

#1

We, the undersigned members of the Raymond Planning Board, hereby certify that:

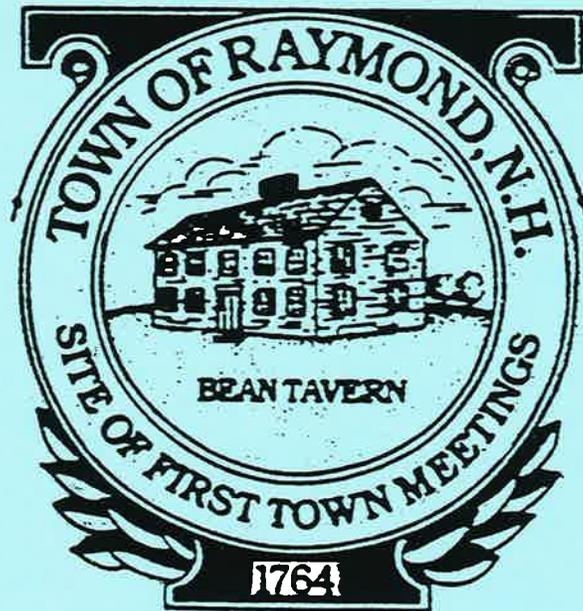
1. In accordance with the provisions of NH RSA 675:6,I, a duly noticed public hearing was conducted by the Planning Board on Thursday, January 13, 1994;
2. The purpose of said public hearing was to consider a proposed amendment to the February 1989 "Master Plan Town of Raymond;"
3. Said amendment was the addition of the "Water Resource Management and Protection Plan, Town of Raymond, New Hampshire" dated March 1993 as an element of the Conservation and Preservation chapter of the Master Plan; and
4. Following the completion of said public hearing, and in accordance with the provisions of NH RSA 675:6,II, the proposed amendment was formally adopted by the affirmative vote of a majority of the membership of the Planning Board.

Samuel J. Dwyer
Craig B. Lapham
Deon E. White
Carolyn M. Beath
[Signature]

Date of filing with the Office of the Town Clerk JANUARY 14, 1994

Received by: *Gloria E. Carney*
 Town Clerk
 GLORIA E. CARNEY

WATER RESOURCE MANAGEMENT AND PROTECTION PLAN



**TOWN OF
RAYMOND, NH**



REC. JED NOV 18 1993 # 1

OFFICE OF STATE PLANNING
STATE OF NEW HAMPSHIRE
2½ BEACON STREET — CONCORD 03301
TELEPHONE: 603-271-2155
FAX: 603-271-1728

November 15, 1993

Diane White, Chairman
Raymond Planning Board
Town Office Building
Raymond, NH 03077

Dear Ms. White:

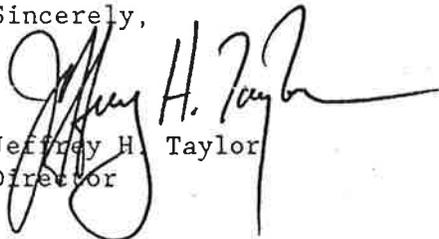
Re: Consistency Finding: Town of Raymond Water Resources Management and Protection Plan

On June 14, 1993, the Office of State Planning received your request for a consistency review of the Town of Raymond's Water Resources Management and Protection Plan, under the provisions of NH Code of Administrative Rules, Part Section Pln 603.01 (a).

This is to advise you, based upon the completed review by the Office of State Planning, that the proposed Water Resources Management and Protection Plan, is consistent with the requirements of the NH Code of Administrative Rules Chapters 400 and 500.

The cooperative efforts of James Tethers, Chief Planner at Southern New Hampshire Planning Commission were very helpful in enabling OSP to successfully complete the review process. If you have any questions regarding this matter, please do not hesitate to contact either Francesca Latawiec Dupee or me at 271-2155.

Sincerely,



Jeffrey H. Taylor
Director

JHT:FLD

cc: Edward C. Varney, Chairman - Raymond Board of Selectmen
Manindra N. Sharma, Executive Director - Southern New Hampshire
Planning Commission
Gloria Carney, Raymond Town Clerk
Francesca Latawiec Dupee, OSP
Municipal and Regional Technical Assistance,OSP

#1

WATER RESOURCE MANAGEMENT AND PROTECTION PLAN
TOWN OF RAYMOND, NEW HAMPSHIRE

Prepared for the
PLANNING BOARD

by the
SOUTHERN NEW HAMPSHIRE PLANNING COMMISSION

March 1993

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INTRODUCTION

This Plan addresses the requirements established by the New Hampshire Office of State Planning under the authority of RSA 4-C:20, I for the preparation of local water resource management and protection plans.

The purposes of this Plan are to identify and, to the extent possible, to evaluate the adequacy of existing and potential water resources to meet the current and future needs of the Town; to identify existing and potential threats to surface and groundwater supplies; and to identify regulatory and non-regulatory programs that could further enhance water resource management and protection efforts.

When it was available, all pertinent data that could be readily obtained from the New Hampshire Department of Environmental Services was used as required by the Rules for Local Water Resource Management and Protection Plans. In addition to, or in lieu of explicit source data cited in the Rules, local and regional plans, local inventories, etc. were also used whenever such data was considered to be at least as accurate as, or better than, that cited in the Rules.

DESCRIPTION OF SURFACE WATER RESOURCES

The following maps, documents and/or publications were used to help develop watershed information:

- * Dam locations map prepared by the Water Resources Division, New Hampshire Department of Environmental Services, (July 1989);
- * Dam information inventory compiled by the Water Resources Division, New Hampshire Department of Environmental Services, (June 1, 1988);
- * U.S. Geological Survey topographic map Mt. Pawtuckaway, N.H. Quadrangle, 1981 at the scale of 1" = 2,000';
- * U.S. Geological Survey topographic map Sandown, N.H. Quadrangle, 1981 at the scale of 1" = 2,000';
- * U.S. Geological Survey topographic map Derry, N.H. Quadrangle, 1985 at the scale of 1" = 2,000';
- * U.S. Geological Survey topographic map Candia, N.H. Quadrangle, 1969 at the scale of 1" = 2,000";
- * U.S. Department of Agriculture, Soil Conservation Service soil map at the scale of 1" = 2,000' contained in the November 1982 report "Soils Information for Resource Planning, Raymond, New Hampshire";

- * Flood Insurance Rate Maps at the scale of 1" = 1,000' contained in the "Flood Insurance Study Town of Raymond, New Hampshire Rockingham County," Federal Emergency Management Agency, October 1990.

Watershed boundaries, watershed areas (in acres), perennial stream system elevations and lengths (in linear feet), and pond surface areas (in acres) were identified from the U.S. Geological Survey topographic maps identified above.

The acreage of the poorly drained and the very poorly drained soils was calculated by the Southern New Hampshire Planning Commission's Geographic Information System (GIS) from the Soil Conservation Service map.

The acreage of the flood hazard areas was also calculated by the GIS from the 1,000'-scale Flood Insurance Rate Maps.

Watersheds and Those Within Municipal Boundaries

Approximately the northerly two-thirds of the Town of Raymond lies within the Lamprey River basin. The southerly third is within the Exeter River basin. All or portions of thirteen watersheds, within these two basins, lie within Raymond's municipal boundaries. These basins and watersheds are noted below and are identified on map 1.

1. Flint Hill
2. Pawtuckaway River
3. Dudley Brook
4. Robinson Hill
5. Lamprey River "A"
6. North Branch "A"
7. North Branch "B"
8. Onway Lake
- ** 9. Fordway Brook
10. Lamprey River "B"
- ** 11. Little Rattlesnake Hill
- ** 12. Exeter River
- ** 13. Wason Brook

** lies within the Exeter River Basin; all others lie within the Lamprey River Basin

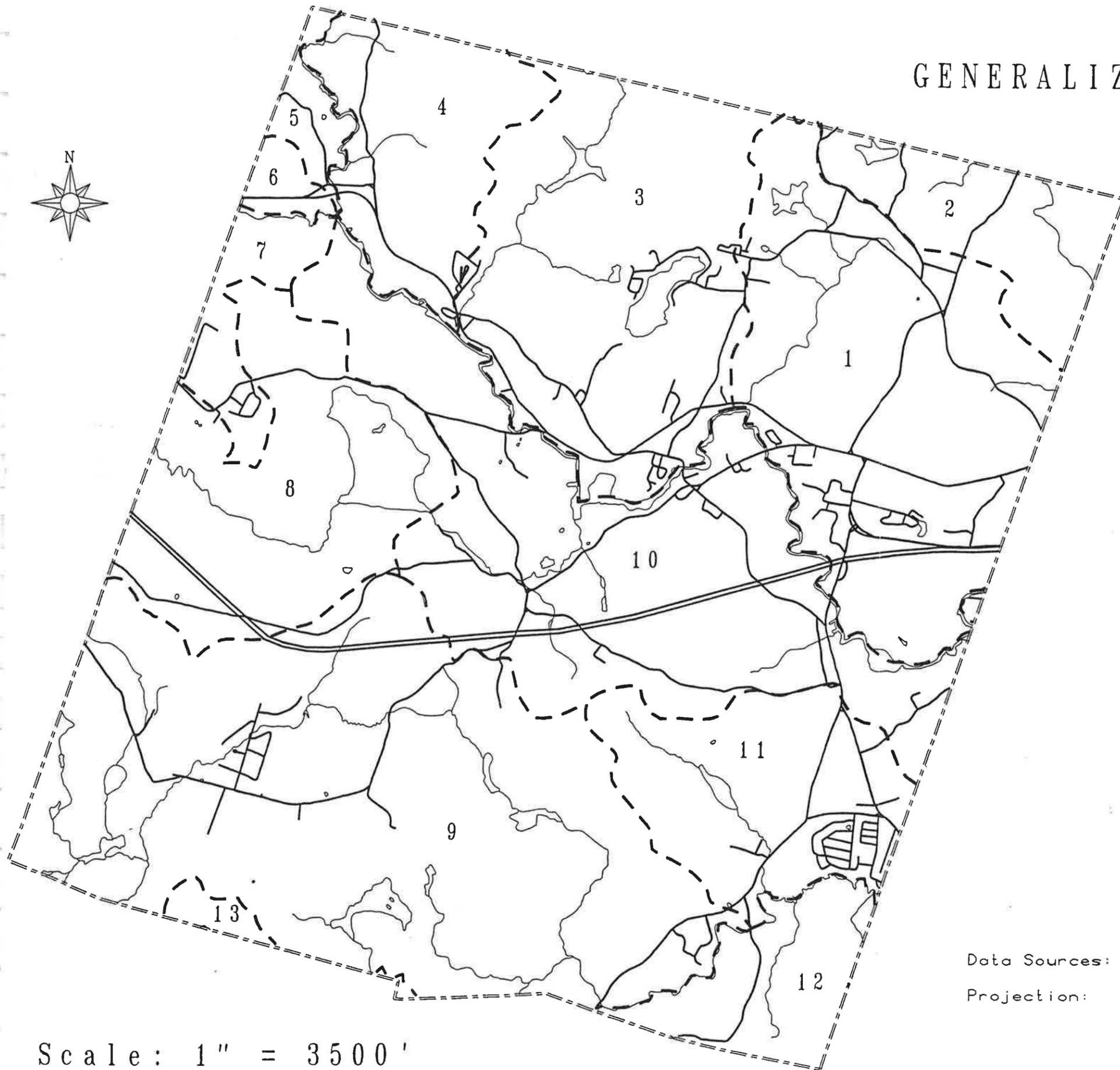
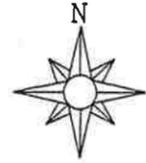
A Raymond area map showing the approximate locations of these watersheds in the Town and in the surrounding communities, along with a table identifying the approximate acreage of each in the respective communities, appears in Appendix I.

Surface Waters

Numerous perennial streams and nineteen (19) lakes/ponds of various sizes ranging from approximately one to one hundred and eighty acres, some named and others unnamed, have been identified

MAP 1

GENERALIZED WATERSHED BOUNDARIES



LEGEND

-  LAKES, PONDS & RIVERS
-  ALL ROADS
-  WATERSHED BOUNDARIES
-  WATERSHED NUMBER

Data Sources: 1:24000 Roads, Water and Watershed Boundaries
by SNHPC, from USGS quad sheets.
Projection: Stateplane Feet

Scale: 1" = 3500'



within the Town. Numerous other ponds of less than an acre in size are known to exist at scattered locations throughout the community, but these have not been cataloged for purposes of this study. Among the largest surface water bodies in Raymond are Onway Lake (179 acres) and Governors Lake (61 acres). See Appendix II for a generalized map of the locations and a table of the approximate sizes of these surface waters.

The various characteristics of the Raymond portion of each of the watersheds, including total acreage, the number and size of surface water bodies, the perennial stream systems and any impoundments thereon, and the current legislative classifications of the surface waters are all described in the following pages. All figures relative to size, length and elevation are approximations. The numbers assigned to each watershed in the following descriptions correspond to their respective locations as identified on Map 1. Similarly, the numbers associated with each stream or stream segment described in the text correspond to those used to identify their respective locations as they are shown on the Perennial Stream Systems map (Map 2).

1. Flint Hill Watershed

- * The total area within Raymond is 2,600 acres. Other portions lie within the towns of Nottingham and Epping.
- * Two unnamed ponds, one having a surface area of fifteen acres, and the other a surface area of three acres, have been identified in the Raymond portion of this watershed. One lies to the west of Peverer Road. The other is easterly of Pond Road.
- * Four perennial streams have been identified.

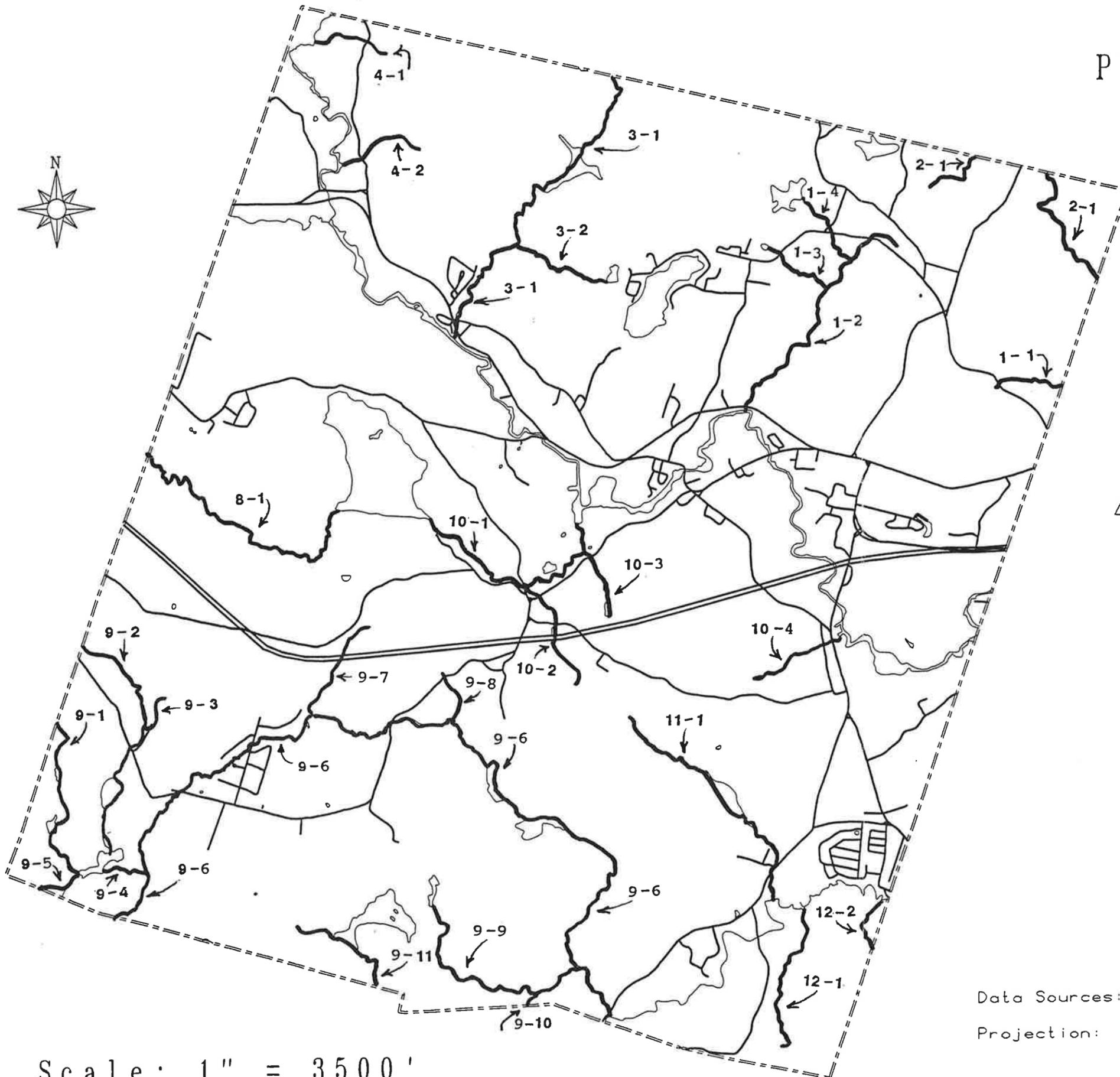
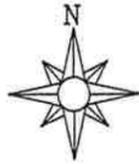
One unnamed free-flowing stream (1-1) appears to originate at an elevation of 205 feet at a point westerly of Ham Road. It flows easterly and crosses the Epping line at an elevation of 185 feet at a point east of Ham Road, and discharges to the Lamprey River in the Town of Epping. Its overall length, in Raymond, is 2,700 linear feet.

Unnamed stream (1-2), with two impoundments, appears to originate at a point located north of Heath Road and south of Mountain Road at an elevation of 265 feet. It flows southerly, a distance of 9,000 linear feet, and discharges to the Lamprey River at an elevation of 175 feet at a point easterly of Harriman Hill Road.

Two privately owned dams have been identified on the unnamed stream (1-2). The first is an eight foot combination earth and concrete structure located easterly of Pine Ridge Road at an elevation of approximately 205 feet. Water Resources Division records indicate that this structure creates an impoundment of approximately

MAP 2

PERENNIAL STREAM SYSTEMS



LEGEND

 PERENNIAL STREAM

4-2 STREAM NUMBER
(REFER TO TEXT FOR DESCRIPTION)

Scale: 1" = 3500'

Data Sources: 1:24000 Roads and Water by SNHPC, from 1981 USGS quad sheets.
Projection: Stateplane Feet



6.5 acres. This dam has a hazard classification of "AA" meaning that, if it were to fail, it would not be a menace to public safety.

The second dam is also identified as an eight foot combination earth and concrete structure located southerly of the above-noted dam, at an elevation of approximately 200 feet. The impoundment created by this structure is reportedly 7.5 acres in surface area, and also has a hazard classification of "AA."

As of June 1, 1988, the Water Resources Division of the New Hampshire Department of Environmental Services had identified the status of both of these structures as "pending," meaning that permits had been issued, but they had not necessarily been constructed at that time.

A third unnamed free-flowing stream (1-3) appears to originate in the area of the Englewood Trailer Park at an elevation of 315 feet. Its overall length is 2,600 linear feet. It discharges to stream 1-2 at an elevation of 215 feet at a location to the east of Harriman Hill Road.

The fourth unnamed free-flowing stream in this watershed (1-4) originates at an elevation of 275 feet in an unnamed pond located to the west of Pevere Road. Its overall length is 2,700 linear feet. It discharges to stream 1-2 at an elevation of 215 feet at a point located southeasterly of the intersection of Pevere and Heath roads.

- * The legislative classification of the surface waters is "B."

2. Pawtuckaway River Watershed

- * The total area within Raymond is 800 acres. Other portions of this watershed lie within the towns of Epping and Nottingham.
- * One unnamed pond, having a surface area of twelve acres, has been identified to the west of Miendle Road.
- * The Pawtuckaway River (2-1) is the only free-flowing perennial stream identified in the Raymond portion of this watershed. It appears to originate at an elevation of 235 feet at a location to the east of Miendle Road. It flows northeasterly and enters the Town of Nottingham, to the west of Nottingham Road, at an elevation of 205 feet; re-enters Raymond at an elevation of 165 at a point to the east of Nottingham Road; and flows southeasterly crossing the Epping line at an elevation of 155 feet. Its overall length in Raymond is 7,800 linear feet. It discharges to the Lamprey River in Epping.

- * The legislative classification of the surface waters is "B."

3. Dudley Brook Watershed

- * The majority of this watershed area (2,400 acres) lies within the Town of Raymond. Lesser portions are within the towns of Deerfield and Nottingham.
- * Governors Lake (61 acres) and two unnamed ponds have been identified - - an eighteen acre pond on Dudley Brook, and a 3-acre pond to the west of Governors Lake.
- * Two perennial streams are within the watershed.

Dudley Brook (3-1) is a free-flowing stream which originates at an elevation of 340 feet at a point on the southerly side of South Road in the Town of Deerfield. It flows southeasterly into Nottingham, then enters Raymond at an elevation of 305 feet. Its overall length in Raymond is 11,800 linear feet. It discharges to the Lamprey River at an elevation of 190 feet at a location southerly of the intersection of N.H. Route 27 and Long Hill Road.

An unnamed impounded stream (3-2) originates in the unnamed pond to the west of Governors Lake at an elevation of 265 feet, flows in a westerly direction, and discharges to Dudley Brook at an elevation of 225 feet. Its overall length is 3,500 linear feet.

A privately owned "active" seven foot earthen dam has been identified at an elevation of approximately 260 feet at a location to the northeast of the Audette Road cul-de-sac. The size of the impoundment created by this structure is indicated as being approximately 2.6 acres. No hazard classification has been assigned to this dam.

- * The legislative classification of the surface waters is "B."

4. Robinson Hill Watershed

- * Nearly 1,100 acres of this watershed lie within Raymond. Other portions are in Deerfield and Nottingham.
- * No lakes or ponds have been identified in this watershed.
- * Two perennial streams have been identified.

An unnamed free-flowing stream (4-1) originates at an elevation of 235 feet at a location to the east of Deerfield Road (N.H. Route 107). It flows westerly a distance of 2,800 linear feet, and discharges to the Lamprey River at an elevation of 205 feet at a point

located southeasterly of the intersection of the Raymond, Deerfield and Candia town lines.

An unnamed free-flowing stream (4-2) originates at an elevation of 255 feet at a location to the east of the easterly end of Grout Farm Road. It flows southwesterly a distance of 3,200 linear feet, and discharges to the Lamprey River at an elevation of 205 feet at a point southwesterly of the intersection of Grout Farm Road and Deerfield Road.

- * The legislative classification of the surface waters is "B."

5. Lamprey River "A" Watershed

- * The Raymond portion of this watershed comprises 200 acres. Other portions lie in Candia and Deerfield.
- * No lakes, ponds or perennial streams have been identified in the Raymond portion of this watershed.
- * The legislative classification of the Lamprey River, and any other surface waters in this watershed, is "B."

6. North Branch "A" Watershed

- * Approximately 120 acres of this watershed has been identified in the Town of Raymond, with the remainder being in Candia.
- * No lakes, ponds, or perennial streams have been identified.
- * The legislative classification of the North Branch River, and any other surface waters in this watershed, is "B."

7. North Branch "B" Watershed

- * The Raymond portion of this watershed comprises 380 acres. The remainder lies in the Town of Candia.
- * No lakes, ponds, or perennial streams have been identified.
- * The legislative classification of the North Branch River, as well as any other surface waters in this watershed, is "B."

8. Onway Lake Watershed

- * The total area within the Town of Raymond is 1,750 acres. A larger portion, nearly 3,700 acres, lies in the Town of Candia.
- * Onway Lake (180 acres), and one unnamed pond located south of the lake, having a surface area of one acre, have been identified in the Raymond portion of the watershed.
- * An unnamed perennial free-flowing stream (8-1) originates in the Town of Candia at an elevation of 505 feet at a location to the west of South Road. It flows in an easterly direction, and crosses the Raymond line at an elevation of 325 feet, at a location to the east of Dearborn Road and southerly of Langford Road. It has an overall length in Raymond of 9,900 linear feet, and discharges to the southwesterly corner of Onway Lake at an elevation of 264 feet.
- * The legislative classification of the surface waters in this watershed is "B."

9. Fordway Brook Watershed

- * The Raymond portion of this watershed is comprised of 4,720 acres. Other, smaller portions of this watershed lie in Candia and Chester.
 - * Norton Pond (11 acres), and seven unnamed ponds ranging in size from one to thirty-nine acres, have been identified in the Raymond portion of the watershed.
- Norton Pond and three of the unnamed ponds (1, 2, and 11 acres in size) are located southerly of Lane Road and westerly of Old Mill Road, in the southwesterly corner of town. Two unnamed ponds (13 and 7 acres) are located on Fordway Brook, east of Fordway Road. The two remaining unnamed ponds (4 acres and 39 acres) are located in the vicinity of Towle Road.
- * Fordway Brook and ten unnamed perennial streams or stream segments have been identified.

Fordway Brook (9-6) originates in Chester at an elevation of 425 feet on the southerly side of Lane Road. It flows northerly, entering Raymond at an elevation of 395 feet; flows northerly, easterly and southeasterly through two unnamed ponds; and discharges to the Exeter River at an elevation of 155 feet at a point located to the east of N.H. Route 102, near the Chester line. Its overall length in Raymond is 31,000 linear feet.

Water Resources Division records identify two privately owned dams, both of which are "in ruins," on Fordway Brook. The first one is located to the west of Old Chester Road at an elevation of approximately 320 feet. It is indicated as being a fourteen foot stone structure with no impoundment behind it. No hazard classification has been assigned to this structure.

The second dam is located to the west of N.H. Route 102 at an elevation of approximately 160 feet. It is identified as being a one foot timber structure with no impoundment. No hazard classification has been assigned to this structure.

Unnamed free-flowing stream (9-1) originates on the Raymond - Candia line at an elevation of 365 feet; flows southerly a distance of 6,200 linear feet, through two unnamed ponds; and discharges to a third unnamed pond at an elevation of 325 feet.

Unnamed free-flowing stream (9-2) originates in Candia, easterly of Dearborn Road and northerly of Lane Road, at an elevation of 445 feet. It crosses the Raymond line at an elevation of 435 feet; flows easterly then southerly through Norton Pond; and discharges to an unnamed pond at an elevation of 325 feet. Its overall length in the Town of Raymond is 8,800 linear feet.

Unnamed free-flowing stream segment (9-3) originates at an elevation of 420 feet on the westerly side of Watson Hill; flows southerly a distance of 1,600 linear feet; and discharges to stream 9-2 at an elevation of 380 feet at a location near the northerly end of Saddlepath Road.

Unnamed free-flowing stream segment (9-4) originates in an unnamed pond at an elevation of 325 feet; flows easterly 1,800 linear feet; and discharges to Fordway Brook at an elevation of 315 feet.

Unnamed free-flowing stream segment (9-5) originates on the Raymond - Chester line at an elevation of 350 feet; flows northeasterly a distance of 2,000 linear feet; and discharges to an unnamed pond at an elevation of 325 feet.

Unnamed free-flowing stream (9-7) originates westerly of Rattlesnake Hill at an elevation of 305 feet; flows southerly a distance of 4,000 linear feet; and discharges to Fordway Brook (9-6) at an elevation of 245 feet at a point located easterly of Nancy Lane.

Unnamed free-flowing stream segment (9-8) originates in an area southerly of Rattlesnake Hill and northerly of Lane Road at an elevation of 265 feet, and flows

southerly 2,000 linear feet discharging to Fordway Brook at an elevation of 235 feet.

Unnamed free-flowing stream (9-9) originates in an unnamed pond located southeasterly of Towle Road at an elevation of 200 feet, then flows southerly and easterly for 6,000 linear feet, and discharges to Fordway Brook (9-6) at an elevation of 165 feet at a point located northerly of the Chester line and easterly of N.H. Route 102.

An unnamed free-flowing stream (9-10) originates on the Raymond - Chester line at an elevation of 165 feet, flows northeasterly for 800 linear feet, and discharges to Fordway Brook (9-6) at an elevation of 165 feet.

The remaining unnamed free-flowing stream in this watershed (9-11) originates near the Chester line at an elevation of 220 feet. It flows northerly a distance of 2,000 linear feet, and discharges to an unnamed pond at an elevation of 205 feet.

- * All surface waters in this watershed have the legislative classification "B."

10. Lamprey River "B" Watershed

- * The area of this watershed within the Town of Raymond is 3,000 acres. The remaining portions, which are considerably smaller, lie in Fremont and Epping.
- * Two unnamed ponds have been identified. One, having a surface area of three acres, lies to the north of Scribner Road and the east of Onway Lake Road. The other, with a surface area of one acre, lies between Industrial Drive and N.H. Route 101.
- * Four perennial streams have been identified.

An unnamed impounded stream (10-1) originates at Onway Lake at an elevation of 265 feet. It flows southeasterly then northeasterly, a distance of 7,400 linear feet, and discharges to the Lamprey River near the municipal wellfield at an elevation of 175 feet.

Four privately owned dams have been identified on this stream. The first is an "active" eight foot combination concrete and stone structure located at an elevation of approximately 265 feet. This structure creates Onway Lake. No hazard classification has been assigned to this structure.

The second dam is identified as a fourteen foot combination earth, concrete and stone structure, "in ruins," with no impoundment behind it. It is located at

an elevation of approximately 220 feet, and is downstream from the Onway Lake dam. No hazard classification has been assigned to this dam.

The third dam is identified as a seven foot timber structure, "in ruins," also without an impoundment. It is located downstream from the second dam, at an elevation of approximately 195 feet. No hazard classification has been assigned to this structure.

The fourth, and last dam on this stream, is identified as a seven foot combination earth and stone structure, "in ruins," with no impoundment. It is located at an elevation of approximately 190 feet, and is downstream from the third structure. No hazard classification has been assigned to this dam.

Unnamed stream (10-2), also free-flowing, originates westerly of Highland Avenue at an elevation of 245 feet. It flows in a northwesterly direction for a distance of 4,000 linear feet, and discharges to stream 10-1 at an elevation of 185 feet at a location northeasterly of the intersection of Scribner Road and Onway Lake Road.

An unnamed impounded stream (10-3) originates at an unnamed pond located to the north of N.H. Route 101, at an elevation of 205 feet. It flows northerly through another unnamed pond and discharges to the Lamprey River at an elevation of 185 feet at a location south of the municipal wellfield. The overall length of this stream is 2,000 linear feet.

A single, privately owned dam has been identified on stream (10-3). It is an eight foot earthen structure indicated as being "in ruins," and located to the south of Old Manchester Road, on the Pike Industries property. This structure is at an elevation of approximately 205 feet, and reportedly creates an impoundment of approximately 0.5 of an acre. No hazard classification has been assigned to this dam.

Unnamed free-flowing stream (10-4) originates at a location to the north of Batchelder Road, at an elevation of 185 feet. It flows northeasterly a distance of 3,800 linear feet, and discharges to the Lamprey River at an elevation of 155 feet at a location southeasterly of the intersection of N.H. Routes 102/107 and Main Street.

* The legislative classification of the surface waters in this watershed is "B."

11. Little Rattlesnake Hill Watershed

- * The Raymond portion of this watershed comprises 1,240 acres. The remainder of the watershed (a very small portion) lies in the Town of Fremont.
- * One unnamed pond, having a surface area of fifteen acres, has been identified in this watershed to the west of N.H. Route 102.
- * One perennial stream has been identified.

Unnamed free-flowing stream (11-1) originates at an elevation of 225 feet at a location to the west of Country View Drive. It flows southeasterly through the unnamed pond and discharges to the Exeter River at an elevation of 155 feet at a location to the south of the intersection of Park Place and N.H. Route 102. Its overall length is 8,600 linear feet.

12. Exeter River Watershed

- * The total area of this watershed within the Town of Raymond consists of 623 acres. The remainder lies within the towns of Chester and Fremont.
- * No lakes or ponds were identified in the Raymond portion of this watershed.
- * Two perennial streams have been identified.

Unnamed free-flowing stream (12-1) originates at an elevation of 200 feet at a location to the east of Blueberry Hill Road. It flows northerly 4,800 linear feet, and discharges to the Exeter River at an elevation of 155 feet at a location to the south of the Green Hills Trailer Park.

Unnamed free-flowing stream (12-2) originates at an elevation of 185 feet at a location near the Fremont line. It flows northwesterly, then northeasterly, and discharges to the Exeter River at an elevation of 155 feet at a location to the south of Clover Court. Its overall length is 2,000 linear feet.

- * The legislative classification of the surface waters in this watershed is "B."

