

**REGIONAL GROUND-WATER STUDY  
TOWN OF HAMPTONBURGH  
ORANGE COUNTY, NEW YORK**

Prepared for  
Orange County Water Authority  
June 1994

Lanc & Tully Engineering and Surveying, P.C.  
P.O. Box 687 - Route 207  
Goshen, New York 10924

## TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY .....	HB-1
INTRODUCTION .....	HB-1
EXISTING WATER SUPPLY SYSTEM .....	HB-1
Rural Ridge .....	HB-1
Well Supply in Service .....	HB-1
Well Supply Not in Service .....	HB-1
PROPOSED COMMUNITY WATER- SUPPLY SYSTEMS .....	HB-1
WATER SUPPLY DEMAND .....	HB-2
Rural Ridge Water District .....	HB-2
Projected Water Demands .....	HB-2
Non-Community Water Systems .....	HB-2
GEOLOGY .....	HB-2
Sand and Gravel Aquifer .....	HB-2
Bedrock Aquifer .....	HB-2
LAND USE .....	HB-2
WATER QUALITY .....	HB-2
INVENTORY OF GROUND-WATER CONTAMINATION PROBLEMS .....	HB-3
Existing Ground-Water Contamination Problems .....	HB-3
Potential Ground-Water Contamination Problems .....	HB-3
Registered Inactive Hazardous Waste Disposal Sites .....	HB-3
Town Highway Salt Storage .....	HB-3
Petroleum Bulk Storage Facilities .....	HB-3
CONCLUSIONS .....	HB-3
REFERENCES .....	HB-4

## LIST OF TABLES

### Table

- 1 Summary of Available Well Data
- 2 Summary of Well Yield Capacities
- 3 Summary of Water - Supply Source
- 4 Projected Water Demands - 1993-2020
- 5 Petroleum Bulk Storage Facilities

### MAP

Groundwater Inventory Map ("GIM")

## **REGIONAL GROUND-WATER STUDY TOWN OF HAMPTONBURGH ORANGE COUNTY, NEW YORK**

### **EXECUTIVE SUMMARY**

The Town of Hamptonburgh is a small sized Town located in central Orange County. Town-wide population, according to the 1990 census was estimated at 3,910. The Town has no incorporated Villages or Cities, and predominantly consists of individual residential units and farmland. Within the Town, one subdivision named Rural Ridge, is serviced by a water district and services approximately 85 residential units. This development is at its "build-out" level, and no further expansion of the water district is proposed. The Rural Ridge Water District is serviced by four bedrock wells with a combined maximum yield capacity of approximately 0.10 mgd.

Growth of the Town over the last several years has been lower than other portions of Orange County, with most growth geared toward larger individual lots rather than "cluster units". Under current maximum zoning approximately 6,500 dwelling units could be developed, which would equate to approximately 2.4 mgd of water supply demand. However, it is anticipated that this growth will occur very gradually over a long period of time and that in the near future new development will rely primarily on individual water and subsurface septic systems.

Review of existing geologic data indicates that only one sand and gravel deposit capable of water production exists within the Town. This site is currently utilized by the Village of Maybrook, located within the Town of Montgomery, for its water supply.

All other wells within the Town are deep bedrock wells with a reported yield range from less than 2 gpm up to greater than 120 gpm.

### **INTRODUCTION**

The Orange County Water Authority retained Lane & Tully Engineering and Surveying, P.C. to conduct a regional ground-water study for the Town of Hamptonburgh. The emphasis of this investigation was to:

- ! inventory existing and proposed municipal and community water supplies within the Town;
- ! determine the adequacy of existing and proposed water supplies and their ability to meet present and future demands;
- ! review zoning and land use; and
- ! review existing and potential ground-water contamination problems within the Town, which may affect existing and proposed water supplies.

The Town of Hamptonburgh municipal system consists of one Water District called Rural Ridge. There are no Villages or Cities within the Town limits. The Town has no plans on developing further community water systems, and will rely on individual well systems.

### **EXISTING WATER SUPPLY SYSTEM**

#### **Rural Ridge**

Rural Ridge Water System consists of an 85 units subdivision located off of Sarah Wells Trail. It was first constructed in the early 70s and was taken over by the Town of Hamptonburgh in 1978.

