.2.2 Water Resources

Groundwater on Long Island is entirely derived from precipitation. Precipitation entering the soils in the form of recharge, passes through the unsaturated zone to a level below which all strata are saturated, referred to as the water table. The groundwater table is equal to sea level on the north and south shores of Long Island, and rises in elevation toward the center of the Island. The high point of the parabola is referred to as the groundwater divide. The changes in elevation of the water table create a hydraulic gradient which causes groundwater to flow, dependent upon potential.

The subject property is north of the groundwater divide, indicating that in the horizontal plane, flow is generally toward the north. Groundwater will ultimately be discharged from the subsurface system into Huntington Bay. The major water bearing units beneath the subject property include: the Upper Glacial aquifer, the Magothy aquifer, and the Lloyd aquifer **(Smolensky et al, 1989).**

The elevation of groundwater beneath the subject property is approximately 36 feet above msl, depending on meteorological conditions associated with the water year. The topographic elevation of the subject property ranges from 48 to 120 feet. Therefore, the depth to groundwater ranges from 12 to 84 feet. The water table elevations and generalized direction of flow are illustrated in **Figure 3**.

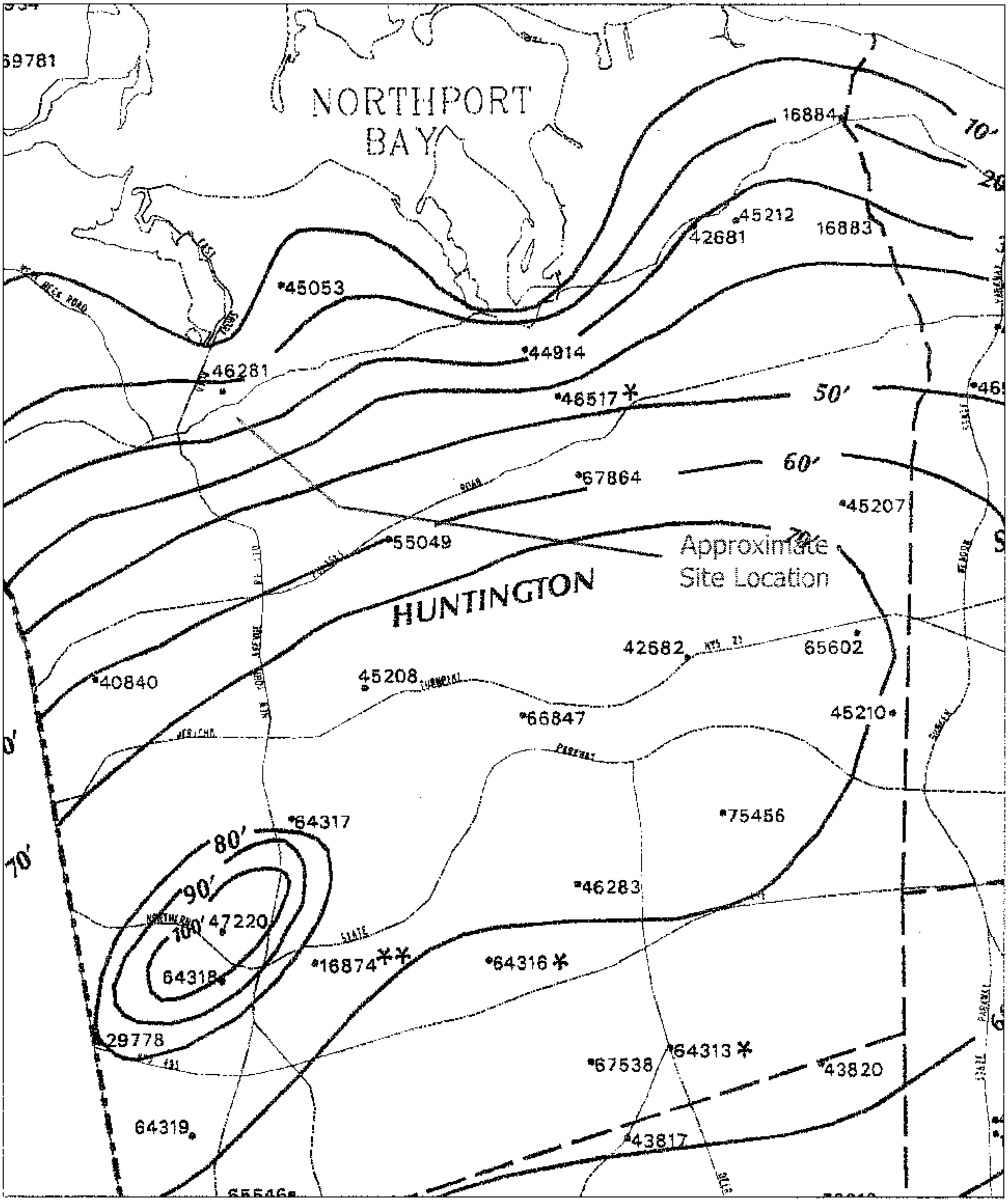
The Suffolk County Comprehensive Water Resources Management Plan (SCCWRMP) provides information on water quality from 0 to 400 feet below the water table, based upon observation as well as public and private water supply and well monitoring. The general area in proximity to the subject property is depicted as having good water quality with respect to nitrate-nitrogen (0-6 mg/l) at between 0 and 100 feet. With regard to organic compounds, SCDHS water quality data presented in the Suffolk County Comprehensive Water Resources Management Plan indicates that Volatile Organic Compound levels at 0-100 feet below the water table are good (<60% of standard) and found not to exceed drinking water standards the majority of the time; however, there are several areas in proximity to the site that exceed drinking water standards for organic parameters.

The Suffolk County Department of Health Services (SCDHS) conducted an eighteen (18) month long study of the impact pesticides have had on the groundwater. The study obtained water quality information from across the full geographic area of both counties in order to identify if any pesticides and metabolites had leached into the groundwater. The data from the wells in Nassau County and the five (5) western Towns of Suffolk show that only 1.5 and 2.0%, respectively, exceeded the pesticide related drinking water MCL and 15.4% of the wells in the five (5) eastern Suffolk Towns exceeded the MCL. Private wells in the five (5) eastern towns are at the highest risk of pesticides contamination. Based on the maps provided in the appendix of the SCDHS revealed the subject property is not located in the vicinity of any wells which are contaminated with pesticides.

The nearest water supply well is the SCWA Mill Lane well field and pump station. This well field is located on the northwest corner of Mill Lane and New York Avenue. This well field is approximately 3,300 feet to northwest of the subject property.

FIGURE 3

WATER TABLE MAP



Source: SCDHS Water Table Contour Map, 1999
Scale: 1' = 8,000'

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4.3 SITE CLASSIFICATIONS

4.3.1 Wetlands

The subject property was inspected to identify the possible presence of any wetland vegetation and/or water surfaces that would sustain wetland vegetation. The site reconnaissance revealed the pond had wetlands or wetland species located on its edge. Review of NYSDEC Freshwater Wetland Maps verified that the pond was a designated wetlands (H-35) and freshwater wetlands exist to the east of the pond. This report is not a substitute for an inspection of the site by a qualified biologist.

4.3.2 Coastal Barrier Improvements/Flood Plains

The subject property is not located in close proximity to the coast therefore, no coastal barrier improvements exist or are required. The subject property is located in Flood Zone X, an area of minimal flooding.

4.3.3 Critical Habitat/Endangered Species

The subject property is not located within any identifiable critical habitat areas. The property has been subject to environmental inspection and review. No endangered species were identified during field observation; however, the property has a higher than average propensity to support unique species because of the pond and identified wetlands. This report is not a substitute for inspection of the site by a qualified wildlife biologist.

4.4 HISTORICAL USE INFORMATION

In terms of available records, historical use can be documented using a variety of standard records. The intent is to trace land use to a period prior to 1940. For the purpose of this Environmental Site Assessment, as many sources as are reasonably available have been consulted. The following are considered standard historical sources:

Aerial Photographs
Fire Insurance Maps (Sanborn Maps)
Property Tax Files
Recorded Land Title Records
USGS 7.5 Minute Topographic Maps
Local Street Directories (Cole Directories)
Building Department Records
Zoning/Land Use Records

Sanborn Map coverage from 1930, 1946 and 1969 was available for the eastern half the subject property only. A review of the maps revealed the main house, the barn and the cottage to the south of the main house, as well as was the barn that was demolished, were present in the three (3) maps. The 1969 map identified a gasoline storage tank off the northeast corner of the barn. The subject property was identified as P.H. Swezey Dairy in all of the maps. Aerial photographs from 1953, 1966, 1974, 1980, 1994 and 2001 were reviewed in order to determine if any prior uses occupied the subject property. This review revealed all of the existing buildings were present in all of the aerials. The building located off the southeast corner of the barn was also present. This structure had been demolished and removed from the property prior to the site reconnaissance. The USGS Huntington Quadrangle Map dated 1957, photorevised in 1966 and field checked in 1967 depicts the subject property as being located in a developed area.

Evidence researched in this section further supports the site history documented in other sections of this report. The subject property has been developed with some or all of the existing buildings since some time prior to 1930.

5.0 SITE RECONNAISSANCE AND INTERVIEWS

An in depth inspection of the subject property was conducted in order to determine the presence, use, storage, generation and/or disposal of hazardous substances, wastewater, underground and above ground tanks, drum storage, PCB's, solid waste disposal and/or wells. This section is based on visual or physical observation of the subject property, and/or information obtained from the interviews or records review. Persons interviewed for this report are identified in Section 2.4, and the full records review is contained in Section 4.0.

5.1 HAZARDOUS SUBSTANCES

The property was inspected to determine the presence or handling of hazardous materials. The following findings are relevant:

- There were no odors detected or identified from the site reconnaissance, interviews or records review within the interior or on the exterior of the building which would indicate uncontrolled release of hazardous substances.
- There were no pools of liquid on the ground that could contain hazardous substances or petroleum products visually or physically observed or identified from the site reconnaissance, interviews or records review.
- There were no areas of stains or corrosion observed on floors, walls or ceilings visually or physically observed or identified from the site reconnaissance, interviews or records review, except as previously noted.
- There were no pits, ponds or lagoons visually or physically observed or identified from the site reconnaissance, interviews or records review observed on the subject property.
- There were no areas of stressed vegetation visually or physically observed or identified from the site reconnaissance, interviews or records review.

5.2 WASTEWATER DISPOSAL

The facility was inspected to identify wastewater disposal systems and the following findings are relevant:

- The on-site buildings discharge to individual on-site sanitary systems.

5.3 ABOVEGROUND AND UNDERGROUND TANKS

The subject property was inspected to determine the presence of aboveground and underground storage tanks. The following findings are relevant:

- Three (3) 275 gallon above ground fuel oil storage tanks are present on-site. The 1969 Sanborn Map identified a gasoline storage tank located off the northeast corner of the barn. No evidence of this tank was observed during the site reconnaissance.
- There were no other above or below ground storage tanks observed on the subject property.

5.4 DRUM STORAGE

The subject property was inspected for drum storage of hazardous substances or petroleum products, and the following findings are relevant:

- An empty, rusted 55 gallon drum is located on the south of the barn. No staining or stressed vegetation was identified in the vicinity of this drum.
- There were no other drums stored on the subject property.

5.5 POLYCHLORINATED BIPHENYLS (PCBs)

The subject property was inspected to determine potential for presence or release of PCBs. The following findings are relevant:

- There were no ground or pole mounted transformers observed on or in the vicinity of the subject property.

5.6 SOLID WASTE DISPOSAL

The subject property was inspected for the presence of solid waste and the following findings are relevant:

- Solid waste generated on the subject property is collected by curbside pickup.

5.7 WELLS

The subject property was inspected for the presence of wells and the following findings are relevant:

- No private water supply or monitoring wells were observed on the subject property.
- The subject property is served by public water supplied by the Suffolk County Water Authority.

6.0 FINDINGS AND CONCLUSIONS

This environmental inspection report, has been conducted in order to provide the prospective purchaser and lending institutions with accurate and complete information regarding the subject site, surrounding area, historic uses, agency records and regulations, and additional environmental considerations. Based upon this report, the limitations of this report and the methodology employed, the following statement is provided:

NP&V has performed a Phase I Environmental Site Assessment for Kiruv Estates is located on the southwest corner of Park Avenue (CR 35A) and Woodhull Road. This ESA has been prepared in conformance with the scope and limitations of ASTM Practice E 1527. Any exceptions to or deletions from this practice are described in Section 2.0 (Special Terms and Conditions, and Limitations and Exceptions), as well as **Appendix A** of this report.

In conclusion, this assessment has revealed evidence of the following recognized environmental conditions in connection with the subject property, subject to the methodology and limitations of this report.

1. The area of the former underground gasoline storage tank located off the northeast corner of the barn should be surveyed using Ground Penetrating Radar (GPR) in order to determine if the tank is present. If a tank is located, soil samples should be collected from around the tank to determine if a prior release has occurred. If no tank is identified, soil samples should be collected from the area of the suspected tank grave and analyzed for the presence of volatile organic compounds.

2. A flow study should be completed in order to identify the discharge point of the of the sump pumps located in the basement of the main house. Once identified, a soil sample should be collected from the discharge point and analyzed for the presence of semi-volatile organic compounds.

3. The asbestos wrap insulation located in the basement of the main house should be removed and properly disposed of at an approved facility. In accordance with the New York State Department of Labor Industrial Code 56, if any or all of the existing buildings are to be demolished, a complete asbestos survey should be completed for each structure situated on the subject property.

4. The discharge point of the sump pump and the soil situated within the hole of the concrete basement floor of the house located in the southwest corner of the property should be sampled and analyzed for the presence of volatile and semi-volatile organic compounds to determine if the surface soils in the vicinity of the discharge point have been impacted.

5. If one (1) or both of the above ground fuel oil storage tanks located on the east side of the house situated in the northwest corner of the property are not being used, these tank(s) should be removed and properly disposed of.

6. The former cesspools and drywells associated with the building that was razed from the southeastern portion of the property should be properly abandoned.

7.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

Nelson, Pope & Voorhis, LLC (NP&V) has completed this Property Condition Survey (Phase I ESA) of Kiruv Estates is located on the southwest corner of Park Avenue (CR 35A) and Woodhull Road, Hunitngton, Suffolk County, New York.

The assessment was performed at the Client's request using the methods and procedures consistent with good commercial or customary practice designed to conform with acceptable industry standards.

This report is expressly and exclusively for the sole use and benefit of the Client identified on the first page of this report and is not for the use or benefit of, nor may it be relied upon by, any other person or entity without the advance written consent of NP&V.

The independent conclusions represent NP&V's best professional judgment based on information and data available to the consultant during the course of this assignment. NP&V's evaluations, analyses and opinions are not representations regarding either the design integrity, structural soundness or actual value of the property. Factual information regarding operations, conditions and test data provided by the Client or their representative have been assumed to be correct and complete. The conclusions presented are based on the data provided, observations and conditions that existed on the date of the assessment.

12/23/04
Date of Completion

Charles J. Voorhis, CEP, AICP
Project Manager

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APPENDICES

APPENDIX A

SUPPLEMENTAL STATEMENT OF CONDITIONS

ENVIRONMENTAL AUDITS

SUPPLEMENTAL STATEMENT OF CONDITIONS
ENVIRONMENTAL AUDITS

Charles J. Voorhis is Certified as an Environmental Inspector (CEI) with the Environmental Assessment Association (EAA). The Association provides technical support and is acting to standardize the industry with regard to procedures and techniques for report preparation. The EAA has established an outline of responsibilities for the Environmental Inspector as well as a Statement of Limiting Conditions. This information is reproduced below in order for clients and loan agencies to understand responsibilities and limitations under this contract.

Certification: The Environmental Inspector certifies to the Buyer, Seller and/or lender in a transaction as named in the inspection report "Principal Parties"; and the Inspector and the Principal Parties agree that:

1. The Environmental Inspector has no present or contemplated future (a) partnership with Principal Parties nor (b) an interest in the property inspected which could adversely affect the Inspector's ability to perform an objective inspection; and neither the employment of the inspector to conduct the inspection, nor the compensation for it, is contingent on the results of the inspection.

2. The Environmental Inspector has no personal interest in or bias with respect to the subject matter of the inspection report or any parties who may be part of a financial transaction involving the property. The conclusions and recommendations of the report are not based in whole or in part upon the race, color, creed, sex or national origin of any of the Principal Parties.

3. The Environmental Inspector has personally inspected the property, both inside and out and has made visual inspection of adjacent properties, to the extent possible by readily available access. The inspection does not include the removal of any soil, water or air samples, the moving of furniture or fixtures, or any type of inspection that would require extraordinary effort to access.

4. All contingent and limiting conditions are contained herein (imposed by the terms of the inspection assignment or by the undersigned affecting the conclusions and recommendations contained in the report).

5. This Environmental Inspection report has been made in conformity with and is subject to the requirements of the Code of Professional Ethics of the Environmental Assessment Association.

6. All opinions, conclusions and recommendations concerning the inspected property that are set forth in the inspection report were prepared by the Environmental Inspector whose signature appears on the report. No change of any item in the report shall be made by anyone other than the Inspector, and the Inspector shall have no responsibility for any such unauthorized change.

Contingent and Limiting Conditions: The certification of the Environmental Inspector appearing in the environmental inspection report is subject to the following conditions and to such other specific and limiting conditions as are set forth by the Inspector in the report.

1. The Inspector assumes no responsibility for matters of legal nature affecting the property inspected or the title thereto. The property is inspected assuming responsible ownership.

2. Any sketch appearing in or attached to the inspection report, or any statement of dimensions, capacities, quantities or distances, are approximate and are included to assist the reader in visualizing the property. The inspector has made no survey of the property.

3. The Inspector is not required to give testimony or appear in court because of having made the inspection with reference to the property in question, unless arrangements have been previously made therefor.

4. This report is not intended to have any direct effect on the value of the property inspected but simply to provide a visual Environmental Assessment solely for the benefit of the Principal Parties.

5. The Inspector assumes that there are no hidden, unapparent, or latent conditions or defects in or of the property, subsoil, or structures, other than those noted on the inspection report or any addendum to the report which the Inspector has included. The Inspector assumes no responsibility for such conditions, or for the inspection, engineering or repair which might be required to discover or correct such factors.

6. Information, estimates and opinions furnished to the Inspector, and contained in the report, were obtained from sources considered reliable and believed to be true and correct. However, the Inspector has made no independent investigation as to such matters and undertakes no responsibility for the accuracy of such items.

7. These reports may be relied upon by our client and or his assigns, in determining whether to make a loan evidenced by a note (the "Property Note) which is further secured by the Property. These reports may be relied upon by any purchaser or assignee of the Property Note in determining whether to acquire the Property Note or an interest therein. In addition, these reports may be relied upon by any rating agency involved in rating securities secured by, or representing an interest in, the Property Note. These reports may be used in connection with materials offering for sale the Property Note, or an interest in the Property Note, and in presentations to any rating agency. With respect to the foregoing, these reports speak only as of the origination date of these reports unless specifically updated through a supplemental report.

APPENDIX B

RESUMES OF KEY PERSONNEL

PERSONAL PROFESSIONAL QUALIFICATIONS

CHARLES J. VOORHIS, CEP, AICP

Licensing and Certification:

Certified Environmental Professional (CEP)
American Institute of Certified Planners (AICP)
Certified Environmental Inspector, Environmental Assessment Association
US Coast Guard Master Steam and Auxiliary Sail Vessels

Experience:

* Managing Partner of Firm, Nelson, Pope & Voorhis, LLC; Melville, New York (1/97-Present)

* Principal of Firm, Charles Voorhis & Associates, Inc.; Miller Place, New York (8/88-1/97)

* Director, Division of Environmental Protection, Department of Planning, Environment and Development; Town of Brookhaven, New York (3/86-8/88)

* Environmental Analyst, Division of Environmental Protection, Department of Planning, Environment and Development; Town of Brookhaven, New York (8/82-3/86)

* Private and Public Consultant, Planning and Environmental Issues (8/82-3/87)

* Public Health Sanitarian, Suffolk County Department of Health Services; Hauppauge, New York (1/80-8/82)

* Environmentalist I, Suffolk County Department of Environmental Control, Central Islip, New York (2/78- 8/79)

Education:

* SUNY at Stony Brook; Master of Science in Environmental Engineering, concentration in Water Resource Management, 1984

* Princeton Associates; Groundwater Pollution and Hydrology Short Course, Princeton, New Jersey, 1983

* New York State Health Department, Environmental Health Training Course, Hauppauge, New York, 1982

* Southampton College of Long Island University; Bachelor of Science in Environmental Geology, 1977

Significant Professional Achievements:

* Airport International Plaza, DEIS, 1996
* Patchogue Lace Mill, Phase I ESA, 1996
* Price Club @ New Rochelle, DEIS and FEIS, 1995
* Commack Campus Park @ Commack DEIS and FEIS, 1994
* Water Mill Shops @ Water Mill DEIS, 1993
* PJ Venture Wholesale Club @ Commack DEIS and FEIS, 1993
* Dowling College NAT Center DEIS and FEIS, 1992
* Final EIS Angel Shores @ Southold, 1991
* Town of Brookhaven Boat Mooring Plan, 1991
* Draft EIS Round Hill @ Old Westbury, 1990
* Draft EIS St. Elsewhere @ Nesconset, 1989
* GEIS Commercial Rezonings on the Towns Own Motion, 1988
* GEIS Large Lot Rezonings on the Towns Own Motion, 1988
* Award for Environmentally Sensitive Land Design, Pine Barrens Review Comm., 1988
* EQBA, Acquisition Study for Brookhaven Town, 1987
* Town of Brookhaven Land Use Plan, 1987
* Discussion of Hydrogeologic Zone Boundaries in the Vicinity of S. Yaphank, LI, NY, 1986
* Duck Farms in Brookhaven Town, Land Restoration Techniques, 1985
* Coastal Energy Impact Program, 1984
* Comprehensive Review of Industrial Zoned Land in the Sensitive Hydrogeologic Zone, Town of Brookhaven, 1983
* Groundwater Supply and Early Groundwater Use in Brookhaven Township, Suffolk County, New York 1983

Professional & Other Organizations (past and present):

* American Institute of Certified Planners
* American Planning Association, Washington, D.C.
* National Association of Environmental Professionals, Alexandria, VA
* Environmental Assessment Association, Scottsdale, Arizona
* American Water Resources Association, Syracuse, New York
* National Water Well Association, Worthington, Ohio
* New York Planning Federation, Albany, New York
* New York Water Pollution Control Association, Riverdale, New York
* Water Pollution Control Federation, Washington, D.C.
* Long Island Seaport & EcoCenter, Inc., Director/Trustee, Port Jefferson, NY
* Boy Scouts of America, Trained Scoutmaster, Nathanial Woodhull District, NY
* Alumni Association, LIU, Southampton College, New York
* Historical Society of Port Jefferson, Trustee, Port Jefferson, NY
* Environmental Conservation Board, Inc. Village of Port Jefferson, NY
* Port Jefferson Village, Waterfront Advisory Committee, Port Jefferson, NY
* Town of Brookhaven Mount Sinai Harbor Advisory Committee, Medford, NY
* Brookhaven Conservation Advisory Council, Medford, New York

PERSONAL PROFESSIONAL QUALIFICATIONS

STEVEN J. McGINN

Licensing and Certification:

American Institute of Certified Planners (AICP)
OSHA 40 Hour HAZWOPER
Certified Environmental Inspector, Environmental Assessment Association (CEI)

Experience:

- Sr. Environmental Analyst, Nelson, Pope & Voorhis, LLC (January 1997 to Present)
- Environmental Analyst, Nelson & Pope, LLP (July 1989 to January 1997)
- Project Manager, Middleton Kontokosta & Associates (May 1988 to July 1989)
- Planning Aide, Town of Huntington Planning Department (January 1987 to May 1988)

Education:

- 40-Hour Course Hazardous Materials Training, December, 1998
- Project Managers Bootcamp, PSMJ Resources, Inc., January 1998
- Performing Phase I Environmental Inspections, Environmental Assessment Association, Sept. 1997
- Environmental Regulations Course, Executive Enterprises, June 1996
- Environmental Impact Statements, Cook College/Rutgers University, December 1994
- State University of New York at Cortland - Bachelor of Science in Geography, January 1986

Significant Professional Achievements:

- 940 Bryant Avenue, Bronx - Phase I ESA
- 1345 Seneca Avenue, Bronx - Phase I ESA
- Red Roof Farms, Rye Brook - Phase I & II ESA
- Thomas Dodge Subaru, Port Jefferson - Phase I & II ESA

- 221 Skip Lane, Bay Shore - Phase I & II ESA
- 121 Maple Avenue (Shore Line Marina), Bay Shore - Phase I & II ESA
- 950 West Main Street, Riverhead - Phase I ESA
- Long Island Galleria/Price Club Plaza, Westbury - DEIS & FEIS
- Currans Road Development, Middle Island - DEIS & FEIS
- Timber Ridge at the Plains, Greenlawn - DEIS & FEIS
- Greene's Creek Marina, Sayville - DEIS
- Town of Brookhaven Marine Reconstruction Projects, Patchogue, Blue Point, Port Jefferson, Mount Sinai, - Tidal Wetland Permits
- Village of Lake Success, Lake Success - Land Use and Zoning Analyses
- Ridgehaven Estates, Ridge - DEIS & FEIS
- K-Mart @ Farmingville - Part III EAF
- Long Lake Estates, Coram - DEIS & FEIS

Professional Responsibilities:

- Project Manager for Phase I and Phase II Environmental Site Assessments and Asbestos Surveys for lending institutions
- Author of numerous environmental impact statements in both draft and final formats for major large scale, high-profile projects.
- Other responsibilities include the preparation of various environmental, planning and zoning studies and the preparation of various state and federal applications such as: land use and zoning studies, noise and air quality assessments, Phase I Environmental Site Assessments, feasibility studies, economic analyses, freshwater and tidal wetland permits, etc.
- Interaction with various Town, County, State and Federal officials, attorneys, developers, engineers, Town Boards, Planning Boards, and Zoning Boards of Appeals.

Professional Organizations:

- American Institute of Certified Planners, Washington, D.C.
- American Planning Association, Washington, D.C.
- National Association of Environmental Professionals, Alexandria, VA
- Environmental Assessment Association, Scottsdale, Arizona
- National Groundwater Association, Assoc. of Groundwater Scientists and Engineers

APPENDIX C

DATABASE SEARCH INFORMATION

Toxics Targeting Computerized Environmental Report

Kiruv Estates
Huntington, NY 11743

September 27, 2004

LIMITED WARRANTY AND DISCLAIMER OF LIABILITY

Who is Covered

This limited warranty is extended by Toxics Targeting, Inc. only to the original purchaser of the accompanying Computerized Environmental Report ("Report"). It may not be assigned to any other person.

What is Warranted

Toxics Targeting, Inc. warrants that it uses reasonable care to accurately transcribe the information contained in this Report from the sources from which it is obtained. This limited warranty is in lieu of all other express warranties which might otherwise arise with respect to the Report. No one is authorized to change or add to this limited warranty.