13. Wason Brook Watershed

- * About 80 acres of this watershed lie within the Town of Raymond. The larger portion, which comprises 374 acres, lies in Chester.

- * No lakes, ponds, or perennial streams have been identified in the Raymond portion of this watershed.

Because a number of Raymond watershed areas discharge to the Lamprey River, the North Branch River, and/or the Exeter River, these surface waters were chosen to be described separately.

Lamprey River

The Lamprey River has an overall length in Raymond of approximately 51,000 linear feet. It enters from the Town of Deerfield, on the northwest, at an elevation of approximately 215 feet at a location to the west of N.H. Route 107 (Deerfield Road). The Lamprey meanders southerly and easterly through the community, entering the Town of Epping at an elevation of approximately 155 feet in the Prescott Road area.

The Water Resources Division, N.H. Department of Environmental Services has identified two privately owned dams, both of which are indicated as being "in ruins," on the Lamprey River. One is supposedly located just upstream of the Langford Road bridge, while the second structure is supposedly located to the north of Main Street and to the west of N.H. Route 102 (Fremont Road). No information is available as to the elevation, height, type of construction, the size of any possible impoundment, or the hazard classification for either of these dams.

The legislative classification of the Lamprey River is "B."

North Branch River

The North Branch River enters from the Town of Candia, on the west, at an elevation also of approximately 215 feet at a point to the south of N.H. Route 27. The North Branch joins the Lamprey in the area southeasterly of the intersection of Route 27 and Dudley Road at an elevation of approximately 205 feet. The Raymond portion of the North Branch River, which is free-flowing, extends for approximately 4,000 linear feet.

The legislative classification of the North Branch River is "B."

Exeter River

The Exeter River enters the southeasterly corner of the community, from the Town of Chester, near N.H. Route 102, at an elevation of approximately 155 feet. It meanders in a northeasterly direction through the Town of Raymond for a distance of approximately 14,000 linear feet, and enters the Town of Fremont at an elevation of approximately 155 feet near the southerly end of Clover Court. The Water Resources Division has not identified any impoundments on the Raymond portion of the Exeter River.

The legislative classification of the Exeter River is "B."

Wetlands and Flood Hazard Areas

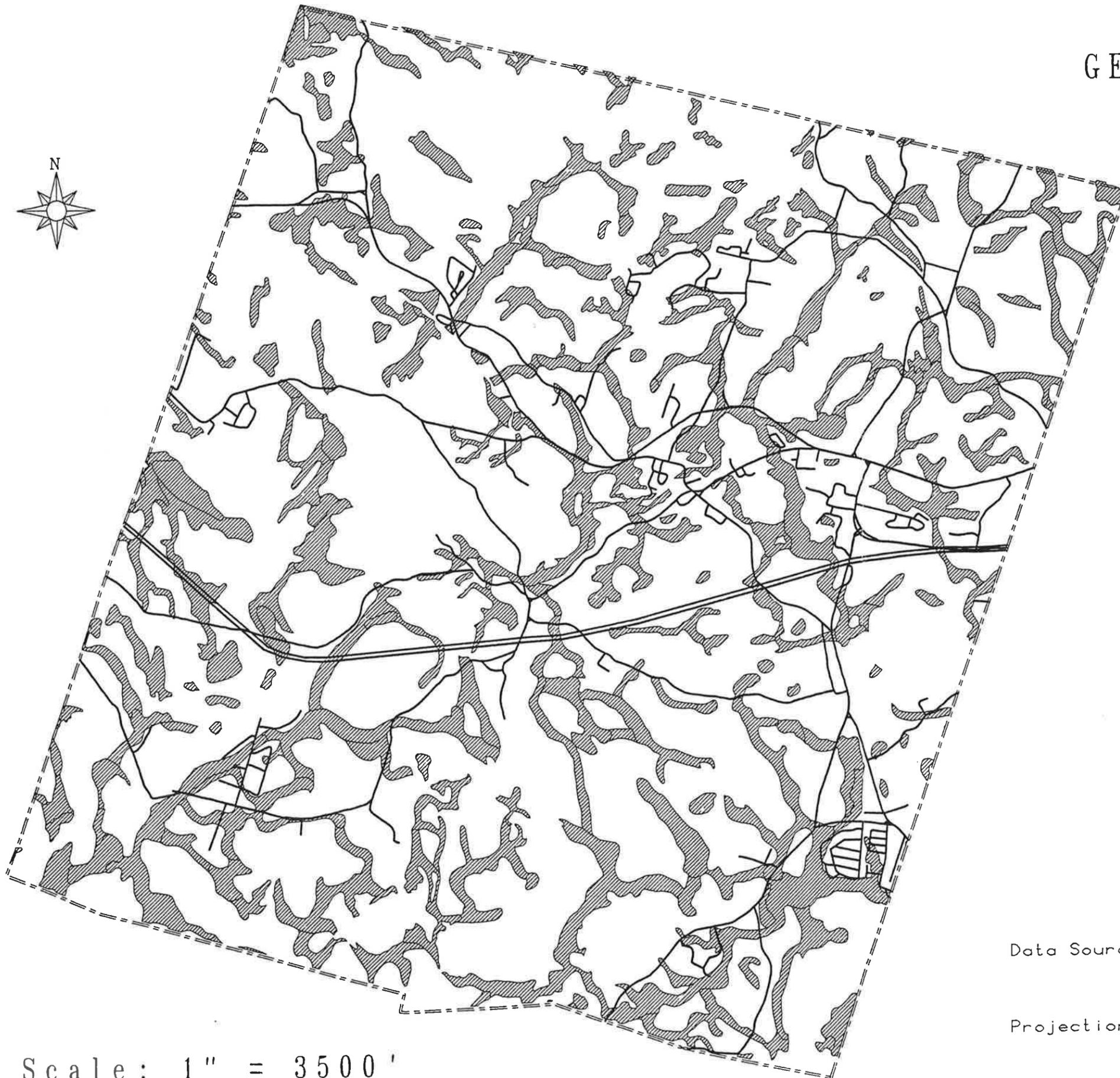
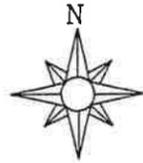
As is indicated in the "Conservation and Preservation" chapter of the February 1989 Master Plan (pages 65-66), wetlands and special flood hazard areas are recognized as important elements of Raymond's natural resources base. The Master Plan recognizes that "wetlands of all types and size perform important environmental functions..." Wetlands, which are often associated with flood hazard areas, help to control flooding by storing water during periods of high runoff, thereby reducing flooding peaks; they act as settling basins for sediments generated by erosion; they act as pollution filters (wetland vegetation utilizes some pollutants as nutrients); they serve as collectors and replenishers of groundwater; they function as valuable wildlife habitat providing food, cover, nesting, and breeding sites; and they can be valuable educational and recreational resources.

Raymond's wetland areas have been identified in accord with the U.S. Department of Agriculture, Soil Conservation Service criteria for the delineation of poorly drained and very poorly drained soils. The Southern New Hampshire Planning Commission GIS color-coded the poorly drained and very poorly drained soils (wetlands) as identified by the Soil Conservation Service, and calculated the acreage of these soils, on a watershed basis, within the community. Town-wide, the wetland soils comprise approximately 4,200 acres (1,500 acres of poorly drained and 2,700 acres of very poorly drained soils). The wetland soils are identified herein on the Generalized Wetland Areas map (Map 3).

Table 1 identifies the acreage of the poorly drained and the very poorly drained soils within the Raymond portion of each watershed. Appendix III contains a detailed breakdown of the concentrations of poorly drained and very poorly drained soils, and also includes a GIS-generated map showing their respective locations.

MAP 3

GENERALIZED WETLAND AREAS



LEGEND

 WETLAND SOIL
(LOCATION IS APPROXIMATE)

Data Sources: 1:24000 Soils by UNH/Complex Systems; "Soils Information For Resource Planning, Raymond, NH."
1:24000 Roads by SNHPC, from 1981 USGS quad sheets.

Projection: Stateplane Feet

Scale: 1" = 3500'



Table 1

WETLAND AND FLOOD HAZARD ACREAGE BY WATERSHED
(figures are approximate)

No.	Watershed Name	Acreage *			
		Poorly Drained Soil	Very Poorly Drained Soil	Flood Hazard Area	Water- shed Area**
1	Flint Hill	136	374	163	2,626
2	Pawtuckaway River	85	100	41	782
3	Dudley Brook	126	378	302	2,385
4	Robinson Hill	--	193	126	1,064
5	Lamprey River "A"	--	44	50	181
6	North Branch "A"	3	15	17	117
7	North Branch "B"	19	21	14	379
8	Onway Lake	206	197	304	1,752
9	Fordway Brook	574	653	740	4,723
10	Lamprey River "B"	138	430	302	3,011
11	Little Rattlesnake Hill	99	261	82	1,239
12	Exeter River	99	78	77	623
13	Wason Brook	<u>13</u>	<u>--</u>	<u>--</u>	<u>84</u>
TOTALS		1,498	2,744	2,218	18,966

* All figures are approximations

** Within the Town of Raymond

Notes:

1. The "very poorly drained soil" acreage figures include "muck and peat" which are classified as being "very poorly drained."
2. The delineation of the flood hazard areas was not based upon soil characteristics, therefore, the "flood hazard area" figures likely duplicate some or all of the acreage included in the "poorly drained" and the "very poorly drained" (wetland) soil categories.

Sources:

Wetland data:

"Soils Information for Resource Planning, Raymond, New Hampshire," U.S. Department of Agriculture, Soil Conservation Service and the Rockingham County Conservation District, November 1982

Flood hazard area data: "Flood Insurance Study, Town of Raymond, New Hampshire, Rockingham County," Federal Emergency Management Agency, October 1990

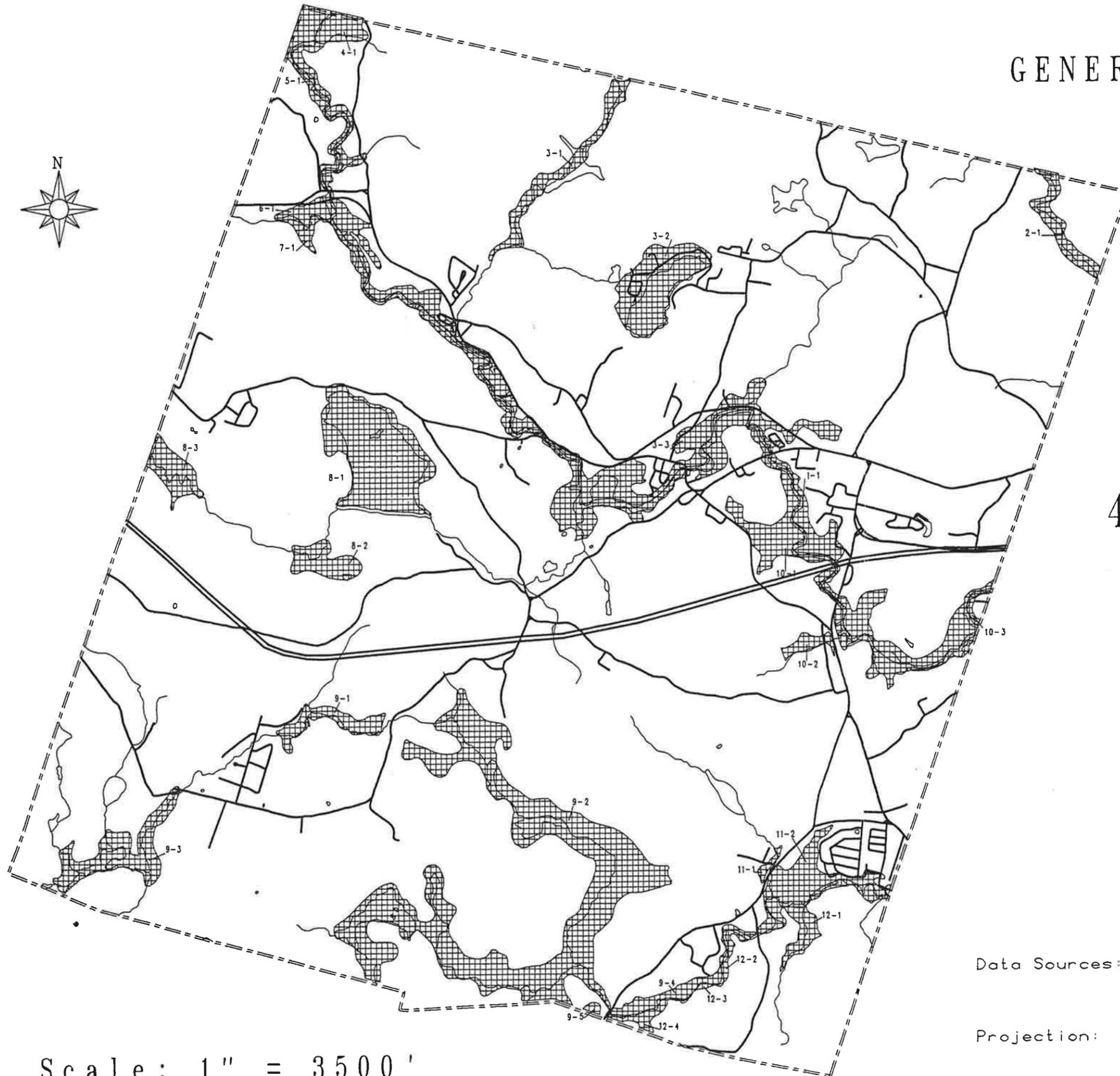
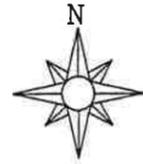
Watershed area data: Various U.S. Geological Survey topographic maps

The 100-year flood hazard areas in the community (see Map 4) are estimated to total approximately 2,200 acres. The acreage of these areas was calculated for each watershed by the GIS from the Town of Raymond Flood Insurance Rate Maps bearing the effective date of April 15, 1992. Copies of these maps are available for public inspection in the office of the Town of Raymond Building Inspector, and in the offices of the Southern New Hampshire Planning Commission during normal business hours.

Table 2, which identifies concentrations of flood hazard area by watershed, is intended to be used with Map 4.

MAP 4

GENERALIZED FLOOD HAZARD AREAS



LEGEND

 100-YEAR FLOOD HAZARD AREA
(LOCATION IS APPROXIMATE)

4-2 SITE NUMBER
(SEE TEXT & TABLE 2)

Scale: 1" = 3500'

Data Sources: 1:24000 Roads and Water by SNHPC from 1981 USGS
quad sheets.
"Flood Insurance Study, Town of Raymond, NH,
Rockingham County, October, 1990.
Projection: Stateplane Feet



Table 2

CONCENTRATIONS OF FLOOD HAZARD AREAS
(figures are approximate)

<u>No.</u>	<u>Watershed Name</u>	<u>Flood Hazard Area</u>	
		<u>Site No.*</u>	<u>Acres</u>
1	Flint Hill	1-1	163
2	Pawtuckaway River	2-1	41
3	Dudley Brook	3-1	58
		3-2	119
		3-3	125
4	Robinson Hill	4-1	126
5	Lamprey River "A"	5-1	50
6	North Branch "A"	6-1	17
7	North Branch "B"	7-1	14
8	Onway Lake	8-1	218
		8-2	42
		8-3	44
9	Fordway Brook	9-1	40
		9-2	569
		9-3	92
		9-4	36
		9-5	3
10	Lamprey River "B"	10-1	281
		10-2	15
		10-3	6
11	Little Rattlesnake Hill	11-1	5
		11-2	77
12	Exeter River	12-1	50
		12-2	10
		12-3	2
		12-4	15
13	Wason Brook	none mapped	

* See Map 4

Source: "Flood Insurance Study Town of Raymond, New Hampshire, Rockingham County," (October 1990), Flood Insurance Rate Maps, scale of 1" = 1,000', Federal Emergency Management Agency, bearing the effective date of April 15, 1992.

Surface Water Withdrawals

The "Summary of Withdrawals and Discharges Which Exceed 20,000 Gallons Per Day" (Water Management Bureau, Water Resources Division, New Hampshire Department of Environmental Services, January 17, 1989) lists no large users withdrawing from Raymond surface waters.

Surface Water Discharges

The "Summary of Withdrawals and Discharges..." does not identify any water users in Raymond discharging 20,000 or more gallons to surface waters. As of September 11, 1991, personnel of the Permits section of the Water Supply and Pollution Control Division of the New Hampshire Department of Environmental Services reported that no permits have been issued in Raymond by the U.S. Environmental Protection Agency under the National Pollutant Discharge Elimination System (NPDES) for surface water discharges.

Potential Surface Water Supplies

To the Planning Board's knowledge, there are no surface waters which, at this time, are being considered by local officials or private interests as potential drinking water supplies.

DESCRIPTION OF GROUNDWATER RESOURCES

The following maps and/or publications were used to help develop information relative to groundwater resources in the Town of Raymond:

- * "Wellhead Protection Program Raymond, New Hampshire," prepared by the Southern New Hampshire Planning Commission (May 1992);
- * "Production Well PW-2 Town of Raymond, New Hampshire," Ground Water Associates, Inc. (October 1989);
- * "Geohydrology and Water Quality of Stratified-Drift Aquifers in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire," U.S. Geological Survey Water-Resources Investigations Report 88-4128, prepared in cooperation with the State of New Hampshire Department of Environmental Services Water Resources Division, (1990);
- * "Ground-Water Resources of the Lamprey River Basin, Southeastern New Hampshire," U.S. Geological Survey Water-Resources Investigations Report 84-4252, prepared in cooperation with the New Hampshire Water Resources Board, (1988);

- * "Interim Geologic Map of New Hampshire," U.S. Geological Survey and the State Geologist, (1986);
- * "Soils Information for Resource Planning Raymond, New Hampshire," U.S. Department of Agriculture, Soil Conservation Service and the Rockingham County Conservation District, (November 1982);
- * Well Locations map prepared by the Water Resources Division, New Hampshire Department of Environmental Services (September 1991);
- * "Public Water Systems Map," Water Supply Engineering Bureau, Water Supply and Pollution Control Division, New Hampshire Department of Environmental Services, (August 1988);
- * Public Water Systems files, Water Supply Engineering Bureau, Water Supply and Pollution Control Division, New Hampshire Department of Environmental Services, (September 11, 1991);
- * "Summary of Withdrawals and Discharges Which Exceed 20,000 Gallons Per Day," Water Resources Division, New Hampshire Department of Environmental Services, (January 17, 1989).

Stratified Drift Aquifers

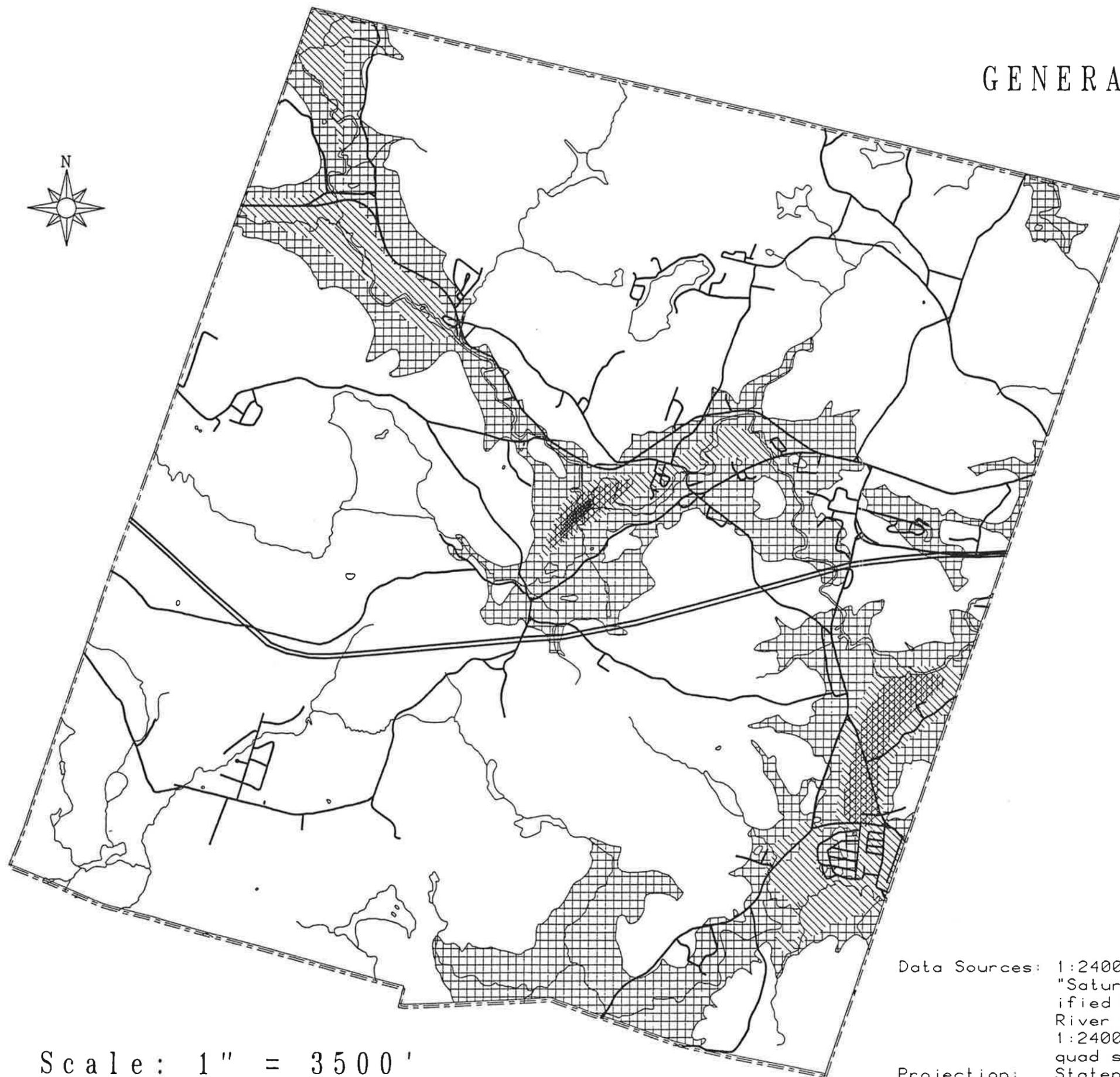
The 1:24,000-scale U.S. Geological Survey map "Saturated Thickness and Transmissivity of Stratified Drift In The Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire," (Plate 7), contained in the publication "Geohydrology and Water Quality of Stratified-Drift Aquifers in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire," was used by Southern New Hampshire Planning Commission personnel to identify the stratified drift aquifers within the study area. This source identifies the "approximate" locations of the stratified-drift aquifers which are shown herein on the "Generalized Aquifer Boundaries" map (Map 5). The U.S.G.S. states that the boundaries shown on the 1:24,000-scale map implies a +/- 80-foot horizontal accuracy.

The referenced report provides the following description of the formation of the stratified-drift aquifers, and thus their ability to store and transmit ground water.

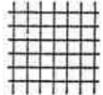
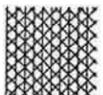
"The stratified-drift aquifers consist of stratified, sorted, principally coarse-grained sediments (sand and gravels) deposited by glacial meltwater at the time of deglaciation. Stratified-drift deposits are composed of distinct layers of sediments with different grain-size distributions sorted according to the depositional environment. For example, swiftly moving meltwater

MAP 5

GENERALIZED AQUIFER BOUNDARIES



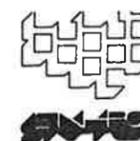
Transmissivity of
Stratified Drift Aquifers
(in feet squared per day)
Symbol

	Less than 500
	500 to 1000
	1000 to 2000
	2000 to 3000

Scale: 1" = 3500'

Data Sources: 1:24000 Aquifer data by UNH/Complex Systems from "Saturated Thickness and Transmissivity of Stratified Drift in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire", 1990. 1:24000 Roads and Water by SNHPC from 1981 USGS quad sheets.

Projection: Stateplane Feet



streams are apt to deposit coarse-grained sediments with large pore spaces between grains. If saturated, these materials generally form good aquifers--able to store and transmit ground water readily. As water slows, fine-grained materials including fine silts and clays, are deposited in lakes, ponds, estuaries, and the ocean; these deposits do not transmit water freely.

"Large, interconnected pore spaces readily transmit ground water and provide a large volume of ground-water storage. A more useful measure of ground-water storage is specific yield--the ratio of the volume of water that can be drained by gravity to the total volume of the sediment. The total volume of pore space per total volume of sediment and specific yield are not equal because some water is held on the grain surfaces by tensional forces and will not drain by gravity. These characteristics are related to the original depositional environment of the sediments, and, thus, the term "stratified-drift aquifer" refers to several different types of aquifers, depending on the original mode of deposition."

The report identifies the Raymond aquifers as having resulted from deglaciation during which the active glacial-ice margin receded to the north leaving behind zones of stagnant ice in contact with the active ice margin. The stratified-drift aquifers found in Raymond are termed valley-fill aquifers and are composed of landforms known as eskers, kame terraces, and outwash plains. Eskers are typically long ridges of sand and gravel deposited by water flowing in tunnels within or beneath glacial ice. An example of an esker has been identified by the U.S.G.S. in the general area easterly of the intersection of Routes 102 and 107, northerly of Prescott Road.

A kame terrace is a terrace-like ridge consisting of stratified sand and gravel formed as a glaciofluvial deposit between a melting glacier or stagnant ice lobe and a higher valley wall, and left standing after the disappearance of the ice. A good example of a kame terrace has been identified in western Raymond, along the North Branch Lamprey River and extending into the Town of Candia.

Outwash consists of stratified deposits chiefly of sand and gravel removed or "washed out" from a glacier by meltwater streams and deposited beyond the margin of a glacier. It usually occurs in flat or gently sloping plains. By and large, the vast majority of the stratified-drift aquifers in Raymond, in both the Lamprey River and the Exeter River basins are of the outwash variety.

Four ranges of transmissivity have been identified with respect to the Raymond aquifers. Transmissivity is defined as the rate at which water is transmitted through a unit width of aquifer under a unit hydraulic gradient. It is equal to the average hydraulic conductivity times the saturated thickness. The

reference map distinguishes between the following transmissivity rates:

- a. < 500 cubic feet per day;
- b. 500 to 1,000 cubic feet per day;
- c. 1,000 to 2,000 cubic feet per day; and
- d. 2,000 to 3,000 cubic feet per day.

These rates, when translated in terms of ground water transmission, are approximately as follows:

- a. less than 3,740 gallons per day per foot;
- b. 3,740 to 7,480 gallons per day per foot;
- c. 7,480 to 14,960 gallons per day per foot; and
- d. 14,960 to 22,440 gallons per day per foot.

Four locations have been identified where the transmissivity of the aquifers exceeds 1,000 cubic feet per day or, in other words, exceeds 7,480 gallons per day per foot. The significance of this appears to lie in the fact that the U.S.G.S. used this rate to identify the extent to which such aquifers were or were not being fully utilized as sources of supply for municipal water systems. In the case of Raymond, only one of these four aquifers is currently used by the municipal water system.

With respect to the referenced report, aquifer yields were estimated for the West Epping and Newmarket Plains deltaic aquifers only. However, the earlier (1988) report "Ground-Water Resources of the Lamprey River Basin, Southeastern New Hampshire" indicated that "the aquifer in northwest Raymond may yield 1.7 Mgal/d."

Bedrock Aquifers

Bedrock aquifers are other potential sources of ground water. While bedrock has proven to be a reliable source of individual domestic water supplies, it is generally believed to be an unlikely source for quantities sufficient to meet the needs of municipal systems.

Bedrock, or ledge, (crystalline rock) is hard and compact. It contains recoverable water only in open fractures. The size, number, distribution, and degree of interconnections of the fractures are highly variable, but are commonly minimal. Therefore, although wells penetrating bedrock commonly yield dependable supplies of good quality water for single family domestic needs, individual wells generally do not yield enough water to sustain supplies for municipal or large industrial use.

The nature of the bedrock in Raymond has been determined on the basis of a review of the "Interim Geologic Map of New Hampshire," (having a scale of one inch equals approximately four miles), a generalized version of the Raymond portion of which appears herein as Map 6. With few exceptions, the Lamprey and Exeter River basins of Raymond appear to be underlain mainly by metamorphic rocks of Ordovician to Precambrian age that were originally deposited as sediments, and subsequently changed under conditions of relatively low temperature and pressure. These are intruded by lesser amounts of granite, granodiorite, and biotite granite of Ordovician and Early to Late Devonian age. The structure of the metamorphic rocks strikes predominantly northeast-southwest. The Flint Hill Fault is oriented parallel to this northeast-southwest strike of the bedrock.

With the exception of approximately the westerly one-third of the Town (where the bedrock has been identified as Massabesic gneiss), most of the remaining bedrock has been characterized by the U.S. Geological Survey and the State Geologist as probably belonging to the Berwick Formation, two variations of which have been mapped. Although both variations are comprised of purplish biotite-quartz-feldspar granofels or schist, with interbeds of calc-silicate granofels, the more predominant variety is believed to contain somewhat more silicate.

Within these formations there are two probable volcanic intrusions, believed to be Early to Late Devonian rocks of the New Hampshire Plutonic Suite. These are identified as being in the southwesterly and the south central parts of Town, extending into Chester. These formations differ from the bedrock of the rest of the community in that they are believed to be intrusive igneous rock formed from molten lava which cooled under the earth's crust.

The Flint Hill Fault is oriented parallel to the northeast-southwest strike of the bedrock, entering Raymond from Nottingham, at a location in the vicinity of Route 107, and crossing into Chester, in the extreme southwesterly corner of Town.

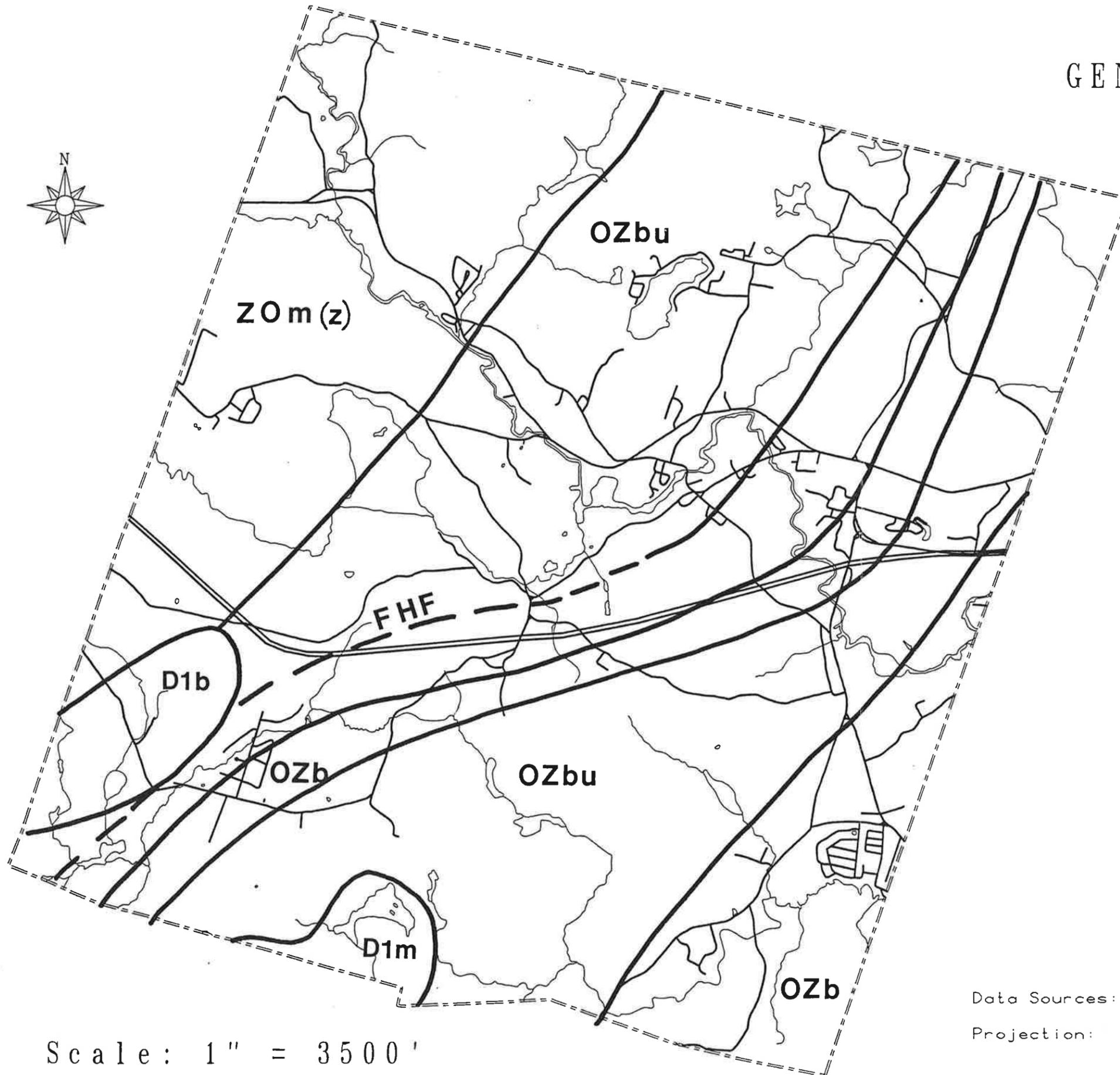
Although there appears to be little, if any, detailed hydrologic data available to provide an accurate indication of the potential for the bedrock to serve as a major source of water supply (site-specific tests would be necessary in order to make such a determination), the results of the short-term (1984-1988) well reports, which are summarized in the following section, tend to generally suggest that the extent of fracturing, which creates repositories in the bedrock for groundwater, appears to be sufficient to produce reasonably dependable domestic supplies.