#### **Well Supply in Service**

Rural Ridge Water District currently operates 4 production wells located within a bedrock formation (NYSDEC, 1993). The locations of these wells are shown on the Groundwater Inventory Map ("GIM"), Wells HB-1, HB-2, HB-3, HB-4 and HB-5. The present well-yield capacities and available well data are presented on Tables 1 and 2.

#### **Well Supply Not in Service**

Well 3 (GIM, Well HB-3) is a bedrock well which was abandoned in 1985 due to a reduction in quantity and location with respect to Wells 1 and 2. Detailed well data are presented on Tables 1 and 2 (Lavorgna, 1993).

### **PROPOSED COMMUNITY WATER-SUPPLY SYSTEMS**

At this time there is no proposed community water supply systems in the Town of Hamptonburgh. However, in 1978 the developer of Otterkill Estates subdivision proposed a water district. Data indicated the bedrock yields over 50 gpm (gallons per minute) at a depth of approximately 300 feet. However, due to monetary constraints caused by a downturn in the economy the applicant chose to install individual well and septic systems (Eustance & Horowitz, 1978).

### **WATER SUPPLY DEMAND**

#### **Rural Ridge Water District**

The present supply meets the 1993 average daily water demand of 0.017 mgd (million gallons per day) and the 1993 maximum daily water demand of 0.022 mgd (peak historic summer demand) with the four existing bedrock wells in service (OCDOH, 1993).

The average maximum yield capacities at the four existing wells in service are estimated to be approximately 0.10 mgd (Table 3). The Water District relies heavily on Wells 2 and 5 (GIM, Wells HB-2 and HB-5). Due to well interference, draw-down of the wells during drought conditions, the maximum yield capacity is not recommended for any extended time period. Therefore the Town, in order to increase the potential yields from the wells supply, is currently pursuing several options, and anticipates having rehabilitation completed on Well 4 (GIM, Well HB-4) by the Spring of 1994.

#### **Projected Water Demands**

Table 4 indicates that the existing Rural Ridge Water District wells have an estimated maximum yield capacity of 0.10 mgd. The projected water demand for this water district for the year 2020 indicates no increase from present day demand, as the subdivision is currently built-out and no growth is anticipated. The Town of Hamptonburgh currently plans no water district formations or development of a Town water system. Any new water district would be formed due to development by private parties. If current zoning is extended to the year 2020 with the maximum build-out, it is estimated that approximately 2.4 mgd would be required. However, it is highly improbable that the Town would ever be required to deliver 2.4 mgd, as current planning policy dictates the installation of individual water systems.

#### **Non-Community Water Systems**

Review of Orange County Department of Health (OCDOH, 1993) records along with Planning Board site plan files indicates several Non-Community Water Systems (NCWS) are capable of producing greater than 50,000 gpd. These include the following:

- ! Orange County Ski Lodge: Bedrock well tested at greater than 50 gpm (GIM, Well HB-7).
- ! Clover Knoll Farms: Bedrock well estimated at greater than 120 gpm (GIM, Well HB-6).

All other NCWS systems within the Town of Hamptonburgh on record produce approximately 5-10 gpm and are deep bedrock wells (OCDOH, 1993).

Lanc & Tully Engineering and Surveying P.C. reviewed existing known ground-water contamination sites, including New York State Department of Environmental Conservation (NYSDEC) inactive hazardous waste sites, remediation project (NYSDEC Spill Response), solid waste sites, and Resource Conservation and Recovery Act (RCRA) sites for the Town of Hamptonburgh. The information was provided by Lawler, Matusky and Skelly Engineers (LMS, 1993) and gathered from a Freedom of Information Law (FOIL) request from the NYSDEC. The FOIL requested from the NYSDEC did not inventory any sites which are known to have contaminated ground water in the Town of Hamptonburgh.

## **GEOLOGY**

### **Sand and Gravel Aquifer**

Within the Town of Hamptonburgh there exists one sand and gravel aquifer (GIM, Well MG-9, MG-10, MG-11, MG-12). This aquifer is currently supplying water to the Village of Maybrook, within the Town of Montgomery. For further information, please refer to the "Regional Ground-Water Study, Town of Montgomery" as prepared by Eustance & Horowitz, P.C. for the Orange County Water Authority.