What We Will Do

If during the warranty period there is shown to be a material error in the transcription of the information contained in this Report from the sources from which it was obtained, Toxics Targeting, Inc. shall refund to the original purchaser the full purchase price paid for the Report. The remedy stated above is the exclusive remedy extended to the Purchaser by Toxics Targeting, Inc. for any failure of the Report to conform with this Warranty, or otherwise for breach of this Warranty or any other warranty, whether expressed or implied.

What We Won't Cover

Toxics Targeting, Inc. has not and can not verify the accuracy, correctness or completion of the information contained in this Report. Information is obtained from government agencies, site owners, and other sources, and errors are common in such information. Because Toxics Targeting, Inc. can not control the accuracy of the information contained in this Report, or the uses which may be made of the information, TOXICS TARGETING, INC. DISCLAIMS LIABILITY TO ANYONE FOR ANY EVENTS ARISING OUT OF THE USE OF THE INFORMATION. TOXICS TARGETING, INC. SHALL NOT BE LIABLE FOR ANY DAMAGE CAUSED BY THIS REPORT, WHETHER DIRECT OR INDIRECT, AND WHETHER OR NOT TOXICS TARGETING, INC. HAS BEEN ADVISED OF OR HAS KNOWLEDGE OF THE POSSIBILITY OF SUCH DAMAGES. TOXICS TARGETING, INC. EXPRESSLY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.

Period of Warranty

The period of warranty coverage is ninety days from the date of purchase of this Report. There shall be no warranty after the period of coverage. ANY AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR USE SHALL HAVE NO GREATER DURATION THAN THE PERIOD OF WARRANTY STATED HERE, AND SHALL TERMINATE AUTOMATICALLY UPON THE EXPIRATION OF SUCH PERIOD. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above exclusion or limitation may not apply to you.

PLEASE REFER TO PAGES ONE AND FOUR FOR A DESCRIPTION OF SOME OF THE LIMITATIONS OF THIS COMPUTERIZED ENVIRONMENTAL REPORT.

Table of Contents

Introduction 1

- *The Three Sections of Your Report*
- *How to Use Your Report*
- *Toxic Site Databases Analyzed In Your Report*
- *Limitations Of the Information In Your Report*

Section One: Your Report Summary 5

- *Table One:* *Number of Identified Toxic Sites By Distance Interval*
- *Table Two:* *Identified Toxic Sites By Direction*
- *Table Three:* *Identified Toxic Sites Ranked by Proximity*
- *Table Four:* *Identified Toxic Sites By Category*
- *Map One:* *One-Mile Radius Map*
- *Map Two:* *Half-Mile Radius Map*
- *Map Three:* *Quarter-Mile Radius Map*
- *Map Four:* *Quarter-Mile Radius Close-up Map*

Section Two: Toxic Site Profiles

Section Three: Appendices

- *USEPA ERNS Check*
- *Unmappable Sites*
- *Hazardous Waste Codes*
- *How Toxic Sites Are Mapped*
- *Information Source Guide*

Introduction

Toxics Targeting has combined environmental database searches, extensive regulatory analysis and sophisticated mapping techniques to produce your *Computerized Environmental Report.* It checks for the presence of 17 categories of government-reported toxic sites and provides detailed, up-to-date information on each identified site. The findings of your report are presented in an easy-to-understand format that:

1. ***Maps*** the approximate locations of selected government-reported toxic sites identified on or near a specified target address.

2. ***Estimates*** the distance and direction between the target address and each identified toxic site.

3. ***Reports*** air and water permit non-compliance and other regulatory violations.

4. ***Profiles*** some aspects of the usage, manufacture, storage, handling, transport or disposal of toxic chemicals at individual sites.

5. ***Summarizes*** some potential health effect information and drinking water standards for selected chemicals reported at individual sites.

The Three Sections Of Your Report

The first section highlights your report's findings by summarizing identified sites according to: **a)** distance intervals, **b)** direction, **c)** proximity to the target address and **d)** individual site categories. In addition, the locations of all identified toxic sites are illustrated on individual maps for each radius search distance used in your report. Finally, a close-up map illustrates the locations of all identified toxic sites at the shortest radius search distance used in your report.

The second section of your report contains *Toxic Site Profiles* that provide detailed information on each identified toxic site. The information in each *Toxic Site Profile* varies according to its source. Some toxic site categories have extensive information, some have limited information. All the information is updated on a regular basis.

The third section of the report contains appendices that identify: **1)** on-site spills reported to the national Emergency Response Notification System (ERNS), **2)** various toxic sites that cannot be mapped due to incomplete or erroneous addresses or other mapping problems, **3)** codes that characterize hazardous wastes reported at various facilities, **4)** methods used to map toxic sites identified in your report and **5)** information sources used in your report.

How to Use Your Report

- Check Table One to see the number of identified sites by distance intervals.

- Check Table Two to see identified sites sorted by direction.

- Check Table Three to see identified sites ranked by proximity to the target address.

- Check Table Four to see identified sites sorted by site categories.

- Refer to the various maps to see the locations of identified toxic sites. Refer to the *Toxic Site Profile* and *Appendix* sections for additional information.

Toxic Site Databases Analyzed In Your Report

Search Radius

One-Mile

1) ***New York Inactive Hazardous Waste Disposal Site Registry:*** a state listing of sites that can pose environmental or public health hazards requiring investigation or clean up.

One-Mile

2) ***CERCLIS*** (Comprehensive Environmental Response, Compensation and Liability Information System): a federal listing of sites that can pose environmental or public health hazards requiring investigation or clean up.

One-Mile

3) ***National Priority List for Federal Superfund Cleanup:*** a listing of sites known to pose environmental or health hazards that are being investigated or cleaned up under the Federal Superfund program.

One-Mile

4) ***New York Hazardous Substance Disposal Site Draft Study:*** a state listing of sites contaminated with toxic substances that can pose environmental or public health hazards. These sites are not eligible for state clean up funding programs.

One-Mile

5) ***New York Solid Waste Facilities Registry, including New York City 1934 Sites:*** active and inactive landfills, incinerators, transfer stations or other solid waste management facilities.

One-Mile

6) ***New York State Major Oil Storage Facilities:*** sites with more than a 400,000 gallon capacity for storing petroleum products.

One-Mile

7) ***New York and Federal Hazardous Waste Treatment, Storage or Disposal Facilities:*** sites reported by the NYS manifest system and the USEPA's Resource Conservation and Recovery Act Information System (RCRIS). Also includes the following database:

- ***RCRA violations:*** waste facilities with violations reported by the USEPA pursuant to the Resource Conservation and Recovery Act.

One-Mile

8) ***RCRA Corrective Action Activity (CORRACTS):*** waste facilities with RCRA corrective action activity reported by the USEPA.

Half-Mile

9a) ***Toxic Spills: active*** stationary source spills reported to state environmental authorities, including unremediated leaking underground storage tanks.

Half-Mile

9b) ***Toxic Spills: closed*** stationary and non-stationary source spills reported to state environmental authorities, including remediated leaking underground storage tanks.

Quarter-Mile

10) ***New York and Local Petroleum Bulk Storage Facilities:*** sites with more than an 1,100 gallon capacity for storing petroleum products.

Quarter-Mile

11) ***New York and Federal Hazardous Waste Generators and Transporters:*** sites reported by the NYS manifest system and the USEPA's Resource Conservation and Recovery Act Information System (RCRA). Also includes the following database:

- ***RCRA violations:*** waste facilities with violations reported by the USEPA pursuant to the Resource Conservation and Recovery Act .

Quarter-Mile

12) ***New York Chemical Bulk Storage Facilities:*** Sites storing hazardous substances listed in 6 NYCRR Part 597 in aboveground tanks with capacities of 185 gallons or more and/or underground tanks of any size

Quarter-Mile

13) ***Federal Toxic Release Inventory Facilities:*** discharges of selected toxic chemicals to air, land, water or treatment facilities.

Quarter-Mile

14) ***Federal Permit Compliance System Toxic Wastewater Discharges:*** permitted toxic wastewater discharges.

Quarter-Mile

15) ***Federal Air Discharges:*** Air pollution point sources monitored by U.S. EPA and/or state and local air regulatory agencies.

Quarter-Mile

16) ***Federal Civil and Administrative Enforcement Docket:*** judiciary cases filed on behalf of the U. S. Environmental Protection Agency by the Department of Justice.

Property only

17) ***ERNS: Federal Emergency Response Notification System Spills:*** a listing of federally reported spills.

Limitations Of The Information In Your Report

The information presented in your *Computerized Environmental Report* has been obtained from various local, state and federal government agencies. Please be aware that: 1) additional information on individual sites may be available, 2) newly discovered sites are continually reported and 3) all map locations are approximate. As a result, this report is intended to be the FIRST STEP in the process of identifying and evaluating possible environmental threats to specific properties and can only serve as a guide for conducting on-site visits or additional, more detailed toxic hazard research.

Toxics Targeting tries to ensure that the information in your report is presented accurately and with minimal alteration. The only systematic changes that are made correct obvious address errors in order to allow sites to be mapped. Any address changes that are made are noted in the map information section at the top of each corresponding *Toxic Site Profile*. Since the information presented in your report is not edited, please be aware that it can contain reporting errors or typographical mistakes made by the site owners/operators or government agencies that produced the information. Please be aware of some other limitations of the information in your report:

- The computerized map used by *Toxics Targeting* is the same one used by the U. S. Census. While the map is generally accurate, no map is perfect. In addition, *Toxics Targeting's* mapping methods estimate where toxic site addresses are located if the address is not specifically designated on the Census map. FOR THESE REASONS, ALL MAP LOCATIONS OF ADDRESSES AND REPORTED TOXIC SITES SHOULD BE CONSIDERED APPROXIMATE AND SHOULD BE VERIFIED BY ON-SITE VISITS;

- UNDISCOVERED, UNREPORTED OR UNMAPPABLE TOXIC SITES MIGHT NOT BE IDENTIFIED BY THIS REPORT'S CHECK OF 17 TOXIC SITE CATEGORIES. TOXIC SITES REPORTED IN OTHER GOVERNMENT DATABASES MIGHT ALSO EXIST. FOR THESE REASONS, YOUR REPORT MIGHT NOT IDENTIFY ALL THE TOXIC SITES THAT EXIST IN THE AREA IT SEARCHES;

- The appendix of your report contains a listing of sites that could not be mapped due to incomplete or erroneous address information or other mapping problems. This listing includes unmappable toxic sites in zip code areas within one mile of the target address as well as toxic sites without zip codes reported in the same county. IF YOU WOULD LIKE INFORMATION ON ANY OF THE LISTED SITES, PLEASE CONTACT *TOXICS TARGETING AND REFER TO THE SITE ID NUMBER.*

- Some toxic sites identified in your report may be classified as **known hazards**. Most of the toxic sites identified in your report involve **potential hazards** related to the on-site use, manufacture, handling, storage, transport or disposal of toxic chemicals. <u>Some of the toxic sites identified in your report may be the addresses of parties responsible for toxic sites located elsewhere</u>. YOU SHOULD ONLY CONCLUDE THAT TOXIC HAZARDS ACTUALLY EXIST AT A SPECIFIC SITE WHEN GOVERNMENT AUTHORITIES MAKE THAT DETERMINATION OR WHEN THAT CONCLUSION IS FULLY DOCUMENTED BY THE FINDINGS OF AN APPROPRIATE SITE INVESTIGATION UNDERTAKEN BY LICENSED PROFESSIONALS;

- Compass directions and distances are approximate. Compass directions are calculated from the subject property address to the mapped location of each identified toxic site. The compass direction does not necessarily refer to the closest property boundary of an identified toxic site. The compass direction also can vary substantially for toxic sites that are located very close to the subject property address.

- The information presented in your report is a summary of the information that *Toxics Targeting* obtains from government agencies on reported toxic sites. YOU MAY BE ABLE TO OBTAIN ADDITIONAL INFORMATION ABOUT REPORTED SITES WITH THE FREEDOM OF INFORMATION REQUEST FORM LETTERS THAT ARE PROVIDED ON THE INSIDE OF THE BACK COVER.

Section One:

Report Summary

- *Table One:* *Number of Identified Toxic Sites By Distance Interval*
- *Table Two:* *Identified Toxic Sites By Direction*
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- *Map Four:* *Quarter-Mile Radius Close up Map*

NUMBER OF IDENTIFIED SITES BY DISTANCE INTERVAL

Database Searched	0 - 100 ft	100 ft - 1/8 mi	1/8 mi - 1/4 mi	1/4 mi - 1/2 mi	1/2 mi - 1 mi	Site(s) Category Totals
NYS Inactive Haz Waste Registry or Reg. Qualifying Sites *	0	0	0	0	1	1
CERCLIS Sites *	0	0	0	0	0	0
National Priority List Sites *	0	0	0	0	0	0
Hazardous Substance Waste Disposal Sites *	0	0	0	0	1	1
NYS Solid Waste Facilities *	0	0	0	0	1	1
NYS Major Oil Storage Facilities *	0	0	0	0	0	0
RCRA Hazardous Waste Treatment, Storage, Disposal Sites *	0	0	0	0	0	0
RCRA Corrective Action Sites *	0	0	0	0	0	0
NYS Toxic Spills (incl. Leaking Undrgrnd Storage Tanks) **	0	2	12	37	Not searched	51
Local & State Petroleum Bulk Storage Sites ***	0	1	3	Not searched	Not searched	4
RCRA Hazardous Waste Generators & Transporters ***	0	0	0	Not searched	Not searched	0
NYS Chemical Bulk Storage Sites ***	0	0	0	Not searched	Not searched	0
Toxic Release Inventory Sites (TRI) ***	0	0	0	Not searched	Not searched	0
Permit Compliance System Toxic Wastewater Discharges ***	0	0	0	Not searched	Not searched	0
NYS Air Discharges ***	0	0	0	Not searched	Not searched	0
Civil & Administrative Enforcement Docket Facilities ***	0	0	0	Not searched	Not searched	0
ERNS (Onsite) *****	0	Not searched	Not searched	Not searched	Not searched	0
Distance Interval Totals	0	3	15	37	3	58

Search Radius: * 1 Mile Search Radius ** 1/2 Mile Search Radius *** 1/4 Mile Search Radius **** 1/8 Mile Search Radius ***** on-site only

Identified Toxic Sites by Direction

Kiruv Estates
Huntington, NY 11743

* Compass directions can vary substantially for sites located very close to the subject property address.

Sites less than 100 feet from subject property sorted by distance

No sites found less than 100 feet from subject property

Sites between 100 ft and 660 ft from the subject property sorted by direction and distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
7		471 PARK AVENUE	408 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
55	HUNTINGTON JEWISH CENTER	510 PARK AVE	530 feet to the NNE	Petroleum Bulk Storage Site
30		186 WOODHULL ROAD	396 feet to the NW	Closed Status Spill (Misc. Spill Cause)

Sites equal to or greater than 660 ft from subject property sorted by direction and distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
37	YELEN RESIDENCE	64 NORTH WOODHULL ROAD	1346 feet to the N	Closed Status Spill (Misc. Spill Cause)
45		64 EAST MAIN STREET	2023 feet to the N	Closed Status Spill (Misc. Spill Cause)
46	RESIDENCE	70 EAST MAIN STREET	2087 feet to the N	Closed Status Spill (Misc. Spill Cause)
49	MILLER RESIDENCE	22 OVERLOOK ROAD	2442 feet to the N	Closed Status Spill (Misc. Spill Cause)
50	RESIDENCE	25 OVERLOOK DRIVE	2521 feet to the N	Closed Status Spill (Misc. Spill Cause)
18	SUNOCO STATION	90 EAST MAIN STREET	2356 feet to the NNE	Closed Status Tank Test Failure
26	JESSE SERVICE CENTER	90 EAST MAIN STREET	2356 feet to the NNE	Closed Status Spill (Unk/Other Cause)
27	SUN REFINING	90 EAST MAIN STREET	2356 feet to the NNE	Closed Status Spill (Unk/Other Cause)
28		NORTHWOODHUL ROAD/RTE 25A	2381 feet to the NNE	Closed Status Spill (Unk/Other Cause)
48	UNK	25A & WOODHULL	2381 feet to the NNE	Closed Status Spill (Misc. Spill Cause)
40	RESIDENCE	45 HARRIET LANE	1399 feet to the NE	Closed Status Spill (Misc. Spill Cause)
19	DRAZ RESIDENCE	4 GAIL COURT	1172 feet to the ENE	Closed Status Spill (Unk/Other Cause)
35	GOULD RESIDENCE	39 HARRIET LANE	1230 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
47	LOMBARDI RESIDENCE	28 POLLY DRIVE	2157 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
15	CATHERINE GEBHARD RESIDEN	27 POLLY DRIVE	2570 feet to the ENE	Closed Status Tank Failure
57	RECHARGE BASIN	565 PARK AVE	1035 feet to the ESE	Petroleum Bulk Storage Site
11	THOMAS RESIDENCE	32 CLEARFIELD PLACE	2032 feet to the SSE	Closed Status Tank Failure
31	ROTH RESIDENCE	7 WARRENTON COURT	804 feet to the S	Closed Status Spill (Misc. Spill Cause)
34	VALENTI RESIDENCE	18 WARRENTON COURT	875 feet to the S	Closed Status Spill (Misc. Spill Cause)

23	DR UNGER	102 WOODHOE ROAD	1844 feet to the S	Closed Status Spill (Unk/Other Cause)
43	UNGER RESIDENCE	102 WOODHULL ROAD	1844 feet to the S	Closed Status Spill (Misc. Spill Cause)
44	RESIDENCE	7 DELAWARE STREET	1980 feet to the S	Closed Status Spill (Misc. Spill Cause)
36	PETER WOLL RESIDENCE	1 WESLEY COURT	1247 feet to the SSW	Closed Status Spill (Misc. Spill Cause)
20	ORENSTEIN RESIDENCE	6 WESLEY COURT	1279 feet to the SSW	Closed Status Spill (Unk/Other Cause)
5	WOODHULL SCHOOL	145 WOODHULL ROAD	1120 feet to the SW	Active Tank Test Failure
10	WOODHALL SCHOOL	WOODHDALL ROAD	1120 feet to the SW	Active Haz Spill (Misc. Spill Cause)
16	WOODHULL SCHOOL	WOODHULL ROAD	1120 feet to the SW	Closed Status Tank Test Failure
58	WOODHULL SCHOOL	140 WOODHULL RD	1141 feet to the SW	Petroleum Bulk Storage Site
3	HUNTINGTON S.T.O.P. (T)	100 MAIN STREET	4632 feet to the SW	Solid Waste Facility
24	S.C.W.A.	133 SPRING RD	1878 feet to the WSW	Closed Status Spill (Unk/Other Cause)
25	AUTOMOTIVE TECHNOLOGY	116 SPRING ROAD	1884 feet to the WSW	Closed Status Spill (Unk/Other Cause)
54	HUERGO RESIDENCE	12 GAINES PLACE	2638 feet to the WSW	Closed Status Spill (Misc. Spill Cause)
41	LILCO	85 JACKSON AVE	1516 feet to the W	Closed Status Spill (Misc. Spill Cause)
51	RELIANCE	124 MAIN STREET	2526 feet to the WNW	Closed Status Spill (Misc. Spill Cause)
6	TEXACO GAS	128 MAIN STREET	2609 feet to the WNW	Active Tank Test Failure
11	TEXACO SERVICE STATION	128 MAIN STREET	2609 feet to the WNW	Active Haz Spill (Misc. Spill Cause)
29	TEXACO S/S	128 MAIN STREET(SPRING ST	2609 feet to the WNW	Closed Status Spill (Unk/Other Cause)
52	GAS STATION	128 MAIN STREET	2609 feet to the WNW	Closed Status Spill (Misc. Spill Cause)
2	MANOR PARKMORE CLEANERS	176 NY AVE	3613 feet to the WNW	Hazardous Substance Waste Disposal Site
17	YMCA	60 MAIN STREET	1693 feet to the NW	Closed Status Tank Test Failure
42	YMCA	60 MAIN STREET	1693 feet to the NW	Closed Status Spill (Misc. Spill Cause)
4		368 PARK AVENUE	2088 feet to the NW	Active Tank Failure
53	LILCO	325 PARK AVE & E MAIN ST	2612 feet to the NW	Closed Status Spill (Misc. Spill Cause)
1	S.C.W.A. WELLFIELD - HUNTINGTON	MILL LANE	4061 feet to the NW	NYSDEC Inactive Haz Waste Site
32	DREW METZLER RES	WOODHULL OFF OF PARK AVE	818 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
33		PARK AVE & WOODHALL ROAD	818 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
56	FLANAGAN CENTER	423 PARK AVE	889 feet to the NNW	Petroleum Bulk Storage Site
12	HUNTINGTON HISTORICAL SOC	434 PARK AVENUE	1108 feet to the NNW	Closed Status Tank Failure
8	MOBIL S/S	400 PARK AVE & RTE 25A	1346 feet to the NNW	Active Haz Spill (Unknown/Other Cause)
9	EXXON MOBIL	400 PARK AVENUE	1346 feet to the NNW	Active Haz Spill (Unknown/Other Cause)
38	MOBIL OIL S/S	400 PARK AVENUE	1346 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
39	MOBIL S/S	400 PARK AVENUE	1346 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
21	UNK	PARK AVENUE & 25A	1390 feet to the NNW	Closed Status Spill (Unk/Other Cause)
22		RTE 25A & PARK AVENUE	1390 feet to the NNW	Closed Status Spill (Unk/Other Cause)
13	BAYLIS & BAYLIS	1 EAST MAIN STREET	1461 feet to the NNW	Closed Status Tank Failure

Identified Toxic Sites by Proximity

Kiruv Estates, Huntington, NY 11743

* Compass directions can vary substantially for sites located very close to the subject property address.

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
30		186 WOODHULL ROAD	396 feet to the NW	Closed Status Spill (Misc. Spill Cause)
7		471 PARK AVENUE	408 feet to the NNE	Active Haz Spill (Unknown/Other Cause)
55	HUNTINGTON JEWISH CENTER	510 PARK AVE	530 feet to the NNE	Petroleum Bulk Storage Site
31	ROTH RESIDENCE	7 WARRENTON COURT	804 feet to the S	Closed Status Spill (Misc. Spill Cause)
32	DREW METZLER RES	WOODHULL OFF OF PARK AVE	818 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
33		PARK AVE & WOODHALL ROAD	818 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
34	VALENTI RESIDENCE	18 WARRENTON COURT	875 feet to the S	Closed Status Spill (Misc. Spill Cause)
56	FLANAGAN CENTER	423 PARK AVE	889 feet to the NNW	Petroleum Bulk Storage Site
57	RECHARGE BASIN	565 PARK AVE	1035 feet to the ESE	Petroleum Bulk Storage Site
12	HUNTINGTON HISTORICAL SOC	434 PARK AVENUE	1108 feet to the NNW	Closed Status Tank Failure
5	WOODHULL SCHOOL	145 WOODHULL ROAD	1120 feet to the SW	Active Tank Test Failure
10	WOODHALL SCHOOL	WOODHDALL ROAD	1120 feet to the SW	Active Haz Spill (Misc. Spill Cause)
16	WOODHULL SCHOOL	WOODHULL ROAD	1120 feet to the SW	Closed Status Tank Test Failure
58	WOODHULL SCHOOL	140 WOODHULL RD	1141 feet to the SW	Petroleum Bulk Storage Site
19	DRAZ RESIDENCE	4 GAIL COURT	1172 feet to the ENE	Closed Status Spill (Unk/Other Cause)
35	GOULD RESIDENCE	39 HARRIET LANE	1230 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
36	PETER WOLL RESIDENCE	1 WESLEY COURT	1247 feet to the SSW	Closed Status Spill (Misc. Spill Cause)
20	ORENSTEIN RESIDENCE	6 WESLEY COURT	1279 feet to the SSW	Closed Status Spill (Unk/Other Cause)
8	MOBIL S/S	400 PARK AVE & RTE 25A	1346 feet to the NNW	Active Haz Spill (Unknown/Other Cause)
9	EXXON MOBIL	400 PARK AVENUE	1346 feet to the NNW	Active Haz Spill (Unknown/Other Cause)
37	YELEN RESIDENCE	64 NORTH WOODHULL ROAD	1346 feet to the N	Closed Status Spill (Misc. Spill Cause)
38	MOBIL OIL S/S	400 PARK AVENUE	1346 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
39	MOBIL S/S	400 PARK AVENUE	1346 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
21	UNK	PARK AVENUE & 25A	1390 feet to the NNW	Closed Status Spill (Unk/Other Cause)
22		RTE 25A & PARK AVENUE	1390 feet to the NNW	Closed Status Spill (Unk/Other Cause)
40	RESIDENCE	45 HARRIET LANE	1399 feet to the NE	Closed Status Spill (Misc. Spill Cause)
13	BAYLIS & BAYLIS	1 EAST MAIN STREET	1461 feet to the NNW	Closed Status Tank Failure
41	LILCO	85 JACKSON AVE	1516 feet to the W	Closed Status Spill (Misc. Spill Cause)
17	YMCA	60 MAIN STREET	1693 feet to the NW	Closed Status Tank Test Failure
42	YMCA	60 MAIN STREET	1693 feet to the NW	Closed Status Spill (Misc. Spill Cause)
23	DR UNGER	102 WOODHOE ROAD	1844 feet to the S	Closed Status Spill (Unk/Other Cause)
43	UNGER RESIDENCE	102 WOODHULL ROAD	1844 feet to the S	Closed Status Spill (Misc. Spill Cause)
24	S.C.W.A.	133 SPRING RD	1878 feet to the WSW	Closed Status Spill (Unk/Other Cause)
25	AUTOMOTIVE TECHNOLOGY	116 SPRING ROAD	1884 feet to the WSW	Closed Status Spill (Unk/Other Cause)
44	RESIDENCE	7 DELAWARE STREET	1980 feet to the S	Closed Status Spill (Misc. Spill Cause)
45		64 EAST MAIN STREET	2023 feet to the N	Closed Status Spill (Misc. Spill Cause)
14	THOMAS RESIDENCE	32 CLEARFIELD PLACE	2032 feet to the SSE	Closed Status Tank Failure
46	RESIDENCE	70 EAST MAIN STREET	2087 feet to the N	Closed Status Spill (Misc. Spill Cause)
4		366 PARK AVENUE	2088 feet to the NW	Active Tank Failure
47	LOMBARDI RESIDENCE	28 POLLY DRIVE	2157 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
18	SUNOCO STATION	90 EAST MAIN STREET	2356 feet to the NNE	Closed Status Tank Test Failure
26	JESSE SERVICE CENTER	90 EAST MAIN STREET	2356 feet to the NNE	Closed Status Spill (Unk/Other Cause)
27	SUN REFINING	90 EAST MAIN STREET	2356 feet to the NNE	Closed Status Spill (Unk/Other Cause)
28		NORTHWOODHUL ROAD/RTE 25A	2381 feet to the NNE	Closed Status Spill (Unk/Other Cause)
48	UNK	25A & WOODHULL	2381 feet to the NNE	Closed Status Spill (Misc. Spill Cause)

49	MILLER RESIDENCE	22 OVERLOOK ROAD	2442 feet to the N	Closed Status Spill (Misc. Spill Cause)
50	RESIDENCE	25 OVERLOOK DRIVE	2521 feet to the N	Closed Status Spill (Misc. Spill Cause)
51	RELIANCE	124 MAIN STREET	2526 feet to the WNW	Closed Status Spill (Misc. Spill Cause)
15	CATHERINE GEBHARD RESIDEN	27 POLLY DRIVE	2570 feet to the ENE	Closed Status Tank Failure
6	TEXACO GAS	128 MAIN STREET	2609 feet to the WNW	Active Tank Test Failure
11	TEXACO SERVICE STATION	128 MAIN STREET	2609 feet to the WNW	Active Haz Spill (Misc. Spill Cause)
29	TEXACO S/S	128 MAIN STREET(SPRING ST	2609 feet to the WNW	Closed Status Spill (Unk/Other Cause)
52	GAS STATION	128 MAIN STREET	2609 feet to the WNW	Closed Status Spill (Misc. Spill Cause)
53	LILCO	325 PARK AVE & E MAIN ST	2612 feet to the NW	Closed Status Spill (Misc. Spill Cause)
54	HUERGO RESIDENCE	12 GAINES PLACE	2838 feet to the WSW	Closed Status Spill (Misc. Spill Cause)
2	MANOR PARKMORE CLEANERS	176 NY AVE	3613 feet to the WNW	Hazardous Substance Waste Disposal Site
1	S.C.W.A. WELLFIELD - HUNTINGTON	MILL LANE	4061 feet to the NW	NYSDEC Inactive Haz Waste Site
3	HUNTINGTON S.T.O.P. (T)	100 MAIN STREET	4632 feet to the SW	Solid Waste Facility

Identified Toxic Sites by Category

Kiruv Estates
Huntington, NY 11743

* Compass directions can vary substantially for sites located very close to the subject property address.