Well Summary

The "Summary of Well Completion Report Data for the Town of Raymond" (dated May 18, 1988) was obtained from the Water Resources Division of the New Hampshire Department of Environmental Services by the Southern New Hampshire Planning Commission, and used to help

MAP 6

GENERALIZED BEDROCK GEOLOGY



Ordovician to Precambrian Z Rocks

ZOm(z) - Massabesic Gneiss

OZb - Berwick Formation

OZbu - Berwick Formation (upper)

D1b - Biotite Granite

D1m - Two-mica Granite

FHF - Flint Hill Fault

Source: "Interim Geologic Map of New Hampshire,"
U.S. Geological Survey and State Geologist
(1986)

Scale: 1" = 3500'

Data Sources: 1:24000 Roads and Water by SNHPC, from 1981 USGS
quad sheets.
Projection: Stateplane Feet



identify the various characteristics of the 333 listed wells which were developed in the community between January 18, 1984 and January 22, 1988. Data for wells developed prior to January 31, 1984 was not available because water well contractors have only been required to submit completion reports to the Division since 1984.

Field maps obtained from the Division in September 1991 enabled Commission personnel to plot the locations of fifty-three (53) wells as indicated on Map 7. The remaining two hundred and eighty (280) wells could not be mapped because the Water Resources Division had not completed the field work.

Analysis of the well log data by Commission personnel revealed that, of the 333 wells listed, 323 were developed for water supply purposes. Nine of the remaining ten wells were reportedly developed for test or exploration purposes, while the tenth well was developed for stratigraphic observation use.

According to the "Summary...", 319 of the wells were reportedly drilled in bedrock; 9 were drilled in gravel; 1 was dug; 1 was classified as an uncased auger hole; 2 were driven point wells; and one was listed as being unspecified as to type.

Depths to bedrock (reported for 324 wells) ranged from ground level to 100 feet, with bedrock reportedly being encountered at twenty feet or less in 228 cases (70%).

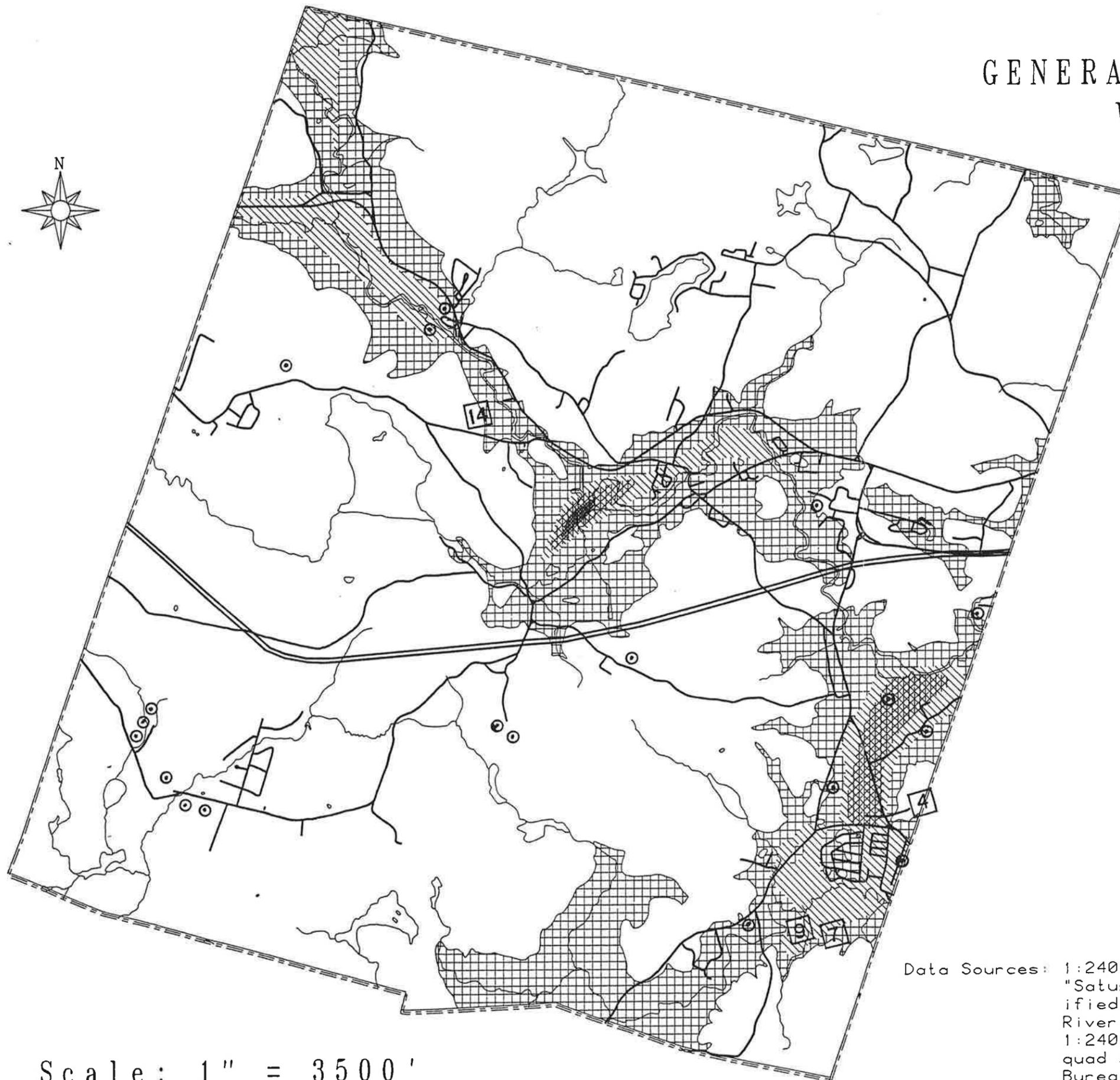
Thirty-three of the 53 mapped wells were identified as being developed in or near the stratified-drift aquifers. The "Summary..." indicates that thirty-two of these were reported to be bedrock wells. The remaining one was a driven point well having a total depth reported to be twenty-four feet with a twenty-one foot casing. Since the depth to bedrock was not reported for this particular well, it is presumed that bedrock was not encountered. This may be the only well to have been developed in an identified stratified-drift aquifer. It appears that this well was developed in an aquifer having a transmissivity rating of less than 500 cubic feet per day.

The depths of all bedrock water supply wells (319 wells) ranged from 80 feet to 805 feet, with approximately sixty-nine percent (220 wells) being in the 100 feet to 300 feet range. In only seven percent of the cases (24 wells), were the depths in excess of 500 feet.

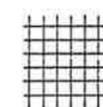
In 143 of the 316 cases (forty-five percent) where test discharge rates were reported, test discharge yields from the bedrock water supply wells were in the range of 3 to 10 gallons per minute -- rates which are generally accepted as being adequate for single family domestic needs. Approximately twelve percent (38 bedrock water supply wells) reportedly had test discharge rates of less than 3 gallons per minute. Forty-three percent (135 wells) reportedly had test discharge rates which exceeded 10 gallons per

MAP 7

GENERALIZED AQUIFER BOUNDARIES WITH WELL LOCATIONS



Transmissivity of
Stratified Drift Aquifers
(in feet squared per day)
Symbol



Less than 500



500 to 1000



1000 to 2000



2000 to 3000



Approximate Location of Well
Completed Between January 18,
1984 and January 22, 1988



Scale: 1" = 3500'

Data Sources: 1:24000 Aquifer data by UNH/Complex Systems from
"Saturated Thickness and Transmissivity of Stratified Drift in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire", 1990.
1:24000 Roads and Water by SNHPC from 1981 USGS quad sheets; Well locations by Water Management Bureau, NHDES.

Projection: Stateplane Feet



minute, with forty of these reportedly producing 50 or more gallons per minute.

Appendix IV contains a copy of the "Summary of Well Completion Report Data for the Town of Raymond." This exhibit contains information relative to each well, as it was available on May 18, 1988, such as the owner's name; the road on which the well is located; the tax map and parcel number; the date the well was completed; the type of use for the well; the reason for its development; the type of well; its total depth; the depth at which bedrock was encountered; the length of the casing; the yield test method used; the duration of the yield test; the discharge rate; the static water level; a description of the overburden material; a subjective assessment of the quality of the information reported; and any special notes relative to the well.

Groundwater Withdrawals

The "Summary of Withdrawals and Discharges Which Exceed 20,000 Gallons Per Day" (January 17, 1989) identified two "large users" in Raymond withdrawing water from a groundwater source. The Southern New Hampshire Water Company was identified as operating two community water systems -- Green Hills and Liberty Tree. The Green Hills system was reported as withdrawing an average of 51,650 gallons per day, and the Liberty Tree system reportedly withdraws an average of 19,080 gallons per day. The "Summary..." did not identify the maximum daily demand for either of these community systems.

The Town of Raymond Water Department was identified as withdrawing an average of 230,000 gallons per day and having a maximum daily demand for 350,000 gallons.

Groundwater Discharges

The "Summary of Withdrawals and Discharges..." did not identify any "large users" discharging water to groundwater.

Potential Groundwater Supplies

The Town of Raymond does not have any specific plans, at this time, to develop additional municipal water supplies which would draw upon groundwater resources. Therefore, it would be premature for the community to undertake another detailed engineering assessment, beyond that which was done by Ground Water Associates, Inc. in 1989 and that which has been provided by the 1990 U.S.G.S. water resources investigation (WRI 88-4128) of the suitability or the capability of the local aquifers to meet municipal requirements.

In the event that the Town anticipates the need to develop additional sources of supply, the 1990 information concerning the

four significant stratified-drift aquifers discussed previously should certainly be given particular consideration. Additional studies of these potential sources of supply would be necessary in order to evaluate such factors as the locations of the aquifers with respect to future service areas; water quality and quantity; current uses of the groundwater resources; the effects of existing and potential future land uses activities within the areas contributing to these aquifers, based on the adopted Master Plan and local land use regulations; etc. Such future consideration and assessment would also require that appropriate revision be made in this Water Resource Management and Protection Plan.

While the "Summary of Well Completion Report Data for the Town of Raymond" indicates that some highly productive bedrock wells have been developed in Raymond during the 1984-1988 period, they are so widely scattered that it would be inappropriate, on the basis of the report data, to suggest any particular location that might have more potential than another as a possible site for a future bedrock water supply. Some of these wells appear to be somewhat clustered, but the data also indicates that other significantly less productive bedrock wells have been developed in the same general areas. Additional study and exploration, including bedrock fracture analyses and the development of test wells, should be conducted to help identify suitable sites for the development of bedrock water supplies.

Groundwater Classification

On June 28, 1991 most of the New Hampshire Groundwater Protection Act (RSA 485-C) became effective. However, sections 18 and 19 of the Act, which pertain to administrative fines, penalties and other relief, won't become effective until July 1, 1993.

The Act provides for the assignment of all groundwater into one of four classes for purposes of prescribing protection and management practices. The Act also provides that the land area vertically above shall be assigned to the highest class of groundwater beneath it, for purposes of managing potential contamination sources. The criteria for classification and reclassification are prescribed in the Act.

Consistent with the provisions of RSA 485-C:5, the Commissioner of the New Hampshire Department of Environmental Services has, in the Town of Raymond, classified as GA2, zones of stratified drift with a saturated thickness greater than 20 feet, and a transmissivity greater than 1,000 feet squared per day, as delineated by the 1990 report "Geohydrology and Water Quality of Stratified-Drift Aquifers in the Exeter, Lamprey, and Oyster River Basins, Southeastern New Hampshire." Furthermore, the Commissioner has classified all other groundwater in the community as GB.

The Wellhead Protection Program Raymond, New Hampshire (May 1992), which is incorporated in this Plan by reference, was developed in accordance with the RSA 485-C criteria for having

certain groundwater resources classified or reclassified, as may be the case, to the two highest classes, those being GAA and GA1. The procedures for accomplishing the GAA and GA1 actions are described in the "Recommendations" chapter of the local wellhead protection program.

IDENTIFICATION OF POTENTIAL THREATS TO WATER RESOURCES

The following maps and/or publications were used to help develop information relative to the identification of potential threats to surface and groundwater resources:

- * "Wellhead Protection Program Raymond, New Hampshire," prepared by the Southern New Hampshire Planning Commission (May 1992);
- * "Inventory of Groundwater and Surface Water Potential Nonpoint Pollution Sources," New Hampshire Water Supply and Pollution Control Commission, December 1982;
- * "Waste Site Inventory," Waste Management Division, New Hampshire Department of Environmental Services, September 1987;
- * Proposed Plan, "EPA Region I Superfund Program Mottolo Site Raymond, New Hampshire," U.S. Environmental Protection Agency, January 1991;
- * Surface and groundwater discharge permit records of the Water Supply and Pollution Control Division, New Hampshire Department of Environmental Services, September 1991 and July 1992, respectively;
- * "Septage Management Study For The Southern New Hampshire Planning Subregion," Southern New Hampshire Planning Commission, June 1987;
- * "Regional Solid Waste Management Plan," TriCounty Solid Waste Management District, May 1985;
- * "Master Plan Town of Raymond," February 1989;
- * "Master Plan for the Town of Chester, New Hampshire," May 1986;
- * Master Plan for the Town of Nottingham, February 1987, amended 1990;
- * Master Plan for the Town of Epping, October 1982;
- * Master Plan for the Town of Fremont, 1987;

- * Water Resource Plan for the Town of Epping, November 1990, revised February 1991; and
- * Water Resource Plan for the Town of Fremont, August 1991.

Potential Nonpoint Pollutant Sources

Nonpoint pollutant sources are those which are diffuse in nature and which discharge pollutants over an area into the environment. Local examples of these are the following sites which were identified in the "Inventory of Groundwater and Surface Water Potential Nonpoint Pollution Sources." The location of each of these sites is identified on Map 8.

1. Sanitary Waste Disposal Systems:

- * Two concentrations of subsurface disposal systems have been identified -- one is around the westerly, northerly and easterly shores of Governor's Lake in the north central part of Town, and the other is at the Green Hills trailer park in the southeastern part of Town.
- * The Town of Raymond does not have a municipal sewerage collection and treatment system.
- * The septage disposal site which has been identified at the municipal sanitary landfill on Prescott Road is no longer active. The septage lagoons were closed in 1984. The 1987 "Septage Management Study" indicates that Raymond has informal agreements with the City of Concord and the Town of Hampton for septage disposal at the respective wastewater treatment plants.

2. Sanitary Landfills and/or Dumps:

- * The abandoned dump and the closed sanitary landfill are located on Prescott Road.

3. Road Salt Storage Sites:

- * The Raymond Highway Department reportedly stores approximately 600 tons of road salt annually, in a shed, at the Department garage on N.H. Route 27/107.
- * The New Hampshire Department of Transportation reportedly stores, on an annual basis, an estimated 180 tons of salt indoors and an estimated 1,000 tons outside, under a polyethylene cover at its facility, also on N.H. Route 27/107.

4. Salted Roads:

- * Between the New Hampshire Department of Transportation and the Raymond Highway Department, all state- and town-maintained roads are salted during the winter season.

5. Snow Dumping Sites:

- * No snow dumping sites were identified. Snow dumping sites are sometimes used in communities for the disposal of snow which has been removed from roadways and parking lots, and contains concentrations of deicing compounds.

6. Urban Runoff:

The relatively higher density and somewhat wider range of land use activities usually associated with urbanizing areas have a proclivity toward producing concentrations of a variety of potential contaminants. The "Inventory of Groundwater and Surface Water Potential Nonpoint Pollution Sources" identifies only one area within the community where contamination potential exists due to urban runoff. Runoff from the Raymond downtown area flows to the Lamprey River.

7. Pesticide Application:

The extent of the area affected by pesticide applications resulting from agricultural operations is not believed to be as large now as it was when identified in the 1982 "Inventory..." In 1982, the Water Supply and Pollution Control Commission identified an area in the extreme southeasterly corner of the community, bound by a line lying parallel to and approximately three-quarters of a mile westerly of N.H. Route 102, Batchelder Road, N.H. Route 107, and the Fremont and Chester town lines. As a result of subsequent land use changes, the area presumed to be affected today has been significantly reduced.

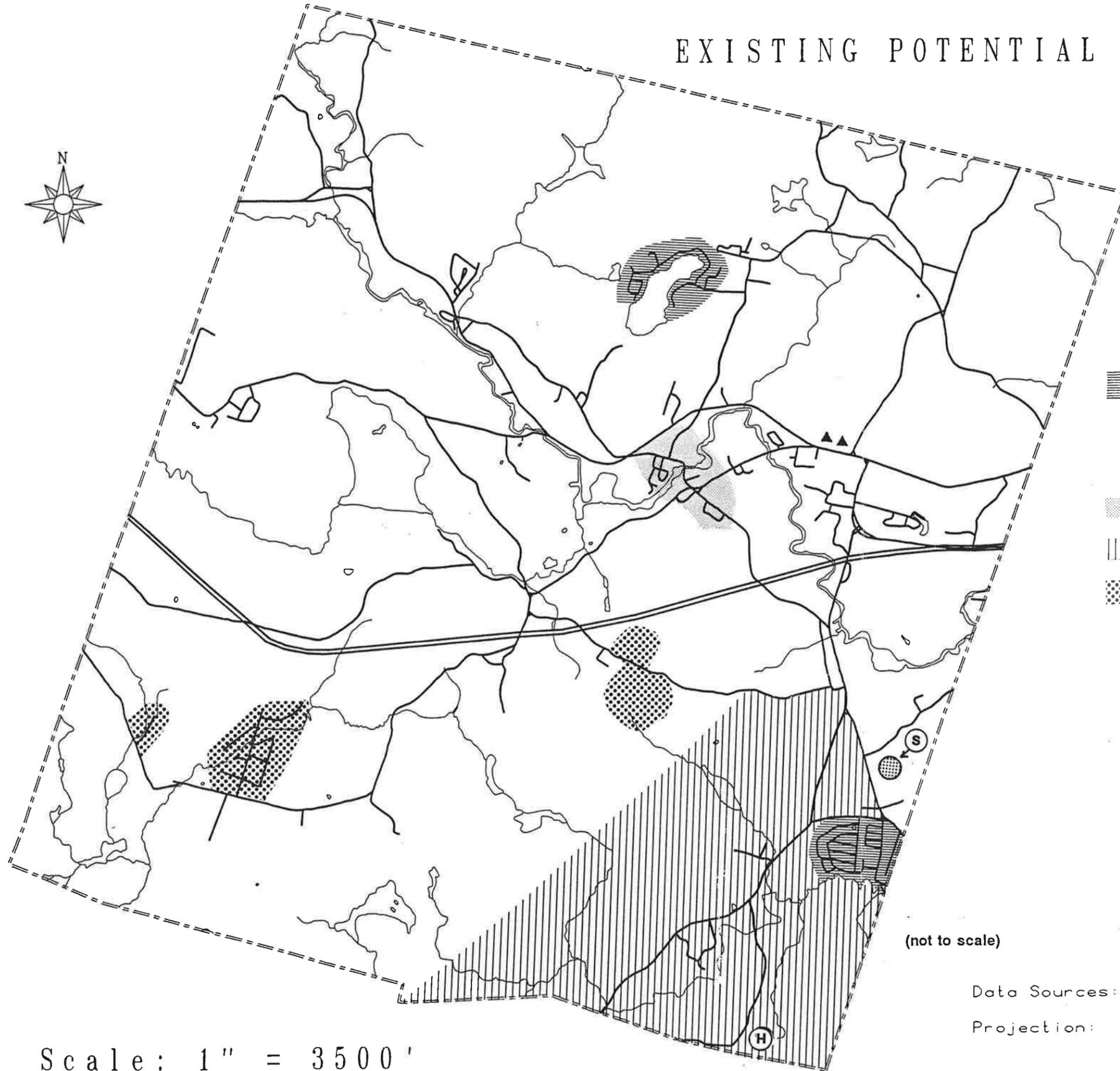
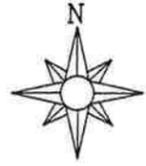
8. Erosion Sites:

Four areas were identified in the Water Supply and Pollution Control Commission's "Inventory..." as locations where erosion problems resulting from development activities or land use practices contribute to the deposition of sediment in nearby surface waters and/or wetland areas. They are:

- the Saddlepath Road and Tamarack Lane area;
- the Old Bye Road development area;
- the Pierce Road and Adams Way area; and
- the Washington Road development area.

MAP 8

EXISTING POTENTIAL NON-POINT POLLUTANT SOURCES



-  Concentration of Subsurface Wastewater Disposal Systems
-  Abandoned Dump and Closed Landfill
-  Salt Storage Site
-  Urban Runoff Area
-  Pesticide Application Area
-  Erosion Site
-  Former Septage Disposal Lagoons
-  Mottolo Hazardous Waste Site
- All State and Town Roads are Salted

Sources: "Inventory of Groundwater and Surface Water Potential Nonpoint Pollution Sources," WSPCD (1982); "Waste Site Inventory," NHDES (1987); Raymond Public Works Director (1992)

(not to scale)

Data Sources: 1:24000 Roads and Water by SNHPC, from 1981 USGS quad sheets.
Projection: Stateplane Feet

Scale: 1" = 3500'



An additional nonpoint threat to Raymond's water resources has also been identified. The Mottolo Superfund Site, located to the east of Blueberry Hill Road, contains illegally-disposed of chemical manufacturing wastes. Volatile organic compounds leaking from drums buried at this site have been detected in samples of surface and groundwater taken in and around the dump.

According to the Code Enforcement Officer, as of July 28, 1992 there were no recently approved projects that had not yet received building permits, nor were there any projects pending before the Planning Board, which are subject to subdivision and/or nonresidential site plan review, that, if approved, would be likely to result in the addition of any potential nonpoint pollutant sources.

By June of 1993, the New Hampshire Department of Environmental Services is expected to have compiled an update of the potential nonpoint pollutant sources in the Town of Raymond.

Potential Point Pollutant Sources

The rules governing the preparation of local water resource management and protection plans define point pollutant sources to mean "any discernible, confined or discrete conveyance from which pollutants are or may be discharged, including but not limited to, pipes, ditches, channels, tunnels, conduits, wells, containers, rolling stock, concentrated animal feeding operations, or vessels."

New Hampshire Department of Environmental Services personnel were contacted by the Southern New Hampshire Planning Commission in September 1991 for purposes of identifying the locations of potential point pollutant sources in the Town of Raymond. The bases for such information were the records of permits issued by the U.S. Environmental Protection Agency (E.P.A.) under the National Pollutant Discharge Elimination System (NPDES) for surface water discharges, and by the Department of Environmental Services under the New Hampshire Code of Administrative Rules Ws 410 for groundwater discharges.

According to staff of the Permits Section, Water Supply and Pollution Control Division of the New Hampshire Department of Environmental Services, as of September 11, 1991 no surface water discharge permits had been issued in Raymond by the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System (NPDES), and no applications have been made to EPA for such permits as of that date.

Files maintained by the New Hampshire Department of Environmental Services indicated that, as of July 28, 1992, three (3) permits had been issued in Raymond under the New Hampshire Code of Administrative Rules, Part Ws 410, for groundwater discharges. Each of the permit applications contains maps to identify the proposed locations of the monitoring wells. File data that was available concerning these permits is summarized below. The

sequence in which these data are presented corresponds to the numerical order in which the permit sites are identified on the "Existing Point Pollutant Sources" map (Map 9).

1. Permit Holder: G.H. Holdings, Ltd.

Site Name: Norris Farms at Flint Hill

A proposed 111-unit cluster residential development.

Permit No.: GWP# 8804-19R

Purpose: sanitary wastewater, up to 56,575 gallons per day to 31 leachfields

The permit was issued on April 12, 1988, and requires the installation of 6 groundwater observation wells and 5 surface water sampling stations at various locations throughout the property.

No groundwater sampling data is contained in the file. The Department sent a letter dated August 23, 1991 to the holders advising that sampling data has not been received as per the permit requirement.

(NOTE: The Code Enforcement Officer reported on July 28, 1992 that this project was never built. This would explain the absence of sampling data in the NHDES files.)

2. Permit Holder: Mr. Charles Mutrie

Site Name: Onway Village, Inc.

A proposed 300-site cabin colony campground.

Permit No.: GWP# 840492-R-001

Purpose: sanitary wastewater, up to 43,225 gallons per day to 20 leachfields, for 9 months out of the year

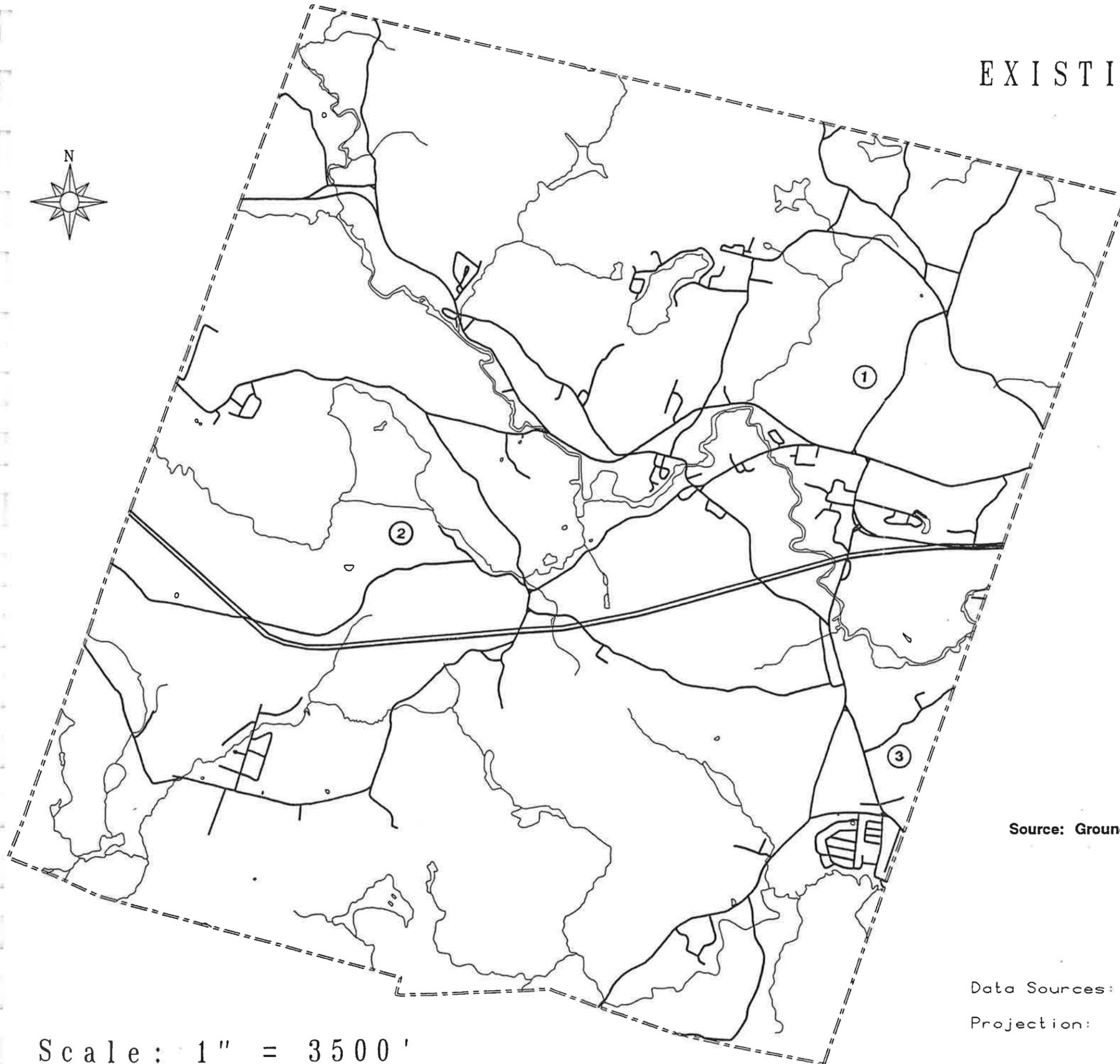
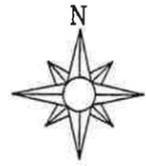
The permit was issued on January 11, 1988, and requires the installation of 15 groundwater observation wells at various locations throughout the property.

No groundwater sampling data was contained in the file. The Department notified the permit holder by letter dated August 15, 1991 that sampling data had not been received in accordance with the permit requirements.

(NOTE: The Code Enforcement Officer reported on July 28, 1992 that this project has not been built. This would explain the absence of the sampling data.)

MAP 9

EXISTING POINT POLLUTANT SOURCES



Ws 410 Permit Sites

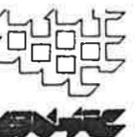
- ① Norris Farms at Flint Hill
- ② Onway Village, Inc.
- ③ Town of Raymond

(See text for data)

Source: Groundwater Protection Bureau, NHDES (1992)

Data Sources: 1:24000 Roads and Water by SNHPC, from 1981 USGS
quad sheets.
Projection: Stateplane Feet

Scale: 1" = 3500'



3. Permit Holder: Town of Raymond

Site Name: Municipal Landfill

Permit No.: GWP# 840492-R-001

Purpose: to monitor landfill leachate

The permit was issued on February 1, 1991, and requires the installation of 9 groundwater observation wells and 1 surface sampling station. Five of the wells are on the landfill property; one is offsite, southwesterly of the property; three are offsite, northerly of Prescott Road; and the surface sampling station is offsite, also northerly of Prescott Road, in the Hammond manufactured housing park.

The latest sampling data was submitted to the Department on June 22, 1992.

In addition, the May 1992 "Wellhead Protection Program Raymond, New Hampshire" identified twenty-seven potential contamination sources within the municipal wellhead protection area and within the Lamprey River aquifer area which also qualify as potential point pollution sources. Specific details concerning each of these sources are contained in the referenced document which is on file with the Raymond Planning Board, the Office of State Planning, the N.H. Department of Environmental Services, and the U.S. Environmental Protection Agency.

Underground Storage Tanks

According to information reported by the Underground Storage Tank (U.S.T.) Program of the Water Supply and Pollution Control Division of the New Hampshire Department of Environmental Services, as of April 4, 1989 there were forty-two (42) underground petroleum storage tanks widely dispersed among sixteen (16) sites within the Town of Raymond. The U.S.T. inventory appears herein as Appendix V. Each of the tanks listed in the inventory, with the possible exception of nine (5 of which reportedly have been taken out-of-service temporarily, and 4 which are permanently out-of-service), which reportedly are empty, has the potential for contaminating surface and groundwater resources.

The approximate locations of the tank sites (both active and abandoned tanks) are shown herein on Map 10, which was prepared by the Commission with the assistance of the Town of Raymond Code Enforcement Officer. Sites numbered 1 - 16 are those identified in the U.S.T. inventory. Sites numbered 17 - 19 are the locations of newer facilities which have been identified by the Code Enforcement Officer, and which did not appear on the state's inventory. Detailed data relative to each site listed in the U.S.T. inventory (keyed to the site numbers appearing on Map 10) is presented in Appendix V. Such information includes the site number; site

address; the owner's name; whether the tank is active (in service); temporarily out-of-service; or abandoned (permanently out-of-service); the size of the tank (capacity in gallons); the type of construction; the year in which the tank was placed in service; the year in which it was taken out-of-service (if applicable); the type of product now or formerly stored; and an indication as to whether or not the tank is equipped with a leak detection system or a leak containment provision.

The capacities of the 33 active tanks, and the 5 which are only temporarily out-of-service, range from 275 gallons to 15,000 gallons. Twenty-nine (88 percent) of the active tanks have capacities of 1,000 gallons, or more. The total capacity of underground petroleum storage (the active tanks and those temporarily out-of-service) as of April 4, 1989 reportedly was 236,525 gallons. A summary of this storage capacity, by type of product, is presented in Table 3.