### **Bedrock Aquifer**

The Town of Hamptonburgh and most of the region surrounding the Town is underlain by what was originally listed as the Martinsburgh Formation. This Formation consists of grey-to-black shales, and argillites with silty lamination. Overlying this formation for most of the Town is glacial till, which was deposited in the last glacial event occurring in the Pleistocene Epoch (Fisher, 1970).

## **LAND USE**

The majority of the Town of Hamptonburgh consists of residential properties and vacant agricultural land. High Density Residential, along with some commercial sites, occurs within the Hamlet of Campbell Hall. Commercial and Industrial sites are spaced within The Town of Hamptonburgh, however, the majority of these sites occur along New York State Routes 207 and 208 (Space Track, 1993). If the Town were to ever pursue additional water sources, the Town should recognize that potential contamination sources may exist along these two State Route corridors.

## **WATER QUALITY**

Water developed from the Rural Ridge Water District, on the whole, is quite good. They require no treatment other than chlorination, however many other smaller producing bedrock wells throughout the Town have high levels of iron and manganese and require some further type of treatment for removal of these components (Lanc & Tully, 1993).

## **INVENTORY OF GROUND-WATER CONTAMINATION PROBLEMS**

### **Existing Ground-Water Contamination Problems**

### **Potential Ground-Water Contamination Problems**

Information about potential ground-water contamination sites was obtained from:

- ! FOIL request to NYSDEC (LMS, 1993); and
- ! Land use data from the Orange County, New York Real Property Tax Assessment data base (Space Track, 1993).

The following summarizes the potential ground-water contamination sites, including the NYSDEC's potential inactive hazardous waste sites and solid waste facility from the FOIL request from the NYSDEC. In addition, a list of possible ground-water contamination sites has been developed by Lanc & Tully Engineering and Surveying, P.C. in conjunction with Town personnel.

### **Registered Inactive Hazardous Waste Disposal Sites**

Nepera, Inc., Maybrook, New York, site is located off of Neelytown Road, Orange County Route 4, in the Town of Hamptonburgh (LMS, 1993).

### **Town Highway Salt Storage**

Town Highway Department Salt Storage location, the salt storage areas on Egbertson Road and is currently covered, however, prior to this, there were some concerns raised by adjoining homeowners relative to well water degradation (Lavorgna, 1993).

Each property in Orange County has a land use code number. Properties with land use code numbers associated with potential contamination of ground water were identified through analysis of the Real Property Tax Assessment data base by Space Track, Inc. The types of land uses in the potential contamination category include:

- ! industrial facilities;
- ! gas stations;
- ! dry cleaners, and
- ! auto repair facilities.

Where possible, approximate locations of these sites are shown as triangles on the GIM.

### **Petroleum Bulk Storage Facilities**

The FOIL request from the New York State Department of Environmental Conservation inventoried the petroleum bulk storage facilities presented on Table 5.

These sites should be listed as potential ground-water contamination sites.

However, further investigation would be required to determine if contamination exists at the respective locations.

### CONCLUSIONS

Growth of the Town over the last several years has been lower than other portions of Orange County, with most growth geared toward larger individual lots rather than "cluster units". Under current maximum zoning approximately 6,500 dwelling units could be developed, which would equate to approximately 2.4 mgd of water supply demand. However, it is anticipated that this growth will occur very gradually over a long period of time and that in the near future new development will rely primarily on individual water and subsurface septic systems.

Review of existing geologic data indicates that only one sand and gravel deposit capable of water production exists within the Town. This site is currently utilized by the Village of Maybrook, located within the Town of Montgomery, for its water supply.

All other wells within the Town are deep bedrock wells with a reported yield range from less than 2 gpm up to greater than 120 gpm.

### REFERENCES

Fisher, Donald, Y.W. Isachsen and L.V. Rickard, 1970, "Geologic Map of New York, Lower Hudson Sheet", New York State Museum and Science Service Map and Chart Series No. 15.

Frimpter, Michael H., 1972, Ground Water Resources of Orange and Ulster Counties, New York, U.S. Geological Survey Water Supply Paper 1985.

Lawler, Matusky & Skelly Engineers, October 1993, "Environmental Data Gathering for Community Consultants, Town of Hamptonburgh".

New York State Department of Environmental Conservation: Public Water Supply Program, Town of Hamptonburgh.

Orange County Department of Health: Environmental Health Water Programming "Short Form Inventory Report for Town of Hamptonburgh", 1993.

Lanc & Tully Engineering and Surveying, P.C., "In-House Files", 1993.