NYSDEC Inactive Haz. Waste Registry or Reg. Qualifying Sites

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
1	152071	S.C.W.A. WELLFIELD - HUNTINGTON	MILL LANE	4061 feet to the NW

Hazardous Substance Waste Disposal Sites

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
2		MANOR PARKMORE CLEANERS	176 NY AVE	3613 feet to the WNW

Solid Waste Facilities

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
3	52T86	HUNTINGTON S.T.O.P. (T)	100 MAIN STREET	4632 feet to the SW

Active Tank Failures

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
4	0003096		366 PARK AVENUE	2088 feet to the NW

Active Tank Test Failures

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
5	0111101	WOODHULL SCHOOL	145 WOODHULL ROAD	1120 feet to the SW
6	0001647	TEXACO GAS	128 MAIN STREET	2609 feet to the WNW

Active Haz Spills (Unknown Causes & Other Causes)

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
7	0103238		471 PARK AVENUE	408 feet to the NNE
8	9101334	MOBIL S/S	400 PARK AVE & RTE 25A	1346 feet to the NNW
9	0303633	EXXON MOBIL	400 PARK AVENUE	1346 feet to the NNW

Active Haz Spills (Miscellaneous Spill Causes)

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
10	9309334	WOODHALL SCHOOL	WOODHDALL ROAD	1120 feet to the SW
11	9603862	TEXACO SERVICE STATION	128 MAIN STREET	2609 feet to the WNW

Closed Status Tank Failures

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
12	9614144	HUNTINGTON HISTORICAL SOC	434 PARK AVENUE	1108 feet to the NNW
13	9011084	BAYLIS & BAYLIS	1 EAST MAIN STREET	1461 feet to the NNW
14	9909258	THOMAS RESIDENCE	32 CLEARFIELD PLACE	2032 feet to the SSE
15	9107963	CATHERINE GEBHARD RESIDEN	27 POLLY DRIVE	2570 feet to the ENE

Closed Status Tank Test Failures

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
16	9301001	WOODHULL SCHOOL	WOODHULL ROAD	1120 feet to the SW
17	9706705	YMCA	60 MAIN STREET	1693 feet to the NW
18	9308843	SUNOCO STATION	90 EAST MAIN STREET	2356 feet to the NNE

Closed Status Spills (Unknown Causes & Other Causes)

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
19	9515563	DRAZ RESIDENCE	4 GAIL COURT	1172 feet to the ENE

20	9702422	ORENSTEIN RESIDENCE	6 WESLEY COURT	1279 feet to the SSW
21	8702496	UNK	PARK AVENUE & 25A	1390 feet to the NNW
22	0304573		RTE 25A & PARK AVENUE	1390 feet to the NNW
23	9314773	DR UNGER	102 WOODHOE ROAD	1844 feet to the S
24	9405063	S.C.W.A.	133 SPRING RD	1878 feet to the WSW
25	9008714	AUTOMOTIVE TECHNOLOGY	116 SPRING ROAD	1884 feet to the WSW
26	8805698	JESSE SERVICE CENTER	90 EAST MAIN STREET	2356 feet to the NNE
27	8607306	SUN REFINING	90 EAST MAIN STREET	2356 feet to the NNE
28	9611061		NORTHWOODHUL ROAD/RTE 25A	2381 feet to the NNE
29	9925469	TEXACO S/S	128 MAIN STREET(SPRING ST	2609 feet to the WNW

Closed Status Spills (Miscellaneous Spill Causes)

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
30	9611192		186 WOODHULL ROAD	396 feet to the NW
31	9408430	ROTH RESIDENCE	7 WARRENTON COURT	804 feet to the S
32	9203327	DREW METZLER RES	WOODHULL OFF OF PARK AVE	818 feet to the NNW
33	0102191		PARK AVE & WOODHALL ROAD	818 feet to the NNW
34	9613430	VALENTI RESIDENCE	18 WARRENTON COURT	875 feet to the S
35	0225044	GOULD RESIDENCE	39 HARRIET LANE	1230 feet to the ENE
36	9811816	PETER WOLL RESIDENCE	1 WESLEY COURT	1247 feet to the SSW
37	9607410	YELEN RESIDENCE	64 NORTH WOODHULL ROAD	1346 feet to the N
38	9205441	MOBIL OIL S/S	400 PARK AVENUE	1346 feet to the NNW
39	9109292	MOBIL S/S	400 PARK AVENUE	1346 feet to the NNW
40	9512762	RESIDENCE	45 HARRIET LANE	1399 feet to the NE
41	9404352	LILCO	85 JACKSON AVE	1516 feet to the W
42	9609428	YMCA	60 MAIN STREET	1693 feet to the NW
43	9314766	UNGER RESIDENCE	102 WOODHULL ROAD	1844 feet to the S
44	0310714	RESIDENCE	7 DELAWARE STREET	1980 feet to the S
45	0109940		64 EAST MAIN STREET	2023 feet to the N
46	9412293	RESIDENCE	70 EAST MAIN STREET	2087 feet to the N
47	9310352	LOMBARDI RESIDENCE	28 POLLY DRIVE	2157 feet to the ENE
48	9306872	UNK	25A & WOODHULL	2381 feet to the NNE
49	9514071	MILLER RESIDENCE	22 OVERLOOK ROAD	2442 feet to the N
50	9610440	RESIDENCE	25 OVERLOOK DRIVE	2521 feet to the N
51	9111464	RELIANCE	124 MAIN STREET	2526 feet to the WNW
52	0203338	GAS STATION	128 MAIN STREET	2609 feet to the WNW
53	9001863	LILCO	325 PARK AVE & E MAIN ST	2612 feet to the NW
54	8502977	HUERGO RESIDENCE	12 GAINES PLACE	2638 feet to the WSW

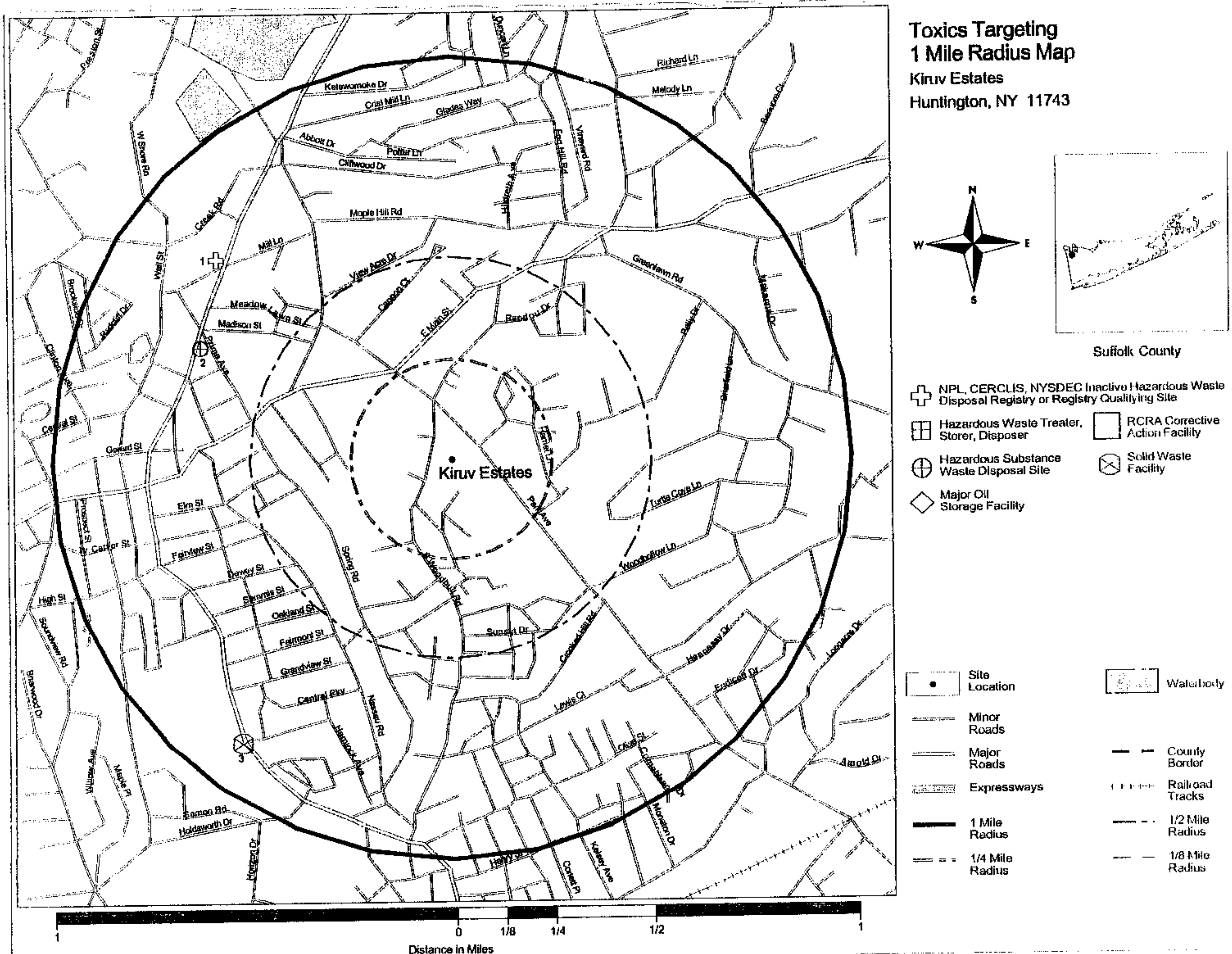
Petroleum Bulk Storage Sites

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
55	4-0500	HUNTINGTON JEWISH CENTER	510 PARK AVE	530 feet to the NNE
56	4-0818	FLANAGAN CENTER	423 PARK AVE	889 feet to the NNW
57	4-0060	RECHARGE BASIN	565 PARK AVE	1035 feet to the ESE
58	4-0451	WOODHULL SCHOOL	140 WOODHULL RD	1141 feet to the SW

Toxics Targeting
1 Mile Radius Map

Kiruv Estates

Huntington, NY 11743



NPL, CERCLIS, NYSDEC Inactive Hazardous Waste Disposal Registry or Registry Qualifying Site

Hazardous Waste Treater, Storer, Disposer

RCRA Corrective Action Facility

Hazardous Substance Waste Disposal Site

Solid Waste Facility

Major Oil Storage Facility

Site Location

Waterbody

Minor Roads

Major Roads

County Border

Expressways

Railroad Tracks

1 Mile Radius

1/2 Mile Radius

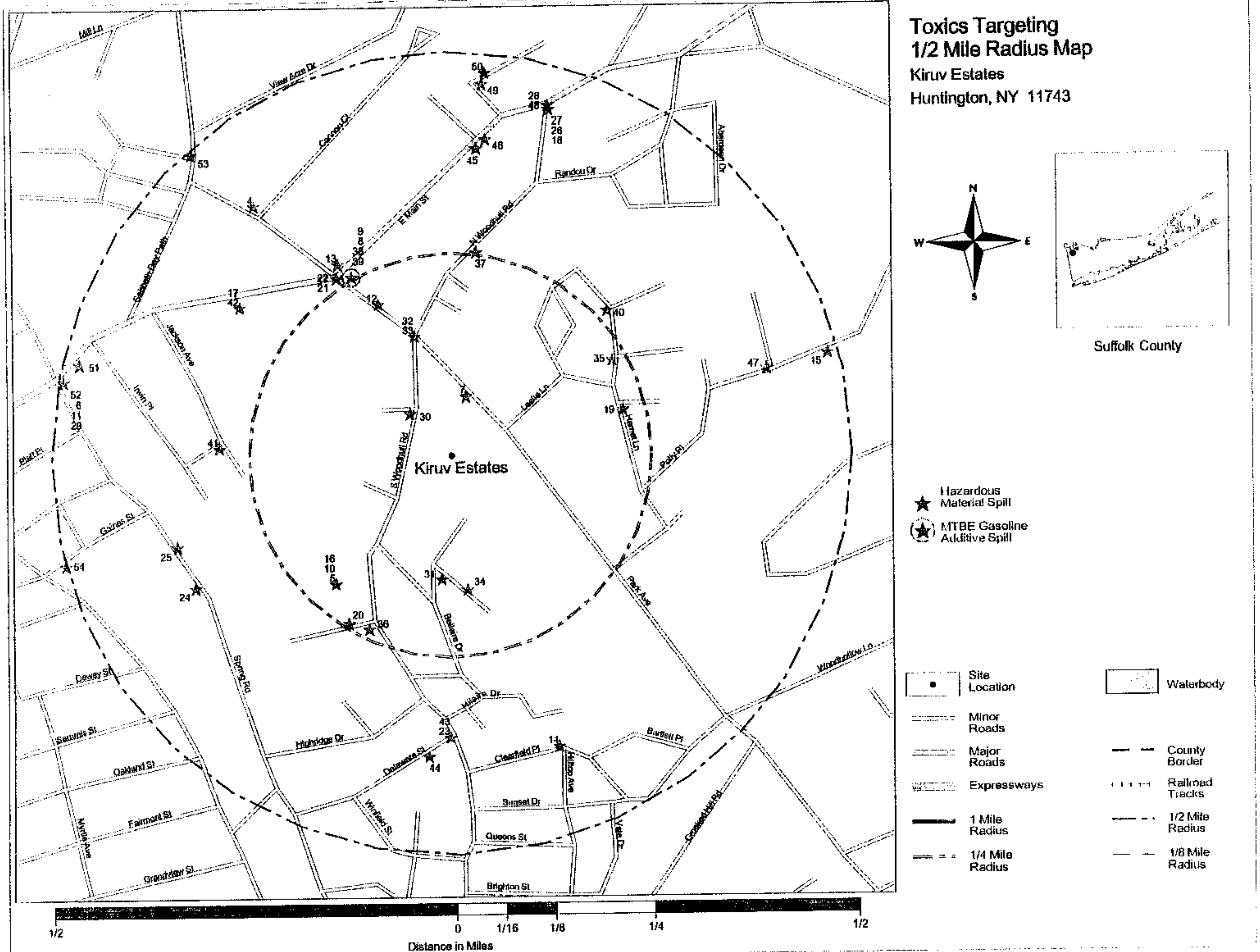
1/4 Mile Radius

1/8 Mile Radius

Toxics Targeting
1/2 Mile Radius Map

Kiruv Estates

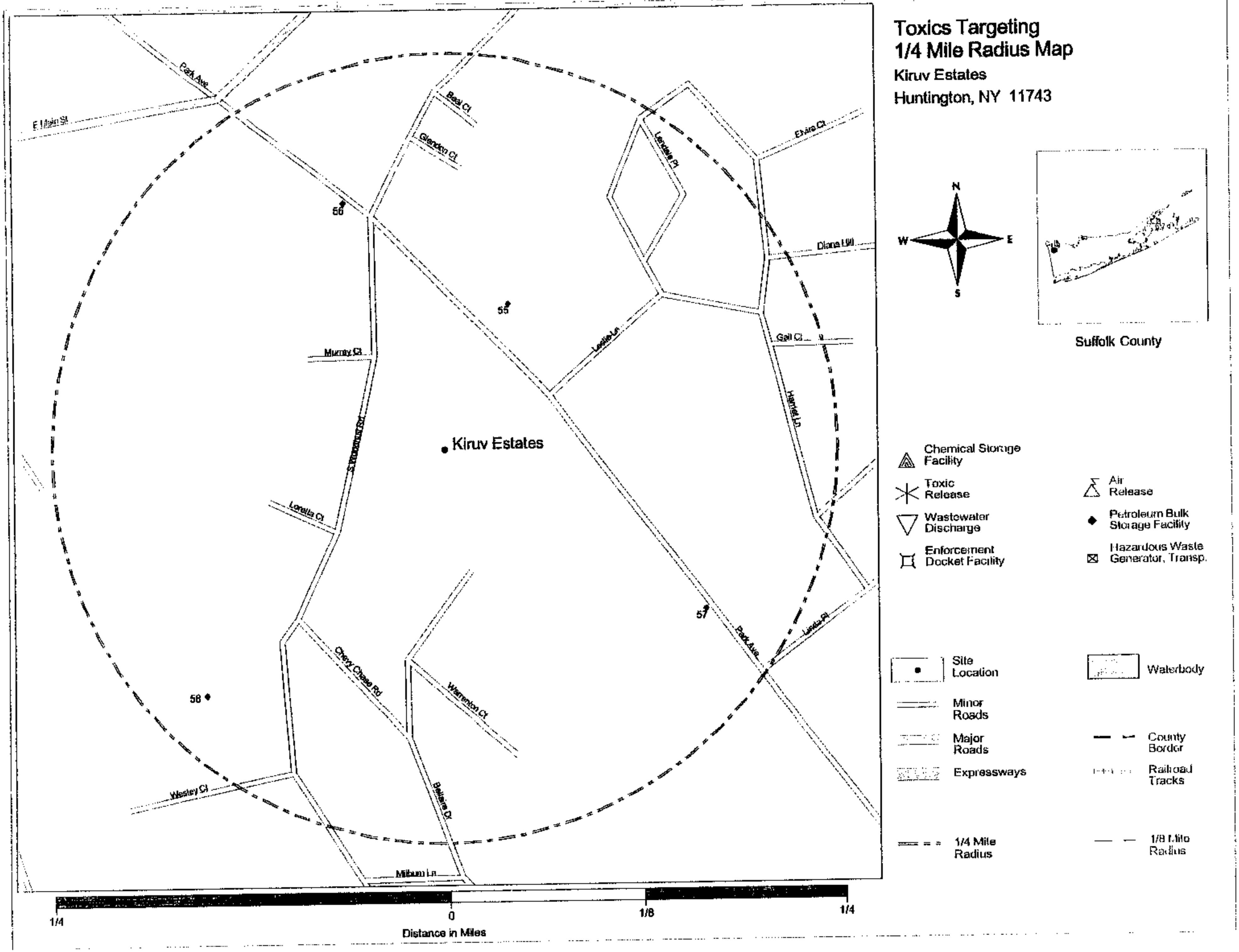
Huntington, NY 11743



Toxics Targeting
1/4 Mile Radius Map

Kiruv Estates

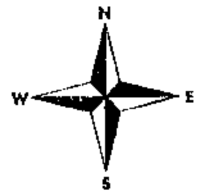
Huntington, NY 11743

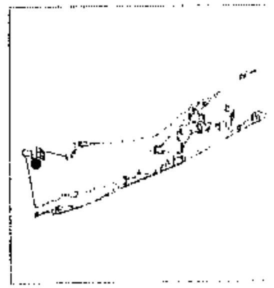


Toxics Targeting
1/4 Mile Closeup Map

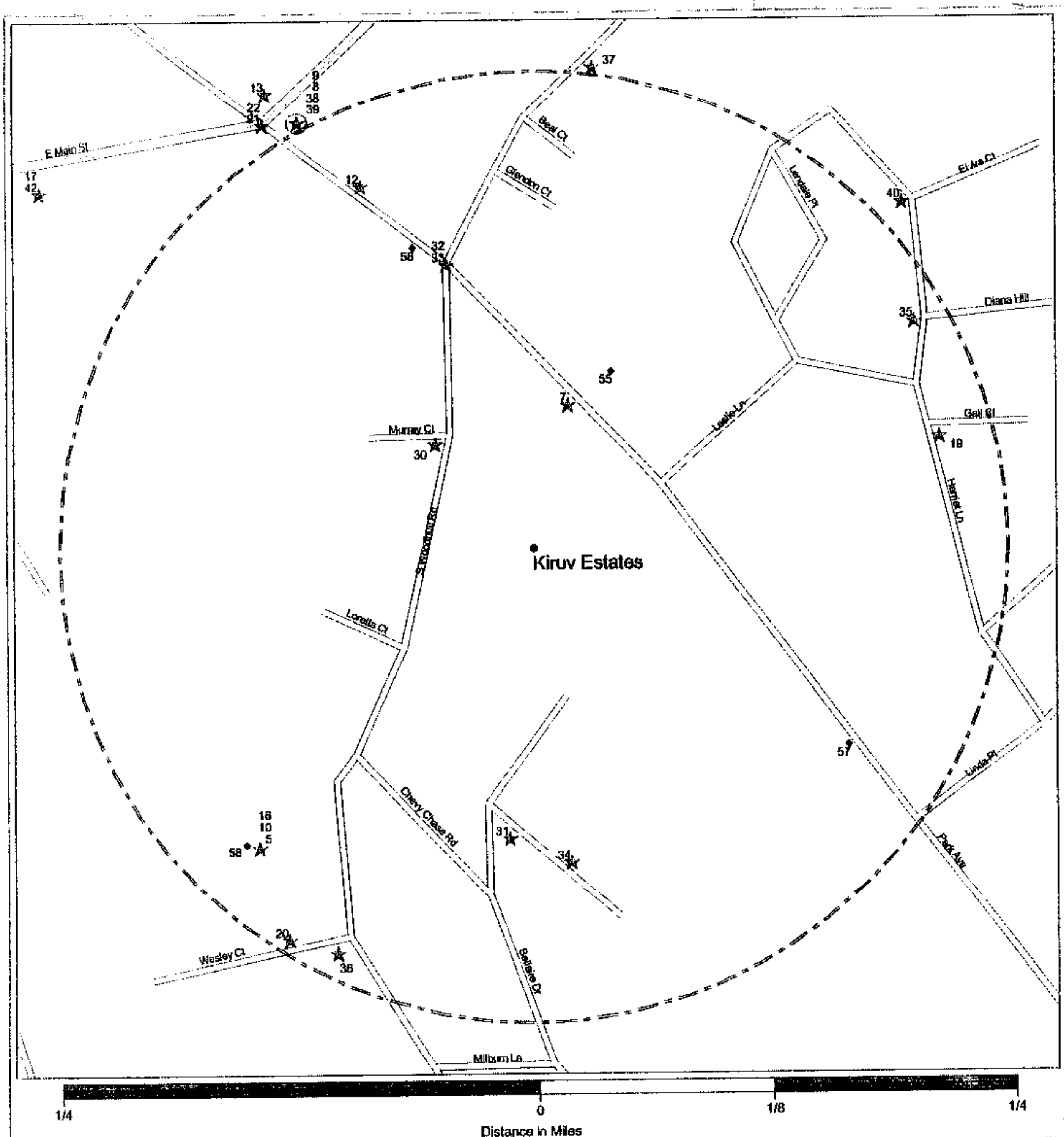
Kiruv Estates

Huntington, NY 11743





Suffolk County



NPL, CERCLIS, NYSDEC Inactive Hazardous Waste Disposal Registry or Registry Qualifying Site *

Hazardous Waste Treater, Storer, Disposer *

RCRA Corrective Action Facility *

Hazardous Substance Waste Disposal Site *

Solid Waste Facility *

Major Oil Storage Facility *

Hazardous Material Spill **

Chemical Storage Facility ***

MTBE Gasoline Additive Spill **

Toxic Release ***

Air Release ***

Wastewater Discharge ***

Petroleum Bulk Storage Facility ***

Enforcement Docket Facility ***

Hazardous Waste Generator, Transp. ***

Site Location

Waterbody

Minor Roads

Major Roads

County Border

Expressways

Railroad Tracks

1/4 Mile Radius

1/8 Mile Radius

* 1 Mile Search Radius

** 1/2 Mile Search Radius

*** 1/4 Mile Search Radius

Section Two: Toxic Site Profiles

The heading of each *Toxic Site Profile* refers to the site's map location and details:

- The facility name, address, city, state, and zip code (This information does not appear in the headings for Inactive Hazardous Waste Disposal Sites).
- Any changes that were made to a site's address in order to map its location.
- The site mapping method that was used (see ***How Sites are Located***, at the end of this section for more information).

Toxic Site Profiles summarize information provided by site owners or operators and government agencies regarding various toxic chemical activities reported at each site, such as:

- Whether chemicals were stored, produced, transported, discharged or disposed of.
- The name of chemicals and their Chemical Abstract Series (CAS) numbers;
- The amount of chemicals and the units (gallons/pounds) the chemical was measured in.
- Whether the site or storage tanks at the site are currently active or inactive.
- Special codes used by government agencies to regulate hazardous waste activities at some sites (A complete description of the codes follows the profiles section).

For selected individual chemicals reported at various toxic sites, some potential health effect summary information appears below the site profile. Each potential health effect summary identifies chemicals by name and by Chemical Abstract Series (CAS) Number. An "x" under each potential health effect heading indicates positive toxicity testing results reported by the National Institute of Occupational Safety and Health's Registry of Toxic Effects of Chemical Substances (RTECS). Some chemicals (mostly appearing in profiles of Hazardous Waste facilities), are reported as mixtures, and RTECS health effect information is only available for individual chemicals. In addition, RTECS only provides information on approximately 100,000 common chemicals. Consequently, the absence of potential health effect summary information for a particular chemical identified in a Toxic Site Profile does not necessarily mean that the chemical does not pose potential health effects.

The Maximum Contaminant Level (MCL) in drinking water allowed for selected chemicals is also noted. In most cases, the only applicable MCL has been set by the New York State Department of Health (NYSDOH). Where NYSDOH has not set an MCL, the federal standard, if one exists, is listed and is marked by an asterisk.

Presented below are column headings that describe the health effect definitions used in RTECS and applicable New York State and federal drinking water standards. Reference sources for information presented in this section are also provided.

ACUTE TOX: **Acute Toxicity**: Short-term exposure to this chemical can cause lethal and non-lethal toxicity effects not included in the following four categories.

TUMOR TOX: **Tumorigenic Toxicity**: The chemical can cause an increase in the incidence of tumors.

MUTAG TOX: **Mutagenic Toxicity**: The chemical can cause genetic alterations that are passed from one generation to the next.