Table 3

TANK STORAGE CAPACITY BY TYPE OF PRODUCT

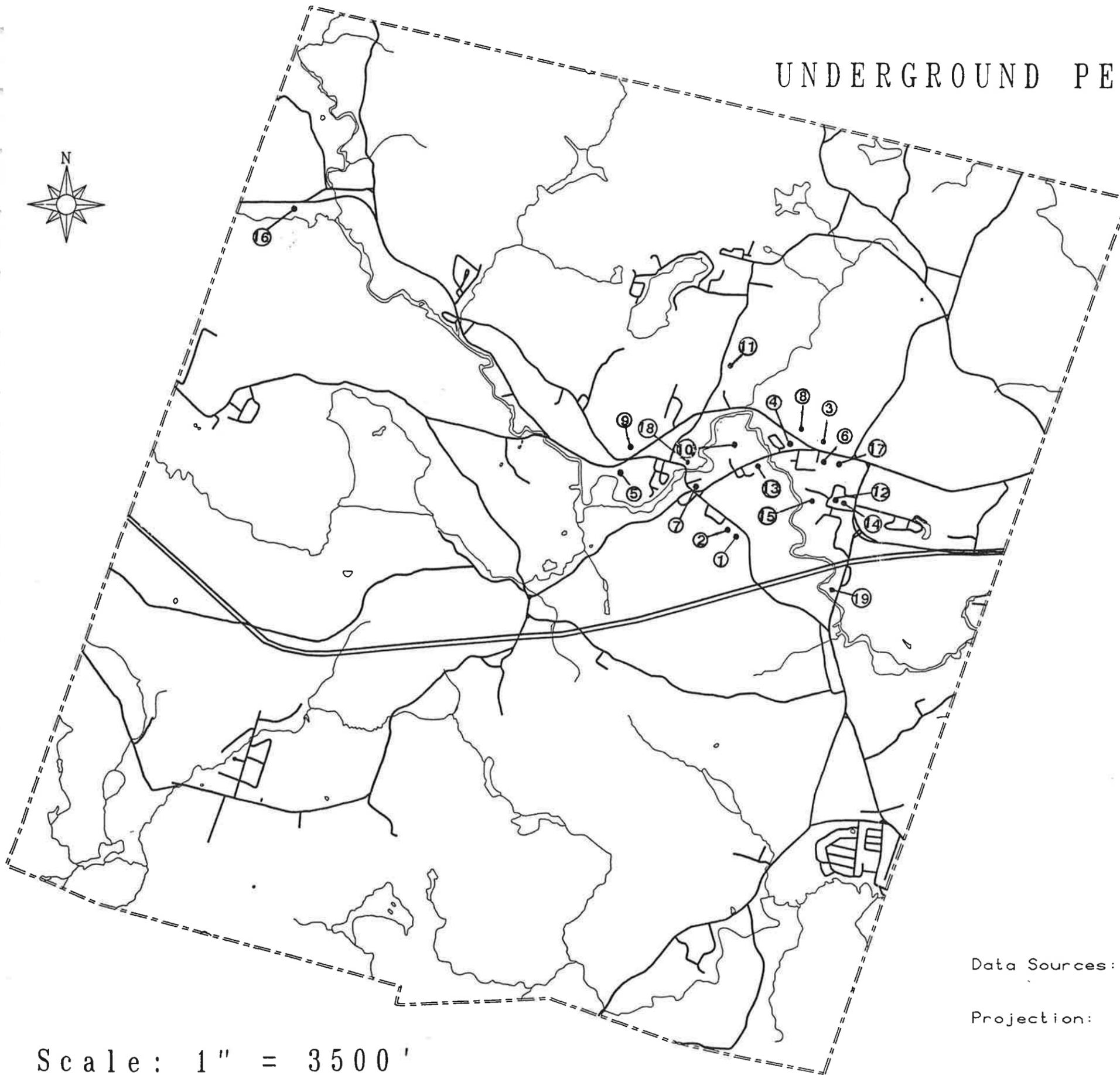
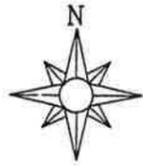
<u>Type of Product</u>	<u>Total No. of Tanks</u>	<u>Total Storage Capacity (Gal.)</u>
Gasoline	18	118,020
Diesel	7	24,620
Heating Oil	9	91,060
Kerosene	2	2,000
Used Oil	<u>2</u>	<u>825</u>
TOTALS	38	236,525

Eighteen of the active tanks are less than 10 years old; 13 are from 10 to 20 years old; and 2 are more than 20 years old. As of 1991, the two oldest tanks are 23 and 24 years old. The two oldest tanks may have been replaced since the 1989 inventory was compiled.

The New Hampshire Code of Administrative Rules, Part Ws 411 requires that the owners of underground petroleum storage tanks which are 25 or more years old either (a) replace the tanks (the option preferred by the New Hampshire Department of Environmental Services), or (b) install monitoring wells to detect leakage. Upon conviction for noncompliance, the owners are subject to a fine in the amount of \$10,000. per day.

MAP 10

UNDERGROUND PETROLEUM STORAGE TANK SITES

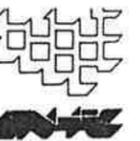


LEGEND

- TANK SITE
(LOCATION IS APPROXIMATE)
- ② SITE NUMBER
(SEE APPENDIX V FOR TANK DETAILS)

Data Sources: 1:24000 Roads and Water by SNHPC from 1981 USGS quad sheets; Tank locations from NH Department of Environmental Services and Town of Raymond.
Projection: Stateplane Feet

Scale: 1" = 3500'



Existing and Future Land Use

A variety of sources were utilized to help identify the potential for existing and future land use activities to impact the quantity and/or quality of Raymond's water resources.

The February 1989 Master Plan served as the reference resource for existing land use information and for the future land use recommendations in the Town of Raymond. This plan does not include a recommended future land use map. The current Raymond zoning ordinance and map (1992) served as the more specific reference for definition of the land use potential in the Raymond watersheds.

The existing and future land use information for watersheds extending beyond Raymond's boundaries is based upon master plans for the towns of Candia (1986), Chester (1986), and Deerfield (1987); and the current zoning ordinances for these communities, all of which are on file with the Southern New Hampshire Planning Commission.

Existing land use information for the towns of Epping and Fremont was obtained from excerpts of the local water resource management and protection plans for these communities, which are dated 1991 and which are on file at the Office of State Planning. Existing land use information for the Town of Nottingham was obtained from the February 1987 master plan (amended in 1990) which is on file at the Office of State Planning. Zoning requirements for Epping (1990), Fremont (undated), and Nottingham (1992) are according to the ordinances for these communities which are on file at the Office of State Planning.

Existing and future land use information is thus presented on a watershed basis, as follows:

1. **Flint Hill Watershed** - Much of the Raymond portion of this watershed (particularly the northerly part) is still relatively undeveloped. The majority of the existing development in this area is located adjacent to the major roads, and is characterized by single family dwellings on two acre lots, particularly to the north of N.H. Route 27. The most notable difference in the existing land use pattern of the watershed is in the southerly portion which is bound roughly by the Lamprey River, N.H. Route 27 and N.H. Route 101. In this area there is a greater mix of commercial, industrial, low density residential (2-acre lots), and high density residential (less than one-half acre lots).

The northerly portion of the watershed is generally characterized by Residential/Agricultural zoning (2-acre lots), whereas, the southerly portion is typically a broader mix of Residential (20,000 square foot lots with municipal water; 40,000 square foot lots without municipal water), Residential/Agricultural, Commercial (2-acre lots), and Industrial (2-acre lots), with the

majority of the land area being classified as Residential and Industrial.

Municipal water service is generally limited to the Epping Street, Route 27, Route 107 and Route 156 areas where much of the commercial and industrial activities are located. The remainder of the developed portion of the watershed is served by on-site water supplies. All developed land uses in the Raymond portion of the watershed are served by subsurface wastewater disposal systems.

Although the 1989 Master Plan does not contain a generalized future land use plan map, the Plan does; however, present two general recommendations. One is to maintain sufficient minimum lot size requirements to avoid the need for municipal sewerage service, and the other is to protect, for their intended use, the remaining limited areas which are zoned for commercial and industrial purposes.

An insignificant portion of this watershed, which is undeveloped, lies within the Town of Nottingham.

A relatively small portion of this watershed lies within the Town of Epping. The Epping portion, like Nottingham, is undeveloped woodland. The generalized future land use recommendation for this portion of the watershed, according to the Epping water resource plan, is low density residential and aquifer protection. The current zoning is residential with minimum 40,000 square foot lots required. Neither municipal water nor municipal sewerage service is available in the Epping portion of the watershed.

2. **Pawtuckaway River Watershed** - The Raymond portion of this watershed is relatively undeveloped and wooded in character. Existing land use is characterized by single family dwellings scattered at a low density along the few roads in the watershed. All developed land uses must rely upon on-site water supplies and subsurface wastewater disposal systems.

The entire Raymond portion of the watershed is zoned Residential/Agricultural, wherein the minimum lot size is two acres. The Master Plan recommendation for the area is for the Planning Board to encourage use of the cluster development concept where the land will support a more intensive residential activity, and thereby preserve more open space in this zoning district.

The largest portion of this watershed lies within the Town of Nottingham. The Nottingham portion lies southeasterly of Pawtuckaway Lake. Development in this area is very sparse, being generally limited to scattered

single family dwellings in the Route 156 area. Residential, commercial and industrial uses are allowed throughout Nottingham; however, commercial and industrial uses require a special exception. The minimum lot size, for any use, is two acres. All development in Nottingham, currently and in the foreseeable future, must rely upon on-site water supplies and subsurface wastewater disposal systems.

3. **Dudley Brook Watershed** - The majority of the Raymond portion of the Dudley Brook watershed consists of undeveloped woodland. The most significant development is characterized by the high density residential use bordering the shoreline of Governors Lake. Scattered residential development, typically on lots of two acres, or larger, has been identified along Long Hill Road in the southerly part of the watershed. Scattered and mixed relatively low density residential and commercial development, is located adjacent to N.H. Route 27, also in the southernmost part of the watershed. Two multi-family residential sites are located in the extreme southerly end of the watershed, between Route 27 and the Lamprey River.

Municipal water service is only available in the extreme southeasterly corner of the area. All developed uses must rely upon subsurface wastewater disposal systems.

The majority of the Raymond portion of this watershed is zoned for residential-agricultural use on 2-acre lots. The frontage, along both sides of Route 27, is zoned for 2-acre commercial lots. Only the extreme southeasterly corner of the watershed, with areas on both sides of Route 27, is zoned residential, with 20,000 square foot lots allowed in two developments served by the municipal water system.

The Nottingham portion of this watershed is essentially undeveloped and inaccessible. It is zoned residential, with the minimum lot size being two acres.

The Deerfield portion of this watershed is undeveloped woodland which lies easterly of the end of Brown Road. The area is zoned residential-agricultural, with the minimum lot size permitted being three acres.

Developed use in the Nottingham and Deerfield portions of this watershed must rely upon on-site wells and septic systems.

4. **Robinson Hill Watershed** - The Raymond portion of this watershed is largely undeveloped woodland. N.H. Routes 27 and 107 are essentially the only roads within the area, and these generally border the westerly and the southernmost portions of the watershed. Existing

development is characterized by a sparsely scattered mix of single family residential and commercial uses being adjacent to these roadways, with the exception of a portion of a relatively large manufactured housing park which is on the northerly side of Route 27, in the southeasterly corner of the watershed.

All developed uses must rely upon on-site water supplies and subsurface wastewater disposal systems.

With the exception of the frontage which is immediately adjacent to either side of Route 27 being zoned for commercial use (minimum 2-acre lots are required), the remainder of the watershed is zoned for low density residential use, also on 2-acre lots.

The relatively small portions of the watershed which have been identified within the towns of Deerfield and Nottingham are undeveloped and inaccessible. In each case, these areas are zoned for residential use with 3-acre lots required in Deerfield, and 2-acre lots required in Nottingham. Future uses in these areas will have to rely upon on-site water supplies and subsurface wastewater disposal systems.

5. **Lamprey River "A" Watershed** - The Raymond portion of this watershed area is relatively undeveloped, with the only existing use being a few scattered low density single family dwellings identified adjacent to Critchett Road, and the very small segment of Dudley Road. These are the only roads in the Raymond part of the watershed. These dwellings rely upon individual on-site wells and septic systems. The area is zoned Residential/Agricultural with minimum 2-acre lots being required.

The small Deerfield portion of the watershed consists of undeveloped woodland and wetland. The zoning classification is agricultural-residential with 3-acre lots required. Future development will have to provide on-site water and wastewater disposal services.

The Candia portion, which is zoned residential (3-acre lots), is largely comprised of undeveloped woodland. Only three single family dwellings have been identified adjacent to the small portion of Critchett Road which crosses the southerly part of the Candia portion of the watershed. These dwellings are served by individual wells and septic systems.

6. **North Branch "A" Watershed** - The northerly part of the Raymond portion of this watershed, north of Route 27, is undeveloped. A tire retreading business, a portion of the Thibeault gravel pit and a handful of single family dwellings, all scattered at a low density, have been identified in the southerly part, adjacent to the state

highway. All developed land use activities in the watershed are served by individual wells and septic systems.

The majority of the Candia portion of this watershed is also undeveloped. Only a relatively few scattered low density single family dwellings are located adjacent to Route 27, which crosses through the southerly part; adjacent to Island Road, which parallels the westerly boundary; and along Critchett Road, which passes through the northerly portion. All developed uses within the Candia portion must also rely upon individual wells and septic systems. The Candia portion of the watershed is zoned residential with minimum 3-acre lots required.

7. **North Branch "B" Watershed** - With the exception of a portion of the Thibeault gravel pit and two relatively small single family subdivisions, one of which is adjacent to the Candia line, and the other, which is off the southerly side of Langford Road, and each of which is comprised of 2-acre lots, the largest part of the Raymond portion of this watershed is undeveloped. The residential uses are served by wells and subsurface wastewater disposal systems. The area is zoned residential-agricultural, with the minimum required lot size being two acres.

The Candia portion of this watershed is sparsely developed, with low density single family use generally characterizing the area. All developed uses are served by individual wells and subsurface wastewater disposal systems. The largest part of this portion of the watershed is zoned residential, with three acre lots being required. Both sides of Route 27 are zoned commercial, with the minimum lot size being two acres.

8. **Onway Lake Watershed** - The vast majority of the Raymond portion of the Onway Lake watershed is undeveloped. Developed land use is characterized by low density single family use along the few roads in the area. The significant exception to this characteristic is the relatively high density residential use identified in two locations along the northerly shore of Onway Lake, from which this watershed gets its name. The entire Raymond portion of this watershed is zoned for low density residential-agricultural activity on 2-acre lots. Developed uses in the Raymond portion of the watershed are served by on-site wells and individual subsurface wastewater disposal systems.

The larger portion of this watershed lies within the Town of Candia, extending westerly to beyond the N.H. Route 101 exit 3 area. The Candia portion is generally undeveloped, although one would not get this impression when traveling along Business Route 101 which closely

follows the northerly border of the watershed. This route happens to contain a significant mixture of what might be characterized as low to medium density residential and commercial land use.

Throughout the rest of the watershed, the characteristic developed land use activity is low density single family residential along the few older roads. All developed uses within the Candia portion of this watershed are served by on-site wells and septic systems.

Most of the area is zoned for residential use on 3-acre lots. The northerly side of Business Route 101 is zoned for commercial use with two acres being the minimum lot size required. The area which generally surrounds Route 101, exit 3, is classified as industrial, with minimum 4-acre lots required.

9. **Fordway Brook Watershed** - The Fordway Brook watershed is the largest in the community. Most of the area is inaccessible since the primary roads are Lane Road, in the westerly part of the watershed, and Chester Road (N.H. Route 102), in the easterly part. The extensive acreage in between is undeveloped, and would have to be accessed from one or the other of these roads. The little development that there is in the Raymond portion of this watershed is characterized by low density single family dwellings, the largest concentration of which is within a subdivision extending northerly from Lane Road. Existing development is generally on lots of two acres or more.

The entire watershed area is zoned for low density residential use, with 2-acre lots being required. All existing and future land use in the Raymond portion of the watershed are/will be served by on-site water supply and wastewater disposal systems.

A relatively small portion of the watershed lies in the southeasterly corner of the Town of Candia, most of which is undeveloped woodland. The little development in the Candia portion is comprised of scattered, low density residential use. The area is zoned for single family residential development on 3-acre lots. All existing and future land uses will have to rely upon on-site wells and septic systems.

Most of the Chester portion of this watershed is undeveloped woodland. The Town of Chester open landfill is in this watershed, to the west of Route 102, just south of the Raymond town line. Low density single family residential development exists in scattered locations along Lane Road and on the northerly side of N.H. Route 102. All developed land uses in the Chester portion of the watershed are served by on-site wells and

individual subsurface wastewater disposal systems. All of the Chester portion of this watershed is zoned for residential use, with the vast majority being limited to single family detached dwellings on 2-acre lots. A very small part is zoned for manufactured housing park development, with the minimum lot size being one-half acre per dwelling unit.

10. **Lamprey River "B" Watershed** - This, the second largest watershed in the community, extends through the center of the town, along the southerly side of the Lamprey River, into the towns of Fremont and Epping. Despite its relative location in the community, much of the watershed is still undeveloped.

This watershed includes the downtown area where there is a mix of relatively high density residential, high density commercial, and municipal offices. In the somewhat rural areas to the west and the south of the downtown, development is typically characterized by a mix of scattered low density single family dwellings and some relatively small single family subdivisions. A number of sand, gravel and quarrying operations are also located in the westerly part of this watershed. Municipal water service is available in the downtown area, and extends southeasterly along Main Street to N.H. Route 107 and to the Fremont town line.

The zoning over most of the watershed is residential with minimum 2-acre lots needed. In the residential district where municipal water service is available, dwellings may be placed on 20,000 square foot lots. Most of that part of this watershed which is bound by Old Manchester Road, Epping Street, the Lamprey River, and N.H. Route 101 is zoned for industrial use. Minimum 2-acre lots are necessary in the industrial district. A relatively large area to the east of Route 107 and south of the Lamprey River is zoned for commercial use. Two acre lots are also required here.

All developed uses in the Raymond portion of the watershed which are not serviced by the municipal water system are served by private groundwater supplies. All developed uses must rely upon subsurface wastewater disposal systems.

The Fremont portion of this watershed is essentially undeveloped wetland.

The Epping portion of the watershed is largely undeveloped woodland, except for a relatively small, medium density single family subdivision near the Raymond line. Developed uses in the Epping portion of the watershed must rely on private groundwater supplies and individual on-site wastewater disposal systems. This

part of the watershed is zoned for medium density residential use on 40,000 square foot lots.

11. **Little Rattlesnake Hill Watershed** - The westerly two-thirds of this watershed is largely undeveloped and much of it is inaccessible. Development in this part of the watershed is characterized by low density single family residential use, some of which is scattered along the westerly side of Route 102. A low density single family subdivision is located in the far western part of this watershed. This particular development is accessible from Batchelder Road. A relatively small single family development is also off the westerly side of Route 102, in the southerly part of the watershed. Coastal Materials Corporation has an "active" 300 acre quarry in the area west of Route 102.

To the east of Route 102, the remainder of the Raymond portion of the watershed contains a relatively large, high density manufactured housing park. With the exception of this park, which is serviced by the municipal water system, all other developed uses in the Raymond portion of this watershed must rely upon on-site wells.

The entire part of the watershed to the west of Route 102 is zoned residential with minimum 2-acre lots required. That part of the watershed lying between Routes 102 and 107 is zoned for manufactured housing, also on 2-acre lots.

All developed uses in this Raymond watershed must rely upon individual subsurface wastewater disposal systems.

A very small portion of this watershed straddles Route 107 in the Town of Fremont. Development in this area is characterized by scattered low density residential use. Although Fremont does not have zoning districts per se, this portion of the watershed is "zoned" for residential activity on minimum 2-acre lots. All developed land uses in this part of the watershed must rely upon on-site water supply and subsurface wastewater disposal systems.

12. **Exeter River Watershed** - The Raymond portion of the Exeter River watershed is relatively undeveloped. The most significant developed land use is a low density single family housing development located on the easterly side of Blueberry Hill Road, in the easterly half of the watershed. The Raymond portion of the watershed is zoned for low density residential development (minimum 2-acre lots are required). All developed activities are served by on-site well water supplies and individual subsurface wastewater disposal systems.

The Raymond portion of this watershed also contains the Mottolo EPA Superfund site which is located on the easterly side of Blueberry Hill Road, in the southerly part of the watershed.

The Chester and Fremont portions of this watershed are extremely small and are comprised of undeveloped woodland. These watershed areas are both zoned for low density residential uses on minimum 2-acre lots. In each case, developed uses must rely upon individual wells and septic systems.

13. **Wason Brook Watershed** - The Wason Brook watershed area in Raymond is relatively small and undeveloped. It is zoned for low density residential use on two acre lots. Developed uses must rely upon individual wells and septic systems.

The Chester portion of this watershed is also undeveloped and zoned for low density residential use on two acre lots. Developed uses in this portion of the watershed must be served by individual on-site water supply and wastewater disposal systems.

Summary of Existing and Probable Future Threats to Water Quantity and Quality

Water Quantity - It is estimated that approximately fifty percent of Raymond's population is served by the municipal and/or other public water systems, with the remaining population being served by individual wells. Overall, the water consumed by Raymond residents is derived from groundwater resources.

It is generally accepted that a typical household requires approximately five gallons per minute (gpm) flow to meet most domestic needs; however, as little as three gallons per minute is believed to be tolerable. The well completion log data revealed that, in forty-five percent of the cases where yield data was reported, yields of 3 - 10 gpm were attained. In forty-three percent of the cases, yields in excess of 10-gpm were reported. Although yield information is suggestive of reasonably good groundwater production, it should not be considered a definitive indicator of future potential. Safe yield determinations should be based on sustained pumping tests.

It would appear that, unless hydrological data which indicates otherwise becomes available, the community's bedrock aquifers will likely be capable of supplying individual domestic needs, if not those of future small public systems. This presumption is, of course, based upon the premise that land use management and development controls and practices can be effectively administered and implemented to the degree necessary to assure proper groundwater recharge and quality.

Also on the quantity side, the May 1990 "Water Supply Study For Southern New Hampshire" projected that the year 2000 average daily demand on the Raymond municipal water system would be for approximately 0.40 million gallons (400,000 gallons per day) for a projected service population of approximately 4,200 persons. The 1990 study projects that, in the year 2000, the municipal system will have a surplus of approximately 0.90 million gallons per day (MGD). This figure is based on the estimated useable source capacity being 1.70 MGD less a maximum daily demand of 0.80 MGD.

Water Quality - The type and degree of threats to the quality of Raymond's surface and groundwater resources, from existing and probable future development, will be influenced by several factors, some of which will be beyond the control of Raymond officials. These factors include the types and densities of land use activities and the infrastructure deficiencies which, now and in the future, may be found to exist in the town and in those portions of the neighboring communities which lie within the watersheds which drain to Raymond. Should certain groundwater resources become contaminated, as they have in some areas of the community in the past, the Raymond Water Department may have to address additional requests for municipal water service extensions. In the event that the aquifers supplying the municipal system become contaminated, the community will be forced to locate and develop another source of supply.

It must be presumed that all existing and probable future development has and will have the potential to threaten the quality of the town's surface and groundwater resources. Site conditions, and the design, installation, performance, and maintenance of on-site wastewater disposal systems should be monitored closely, regardless of their location in the community. Existing and probable future development on or in proximity to all of the presumably productive aquifers identified in the 1990 study should be appropriately managed to protect them from potential contamination.

ASSESSMENT OF GROWTH IN DEMAND FOR WATER

Local water resource management and protection plans are required to include estimates and projections of water demand for residential, commercial, industrial, institutional, and agricultural uses.

The availability of reasonably reliable estimates of current water consumption is one input needed in the process of projecting anticipated growth in future demand. Several sources of such information are available, but all are not equally applicable for all communities, and are sometimes incomplete and/or outdated.

One potential data source is the Water Management Bureau, Water Resources Division, New Hampshire Department of Environmental Services. Under the New Hampshire Code of Administrative Rules, Part Wr 700, large water users (defined as individuals or systems

withdrawing 20,000 or more gallons daily from either a surface or groundwater source) must register with the Bureau. The January 17, 1989 "Summary of Withdrawals and Discharges Which Exceed 20,000 Gallons Per Day," compiled by the Bureau, identified the Raymond Water Department and two systems owned by the Southern New Hampshire Water Company as "large users" for which consumption data was provided.

Another reference resource for water consumption data is the "Public Water Supplies, Facilities and Policy Summary" report which was last published by the N.H. Water Supply and Pollution Control Commission (now the Water Supply and Pollution Control Division, N.H. Department of Environmental Services) in 1983. This report, the Division's "desk copy" of which was updated in 1986, listed only two large public water systems in the community --the Raymond Water Department and the Green Hills Estates systems.

These references, and the May 1990 "Water Supply Study for Southern New Hampshire," provided the basic data sources for purposes of developing estimates of existing and projections of future demand for water for the Town of Raymond.

Population data used herein consists of the 1990 town and average household populations for Raymond, as determined from analysis of the 1990 census, and the year 2000 town and average household populations projected in the 1989 Master Plan.

Estimates of existing, and projections of future demands for water are described in the following paragraphs.

Estimate of Existing Demand

Demand-related data (for residential, commercial, industrial, and institutional land uses) used for estimating purposes was obtained from the 1989 Master Plan, the 1990 water supply study, and the town's 1990 annual report. The 1989 Master Plan was the source for land use data; the water supply study provided estimates of existing and future per capita demand in addition to consumption data which was available by land use category; and the annual town report provided school enrollment figures.

Residential - The average per capita daily demand for municipal and other public water systems, and individual wells for the Town of Raymond, as derived from the 1990 water supply study, was 67.6 gallons. Using this average for the 1990 resident population of 8,713 persons, it is estimated that the 1990 average daily demand for water for domestic use was approximately 590,000 gallons.

Commercial - The 1990 water supply study estimated that all of the commercial sector customers on the municipal water system, on average, consumed a total of approximately 20,000 gallons per day.

Industrial - The 1990 study estimated that the industrial sector customers on the municipal water system, on average, also consumed approximately 20,000 gallons of water on a daily basis.

Institutional - Since the 1990 census reported that Raymond did not have any "institutional" population, for purposes of this study, "institutional" demand is presumed to be that which is created by the public school enrollment and by town and school district employees.

Since the 1990 water supply study does not provide detailed consumption data for the Raymond schools and other public facilities, the New Hampshire Code of Administrative Rules (Ws 1007.01) standard for septic tank design capacity (25 gallons per person per day) was used for purposes of estimating water demand. The 1990 annual town report indicated that school enrollment as of October 1, 1990 was 1,607 and that school district and town employees during 1990 numbered 114 and 112, respectively.

Applying the septic design standard to the combined enrollment and employment figures (25 gpd x 1,833) produces an estimated "institutional" sector water demand amounting to an average of approximately 46,000 gallons per day.

Agricultural - The 1989 Master Plan does not identify agriculture as a significant land use in the community. The estimated 1990 average daily demand for water by the agricultural sector could not be estimated due to the lack of information.

The 1990 average daily demand for water by all sectors is estimated to have been approximately 676,000 gallons. This estimate is summarized as follows:

1990 Estimated Average Daily Water Demand

Use Sector	Gallons
Residential	590,000
Commercial	20,000
Industrial	20,000
Institutional	46,000
Agricultural	*
Total	676,000

* Current demand could not be estimated due to the lack of information.

Projected Future Demand

The year 2000 projection of demand for water for residential use is based upon the year 2000 population projection of 14,200 persons cited in the 1989 Master Plan (Table 2.2 and text page 14),

and the assumption made in the May 1990 "Water Supply Study for Southern New Hampshire," (page 5-9) that the "...per capita demand can be expected to remain constant during the study period." Thus, the year 2000 residential demand is projected to average approximately 960,000 gallons per day (67.6 gpcd x 14,200 persons).

On the belief that the area economy will not experience another major downturn during the planning period (to the year 2000), it is presumed that, for the purposes of projecting commercial, industrial, and institutional water demands, the 1990 percentage shares of the estimated total local demand attributed to such uses would remain essentially the same through the year 2000. Those shares were as follows: commercial and industrial, 2.96 percent each; and institutional, 6.8 percent.

On the basis of these expectations, future demands for all sectors (except for agricultural, which could not be projected due to the lack of information on current consumption) in the year 2000 are projected to be approximately as follows:

Year 2000 Projected Average Daily Water Demand

<u>Use Sector</u>	<u>Million Gallons Per Day</u>
Residential	0.96
Commercial	0.03
Industrial	0.03
Institutional	0.08
Agricultural	*
Total	1.10

* Could not be projected due to lack of information concerning current demand.

At the present time, Raymond's water needs are being met through the combination of the municipal water system; numerous other public water systems; and many private wells.

DESCRIPTION OF THE INFRASTRUCTURE

Sources used to develop information pertaining to existing and future septic system usage; the incidence of chronic septic system failures; soil characteristics which have the potential for causing or contributing to future septic system failure; the adequacy of the solid waste disposal program; and the availability and adequacy of the public water systems and the wastewater disposal facilities in the Town of Raymond include the following:

* "Master Plan Town of Raymond," February 1989;

- * "Public Water Supplies, Facilities and Policy Summary," 1983, Water Supply and Pollution Control Division, N.H. Department of Environmental Services;
- * "Septage Management Study for the Southern New Hampshire Planning Subregion," 1987, Southern New Hampshire Planning Commission;
- * Town of Raymond Code Enforcement Officer- Health Officer, July 1992;
- * "TriCounty Solid Waste Management District, Update To Solid Waste Management Plan," August 1990, CMA Engineers, Inc.;
- * "Update, Status Report on Recycling Efforts, 1990," Southern New Hampshire Planning Commission

Septic System Usage

Septic system usage is prevalent in virtually all areas of the community. Since the Town of Raymond does not have a municipal wastewater collection and treatment system, all 3,350 year-round dwelling units in the community (reported by the Bureau of the Census for 1990) are presumed to rely on septic systems for sanitary wastewater disposal. (Census data on wastewater disposal methods is not yet available.) The 1990 resident population served by such systems was 8,713 (U.S. Census).

All areas of the town where future development can occur have the potential for experiencing growth in septic system use because the town has no plans to establish a municipal wastewater collection and treatment system.

Soil Potential Ratings

Because there are no plans to provide municipal sewerage service in the Town of Raymond, it appears that all future development will have to be served by subsurface wastewater disposal systems. As a result, knowledge of soils that are not suited for septic system operation, particularly on or in proximity to the aquifers, is essential to the planning process if the groundwater resources are to be protected and the public health and nuisance problems which are associated with septic system failure are to be averted.

Soil potential ratings pertaining to their use for septic tank absorption fields have been established for all Raymond soils by the Rockingham County Conservation District. Detailed explanations of these ratings are provided in Appendix VI.

Solid Waste Disposal

The Town of Raymond is an active member of the TriCounty Solid Waste Management District. According to the "Update of Solid Waste Management Plan" prepared for the District by CMA Engineers, Inc. (August 1990), the Town of Raymond discontinued primary use of its municipal landfill in 1984. The community contracts with the private sector for curbside pick-up and direct disposal at the commercial Turnkey Landfill in Rochester, New Hampshire.

In addition, the community operates a recycling program which, in 1990 produced approximately \$3,400. in revenue. Items accepted for recycling include aluminum cans, automotive batteries, scrap metal, and tires.

It is estimated that, during 1990, recycling involved only about four percent, by volume, (160 out of 3,660 tons) of the municipal solid waste.

Public Water Systems Drawing From Groundwater

According to maps, files and the "Public Water Systems Inventory" maintained by the Water Supply Engineering Bureau, Water Supply and Pollution Control Division, New Hampshire Department of Environmental Services, which were reviewed on September 11, 1991, there may be as many as forty (40) public water systems (one municipal and thirty-nine non-municipal), as defined in RSA 148-B:1, (IX), in the Town of Raymond drawing from groundwater Resources.

Fifteen of the thirty-nine non-municipal systems are identified as "community" water systems, meaning that they regularly serve at least fifteen connections used by year-round residents, or that they regularly serve at least twenty-five year-round residents. Twelve of the systems are considered "non-community" systems, since they do not meet either the service connections or the service population criteria. The type of the twelve remaining systems was not indicated.