Eustance and Horowitz, P.C., "Otterkill Estates - Well Driller's Log", 1978.

Mr. Philip Lavorgna, Water Operator Rural Ridge Water District, Personnel Communications, 1993.

Mr. Philip Lavorgna, Town Highway Superintendent, Town of Mount Hope, Personnel Communications, 1993.

Space Track, Inc., 1993, "Orange County Landuse Maps."

**TABLE 1**  
**REGIONAL GROUND WATER STUDY**  
**TOWN OF HAMPTONBURGH**  
**ORANGE COUNTY, NEW YORK**

**Summary of Available Well Data**

<b>Well</b> ----- <b>Water District</b>	<b>Tax Map Municipality Section</b> -- <b>Block</b> -- <b>Lot</b>	<b>Map Location</b> ----- <b>I.D. #</b>	<b>Well Status</b>	<b>Reported Yield (gpm)</b> <b>Original</b> ----- <b>Present</b>	<b>Depth of Well (feet)</b>	<b>Well Diameter (inches)</b>	<b>Length of Casing (feet)</b>	<b>Well Screen Length (feet)</b> ----- <b>Setting Interval (feet)</b>	<b>Aquifer</b>	<b>Date Drilled</b>	<b>Comments</b>
Well 1 ----- Rural Ridge	Hamptonburgh 13 -- 1 -- 85.3	Hamptonburgh ----- 1	In Service ----- Active	25 ----- 6	355	6	Unknown	NA ----- NA	Bedrock	1972	
Well 2 ----- Rural Ridge	Hamptonburgh 13 -- 1 -- 85.3	Hamptonburgh ----- 2	In Service ----- Active	10 ----- 10	350	6	Unknown	NA ----- NA	Bedrock	1972	
Well 3 ----- Rural Ridge	Hamptonburgh 13 -- 1 -- 85.3	Hamptonburgh ----- 3	Inactive ----- Equipped	10 ----- 5	350	6	Unknown	NA ----- NA	Bedrock	1978	Used to fill community swimming pool only
Well 4 ----- Rural Ridge	Hamptonburgh 13 -- 1 -- 85.24	Hamptonburgh ----- 4	In Service ----- Active	15 ----- 5	352	6	22	NA ----- NA	Bedrock	1982	

**TABLE 1**

**REGIONAL GROUND WATER STUDY  
TOWN OF HAMPTONBURGH  
ORANGE COUNTY, NEW YORK**

**Summary of Available Well Data**

<b>Well ----- Water District</b>	<b>Tax Map Municipality Section -- Block ---- Lot</b>	<b>Map Location ----- I.D. #</b>	<b>Well Sta- tus</b>	<b>Reported Yield (gpm) Original ----- Present</b>	<b>Depth of Well (feet)</b>	<b>Well Diameter (inches)</b>	<b>Length of Casing (feet)</b>	<b>Well Screen Length (feet) ----- Setting Interval (feet)</b>	<b>Aquifer</b>	<b>Date Drilled</b>	<b>Comments</b>
Well 5 ----- Rural Ridge	Hamptonburgh 13 -- 1 -- 161	Hamptonburgh ----- 5	In Service ----- Active	50 ----- 50	355	6	26	NA ----- NA	Bedrock	1985	Best well in service

gpm - Gallons per minute. Well Status:  
 NA - Not available. In service - active  
           In service - stand by  
           Inactive - equipped  
           Inactive - not equipped  
           Abandoned

**TABLE 2**  
**REGIONAL GROUND WATER STUDY**  
**TOWN OF HAMPTONBURGH**  
**ORANGE COUNTY, NEW YORK**

-----  
**Summary of Well Yield Capacities**  
**Consolidated Water District**

Well ----- Water District	WSA No. ----- Permitted Yield (gpm)	Average Yield Capacity (gpm) ----- (gpd)	Maximum Yield Capacity (gpm) ----- (gpd)	Comments
Well 1 ----- Rural Ridge	5462 ----- NA	0 ----- 0	6 ----- 8,640	Used as auxillary well
Well 2 ----- Rural Ridge	5462 ----- NA	3 ----- 3,823	10 ----- 14,400	
Well 3 ----- Rural Ridge	6872 ----- NA	NA ----- NA	NA ----- NA	Not in service
Well 4 ----- Rural Ridge	7286 ----- NA	0 ----- 0	5 ----- 7,200	Used as auxillary well
Well 5 ----- Rural Ridge	7628 ----- NA	9 ----- 13,140	50 ----- 72,000	Best well in service
<b>TOTALS</b>	<b>(Total Permitted Yield)</b>  <b>100* gpm</b>	<b>(Total Yield Capacity)</b>  <b>12</b> ----- <b>16,963</b>	<b>(Total Maximum Yield Capacity)</b>  <b>71</b> ----- <b>102,240</b>	

gpm - Gallons per minute.  
gpd - Gallons per day.