REPRO TOX: **Reproductive toxicity**: May signify one of the following effects: maternal effects, paternal effects, effects on fertility, effects on the embryo or fetus, specific developmental abnormalities, tumorigenic effects, or effects on the newborn (only positive reproductive effects data for mammalian species are referenced)

IRRIT TOX: **Primary Irritant**: The chemical can cause eye or skin irritation

MCL: **Drinking Water Standard - Maximum Contaminant Level** (MCL) listed under Drinking Water Supplies, 10 NYCRR Part 5, Subparts 1.51(f),(g), and (h) for NYDOH MCL's and under the Safe Drinking Water Act, 40 CFR 141, Subparts B and G, (* indicates value for total trihalomethanes) for federal MCL's.

Reference Source for Toxicity Information: Registry of Toxic Effects of Chemical Substances (RTECS), NIOSH (on-line database); For further information, contact: NIOSH, 4676 Columbia Parkway, Cincinnati, OH, 45226, 800/35-NIOSH.

Reference Source for Drinking Water Standards: New York State Department of Health, Bureau of Toxic Substances Assessment, 2 University Place, Room 240, Albany, NY 12203, 518/458-6373.

U.S. Environmental Protection Agency, Office of Drinking Water, 401 M St SW, Mailstop WH-556, Washington, DC, 20460, 202/260-5700.

Inactive Hazardous Waste Disposal Site Classifications: 1 -- Causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or the environment -- immediate action required;

2 -- Significant threat to the public health or environment -- action required;

3 -- Does not Present a significant threat to the environment or public health -- action may be deferred;

4 -- Site properly closed --requires continued management;

5 -- Site properly closed, no evidence of present or potential adverse impact -- no further action required;

2a -- This temporary classification has been assigned to sites where there is inadequate data to assign them to the five classifications specified by law.

$D_{1, 2, 3}$ -- Delisted Site (1: hazardous waste not found; 2: remediated; 3: consolidated site or site incorrectly listed)

* NPL, CERCLIS, INACTIVE HAZARDOUS WASTE REGISTRY SITES AND/OR REGISTRY QUALIFYING SITES * IDENTIFIED WITHIN 1 MILE SEARCH RADIUS *

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

The New York State Department of Environmental Conservation issues Quarterly Status Reports of the Inactive Hazardous Disposal Site Registry. Part Five of those reports identifies "all sites that are under an investigation by the DEC in order to determine whether or not the site meets the statutory definition of an inactive hazardous waste disposal site." Sites identified in Part Five are not currently listed in the Registry and may be added to the Registry or dropped from consideration. This section contains information on those sites.

Map Identification Number 1 **S.C.W.A. WELLFIELD - HUNTINGTON** **Facility Id: 152071**
MILL LANE HUNTINGTON, NY

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 4061 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

SITE DESIGNATION: NPL - CERCLIS - NYSDEC REGISTRY - X NYSDEC REGISTRY QUALIFYING -

This facility has been deleted from the reported data. Data reflects last reported information.

****

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

```
                                                                      SITE CODE: 152071
CLASSIFICATION CODE: D1                         REGION: 1                EPA ID:
CLASSIFICATION CODE DESCRIPTION:
  Delisted site - hazardous waste not found

NAME OF SITE:    S.C.W.A. Wellfield - Huntington
STREET ADDRESS:  Mill Lane                                              COUNTY: Suffolk
TOWN/CITY:       Huntington             ZIP:

SITE TYPE:       Dump-X  Structure-  Lagoon-  Landfill-  Treatment Pond-     ESTIMATED SIZE:

SITE OWNER/OPERATOR INFORMATION:
  CURRENT OWNER(S):
    NAME.....:
    ADDRESS..:
  OWNER DURING DISPOSAL:
    NAME.....:  SCWA
  OPERATOR(S) DURING DISPOSAL:
    NAME.....:
    ADDRESS..:

HAZARDOUS WASTE DISPOSAL PERIOD:  to      ,1978
```

SITE DESCRIPTION:
Public water supply well. Well is contaminated by unknown source.

CONFIRMED HAZARDOUS WASTE DISPOSED:

TYPE	QUANTITY
Tricloroethylene	unknown

ANALYTICAL DATA AVAILABLE FOR: Air- Surface Water- Groundwater-X Soil- Sediment-
APPLICABLE STANDARDS EXCEEDED IN: Groundwater-X Drinking Water-X Surface Water- Air-

GEOTECHNICAL INFORMATION:
SOIL/ROCK TYPE:
GROUNDWATER DEPTH:

LEGAL ACTION: Type: State- Federal-
STATUS: Negotiation in Progress- Order Signed-
REMEDIAL ACTION: Proposed- Under Design- In Progress- Completed-
NATURE OF ACTION:

ASSESSMENT OF ENVIRONMENTAL PROBLEMS:
Contamination of groundwater

ASSESSMENT OF HEALTH PROBLEMS:

****

Toxicity Information Summary

CHEMICAL NAME	CAS-NO	ACUTE TOX	TUMOR TOX	MUTAG TOX	REPRO TOX	IRRIT TOX	MCL
Trichloroethylene	79016	X	X	X	X	X	5 ug/L

*** HAZARDOUS SUBSTANCE WASTE DISPOSAL SITES IDENTIFIED WITHIN 1 MILE SEARCH RADIUS ***

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 2 **MANOR PARKMORE CLEANERS** 176 NY AVE
Site Number Id: HUNTINGTON, NY 11743 **Registry ID N**

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 3613 feet to the WNW

ADDRESS CHANGE INFORMATION
Revised street: 176 NEW YORK AVE
Revised zip code: NO CHANGE

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Hazardous Waste Remediation
Hazardous Substance Waste Disposal Site Study

Inventory Status: Removed from the Hazardous Substance Inventory
Reason site did not qualify for the Inventory:
Qualifies for Registry listing

SITE INFORMATION

Site Name: MANOR PARKMORE CLEANERS
Site Street: 176 NY AVE
Site City: HUNTINGTON
Site Zip: 11743
Region: 1

Site Number:
Registry: No
Registry Site ID: None
RCRA: No
EPA ID:

US EPA No Further Remedial Action Planned? Unknown

Site Code: 5-cleaners
Description: OTHER - CLEANERS

Acres: 1.00
Completed Investigation? Unknown
Is Site Active: Yes
Years of Operation: Unknown to Unknown

Quadrangle: LLOYD HARBOR
HRS Score:
HRS Date:

Site Description:
The site is an active dry cleaner on NY Avenue in Huntington. Illegal disposal of dry cleaning waste has caused gross contamination in onsite soils and groundwater. Soils were removed in the area of the discharge but some contamination remained.

Owner: Private
Owner Name: Unknown
Owner Street: Unknown
Owner City/ZIP/State:

Operator: Private
Operator Name: Unknown
Operator Street: Unknown
Operator City/ZIP/State:

Owner Telephone: Unknown

Operator Telephone: Unknown

SITE IMPACT DATA

Affected Media:

Contamination of...
...Surface Water? Unknown
...Groundwater? Yes
...Drinking Water? Unknown
Surface Water Class: Saline
Groundwater Class: SoleSource

Hazardous Substance Exposed? Unknown
Controlled Site Access? Yes
Ambient Air Contamination? Unknown
Threat of Direct Contact? Unknown
Documented Fish or Wildlife Mortality? Unknown
Impact on Special Status Fish or Wildlife Resource? Unknown
Active Drinking Water Supply? Yes

Descriptions:

Surface Water:
2000 feet; north

Groundwater:
15 ft; flows north

Drinking Water:
1000 feet; north

Fish or Wildlife Mortality: None provided
Special Status Fish or Wildlife Resource: None provided

Building:
0 feet

THREAT TO THE ENVIRONMENT OR PUBLIC HEALTH

Threat to the Environment or the Public Health: Public Health

Threat Posed by Disposed Hazardous Substance:
Onsite contamination limited to deep soils and groundwater. No private wells are known to exist in the area. One well of the Suffolk County Water Authority Mill Lane Well Field showed contamination with PCE in the past but recent samples revealed no contamination in this well or any other public supply well.

HAZARDOUS SUBSTANCES DISPOSED:

VOCs: Yes Semi-VOCs: No PCBs: No Pesticides: No Metals: No Asbestos: No

Hazardous Substances Disposed:
tetrachloroethene (TCE)

SELECTED ANALYTICAL INFORMATION:

Samples Collected:
Groundwate, Subsurface

Air:	None provided
Surface Water:	None provided
Surface Soil:	None provided
Waste:	None provided
EPToxicity:	None provided

Groundwater:
PCE 5280 ppb; TCE 3010 ppb; vinyl chl. 1820 ppb

Sediment: None provided

Subsurface Soil:
PCE 373,000 ppb; TCE 52,000 ppb

Leachate:	None provided
TCLP:	None provided

AGENCY INFORMATION:

Regulatory Agencies Involved:
NYSDOH, NYSDEC, SCDHS

Preparer:
T. Vickerson(pmb) NYSDOH San, Engineer August 2, 1994

*** SOLID WASTE FACILITIES IDENTIFIED WITHIN THE 1 MILE SEARCH RADIUS ***

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 3 **HUNTINGTON S.T.O.P. (T)** **Facility Id: 52T86**
100 MAIN STREET HUNTINGTON

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 4632 feet to the SW

ADDRESS CHANGE INFORMATION
Revised street: 641 NEW YORK AV
Revised zip code: NO CHANGE

PERMIT NUMBER	PERMIT EXPIRES	FACILITY TYPE	FACILITY STATUS	WASTE TYPES
1472600247000010	03/31/2007	LARGE TRANSFER STATION (>50000 CY/YR)	Permit	Residential

* NO OIL STORAGE FACILITIES LARGER THAN 400,000 GALLONS IDENTIFIED WITHIN 1 MILE SEARCH RADIUS *

*** NO HAZARDOUS WASTE TREATMENT/STORAGE/DISPOSERS IDENTIFIED WITHIN THE 1 MILE SEARCH RADIUS ***

* NO RCRA CORRECTIVE ACTION SITES IDENTIFIED WITHIN 1 MILE SEARCH RADIUS *

ACTIVE TANK FAILURES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

* - Compass directions can vary substantially for sites located very close to the subject property address.

**Site profiles in this report section contain 36 data fields of information obtained from the New York Department of Environmental Conservation. Since 1/1/02, the DEC has only released information for 12 of those data fields: spill name, address components, spill date, close date, material spilled, quantity spilled, units, cause of spill and resource affected. As a result, the other 24 data fields are only updated through 1/1/02. Please note that the "Meets Cleanup Standards" status for individual spills could have changed since that time.

Map Identification Number 4 366 PARK AVENUE HUNTINGTON, NY NO ZIP PROVIDED **Spill Number: 0003096** **Close Date:**

**Information updated through: 12/09/2003

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2088 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: LOCAL AGENCY
Caller Name:
DEC Investigator: CIRRITO

Spiller: UNKNOWN
Notifier Name:
Caller Agency:
Contact for more spill info: BILL PERKS

Spiller Phone: ( ) -
Notifier Phone:
Caller Phone:
Contact Person Phone: (516) 230-1204

Spill Class: POSSIBLE REL WITH MIN POTENTIAL FOR FIRE OR HAZARD (OR KNOWN RELEASE W/ NO DAMAGE);DEC RESP;WILLING RP;CORR ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
06/07/2000		TANK FAILURE	ON LAND	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
UNKNOWN PETROLEUM	UNKNOWN	0	GALLONS	YES	0	GALLONS	NO

Caller Remarks: CALLER RECEIVED A REPORT OF AN UNDERGROUND STORAGE TANK AT ABOVE LOCATION LEAKING. CALLER RECEIVED REPORT FROM TENANT OF PROPERTY. CALLER RECOMMENDS CONTACTING NOTIFIER FOR ANY FURTHER INFO.

DEC Investigator Remarks:

TELECON TO MAUREEN SOMMA, SHE WILL BE EVICTED BY 7/1/00 WANTED TO MAIL ANONY COMPLAINT, OIL RISES ABOVEGROUND FROM ABANDONED UST FOR PAST 2 MONTHS, HOUSE IS IN FORECLOSURE ISLAND PROP MAY BE OWNER, MAUREEN TO GIVE NEW OWNERS DEC NUMBER

** See beginning of spills section for more details.

ACTIVE TANK TEST FAILURES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

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Map Identification Number 5 **WOODHULL SCHOOL**
145 WOODHULL ROAD

Spill Number: 0111101 **Close Date:**
HUNTINGTON, NY NO ZIP PROVIDED
Information updated through: 06/13/2004

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (2)
Approximate distance from property: 1120 feet to the SW

ADDRESS CHANGE INFORMATION
Revised street: 145 WOODHULL RD
Revised zip code: 11743

Source of Spill: OTHER NON COMM/INSTITUTIONAL

Spill Date	Material Spilled	Quantity Spilled	Units	Unk Quantity Spilled ?	Cause of Spill	Resource Affected
02/21/2002	#2 FUEL OIL	0.00	GALLONS	NO	TANK TEST FAILURE	ON LAND

TANK TEST INFORMATION

Tank Number	Tank Size	Tank Test Method	Leak Rate	Gross Leak or Failure
4	8000	HORNER EZ CHECK	0.00	UNKNOWN

Map Identification Number 6 **TEXACO GAS**
128 MAIN STREET

Spill Number: 0001647 **Close Date:**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 12/08/2003

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2609 feet to the WNW

ADDRESS CHANGE INFORMATION
Revised street: 128 MAIN ST
Revised zip code: 11743

Source of Spill: GASOLINE STATION
Notifier Type: TANK TESTER
Caller Name:
DEC Investigator: ENGELHARDT

Spiller: TEXACO GAS
Notifier Name:
Caller Agency:
Contact for more spill info: GINA COSTANTINI

Spiller Phone: (800) 249-7211
Notifier Phone:
Caller Phone:
Contact Person Phone: (800) 249-7211

Spill Class: KNOWN RELEASE THAT CREATES POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
05/09/2000		TANK TEST FAILURE	ON LAND	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
GASOLINE	UNKNOWN	0	GALLONS	NO	0	GALLONS	NO

TANK TEST INFORMATION

Tank Number	Tank Size	Tank Test Method	Leak Rate	Gross Leak or Failure
1	8000	USTEST 2000	0.00	UNKNOWN

Caller Remarks: tank 2 also 8000 gal - failed - defective manway gaskets - no release

DEC Investigator Remarks:

SEE ALSO 9925469 (ALLEGED GAS ODOR IN DRAIN) AND 0025014/0000752 (GAS ODOR IN TRENCH) HERE

5/15/00 FILE REASSIGNED

FILE IN 3 FOLDER 00-25014

** See beginning of spills section for more details.

ACTIVE UNKNOWN CAUSE SPILLS AND OTHER CAUSE SPILLS IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

* - Compass directions can vary substantially for sites located very close to the subject property address.

**Site profiles in this report section contain 36 data fields of information obtained from the New York Department of Environmental Conservation. Since 1/1/02, the DEC has only released information for 12 of those data fields: spill name, address components, spill date, close date, material spilled, quantity spilled, units, cause of spill and resource affected. As a result, the other 24 data fields are only updated through 1/1/02. Please note that the "Meets Cleanup Standards" status for individual spills could have changed since that time.

Map Identification Number 7 471 PARK AVENUE HUNTINGTON, NY NO ZIP PROVIDED **Spill Number: 0103238** **Close Date:**

**Information updated through: 06/13/2004

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 408 feet to the NNE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: UNKNOWN
Notifier Type: CITIZEN
Caller Name:
DEC Investigator: GABIN

Spiller: YOUNG ISAREAL
Notifier Name:
Caller Agency:
Contact for more spill info: UNK

Spiller Phone: (631) 385-7276
Notifier Phone:
Caller Phone:
Contact Person Phone: (000) 000-0000

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;UNABLE/UNWILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
06/23/2001		UNKNOWN	ON LAND	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
UNKNOWN PETROLEUM	UNKNOWN	0	GALLONS	YES	0	GALLONS	NO

Caller Remarks: CALLER STATES ON THE NORTH SIDE OF THE BUILDING OF ABOVE LOCATION THERE IS AN OPEN HOLE WHERE SOME TYPE OF FUEL OIL IS BEING SPILLED IN IT UNK HOW IT IS BEING SPILLED AND NO CLEAN UP HAS BEEN DONE

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 8 **MOBIL S/S**
400 PARK AVE & RTE 25A

Spill Number: 9101334 **Close Date:**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/10/2004

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1346 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: 400 PARK AVE
Revised zip code: 11743

Source of Spill: GASOLINE STATION
Notifier Type: HEALTH DEPARTMENT
Caller Name: BILL SKEETS
DEC Investigator: YAGER WELL

Spiller: MOBIL S/S
Notifier Name:
Caller Agency: SCDH
Contact for more spill info:

Spiller Phone: (516) 427-2030
Notifier Phone:
Caller Phone: (516) 451-4640
Contact Person Phone:

Spill Class: KNOWN RELEASE THAT CREATES POTENTIAL FOR FIRE OR HAZARD;HIGHLY IMPROBABLE

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
05/02/1991		OTHER	GROUNDWATER	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
WASTE OIL	UNKNOWN	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: TYREE REMOVING 550 GAL W/O TANK FOUND CONTAMINATION FROM POSSIBLE LINE LEAK. 5 FT TO WATER

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

NYSDEC FALL 1998 MTBE SURVEY INFORMATION FOR 9101334

Maximum MTBE concentration: 2490.0 PPB
BTEX offsite: No

Current MTBE concentration: 130.0 PPB

Source of MTBE

Steel Underground Storage Tank - X
Fiberglass Underground Tank -
Aboveground Storage Tank -
Piping -
Source not identified -
Other source -

Number of private drinking water wells impacted: 0
Number of public water supply wells impacted: 0
Number of private drinking water wells impacted: 0
Number of replacement wells drilled: 0
Number of water main extensions: 0
Number of water main hookups: 0
Number of residences provided w/ bottled water: 0
Number of people affected: 0

Indoor Air Impacts : No
Aquifer Impacts : Yes

Ongoing remediation: No

Monitoring Frequency
Monthly - Quarterly - Semi-annual - Annual - X Other -

Remedial Action used
No Action -

Groundwater		Soil	
Pump and Treat	-	Soil Vapor extraction	-
Air sparging	-	Excavation and disposal	-
Bioreactor	-	Bioremediation	-
Natural attenuation	-	Low temp thermal desorption	-
Oxygen injection	-	Oxygen injection	-
Biosparging	-	Other	-
Dual phase extraction	-		
Other	-		

Under investigation: No
Dept. of Health involvement: Yes

Dept. of Health Remarks: HD involved w/ tank removal.

General Remarks: No remarks given for this spill

** See beginning of spills section for more details.

Map Identification Number 9 **EXXON MOBIL**
400 PARK AVENUE
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 0303633 **Close Date:**
Information updated through: 06/13/2004

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1346 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: GASOLINE STATION

Spill Date	Material Spilled	Quantity Spilled	Units	Unk Quantity Spilled ?	Cause of Spill	Resource Affected
07/07/2003	WASTE OIL	0.00	GALLONS	YES	UNKNOWN	GROUNDWATER

ACTIVE HAZARDOUS SPILLS - MISC. SPILL CAUSES - EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, AND VANDALISM - IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS.

* - Compass directions can vary substantially for sites located very close to the subject property address.

**Site profiles in this report section contain 36 data fields of information obtained from the New York Department of Environmental Conservation. Since 1/1/02, the DEC has only released information for 12 of those data fields: spill name, address components, spill date, close date, material spilled, quantity spilled, units, cause of spill and resource affected. As a result, the other 24 data fields are only updated through 1/1/02. Please note that the "Meets Cleanup Standards" status for individual spills could have changed since that time.

Map Identification Number 10 **WOODHALL SCHOOL**
WOODHDALL ROAD
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 9309334 **Close Date:**
**Information updated through: 01/09/2004

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (2)
Approximate distance from property: 1120 feet to the SW

ADDRESS CHANGE INFORMATION
Revised street: WOODHULL RD
Revised zip code: 11743

Source of Spill: OTHER NON COMM/INSTITUTIONAL
Notifier Type: OTHER
Caller Name: ED ORLANDO
DEC Investigator: DECANDIA

Spiller: WOODHALL SCHOOL
Notifier Name:
Caller Agency: BONAFIDE
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 758-7421
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
11/01/1993		HUMAN ERROR	ON LAND	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	UNKNOWN	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: SUPPLY LINE WAS HIT BY MACHINERY, EQUIP SHUT DOWN & CAPPED, WILL DIG UP SOIL TOMORROW & INVESTIGATE

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 11 **TEXACO SERVICE STATION**
128 MAIN STREET
HUNTINGTON, NY NO ZIP PROVIDED

Spill Number: 9603862 **Close Date:**
**Information updated through: 12/08/2003

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2609 feet to the WNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: GASOLINE STATION
Notifier Type: HEALTH DEPARTMENT
Caller Name: MEDALINE FEINDT
DEC Investigator: YAGER

Spiller: TEXACO SERVICE STATION
Notifier Name: MEDALINE FEINDT
Caller Agency: S.C.H.D.
Contact for more spill info: AUGIE ABITEGIO

Spiller Phone: (516) 421-5020
Notifier Phone: (516) 854-2510
Caller Phone: (516) 854-2510
Contact Person Phone: (516) 421-5020

Spill Class: KNOWN RELEASE THAT CREATES POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
06/18/1996		HUMAN ERROR	GROUNDWATER	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
WASTE OIL	UNKNOWN	0	GALLONS	YES	0	GALLONS	NO

Caller Remarks: site u-tube impacted by waste oil approx 6 feet of product in well

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

CLOSED STATUS TANK FAILURES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

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Map Identification Number 12 **HUNTINGTON HISTORICAL SOC** **Spill Number: 9614144** **Close Date: 11/01/1999**
434 PARK AVENUE HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1108 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: OTHER NON COMM/INSTITUTIONAL
Notifier Type: OTHER
Caller Name: LISA TARISI
DEC Investigator: AUSTIN

Spiller: UNKNOWN
Notifier Name:
Caller Agency: PETRO CENTRAL
Contact for more spill info: LISA TARISI

Spiller Phone:
Notifier Phone: (516) 427-7045
Caller Phone: (516) 349-4107
Contact Person Phone: (516) 349-4107

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;NO DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
03/05/1997		TANK FAILURE	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	5.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: CALLER RECIEVED A CALL THAT TANK LEAKED ONTO BASEMENT FLOOR

DEC Investigator Remarks:

PER TARISI, BOTTOM OF TANK WAS WEEPING TO SOIL FLOOR. NO CLEANUP. PER CAPUTO, SPILL WAS DUE TO OVERFILL (STAIN ORIGINATES AT TANK PORT IN TANK). SOIL WILL BE REMOVED. TANK TO BE EMPTIES TOMORROW & REPLACED.

MINIMAL POTENTIAL FOR IMPACT TO SENSITIVE RECEPTOR.

** See beginning of spills section for more details.

Map Identification Number 13 **BAYLIS & BAYLIS**
1 EAST MAIN STREET
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 9011084 **Close Date: 02/06/1991**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1461 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: OTHER COMM/INDUSTRIAL
Notifier Type: RESPONSIBLE PARTY
Caller Name: BRUCE BAYLIS
DEC Investigator: GOMEZ

Spiller: BAYLIS & BAYLIS
Notifier Name:
Caller Agency: BAYLIS & BAYLIS
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 427-4394
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
01/18/1991	02/06/1991	TANK FAILURE	GROUNDWATER	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: 550 IN GROUND, LEAKING,STUCK TANK YESTERDAY & TODAY, LOST ABOUT 1" PRODUCT, TANK IS EMPTIED,THEY ARE SETTING UP 55 GAL DRUM TEMP TANK.

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 14 **THOMAS RESIDENCE**
32 CLEARFIELD PLACE
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 9909258 **Close Date: 10/01/2002**
**Information updated through: 12/19/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2032 feet to the SSE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: CITIZEN
Caller Name: JULIANNA THOMAS
DEC Investigator: DONOVAN

Spiller: MR THOMAS OR LARRY FUEL?
Notifier Name: JULIANNA THOMAS
Caller Agency: CITIZEN
Contact for more spill info: JULIANNA THOMAS

Spiller Phone: (516) 757-8543
Notifier Phone: (516) 423-6415
Caller Phone: (516) 423-6415
Contact Person Phone: (516) 423-6415

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
10/29/1999		TANK FAILURE	ON LAND	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	UNKNOWN	125.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: homeowner rec'd delivery this am of oil and tank had an unk crack in it and spilled product on cement floor

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 15 **CATHERINE GEBHARD RESIDEN** **Spill Number: 9107963** **Close Date: 11/05/1992**
27 POLLY DRIVE HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2570 feet to the ENE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: AFFECTED PERSONS
Caller Name: GEBHARD
DEC Investigator: DECANDIA

Spiller: CATHERINE GEBHARD RESIDEN
Notifier Name:
Caller Agency:
Contact for more spill info:

Spiller Phone: (516) 421-2618
Notifier Phone:
Caller Phone:
Contact Person Phone:

Spill Class: POSSIBLE REL WITH MIN POTENTIAL FOR FIRE OR HAZARD (OR KNOWN REL W/ NO DAMAGE);NO DEC RESP;WILLING RP;CORR ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
10/25/1991	11/05/1992	TANK FAILURE	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: 275 A/G LEAKED, OIL CO TRANSFERRED OIL TO BASEMENT TANK AND REMOVED OLD TANK

DEC Investigator Remarks: 11/05/92: SPILL CLEANED UP BY HOMEOWNER. 10/19/92 INSPECTED BY DEC.

** See beginning of spills section for more details.

CLOSED STATUS TANK TEST FAILURES IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

* - Compass directions can vary substantially for sites located very close to the subject property address.

**Site profiles in this report section contain 36 data fields of information obtained from the New York Department of Environmental Conservation. Since 1/1/02, the DEC has only released information for 12 of those data fields: spill name, address components, spill date, close date, material spilled, quantity spilled, units, cause of spill and resource affected. As a result, the other 24 data fields are only updated through 1/1/02. Please note that the "Meets Cleanup Standards" status for individual spills could have changed since that time.

Map Identification Number 16 **WOODHULL SCHOOL**
WOODHULL ROAD
HUNTINGTON, NY NO ZIP PROVIDED

Spill Number: 9301001 **Close Date: 02/17/1994**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (2)
Approximate distance from property: 1120 feet to the SW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: OTHER NON COMM/INSTITUTIONAL
Notifier Type: TANK TESTER
Caller Name: WILLIAM BAAN
DEC Investigator: T/T/F

Spiller: WOODHULL SCHOOL
Notifier Name:
Caller Agency: BONAFIDE
Contact for more spill info:

Spiller Phone: (516) 673-2127
Notifier Phone:
Caller Phone: (516) 758-7421
Contact Person Phone:

Spill Class: NO SPILL OCCURRED;NOT POSSIBLE

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
04/20/1993	02/17/1994	TANK TEST FAILURE	GROUNDWATER	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

TANK TEST INFORMATION

Tank Number	Tank Size	Tank Test Method	Leak Rate	Gross Leak or Failure
	0	TANK TESTING METHOD NOT GIVEN IN DATA	0.00	UNKNOWN

Caller Remarks: 8K FAILED AT -.238, BONAFIDE TESTER, WILL NOTIFY SCDH

DEC Investigator Remarks:

02/17/94: TANK ALONE PASSED TEST 5/6/93,PASSED SYSTEM RETEST 5/19/93, SUPPLY RETURN & VENT LINE REPLACED, NO CONT ENCOUNTERED, NO FURTHER ACTION.