The locations of only thirty-one of the thirty-nine non-municipal public water systems were identified on maps available at the Water Supply Engineering Bureau. The approximate locations of these systems are shown on Map 11. The characteristics of these systems, if such data was available in the D.E.S. files, are described below. The listing numbers associated with these systems, as they are described below, correspond with the mapped locations.

1. Penniwit Snack Bar (non-community system)
no longer exists
 - a. Source: a drilled well developed in 1966
 - b. Depth of well: 100 feet
 - c. Estimated yield: 50 gallons per minute
 - d. Treatment provided: none
 - e. Population served: 200 -300 (May 1 - August 31)
 - f. Date of file data: August 18, 1981.

2. Branch River Apartments (community system)
 - a. Source: two bedrock wells; both developed in 1987
 - b. Depths of wells: #1, 140 feet; #2, 240 feet
 - c. Estimated yields: #1, 26 gallons per minute; #2, 26.6 gallons per minute
 - d. Treatment provided: soda ash added to both wells to reduce the ph level
 - e. Population served: 48 dwelling units (139 persons)
 - f. Date of file data: April 11, 1989

(Town officials note that #1 and #2 are on the same property.)
3. "Muse" (type not indicated)
(no data in file)

(Town officials note that this system does not exist.)
4. Leisure Village (community system)
 - a. Source: bedrock well; date of development unknown
 - b. Depth of well: 290 feet
 - c. Estimated yield: 60 gallons per minute
 - d. Treatment provided: ultra violet light
 - e. Population served: 126 dwelling units (365 persons)
 - f. Date of file data: July 18, 1989
5. The Soup Bowl (non-community system)
no longer exists
 - a. Source: not indicated; date of development not indicated
 - b. Depth of well: 85 feet
 - c. Estimated yield: not indicated
 - d. Treatment provided: none
 - e. Population served: 100
 - f. Date of file data: not indicated
6. Marty's Stop Restaurant (community system)
(no data in file)

(Town officials note that this establishment no longer exists.)
7. Early Times (non-community system)
(no data in file)

(Town officials note that this system does not exist.)
8. The Pines Restaurant (non-community system)
(no data in file)
9. Raymond High School (non-community system)
 - a. Source: type of well not indicated; developed in 1987
 - b. Depth of well: 630 feet
 - c. Estimated yield: 40 gallons per minute

- d. Treatment provided: not indicated
 - e. Population served: not indicated
 - f. Date of file data: not indicated
10. Kristy Subdivision (community system)
(no data in file)
- (Town officials note that this subdivision is served by municipal water.)**
11. Ruth and Bill's Mobile Home Park (community system)
- a. Source: bedrock well; developed in 1969
 - b. Depth of well: 121 feet
 - c. Estimated yield: 11 gallons per minute
 - d. Treatment provided: none
 - e. Population served: 18 dwelling units (52 persons)
 - f. Date of file data: January 27, 1981
12. Englewood Trailer Park (community system)
- a. Source: bedrock well; date of development not indicated
 - b. Depth of well: 300 feet
 - c. Estimated yield: 40 - 80 gallons per minute
 - d. Treatment provided: none
 - e. Population served: 33 dwelling units (96 persons)
 - f. Date of file data: January 27, 1981
13. Woodland Acres Campground (non-community system)
(no data in file)
- (Town officials note that this campground does not exist.)**
14. Flinthill Campground (type not indicated)
(no data in file)
- (Town officials note that this campground does not exist.)**
15. Pawtuckaway Farms (community system)
- a. Source: two bedrock wells; developed in 1987
 - b. Depths of wells: #1, 505 feet; #2, 610 feet
 - c. Estimated yields: 13 gallons per minute; each well
 - d. Treatment provided: well #1, none; well #2, aeration and iron removal
 - e. Population served: 15 dwelling units (44 persons)
 - f. Date of file data: January 2, 1990
16. Essex Twins (type not indicated)
(no data in file)
- (Town officials note that this system does not exist.)**

17. Nawabganj Villa (community system)
(no data in file other than a system design plan dated 1987)
- (Town officials note that this project was never built.)**
18. Pine Acres Campground (non-community system)
- a. Sources: well #1, artesian well developed in 1967; well #2, dug well developed in 1970; well #3, dug well developed in 1970
 - b. Depths of wells: well #1, 150 feet; wells #2 and #3, 8 feet each
 - c. Estimated yields: well #1, 60 gallons per minute; not indicated for wells #2 and #3
 - d. Treatment provided: none for any well
 - e. Population served: not indicated
 - f. Date of file data: June 15, 1981
19. Walnut Hill Seminar House (non-community system)
(no data in file other than a site plan)
20. Camp Onway (non-community system)
(no data in file)
21. Riverview Townhouses (community system)
- a. Source: dug well; developed in 1983
 - b. Depth of well: 12 feet
 - c. Estimated yield: 30 gallons per minute
 - d. Treatment provided: iron and manganese removal
 - e. Population served: 44 dwelling units (128 persons)
 - f. Date of file data: August 24, 1989
- (Town officials note that, in addition to the iron and manganese removal, the water supplied by this system is also treated with chlorine.)**
22. Edgewater Cabins (type not indicated)
(no data in file)
23. Camp Se-Sa-Ma-Ca (non-community system)
(no data in file)
24. Liberty Tree Acres (community system)
- a. Sources: well #5, bedrock; well #6, bedrock; no date of development for either well; file indicates that four other wells are located on Pierce Road, but they are not used
 - b. Depths of wells: well #5, 375 feet; well #6, 625 feet
 - c. Estimated yields: well #5, 50 gallons per minute; well #6, 30 gallons per minute
 - d. Treatment provided: none for either well
 - e. Population served: 73 dwelling units (212 persons)
 - f. Date of file data: November 11, 1988

25. Batchelder Ridge (community system)
(no data in file)
26. Green Hills Restaurant (non-community system)
 - a. Source: artesian well; date of development not indicated
 - b. Depth of well: not indicated
 - c. Estimated yield: not indicated
 - d. Treatment provided: not indicated
 - e. Population served: 25 - 100 persons
 - f. Date of file data: June 8, 1981

(Town officials note that this establishment has not existed since 1984.)

27. Harry's Mobile Home Park (community system)
 - a. Source: artesian well; developed in 1966
 - b. Depth of well: 130 feet
 - c. Estimated yield: 40 gallons per minute
 - d. Treatment provided: none indicated
 - e. Population served: 27 persons
 - f. Date of file data: February 4, 1977
28. Clover Court Mobile Home Park (community system)
 - a. Sources: two bedrock wells; well #1 developed in 1973; well #2 developed in 1979
 - b. Depths of wells: well #1, 139 feet; well #2, 129 feet
 - c. Estimated yields: well #1, 9 gallons per minute; well #2, 20 gallons per minute
 - d. Treatment provided: none for either well
 - e. Population served; 18 - 20 dwelling units (52 - 58 persons)
 - f. Date of file data: February 15, 1980

NOTE: File indicates that a survey conducted by the N.H. Department of Environmental Services, dated May 1, 1989, revealed the following information on the Clover Court system:

- a. Depths of wells: well #1, 300 feet; well #2, 125 feet
- b. Estimated yields: well #1, unknown; well #2, 20 gallons per minute
- c. Storage capacity: two 4,000 gallon steel atmospheric storage tanks are provided
- d. Treatment provided: none for either well
- e. Service is provided to a laundromat, 2 stores, and 30 dwelling units.
- f. Survey reports that the owner planned to connect to the municipal water system in 1989.

According to the Raymond Water Department, a meter with 2-inch service from the municipal water system was connected on May 5, 1989 to serve only the thirty Raymond

homes. (Town officials note that the laundromat and the 2 stores indicated above are actually located in the Town of Fremont, and that they are not served by the Town of Raymond municipal water system.)

29. Green Hills Mobile Home Park (community system)
 - a. Sources: 4 gravel packed wells; dates of development indicated as "unknown"
 - b. Depths of wells: well #1, 18 feet; well #2, 18 feet; well #3, 29 feet; well #4, 19 feet
 - c. Estimated yields: well #1, 35 gallons per minute; well #2, 50 gallons per minute; well #3, 40 gallons per minute; well #4, 15 gallons per minute
 - d. Treatment provided: none for any well
 - e. Population served: 209 dwelling units (606 persons)
 - f. Date of file data: May 16, 1989

30. Anderson Mobile Home Park (community system)
 - a. Source: an artesian well; developed in 1967
 - b. Depth of well: 80 feet
 - c. Estimated yield: 45 gallons per minute
 - d. Treatment provided: iron removal
 - e. Population served: 27 dwelling units (78 persons)
 - f. Date of file data: not indicated

(Town officials note that the park has not existed since 1987.)

31. Kids Are Us Day Care (type not indicated)
(no data in file)

(Town officials note that this facility has been served by the municipal water system since 1987.)

In each of the above cases, where the "population served" figures are contained in parenthesis, they were computed on the basis of the number of dwelling units connected, as they were reported in the respective files, and the average population per dwelling unit, as was derived from the 1990 U.S. Census data (2.9 persons per occupied dwelling unit). In all other cases where "population served" figures are cited, they are reported as they appeared in the respective files.

Files were available at the Water Supply Engineering Bureau for six additional public water supply systems in the Town of Raymond drawing from groundwater. These systems were either not listed in the separate "Public Water Systems Inventory," or their locations were not identified on the available maps. These systems are identified as follows:

1. Nova Construction (community system)
(No data in file other than a subdivision plan, dated 1968, identified as the "Nova Heights Mobile Home Park" on N.H. Route 102)

(Town officials note that this park is not known in the community.)

2. Sunshine Child Care Center (non-community system)
(Also identified as the New Life Assembly of God on N.H. Route 156)
 - a. Source: bedrock well; date of development not indicated
 - b. Depth of well: 350 feet
 - c. Estimated yield: indicated as "unknown"
 - d. Treatment provided: not indicated
 - e. Population served: 40 persons
 - f. Date of file data: not indicated

3. Kountry Donut & Bake Shop (non-community system)
 - a. Source: artesian well; developed in 1980
 - b. Depth of well: 350 feet
 - c. Estimated yield: 8.5 gallons per minute
 - d. Treatment provided: none
 - e. Population served: 350 - 400 persons
 - f. Date of file data: September 22, 1981

(Town officials note that this establishment, now known as Raymond Realty, has been served by the municipal water system since 1987.)

4. Philbrick Campground (non-community system)
(no data in file)

(Town officials note that this campground does not exist.)

5. The Galaxy (non-community system)
(no data in file)

(Town officials note that the existence of this establishment is not known in the community.)

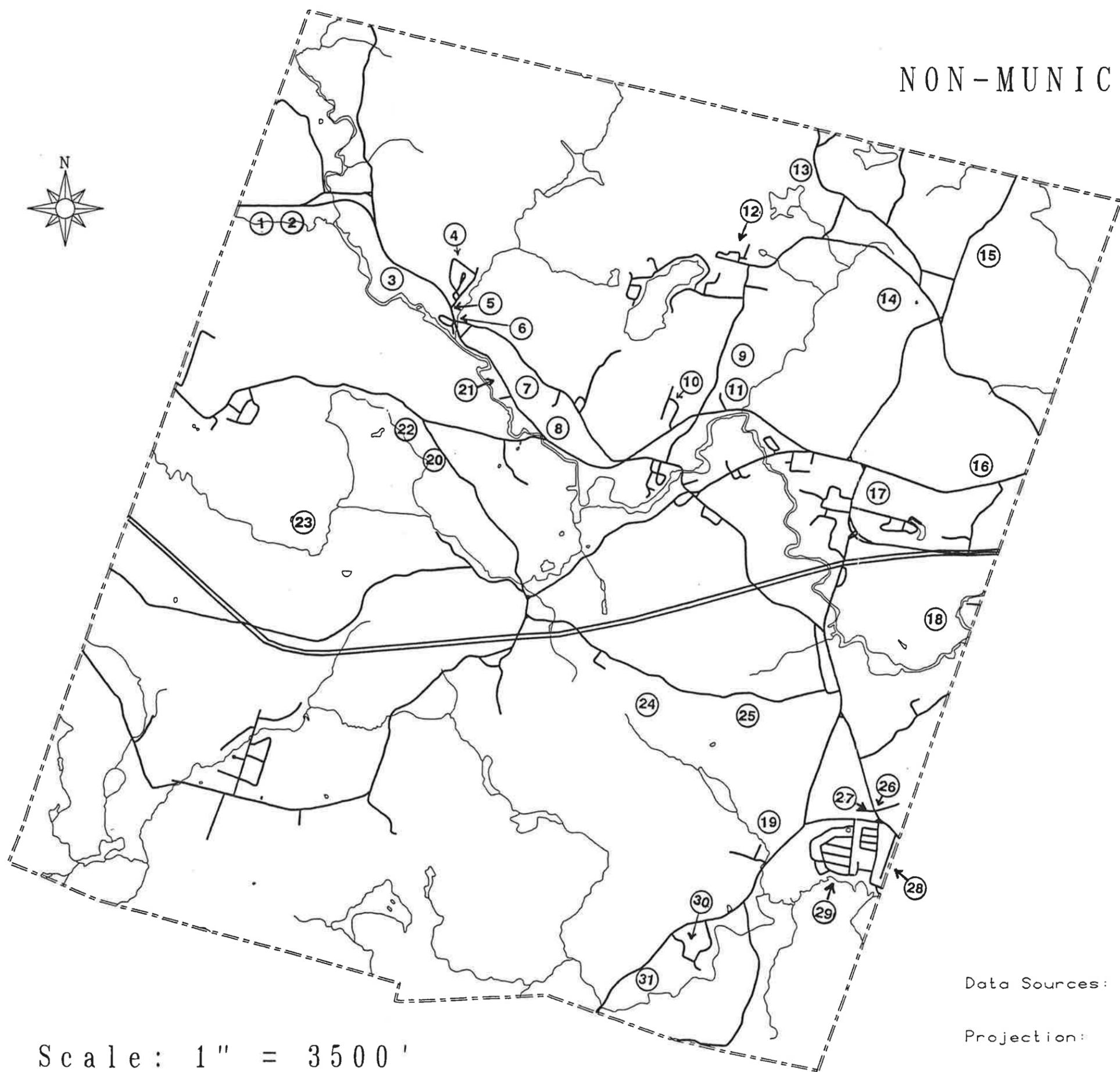
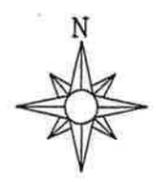
6. Whippoorwill Manor (non-community system)
(no data in file)

(Town officials note that this facility is now known as the Wellstone House, a retirement home.)

The Water Supply Engineering Bureau files did not contain any information regarding the adequacy of any of these groundwater systems to meet future demand for the 10-year planning period, nor did they contain any information concerning estimates of average daily consumption in terms of gallons per day.

MAP 11

NON-MUNICIPAL PUBLIC WATER SYSTEMS



LEGEND

⑫ System Identification Number
(See Text)

Locations are Approximate

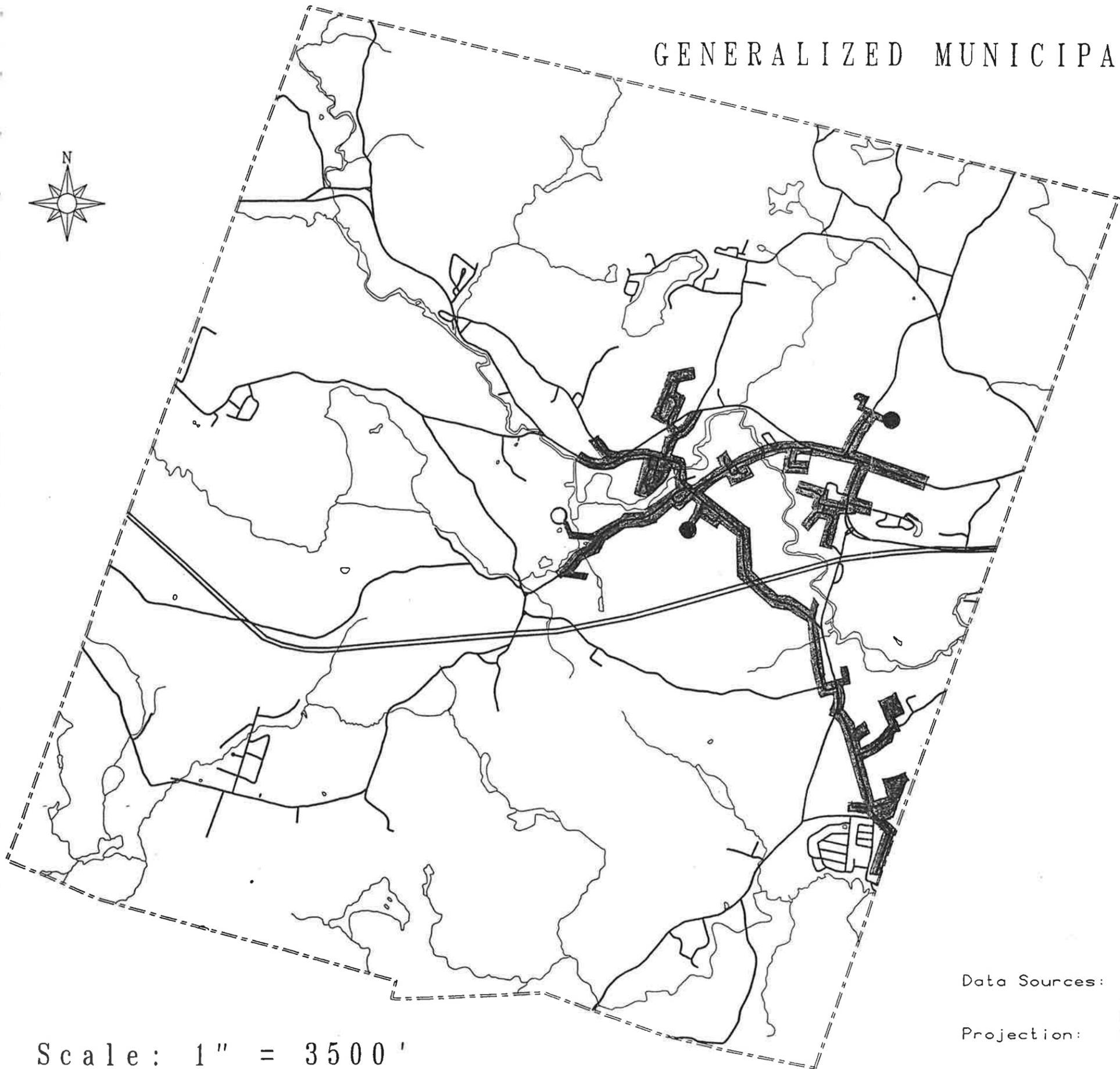
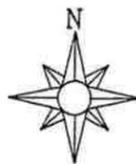
Scale: 1" = 3500'

Data Sources: 1:24000 Roads and Water by SNHPC from 1981 USGS quad sheets; System Identification Numbers from Water Supply Eng. Bureau, NHDES.
Projection: Stateplane Feet



MAP 12

GENERALIZED MUNICIPAL WATER SYSTEM SERVICE AREA

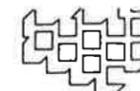


LEGEND

-  SERVICE AREA
(Extent is approximate)
-  WELLFIELD
-  STANDPIPE

Data Sources: 1:24000 Roads and Water by SNHPC, from USGS quad sheets. Service Area from Town of Raymond Water Department.
Projection: Stateplane Feet

Scale: 1" = 3500'



Data concerning the municipal water system (see Map 12 for the service area) is as follows:

- a. Source:
The system is supplied by two gravel packed wells. Well #1 was developed by the Manchester Sand and Gravel Co. (date unknown), and purchased by the Town in 1972. Well #2 was developed by the Town in 1989. The wellfield is located adjacent to the Lamprey River, about 1,400 feet northerly of Old Manchester Road, and about 2,000 feet easterly of Onway Lake Road.

A dug well located at the end of School Street, in the village, no longer supplies the system. The date of development, the depth of the well, and its estimated yield are all reported as being "unknown."
- b. Depths of wells:
The casings of wells #1 and #2 are reportedly each 50 feet deep.
- c. Estimated yield:
The maximum combined pumping rate for wells #1 and #2, as recommended by the Town's engineering consultant, is 650 gallons per minute.
- d. Treatment provided:
Wells 1 and 2 are each treated with caustic soda to control corrosion. An iron and manganese inhibitor is also added.
- e. Population served:
It is estimated that about 2,800 persons are served by the municipal system. This represents approximately one-third of the Town's 1990 population of 8,713 persons.
- f. Storage capacity:
Distribution storage is provided by two steel standpipes having a combined capacity of 720,000 gallons.

More information on the characteristics of the land use activities conducted within the drainage areas which contribute to the aquifers supplying wells 1 and 2 can be found in the June 1992 report "Wellhead Protection Program Raymond, New Hampshire."

Public Water Systems Drawing from Surface Water

The "Public Water Supplies, Facilities and Policy Summary" report last published by the Water Supply and Pollution Control Division, NHDES in 1983, and updated by the Water Supply

Engineering Bureau in 1986, does not identify any public water systems in the Town of Raymond which use surface waters as sources of supply.

Public Wastewater Treatment System

The Town of Raymond does not have a public wastewater collection and treatment system. The 1989 Master Plan reports that, although the 1978 "Wastewater Facilities Plan for the Town of Raymond" did not recommend the development of such facilities, the Plan stated that "It is anticipated that, at some point in the future, a large scale sewerage system will be required in the Town of Raymond."

The 1989 Master Plan states:

"The Town of Raymond has the potential for a serious environmental and public health problem if the trend of failed septic systems and groundwater contamination continues. As more land in Town is developed for residential uses, and as the municipal water system is extended, the porous soils will be required to handle additional discharge, and thus, compound the problem. The Town should be very observant as it monitors the rate of failed septic systems and water quality in the Town and surrounding areas. Preservation of groundwater supplies and the water quality of the Lamprey and Exeter Rivers are major concerns of the Town."

DESCRIPTION OF EXISTING PROGRAMS AND POLICIES

Local ordinances and regulations were reviewed by personnel of the Southern New Hampshire Planning Commission for the purpose of identifying the elements of each which have the potential for impacting water quality and quantity. More specifically, such review was conducted for the purpose of identifying any deficiencies in the local land use controls involving the lack of provisions for or inadequate provisions governing erosion and sedimentation control; the maintenance and/or control of surface water flows; groundwater recharge; the management of existing and potential contaminant sources; flood storage; wetlands encroachment; nutrient loading; and the protection of wildlife and fisheries habitat. The results of that review are summarized as follows:

Zoning Ordinance (last amended March 10, 1992)

1. Contains overlay floodplain development regulations which meet the current requirements of the National Flood Insurance Program for new developments and substantial improvements to existing structures located within the 100-year special flood hazard areas designated by the Federal Emergency Management Agency.

2. Prohibits, within the aquifer conservation district, the outdoor storage of road salt and other deicing chemicals; the dumping of snow containing road salt or other deicing chemicals; solid waste disposal sites; septage disposal sites and septage lagoons; automotive service and repair shops; junk yards, automotive junkyards and automotive salvage operations; and the storage of hazardous or toxic materials, other than temporarily as necessary in the ordinary course of business.
3. No more than 50 percent of a lot within the aquifer conservation district shall be rendered impervious.
4. Within the aquifer conservation district, all liquid and solid waste, other than septic effluent, shall be temporarily stored on-site and disposed of in such manner as specified by the Planning Board.
5. Also provides for controlled use of pesticides, herbicides, fertilizers, manure, and other potentially dangerous leachables within the aquifer conservation district.
6. Requires the establishment of monitoring wells on parcels within the aquifer conservation district when commercial and industrial activities involve the use or on-site storage of hazardous or toxic materials.
7. Contains protective provisions, within the conservation and open space district, for areas designated as containing poorly drained and very poorly drained soils, and for land located within 75 feet of the seasonal high water mark of certain specified surface waters, or within 50 feet of the seasonal high water mark of certain unspecified surface waters.

Health Officer Regulations

The Health Officer Regulations of the Town of Raymond, last amended by the Board of Selectmen on May 7, 1984, contain specific standards and requirements for the location, design, construction, inspection, and testing of individual private wastewater disposal systems and water supply wells. Included are the following provisions:

1. Prohibits the establishment of any water supply well within 75 feet of any component of any private sewage disposal system.
2. Require that any private water supply line which is crossed by any sewage disposal system line shall be encased to prevent contamination of the water supply.

3. Require that plans for private sewage disposal systems include the locations of all existing water supply wells located within 100 feet of the proposed system, and that the locations of all proposed wells to be constructed on the lot be identified.
4. Require that all plans for all private sewage disposal systems and subdivision plans be submitted to and approved by the Health Officer before being submitted to the state.

In addition, the Health Officer has specific authorities and responsibilities under the zoning ordinance and under state law relative to a variety of public health concerns, not the least of which is to enforce water quality standards in accordance with RSA 147.

Subdivision Regulations

The Town of Raymond Subdivision Regulations (amended August 8, 1988) contain specific provisions which are intended for the protection and management of surface and ground water resources. Included are the following:

1. Land subject to flooding or otherwise unsuitable for housing shall not be platted for residential or other use unless steps are taken to eliminate the hazards.
2. Lots shall be laid out and graded to eliminate flood or stagnant water.
3. Provision shall be made for surface run-off to reach its natural destination.
4. Storm drainage studies shall be conducted by and systems shall be designed by a licensed professional engineer.
5. The locations of all ponds and standing water, and the locations and dimensions of all existing and proposed waterways and drainage ways shall be shown.
6. The locations of all wells and septic systems existing on the parcel to be subdivided shall be identified.
7. An overlay map shall be prepared identifying the poorly and very poorly drained soils and areas of slope that exceed 25 percent.
8. The boundaries of the 100-year flood hazard areas shall be shown on the plat.
9. The Planning Board has the authority to require the preparation of environmental impact studies.

Site Plan Review Regulations

Provisions of the Town of Raymond Site Plan Review Regulations (amended May 24, 1990) governing multi-family and nonresidential developments, which are intended for the protection and management of surface and ground water resources, include the following:

1. Land which is unsuitable for development due to the presence of poorly drained soils, flood hazard, steep slopes, etc. shall not be approved for development unless the Planning Board is presented with satisfactory evidence to show that unsuitable conditions can be adequately overcome.
2. Wetlands and highly erodible areas are required to be preserved.
3. Plans must identify the locations of all streams, marshes, lakes or ponds, water courses, wetlands, and slopes over 25 percent.
4. The boundaries of the 100-year flood hazard areas must be delineated.
5. Storm drainage must be evaluated by a licensed professional engineer, and plans shall accommodate a 25-year frequency storm event. Flood protection areas shall be designed to accommodate a 50-year storm event.
6. An erosion and sedimentation control plan shall detail how runoff will be handled during and after construction.
7. Percolation pit locations and test results must be identified; and the locations of primary and secondary leach field locations must be shown on the plan.
8. If the site is to be served by the municipal water system, written approval of the proposed distribution facilities and agreement to supply the requested service must be provided by the Water Department.
9. All disturbed areas within the site must be reclaimed.
10. All proposed underground petroleum storage tanks, regardless of size or type, shall conform to the N.H. Code of Administrative Rules, Part Ws 411.
11. All new and replacement on-site water supply and sanitary sewage systems shall be located, designed, and constructed so as to minimize or eliminate infiltration of flood waters into the systems, and discharges from these systems into the floodwaters.

Building Code

The Code Enforcement Officer administers the BOCA Basic Building and Plumbing codes to assure that:

1. The design and installation of plumbing systems, including sanitary facilities, water supplies, and sewage disposal systems are such that their use will not impair public or private water supplies;
2. Within the designated special flood hazard areas, all new and replacement water supply and wastewater disposal systems (including on-site systems) shall be located, designed and constructed in such a way that infiltration and operational impairment by 100-year flood events will be minimized and/or avoided; and
3. With the altered or relocated portion of any watercourse, certification shall be provided by a registered professional engineer or architect assuring that the flood-carrying capacity of the watercourse has been maintained.

Earth Excavation Regulations

The Town of Raymond Earth Excavation Regulations (amended October 1989) are intended to implement the provisions of RSA 155-E. Various provisions of these regulations which address water resource management concerns include the following:

1. The Planning Board is prohibited from approving any application where the excavation would: damage a known aquifer; be less than 6 feet above the seasonal high water table; or be beneath or adjacent to inland surface waters; or could not comply with the required reclamation provisions.
2. The plan accompanying the permit application must identify: the limits of all aquifer areas on the site; the elevation of the highest seasonal high water table; and all surface waters within or adjacent to the proposed excavation.
3. The application must be accompanied with an erosion and sediment control plan which, at the minimum, meets the standards of the Soil Conservation Service.
4. The applicant must have a high intensity soil survey conducted of the excavation area.
5. A detailed reclamation plan must accompany the permit application and excavation plan.

6. A performance bond must be posted as security to ensure reclamation of the site in accordance with the approved plan.
7. Topography shall be left so that water draining from the site will leave the property at the original natural drainage points, and in the natural proportions of flow.
8. The excavation plan must clearly identify the secure equipment refueling area and facilities. The use of underground fuel storage facilities is prohibited at excavation areas.
9. Provisions are included for period on-site inspections to ensure on-going compliance with approved plans.

Summary

Based on the foregoing review, the following listing provides a summary of the local codes, ordinances and regulations which address specific water quality and quantity concerns. With the exception of the one deficiency cited in the listing (the fact that the subdivision regulations do not address the issue of erosion and sediment control), Raymond's land use and building regulations generally appear to address all such concerns as are identified in the "Rules for Local Water Resource Management and Protection Plans." However, that is not to say that improvements should not be considered.

Means of correcting the deficiencies and improving upon existing local requirements are cited in the "Recommendations for New or Revised Policies and Programs" chapter.

Concern	Local Ordinance or Regulation
1. Erosion and sedimentation	- site plan review regulations; excavation regulations (not addressed in subdivision regulations)
2. Surface water flows	- zoning ordinance; subdivision regulations; site plan review regulations; building code; excavation regulations
3. Groundwater recharge	- zoning ordinance; subdivision regulations; site plan review regulations; building code

4. Management of existing and potential contamination sources - zoning ordinance; health officer regulations; subdivision regulations; site plan review regulations; building code; excavation regulations
5. Flood storage - zoning ordinance; subdivision regulations; site plan review regulations; building code
6. Encroachment on wetlands - zoning ordinance; subdivision regulations; site plan review regulations
7. Nutrient levels - zoning ordinance
8. Wildlife and fisheries habitat - zoning ordinance

ANALYSIS

Analysis Regarding Water Supplies

As the "Assessment of the Growth in Demand for Water" previously indicated, the existing groundwater resources appear to be adequate for Raymond's current and future needs, at least through the 10-year planning period. There is no historical or technical documentation available to suggest that the groundwater reserves are not adequate to meet the existing and the anticipated future demands, all of which will have to use a combination of municipal and community water systems and individual on-site wells.

The "Summary of Well Completion Report Data for the Town of Raymond" (Water Resources Division, New Hampshire Department of Environmental Services dated May 18, 1988) indicated that, of 316 wells reported to have been developed between January 18, 1984 and January 22, 1988 (for which discharge data was available), eighty-eight percent had yields of three or more gallons per minute. A minimum of three gallons per minute is generally accepted as being sufficient for typical domestic needs. Since all 316 of these wells reportedly are bedrock wells (not relying upon the stratified-drift aquifers), it could be presumed that adequate groundwater supplies exist in virtually all areas of the community, and not just in the stratified-drift aquifers. It must, however, be recognized that, in particular cases, it will not be unusual to encounter dry holes or unacceptable yields.

Analysis Regarding Other Water Resource Purposes

Assimilative Capacity

The New Hampshire Department of Environmental Services (NHDES) is unable to provide any technical information regarding the

capacity of Raymond's surface or groundwater resources to assimilate surface or groundwater discharges.

As reported herein, NHDES records show that, as of September 11, 1991 no surface water discharge permits have been issued in the Town of Raymond by the U.S. Environmental Protection Agency, the permitting authority under the National Pollutant Discharge Elimination System.

Due to the complexity of the various considerations that are involved in determining assimilative capacity, and due to the lack of technical documentation, it is not possible to provide a knowledgeable assessment of the capacity of the community's water resources to assimilate potential surface or groundwater discharges.

In the case of surface water discharges, the assimilative capacity of a water body is determined by its physical and biological characteristics, and the character of and other factors associated with the proposed discharge. The physical characteristics of the receiving water that must be determined and evaluated include its size (large bodies generally have a greater assimilative capacity than small ones when all other factors are equal); the volume of the flow; and seasonal fluctuations in flow. The biological characteristics of the receiving water are influenced by the volume and the content of existing discharges.