WSA No. - Water Supply Application Number.  
\* Maximum withdrawal permitted for all wells



NA - Not available

**TABLE 4**  
**REGIONAL GROUND WATER STUDY**  
**TOWN OF HAMPTONBURGH**  
**ORANGE COUNTY, NEW YORK**

**Project Water Demand**  
**1993 - 2020**  
**(mgd)**

<b>Water District</b>	<b>Current Maximum Yield Capacity (mgd)</b>	<b>Current and Proposed* Maximum Yield Capacity (mgd)</b>	<b>1993 Projected Water Demand ----- Water-Supply Adequacy**</b>	<b>2000 Projected Water Demand ----- Water-Supply Adequacy**</b>	<b>2010 Projected Water Demand ----- Water-Supply Adequacy**</b>	<b>2020 Projected Water Demand ----- Water-Supply Adequacy**</b>
Rural Ridge	0.10	0.10	0.095 ----- + .005**	0.095 ----- + .005**	0.095 ----- + .005**	0.095 ----- + .005**
<b>TOTAL</b>	0.10	0.10	0.095 ----- + .005**	0.095 ----- + .005**	0.095 ----- + .005**	0.095 ----- + .005**

mgd - Million gallons per day.

\* Combined yield capacity of both current and proposed water supply(s).

\*\* Calculated by current maximum yield minus projected water demands.

**COMMENTS:**

! Review of current Town Zoning and currently proposed development before the Planning Board indicates no formation of any additional water systems (other than individual), within the Town of Hamptonburgh.

! Subdivision is built out -- no further expansion is permitted, therefore, no increase in water demand is anticipated.

**TABLE 3**  
**REGIONAL GROUND WATER STUDY**  
**TOWN OF HAMPTONBURGH**  
**ORANGE COUNTY, NEW YORK**

-----  
**Summary of Water-Supply Source**

The Town of Hamptonburgh has one water district which utilizes four existing low yielding bedrock wells to meet the demands of Rural Ridge.

**Existing Source**

	<b>Water District</b>	<b>Ground Water (mgd)</b>
Current Average Daily Water Demand	Rural Ridge	0.017
Current Maximum Daily Water Demand	Rural Ridge	0.022
Maximum Yield Capacity	Rural Ridge	0.10
Average Yield Capacity	Rural Ridge	0.017
<b>Proposed Sources (Average Day)</b>	Rural Ridge	0
<b>TOTAL MAXIMUM YIELD CAPACITY (MGD) =</b> -----		0.10
<b>CURRENT MAXIMUM DAILY USE (MGD) =</b>		----- 0.022

mgd - Million gallons per day.

**COMMENTS**

- ! Rural Ridge Water District can presently meet average and maximum daily water demands from the maximum yield capacity of the wells. However, rehabilitation to existing wells supply(s) are presently being considered to ensure adequate supply if Well #5 had to be taken off line. Due to well interference, draw-down of the wells during drought conditions, the maximum yield capacity is not recommend for any extended time period.

**TABLE 5**

**REGIONAL GROUND WATER STUDY  
TOWN OF HAMPTONBURGH  
ORANGE COUNTY, NEW YORK**

**Petroleum Bulk Storage Facilities**

<b>Facility</b>	<b>LOCATION</b>	<b>MUNICIPALITY</b>
Borden's Deli	Route 207 - 208	Campbell Hall
Campbell Hall Health Care Facility	Ridge Road	Campbell Hall
Crist Bros. Orchards, Inc.	Ridge Road	Campbell Hall
Joe's Country Convenience Store	Route 207	Campbell Hall
Ottaway Newspaper, Inc.	Box 401 - Route 416	Campbell Hall
Town of Hamptonburgh - Highway	Egbertson Road	Campbell Hall