** See beginning of spills section for more details.

Map Identification Number 17 **YMCA**
60 MAIN STREET
HUNTINGTON, NY NO ZIP PROVIDED

Spill Number: 9706705 **Close Date: 11/26/1997**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 1693 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: OTHER NON COMM/INSTITUTIONAL
Notifier Type: TANK TESTER
Caller Name: WILLIAM MERITZ
DEC Investigator: T/T/F

Spiller: YMCA
Notifier Name: WILLIAM MERITZ
Caller Agency: A.N.S. TANK AND ENVIR COR
Contact for more spill info: GREG COLLINS

Spiller Phone: (516) 421-4242
Notifier Phone: (516) 249-5443
Caller Phone: (516) 249-5443
Contact Person Phone: (516) 249-5443

Spill Class: KNOWN RELEASE THAT CREATES POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	PBS # Involved	Resource Affected	Meets Cleanup Standards	Penalty Recommended
09/04/1997		TANK TEST FAILURE	0-000000	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	YES	0	GALLONS	YES

TANK TEST INFORMATION

Tank Number	Tank Size	Tank Test Method	Leak Rate	Gross Leak or Failure
1	5000	HORNER EZ CHECK	-0.09	UNKNOWN

Caller Remarks: WILL EXCAVATE AND DO A TANK ONLY TEST TO FIND LEAK AND THEN RE-TEST

DEC Investigator Remarks: VENT PIPE REPLACED. SOIL REMOVED AND DISPOSED

** See beginning of spills section for more details.

Map Identification Number 18 **SUNOCO STATION**
90 EAST MAIN STREET

Spill Number: 9308843 **Close Date: 09/30/2003**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 12/11/2003

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2356 feet to the NNE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: GASOLINE STATION
Notifier Type: TANK TESTER
Caller Name: JERRY KASPER
DEC Investigator: T/T/F

Spiller: SUNOCO STATION
Notifier Name:
Caller Agency: CROMPCO
Contact for more spill info:

Spiller Phone: (215) 977-6801
Notifier Phone:
Caller Phone: (215) 646-3161
Contact Person Phone:

Spill Class: KNOWN RELEASE THAT CREATES POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
10/21/1993		TANK TEST FAILURE	GROUNDWATER	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
WASTE OIL	UNKNOWN	0	GALLONS	NO	0	GALLONS	NO

The following tank was deleted from the reported data. Data reflects last reported information.
TANK TEST INFORMATION

Tank Number	Tank Size	Tank Test Method	Leak Rate	Gross Leak or Failure
	0	TANK TESTING METHOD NOT GIVEN IN DATA	0.00	UNKNOWN

Caller Remarks: EX, REPAIR AND RETEST, CROMPCO TESTER

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

CLOSED STATUS UNKNOWN CAUSE SPILLS AND OTHER CAUSE SPILLS IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS

* - Compass directions can vary substantially for sites located very close to the subject property address.

**Site profiles in this report section contain 36 data fields of information obtained from the New York Department of Environmental Conservation. Since 1/1/02, the DEC has only released information for 12 of those data fields: spill name, address components, spill date, close date, material spilled, quantity spilled, units, cause of spill and resource affected. As a result, the other 24 data fields are only updated through 1/1/02. Please note that the "Meets Cleanup Standards" status for individual spills could have changed since that time.

Map Identification Number 19 **DRAZ RESIDENCE** **Spill Number: 9515563** **Close Date: 03/04/1996**
4 GAIL COURT HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1172 feet to the ENE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: LOCAL AGENCY
Caller Name: RAY BERGSTRON
DEC Investigator: NONE

Spiller: UNKNOWN
Notifier Name: BOB BRENNAN
Caller Agency: GIFFORDS OIL
Contact for more spill info: BEVERLY DRAZ

Spiller Phone:
Notifier Phone: (516) 576-3000
Caller Phone: (516) 576-3000
Contact Person Phone: (516) 421-2278

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;NO DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
03/04/1996		UNKNOWN	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	YES	0	GALLONS	YES

Caller Remarks: the serviceman discovered an old spill stain behind the boiler approx 8" around

DEC Investigator Remarks: SPILL FROM LEAKING FILTER, FILTER REPAIRED, STAIN ON CONCRETE, NO RESPONSE

** See beginning of spills section for more details.

Map Identification Number 20 **ORENSTEIN RESIDENCE**
6 WESLEY COURT

Spill Number: 9702422 **Close Date: 06/30/2000**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 1279 feet to the SSW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: JOHN RAGLAND
DEC Investigator: AUSTIN

Spiller: ORENSTEIN RESIDENCE
Notifier Name: SERVICE MAN
Caller Agency: SLOMANS OIL CO
Contact for more spill info: ORENSTEIN RESIDENCE

Spiller Phone: (516) 367-3931
Notifier Phone: (516) 932-7000
Caller Phone: (516) 932-7000
Contact Person Phone: (516) 367-3931

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;NO DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
05/27/1997		OTHER	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	YES	0	GALLONS	YES

Caller Remarks: OIL TANK TOOK ON WATER-FITTINGS HAVE BEEN REPLACED-OIL WENT INTO GROUND-CUSTOMER TO MAKE ARRANGEMENTS FOR CLEANUP

DEC Investigator Remarks: CLEANUP COMPLETE. NO FURTHER ACTION AT THIS TIME

** See beginning of spills section for more details.

Map Identification Number 21 **UNK**
PARK AVENUE & 25A

Spill Number: 8702496 **Close Date: 07/30/1987**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1390 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: PARK AVE / E MAIN ST
Revised zip code: 11743

Source of Spill: UNKNOWN
Notifier Type: CITIZEN
Caller Name:
DEC Investigator: PARISH FD

Spiller: UNK
Notifier Name:
Caller Agency:
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone:
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
06/26/1987	07/30/1987	UNKNOWN	SURFACE WATER	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
GASOLINE	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: NO REMARKS GIVEN FOR THIS SPILL

DEC Investigator Remarks:

/ / : NONE.

/ / : 6/30/87 CHECKED STREAM THRU PARK-NO SHEEN, LOW FLOW. CONSTRUCTION IN AREA. NO ACTION NEEDED.

** See beginning of spills section for more details.

Map Identification Number 22 RTE 25A & PARK AVENUE HUNTINGTON, NY NO ZIP PROVIDED **Spill Number: 0304573** **Close Date: 07/31/2003**

Information updated through: 06/13/2004

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1390 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: E MAIN ST / PARK AVE
Revised zip code: 11743

Source of Spill: UNKNOWN

Spill Date	Material Spilled	Quantity Spilled	Units	Unk Quantity Spilled ?	Cause of Spill	Resource Affected
07/30/2003	UNKNOWN PETROLEUM	5.00	GALLONS	NO	UNKNOWN	ON LAND

Map Identification Number 23 **DR UNGER**
102 WOODHOE ROAD
HUNTINGTON, NY NO ZIP PROVIDED **Spill Number: 9314773** **Close Date: 10/11/1994**

**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1844 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: 102 WOODHULL RD
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: MS IGUCHI
DEC Investigator: AUSTIN

Spiller: DR UNGER
Notifier Name:
Caller Agency: DANIEL GALE REAL ESTATE
Contact for more spill info:

Spiller Phone: (201) 538-7640
Notifier Phone:
Caller Phone: (516) 754-3400
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
03/16/1994	10/11/1994	UNKNOWN	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: COMMANDER UNDER ACCOUNT SINCE JAN 1994 RECORD OF 11 GALLON DELIVERY. SPILL NOTED AROUND FILL AND IN BASEMENT BY COMMANDER.COMMANDER CLAIMS THAT SPILL MADE BY CO DELIVERED TO WRONG HOUSE

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 24 **S.C.W.A.**
133 SPRING RD
HUNTINGTON, NY NO ZIP PROVIDED

Spill Number: 9405063 **Close Date: 10/31/1994**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1878 feet to the WSW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: OTHER NON COMM/INSTITUTIONAL
Notifier Type: OTHER
Caller Name: TOM MCGLENNON
DEC Investigator: ACAMPORA

Spiller: S.C.W.A.
Notifier Name:
Caller Agency: F&N
Contact for more spill info:

Spiller Phone: (516) 225-6333
Notifier Phone:
Caller Phone: (516) 586-4900
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
06/13/1994	10/31/1994	OTHER	GROUNDWATER	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
GASOLINE	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: 2K GAS/ 550W/O. APPROX. 100 YDS STOCKPILED DUR TO TANK REMOVAL. F&N TO PROPERLY DISPOSE OF SAME. SCHD INSPECTION OF EXCAVATION REVEALED NO FURTHER ACTION REQ'D.

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 25 **AUTOMOTIVE TECHNOLOGY**
116 SPRING ROAD
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 9008714 **Close Date: 11/09/1990**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1884 feet to the WSW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: GASOLINE STATION
Notifier Type: OTHER
Caller Name: JERRY
DEC Investigator: SCDH

Spiller: AUTOMOTIVE TECHNOLOGY
Notifier Name:
Caller Agency: ELCO
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 226-4647
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
11/08/1990	11/09/1990	OTHER	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: ELCO & SCDH ON SITE.6YDS OF SOIL EXCAVATED. SOIL CLEAN. NO FURTHER WORK NECESSARY.

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 26 **JESSE SERVICE CENTER**
90 EAST MAIN STREET
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 8805698 **Close Date: 09/24/1990**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2356 feet to the NNE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: OTHER COMM/INDUSTRIAL
Notifier Type: DEC
Caller Name: M. MIRZA
DEC Investigator: MIRZA WELL

Spiller: JESSE SERVICE CENTER
Notifier Name:
Caller Agency: DEC
Contact for more spill info:

Spiller Phone: (516) 351-1762
Notifier Phone:
Caller Phone: (516) 751-7900
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
10/03/1988	09/24/1990	OTHER	GROUNDWATER	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
DIESEL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: DURING TANK REMOVAL,DEC FOUND HOLES IN 3 TANKS(ONE 4000 GALLON GASOLINE TANK, ONE 4000 GALLON GASOLINE OR DIESEL TANK AND ONE 2000 GALLON GASOLINE TANKS.

DEC Investigator Remarks: / / : NO FLOATING PRODUCT, NO DISSOLVED PRODUCT.

** See beginning of spills section for more details.

Map Identification Number 27 **SUN REFINING**
90 EAST MAIN STREET

HUNTINGTON, NY NO ZIP PROVIDED

Spill Number: 8607306 **Close Date: 09/26/1990**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2356 feet to the NNE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: GASOLINE STATION
Notifier Type: RESPONSIBLE PARTY
Caller Name:
DEC Investigator: O'NEILL

Spiller: SUN REFINING
Notifier Name:
Caller Agency:
Contact for more spill info:

Spiller Phone: (215) 977-6318
Notifier Phone:
Caller Phone:
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
03/02/1987	09/26/1990	OTHER	GROUNDWATER	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: SYSTEM NOT TIGHT. 7 INCHES WATER IN TANK.

DEC Investigator Remarks: / / : TANKS TO BE REPLACED & OUT OF SERVICE UNTIL REMOVED.MONITORING WELLS TO BE INSTALLED.

** See beginning of spills section for more details.

Map Identification Number 28 NORTHWOODHUL ROAD/RTE 25A HUNTINGTON, NY NO ZIP PROVIDED **Spill Number: 9611061** **Close Date: 05/21/1997**

**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2381 feet to the NNE

ADDRESS CHANGE INFORMATION
Revised street: N WOODHULL RD / E MAIN ST
Revised zip code: 11743

Source of Spill: UNKNOWN
Notifier Type: CITIZEN
Caller Name: STEVE TISHFIELD
DEC Investigator: LAMANNO

Spiller: BAY HILLS GETTY
Notifier Name:
Caller Agency: CITIZEN
Contact for more spill info: STEVE

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 421-3719
Contact Person Phone: ( ) -

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
12/07/1996		UNKNOWN	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
UNKNOWN PETROLEUM	PETROLEUM	0	GALLONS	YES	0	GALLONS	NO

Caller Remarks: CALLER SAYS THERE IS A LARGE OIL SHEEN ON THE ROAD IN THE AREA

DEC Investigator Remarks: NO ACTION CHECKED BY TOWN

** See beginning of spills section for more details.

Map Identification Number 29 **TEXACO S/S** 128 MAIN STREET(SPRING ST HUNTINGTON, NY NO ZIP PROVIDED **Spill Number: 9925469** **Close Date: 02/02/2000**

**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2609 feet to the WNW

ADDRESS CHANGE INFORMATION
Revised street: 128 MAIN ST
Revised zip code: 11743

Source of Spill: GASOLINE STATION
Notifier Type: CITIZEN
Caller Name:
DEC Investigator: CIRRITO 99-179

Spiller: TEXACO S/S
Notifier Name:
Caller Agency:
Contact for more spill info:

Spiller Phone: (631) 421-5020
Notifier Phone:
Caller Phone:
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;UNKNOWN RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
01/27/2000		UNKNOWN	IN SEWER	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
GASOLINE	PETROLEUM	0	GALLONS	YES	0	GALLONS	NO

Caller Remarks: STRONG ODOR OF GASOLINE IN THE STREET DRAIN ON THE CORNER OF THE STATION. ONGOING PROBLEM FOR MONTHS.

DEC Investigator Remarks:

1/28 NO OBVIOUS ODOR IN DRAINS, UNFOUNDED

SEE 0025014/0000752 (GAS ODOR IN TRENCH) AND 0001647 (2 8K GAS TANK TEST FAILURES) HERE

** See beginning of spills section for more details.

CLOSED STATUS HAZARDOUS SPILLS - MISC. SPILL CAUSES - EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, AND VANDALISM - IDENTIFIED WITHIN 1/2 MILE SEARCH RADIUS.

* - Compass directions can vary substantially for sites located very close to the subject property address.

**Site profiles in this report section contain 36 data fields of information obtained from the New York Department of Environmental Conservation. Since 1/1/02, the DEC has only released information for 12 of those data fields: spill name, address components, spill date, close date, material spilled, quantity spilled, units, cause of spill and resource affected. As a result, the other 24 data fields are only updated through 1/1/02. Please note that the "Meets Cleanup Standards" status for individual spills could have changed since that time.

Map Identification Number 30 186 WOODHULL ROAD HUNTINGTON, NY NO ZIP PROVIDED **Spill Number: 9611192** **Close Date: 12/11/1996**

**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 396 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: COMMERCIAL VEHICLE
Notifier Type: RESPONSIBLE PARTY
Caller Name: BOB MAGUIRE
DEC Investigator: NONE

Spiller: PETRO OIL
Notifier Name: BOB MAGUIRE
Caller Agency: PETRO OIL
Contact for more spill info: MR.WETLI

Spiller Phone: (516) 576-0254
Notifier Phone: (516) 576-0254
Caller Phone: (516) 576-0254
Contact Person Phone: (516) 421-1161

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
12/11/1996		TANK OVERFILL	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	3.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: DRIVER TRIED TO FILL A FULL TANK.

DEC Investigator Remarks: SPILL ON DRIVEWAY, ASPHALT ONLY, NO DRAINAGE, CLEANUP COMPLETED WITH SPEEDI DRI AND PADS

** See beginning of spills section for more details.

Map Identification Number 31 **ROTH RESIDENCE** **Spill Number: 9408430** **Close Date: 09/25/1994**
7 WARRENTON COURT
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 804 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: JIM
DEC Investigator: NONE

Spiller: ROTH RESIDENCE
Notifier Name:
Caller Agency: GIFFORDS
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 576-3000
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;NO DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
09/25/1994	09/25/1994	EQUIPMENT FAILURE	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: PIN HOLE LEAK IN LINE, ON CONCRETE FLOOR, GIFFORDS DID CLEANUP,NO RESPONSE

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 32 **DREW METZLER RES** **Spill Number: 9203327** **Close Date: 11/05/1992**
WOODHULL OFF OF PARK AVE
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 818 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: OTHER NON COMM/INSTITUTIONAL
Notifier Type: AFFECTED PERSONS
Caller Name: ROBERT BRIGLIO
DEC Investigator: RICE

Spiller: DREW METZLER RES
Notifier Name:
Caller Agency: CITIZEN
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 549-1508
Contact Person Phone:

Spill Class: POSSIBLE REL WITH MIN POTENTIAL FOR FIRE OR HAZARD (OR KNOWN RELEASE W/ NO DAMAGE);DEC RESP;WILLING RP;CORR ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
04/19/1992	11/05/1992	DELIBERATE	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
DIESEL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO
WASTE OIL	PETROLEUM	0	UNKNOWN	NO	0	UNKNOWN	NO

Caller Remarks: FUMES FROM DIESEL/#2 OIL,SPILL WAFTING INTO CALLERS DAUGHTERS ROOM & SUSPECT MR METZLER ALSO HAS DUMPED DRUM OF WASTE OIL ON PROPERTY

DEC Investigator Remarks: 11/05/92: SPILLER EXCAVATED CONT SOIL, CLEANUP SATISFACTORY.

** See beginning of spills section for more details.

Map Identification Number 33 PARK AVE & WOODHALL ROAD HUNTINGTON, NY NO ZIP PROVIDED **Spill Number: 0102191** **Close Date: 05/29/2001**

**Information updated through: 06/13/2004

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 818 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: PARK AVE / N WOODHULL ROAD
Revised zip code: 11743

Source of Spill: COMMERCIAL VEHICLE
Notifier Type: FIRE DEPARTMENT
Caller Name:
DEC Investigator: NONE

Spiller: UNKNOWN
Notifier Name:
Caller Agency:
Contact for more spill info:

Spiller Phone: ( ) -
Notifier Phone:
Caller Phone:
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;NO DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
05/27/2001		TRAFFIC ACCIDENT	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
DIESEL	UNKNOWN	15.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: FIRE DEPARTMENT ON SCENE. TOWN OIL RESPONSE TEAM IS ALSO ENROUTE. SPILLED ONTO PAVEMENT. SPILL IS CONFINED. BEING CLEANED UP. SPILLER INFORMATION NOT AVAILABLE AT THIS TIME.

DEC Investigator TELECON CALLER: NO DRAINS AFFECTED. TOWN WILL RESPOND TO HANDLE, NO DEC RESPONSE REQUESTED AT THIS TIME

Remarks:

** See beginning of spills section for more details.

Map Identification Number 34 **VALENTI RESIDENCE**
18 WARRENTON COURT

Spill Number: 9613430 **Close Date: 01/22/1999**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 875 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: LISA PARISI
DEC Investigator: UNASSIGNED

Spiller: VALENTI RESIDENCE
Notifier Name: JOHN VALENTI
Caller Agency: PETRO INC
Contact for more spill info: JOHN VALENTI

Spiller Phone: (516) 549-3926
Notifier Phone:
Caller Phone: (516) 349-4107
Contact Person Phone: (516) 549-3926

Spill Class: POSSIBLE REL WITH MIN POTENTIAL FOR FIRE OR HAZARD (OR KNOWN REL W/ NO DAMAGE);NO DEC RESP;WILLING RP;CORR ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
02/13/1997		EQUIPMENT FAILURE	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	5.00	GALLONS	NO	5.00	GALLONS	NO

Caller Remarks: RELAY WAS NO GOOD, CAUSING SATURATION. CUSTOMER WILL BE DOING THE CLEAN UP.

DEC Investigator Remarks: T/C WITH PARISI - ON CONCRETE FLOOR IN BASEMENT. HOMEOWNER GIVEN 3 COMPANIES TO CLEANUP.

** See beginning of spills section for more details.

Map Identification Number 35 **GOULD RESIDENCE**
39 HARRIET LANE

Spill Number: 0225044 **Close Date: 09/30/2002**
HUNTINGTON, NY NO ZIP PROVIDED
Information updated through: 06/13/2004

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1230 feet to the ENE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING

Spill Date	Material Spilled	Quantity Spilled	Units	Unk Quantity Spilled ?	Cause of Spill	Resource Affected
05/03/2002	#2 FUEL OIL	1.00	GALLONS	NO	EQUIPMENT FAILURE	ON LAND

Map Identification Number 36 **PETER WOLL RESIDENCE** **Spill Number: 9811816** **Close Date: 03/29/1999**
1 WESLEY COURT
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1247 feet to the SSW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: KATHLEEN LANZISERA
DEC Investigator: CIRRITO

Spiller: PETER WOLL RESIDENCE
Notifier Name: MANAGER
Caller Agency: PETRO
Contact for more spill info: PETER WOLL

Spiller Phone: (516) 692-2994
Notifier Phone: ( ) -
Caller Phone: (516) 349-4130
Contact Person Phone: (516) 692-2994

Spill Class: KNOWN RELEASE THAT CREATES POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
12/18/1998		EQUIPMENT FAILURE	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	200.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: THERE WAS AN OIL LINE FAILURE. THE OIL LEAKED INTO THE SOIL UNDER THE HOUSE. A NEW TANK WILL BE PLACED IN HOME. TEMPORARY DRUM IS BEING USED RIGHT NOW.

DEC Investigator Remarks:

TANK PUT BACK IN SERVICE, SUPPLY LINE DETERMINED TO BE LEAKING, NO OIL IN SUMP PIT, CLOSE TO LINE, NO FURTHER ACTION

** See beginning of spills section for more details.

Map Identification Number 37 **YELEN RESIDENCE**
64 NORTH WOODHULL ROAD

Spill Number: 9607410 **Close Date: 10/01/1999**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1346 feet to the N

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: RAY BERGSTROM
DEC Investigator: UNASSIGNED

Spiller: YELEN RESIDENCE
Notifier Name: KEITH GAUTIER
Caller Agency: GIFFORDS OIL
Contact for more spill info: MR YELEN

Spiller Phone: (516) 424-2047
Notifier Phone: (516) 576-3000
Caller Phone: (516) 576-3000
Contact Person Phone: (516) 424-2047

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
09/12/1996		EQUIPMENT FAILURE	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	YES	0	GALLONS	NO

Caller Remarks: hole in oil line - line is being replaced at this time

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 38 **MOBIL OIL S/S**
400 PARK AVENUE

Spill Number: 9205441 **Close Date: 01/25/1993**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1346 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: GASOLINE STATION
Notifier Type: RESPONSIBLE PARTY
Caller Name: ROBIN BUNN
DEC Investigator: RICE

Spiller: MOBIL OIL S/S
Notifier Name:
Caller Agency: MOBIL
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (703) 849-3330
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
08/11/1992	01/25/1993	EQUIPMENT FAILURE	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
GASOLINE	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: LEAK DETECTOR ALARM FAILED, F&N TO INVESTIGATE & REPAIR AS NECESSARY

DEC Investigator Remarks:

01/25/93: 8/14/92 CALLED ROBIN BUNN, LEFT MESSAGE TO CONTACT THIS OFFICE WITH STATUS OF SPILL, 8/25/92, REC'VD LETTER THAT F&N CLEANUP & MADE NECESSARY REPAIRS.

** See beginning of spills section for more details.

Map Identification Number 39 **MOBIL S/S**
400 PARK AVENUE
HUNTINGTON, NY NO ZIP PROVIDED

Spill Number: 9109292 **Close Date: 12/02/1992**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1346 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: GASOLINE STATION
Notifier Type: RESPONSIBLE PARTY
Caller Name: ROBIN BUNN
DEC Investigator: DEROSA

Spiller: MOBIL S/S
Notifier Name:
Caller Agency: MOBIL
Contact for more spill info:

Spiller Phone: (516) 371-1527
Notifier Phone:
Caller Phone: (703) 849-3330
Contact Person Phone:

Spill Class: POSSIBLE REL WITH MIN POTENTIAL FOR FIRE OR HAZARD (OR KNOWN REL W/ NO DAMAGE);NO DEC RESP;WILLING RP;CORR ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
12/02/1991	12/02/1992	EQUIPMENT FAILURE	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO
WASTE OIL	PETROLEUM	0	UNKNOWN	NO	0	UNKNOWN	NO

Caller Remarks: LEAK DETECTOR ALARM SOUNDED. WILL INVESTIGATE AND REPAIR AS NECESSARY

DEC Investigator Remarks: 12/02/92: SPOKE WITH BOB JACKMORE, HE WILL LOOK INTO IT & GET BACK.

** See beginning of spills section for more details.

Map Identification Number 40 **RESIDENCE**
45 HARRIET LANE
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 9512762 **Close Date: 01/16/1996**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1399 feet to the NE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: LOCAL AGENCY
Caller Name: KATHLEEN LANZISERA
DEC Investigator: NONE

Spiller: RESIDENCE
Notifier Name: KEITH GAUTIER
Caller Agency: GIFFORDS OIL
Contact for more spill info: CALLER

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 576-3000
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;NO DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
01/13/1996		EQUIPMENT FAILURE	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	NO	1.00	GALLONS	NO

Caller Remarks: no info on homeowner - not callers account - product cleaned up with speedy dry

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 41 **LILCO**
85 JACKSON AVE
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 9404352 **Close Date: 10/13/1994**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1516 feet to the W

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: OTHER NON COMM/INSTITUTIONAL
Notifier Type: POLICE DEPARTMENT
Caller Name: GESKE
DEC Investigator: MATTHEWS

Spiller: LILCO
Notifier Name:
Caller Agency: SCEMS
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 854-5707
Contact Person Phone:

Spill Class: KNOWN RELEASE THAT CREATES A FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
06/28/1994	10/13/1994	EQUIPMENT FAILURE	IN SEWER	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
PCB OIL	PETROLEUM	12.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: POLE #13, TRANSFORMER LEAK, DRAINAGE AFFECTED, LILCO ON SITE, MEG TO RESPOND

DEC Investigator Remarks: 10/13/94: NO ADDITIONAL ACTION.

** See beginning of spills section for more details.

Map Identification Number 42 **YMCA**
60 MAIN STREET
HUNTINGTON, NY NO ZIP PROVIDED

Spill Number: 9609428 **Close Date: 12/11/1996**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 1693 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: OTHER NON COMM/INSTITUTIONAL
Notifier Type: TANK TESTER
Caller Name: DANIELLE
DEC Investigator: GIBBONS

Spiller: UNKNOWN
Notifier Name:
Caller Agency: ANS TANK & ENVIORNMENTAL
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 249-5443
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;NO DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
10/28/1996		TANK OVERFILL	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	0	GALLONS	YES	0	GALLONS	NO

Caller Remarks: while testing a 5k #2 oil tank, noticed dead grass & stain around fillpipe - approx. 1 ft by 1 ft area - tank passed horner ez system test

DEC Investigator Remarks:

PER SCOTT YANUCK DIG OUT TO BE DONE WEEK OF 12/3, 12/5 INSPECTED SOIL REMOVAL WITH SCOTT CONTAMINATION REMAINING DUG OUT BY SCOTT, < 1 55 GAL DRUM OF CONT SOIL DISPOSED OF PERMISSION TO BACKFILL

** See beginning of spills section for more details.

Map Identification Number 43 **UNGER RESIDENCE**
102 WOODHULL ROAD
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 9314766 **Close Date: 10/11/1994**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 1844 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: CHARLES HEERBRANT
DEC Investigator: AUSTIN

Spiller: UNK
Notifier Name:
Caller Agency: COMMANDER OIL
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 922-7000
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
03/16/1994	10/11/1994	TANK OVERFILL	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	10.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: AT UNGER RESIDENCE, RESPONDED TO OIL ODOR, FOUND OIL ON FLOOR & GROUND NEAR VENT PIPE, REALTY CO HIRED MILRO TO CLEANUP, SAME AS 93-14763

DEC Investigator Remarks: 10/11/94: MAJORITY OF SPILL IN BASEMENT, BASEMENT STEAM CLEANED, CLEANUP APPROVED BY AUSTIN.