For each surface water discharge permit requested, the applicant must conduct a detailed waste loading study of the receiving water body. This study must take the above-noted factors into consideration, as well as the nature of the proposed discharge; its volume; the location of the proposed discharge site on the receiving water body (discharges that would occur close to the headwaters of streams and rivers are often more critical than those that would occur farther downstream where the volume of the base flow is usually larger); and the location of the proposed discharge site with regard to its proximity to any existing discharges. The effects of all existing and proposed discharges must be evaluated in comparison to the water quality standard which has been established for the receiving water. As is sometimes the case, water quality standards can differ for different water bodies within a community, and they can also be different for different segments of the same stream or river.

In the case of groundwater discharges, the concerns are similar; however, much less is generally known about groundwater flow, volume, and withdrawal.

The granting of groundwater discharge permits requires that monitoring wells be installed at the discharge site property line. Quarterly water quality test results must be submitted to the New Hampshire Department of Environmental Services for the life of the discharge permit to assure that the quality of the groundwater beyond the property line does not deteriorate. Post-closure requirements call for the tests to be continued, and the results to

be submitted to the Department on a quarterly basis for a minimum of two years.

Thus, each request, whether it be for a surface or a groundwater discharge permit, must be evaluated on an individual basis. For industrial discharges, pre-treatment requirements must generally be met in either case.

The waste loading studies, which provide the base data on the assimilative capacities of the receiving surface waters, should be periodically updated by the Department of Environmental Services to monitor any changing characteristics, and to maintain reasonably current inventories of the status of water quality.

Since so little is currently known about many aspects of groundwater (other than the information which can be determined for a specific well) in comparison to that which can be more easily determined for surface waters, it would seem reasonable to expect that a comparable data base should be developed for groundwater resources. Detailed subsurface data appears to be severely lacking. Since groundwater discharge permit authority lies with the State, and since the State's technical and fiscal capabilities greatly exceed those of municipal government, it would seem that the responsibility for conducting detailed groundwater investigations of the type necessary to assess assimilative capacity should be initiated by the New Hampshire Department of Environmental Services.

It is presumed that the assimilative capacity of Raymond's surface and groundwater resources, whatever that might currently be, could change due to such factors as seasonal influences; modification of the volume and character of runoff attributable to land use changes; and the number, volume and/or character of future discharges that might be permitted.

Recreation and Fisheries

Several of Raymond's surface water resources such as the Lamprey and Exeter rivers, and Onway Lake and Governors Lake, and perhaps several of the other water bodies are used for their recreational value for swimming, boating and fishing.

The "Classification and Priority Listing of New Hampshire Lakes," Volume II, Part 6, Rockingham and Strafford Counties, staff report number 121 prepared by the N.H. Water Supply and Pollution Control Division, March 1981 appears to be the only published document available which contains detailed information on any of Raymond's surface waters relative to recreational fishing and related water quality. This publication, a copy of which is on file with the Southern New Hampshire Planning Commission, contains data on only two Raymond surface water resources - - Governors Lake and Onway Lake.

Since the survey data for Governors Lake is no more recent than 1980 (various data compiled in 1958, 1963, 1976, and 1980), and is no more recent than 1979 for Onway Lake (data compiled in 1937, 1973, 1976, and 1979), the report was not considered to be a reliable indicator of reasonably current conditions or needs.

This 1980 document provides information on these lakes with respect to the percentage of developed shoreline, temperature and dissolved oxygen profiles, the distribution of aquatic plants, and bathymetric contours.

The 1989 Master Plan does not address the value, either existing or potential, that the community's surface water resources have for recreational purposes.

Hydropower Production

There are no hydroelectric generating facilities in the Town of Raymond at the present time, and no known considerations are being given to the establishment of such facilities within the 10-year planning period.

Protection and Management of Wetlands

The Town of Raymond enforces wetland protection and management provisions through the process of administering the zoning and earth excavation ordinances and the subdivision and site plan review regulations. The Conservation Commission is active and has, through the use of video tape and still photographs, documented instances of misuse of local wetland areas. The Commission has also inspected most of the town-owned lands to identify potential future use as may be appropriate for wetlands protection, river and shoreline use, drinking water supply, flood protection, etc.

Wildlife Habitat

One of the purposes stated in the zoning ordinance for establishment of the "Conservation and Open Space District" is to preserve such designated area for wildlife conservation.

Fire Protection

The municipal water system, which will be 100 years old in February 1993, serves much of the higher density development and most of the commercial and industrial uses in the community. It has, according to the 1989 Master Plan, combined distribution storage of approximately 720,000 gallons provided by two standpipes which produce "good pressure to most areas of the distribution system." The 1991 annual town report indicates that the system has more the 100 hydrants on line for fire protection. No fire

fighting deficiencies associated with the water system were noted in either the 1989 Master Plan or the most recent town report.

Summary of Current and Potential Conflicts

Because no technical documentation was found to establish what limitations, if any, there might be with respect to the assimilative capacity of Raymond's surface or groundwater resources, it cannot be determined whether or not there would be a conflict if future permits are issued for surface or groundwater discharges. Aside from this issue, the foregoing analysis regarding other water resource purposes did not reveal any current or potential conflicts between competing water uses.

Management of Potential Threats

All existing and future land use activities, particularly those which do or will discharge wastewater, must be considered as potential threats to Raymond's surface and groundwater resources.

It is estimated that approximately 3,400 dwelling units are currently served by subsurface wastewater disposal systems. Unfortunately, little, if anything, is known about the condition of most of these systems, except the more than 60 that, according to the Health Officer, failed during 1991. It has been the experience of the Southern New Hampshire Planning Commission, in the course of researching material for this and other water resource management plans, that there is an apparent general lack of knowledge by the public concerning septic tank and leach field operation and maintenance. This suggests that there is a good likelihood that, as a result of ignorance, some of these systems may now, or could in the future, be subject to failure. The obvious consequence of this is that surface and/or groundwaters could become contaminated.

Although local regulations appear to be satisfactory in terms of containing provisions for monitoring the design and installation of subsurface wastewater disposal systems, additional protective benefits could be achieved through the development of an educational program which focuses on system operation and maintenance, and the enactment and enforcement of periodic septic system maintenance requirements such as those contained in the suggested health ordinance (see Appendix V of the Wellhead Protection Program Raymond, New Hampshire, May 1992).

Forty-two underground petroleum storage tanks have been identified in the Town of Raymond, many of which are in proximity to streams and other surface waters which are important elements of Raymond's recreation, conservation and water supply resources. Furthermore, all of these streams drain toward aquifers which have been identified in Raymond. Only three sites, containing eight of these tanks, have been identified as being outside of, but still very close to major aquifers. Seven active underground storage

tanks have been identified at two sites which are in proximity to three public water systems which draw from groundwater.

State regulation (New Hampshire Code of Administrative Rules Part Ws 411) requires that only nonresidential underground petroleum storage tanks having capacity for 1,100 gallons, or more, be registered with the Underground Storage Tank Program of the New Hampshire Department of Environmental Services. The Raymond site plan review regulations require that all underground storage tanks, regardless of type or size, comply with the provisions of Ws 411.

Agricultural and other interests need to be made aware of the necessity to closely monitor fertilizer, herbicide and pesticide applications as a means of limiting runoff in order to control nutrient levels and contaminants in the community's surface and groundwater resources.

The erosion and sedimentation control provisions which are contained in the site plan review and earth excavation regulations should be addressed in the subdivision regulations as well.

RECOMMENDATIONS FOR NEW OR REVISED POLICIES AND PROGRAMS

Non-regulatory Programs

The non-regulatory programs that are recommended to improve and/or enhance local water resource management and protection activities include the following:

1. The Planning Board should encourage the owners of non-municipal public water systems drawing from groundwater to consider developing their own wellhead protection programs, perhaps in cooperation with the Planning Board.
2. The Town of Raymond should continue to sponsor, or cosponsor with other communities, the annual hazardous waste collection program.
3. The Raymond Conservation Commission should work with landowners to obtain wetlands and other conservation areas by gift, grant, or bequest, and/or to obtain covenants or easements at no cost to the Town to help assure wetlands and conservation areas protection; to prevent the development of wetland areas; and to maintain natural flowage and groundwater recharge.
4. As may be necessary in appropriate circumstances, the Conservation Commission should consider requesting that the capital improvements program budget include funding for the acquisition of land to protect surface and groundwater resources when non-fee land or easement acquisition programs are unsuccessful.

5. The Conservation Commission should sponsor educational and informational programs in conjunction with the Division of Public Health Services, the Pesticide Control Division, the University of New Hampshire Cooperative Extension Service, and the Rockingham County Conservation District to better inform the public and the agricultural interests about the health and other environmental effects of pesticide, fertilizer and herbicide use and abuse. Such programs could help to protect surface and groundwater supplies.
6. The Planning Board should contact the planning boards in the towns of Candia, Chester, Deerfield, and Nottingham (adjacent communities with watershed areas draining to Raymond) to encourage them to cooperate in the regulation of land use activities and development practices which are potentially detrimental to Raymond surface and groundwater resources.
7. Educational and informational programs should be used by the Conservation Commission, in cooperation with the Health Officer, to provide the public with an understanding of the operation, proper use, and necessary maintenance of septic systems and leach fields as a means of helping to prevent unnecessary failures which could endanger surface and groundwater resources.
8. The Raymond Water Department should consider periodically inserting literature in the water bills to encourage customers to institute no-cost and low-cost water conservation measures in their homes and businesses.
9. The Planning Board and/or the Conservation Commission should encourage the operators of the various community water systems to periodically provide their customers with appropriate literature promoting water conservation efforts.
10. Appropriate Town officials should encourage the New Hampshire Department of Transportation to consider using a sand and salt mixture, or reduced salt applications for winter road maintenance, at least in the areas of the major aquifers, if not throughout the Town.

The costs of putting these non-regulatory programs in place are expected to be variable and, in some cases, not possible to estimate at this time.

Water conservation information services such as the preparation and printing of water bill inserts, or other forms of notification, should be a relatively low-cost item. The value of the benefits that could be achieved through this program could greatly exceed the cost.

Educational programs could be relatively low-cost or even no-cost activities that. With the cooperation of the Raymond School District, some of these could possibly be incorporated into the existing curriculum.

Household hazardous waste collection and disposal costs can be relatively high and, to some extent, they can vary according to the type and amount of material collected. These programs tend to be more feasible when conducted as a joint venture by two or more communities. Financial assistance for such programs might be available from the Waste Management Division of the New Hampshire Department of Environmental Services.

It is possible that the only municipal costs associated with wetland protection efforts involving gifts, grants and bequests of land, and the establishment of covenants and easements would pertain to survey, legal and recording fees.

The outright purchase of wetland areas and/or development rights for purposes of protecting water resources would obviously entail substantially greater expense.

Salt spreaders can be calibrated as part of routine maintenance at no additional cost to the State or private contractors hired by the State for winter road maintenance. Reduced salt usage could actually save the State some money.

Any effort worth pursuing will require the commitment of human resources; however, it is believed that these non-regulatory programs could be carried out by existing voluntary and paid personnel. It should not be necessary for the Town or the State to hire any additional personnel to conduct or to oversee any of these activities.

Regulatory Programs

The Town of Raymond enforces numerous codes, ordinances and regulations, most of which contain varied provisions for water resource management and protection.

All options for regulatory programs cited in the Rules for Local Water Resource Management and Protection Plans were considered for inclusion in this program. The following actions are recommended as means of correcting deficiencies and/or improving upon existing local water resource management and protection mechanisms.

1. The site plan review regulations should be amended to require that, in addition to underground facilities, all applicants for approval must identify on their plans, the locations, types, contents, and capacities of all proposed above-ground petroleum and chemical storage facilities. This would enable the Planning Board to maintain a current inventory of such facilities, and

provide the Board with additional information that should be considered in the review process.

2. The site plan review regulations should also be amended to provide that designated snow storage areas are not located within drainage easements or wetland areas. This would minimize and/or prevent contamination of surface and groundwaters by snow containing deicing materials, which is removed from parking areas.
3. The building code ordinance should be amended to provide for a revision of the building permit application form so that the same information cited above, with respect to the site plan review regulations, can be obtained for those activities requiring permits, but which might not be subject to the site plan review process.
4. The subdivision regulations should be amended to include similar requirements relative to erosion and sediment control as are now required by the site plan review regulations.

Additionally, specific suggestions for further amending the Zoning Ordinance and for replacing the Health Officer Regulations are contained in the May 1992 Wellhead Protection Program Raymond, New Hampshire which is incorporated in this Plan by reference. However, before those changes can be considered, the Planning Board must have certain aquifers reclassified by the New Hampshire Department of Environmental Services in accordance with the provisions of RSA 485-C. The process of reclassification is explained in the wellhead program report. Having obtained the reclassification, the following ordinance changes, which are detailed in the appendices of the wellhead report, should be enacted, and done so in the following order:

1. That portion of Article III of the current zoning ordinance which pertains to the "Aquifer Conservation District" should be deleted and replaced with the suggested "Groundwater Conservation District" provisions.
2. That portion of Article IV of the current zoning ordinance which pertains to the "Aquifer Conservation District" should be deleted and replaced with the suggested amendment which deals with permitted and prohibited use within the "Groundwater Conservation District."
3. The current "Health Officer Regulations" should be repealed and replaced by the suggested "Health Ordinance."

The cost of preparing proposed amendments to the subdivision and site plan review regulations, the building code, and the zoning ordinance should be minimal. Some of this work has already been done. (see Appendix V and Appendix VI, Wellhead Protection Program

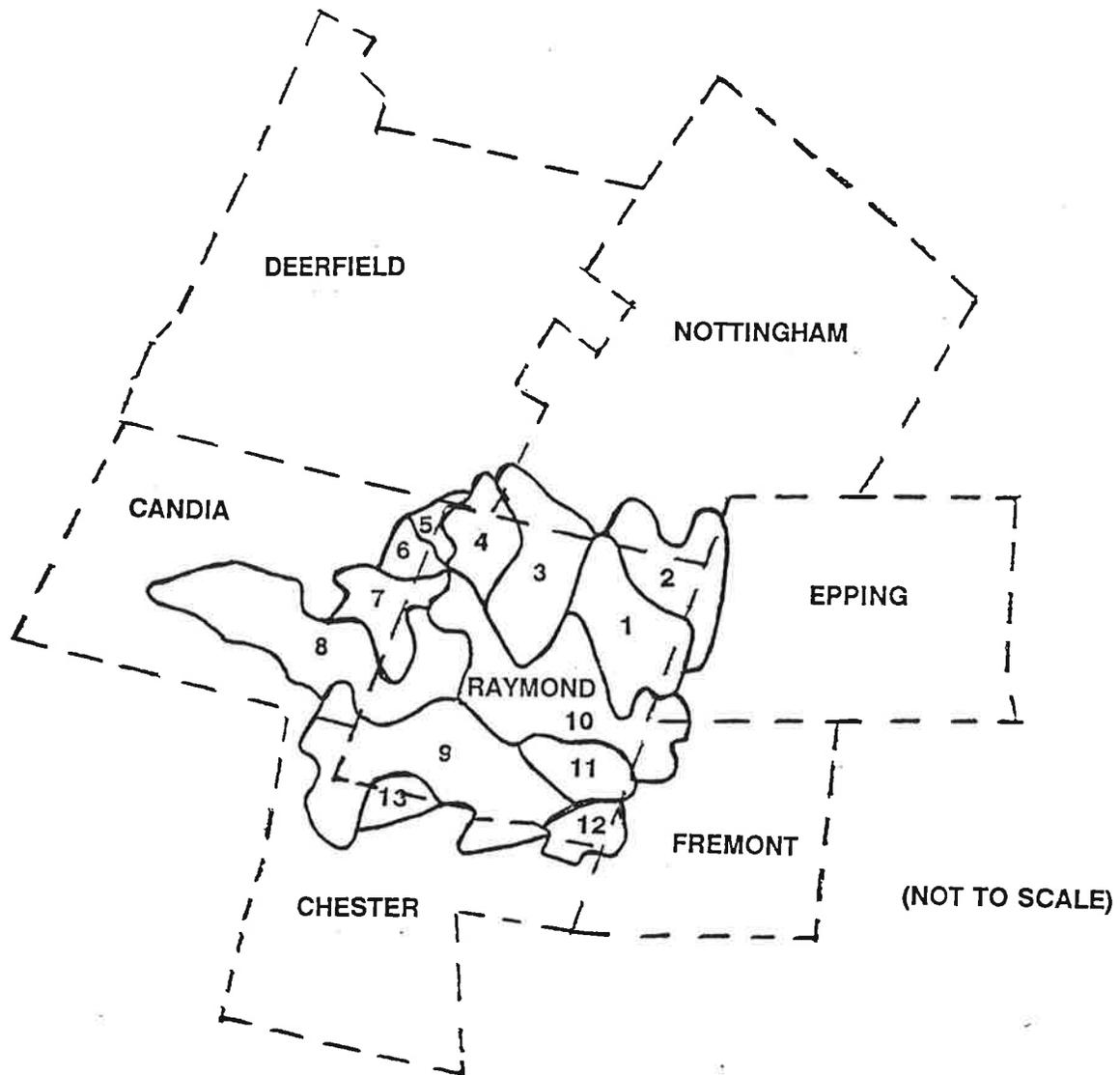
Town of Raymond, New Hampshire) If necessary, technical assistance services for additional necessary work could be provided, on request, by the Southern New Hampshire Planning Commission. Some expense would be incurred by the Town in complying with the statutory requirements for the publication of legal notices announcing the public hearings that would have to be held on the proposals.

Since one objective of the planning process is to assure that local land use decisions are based upon the most comprehensive and reliable scientific and technical information available, it is important that all implementing ordinances and regulations should include:

1. a process which allows applicants for local approvals to present documented scientific and technical information which differs from the information which has been used to prepare this Plan; and
2. mechanisms which will allow local decision-makers to consider the scientific and technical information submitted by applicants prior to making a final decision.

APPENDIX I

WATERSHED ACREAGE DISTRIBUTION



WATERSHEDS OUTSIDE MUNICIPAL BOUNDARIES

1. FLINT HILL
2. PAWTUCKAWAY RIVER
3. DUDLEY BROOK
4. ROBINSON HILL
5. LAMPREY RIVER "A"
6. NORTH BRANCH "A"
7. NORTH BRANCH "B"
8. ONWAY LAKE
9. FORDWAY BROOK
10. LAMPREY RIVER "B"
11. LITTLE RATTLESNAKE HILL
12. EXETER RIVER
13. WASON BROOK

SOURCE: VARIOUS U.S.G.S. TOPOGRAPHIC MAPS

WATERSHED ACREAGE DISTRIBUTION

<u>Watershed No. & Name</u>		<u>Acreage Distribution*</u>	
1.	Flint Hill	Raymond	2,626
		Nottingham	1
		Epping	<u>276</u>
			2,903
2.	Pawtuckaway River	Raymond	782
		Epping	640
		Nottingham	<u>1,017</u>
			2,439
3.	Dudley Brook	Raymond	2,385
		Deerfield	118
		Nottingham	<u>551</u>
			3,054
4.	Robinson Hill	Raymond	1,064
		Deerfield	248
		Nottingham	<u>36</u>
			1,348
5.	Lamprey River "A"	Raymond	181
		Deerfield	20
		Candia	<u>202</u>
			403
6.	North Branch "A"	Raymond	117
		Candia	<u>255</u>
			372
7.	North Branch "B"	Raymond	379
		Candia	<u>644</u>
			1,023
8.	Onway Lake	Raymond	1,752
		Candia	<u>3,705</u>
			5,457
9.	Fordway Brook	Raymond	4,723
		Candia	478
		Chester	<u>1,391</u>
			6,592
10.	Lamprey River "B"	Raymond	3,011
		Epping	320
		Fremont	<u>591</u>
			3,922

<u>Watershed No. & Name</u>	<u>Acreage Distribution*</u>	
11. Little Rattlesnake Hill	Raymond	1,239
	Fremont	<u>78</u>
		1,317
12. Exeter River	Raymond	623
	Chester	167
	Fremont	<u>108</u>
		898
13. Wason Brook	Raymond	84
	Chester	<u>374</u>
		458

* All figures are approximations

Source: Various U.S. Geological Survey Topographic Maps

APPENDIX II
LAKES AND PONDS IN RAYMOND

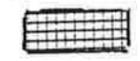
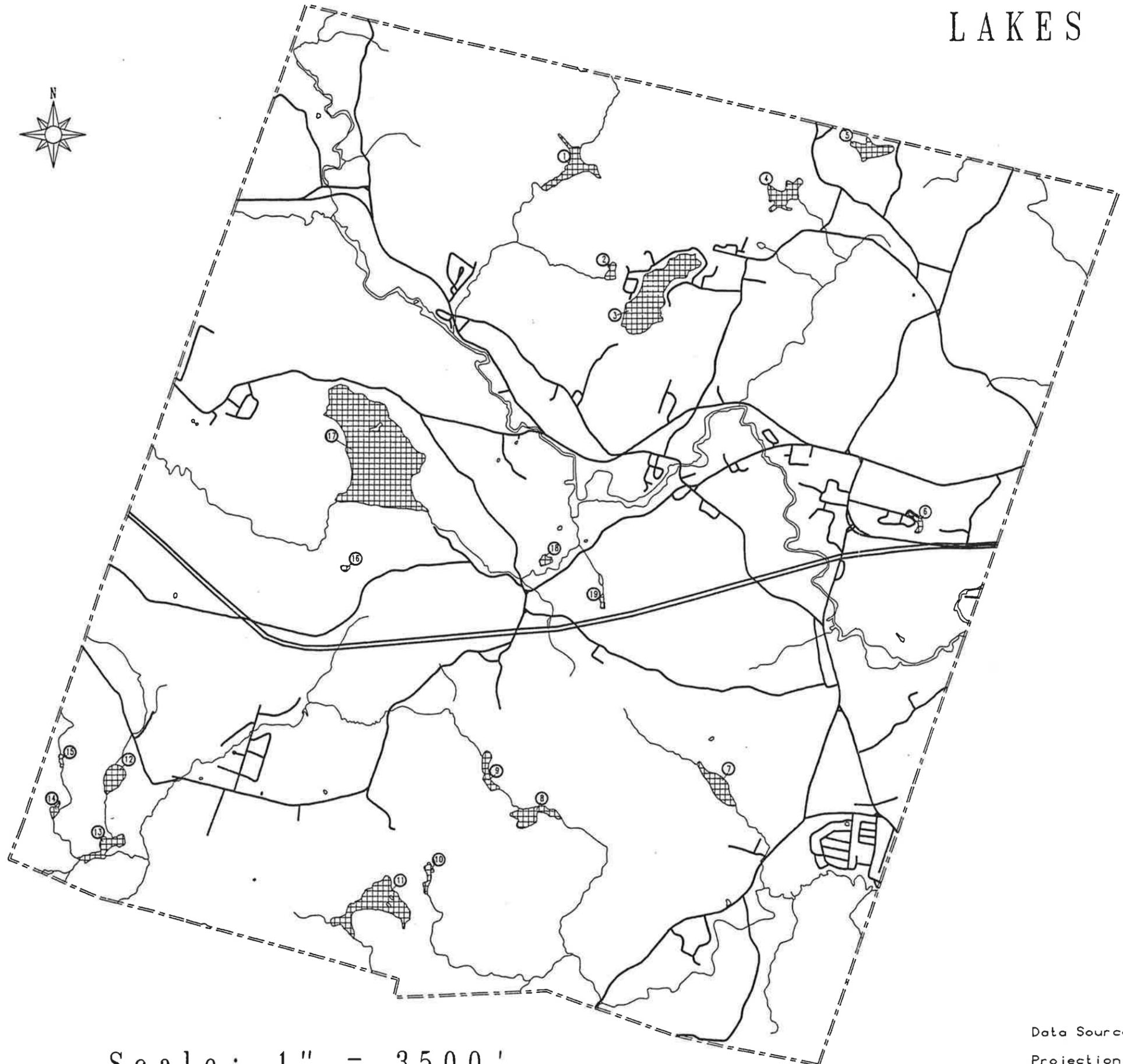
LAKES AND PONDS IN RAYMOND
(one acre or more in surface area)

<u>Map No.</u>	<u>Name</u>	<u>Watershed</u>	<u>Approximate Area Acres*</u>
1	unnamed	Dudley Brook	18
2	unnamed	Dudley Brook	3
3	Governors Lake	Dudley Brook	61
4	unnamed	Flint Hill	15
5	unnamed	Pawtuckaway River	12
6	unnamed	Flint Hill	3
7	unnamed	Little Rattlesnake Hill	15
8	unnamed	Fordway Brook	13
9	unnamed	Fordway Brook	7
10	unnamed	Fordway Brook	4
11	unnamed	Fordway Brook	39
12	Norton Pond	Fordway Brook	11
13	unnamed	Fordway Brook	11
14	unnamed	Fordway Brook	2
15	unnamed	Fordway Brook	1
16	unnamed	Onway Lake	1
17	Onway Lake	Onway Lake	179
18	unnamed	Lamprey River "B"	3
19	unnamed	Lamprey River "B"	1

*Surface areas were computed by the Geographic Information System (GIS) and rounded to the nearest whole acre.

Source: Various U.S. Geological Survey topographic maps

LAKES AND PONDS IN RAYMOND



Lake/Pond



Lake/Pond Number

(See list for name and surface area)

Scale: 1" = 3500'

Data Sources: 1:24000 Roads and Water by SNHPC, from 1981 USGS
quad sheets.
Projection: Stateplane Feet

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APPENDIX III
GENERALIZED POORLY AND VERY POORLY DRAINED SOILS
BY WATERSHED

**GENERALIZED POORLY AND VERY POORLY DRAINED SOILS
BY WATERSHED**

<u>WATERSHED</u>	<u>MAP NUMBER *</u>	<u>ACREAGE **</u>
1. <u>Flint Hill</u>		
Poorly Drained	1-1	8
	1-2	3
	1-3	10
	1-4	9
	1-5	10
	1-6	2
	1-7	6
	1-8	12
	1-9	10
	1-10	7
	1-11	12
	1-12	19
	1-13	2
	1-14	17
	1-15	9
Very Poorly Drained	1-16	5
	1-17	4
	1-18	12
	1-19	20
	1-20	15
	1-21	4
	1-22	33
	1-23	2
	1-24	8
	1-25	2
	1-26	17
	1-27	17
	1-28	42
	1-29	42
	1-30	4
	1-31	23
	1-32	45
	1-33	50
	1-34	2
	1-35	2
	1-36	10
	1-37	6
	1-38	9

<u>WATERSHED</u>	<u>MAP NUMBER *</u>	<u>ACREAGE **</u>
2. <u>Pawtuckaway River</u>		
Poorly Drained	2-1	2
	2-2	7
	2-3	16
	2-4	12
	2-5	8
	2-6	11
	2-7	11
	2-8	12
	2-9	6
Very Poorly Drained	2-10	8
	2-11	39
	2-12	10
	2-13	7
	2-14	6
	2-15	30
3. <u>Dudley Brook</u>		
Poorly Drained	3-1	10
	3-2	61
	3-3	2
	3-4	2
	3-5	1
	3-6	2
	3-7	11
	3-8	11
	3-9	17
	3-10	9
Very Poorly Drained	3-11	3
	3-12	2
	3-13	3
	3-14	1
	3-15	8
	3-16	5
	3-17	11
	3-18	5
	3-19	34
	3-20	8
	3-21	61
	3-22	4
	3-23	11
	3-24	44
	3-25	5
	3-26	2
	3-27	3
	3-28	2

<u>WATERSHED</u>	<u>MAP NUMBER *</u>	<u>ACREAGE **</u>
	3-29	16
	3-30	41
	3-31	27
	3-32	4
	3-33	2
	3-34	24
	3-35	10
	3-36	9
	3-37	33
4. <u>Robinson Hill</u>		
Poorly Drained	4-1	17
	4-2	19
	4-3	4
	4-4	15
	4-5	11
	4-6	3
	4-7	4
	4-8	3
	4-9	18
	4-10	22
	4-11	57
	4-12	2
	4-13	5
	4-14	11
	4-15	2
Very Poorly Drained		none mapped
5. <u>Lamprey River "A"</u>		
Poorly Drained		none mapped
Very Poorly Drained	5-1	7
	5-2	15
	5-3	8
	5-4	10
	5-5	4
6. <u>North Branch "A"</u>		
Poorly Drained	6-1	3
Very Poorly Drained	6-2	2
	6-3	13

	<u>WATERSHED</u>	<u>MAP NUMBER *</u>	<u>ACREAGE **</u>
7.	<u>North Branch "B"</u>		
	Poorly Drained	7-1	5
		7-2	2
		7-3	4
		7-4	8
	Very Poorly Drained	7-5	1
		7-6	17
		7-7	3
8.	<u>Onway Lake</u>		
	Poorly Drained	8-1	30
		8-2	11
		8-3	88
		8-4	12
		8-5	1
		8-6	24
		8-7	24
		8-8	14
		8-9	2
	Very Poorly Drained	8-10	7
		8-11	13
		8-12	13
		8-13	5
		8-14	17
		8-15	5
		8-16	39
		8-17	20
		8-18	21
		8-19	2
		8-20	53
		8-21	2
9.	<u>Fordway Brook</u>		
	Poorly Drained	9-1	57
		9-2	7
		9-3	20
		9-4	28
		9-5	22
		9-6	24
		9-7	96
		9-8	7
		9-9	4
		9-10	29

<u>WATERSHED</u>	<u>MAP NUMBER *</u>	<u>ACREAGE **</u>
	9-11	39
	9-12	6
	9-13	58
	9-14	72
	9-15	15
	9-16	13
	9-17	12
	9-18	17
	9-19	11
	9-20	28
	9-21	9
Very Poorly Drained	9-22	37
	9-23	7
	9-24	27
	9-25	4
	9-26	2
	9-27	6
	9-28	5
	9-29	98
	9-30	14
	9-31	6
	9-32	2
	9-33	24
	9-34	6
	9-35	16
	9-36	16
	9-37	31
	9-38	2
	9-39	8
	9-40	8
	9-41	7
	9-42	141
	9-43	46
	9-44	28
	9-45	24
	9-46	22
	9-47	4
	9-48	3
	9-49	52
	9-50	3
	9-51	4
10. <u>Lamprey River "B"</u>		
Poorly Drained	10-1	8
	10-2	27
	10-3	11
	10-4	7
	10-5	17

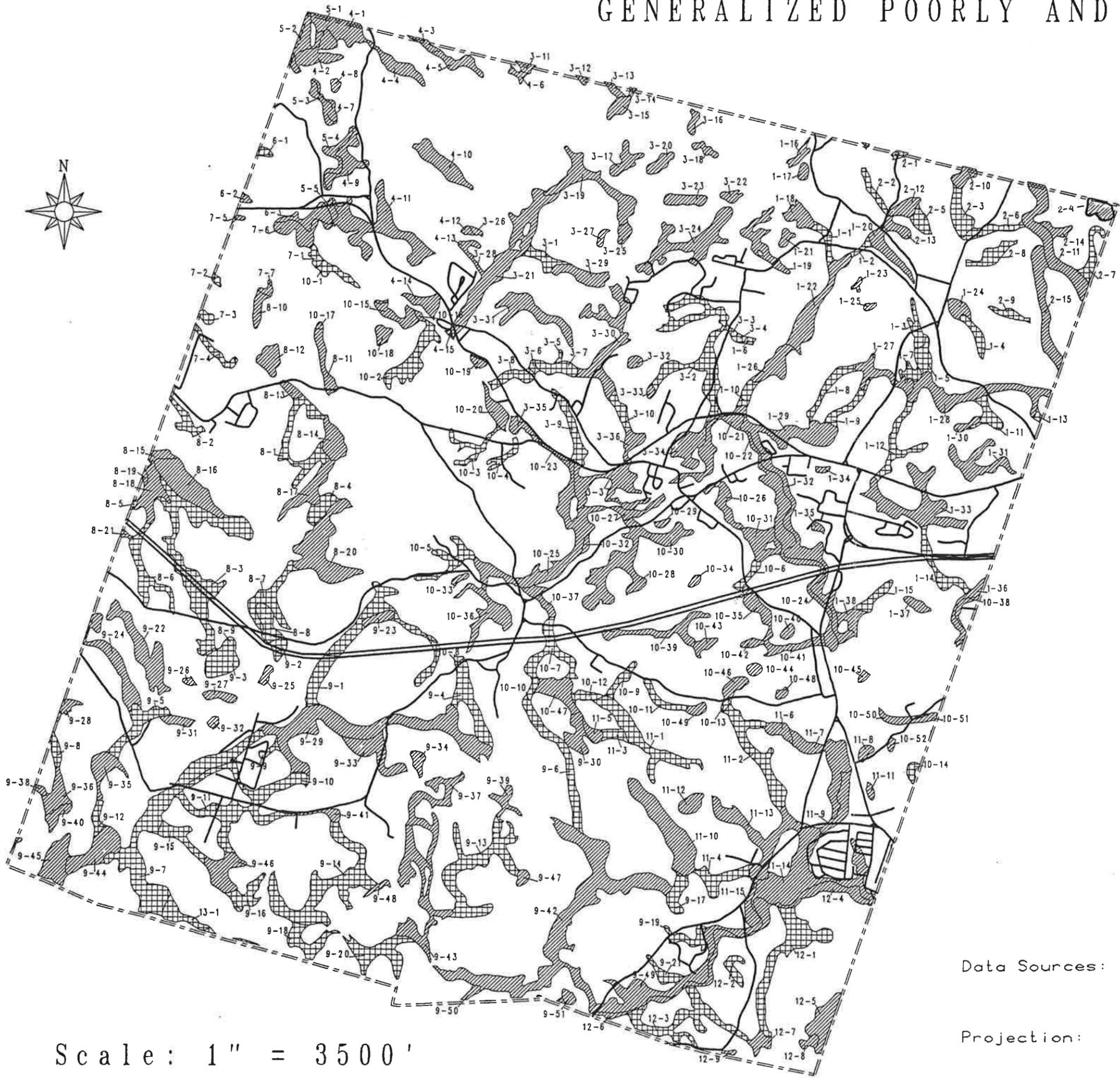
<u>WATERSHED</u>	<u>MAP NUMBER *</u>	<u>ACREAGE **</u>
	10-6	6
	10-7	23
	10-8	1
	10-9	7
	10-10	10
	10-11	9
	10-12	6
	10-13	2
	10-14	4
Very Poorly Drained	10-15	12
	10-16	2
	10-17	1
	10-18	6
	10-19	3
	10-20	11
	10-21	23
	10-22	2
	10-23	3
	10-24	47
	10-25	61
	10-26	14
	10-27	9
	10-28	47
	10-29	2
	10-30	12
	10-31	20
	10-32	2
	10-33	2
	10-34	3
	10-35	15
	10-36	23
	10-37	9
	10-38	4
	10-39	21
	10-40	4
	10-41	12
	10-42	4
	10-43	6
	10-44	4
	10-45	2
	10-46	8
	10-47	19
	10-48	3
	10-49	5
	10-50	7
	10-51	4
	10-52	2

<u>WATERSHED</u>	<u>MAP NUMBER *</u>	<u>ACREAGE **</u>
11. <u>Little Rattlesnake Hill</u>		
Poorly Drained	11-1	38
	11-2	37
	11-3	6
	11-4	18
Very Poorly Drained	11-5	6
	11-6	8
	11-7	36
	11-8	4
	11-9	14
	11-10	50
	11-11	2
	11-12	10
	11-13	41
	11-14	82
	11-15	8
12. <u>Exeter River</u>		
Poorly Drained	12-1	49
	12-2	8
	12-3	42
Very Poorly Drained	12-4	37
	12-5	21
	12-6	7
	12-7	8
	12-8	4
	12-9	1
13. <u>Wason Brook</u>		
Poorly Drained	13-1	13
Very Poorly Drained	none mapped	

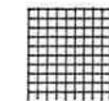
* See separate maps for generalized locations of the poorly drained and the very poorly drained soils.