** See beginning of spills section for more details.

Map Identification Number 44 **RESIDENCE**
7 DELAWARE STREET
Spill Number: 0310714 **Close Date: 12/17/2003**
HUNTINGTON, NY NO ZIP PROVIDED
Information updated through: 01/07/2004

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1980 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING

Spill Date	Material Spilled	Quantity Spilled	Units	Unk Quantity Spilled ?	Cause of Spill	Resource Affected
12/17/2003	#2 FUEL OIL	3.00	GALLONS	NO	EQUIPMENT FAILURE	ON LAND

Map Identification Number 45
64 EAST MAIN STREET
Spill Number: 0109940 **Close Date: 02/21/2003**
HUNTINGTON, NY NO ZIP PROVIDED
Information updated through: 06/13/2004

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2023 feet to the N

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: TANK TRUCK

Spill Date	Material Spilled	Quantity Spilled	Units	Unk Quantity Spilled ?	Cause of Spill	Resource Affected
01/15/2002	#2 FUEL OIL	3.00	GALLONS	NO	EQUIPMENT FAILURE	ON LAND

Map Identification Number 46 **RESIDENCE**
70 EAST MAIN STREET
Spill Number: 9412293 **Close Date: 12/15/1994**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2087 feet to the N

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: RESPONSIBLE PARTY
Caller Name: FRED YUDELSON
DEC Investigator: NONE

Spiller: COMMANDER PETRO
Notifier Name:
Caller Agency: COMMANDER
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 922-7000
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;NO DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
12/14/1994	12/15/1994	TANK OVERFILL	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: SPILL ON CONCRETE FLOOR OF GARAGE, DRIVER DID CLEANUP

DEC Investigator Remarks: 12/15/94: NO RESPONSE, AT ROBERT SQUIRE RESIDENCE,.

** See beginning of spills section for more details.

Map Identification Number 47 **LOMBARDI RESIDENCE** **Spill Number: 9310352** **Close Date: 11/30/1993**
28 POLLY DRIVE
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2157 feet to the ENE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: TIM SHANELY
DEC Investigator: NONE

Spiller: LOMBARDI RESIDENCE
Notifier Name:
Caller Agency: GIFFORDS
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 576-3000
Contact Person Phone:

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
11/25/1993	11/30/1993	EQUIPMENT FAILURE	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: SEALS ON BOILER BROKE,NOTIFIED SCHD, CLEANED UP WITH SPEEDI DRI, SHUT DOWN EQUIPMENT, WILL REPAIR BOILER

DEC Investigator Remarks: 11/30/93: NO RESPONSE NEEDED.

** See beginning of spills section for more details.

Map Identification Number 48 **UNK**
25A & WOODHULL

Spill Number: 9306872 **Close Date: 09/07/1993**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2381 feet to the NNE

ADDRESS CHANGE INFORMATION
Revised street: E MAIN ST / N WOODHULL RD
Revised zip code: 11743

Source of Spill: PASSENGER VEHICLE
Notifier Type: FIRE DEPARTMENT
Caller Name: PETE
DEC Investigator: ACAMPORA

Spiller: UNK
Notifier Name:
Caller Agency: DISPATCHER #4 FD
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 427-3030
Contact Person Phone:

Spill Class: NO SPILL OCCURRED;NOT POSSIBLE

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
09/03/1993	09/07/1993	TRAFFIC ACCIDENT	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
GASOLINE	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO

Caller Remarks: ACCIDENT, SPILL CONTAINED,

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 49 **MILLER RESIDENCE**
22 OVERLOOK ROAD

Spill Number: 9514071 **Close Date: 02/05/1996**
MELVILLE, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2442 feet to the N

ADDRESS CHANGE INFORMATION
Revised street: 22 OVERLOOK DRIVE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: ROBIN STIFFA
DEC Investigator: NONE

Spiller: MILLER RESIDENCE
Notifier Name: PETE LALIA
Caller Agency: GIFFORDS OIL CO
Contact for more spill info: RUTH MILLER

Spiller Phone: (516) 423-4631
Notifier Phone: (516) 576-3000
Caller Phone: (516) 576-3000
Contact Person Phone: (516) 423-4631

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
02/05/1996		EQUIPMENT FAILURE	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	NO	1.00	GALLONS	NO

Caller Remarks: NOZZEL ON FURNACE FAILED - STAIN ON BASEMENT FLOOR - SPPEDI DRY APPLIED - FURNACE REPAIRED

DEC Investigator Remarks: LESS THAN A GALLON ON CONCRETE, NOZZLE REPLACED, SPILL CLEANED UP

** See beginning of spills section for more details.

Map Identification Number 50 **RESIDENCE** **Spill Number: 9610440** **Close Date: 11/20/1996**
25 OVERLOOK DRIVE HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2521 feet to the N

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: RESPONSIBLE PARTY
Caller Name: JOE SANTORO
DEC Investigator: NONE

Spiller: PETRO OIL
Notifier Name: MR SCHOTTHAUSER
Caller Agency: PETRO OIL
Contact for more spill info: JOE SANTORO

Spiller Phone: (516) 576-0254
Notifier Phone: (516) 576-0254
Caller Phone: (516) 576-0254
Contact Person Phone: (516) 576-0254

Spill Class: KNOWN RELEASE WITH MINIMAL POTENTIAL FOR FIRE OR HAZARD;DEC RESPONSE;WILLING RP;CORRECTIVE ACTION TAKEN

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
11/20/1996		EQUIPMENT FAILURE	ON LAND	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	3.00	GALLONS	NO	3.00	GALLONS	NO

Caller Remarks: OIL FROM TOP OF THE DELIVERY TRUCK

DEC Investigator Remarks:

SPILL OF 3 GALS TO DRIVEWAY. SOME LEAVES ALSO AFFECTED AND CLEANED UP. A SUPERVISOR FOR PETRO VERIFIED THAT CLEANUP WAS COMPLETE.
NO RESPONSE NEEDED

** See beginning of spills section for more details.

Map Identification Number 51 **RELIANCE**
124 MAIN STREET

Spill Number: 9111464 **Close Date: 02/07/1992**
HUNTINGTON, NY NO ZIP PROVIDED
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 2526 feet to the WNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Source of Spill: TANK TRUCK
Notifier Type: RESPONSIBLE PARTY
Caller Name: KEN NELSON
DEC Investigator: NONE

Spiller: RELIANCE
Notifier Name:
Caller Agency: RELIANCE UTILITIES
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 931-6800
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
02/06/1992	02/07/1992	EQUIPMENT FAILURE	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	1.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: IN PARKING LOT, CONTAINED ON BLACKTOP, SPILLER CREW DID CLEANUP, HOSE REEL STUCK

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

** See beginning of spills section for more details.

Map Identification Number 52 **GAS STATION**
128 MAIN STREET

Spill Number: 0203338 **Close Date: 09/24/2002**
HUNTINGTON, NY NO ZIP PROVIDED
Information updated through: 06/13/2004

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 2609 feet to the WNW

ADDRESS CHANGE INFORMATION
Revised street: 128 MAIN ST
Revised zip code: 11743

Source of Spill: GASOLINE STATION

Spill Date	Material Spilled	Quantity Spilled	Units	Unk Quantity Spilled ?	Cause of Spill	Resource Affected
06/28/2002	GASOLINE	4.00	GALLONS	NO	EQUIPMENT FAILURE	IN SEWER

Map Identification Number 53 **LILCO**
325 PARK AVE & E MAIN ST
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 9001863 **Close Date: 08/02/1990**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (4)
Approximate distance from property: 2612 feet to the NW

ADDRESS CHANGE INFORMATION
Revised street: 325 PARK AVE
Revised zip code: 11743

Source of Spill: OTHER COMM/INDUSTRIAL
Notifier Type: RESPONSIBLE PARTY
Caller Name: TARA LANIER
DEC Investigator: PARISH

Spiller: LILCO
Notifier Name:
Caller Agency: LILCO
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 420-6058
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
05/16/1990	08/02/1990	EQUIPMENT FAILURE	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
TRANSFORMER OIL	PETROLEUM	0	GALLONS	NO	0	GALLONS	NO
UNKNOWN PETROLEUM	PETROLEUM	100.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: 3 TRANSFORMERS AT MEDICAL CENTER. VAULTED SITE. MPC HIRED TO CLEANUP. NO QUICKIT

DEC Investigator Remarks: 08/02/90: VAULT CLEANED OUT BY MPC. NO OTHER ACTION NEEDED.

** See beginning of spills section for more details.

Map Identification Number 54 **HUERGO RESIDENCE**
12 GAINES PLACE
HUNTINGTON, NY NO ZIP PROVIDED
Spill Number: 8502977 **Close Date: 02/28/1986**
**Information updated through: 01/01/2002

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 2638 feet to the WSW

ADDRESS CHANGE INFORMATION
Revised street: 12 GAINES ST
Revised zip code: 11743

Source of Spill: PRIVATE DWELLING
Notifier Type: OTHER
Caller Name: BILL GIBBONS
DEC Investigator: O'BRIEN

Spiller: HUERGO RESIDENCE
Notifier Name:
Caller Agency: ALEXANDER WALL CORP
Contact for more spill info:

Spiller Phone:
Notifier Phone:
Caller Phone: (516) 744-3388
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Resource Affected	Meets Cleanup Standards	Penalty Recommended
09/26/1985	02/28/1986	EQUIPMENT FAILURE	ON LAND	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Unk Quantity Spilled ?	Quantity Recovered	Units	Unk Quantity Recovered ?
#2 FUEL OIL	PETROLEUM	130.00	GALLONS	NO	0.00	GALLONS	NO

Caller Remarks: CALLED AT 1405 BY CONTRACTOR; CALLED AT 1407 BY SUFF CTY HEALT. FEED LINE BURST; OIL IN BASEMENT AND ON GROUND.

DEC Investigator Remarks:

/ / : A: RECEIVE CC OF PLAN SUBMITTED BY ALEXANDER TO JOE GRASSO (TRAVELER'S INSURANCE 90 MERRICK AVE E MEADOW NY)- GW IS ONLY 3-6" BELOW GRADE; THEREFORE, CAN'T EXCAVATE (IN BASEMENT?).

/ / : B: RECOMMEND RECOVERY SUMP AND IMPERMEABLE BARRIER IN BASEMENT TO CLEAN OIL FROM UNDER FLOOR. RECOMMEND CLEANUP OF SOIL AROUND END OF DISCHARGE PIPE; WOULD DEC/SCHD ALLOW NATURAL DEGRADATION.

/ / : C: OF THE REST OF THE OIL IN THE SWAMPY AREA?.

/ / : ***NOTE: ACCORDING TO FUND DIRECTOR'S OFFICE, NO COSTS WERE INCURRED BY DEC. EVIDENTLY, TRAVELERS PAID ALL COSTS.

11/20/85: 1405 HOURS: DEC RECEIVES A CALL FROM PRP'S CONTRACTOR, NOTIFYING US OF INCIDENT. DATE OF SPILL GIVEN AS 26SEPT! FEED LINE BURST; OIL ON GROUND (AND IN BASEMENT?).

11/20/85: 1407 HOURS: DEC IS NOTIFIED BY SUFF CTY HEALTH.

11/21/85: DEC (O'BRIEN) ON SITE: GROUND SATURATED WITH OIL. SUMP PUMP HAD PUMPED IT HERE; ESTIMATE APPROX 120-140GAL LOST.

11/22/85: DEC SENDS LETTER OF RESPONSIBILITY TO HUERGO. REQUESTS CLEANUP; INFORMS THEM OF PENALTIES FOR FAILURE TO DO SO.

12/04/85: RECEIVE LETTER FROM HUERGO: THEY WILL HAVE ALEXANDER WALL CORP DO THE NECESSARY CLEANUP.

12/05/85: A: DEC AND SUFF CTY HEALTH ON SITE. OIL HAD GONE TO REAR PROPERTY LINE, IN A SWAMPY AREA.

12/05/85: A: OWNER OF PROPERTY NEXT DOOR IS LEWIS BARTH JR. 80-80 SURREY PLACE JAMAICA QUEENS 11732. (THIS IS AS PER 16DEC85 LETTER FROM HUERGO'S ATTORNEY TO BARTH).

12/05/85: A: DEC NOTES SAY INSURANCE COMPANY WILL PAY RGM.

12/05/85: A: DEC AND SCHD ON SITE. OIL HAD GONE TO REAR PROPERTY LINE, IN A SWAMPY AREA. ADJACENT OWNER IS LEWIS BARTH JR 80-80 SURREY PLACE JAMAICA QUEENS NY.

12/05/85: B: DEC NOTES SAY INSURANCE WILL PAY FOR CLEANUP.

12/20/85: MRS HUERGO SAYS HER LAWYER SENT LETTER TO BARTH (REQUESTING ACCESS?).

12/31/85: MRS HUERGO TO SEND CC OF LETTER TO BARTH.

01/09/86: DEC NOTES SAY "LETTER SENT TO PROPERTY OWNER 16DEC85. NO RESPONSE." IS THIS THE LETTER TO BARTH?.

01/10/86: DEC SENDS ACCESS FORM TO BARTH.

01/15/86: RECEIVE CC OF LETTER FROM ANTHONY QUINN (ATTORNEY FOR HUERGO) TO BARTH: HIS CLIENTS HAVE CLEANED UP THEIR PROPERTY; NOW REQUEST ACCESS TO CLEAN UP BARTH'S.

01/23/86: RECEIVE SIGNED ACCESS BACK FROM BARTH.

02/10/86: A: LETTER TO EILEEN SLUKA (TRAVELER'S INSURANCE 90 MERRICK AVE E MEADOW): AS PER TELECON, SINCE HUERGO CANNOT GET ACCESS FROM BARTH BUT WE CAN, WE WILL HIRE CONTRACTOR TO CLEAN UP HIS SITE.

02/10/86: B: "AS YOUR FIRM HAS AGREED TO PAY THE COST OF THIS CLEANUP...WE REQUEST YOUR FIRM SEND US A LETTER OF AGREEMENT TO PAY ALL COSTS INCURRED BY THIS DEPARTMENT...".

02/25/86: RECEIVE 24FEB LETTER FROM SLUKA: "...TRAVELERS HAS AGREED TO PAY FOR THE CLEANUP...". FILE # 92685 AND FILE # 022LRSV72265.

02/27/86: DEC AND RGM ON SITE. REMOVED APPROX 6CY SOIL. WATER ENTERING HOLE; NO SHEEN OR FLOATING PRODUCT. DIFFICULT TO TELL WHETHER OIL ODOR PRESENT DUE TO HEAVY "BOG" ODOR. CLEANUP SATISFACTORY.

02/28/86: DEC CLOSES REGIONAL FILE: CLEANUP SATISFACTORY, NO FURTHER REMEDIAL ACTION NEEDED AT THIS TIME.

04/23/86: LETTER TO SLUKA: ENCLOSED IS BILL- $1768.00. PLEASE PAY WITHIN 30 DAYS DIRECTLY TO RGM.

04/25/86: RECEIVE NOTE FROM SLUKA: ADVISE IF CLEANUP IS COMPLETE.

08/25/86: DEC SOLID WASTE ISSUES DISPOSAL LETTER FOR 17 DRUMS OF SOIL. (THIS IS THE SECOND LETTER- AGNES GARA OF SAME UNIT HAD ISSUED LETTER ON 26FEB FOR DISPOSAL OF <= 15CY).

** See beginning of spills section for more details.

*** PETROLEUM BULK STORAGE FACILITIES LESS THAN 400,000 GALLONS IDENTIFIED WITHIN THE 1/4 MILE SEARCH RADIUS ***

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 55 **HUNTINGTON JEWISH CENTER** **Facility Id 4-0500** **Source: SUFF. HEALTH DEPT**
510 PARK AVE
HUNTINGTON, NY 11743

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 530 feet to the NNE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Owner Name: HUNTINGTON JEWISH CENTER
Owner Address: 510 PARK AVE HUNTINGTON, NY 11743
Facility Phone #: (516)427-1089

TANK NO.	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	PERMIT ISSUED	REMOVED DATE
1	REMOVED - MARKED FOR REMOVAL 1996 (CONFIRMED)	#2 FUEL OIL	5000	OUTDOOR UNDER			08/30/96
2	REMOVED - MARKED FOR REMOVAL 1996 (CONFIRMED)	#2 FUEL OIL	1000	OUTDOOR UNDER			08/30/96

Toxicity Information Summary

CHEMICAL NAME	CAS-NO	ACUTE TOX	TUMOR TOX	MUTAG TOX	REPRO TOX	IRRIT TOX	MCL
#2 FUEL OIL	68476302	X	X			X	

Map Identification Number 56 **FLANAGAN CENTER** **Facility Id 4-0818** **Source: SUFF. HEALTH DEPT**
423 PARK AVE
HUNTINGTON, NY

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 889 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 11743

Owner Name: TOWN OF HUNTINGTON
Owner Address: 100 MAIN ST HUNTINGTON, NY 11743
Facility Phone #: (000)000-0000

TANK NO.	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	PERMIT ISSUED	REMOVED DATE
1	PERMITTED - EXPIRED 1998	#4 FUEL OIL	2500	OUTDOOR UNDER		11/23/93	
2	UNREGIST/REMVD-MARKED FOR REMOVAL 1993 (CONFIRMED)	GASOLINE	10000	OUTDOOR UNDER			07/13/93
3	UNREGIST/REMVD-MARKED FOR REMOVAL 1993 (CONFIRMED)	GASOLINE	1000	OUTDOOR UNDER			07/13/93

Toxicity Information Summary

CHEMICAL NAME	CAS-NO	ACUTE TOX	TUMOR TOX	MUTAG TOX	REPRO TOX	IRRIT TOX	MCL
GASOLINE	8006619	X	X			X	

Map Identification Number 57 **RECHARGE BASIN** **Facility Id 4-0060** **Source: SUFF. HEALTH DEPT**
565 PARK AVE
HUNTINGTON, NY 11743

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 1035 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Owner Name: COUNTY OF SUFFOLK
Owner Address: SUFFOLK COUNTY CENTE
RIVERHEAD, NY 11901
Facility Phone #: (000)000-0000

TANK NO.	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	PERMIT ISSUED	REMOVED DATE
1	REMOVED - MARKED FOR REMOVAL 1980 (CONFIRMED)	GASOLINE	3000	OUTDOOR UNDER	60		01/01/80
2	REMOVED - MARKED FOR REMOVAL 1980 (CONFIRMED)	GASOLINE	2000	OUTDOOR UNDER	60		01/01/80
3	REMOVED - MARKED FOR REMOVAL 1980 (CONFIRMED)	GASOLINE	1000	OUTDOOR UNDER	60		01/01/80
4	REMOVED - MARKED FOR REMOVAL 1985 (CONFIRMED)	GASOLINE	4000	OUTDOOR UNDER	80		01/01/85
5	REMOVED - MARKED FOR REMOVAL 1985 (CONFIRMED)	GASOLINE	2000	OUTDOOR UNDER	80		01/01/85

Toxicity Information Summary

CHEMICAL NAME	CAS-NO	ACUTE TOX	TUMOR TOX	MUTAG TOX	REPRO TOX	IRRIT TOX	MCL
GASOLINE	8006619	X	X			X	

Map Identification Number 58 **WOODHULL SCHOOL**
140 WOODHULL RD
Facility Id 4-0451
HUNTINGTON, NY 11743
Source: SUFF. HEALTH DEPT

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (2)
Approximate distance from property: 1141 feet to the SW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

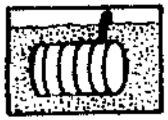
Owner Name: HUNTINGTON UFSD
Owner Address: PO BOC 1500
HUNTINGTON, NY 11743
Facility Phone #: (516)673-2054

TANK NO.	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	PERMIT ISSUED	REMOVED DATE
1	HEATING OIL OVER 1100 GAL - EXPIRES 2003	#2 FUEL OIL	8000	OUTDOOR UNDER	66		

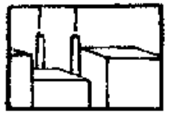
Toxicity Information Summary

CHEMICAL NAME	CAS-NO	ACUTE TOX	TUMOR TOX	MUTAG TOX	REPRO TOX	IRRIT TOX	MCL
#2 FUEL OIL	68476302	X	X			X	

** NO HAZARDOUS WASTE GENERATORS/TRANSPORTERS IDENTIFIED WITHIN THE 1/4 MILE SEARCH RADIUS **



*** NO CHEMICAL STORAGE FACILITIES IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS ***



*** NO TOXIC AIR, LAND AND WATER RELEASES IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS ***

*** NO WASTEWATER DISCHARGES IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS ***

*** NO AIR DISCHARGE FACILITIES IDENTIFIED WITHIN 1/4 MILE SEARCH RADIUS ***

*** NO CIVIL & ADMINISTRATIVE ENFORCEMENT DOCKET FACILITIES IDENTIFIED WITHIN THE 1/4 MILE SEARCH RADIUS ***

U.S. EPA EMERGENCY RESPONSE NOTIFICATION SYSTEM (ERNS)
AT THE LOCATION OR POTENTIALLY AT THE LOCATION OF
Kiruv Estates
Huntington, NY 11743

* Any ERNS Spills listed below are NOT mapped in this report *

ONSITE ERNS (A count of these spills can be found in the distance interval table):
THIS SITE IS NOT FOUND IN THE ERNS DATABASE

POTENTIALLY ONSITE ERNS:
THIS SITE IS NOT FOUND IN THE ERNS DATABASE

Copyright 2004 Toxics Targeting, Inc. September 27, 2004 'Kiruv Estates'

Unmappable facilities for 'Suffolk' County

NPL/CERCLIS/NYSDEC Inactive Haz. Waste or Reg. Qual. Sites

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
152152	CHEMICAL MANAGEMENT INC.			UNKNOWN
152153	KBF POLLUTION MANAGEMENT			UNKNOWN
NYD986882389	LONG ISLAND SOUND		MORICHES	UNKNOWN

Hazardous Substance Waste Sites

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
NY0002	MANDERVILLE PLANT		MANDERVILLE, NY ?	UNKNOWN
NY0003	PINE'S SWITCH PLANT		PINE'S SWITCH	UNKNOWN

Solid Waste Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
	SYNCOR NUCLEAR PHARMACY S			UNKNOWN
	TRANS MED LIMITED RMW TS			UNKNOWN
52C03	DUNLOP AVE COMPOSTING			UNKNOWN
52C20	TOWN OF HUNTINGTON			UNKNOWN
52W54R	TRI-TOWN CARTING CORP.			UNKNOWN
52W69R	GLOBAL LAND MATERIALS			UNKNOWN
52W72R	C&A MATERIALS			UNKNOWN
52W74	HOLBROOK TRUCK & LEASING			UNKNOWN
52W76R	LONG ISLAND DIRT CORP.			UNKNOWN
52W77R	T.S. HAULERS, INC.			UNKNOWN
52W78	NORTH SHORE RECYCLING			UNKNOWN
52W80R	CALVERTON INDUSTRIES, LLC			UNKNOWN
52W81R	BELLI CONTRACTING CO, INC			UNKNOWN
52W85R	LONG ISLAND RECYCLING INC			UNKNOWN
52W98R	ALEXANDER AND ANTHONY IZZ			UNKNOWN
52Y20	MELVILLE HUNTINGTON (T)			UNKNOWN

Hazardous Spills - MISC. SPILL CAUSES - Active

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
0311267	COMMERCIAL TRUCK	HALLOWVILE ROAD	HUNTINGTON	11743
0125321		STREETS OF SUFFOLK COUNTY	TOWNS OF SUFFOLK COUNTY	UNKNOWN

Hazardous Spills - UNKNOWN CAUSE OR OTHER CAUSES - Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
8401635				UNKNOWN
8401564				UNKNOWN
8100603				UNKNOWN
7800390			DUCK LAKE	UNKNOWN
8900224	UNK	MILBURN STREET	HALESITE	11743
9904634	INN ON THE HARBOR	RTE 25A	HUNNINGTON	UNKNOWN
8200103		HALESITE	HUNTIGTON HARBOR	11743
9904277	FIDDLERS GREEN DOCK	FIDDLERS GREEN DRIVE	HUNTINGTON	11743
9607023	SCPD 2ND PCT	PARK AVENUE	HUNTINGTON	11743
9408360	ASTA VESSEL	DORNIC MARINA	HUNTINGTON	UNKNOWN
9408015	UNK	MCKAY ROAD	HUNTINGTON	11746
9404970	UNK	RTE 25A & PRESTON PLACE	HUNTINGTON	UNKNOWN
9200617	UNK	SAW MILL ROAD	HUNTINGTON	11743
9005795	UNK	SOUTH WEST SHORE	HUNTINGTON	11743
8904072	UNK	PARK AVENUE	HUNTINGTON	11743
8806275	UNK	NEAR THOMAS KNUTSON SHIP	HUNTINGTON	11743
6701064	UNK	WEST ROUGH PATH	HUNTINGTON	11743
8300237			HUNTINGTON	UNKNOWN

8201585			HUNTINGTON	UNKNOWN
8907940	UNK RESIDENCE	59 BONDRAN STREET	HUNTINGTON STATION	UNKNOWN
8808448	UNK	DEPOT ROAD	HUNTINGTON STATION	UNKNOWN
7801072			PILOT STATION	UNKNOWN

Hazardous Spills - MISC. SPILL CAUSES - Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
9806401	LONG ISLAND TRAIN STATION	SOUTH PARKING GARAGE	HUNTINGTON	UNKNOWN
9805802	AUTO TECH	SPRING STREET	HUNTINGTON	UNKNOWN
9802799		421 MAIN STREET	HUNTINGTON	11743
9610607	SOUNDVIEW BOAT RAMP	SOUTH LOT	HUNTINGTON	UNKNOWN
9412737		26 ARAGON DRIVE	HUNTINGTON	UNKNOWN
9408570	NEIL GREENBERG RESIDENCE	7 MONLOWOOD COURT	HUNTINGTON	UNKNOWN
9408482	RESIDENCE	12 BORDWELL LANE	HUNTINGTON	UNKNOWN
9308232	LOU PINACCI LANDLORD	21 PINE AVE	HUNTINGTON	11743
9207455	RELIANCE FUEL CO	39 NICOLS ROAD	HUNTINGTON	UNKNOWN
8807250	AMOCO	28 ROUTE 25A	HUNTINGTON	11743
8802452	KNUTSON	TOWN N ROAD	HUNTINGTON	UNKNOWN
0225119	WILLIS MARINE	MILL VAN ROAD	HUNTINGTON	11743
0203525		3 CHESTER COURT	HUNTINGTON	11743
0203132	IFO RESIDENCE	MEADOW POND COURT	HUNTINGTON	11743
0000400	CANCOS TILE CORP	ROUTE 25A MAIN STREET	HUNTINGTON	11743
9309394	UNK	SPRING ROAD	HUNTINGTON STATION	11743
9204071	JOHN BYANK PASS VEHICLE	IN RP'S VEHICLE	NOT GIVEN	UNKNOWN

Petroleum Bulk Storage Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
6-11907				UNKNOWN
4-0023	MILL STREET PUMP STATION	MILL ST	HUNTINGTON	11743
4-0025	2ND POLICE PRECINCT	PARK AVE	HUNTINGTON	UNKNOWN

Hazardous Waste Generation or Transport Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
NYD981562549	HUNTINGTON PARCEL	LOT 3 WINDSOR CORP PARK	HUNTINGTON	11743
NYR000102749	EXPRESS DISPOSAL SERVICES	328 MAIN ST SUITE 201	HUNTINGTON	11743
NYP003631264	NYSDEC	SPILLS ?	LIC	UNKNOWN
NYX720000000	TRANSPORTER X	XXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXX	UNKNOWN

Chemical Bulk Storage Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
1-000442	WELL #4	CLAY PITTS ROAD, GREENLAWN	HUNTINGTON	UNKNOWN

Wastewater Discharges

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
NY0199621	METROPOLITAN LIFE INSURANCE CO			UNKNOWN
NY0221350	PIZZA HUT #606176			UNKNOWN

Air Releases

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
3610300191	SEATUCK REFUGE	TARGET ROCK ROAD	HUNTINGTON	11743
3610300192	TARGET ROCK REFUGE T	ARGET ROCK ROAD	HUNTINGTON	11743

Hazardous waste codes presented in Individual Toxic Information Profiles are defined below.

Source: U. S. Environmental Protection Agency

How Toxic Site Locations Are Mapped

Toxics Targeting maps toxic site locations on a computerized version of the U. S. Census map using addresses and map coordinates provided by site owners/operators or government agencies. In order to allow site locations to be verified independently, the information used to map each site is presented in the first section of each *Toxic Site Profile,* along with a description of the mapping technique used and any address corrections that were made in order to locate toxic sites with incomplete or inadequate site location information. The mapping process is explained below.

Map Identification Number: 12

Site Name: Acme World Manufacturing, Inc.

Site Address: 55 Main Street

Anytown, NY 11797

MAP LOCATION INFORMATION

Site location mapped by:

Address Matching

1) Most toxic sites are mapped by matching addresses provided by site owners/operators or government agencies with locations on a computerized version of the U. S. Census map. These site locations are identified "address-matched."

Note: Some sites have an address match location <u>and</u> a map coordinate location. Both locations are mapped because they can be equally correct.

or Map Coordinate

2) Some toxic sites are located using map coordinates provided by site owners/operators or government agencies. These site locations are identified "map coordinate." <u>Map coordinates for Toxics Wastewater Discharges, Toxic Release Inventory sites and Major Oil Storage Facilities should be considered suspect</u>.

or Manual Mapping

or Site Visit

3) Incomplete addresses or map coordinates require some site locations to be determined by commercial street maps (manual mapping), site visits, map coordinates from other databases and address location services. Application of any of these methods is identified accordingly.

ADDRESS CHANGE INFORMATION

Revised Street: NO CHANGE

Revised zip code: NO CHANGE

4) Site addresses are sometimes corrected to eliminate obvious errors that prevent sites from being mapped. All address corrections are noted here.

Information Source Guide

Toxics Targeting's Computerized Environmental Reports contain government information compiled from 16 categories of reported known or potential toxic sites. Each toxic site database is described below with information detailing a) the source of the information, b) the date when each database is covered to and c) when *Toxics Targeting* obtained the information.

1) **Inactive Hazardous Waste Disposal Site Registry**: New York State database that maintains information and aids decision making regarding the investigation and cleanup of toxic sites. The Registry's data includes two-page profiles noting site name, ID number, description, classification, cleanup status, types of cleanup, owner information, types and quantities of contaminants, and assessment of health and environmental problems. ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
Profile data updated through: 8/20/2004. Data obtained by Toxics Targeting: 08/23/2004.
New Facilities updated to: 6/30/2003. Data obtained by Toxics Targeting: 10/23/2003.

2) **CERCLIS**: Toxic sites listed in the Federal Comprehensive Environmental Response, Compensation and Liability Information System. NPL sites are also included in CERCLIS. ASTM required.* Fannie Mae required.**
Source: U. S. Environmental Protection Agency.[1]
Profile data updated through: 07/14/2004. Data obtained by Toxics Targeting: 08/06/2004.
New Facilities updated through: 07/14/2004. Data obtained by Toxics Targeting: 08/06/2004.

3) **National Priority List for Federal Superfund Cleanup**: Toxic sites nominated for cleanup under the Federal Superfund program. Annual compilation of special two-page detailed profiles of NPL sites. ASTM required.* Fannie Mae required.**
Source: U. S. Environmental Protection Agency.[1]
Profile data updated through: 07/27/2004. Data obtained by Toxics Targeting: 07/28/2004.
New Facilities updated through: 07/27/2004. Data obtained by Toxics Targeting: 07/28/2004.

4) **Hazardous Substance Waste Disposal Site Study**: NYS database of waste disposal sites that may pose threats to public health or the environment, but cannot be remediated using monies from the Hazardous Waste Remedial Fund.
Source: New York State Department of Environmental Conservation.[2]
Data updated to: 5/16/2000. Data obtained by Toxics Targeting: 5/16/2000.

5) **Solid Waste Facilities**: NYS database of solid waste facilities, including, but not limited to, landfills, incinerators, transfer stations, recycling centers. ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
Data updated to: 12/31/2001. Data obtained by Toxics Targeting: 3/16/2002.

Also includes a listing of solid waste disposal sites operated by New York City municipal authorities circa 1934.
Source: City of New York Dept. of Sanitation (1984). The Waste Disposal Problem in New York City: A Proposal For Action.

6) **Major Oil Storage Facilities**: NYS database of facilities licensed pursuant to Article 12 of the Navigation Law, 6NYCRR Parts 610 and 17NYCRR Part 30, such as onshore facilities or vessels, with petroleum storage capacities equal to or greater than four hundred thousand gallons. Data withheld by NYSDEC as of 4/1/2002. Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
New facilities updated through: 1/1/2002. New facilities data obtained by Toxics Targeting: 1/11/2002.
Tank data updated through: 1/1/2002. Tank data obtained by Toxics Targeting: 1/11/2002.

7) **RCRA Hazardous Waste Treatment, Storage or Disposal Facility Databases:**

(a) **Manifest Information:** New York State database of hazardous waste facilities and shipments regulated by the DEC's Bureau of Hazardous Waste Facility Compliance pursuant to New York State Law and the Resource Conservation and Recovery Act (RCRA). ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
New facilities updated through: 6/14/2004. New facilities obtained by Toxics Targeting: 6/21/2004.
Manifest transactions data updated to: 6/14/2004. Manifest transactions data obtained by Toxics Targeting: 6/21/2004.

(b) **RCRA Notifier, Violations, and Corrective Action Activity (CORRACTS) Information**: U. S. Environmental Protection Agency database of hazardous facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA). ASTM required.* Fannie Mae required.**
Source: U. S. Environmental Protection Agency[1]
New facilities updated through: 6/15/2004 New facilities obtained by Toxics Targeting: 6/21/2004.
Data attributes updated through: 6/15/2004. Data obtained by Toxics Targeting: 6/21/2004.

8) **Spills Information Database**: Spills reported to the DEC as required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from Petroleum Bulk Storage Regulations) or 6 NYCRR Section 595.2 (from Chemical Bulk Storage Regulations). The database includes *active* and *closed* spills reported before 05/22/2004.
Data updated on a rolling basis. ASTM required.* Fannie Mae.**
Source: NYS Department of Environmental Conservation.[2]

New spills through: 05/21/2004.
Most spill attribute data updated through 01/01/2002 (Some data withheld by NYSDEC since 01/01/2002).
Limited spill attribute data updated to between 01/01/2002 and 05/21/2004. (See individual spill profiles.)

Active spills: paperwork not completed. Closed spills: paperwork completed.
Both active and closed spills may or may not have been cleaned up (see Date Cleanup Ceased in spill profiles).

9) **Petroleum Bulk Storage Facilities**: Local and State databases of aboveground and underground petroleum storage facilities with a combined storage capacity over 1,100 gallons. ASTM required.* Fannie Mae required.**

All New York Counties except Cortland, Nassau, Rockland, and Suffolk:
Source: NYS Department of Environmental Conservation.[2]
Update schedule: rolling basis; Data has been withheld by the NYSDEC since 4/1/2002.
Facility data updated through: 1/1/2002 (10/1/98 for Westchester Co.). Facility data obtained by Toxics Targeting: 1/11/2002.
Tank data updated through: 1/1/2002 (10/1/98 for Westchester Co.). Tank data obtained by Toxics Targeting: 1/11/2002.

Nassau County:
Heat producing products and other products with less than 1,000 gallons storage capacity:
Source: Nassau County Department of Health.[3] Data update schedule: rolling basis
Data updated through: 04/1/2001. Data obtained by Toxics Targeting: 01/02/2002.

Generally non-heat producing products with more than 1,000 gallons storage capacity:
Source: Nassau County Fire Marshall.[4] Data update schedule: rolling basis with annual update
Data updated through: 9/27/1996 for mapped sites; 03/21/2000 for on-site checks.

Rockland County:
Source: Rockland County Department of Health.[5] Data update schedule: rolling basis.
Data updated through: 04/13/2004. Data obtained by Toxics Targeting: 04/16/2004.

Suffolk County:
Source: Suffolk County Department of Health Services.[6] Data update schedule: annual update.
Data updated through: 1/12/1999. Data obtained by Toxics Targeting: 2/26/1999.

10. **RCRA Hazardous Waste Generators and/or Transporters Databases:**

(a) **Manifest Information:** New York State database of hazardous waste facilities and shipments regulated by the New York State Department of Environmental Conservation's Bureau of Hazardous Waste Facility Compliance pursuant to New York State Law. ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
New facilities updated through: 6/14/2004. New facilities obtained by Toxics Targeting: 6/21/2004.
Manifest transactions data updated to: 6/14/2004. Manifest transactions data obtained by Toxics Targeting: 6/21/2004.

(b) **RCRA Notifier, Violations, and Corrective Action Activity (CORRACTS) Information:** U. S. Environmental Protection Agency database of hazardous facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA). ASTM required.* Fannie Mae required.**
Source: U. S. Environmental Protection Agency[1]
New facilities updated through: 6/15/2004 New facilities obtained by Toxics Targeting: 6/21/2004.
Data attributes updated through: 6/15/2004. Data obtained by Toxics Targeting: 6/21/2004.

11) **Chemical Bulk Storage Facilities**: New York State database of facilities compiled pursuant to 6NYCRR Part 596 that store regulated substances listed in 6NYCRR Part 597 in aboveground tanks with capacities greater than 185 gallons and /or in underground tanks of any size. Data withheld by NYSDEC as of 4/1/2002. ASTM required.* Fannie Mae required.**
Source: New York State Department of Environmental Conservation.[2]
Data updated through: 1/1/2002. Data obtained by Toxics Targeting: 1/11/2002.

12) **Toxic Release Inventory**: Federal database of manufacturing facilities required under Section 313 of the Federal Emergency Planning and Community Right-to-Know Act to report releases to the air, water and land of any specifically listed toxic chemical. See Fannie Mae requirement** below.
Source: U. S. Environmental Protection Agency.[1] / NYS Department of Environmental Conservation[2]
Data updated through: 3/8/2004. Data obtained by Toxics Targeting: 3/25/2004

13) **Air Discharge Facilities**: EPA AIRS database containing address information on each air emission facility and the type of air pollutant emission it is. Compliance information is also provided on each pollutant as well as the facility itself.
See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency[1]
Data updated through: 11/24/1999. Data obtained by Toxics Targeting: 1/06/2000

14) **Toxic Wastewater Discharges (Permit Compliance System)**: Federal database of discharges of wastewater to surface waters and groundwaters. See Fannie Mae requirement** below.
Source: U. S. Environmental Protection Agency.[1]
Data updated through: 6/17/2004. Data obtained by Toxics Targeting: 7/19/2004.

15) **Civil Enforcement & Administrative Docket**: This database is the U. S. EPA's system for tracking administrative and civil judiciary cases filed on behalf of the agency by the Department of Justice. Fannie Mae required.**
Source: U. S. Environmental Protection Agency.[1]
New Sites through: 10/14/1999.
Data updated through: 10/14/1999. Data obtained by Toxics Targeting: 11/18/1999.

16) **Emergency Response Notification System (ERNS)**: Federal database of spills compiled by the Emergency Response Notification System. On-site searches only. ASTM required.* See Fannie Mae requirement** below.
Source: U. S. Environmental Protection Agency.[1]
Data updated through: 1/31/2000. Data obtained by Toxics Targeting: 2/15/2000

*American Society of Testing Materials Standards on Environmental Site Assessments for Commercial Real Estate (E 1527-93, E 1528-93).

** Fannie Mae's Part X Environmental Hazards Management Procedures specify 1.0 mile searches for "any state or Federal list of hazardous waste sites (e.g. CERCLIS, HWDMS etc.)." Searches for the property and adjacent properties are specified for "chemical manufacturing plants," "obvious high risk neighbors engaging in storing or transporting hazardous waste, chemicals or substances" and "...any documented or visible evidence of dangerous waste handling... (e.g. stressed vegetation, stained soil, open or leaking containers, foul fumes or smells, oily ponds, etc." Searches for property and adjacent properties can include sites up to a quarter mile away (W. Hayward, Director, Multi-Family Business Planning and Control, Fannie Mae, personal communication, 5/94).

[1]U. S. Environmental Protection Agency, 290 Broadway, NY, NY 10007-1866.

[2]NYS Department of Environmental Conservation, 625 Broadway, Albany, NY 12233.

[3]Nassau County Department of Health, Bureau of Land Resources Management, 240 Old Country Road, Mineola, NY 11501.

[4]Nassau County Fire Commission, Office of the Fire Marshall, 899 Jerusalem Avenue, P. O. Box 128, Uniondale, NY 11553.

[5]Rockland County Department of Health, The Dr. Robert Yeager Health Center, Building D, Sanitorium Road, Pomona, NY 10970.

[6]Suffolk County Department of Health, Hazardous Materials Management, 15 Horseblock Place, Farmingville, NY 11738-1220.

APPENDIX N

ENVIRONMENTAL SITE ASSESSMENT, PHASE II

NP&V, LLC

August 25, 2005

NELSON POPE & VOORHIS, LLC
ENVIRONMENTAL • PLANNING • CONSULTING

Limited Phase II
Environmental Site Assessment

Kiruv Estates

Huntington, New York

N&P Project No. 97110

August 25, 2005

Limited Phase II

Environmental Site Assessment

Kiruv Estates

THIS DOCUMENT CONTAINS 15 PAGES OF TEXT

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Limited Phase II
Environmental Site Assessment

Kiruv Estates

CONTENTS

1.0	INTRODUCTION		Page 1 of 15
2.0	INVESTIGATION METHODS, PROCEDURES AND PROTOCOLS		Page 4 of 15
	2.1	GPR SURVEY	Page 4 of 15
	2.2	DYE TESTING SURVEY	Page 4 of 15
	2.3	HEADSPACE ANALYSIS	Page 5 of 15
	2.3	HAND AUGER SOIL SAMPLING	Page 5 of 15
	2.4	PROTOCOLS	Page 5 of 15
3.0	UTILITY SURVEY RESULTS		Page 6 of 15
	3.1	GPR SURVEY	Page 6 of 15
	3.2	DYE TESTING SURVEY	Page 6 of 15
	3.3	HEADSPACE ANALYSIS SURVEY	Page 6 of 15
4.0	SAMPLING AND ANALYSIS PROGRAM (SAP)		Page 7 of 15
	4.1	HAND AUGER SOIL SAMPLES	Page 7 of 15
	4.2	LABORATORY SAMPLE COLLECTION AND FREQUENCY	Page 7 of 15
5.0	LABORATORY ANALYSIS		Page 9 of 15
	5.1	ANALYTICAL TEST METHODS	Page 9 of 15
	5.2	ANALYTICAL RESULTS	Page 9 of 15
6.0	QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES (QA/QC)		Page 11 of 15
7.0	SUMMARY AND CONCLUSION		Page 13 of 15
8.0	REFERENCES		Page 14 of 15
	APPENDICES		Page 15 of 15

Limited Phase II

Environmental Site Assessment

Kiruv Property

1.0 INTRODUCTION AND PURPOSE

Nelson, Pope & Voorhis, LLC (NP&V) has been contracted to prepare a Limited Phase II Environmental Site Assessment for the subject property. This report is intended to address recognized environmental conditions that were identified in a Phase I Environmental Site Assessment report prepared by Nelson, Pope & Voorhis, LLC dated December 24, 2004. The Phase I ESA was performed in accordance with the standards detailed by the American Society of Testing and Materials (ASTM) for the Performance of a Phase I Environmental Site Assessment (E 1527). This Phase II ESA was designed to determine what, if any, impact on-site activities have had upon the environmental quality of the subject property.

The subject property lies in the Hamlet of Huntington, Town of Huntington, County of Suffolk, New York. The subject property is a 7.5 acre parcel of developed land. The property is located on the southwest corner of Park Avenue (CR 35A) and Woodhull Road. The property is more particularly described as Suffolk County Tax Map # 0400-073-01-38, 41.1, 42.

The subject property contains four (4) residential structures, an old barn and a silo. A small pond is located on the east side of the main house and a wetland area is located in the southeast portion of the property.

The main house is a two and a half (2½) story wood framed structure located in the north central portion of the property. This house is heated by an oil-fired boiler located in the basement; fuel oil is supplied by a 275 gallon above ground fuel oil storage tank situated in the southwest corner of the basement. Approximately 50 to 100 linear feet of suspected asbestos containing pipe wrap insulation was observed on overhead pipes in the basement. This house is connected to an on-site sanitary system and public water supply system. Three (3) sump pumps and several floor drains were observed in the basement. These sump pumps discharge through the eastern basement wall and into a black plastic corrugated pipe. This pipe was buried but appeared to be leading to the east towards the pond. No pipe outlet was found on the bank of the pond. The pond is identified as a New York State Department of Environmental Conservation (NYSDEC) designated wetland (H-35).

The second house is located to the south of the main house. This house is a single story wood framed structure on a concrete slab. A natural gas-fired heating/air conditioning unit is located in the attic. A natural gas-fired hot water heater is located in a closet in the northeast corner of the building. This unit is connected to an on-site sanitary system and the public water supply system.

The third house located in the southwest corner of the property on Woodhull Road is a two and a half (2½) story wood framed structure situated on a concrete foundation. This house was vacant and under renovation at the time of the site reconnaissance. No heating system was observed in the basement; however, two (2) copper lines that were connected to one of the two (2) above ground fuel oil storage tanks were observed. Based on the location of the copper line, it appears that the former oil burner was situated over a hole broken out of the concrete floor. At the time of the site reconnaissance, this hole contained concrete block with a metal plate on top of the blocks. A gas meter was observed in the northwest corner of the basement. A sump pump which discharged to the ground on the north side of the house is located in the northeast portion of the basement. Water stains were present on the concrete floor in the vicinity of the hole located in the center of the basement. This unit is connected to an on-site sanitary system and the public water supply system.

The fourth house located to the west of the main house, fronting on Woodhull Road is a one and a half (1½) story wood framed structure situated on a stone foundation. The house was heated by two (2) natural gas heaters located in the living room and kitchen. The small basement formed by the stone foundation was empty at the time of the site reconnaissance. This unit is connected to an on-site sanitary system and the public water supply system.

An old cow barn and silo are located in the south-central portion of the property. These structures are in a deteriorated condition. The barn contained the old metal barriers to hold the cows during the milking process and a lawn mower and other small pieces of equipment are stored within the barn. The remaining area of the property consisted of wooded land, wetland areas and lawn.

Historic aerial photographs and Sanborn Maps were reviewed to determine the prior uses of the subject property. Sanborn Map coverage from 1930, 1946 and 1969 was available for the eastern half of the subject property only. A review of the maps revealed the main house, the barn and the cottage to the south of the main house, as well as a barn that was later demolished. The 1969 map identified a gasoline storage tank off the northeast corner of the barn. It is unknown if the tank was above or below ground The subject property was identified as P.H. Swezey Dairy in all of the maps. Aerial photographs from 1953, 1966, 1974, 1980, 1994 and 2001 were reviewed in order to determine if any prior uses occupied the subject property. This review revealed all of the existing buildings were present in all of the aerials. The building located off the southeast corner of the barn was also present. This structure had been demolished and removed from the property prior to the site reconnaissance.

An extensive government records search found no potential sources of environmental degradation on the subject property. Several Federal, State and County documented regulated sites were noted in the vicinity of the subject property. Specifically, one (1) Hazardous Substance Waste Disposal Site (HSWDS) and one (1) Inactive Hazardous Waste Disposal Site (IHWDS) are located within one (1.0) mile, fifty-one (51) active and closed spill incidents are located within one-half (0.5) mile and one (1) PBS facility is located in close proximity of the subject property.

In conclusion, the Phase I ESA identified several environmental conditions in connection with the subject property which prompted the performance of the Limited Phase II ESA. These conditions included the following: a reported gasoline storage tank located off the northeast corner of the barn, observation of a sump pump located in the basement of the main house and the presence of a sump pump as well as bare soils which were under the former oil burner located in the basement of the residence located in the southwest corner of the property.

This assessment has been designed and performed by NP&V with laboratory analysis provided by Long Island Analytical Laboratories.

The following sections detail the subject property and surrounding area characteristics, sampling program, quality assurance protocol, laboratory analysis methodology and laboratory results.

2.0 INVESTIGATION METHODS, PROCEDURES AND PROTOCOLS

In order to conduct the Phase II ESA at the subject property, various investigative methodologies were employed to assess the impact that the recognized environmental conditions noted in the Phase I ESA have had on the site. For the purpose of this investigation Ground Penetrating Radar, tracer dye testing and hand auger soil sampling were all utilized to determine what if any impact past site activities have had on environmental resources associated with the subject site. A discussion of each technique is presented in the following sections.

2.1 GPR SURVEY

A remote sensing ground penetrating radar field survey was performed over portions of the planimetric surface of the property adjacent to the northeast corner of the barn to determine if a gasoline storage tank was present as well as its location and orientation if detected.

A GSSI model SIR-3000 with a 400 MHz antenna ground penetrating radar (GPR) system was used for the survey and consisted of a control unit, control cable and a transducer. The GPR control unit transmits a trigger pulse at a normal repetition rate of 50 KHz. The pulse is then sent to the transmitter electronics in the transducer (antenna) via the control cable where the trigger pulses are transformed into bipolar pulses with higher amplitudes. The transformed pulse will vary in shape and frequency according to the transducer used. The GSSI system is capable of transmitting electromagnetic energy into the subsurface of the earth in the frequency range of 16 MHz to 2000 MHz. In the subsurface, reflections of the pulse occur at boundaries where there is a dielectric contrast (void, steel, soil type). The reflected portion of the signal travels back to the antenna and the control unit and is subsequently shown on the display of the computers color video monitor for interpolation.

A qualified technician specified a coordinate system on the planimetric surface to locate any subsurface dielectric anomalies on the premises. The operator used known knowledge of the subsurface soil composition to calibrate the SIR-3000 system to site specific conditions. Factor settings such as range, gain, number of gain points, and scans per unit, are modified to yield the most accurate data to describe the subsurface conditions.

Upon finding a dielectric anomaly a more specific coordinate system was designed over the area to determine it's size, shape and orientation. The data collected during the survey was reviewed by the operator and compared against past experience, technical judgment and prior site knowledge to classify the anomalies. The results of this survey are reported in Section 3.1.

2.2 DYE TESTING SURVEY

A dye testing survey was scheduled to be conducted in the basements of the main house and the residence located in the southwestern portion of the property. The purpose of the dye testing was to determine the points of discharge of the sump pumps located in the basements of each structure. Inspection of the piping exiting the basement of the residence revealed that it discharged to the ground surface northwest of this building and as a result dye testing was not required at this location. A non-toxic tracer dye was used in the main house basement and possible points of discharge were inspected for the presence of the colored dye. The results of this survey are reported in Section 3.2.

2.3 HEADSPACE ANALYSIS SURVEY

Headspace analysis is performed utilizing a portable photo ionization detection meter to measure what, if any, hydrocarbon concentrations may be present in isolated portions of the secured samples. Headspace analysis is conducted by partially filling a sealable plastic bag with sample aliquot and sealing the top, thereby creating a void. This void is referred to as the sample headspace.

To facilitate the detection of any hydrocarbons contained within the sample headspace, the container is agitated for a period of thirty (30) seconds. The probe of the vapor analyzer is then injected through the foil into the headspace to measure the hydrocarbon concentrations present. A Photovac Model 2020 photo ionization detection meter (PID) is the organic vapor analyzer utilized for the headspace analysis. A PID utilizes the principle of photo ionization for detection and measurement of hydrocarbon compounds. A PID does not respond to all compounds similarly; rather, each compound has its own response factor relative to its calibration. For this investigation, the PID was calibrated to isobutylene. Hydrocarbon relative response factors for a PID calibrated to isobutylene are published by the manufacturer. The results of this survey are reported in Section 3.3.

2.4 HAND AUGER SOIL SAMPLING

Hand auger soil sampling entails the use of a stainless steel auger head attached to a "T" handle rod tool. The auger head is manually twisted into the soil in order to retrieve discrete samples at desired depths. The advantage of this method derived from its portability which allows sampling in areas with limited access and requires less setup time but also possesses the disadvantage of in that it is limited to efficient sampling depths of approximately five (5) feet below surface grade. Due to the sampling depths required as part of this study hand auger sampling was determined to be the most effective and efficient means of retrieving the soil samples required for this Limited Phase II ESA. The results of this sampling are reported in Section 5.2.

2.5 PROTOCOLS

The protocols used to direct this investigation are based upon the following documents: the New York State Department of Environmental Conservation (NYSDEC), Spill Technology And Remediation Series (STARS) Memo #1 and the NYSDEC, 1994, Technical Administrative Guidance Memorandum, HWR-94-4046,

3.0 UTILITY SURVEY SCOPE AND RESULTS

3.1 GPR SURVEY

A GPR survey was conducted in the area immediately adjacent to the northwest corner of the barn present on the subject property. The purpose of this survey was to locate and/or orientate an underground storage tank reported to be present at the in this area of the site. Survey results did not detect the presence of a tank but did show evidence of disturbed subsurface soils which may have been the result of a former excavation. The location of this area was found immediately north of the barns northwestern corner. No other anomalies were identified which would indicate the presence of a tank.