** Acreage calculations were computed by the Geographic Information System (GIS) and rounded to the nearest whole acre.

GENERALIZED POORLY AND VERY POORLY DRAINED SOILS



LEGEND



POORLY DRAINED SOIL



VERY POORLY DRAINED SOIL

14-2

WATERSHED & SOIL NUMBER
(SEE ATTACHED TEXT)

Scale: 1" = 3500'

Data Sources: 1:24000 Soils by UNH/Complex Systems from 1981 USGS quad sheets.
1:24000 Roads by SNHPC, from USGS quad sheets.
Projection: Stateplane Feet

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APPENDIX IV
SUMMARY OF WELL COMPLETION REPORT DATA
FOR THE
TOWN OF RAYMOND

USER'S GUIDE FOR WELL COMPLETION REPORT DATA SUMMARIES [rev. 10/1/86]

<u>Attribute</u>	<u>Explanation</u>	<u>Data Type, Codes and Definitions</u>	<u>Data Entry Conventions</u>	<u>Item Number on Well Completion Report</u>
WELL#	Well driller's number	Text 15	[driller's license no.]-[sequence no.]	
WRB#	Water resources board I. D. number	Text 8	[3-digit numeric town code]-[4-digit sequence no.] town code must include leading zeros	
OPT#	Optional number for cross referencing	(Reserved)		
ELEV	Elevation	Real Number	in feet above sea level	
LAT	Latitude	Integer	6 digit number for degrees, minutes, and seconds with leading zeros included	
LONG	Longitude	Integer	6 digit number for degrees, minutes, and seconds with leading zeros included	
NAME	Well Owner, etc.	Text 26	first initial and last name for individuals; complete name for contractors or companies (consult "dictionary" for accepted abbreviations)	1
ROAD	Address of well location	Text 26	street name or reference point (consult "dictionary" for accepted abbreviations)	2
TOWN	Town in which well is located	Text 22	complete name of town (no abbreviations allowed)	2
MAP	Map page number as recorded on the town's tax map	Text 10	varies according to the coding system in use by a particular town; prefix BLK- indicates block number	2
PARCEL	Parcel identifier as recorded the town's tax map	Text 12	varies according to the coding system in use by a particular town	2
DCOMP	Date well was completed	Date	6-digit no. for year/month/day with leading zeros included	3

<u>Attribute</u>	<u>Explanation</u>	<u>Data Type, Codes and Definitions</u>	<u>Data Entry Conventions</u>	<u>Item Number on Well Completion Report</u>
USE	Proposed use of well	Text 1 0=other 1=domestic 2=small community water supply 3=municipal 4=commercial 5=industrial 6=agricultural 7=institutional 8=test/exploration 9=abandoned		4
RSN	Reason for constructing well	Text 1 0=other 1=new 2=replace existing 3=deepen existing 4=provide additional supply 5=monitoring (water level measurement or water quality sampling) 6=stratigraphic observation only		5
TYPE	Type of well	Text 1 0=other 1=drilled in bedrock 2=drilled in gravel 3=dug 4=auger hole (any uncased hole) 5=driven point		6
TOTD	Total depth of well	Real number	in feet below land surface datum	7
BDKD	Depth to bedrock	Real number	in feet below land surface datum	8
CASING	Total length of casing installed in well	Real number	in feet	9

<u>Attribute</u>	<u>Explanation</u>	<u>Data Type, Codes and Definitions</u>	<u>Data Entry Conventions</u>	<u>Item Number on Well Completion Report</u>
YTM	Yield test method	Text 1 1=bailed 2=pumped 3=compressed air		11
YTD	Yield test duration	Real number	in hours	11
YTO	Discharge	Real number	in gallons per minute	11
SWL	Static water level	Real number (0.=overflowing .1=at ground level)	in feet below land surface datum	12
DMEAS	Date static water level was measured	Date	6-digit no. for year/month/day with leading zeros included	12
WQ	Water quality information	Text 1 Y="Yes" Laboratory analysis performed Null value (-0-)="no" or not reported		13
OB	Type of overburden material	Text 16 0=exposed bedrock 1=sand 2=gravel 3=till 4=clay 5=mixed 6=other		15
PI	Pump information	(Reserved)		

Codes are entered layer by layer in the sequence reported in the WELL LOG; successive layers are separated by a hyphen (for example, 12-4 indicates a sand and gravel layer overlying a clay layer; mixed is used if 1 through 4 are recorded on the same line; if "6" is used, an explanation is included as a comment under the attribute NOTE)

<u>Attribute</u>	<u>Explanation</u>	<u>Data Type, Codes and Definitions</u>
QC	Subjective assessment of quality of reported information	Text 1 1=good 2=fair 3=poor
NOTE	Special notes	Text 36 YL=yield log SN=screen information GP=gravel pack DD=drawdown measurements CM=comments

"CM:" is used to explain any attribute coded as "other" [ie., CM:USE(0)=fire protection]

THE FOLLOWING ADDITIONAL CONVENTIONS APPLY AS NOTED:

- 1) no periods are permitted to follow abbreviations within text fields, except in the case of NAME where a period is required after the first initial
- 2) any attribute coded as "other" must be explained by means of a comment under NOTE; however, the code for any attribute can be qualified using a comment expressed in the standard format CM:attribute(code)=explanation as illustrated above
- 3) the 2-character NOTE codes must always be given in the order listed above and separated by a single space whenever multiple codes are needed (ie. SN GP and not GP SN)

SUMMARY OF WELL COMPLETION REPORT DATA FOR THE TOWN OF RAYMOND

WRB#	WELL#	NAME	ROAD	MAP	PARCEL	ELEV	DCOMP	USE	RSN	TYPE	TOTD	BOKO	CASING	YTM	YTD	YTO	SWL	OVERBURDEN	QC	NOTE
200.0315	344-1	H-Z	Ann Logan Cir				87/11/18	1	1	1	406.0	28.00	40.00	3	0.50	3.00	22.00	2-24	2	
200.0004	767-RBW10	USGS	Bambi Ln				84/04/25	8	5	2	48.0	14.00	13.00				3.54	1-16-3	1	SN CM:OB(6)=silt
200.0007	767-RBW11	USGS	Bambi Ln				84/04/26	8	5	2	28.8	21.00	20.00				4.09	12-1-3	1	SN
200.0143	208-1945	Sunwood Const	Batchelder Rd				86/08/11	1	1	1	405.0	45.00	55.00	3	1.00	12.00	5.00	2	2	
200.0233	238-210	W. Vickery	57 Batchelder Rd				87/04/03	1	1	1	160.0	6.00	30.00	3	0.17	10.00		12	2	
200.0179	177-511	E. Daigle	70 Batchelder Rd				86/08/25	1	1	1	300.0	2.50	20.00	3		20.00		1	2	
200.0333	143-82	B & B Bldrs	Batchelder Rd		Lot 6		87/07/17	1	1	1	260.0	12.00	20.00	3	1.00	50.00		3	2	
200.0332	143-81	B & B Bldrs	Batchelder Rd		Lot 9		87/07/16	1	1	1	240.0	25.00	50.00	3	1.00	20.00		2	2	
200.0335	143-84	B & B Bldrs	Batchelder Rd		Lot 8		87/07/20	1	1	1	300.0	25.00	40.00	3	1.00	25.00		3	2	
200.0334	143-83	B & B Bldrs	Batchelder Rd		Lot 7		87/07/17	1	1	1	260.0	5.00	20.00	3	1.00	15.00		3	2	
200.0080	406-288	K. Silverstein	Batchelder Rd	39	9	280.0	85/09/05	1	1	1	140.0	12.00	21.00	3	1.00	10.00		2	2	
200.0186	406-656	R. Gahm	Batchelder Rd				86/11/21	1	1	1	362.0	2.00	21.00	3	0.50	20.00		12	2	
200.0025	367-44	Blake Bldrs	Blueberry Hill Rd	3	50	180.0	84/08/28	1	1	1	140.0	19.00	31.00	3	0.08	30.00		1	2	
200.0028	367-23	E. Fongallaz	Blueberry Hill Rd	3	53	160.0	84/07/10	1	1	1	260.0	16.00	31.00	3	0.17	4.00		1	2	
200.0029	367-21	Blake Bldrs	Blueberry Hill Rd	3	46	180.0	84/07/27	1	1	1	300.0	8.00	20.00	3	0.25	4.00		1	2	
200.0032	367-15	K. Wilkinson	Blueberry Hill Rd	3	49	170.0	84/05/16	1	1	1	220.0	27.00	41.00	3	0.17	8.00		1	2	
200.0317	367-7	Blake Bldrs	Blueberry Hill Rd		Lot 23		86/02/14	1	1	1	380.0	5.00	32.00	3	0.08	20.00		2	2	
200.0026	367-46	Casoni	Blueberry Hill Rd	3	55	160.0	84/09/29	1	1	1	200.0	20.00	31.00	3	0.08	50.00		1	2	
200.0319	367-20	Blake Bldrs	Blueberry Hill Rd		Lot 19		86/04/16	1	1	1	415.0	8.00	20.00	3	0.17	30.00		12	2	
200.0036	238-59	L. Lovelien	Blueberry Hill Rd				84/12/31	1	1	1	175.0	7.00		3	0.25	4.00	5.00	3	2	
200.0037	367-43	Blake Bldrs	Blueberry Hill Rd	3	54	160.0	84/08/27	1	1	1	200.0	8.00	20.00	3	0.08	50.00		1	2	
200.0022	238-50	L. Lovelien	Blueberry Hill Rd				84/11/20	1	1	1	175.0	6.00		3	0.25	5.00	5.00	3	2	
200.0031	367-16	D. Iverson	Blueberry Hill Rd	3	47	170.0	84/05/17	1	1	1	240.0	45.00	61.00	3	0.17	10.00		1	2	
200.0024	367-45	Blake Bldrs	Blueberry Hill Rd	3	51	170.0	84/08/29	1	1	1	240.0	40.00	55.00	3	0.08	10.00		1	2	
200.0321	367-22	Blake Bldrs	Blueberry Hill Rd		Lot 26		86/04/17	1	1	1	280.0	5.00	20.00	3	0.17	10.00		1	2	
200.0318	367-8	Blake Bldrs	Blueberry Hill Rd		Lot 24		86/02/17	1	1	1	140.0	8.00	20.00	3	0.25	6.00		2	2	
200.0323	367-29	Blake Bldrs	Blueberry Hill Rd		Lot 28		87/05/15	1	1	1	320.0	8.00	20.00	3	0.25	50.00		24	2	
200.0320	367-21	Blake Bldrs	Blueberry Hill Rd		Lot 25		86/04/16	1	1	1	240.0	25.00	40.00	3	0.25	6.00		1	2	
200.0297	367-29	Blake Bldrs	Blueberry Hill Rd		Lot 16		87/07/01	1	1	1	200.0	8.00	20.00	3	0.17	50.00		2	2	
200.0030	367-20	Blake Bldrs	Blueberry Hill Rd	3	52	170.0	84/06/22	1	1	1	260.0	7.00	20.00	3	0.17	15.00		1	2	
200.0195	457-87-02	J. McDermott	Blueberry Hill Rd	3	2		87/01/06	1	1	1	325.0	30.00	46.00	3	1.00	30.00	0.00	12	2	
200.0316	238-253	Kuffa Const Co	Blueberry Hill Rd				87/10/13	1	1	1	200.0	18.00	30.00	3	0.17	4.00		1	2	
200.0322	367-28	Blake Bldrs	Blueberry Hill Rd		Lot 20		87/05/14	1	1	1	400.0	6.00	20.00	3	0.33	1.00		24	2	
200.0117	238-102	L. Lovelien	Blueberry Hill Subdiv				86/01/21	1	1	1	370.0	7.00	20.00	3	0.17	1.00	60.00	3	2	
200.0115	238-100	L. Lovelien	Blueberry Hill Subdiv		32		86/01/03	1	1	1	295.0	7.00	20.00	3	0.17	1.00		3	2	
200.0005	767-RBW9	USGS	Brown Rd				84/04/25	8	5	2	31.5	11.00	10.00				5.73	12-3	1	SN
200.0003	767-RBW8	USGS	Brown Rd				84/04/23	8	5	2	37.2	33.00	37.00				7.70	1-14-12-2	1	SN
200.0188	308-21	J. Reed	Business Loop 101				86/09/02	4	1	1	202.0	6.00	27.00	1	1.00	4.75	20.50	3	2	
200.0253	549-66	PGB Bldrs	Castlebrook Dr		23		87/07/07	1	1	1	205.0	11.00	21.00	3	2.00	8.00		12	2	
200.0254	549-67	PGB Bldrs	Castlebrook Dr		26		87/07/08	1	1	1	180.0	10.00	21.00	3		5.00		12	2	
200.0014	457-4	Buzzard	114 Chester Rd				84/10/15	1	1	1	197.0	22.00		3	1.00	2.75		1-2	1	YL
200.0154	238-179	J. McCoy	22 Chester Rd				86/09/17	1	2	1	260.0	5.00	20.00	3	0.17	3.00	25.00	2	2	
200.0219	238-201	R. Dillon	Chester Rd		5		86/12/22	1	1	1	140.0	40.00	50.00	3	0.17	10.00		12	2	
200.0220	238-200	R. Dillon	Chester Rd		4		86/12/17	1	1	1	120.0	37.00	50.00	3	0.17	15.00		12	2	
200.0018	238-43	R. Freeman	Chester Rd	28	13	170.0	84/10/12	1	1	1	145.0	7.00	22.00	3	0.25	10.00		1	2	
200.0242	457-94-87	C. Berube	Chester Rd		9		87/07/08	1	1	1	250.0	30.00	41.00	3	1.00	40.00		123	3	
200.0146	177-486	Peachtree Devel Corp	Colonial Dr		7		86/07/17	1	1	1	180.0	6.00	25.00	3		10.00		2	2	
200.0073	177-281	Peachtree Devel Corp	Colonial Dr				85/08/05	1	1	1	340.0	12.00		3		12.00		3	2	
200.0230	145-266	C. Robbins	Coolidge Way	6	31-B		87/01/10	1	1	1	180.0	10.00	21.00	3	0.50	8.00	20.00	3	1	
200.0067	177-234	K. Salamy	3 Donald St				85/06/18	1	1	1	605.0	1.00		3		0.75		0	1	
200.0260	457-86-87	W. Rust	21 Dudley Rd cut off				87/06/25	1	1	1	400.0	25.00	48.00	3	1.00	3.00		234	1	YL
200.0061	767-RBW-49	USGS	Essex Dr				84/08/01	8	5	2	15.5		14.50				4.10	12-1-4-3	1	SN
200.0023	238-56	D. Clifford	9 Ferndale Rd				84/12/13	1	2	1	135.0	7.00		3	0.25	50.00	6.00	1	2	
200.0081	205-282	S. Decker	Fordway Rd				85/10/09	1	1	1	300.0	100.00		3	0.50	2.00		34	2	YL

WRB#	WELL#	NAME	ROAD	MAP	PARCEL	ELEV	DCOMP	USE	RSN	TYPE	TOTD	BOKD	CASING	YTM	YTD	YTO	SWL	OVERBURDEN	QC	NOTE
200.0002	238-8	Drake	Fordway Rd	5	69	250.0	84/04/23	1	1	1	160.0	80.00	130.00	3		25.00		24	1	YL
200.0034	367-5	B. Campbell	Fordway Rd	5	63-6	250.0	84/04/10	1	1	1	180.0	45.00	61.00	3	0.17	60.00		12	2	
200.0239	549-184	PGB Bldrs	Forest Dr		21		86/11/07	1	1	1	430.0	13.00	23.00	3		3.00		12	2	
200.0248	238-219	F. Barrieau	Freetown Rd				87/05/11	1	1	1	300.0	6.00	20.00	3	0.25	4.00	12.00	3	2	
200.0012	238-29	Smith	Glen Ridge				84/08/03	1	1	1	355.0	4.00		3		2.00		3	1	YL
200.0068	177-173	M. Comeau	Governor Lake				85/03/26	1	1	1	140.0	2.00		3		4.00		6	2	CM:OB(6)=fill
200.0213	521-354	D. Constant	Governors Dr		8		86/11/20	1	1	1	130.0	8.00	20.00	3	0.50	100.00	10.00	2	2	
200.0048	59-084-86	REP Const	11 Green Rd		11		86/06/03	1	1	1	565.0	5.00	20.00	3	4.00	3.00	23.00	2	2	YL
200.0008	177-40	Horne	45 Green Rd				84/05/23	1	1	1	100.0	2.00		3		20.00		2	2	
200.0050	344-	D. Drowne	Green Rd				84/03/18	1	1	1	406.0	50.00		3	0.50	1.00	25.00	2-4-2	2	
200.0114	204-625	Full Swing Bldrs	Green Rd	37	8		86/01/24	1	1	1	365.0	8.00	20.00	3	0.25	5.00	15.00	3	2	
200.0187	308-22	E. Johnson	Green Rd				86/11/17	1	1	1	359.0	58.00	72.00	1	1.00	2.75	19.00	4	2	
200.0194	59-089-86	REP Const	Green Rd		12		86/06/04	1	1	1	305.0	8.00	20.00	3	2.00	5.00	25.00	2	2	
200.0272	327-393	Lamper Const	Green Rd				87/10/19	1	1	1	300.0	45.00	63.00	3				23	2	
200.0119	367-92	S. Willis	Green Rd		9		85/11/26	1	1	1	240.0	40.00	56.00	3	0.17	6.00		2-3	2	
200.0010	327-35	McCarthy	Green Rd				84/08/04	1	1	1	100.0	7.00		3	0.50	15.00		23	1	YL
200.0211	549-127	Phoenix Devel	10 Grout Farm Rd				86/08/11	1	1	1	105.0	5.00	23.00	3		8.00	15.00	1	2	
200.0065	84-3	P. Suger	Grout Farm Rd				84/12/30	1	1	3	18.0	18.00					9.00	3	3	
200.0038	367-48	Pleasant Lake Devel	Grout Farm Rd				84/09/07	1	1	1	460.0	5.00			0.25	20.00		2	2	
200.0337	204-1012	DNB Realty	Ham Rd				87/10/06	1	1	1	225.0	9.00	20.00	3	0.75	4.00	5.00	3	2	
200.0235	1264-46	G. Gauthier	Ham Rd		8		87/03/05	1	1	1	300.0	25.00	35.00	3	0.50	10.00	10.00	23	2	
200.0224	156-78	M. Munson	Ham Rd		101-1		86/07/26	1	1	1	205.0	75.00	83.00	3	1.00	7.00	17.00	34	2	
200.0214	457-86-225	Toker	Ham Rd	009	089		86/12/22	1	1	1	250.0	2.00	21.00	3	1.00	12.00		12	2	YL
200.0286	145-333	B. LaLinde	Ham Rd	9	89		87/11/19	1	1	1	200.0	10.00	21.00	3	0.50	12.00	25.00	3	2	
200.0285	177-711	Raymond Real Estate	Hamer Est		24-6		87/09/23	1	1	1	200.0	12.00	21.00	3		20.00		4	2	
200.0287	177-709	Raymond Real Estate	Hamer Est		24-5		87/09/22	1	1	1	160.0	12.00	21.00	3		60.00		4	2	
200.0283	177-716	Bartlett Bros	Hamer Est		24-38		87/09/24	1	1	1	220.0	30.00	47.00	3		75.00		12	2	
200.0134	406-441	R. Cowan	Hamm Rd				86/05/31	1	1	1	162.0	11.00	21.00	3	1.50	3.50		2	2	
200.0128	238-114	J. Butler	Hamm Rd				86/04/01	1	1	1	235.0	4.00	15.00	3	0.17	3.50	20.00	3	2	
200.0261	457-88-87	Americana Devel	Hammel Rd	9	89-1-11		87/06/29	1	1	1	290.0	10.00	20.00	3	1.00	50.00		12	1	YL
200.0205	143-213	C. Wright	Harriman Hill Rd				86/07/11	1	1	1	420.0	2.00	20.00	3	1.00	2.00		3	2	
200.0241	457-87-50	Raymond School Dist	Harriman Hill Rd				87/05/01	7	1	1	663.0	10.00	41.00	3	1.00	50.00			2	
200.0203	143-229	Kuffa Const	Harriman Hill Rd				86/08/07	1	1	1	620.0	7.00	20.00	3	1.00	1.75		3	2	
200.0206	143-212	C. Wright	Harriman Rd				86/07/10	1	1	1	500.0	4.00	20.00	3	1.00	2.00		3	2	
200.0215	208-2212	B. Lynch	Heath Rd		18		86/12/31	1	1	1	205.0	25.00	35.00	3	1.00	5.00		2	2	
200.0144	406-497	DeCola Devel Corp	Heath Rd		83-2		86/08/14	1	1	1	322.0	57.00	63.00	3	1.00	9.00		3	2	
200.0108	406-338	B. Griset	Heath Rd				85/11/12	1	1	1	142.0	7.00	17.00	3	1.25	10.00		2	2	
200.0040	299-90-17247	P. Bemis	Heath Rd				85/01/18	1	1	1	200.0	1.00		3	1.00	5.00		1	2	
200.0074	177-282	Peachtree Devel Corp	10 Heritage Way				85/08/06	1	1	1	220.0	5.00		3		6.00		13	2	
200.0249	521-376	Jarosky Const	Heritage Way		9		87/03/18	1	1	1	325.0	8.00	20.00	3	0.50	20.00	10.00	3	2	
200.0255	521-385	C. Jarosky	Heritage Way		8		87/05/12	1	1	1	425.0	6.00	20.00	3	1.00	6.00	18.00	3	2	
200.0252	521-375	Jarosky Const	Heritage Way		12		87/03/12	1	1	1	785.0	20.00	40.00	3	0.50	100.00	20.00	3	2	
200.0227	521-368	Larosky Const	Heritage Way		13		87/02/02	1	1	1	505.0	4.00	20.00	3	2.00	5.00	30.00	3	2	
200.0250	521-387	C. Jarosky	Heritage Way		6		87/05/15	1	1	1	305.0	7.00	20.00	3	1.00	10.00	20.00	3	2	
200.0251	521-386	C. Jarosky	Heritage Way		11		87/05/14	1	1	1	305.0	8.00	20.00	3	1.00	50.00	20.00	3	2	
200.0226	521-369	Larosky Const	Heritage Way		5		87/02/06	1	1	1	405.0	6.00	20.00	3	1.00	30.00	39.00	4	2	
200.0324	238-277	P. Glancy	Hillside Dr				88/01/12	1	3	1	320.0				0.17	8.00		4	3	
200.0150	406-584	Reetta Water	Hollywood Dr				86/10/02	1	1	1	142.0	1.00	15.00	3	0.75	8.00		1	2	
200.0166	249-	Ventura Realty	Homestead Acres		12		86/10/28	1	1	1	240.0	24.00	37.00	3	2.00	15.00		4	2	
200.0169	249-	Ventura Realty	Homestead Acres		15		86/10/30	1	1	1	440.0	44.00	58.00	3	2.00	4.00		123	2	
200.0170	249-	Ventura Realty	Homestead Acres		16		86/10/17	1	1	1	200.0	19.00	30.00	3	2.00	5.00		34	2	
200.0161	249-	Chestnut Realty Trust	Homestead Acres		7		85/12/12	1	1	1	160.0	30.00	42.00	3	2.00	12.00		23	2	
200.0174	249-	Ventura Realty	Homestead Acres		20		86/10/21	1	1	1	320.0	3.50	21.00	3	2.00	15.00		2	2	
200.0165	249-	Ventura Realty	Homestead Acres		11		86/10/20	1	1	1	240.0	11.00	21.00	3	2.00	6.00		23	2	
200.0162	249-	Ventura Realty	Homestead Acres		8		86/10/28	1	1	1	280.0	34.00	44.00	3	2.00	30.00		34	2	
200.0171	249-	Ventura Realty	Homestead Acres		17		86/10/24	1	1	1	200.0	1.00	19.00	3	2.00	20.00		3	2	
200.0168	249-	Ventura Realty	Homestead Acres		14		86/10/27	1	1	1	200.0	44.00	54.00	3	2.00	6.00		4	2	

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WRB#	WELL#	NAME	ROAD	MAP	PARCEL	ELEV	DCOMP	USE	RSN	TYPE	TOTD	BOKD	CASING	YTM	YTD	YTQ	SWL	OVERBURDEN	QC	NOTE
200.0173	249-	Ventura Realty	Homestead Acres		19		86/11/01	1	1	1	400.0	41.00	50.00	3	2.00	10.00		234	2	
200.0158	249-	Chestnut Realty Trust	Homestead Acres		4		85/12/13	1	1	1	140.0	3.00	23.00	3	2.00	30.00			2	
200.0163	249-	Ventura Realty	Homestead Acres		9		86/10/17	1	1	1	220.0	14.00	23.00	3	2.00	5.00		23	2	
200.0176	249-	Ventura Realty	Homestead Acres		22		86/10/31	1	1	1	280.0	42.00	52.00	3	2.00	30.00		13	2	
200.0157	249-	Chestnut Realty Trust	Homestead Acres		2		85/12/16	1	1	1	140.0	15.00	30.00	3	2.00	30.00		14	2	
200.0160	249-	Chestnut Realty Trust	Homestead Acres		6		85/12/13	1	1	1	180.0	14.00	21.00	3	2.50	5.00		34	2	
200.0167	249-	Ventura Realty	Homestead Acres		13		86/11/01	1	1	1	540.0	20.00	31.00	3	2.00	10.00		34	2	CM:hydrofracked; initial
200.0164	249-	Ventura Realty	Homestead Acres		10		86/10/22	1	1	1	360.0	13.00	21.00	3	2.00	3.50		3	2	
200.0175	249-	Ventura Realty	Homestead Acres		21		86/10/22	1	1	1	360.0	20.00	32.00	3	2.00	40.00		34	2	
200.0172	249-	Ventura Realty	Homestead Acres		18		86/10/24	1	1	1	180.0	32.00	44.00	3	2.00	15.00		24	2	
200.0159	249-	Chestnut Realty Trust	Homestead Acres		5		85/12/13	1	1	1	120.0	12.00	21.00	3	2.00	15.00		4	2	
200.0156	249-	Chestnut Realty Trust	Homestead Acres		1		85/12/16	1	1	1	120.0	13.00	30.00	3	1.50	30.00		2	2	
200.0131	238-109	D. Perry	Huckleberry Rd		31		86/02/24	1	1	1	295.0	3.00	20.00	3	0.17	2.50			2	
200.0130	238-110	D. Perry	Huckleberry Rd		29		86/03/03	1	1	1	295.0	4.00	20.00	3	0.17	2.50	8.00		2	
200.0127	238-115	R. Dillon	Huckleberry Rd		24		86/04/14	1	1	1	160.0	8.00	20.00	3	0.17	8.00		1	2	
200.0116	238-101	R. Dillon	Huckleberry Rd		27		86/01/11	1	1	1	235.0	7.50	20.00	3	0.17	2.00	30.00	6	2	CM:08(6)=soil
200.0124	238-118	R. Dillon	Huckleberry Rd		21		86/04/17	1	1	1	160.0	21.00	30.00	3	0.17	6.00		14	2	
200.0216	208-2069	Family Real Estate Trust	Jefferson Way		8		86/10/28	1	1	1	125.0	40.00	50.00	3	1.00	75.00	10.00	2	2	
200.0208	208-2116	R. Nadeau	Jefferson Way				86/10/29	1	1	1	205.0	25.00	40.00	3	1.00	50.00		3	2	
200.0212	177-584	M. Comeau	Jefferson Way		15		86/12/01	1	1	1	140.0	11.00	26.00	3		5.00		1	2	
200.0086	367-12	Blake Bldrs	Jennifer Ln		45	170.0	85/03/18	1	1	1	120.0	8.00	20.00	3	0.17	10.00		2	2	
200.0084	367-2	Blake Bldrs	Jennifer Ln		42	170.0	85/01/30	1	1	1	240.0	20.00	35.00	3	0.17	5.00		1	2	
200.0085	367-10	Blake Bldrs	Jennifer Ln		56	170.0	85/03/13	1	1	1	200.0	6.00	20.00	3	0.25	5.00		12	2	
200.0088	367-33	Stilings	Jennifer Ln		41	160.0	85/05/10	1	1	1	240.0	55.00	71.00	3	0.25	4.00		1	2	
200.0089	367-34	Blake Bldrs	Jennifer Ln		44	170.0	85/05/13	1	1	1	180.0	10.00	20.00	3	0.17	10.00		1	2	
200.0087	367-32	Stine	Jennifer Ln		57	200.0	85/05/08	1	1	1	220.0	5.00	20.00	3	0.17	10.00		1	2	
200.0083	367-1	R. Banarer	Jennifer Ln	3	43	170.0	85/01/16	1	1	1	180.0	7.00	20.00	3	0.25	10.00		2	2	
200.0058	406-197	Mardon Corp	Kellie Ln				85/05/08	1	1	1	342.0	55.00		3	1.50	0.50		2	2	
200.0052	406-188	Mardon Corp	Kellie Ln				85/04/18	1	1	1	300.0	46.00		3	1.50	0.25		2	2	
200.0047	406-182	Mardon Corp	Kellie Ln				85/03/29	1	1	1	300.0	55.00		3	1.50	0.25		2	2	
200.0049	406-184	Mardon Corp	Kellie Ln				85/04/04	1	1	1	180.0	50.00		3	0.75	8.00		2	2	
200.0057	406-196	Mardon Corp	Kellie Ln				85/05/06	1	1	1	382.0	35.00		3	1.00	1.50		2	2	
200.0046	406-181	Mardon Corp	Kellie Ln				85/03/28	1	1	1	300.0	38.00		3	1.50	0.25		2	2	
200.0051	406-187	Mardon Corp	Kellie Ln				85/04/17	1	1	1	540.0	50.00		3	1.50	0.50		2	2	
200.0043	238-63	J. Mackenzie	126 Lane Rd			320.0	85/03/11	1	1	1	190.0	68.00	80.00	3	0.25	10.00		2-4	2	
200.0071	177-268	T. Hollosan	181 Lane Rd				85/07/17	1	1	1	500.0	6.00		3		4.50		1	2	
200.0293	367-71	Sagharbor Devel	Lane Rd		Lot 1		86/10/28	1	1	1	160.0	30.00	41.00	3	0.17	20.00		3	2	
200.0078	59-147-85	WZ Bldrs	Lane Rd	1	7-1	350.0	85/07/31	1	1	1	405.0	20.00	40.00	3	2.00	5.00	40.00	12	2	
200.0017	238-40A	P. Hammond	Lane Rd				84/10/04	1	1	1	340.0	20.00		3	0.25	1.00		3	2	
200.0110	145-170	W. Thomas	Lane Rd	001	007-004		85/12/23	1	1	1	240.0	32.00	42.00	2	4.00	5.00	20.00	3	2	
200.0123	406-376	J. Lane	Lane Rd				86/02/03	1	1	1	300.0	11.00	21.00	3	1.50	0.50		2	2	
200.0231	406-762	A. Greene	Lane Rd				87/02/25	1	1	1	282.0	5.00	21.00	3	1.00	7.00		1	2	
200.0011	238-27	West	Lane Rd				84/07/25	1	2	1	280.0	4.00		3		3.00	40.00	3	1	YL
200.0112	406-377	T. Castle	Lane Rd				86/02/03	1	1	1	225.0	32.00	42.00	3	1.00	10.00		2	2	
200.0027	367-31	N. Murphy	Lane Rd				84/07/19	1	1	1	300.0	18.00		3	0.17	5.00		2	2	
200.0209	143-244	G. Dorian	20 Langford Rd				86/09/03	1	1	1	120.0	18.00	30.00	3	1.00	30.00		4	2	
200.0151	177-509	W. Foss	24 Langford Rd				86/08/25	1	1	1	100.0	9.00	20.00	3		12.00		3	2	
200.0148	238-165	L. Lovelien	44 Langford Rd				86/08/07	1	1	1	285.0	42.00	50.00	3	0.17	15.00		3	2	
200.0326	59-203-87	G. Feretra	66 Langford Rd				87/12/23	1	2	1	695.0	41.00	52.00	3	3.00	1.00	6.00	12	1	
200.0053	299-94	E. Robinson	Langford Rd	8	2-5	250.0	85/02/13	1	1	1	140.0	10.00	20.00	3	2.00	15.00		3	2	
200.0312	367-17	Sagharbor Devel	Langford Rd		Lot 23		86/03/28	1	1	1	120.0	5.00	20.00	3	0.17	10.00		2	2	
200.0304	367-5	Sagharbor Devel	Langford Rd		Lot 18		86/01/31	1	1	1	805.0	6.00	20.00	3	0.33	1.00		1	2	
200.0077	299-17667-130	D. Michel	Langford Rd	5	47-3	240.0	85/07/13	1	1	1	140.0	5.00	20.00	3	0.50	12.00		2	2	
200.0054	299-95	Doherty	Langford Rd	8	2-4	280.0	85/02/14	1	1	1	160.0	10.00	20.00	3	1.00	10.00		3-2	2	
200.0308	367-13	Sagharbor Devel	Langford Rd		Lot 24		86/03/20	1	1	1	220.0	30.00	50.00	3	0.17	6.00		2	2	
200.0309	367-14	Sagharbor Devel	Langford Rd		Lot 26		86/03/23	1	1	1	600.0	20.00	32.00	3	0.33	0.50		2	2	
200.0055	299-96	Wood	Langford Rd	8	2-6	240.0	85/02/18	1	1	1	140.0	12.00	20.00	3	1.00	15.00		3-2	2	