3.2 DYE TESTING SURVEY

Dye testing was conducted at the discharge point associated with the sump pumps located in the basement of the main house located on the property. Tracer dye tablets were placed in a containment sock that was tied off at the surface and subsequently inserted into the sump pump pits. Water was then continually flushed into the pits which dissolved the tablets, activated the tracer dye and activated the automatic pumps which transferred the dye colored water to its eventual discharge point. Inspection of potential discharge points revealed that the tracer dye was leaching to the ground surface northeast of the main residence and is presumed to discharge to a leaching field at this location. It should be noted that based on an inspection of this area and interviews with residents in the house, this area is frequently saturated which further indicates that a leaching field is present.

3.3 HEADSPACE ANALYSIS SURVEY

Headspace analysis was performed on the soil samples acquired from each of the soil probes installed adjacent to the underground tank to provide precursory data regarding hydrocarbon contamination. Results of the analysis were used to adjust the sampling program to yield the most accurate and representative results. **Table 1** presents the results of the headspace analysis conducted on soil collected from the four (4) hand auger locations installed around the underground tank. The table indicates no significant hydrocarbon soil-vapor levels. However, the soil sample collected from the western side of the tank detected minor soil vapor readings of 2.7 part per million (ppm) from the soils retrieved at the 3 foot to 5 foot interval. As a result, this sample was submitted to the laboratory for analysis.

TABLE 1

HEADSPACE ANALYSIS

Sample ID	North	South	East	West
Unit	ppm	ppm	ppm	ppm
Headspace Results				
(2'-3')	0.0	0.0	0.0	2.7
(3'-5')	0.0	0.0	0.0	0.0

4.0 SAMPLING AND ANALYSIS PROGRAM (SAP)

4.1 HAND AUGER SOIL SAMPLES

Former Location of Underground Tank

Four (4) hand auger sample locations, identified as North, South, East and West were installed on the four (4) sides of the delineated gasoline storage tank area adjacent to the northeast corner of the barn. The four (4) locations were installed in order to collect soil samples which represent the subsurface soil at depths that ranged from two to three (2-3) feet and three to five (3-5) feet below existing grade. A headspace analysis sample was taken for each of the eight (8) soil samples collected (2 per probe location) and the sample with the highest headspace reading was sent to the laboratory and analyzed for the presence of volatile and semi-volatile organic compounds.

Sump Pump Discharge Points

One (1) sample was collected from the sump pump discharge which serviced the southwestern residence. The sample was retrieved from the zero to six (0-6) inch interval immediately at the end of the discharge pipe northwest of the building and analyzed for the presence of semi-volatile organic compounds.

One (1) sample was collected from the leaching field east of the main residence which is the discharge point for the sump pumps in the buildings basement. The sample was retrieved from the one to two (1-2) foot interval from the center of the field and analyzed for the presence of semi-volatile organic compounds.

Bare Soils in Southwest Residence Basement

One (1) soil sample was collected from the zero to six (0-6) inch interval from the bare soils within the hole broken in the concrete floor of the southwest residence basement. The oil burner which formerly serviced the building was located over this area and the sample collected was analyzed for the presence of semi-volatile organic compounds.

4.3 LABORATORY SAMPLE LOCATION AND FREQUENCY

The soil samples collected from the site were containerized and labeled for identification purposes. The label was coded to correspond to the location from which the samples were secured. **Table 2** provides an index of how the samples were coded during labeling.

TABLE 2

SAMPLE IDENTIFICATION

SAMPLE LOCATION	SAMPLE ID CODE
Soil sample collected from gasoline tank excavation	Tank
Soil sample collected from the sump pump discharge servicing the southwestern residence.	SWH-OF
Soil sample collected from the sump pump discharge servicing the main house.	Main-OF
Soil sample collected from bare soil area in the southwest residence	SW-Pit

5.0 LABORATORY ANALYSIS

5.1 ANALYTICAL TEST METHODS

The soil samples were transported to a New York State Certified Commercial Laboratory for analysis. Selection for the analytical test methods for each area of investigation are summarized below:

- The former gasoline underground storage tank sample was analyzed for volatile organic compounds based on USEPA Test Method 8021 (STARS) as well as semi-volatile organic compounds based on USEPA Test Method 8270 (STARS).

- The sump pump discharge samples as well as the bare soil samples in the basement of the southwestern residence were analyzed based on USEPA Test Method 8270 for semi-volatile organic compounds.

5.2 ANALYTICAL RESULTS

Former Location of Underground Storage Tank

Several semi-volatile organic compounds were detected in the sample collected adjacent to the former gasoline tank excavation. Of these compounds detected only fluoranthene, at 232 ug/kg, and benzo-a-pyrene, at 144 ug/kg, were detected above their respective TAGM recommended soil cleanup objectives of 220 ug/kg and 61 ug/kg. In addition, the analysis of the soils did not detect the presence of any volatile organic compounds in the sample collected.

Sump Pump Discharge Points

Neither of the samples collected from the main or southwest sump pump outfall discharge points detected the presence of any semi-volatile organic compounds above their respective TAGM soil cleanup objectives. However, naphthalene was detected in the soils within the leaching field for the main residence at 48 ug/kg which is below the TAGM soil cleanup objective of 13,000 ug/kg. In addition, the following compounds were detected in the soil sample retrieved from the soils at the discharge of the sump pump outfall for the southwest residence:

- pyrene at 63 ug/kg;
- fluoranthene at 65 ug/kg and;
- benzo(b)fluoranthene at 48 ug/kg

All of these compounds were found to be below their respective TAGM recommended cleanup objectives of 50,000 ug/kg, 50,000 ug/kg and 220 ug/kg, respectively.

Bare Soils in Southwest Residence Basement

Several semi-volatile organic compounds were detected in the sample collected from the bare soils in the basement of the southwest residence. Of the compounds detected benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were all found to exceed their respective TAGM recommended soil cleanup objectives. A summary of the sampling results for the soil sample collected in the southwester residence basement is presented in **Table 3**.

TABLE 3

SOIL SAMPLING RESULTS
BARE SOILS WITHIN THE BASEMENT SOUTHWESTERN RESIDENCE
KIRUV PROPERTY, HUNTINGTON

Parameters	TAGM Recommended Soil Cleanup Objective	Results
Semi-Volatile Organics	**(ug/kg)**	
Naphthalene	13,000	240
Anthracene	50,000	1,095
Fluorene	50,000	607
Phenanthrene	50,000	6,416
Pyrene	50,000	8,344
Acenaphthene	50,000	143
Benzo(a)Anthracene	224	**4,000**
Fluoranthene	50,000	9,616
Benzo(b)Fluoranthene	220	**4,806**
Benzo(k)Fluoranthene	220	**1,856**
Chrysene	400	**4,833**
Benzo(a)Pyrene	61	**3,685**
Benzo(g,h,i)Perylene	50,000	2,153
Indeno(1,2,3-cd)Pyrene	3,200	2,382
Dibenzo(a,h)Anthracene	14.3	**652**

Notes: Bold and shaded denotes detection that exceeds TAGM Recommended Soil Cleanup Objective.

6.0 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES (QA/QC)

This sampling protocol was conducted in accordance with USEPA accepted sampling procedures for hazardous waste streams (Municipal Research Laboratory, 1980, Sampling and Sampling Procedures for Hazardous Material Waste Streams, USEPA, Cincinnati, Ohio EPA- 600\280-018) and ASTM Material Sampling Procedures. All samples were collected by or under the auspices of USEPA trained personnel having completed the course Sampling of Hazardous Materials, offered by the Office of Emergency and Remedial Response. Separate QA/QC measures were implemented for each of the instruments used in soil-gas and soil sampling.

Separate QA/QC measures were implemented for each of the instruments used in the Sampling and Analysis Program. Sampling instruments included a stainless steel Geoprobe with probe sections, a stainless steel hand auger, photo ionization detector and sample vessels.

Prior to arrival on the site and between sample locations, the probes sections were decontaminated by washing with a detergent (alconox/liquinox) and potable water solution with distilled water rinse. The organic vapor analyzer was calibrated prior to sampling using a span gas of known concentration. All sample vessels were "level A" certified decontaminated containers. Samples were placed into vessels consistent with the analytical parameters. After acquisition, samples were preserved in the field. All containerized samples were refrigerated to 4° C during transport.

A sample represents physical evidence, therefore, an essential part of liability reduction is the proper control of gathered evidence. To establish proper control, the following sample identification and chain-of-custody procedures were followed.

Sample Identification

Sample identification was executed by use of a sample tag, log book and manifest. Documentation provides the following:

1. Project Code
2. Sample Laboratory Number
3. Sample Preservation
4. Instrument Used for Source Soil Grabs
5. Composite Medium Used for Source Soil Grabs
6. Date Sample was Secured from Source Soil
7. Time Sample was Secured from Source Soil
8. Person Who Secured Sample from Source Soil

Chain-of-Custody Procedures

Due to the evidential nature of samples, possession was traceable from the time the samples were collected until they were received by the testing laboratory. A sample was considered under custody if:

It was in a person's possession, or
It was in a person's view, after being in possession, or
It was in a person's possession and they were to lock it up, or
It is in a designated secure area.

When transferring custody, the individuals relinquishing and receiving signed, dated and noted the time on the Chain-of- Custody Form.

Laboratory Custody Procedures

A designated sample custodian accepted custody of the shipped samples and verified that the information on the sample tags matched that on the Chain-of-Custody records. Pertinent information as to shipment, pick-up, courier, etc. was entered in the "remarks" section. The custodian then entered the sample tag data into a bound logbook which was arranged by project code and station number.

The laboratory custodian used the sample tag number or assigned an unique laboratory number to each sample tag and assured that all samples were transferred to the proper analyst or stored in the appropriate source area.

The custodian distributed samples to the appropriate analysts. Laboratory personnel were responsible for the care and custody of samples from the time they were received until the sample was exhausted or returned to the custodian.

All identifying data sheets and laboratory records were retained as part of the permanent site record. Samples received by the laboratory were retained until after analysis and quality assurance checks were completed.

7.0 SUMMARY AND CONCLUSION

This investigation was completed to address issues raised in a prior Phase I ESA dated December 24, 2004 prepared by Nelson, Pope & Voorhis, LLC. A sampling and analysis program was designed to determine if the any of the target areas studied as part of this investigation have impacted the environmental quality of the subject site. The sampling and analysis plan consisted of a GPR survey as well as soil/sediment quality testing using analytical test methods consistent with expected parameters and agency soil cleanup objectives. The following presents an evaluation of the results of this investigation.

1. The GPR survey conducted in the area of the reported gasoline tank located adjacent to the northeast corner of the barn did not detect the presence of a tank but did show evidence of disturbed subsurface soils which may have been the result of a former excavation. The location of this area was found immediately north of the barns northeastern corner. No other anomalies were identified which would indicate the presence of a tank.

2. Several semi-volatile organic compounds were detected in the sample collected adjacent to the former gasoline tank excavation with fluoranthene, at 232 ug/kg, and benzo-a-pyrene, at 144 ug/kg, being detected above their respective TAGM recommended soil cleanup objectives of 220 ug/kg and 61 ug/kg. As a result a spill should be reported to the NYSDEC and the impacted soils should be excavated and disposed of at an appropriate facility.

3. There were no semi-volatile organic compounds detected in the soils that received discharges from the sump pumps of the main house and southwestern residence which were found to exceed their respective TAGM soil cleanup objectives. As a result, no further work in these areas is recommended as it relates to discharges from these facilities.

4. Several semi-volatile organic compounds were detected in the sample collected from the bare soils in the basement of the southwest residence. Of the compounds detected benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, benzo(a)pyrene and dibenzo(a,h)anthracene were all found to exceed their respective TAGM recommended soil cleanup objectives. As a result, it is recommended that appropriate spill reporting procedures be followed and the soils in this area should be excavated and disposed of at an appropriate facility.

The subject property has been evaluated consistent with the findings of a Phase I ESA, and in accordance with standard practice for the industry. This Phase II ESA addresses only the specific areas of the site warranting further analysis and can only provide conclusions regarding the subsurface soil quality in those specific areas tested. The Phase II ESA report is limited to the evaluation of on-site conditions at the time of completion of the field sampling program.

Date of Completion

Charles J. Voorhis, CEP, AICP
Project Manager

8.0 REFERENCES

New York State Department of Environmental Conservation (NYSDEC), 1992, Sampling Guidelines and Protocols, Technology Background and Quality Control/Quality Assurance for NYSDEC Spill Response Program, NYSDEC, Albany, New York.

NYSDEC, 1994, Technical Administrative Guidance Memorandum, HWR-94-4046, Determination of soil cleanup objectives and cleanup levels, Division of Hazardous Waste Remediation, Albany, New York.

NYSDEC, August 1992, STARS Memo #1 Petroleum-Contaminated Soil Guidance Policy, Division of Construction Management, Bureau of Spill Prevention and Response, Albany, New York

APPENDICES

APPENDIX A

LABORATORY DATA SHEETS

LONG ISLAND ANALYTICAL LABORATORIES INC.

"TOMORROWS ANALYTICAL SOLUTIONS TODAY"

NYSDOH ELAP# 11693
USEPA# NY01273
CTDOH# PH-0284
AIHA# 164456
NJDOH# NY012
PADOH# 68-2943

August 9, 2005

Nelson, Pope & Voorhis
Steven McGinn
572 Walt Whitman Road
Melville, New York 11747

Re: IIRUV Property

Dear Mr. McGinn

Enclosed please find the Laboratory Analysis Report(s) for sample(s) received on July 29, 2005. Long Island Analytical Laboratories analyzed the samples on August 5, 2005 for the following:

CLIENT ID	ANALYSIS
SWH-OF	Stars 8270

Samples received at 8°C.

If you have any questions or require further information, please call at your convenience. Long Island Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

Long Island Analytical Laboratories, Inc.

110 Colin Drive • Holbrook, New York 11741
Phone (631) 472-3400 • Fax (631) 472-8505 • Email: LIAL@lialinc.com

Client: NP & V	Client ID: KIRUV (SWH-OF)
Date received: 7/29/05	Laboratory ID: 1087035
Date extracted: 8/5/05	Matrix: Soil
Date analyzed: 8/5/05	ELAP #: 11693

EPA METHOD 8270 (STARS)

Parameter	CAS No.	MDL	Results ug/kg
Naphthalene	91-20-3	40 ug/kg	<40
Anthracene	120-12-7	40 ug/kg	<40
Fluorene	86-73-7	40 ug/kg	<40
Phenanthrene	85-01-8	40 ug/kg	<40
Pyrene	129-00-0	40 ug/kg	63
Acenaphthene	83-32-9	40 ug/kg	<40
Benzo(a)Anthracene	56-55-3	40 ug/kg	<40
Fluoranthene	206-44-0	40 ug/kg	65
Benzo(b)Fluoranthene	205-99-2	40 ug/kg	48
Benzo(k)fluoranthene	207-08-9	40 ug/kg	<40
Chrysene	218-01-9	40 ug/kg	46
Benzo(a)Pyrene	50-32-8	40 ug/kg	<40
Benzo(g,h,i)Perylene	191-24-2	40 ug/kg	<40
Indeno(1,2,3-cd)Pyrene	193-39-5	40 ug/kg	<40
Dibenzo(a,h)Anthracene	53-70-3	40 ug/kg	<40

MDL = Minimum Detection Limit.

Michael Veraldi

Michael Veraldi-Laboratory Director

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CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

3

0018195

CLIENT NAME/ADDRESS NPHV 572 Walt Whitman Rd. Melville, NY 11747	CONTACT: Eric Arneson PHONE: 427-5665 FAX:	SAMPLER (SIGNATURE): Eric A. DATE 7/29/05 TIME 1500 SAMPLER NAME (PRINT): Eric Aarsen DATE TIME	SAMPLE(S) SEALED: YES / NO (NO circled) CORRECT CONTAINER(S): YES / NO (YES circled)

PROJECT LOCATION: Kirov Property

TERMS & CONDITIONS: Accounts are payable in full within thirty days, outstanding balances accrue service charges of 1.5% per month.

SAMPLES RECEIVED AT 8 °C

ANALYSIS REQUIRED: 8270 SVOCs

LABORATORY ID # (For Laboratory Use Only)	MATRIX	TYPE	PRES.	PH UNITS	RES. CHLORINE PPM	SAMPLE # - LOCATION	8270 SVOCs											# OF CONTAINERS
1. 1087035	S	G	Ice	—	—	SWH-OF	X											2
2.																		
3.																		
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		
11.																		
12.																		
13.																		
14.																		

MATRIX: S=SOIL; SL=SLUDGE; L=LIQUID; DW=DRINKING WATER; A=AIR; W=WIPE; PC=PAINT CHIPS; BM= BULK MATERIAL, O=OIL
TYPE: G=GRAB; C=COMPOSITE; SS=SPLIT SPOON
PRES: ICE, HCL, H_2SO_4, NAOH, $NA_2S_3O_3$

TURNAROUND REQUIRED: ☒ NORMAL ☐ STAT
BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE)	DATE / TIME	PRINTED NAME	RECEIVED BY (SIGNATURE)	DATE / TIME	PRINTED NAME
Eric A.	DATE 1450 TIME 7/29/05	Eric Aarsen	Inica Slugne	DATE 7/29/05 TIME 2:49P	T. Slugne
RELINQUISHED BY (SIGNATURE)	DATE TIME	PRINTED NAME	RECEIVED BY SAMPLE CUSTODIAN: Inica Slugne	DATE 7/29/05 TIME 4:28P	T. Slugne

LONG ISLAND ANALYTICAL LABORATORIES INC.

NYSDOH ELAP# 11693
USEPA# NY01273
CTDOH# PH-0284
AIHA# 164456
NJDOH# NY012
PADOH# 68-2943

"TOMORROWS ANALYTICAL SOLUTIONS TODAY"

August 11, 2005

Nelson, Pope & Voorhis
Steven McGinn
572 Walt Whitman Road
Melville, New York 11747

Re: Kiruv

Dear Mr. McGinn

Enclosed please find the Laboratory Analysis Report(s) for sample(s) received on August 2, 2005. Long Island Analytical Laboratories analyzed the samples on August 6, 2005 for the following:

CLIENT ID	ANALYSIS
Main-OF	Stars 8270
SW-Pit	Stars 8270
Tank	Stars 8021, Stars 8270

Samples received at 20°C.

If you have any questions or require further information, please call at your convenience. Long Island Analytical Laboratories would like to thank you for the opportunity to be of service to you.

Best Regards,

Long Island Analytical Laboratories, Inc.

110 Colin Drive • Holbrook, New York 11741
Phone (631) 472-3400 • Fax (631) 472-8505 • Email: LIAL@lialinc.com

Client: Nelson, Pope & Voorhis	Client ID: Kiruv (Main-OF)
Date received: 8/2/05	Laboratory ID: 1087826
Date extracted:	Matrix: Soil
Date analyzed: 8/5/05	ELAP #: 11693

8/5/05

EPA METHOD 8270 (STARS)

Parameter	CAS No.	MDL	Results ug/kg
Naphthalene	91-20-3	40 ug/kg	48
Anthracene	120-12-7	40 ug/kg	<40
Fluorene	86-73-7	40 ug/kg	<40
Phenanthrene	85-01-8	40 ug/kg	<40
Pyrene	129-00-0	40 ug/kg	<40
Acenaphthene	83-32-9	40 ug/kg	<40
Benzo(a)Anthracene	56-55-3	40 ug/kg	<40
Fluoranthene	206-44-0	40 ug/kg	<40
Benzo(b)Fluoranthene	205-99-2	40 ug/kg	<40
Benzo(k)fluoranthene	207-08-9	40 ug/kg	<40
Chrysene	218-01-9	40 ug/kg	<40
Benzo(a)Pyrene	50-32-8	40 ug/kg	<40
Benzo(g,h,i)Perylene	191-24-2	40 ug/kg	<40
Indeno(1,2,3-cd)Pyrene	193-39-5	40 ug/kg	<40
Dibenzo(a,h)Anthracene	53-70-3	40 ug/kg	<40

MDL = Minimum Detection Limit.

Michael Veraldi

Michael Veraldi-Laboratory Director

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Client: Nelson, Pope & Voorhis	Client ID: Kiruv (SW-Pit)
Date received: 8/2/05	Laboratory ID: 1087827
Date extracted: 8/6/05	Matrix: Soil
Date analyzed: 8/6/05	ELAP #: 11693

EPA METHOD 8270 (STARS)

Parameter	CAS No.	MDL	Results ug/kg
Naphthalene	91-20-3	40 ug/kg	240
Anthracene	120-12-7	40 ug/kg	1,095
Fluorene	86-73-7	40 ug/kg	607
Phenanthrene	85-01-8	40 ug/kg	6,416
Pyrene	129-00-0	40 ug/kg	8,344
Acenaphthene	83-32-9	40 ug/kg	143
Benzo(a)Anthracene	56-55-3	40 ug/kg	4,000
Fluoranthene	206-44-0	40 ug/kg	9,616
Benzo(b)Fluoranthene	205-99-2	40 ug/kg	4,806
Benzo(k)fluoranthene	207-08-9	40 ug/kg	1,856
Chrysene	218-01-9	40 ug/kg	4,833
Benzo(a)Pyrene	50-32-8	40 ug/kg	3,685
Benzo(g,h,i)Perylene	191-24-2	40 ug/kg	2,153
Indeno(1,2,3-cd)Pyrene	193-39-5	40 ug/kg	2,382
Dibenzo(a,h)Anthracene	53-70-3	40 ug/kg	652

MDL = Minimum Detection Limit.

Michael Veraldi

Michael Veraldi-Laboratory Director

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Phone (631) 472-3400 • Fax (631) 472-8505 • Email: LIAL@lialinc.com

Client: Nelson, Pope & Voorhis	Client ID: Kiruv (Tank)
Date received: 8/2/05	Laboratory ID: 1087828
Date extracted: 8/6/05	Matrix: Soil
Date analyzed: 8/6/05	ELAP #: 11693

EPA METHOD 8270 (STARS)

Parameter	CAS No.	MDL	Results ug/kg
Naphthalene	91-20-3	40 ug/kg	<40
Anthracene	120-12-7	40 ug/kg	<40
Fluorene	86-73-7	40 ug/kg	<40
Phenanthrene	85-01-8	40 ug/kg	63
Pyrene	129-00-0	40 ug/kg	229
Acenaphthene	83-32-9	40 ug/kg	<40
Benzo(a)Anthracene	56-55-3	40 ug/kg	144
Fluoranthene	206-44-0	40 ug/kg	232
Benzo(b)Fluoranthene	205-99-2	40 ug/kg	198
Benzo(k)fluoranthene	207-08-9	40 ug/kg	65
Chrysene	218-01-9	40 ug/kg	180
Benzo(a)Pyrene	50-32-8	40 ug/kg	144
Benzo(g,h,i)Perylene	191-24-2	40 ug/kg	100
Indeno(1,2,3-cd)Pyrene	193-39-5	40 ug/kg	111
Dibenzo(a,h)Anthracene	53-70-3	40 ug/kg	<40

MDL = Minimum Detection Limit.

Michael Veraldi

Michael Veraldi-Laboratory Director

Client: Nelson, Pope & Voorhis	Client ID: Kiruv (Tank)
Date received: 8/2/05	Laboratory ID: 1087828
Date extracted: 8/3/05	Matrix: Soil
Date analyzed: 8/3/05	ELAP #: 11693

EPA METHOD 8021 (STARS)

Parameter	CAS No.	MDL	Results ug/kg
MTBE	1634-04-4	5 ug/kg	<5
Benzene	71-43-2	5 ug/kg	<5
n-Butylbenzene	104-51-8	5 ug/kg	<5
sec-Butylbenzene	135-98-7	5 ug/kg	<5
tert-Butylbenzene	98-06-8	5 ug/kg	<5
Isopropylbezene	98-82-8	5 ug/kg	<5
p-Isopropyltoluene	99-87-6	5 ug/kg	<5
n-Propylbenzene	103-65-1	5 ug/kg	<5
Ethylbenzene	100-41-4	5 ug/kg	<5
Naphthalene	91-20-3	5 ug/kg	<5
Toluene	108-88-3	5 ug/kg	<5
1,2,4-Trimethylbenzene	95-63-6	5 ug/kg	<5
1,3,5-Trimethylbenzene	108-67-8	5 ug/kg	<5
p & m-Xylene	1330-20-7	10 ug/kg	<10
o-Xylene	1330-20-7	5 ug/kg	<5

MDL = Minimum Detection Limit.

Michael Veraldi

Michael Veraldi-Laboratory Director

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"TOMORROWS ANALYTICAL SOLUTIONS TODAY" Phone (631) 472-3400 • Fax (631) 472-8505 • Email: LIAL@lialinc.com

LONG ISLAND ANALYTICAL LABORATORIES INC.

"TOMORROWS ANALYTICAL SOLUTIONS TODAY"

110 Colin Drive • Holbrook, New York 11741 • Phone (631) 472-3400 • Fax (631) 472-8505 • Email: LIAL@lialinc.com

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS DOCUMENT

5

0018353

0018353

CLIENT NAME/ADDRESS: NPV, 572 WALT WHITMAN RD. MELVILLE NY 11747	CONTACT: Eric Arnesen PHONE: 427-5665 FAX:	SAMPLER (SIGNATURE): Eric C. DATE: 8/2/05 TIME: 1615 SAMPLER NAME (PRINT): DATE: TIME: 7:00A	SAMPLE(S) SEALED: YES / NO (NO circled) CORRECT CONTAINER(S): YES / NO (YES circled)
PROJECT LOCATION: KIRUV		SAMPLES RECEIVED AT: 20 °C	

TERMS & CONDITIONS: Accounts are payable in full within thirty days, outstanding balances accrue service charges of 1.5% per month.

ANALYSIS REQUIRED

LABORATORY ID # (For Laboratory Use Only)	MATRIX	TYPE	PRES.	PH UNITS	RES. CHLORINE PPM	SAMPLE # - LOCATION	8270 STARS	8021 STARS	# OF CONTAINERS
1. 1087826	S	G	ICE	—	—	MAIN - OF	X		2
2. 1087827	S	G	↓	↓	↓	SW-PIT	X		2
3. 1087828	S	C	↓	↓	↓	TANK	X	X	2
4.									
5.									
6.									
7.									
8.									
9.									
10.									
11.									
12.									
13.						Flag "H"			
14.						put in fridge 8/2/05 @ 5:21P			

MATRIX: S=SOIL; SL=SLUDGE; L=LIQUID; DW=DRINKING WATER; A=AIR; W=WIPE; PC=PAINT CHIPS; BM= BULK MATERIAL, O=OIL

TYPE: G=GRAB; C=COMPOSITE; SS=SPLIT SPOON

PRES: ICE, HCL, H_2SO_4, NAOH, $NA_2S_2O_3$

TURNAROUND REQUIRED: ☒ NORMAL ☐ STAT

BY / /

COMMENTS / INSTRUCTIONS

RELINQUISHED BY (SIGNATURE): Eric C.	DATE 8/2/05 TIME 1615	PRINTED NAME: Eric Arnesen	RECEIVED BY (SIGNATURE): Tricia Suglia	DATE 8/2/05 TIME 4:30P	PRINTED NAME: T. Suglia
RELINQUISHED BY (SIGNATURE)	DATE TIME	PRINTED NAME	RECEIVED BY SAMPLE CUSTODIAN: Tricia Suglia	DATE 8/2/05 TIME 5:21P	PRINTED NAME: T. Suglia