WRB#	WELL#	NAME	ROAD	MAP	PARCEL	ELEV	DCOMP	USE	RSN	TYPE	TOTD	BDKD	CASING	YTM	YTD	YTG	SWL	OVERBURDEN	QC	NOTE
200.0313	367-18	Sagharbor Devel	Langford Rd		Lot 21		86/04/02	1	1	1	220.0	15.00	31.00	3	0.25	5.00		2		2
200.0314	367-19	Sagharbor Devel	Langford Rd		Lot 22		86/04/03	1	1	1	280.0	15.00	31.00	3	0.25	5.00		2		2
200.0041	299-85	Cozzens	Langford Rd	8	2-8	220.0	85/01/11	1	1	1	140.0	4.00	20.00	3	1.00	10.00		1-2		2
200.0306	367-11	Sagharbor Devel	Langford Rd		Lot 25		86/03/12	1	1	1	280.0	15.00	26.00	3	0.17	100.00		2		2
200.0122	367-72	D. Lang	Langford Rd	16	1-5		85/09/16	1	1	1	340.0	40.00	58.00	3	0.33	2.00		3		2
200.0302	367-2	Sagharbor Devel	Langford Rd		Lot 19		86/01/22	1	1	1	180.0	4.00	20.00	3	0.17	30.00		1		2
200.0305	367-6	Sagharbor Devel	Langford Rd		Lot 10		86/02/04	1	1	1	220.0	3.00	20.00	3	0.17	6.00		1		2
200.0310	367-15	Sagharbor Devel	Langford Rd		Lot 27		86/03/28	1	1	1	180.0	6.00	20.00	3	0.17	20.00		1		2
200.0311	367-16	Sagharbor Devel	Langford Rd		Lot 28		86/03/27	1	1	1	180.0	15.00	33.00	3	0.17	20.00		2		2
200.0270	406-1002	Modern Devel	Langford Rd				87/10/06	1	1	1	242.0	6.00	20.00	3	0.75	15.00		1		2
200.0136	406-447	Hall Homes	Langford Rd				86/06/07	1	1	1	482.0	13.00	23.00	3	1.50	5.00		2		3
200.0303	367-4	Sagharbor Devel	Langford Rd		Lot 20		86/01/23	1	1	1	180.0	6.00	20.00	3	0.08	60.00		2		2
200.0307	367-12	Sagharbor Devel	Langford Rd		Lot 29		86/03/12	1	1	1	320.0	25.00	41.00	3	0.17	10.00		2		2
200.0039	299-87	Nye Bros Bldrs	Langford Rd	8	2-9	220.0	85/01/11	1	1	1	240.0	12.00	20.00	3	1.50	15.00	0.00	1-2		2
200.0056	299-97	D. Nye	Langford Rd	8	2-7	230.0	85/02/20	1	1	1	140.0	8.00	20.00	3	1.00	8.00		3-2		2
200.0210	143-243	R. Corbett	Lincoln Rd				86/09/03	1	1	1	320.0	9.00	20.00	3	1.00	5.00		3		2
200.0184	238-175	K. Pratt	Long Hill Rd				86/08/26	1	1	1	100.0	7.00	20.00	3	0.17	20.00		3		2
200.0059	238-71	T. Reed	Long Hill Rd				85/04/03	1	2	1	235.0	8.00		3	0.25	5.00	6.00	3		2
200.0094	143-114	B & B Bldrs	Manor View Dr			230.0	85/10/16	1	1	1	160.0	6.00	20.00	3	1.00	25.00		3		2
200.0098	143-100	B & B Bldrs	Manor View Dr		2-11	230.0	85/07/13	1	1	1	340.0	5.00	20.00	3	1.00	3.00		3		2
200.0095	143-103	Beaulieu	Manor View Dr		2-17	260.0	85/07/17	1	1	1	260.0	5.00	20.00	3	1.00	7.50		3		2
200.0096	143-102	Nolan	Manor View Dr		2-16	260.0	85/07/16	1	1	1	260.0	5.00	20.00	3	1.00	25.00		3		2
200.0097	143-101	B & B Bldrs	Manor View Dr		2-14	260.0	85/07/16	1	1	1	280.0	4.00	20.00	3	1.00	20.00		3		2
200.0100	143-90	B & B Bldrs	Manor View Dr		2-12	240.0	86/06/23	1	1	1	160.0	8.00	20.00	3	1.00	20.00		3		2
200.0099	143-99	Campiglio	Manor View Rd		2-13	250.0	85/07/12	1	1	1	300.0	8.00	20.00	3	1.00	6.50		3		2
200.0120	367-7	Great Bay Bldrs	Maple St	9	42		85/02/28	1	1	1	505.0	3.00	20.00	3	0.33	0.50		2		2
200.0264	406-923	T. Peaslee	Merick Rd		18		87/08/20	1	1	1	482.0	64.00	67.00	3	1.25	0.25		12		2
200.0135	177-441	J. PePe	Morrison Rd		28-2		86/04/23	1	1	1	360.0	5.00	20.00	3		4.00		2		2
200.0118	238-105	Kuffa Const co	Morrison Rd				86/01/31	1	1	1	385.0	3.50	17.00	3	0.17	2.00		6		2
200.0327	406-1068	J. Morriseau	Morrison Rd				87/12/21	1	1	1	162.0	3.00	20.00	3	0.50	4.00		3		2
200.0129	238-111	D. Knight	Mountain Rd		7		86/03/05	1	1	1	250.0	12.00	70.00	3	0.17	6.00	8.00	1-3		2
200.0149	238-160	D. Knight	Mountain Rd				86/07/30	1	1	1	240.0	38.00	50.00	3	0.17	7.00		34		2
200.0182	406-624	M. Holding	Mountain Rd				86/10/27	1	1	1	262.0	14.00	21.00	3	1.00	7.00		1		2
200.0181	406-625	M. Kemp	Mountain Rd				86/10/27	1	2	1	362.0			3	0.50	30.00				2
200.0228	457-86-229	Fraser Brothers Realty Inc	Mountain Rd		5		86/12/29	1	1	1	300.0	44.00	70.00	3	1.00	3.00		2-3		2
200.0075	238-93	L. Lovelien	Mountain Rd				85/07/15	1	1	1	235.0	63.00		3	0.25	3.00	20.00	34		2
200.0193	406-470	DeCola Devel Corp	Mtn & Healty Rd		83-3		86/07/10	1	1	1	402.0	35.00	42.00	3	2.00	1.50		2		2
200.0107	177-307	J. McLain	Nancy Ln		19		85/09/06	1	1	1	400.0	8.00	21.00	3		3.00		2		2
200.0229	406-747	L. Schofield	50 Nottingham Rd				87/02/10	1	1	1	302.0	5.00	41.00		1.00	5.00		1		2
200.0137	406-477	M. Nadeau	Nottingham Rd		48-5		86/07/20	1	1	1	142.0	15.00	21.00	3	1.00	12.00		2		2
200.0152	457-86-134	J. Griffin	Nottingham Rd/Rte 156		48-1		86/08/28	1	1	1	200.0	24.00	41.00	3	1.00	20.00				2
200.0153	457-86-133	J. Vitale	Nottingham Rd/Rte 156		48-2		86/08/28	1	1	1	175.0	26.00	41.00	3	1.00	50.00	10.00	23		2
200.0060	767-RBW-48	USGS	Old Manchester Rd			180.0	84/08/01	8	5	2	31.0		29.00				8.20	1-12		1
200.0288	145-336	K. Spencer	Old Stage Coach Rd	9	89-2		87/11/24	1	1	1	220.0	10.00	21.00	3	0.50	25.00	20.00	3		2
200.0245	172-4000	W. Byrne	5 Onway Lake Rd				87/05/13	1	1	1	165.0	20.00	40.00	3	1.00	15.00	20.00	2		2
200.0277	406-1015	Merrill Bldrs	Onway Lake Rd		52-1		87/10/16	1	1	1	142.0	50.00	60.00	3	1.00	10.00		123		2
200.0223	156-79	J. Sheehan	Onway Lake Rd		47-8		86/07/26	1	1	1	235.0	14.00	20.00	3	1.00	12.00	5.00	3		2
200.0204	143-228	P. Day	Onway Lake Rd				86/08/05	1	1	1	200.0	68.00	80.00	3	1.00	20.00		3		2
200.0276	406-1004	Merrill Bldrs	Onway Lake Rd		30-1		87/10/08	1	1	1	222.0	24.00	40.00		0.75	75.00		12		2
200.0062	767-RBW-50	USGS	Otter Ct				84/08/01	8	5	2	16.5		15.50				10.60	12-1-3		1
200.0091	238-132	K. Hammond	Otter Rd	9	11 & 109	170.0	86/05/13	1	1	1	220.0	28.00	40.00	3	0.25	50.00	10.00	12		2
200.0132	767-RBA-1	USGS	Paradise Dr			180.0	84/04/26	8	6	4	42.0							12-1-4-3		1
200.0281	177-745	Stonepost Realty Trust	Pawtuckaway Farms				87/10/28	1	1	1	445.0	7.00	20.00	3		5.00		14		2
200.0279	177-755	Stonepost Realty Trust	Pawtuckaway Farms				87/11/05	1	1	1	610.0	6.00	21.00	3		20.00		4		2
200.0280	177-751	Stonepost Realty Trust	Pawtuckaway Farms				87/10/30	1	1	1	505.0	6.00	20.00	3		30.00		14		2
200.0273	65-8712	W. Eaton	Pierce Rd		38-9		87/10/31	1	1	1	173.0	55.00	82.00	1	2.00	20.00	18.00	1-3		1
200.0105	899-136	D. Foley	6 Pine Ridge Rd			220.0	86/04/10	1	2	5	24.0		21.00	2	2.00	15.00	5.00			2

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WRB#	WELL#	NAME	ROAD	MAP	PARCEL	ELEV	DCOMP	USE	RSN	TYPE	TOTD	BOKD	CASING	YTM	YTD	YTO	SWL	OVERBURDEN	QC	NOTE
200.0185	238-174	R. Dillon	Poplar Rd		25		86/08/25	1	1	1	340.0	5.00	20.00	3	0.17	2.00			2	
200.0296	367-30	D. Marquis	Popular Dr	38	40		87/07/02	1	2	1	320.0	2.00	23.00	3	0.25	1.00	0		2	
200.0301	367-3	Bosworth Const	Popular Dr	38	26		87/01/23	1	1	1	200.0	5.00	20.00	3	0.25	4.00	1		2	
200.0291	367-38	D. Marquis	Popular Dr	38	40		86/01/26	1	1	1	320.0	4.00	20.00	3	0.25	0.00	4		2	
200.0090	406-359	DeCola Devel Corp	86-1 Prescott Rd	6	86-1	170.0	85/12/12	1	1	1	120.0	53.00	63.00	3	0.50	50.00	2		2	
200.0069	3-205	H. Lee	off Prescott Rd	6	12	190.0	85/05/25	1	1	1	305.0	12.00	31.00	3	2.00	3.00	18.00	2	1	YL
200.0202	143-152	Applevale Inc	Prescott Rd		4-11		86/03/17	1	1	1	420.0	10.00	20.00	3	1.00	5.00	3		2	
200.0063	767-RBW-51	USGS	Prescott Rd				84/08/02	8	5	2	20.5	73.00	20.00				10.90	12-1-3	1	SN
200.0198	143-156	Applevale Inc	Prescott Rd		4-21		86/03/26	1	1	1	300.0	14.00	30.00	3	1.00	25.00	3		2	
200.0201	143-153	Applevale Inc	Prescott Rd		4-22		86/03/18	1	1	1	200.0	6.00	20.00	3	1.00	10.00	3		2	
200.0200	143-154	Applevale Inc	Prescott Rd		4-24		86/03/20	1	1	1	240.0	15.00	30.00	3	1.00	25.00	3		2	
200.0197	143-157	Applevale Inc	Prescott Rd		4-12		86/03/27	1	1	1	240.0	30.00	40.00	3	1.00	20.00	1		2	
200.0196	143-158	Applevale Inc	Prescott Rd		4-13		86/03/28	1	1	1	220.0	12.00	20.00	3	1.00	20.00	4		2	
200.0001	238-7	Hammond	Prescott Rd	6	66	160.0	84/04/12	1	1	1	235.0	52.00	70.00	3		20.00	5.00	12	1	YL
200.0199	143-155	Applevale Inc	Prescott Rd		4-10		86/03/20	1	1	1	220.0	5.00	20.00	3	1.00	20.00	3		2	
200.0064	767-RBW-52	USGS	Prescott Rd				84/08/06	8	5	2	31.0		30.00				18.30	12-1-3	1	SN
200.0207	143-214	Applevale Inc	Prescott Rd				86/07/14	1	1	1	240.0	48.00	60.00	3	1.00	10.00		3-4	2	
200.0125	238-117	R. Dillon	Randy Ln		18		86/04/17	1	1	1	280.0	16.00	27.00	3	0.17	3.00		12	2	
200.0126	238-116	R. Dillon	Randy Ln		17		86/04/16	1	1	1	335.0	7.00	20.00	3	0.17	20.00	30.00	3	2	
200.0111	3-346	W. Bodini	29 Ray St		5		85/10/19	1	2	1	392.0	65.00	91.00	3	1.00	2.50		3	2	YL
200.0243	899-150	C. Lindbloom	Ridge Rd				87/04/30	1	2	0	45.0	45.00	45.00	2	8.00	20.00	30.00	2	2	SN CM:TYPE(0)=wash well
200.0259	406-973	R. Gaudet	Riverside Dr				87/09/29	1	1	1	162.0	30.00	40.00	3	0.75	4.00		12	2	
200.0268	3-813	Lee Homes Inc	Riverside Trailer Park				87/08/12	1	2	1	304.0	30.00	61.00	3	1.00	200.00	25.00	3	2	
200.0267	3-812	Lee Homes Inc	Riverside Trailer Park				87/08/12	1	2	1	304.0	40.00	112.00	3	1.00	50.00	40.00	3	2	
200.0278	406-1024	J. Duffin	Roy St		25		87/10/23	1	1	1	142.0	60.00	67.00	3	0.50	10.00		2	2	
200.0282	177-720	D. Stone	Rte 101				87/09/28	1	1	1	240.0	30.00	47.00	3		100.00		12	2	
200.0284	177-717	D. Stone	Rte 101				87/09/24	1	1	1	120.0	35.00	43.00	3		100.00		12	2	
200.0045	1-144	Trividi	Rte 101				84/09/26	1	1	1	535.0	10.00		3	0.50	15.00		2	2	CM:PT:4 hrs @8 gpm
200.0274	280-589	R. Catricone	Rte 102		42-3		87/05/15	1	1	1	225.0	8.00	21.00	3	0.50	60.00	30.00	12	2	
200.0013	145-40	Maloney	Rte 102				84/08/07	1	1	1	205.0	10.00		2	4.00	5.00	25.00	3	2	
200.0082	327-177	R. Hall	cnr Rte 102 Blueberry Hill	3	7	180.0	85/12/11	1	1	1	100.0	12.00	44.00	3		15.00		2	2	
200.0106	457-85-92	R. Wilson	Rte 107			240.0	85/10/09	1	1	1	500.0	75.00	84.00	3	1.00	2.00		2	2	YL
200.0183	406-642	E. Frasca	Rte 156		7		86/11/06	1	1	1	202.0	6.00	21.00	3	1.00	5.00		1	2	
200.0113	204-579	J. Farrell	Rte 156				85/10/11	1	1	1	125.0	10.00	20.00	3	0.25	5.00	15.00	3	2	
200.0222	406-670	Mike Rosa Const Co	Rte 156				86/12/05	1	1	1	142.0	11.00	20.00	3	1.00	7.00		1	2	
200.0232	406-806	MGM Ent	Rte 156				87/04/15	1	1	1	142.0	12.00	21.00	3	0.75	10.00		1	2	
200.0133	406-423	G. Armstrong	Rte 156					1	1	1	202.0	11.00	21.00	3	1.75	3.00		2	2	
200.0221	406-673	T. Duntley	Rte 156					1	1	1	222.0	0.00	21.00		0.75	5.00		0	3	
200.0191	406-641	E. Frasca	Rte 156		8		86/11/06	1	1	1	182.0	8.00	21.00	3	0.50	125.00		1	2	
200.0019	238-44	New Life Assembly of God	Rte 156				84/10/17	7	1	1	265.0	53.00		3	0.33	5.00		34	2	
200.0009	327-26	Hurd	Rte 2 Governors Lake				84/07/15	1	2	1	290.0	8.00		3	0.50	30.00	5.00	4	1	YL
200.0234	238-211	R. Dillon	Rte 202 Chester Rd				87/04/11	1	1	1	80.0	43.00	60.00	3	0.17	5.00	6.00	12	2	
200.0325	238-278	Town of Raymond	off Rte 27				88/01/22	3	1	1	600.0	8.00	40.00	3	0.17	20.00		6	2	CM:08(6)=soil
200.0298	367-23	Ivy Investment Corp	Rte 27	9	67		87/06/17	1	1	1	360.0	5.00	31.00	3	0.33	25.00		2	2	
200.0292	367-66	Muse Const	Rte 27	7	7-1		86/10/13	2	1	1	380.0	35.00	61.00	3	0.33	11.00		12	2	
200.0155	54-343	C. Tarosky	Rte 27		4		86/10/21	1	1	1	350.0	3.00	20.00	3		10.00	10.00	1	2	
200.0329	457-171-87	A. & H. deFisser	Rte 27	20	32		87/09/28	1	2	1	300.0	6.00	21.00	3	1.00	3.00		23	2	YL
200.0180	521-345	C. Tarosky	Rte 27		14		86/10/22	1	1	1	345.0	3.00	20.00	3		6.00	10.00	1	2	
200.0020	406-140	D. Lariviere	13 Saddle Path Rd				84/12/18	1	1	1	162.0	28.00		3	1.00	3.00		4	2	
200.0021	406-147	J. Daniels Jr	15 Saddle Path Rd				84/12/31	1	1	1	150.0	12.00		3	1.00	3.00		2	2	
200.0121	367-71	T. Fales	Saddle Path Rd		15		85/09/13	1	1	1	120.0	40.00	53.00	3	0.17	20.00		3	2	
200.0072	406-284	M. Harvey	4 Saddlepath Rd				85/09/03	1	1	1	162.0	26.00		3	0.75	5.00		2	2	
200.0044	238-64	Kingman	Saddlepath Rd	45	8	370.0	85/03/11	1	1	1	130.0	30.00	45.00	3	0.25	20.00		12	2	
200.0145	406-501	W. Davenport	Saddlepath Rd		12		86/08/16	1	1	1	82.0	17.00	21.00	3	1.00	60.00		3	2	
200.0016	20-32	D. Petrovitch	Saddlepath Rd	45	10	380.0	84/10/04	1	1	1	345.0	10.00	25.00	3	1.00	6.00	20.00	13	2	
200.0033	367-8	Blake Bldrs	Saddlepath Rd				84/04/12	1	1	1	320.0	8.00		3	0.40	2.00		1	2	
200.0015	20-23	M. Harvey	Saddlepath Rd	45	9	370.0	84/08/02	1	1	1	325.0	21.00	30.00	3		8.00	20.00	12	2	

WRB#	WELL#	NAME	ROAD	MAP	PARCEL	ELEV	DCOMP	USE	RSN	TYPE	TOTD	BOKD	CASING	YTM	YTD	YTQ	SWL	OVERBURDEN	OC	NOTE
200.0244	899-146	P. Shiner	Scotland Dr				86/10/02	1	2	5	28.0			2	1.00	35.00	10.00		2	SN
200.0104	3-347	A. Wilson	Scotland Dr			200.0	85/10/22	1	2	1	201.0	35.00	51.00	3	1.00	6.00		2	2	YL
200.0035	238-58	M. Sargent	42 Scribner Rd				84/12/19	1	2	1	145.0	3.00		3	0.25	4.00			2	
200.0262	457-126-87	Evitar Corp	Scribner Rd	005	025		87/08/17	2	1	1	700.0	5.00	20.00	3	1.00	18.00		12	2	YL
200.0256	457-121-87	Evitar Corp	Scribner Rd	005	025		87/08/07	2	1	1	724.0	3.00	17.50	3	1.00	40.00		13	1	YL
200.0263	457-127-87	Evitar Corp	Scribner Rd	005	025		87/08/17	2	1	1	700.0	15.00	25.00	3	1.00	20.00		123	1	YL
200.0331	457-126-87	C. Murice	Scribner Rd				87/08/13	1	1	1	700.0	18.50	20.00	3	1.00	25.00	0.00	12	1	YL CM:artesian flow=.5 gpm
200.0042	406-75	T. Acerno	Shattica Rd				84/08/20	1	1	1	240.0			3					3	
200.0006	238-9	Hammond Jr	Spring St	6	90-8	190.0	84/04/26	1	1	1	220.0	5.00	21.00	3		10.00	23.00	1	1	YL
200.0079	3-245	H. Lee	Spring St	6	90-5	180.0	85/07/03	1	1	1	225.0	8.00	24.00	3	1.00	30.00		2	2	
200.0070	3-208	H. Lee	Spring St	6	90-7	190.0	85/05/27	1	1	1	266.0	4.00	20.00	3	2.00	10.00		2	2	YL
200.0290	145-334	J. Band	Stonepost Ln	11	48-16		87/11/20	1	1	1	200.0	20.00	33.00	3	0.50	15.00	20.00	3	2	
200.0257	177-697	R. Hetherington	Tamarack Ln				87/09/09	1	1	1	160.0	3.00	21.00	3		15.00		4	2	
200.0192	344-3	Aspee Const	Tamarack Ln				86/01/28	1	1	1	162.0	48.00	60.00	3	0.50	20.00	12.00	6	2	CM:08(6)=muck & peat
200.0066	177-140	J. Stephenson	Tamarack Ln	45	23	400.0	84/12/06	1	1	1	140.0	8.00	24.00	3		10.00		1	2	
200.0237	406-823	Den-Tru Const	Tanglewood Acres		22		87/05/06	1	1	1	402.0	7.00	21.00	3	0.50	12.00		1	2	
200.0093	143-62	J. Littlefield	Tanglewood Acres	4	44-25	360.0	85/06/02	1	1	1	700.0	4.00	20.00	3	1.00	12.00		3	2	YL
200.0300	367-11	M. Kazazian	Tanglewood Est	4	46-11		87/03/30	1	1	1	695.0	5.00	20.00	3	0.33	3.00		2	2	
200.0289	238-252	W. Mulhallard	2 Twins Rd				87/10/08	1	2	1	200.0	32.00	47.00	3	0.17	5.00		4	2	
200.0258	205-465	Silva Bros Inc	Washington Dr		37		87/09/22	1	1	1	235.0	10.00	31.00	3	0.50	50.00	30.00	34	1	YL
200.0294	302-34	G. Fernald	Washington Dr		11		86/07/01	1	1	1	260.0	9.00	20.00	3	0.50	2.00	5.00	3	2	
200.0247	177-601	Raymond Real Est	Washington Rd		21		87/01/07	1	1	1	140.0	20.00	42.00	3		20.00		2	2	
200.0295	302-44	G. Fernald	Washington Rd		10		86/07/15	1	1	1	180.0	27.00	41.00	3	0.50	8.00	2.00	3	2	
200.0240	549-182	PGB Bldrs	Watson Hill		22		86/09/06	1	1	1	280.0	7.00	22.00	3		10.00	5.00	1	2	
200.0139	549-37	Scarlett Homes	Watson Hill Rd				86/03/13	1	1	1	300.0	10.00	21.00	3		100.00		2	2	
200.0238	549-185	PGB Bldrs	Watson Hill Rd		20		86/11/11	1	1	1	305.0	4.00	21.00	3		30.00	15.00	1	2	
200.0138	549-36	Scarlett Homes	Watson Hill Rd				86/03/12	1	1	1	175.0	9.00	21.00	3		150.00		23	2	
200.0236	549-186	PGB Bldrs Inc	Watson Hill Rd		18		86/11/11	1	1	1	205.0	7.00	21.00	3		100.00	10.00	1	2	
200.0142	549-32	G. Beique	Watson Hill Rd		15		86/03/13	1	1	1	125.0	6.00	21.00	3		20.00			2	
200.0328	1264-186	E. Neveu	Watson Hill Rd		16		87/12/21	1	1	1	200.0	20.00	32.00	3		10.00		2-24	2	
200.0140	549-30	Bob Beique Const	Watson Hill Rd		10		86/03/12	1	1	1	300.0	5.00	21.00	3		100.00	40.00		2	YL
200.0141	549-31	P. Beique	Watson Hill Rd		13		86/03/12	1	1	1	200.0	8.00	21.00	3		80.00			2	YL
200.0177	177-512	J. Leone	Wendover Ln				86/08/26	1	1	1	160.0	3.00	20.00	3		75.00		3	2	
200.0178	406-651	D. Haseltine	16 West Shore Dr				86/11/13	1	2	1	162.0	8.00	42.00	3	0.75	5.00		1	2	
200.0330	457-175-87	P. & M. Lamarre	75 West Shore Dr	013	7		87/10/01	1	1	1	215.0	30.00	41.00	3	1.00	60.00		13	2	YL
200.0147	177-487	C. Deschane	West Shore Dr		28		86/07/17	1	1	1	80.0	6.00	20.00	3		15.00		6	2	CM:08(6)=fill
200.0076	177-238	F. Jewell	9 Whitey Court	9	3-20	160.0	85/06/21	1	1	1	140.0	20.00	30.00	3		8.00		2	2	
200.0225	156-68	S. Saslow	3 Whitey Dr				86/05/23	1	2	1	125.0	14.00	20.00	3	1.00	50.00	11.00	2	2	
200.0217	208-2080	Family Real Estate Trust	27 Wild Wood Ln		27		86/10/28	1	1	1	145.0	12.00	20.00	3	1.00	10.00	20.00	2	2	
200.0218	208-2117	R. Nadeau	Wild Wood Ln		28-24		86/11/07	1	1	1	305.0	10.00	20.00	3	1.00	6.00		2	2	
200.0246	177-600	Raymond Real Est	Wildwood Ln		26		87/01/07	1	1	1	140.0	15.00	24.00	3		8.00		2	2	
200.0275	521-400	C. Jarosky			2		87/06/30	1	1	1	545.0	10.00	20.00	3	1.00	5.00	18.00		2	
200.0189	521-298	ACK Corp			2		86/05/17	1	1	1	205.0	8.00	20.00	3		40.00	20.00		3	
200.0266	238-237	Kuffa Const					87/07/11	1	1	1	260.0	9.00	29.00	3	0.17	5.50		12	2	
200.0299	367-16	Belleport Devel			Lot 24-1		87/05/20	1	1	1	240.0	8.00	25.00	3	0.17	15.00		2	2	
200.0109	3-340	H. Lee					85/10/14	1	1	1	301.0	4.00	20.00	3	2.00	5.00		2	2	YL
200.0269	364-250	E. Hardy					86/05/13	1	2	1	300.0	2.00	20.00	1		3.00	39.00	3	2	
200.0190	521-297	ACK Corp			1		86/05/16	1	1	1	230.0	4.00	20.00	3		50.00	20.00		3	
200.0271	521-399	C. Jarosky			3		87/06/26	1	1	1	405.0	7.00	20.00			20.00	8.00	3	2	
200.0336	204-1039	Farrell, Martin & Pulitzer					87/11/25	1	1	1	530.0	14.00	30.00	3	0.75	70.00	4.00	2	2	
200.0265	238-236	Kuffa Const					87/07/09	1	1	1	165.0	8.00	23.00	3	0.17	20.00		12	2	

APPENDIX V

INVENTORY OF UNDERGROUND PETROLEUM STORAGE TANKS

Information in this inventory was compiled from the New Hampshire Department of Environmental Services, Underground Storage Tank Program records dated April 4, 1989, and from input provided by the Town of Raymond Code Enforcement Officer/Building Inspector in October 1991 and March 1993.

Site numbers are keyed to the locations shown on map 10.

APPENDIX V

INVENTORY OF UNDERGROUND PETROLEUM STORAGE TANKS

Site No.	Location	Owner's Name	Tank No.	Status	Capacity (gallons)	Type of Const.	Date in Service	Date out of Service	Product	Leak Detection System
1	Main Street	Carrie L. Smith	1	Perm. Out	1,000	S	1937	1977	Gasoline	U
			2	Perm. Out	1,000	S	1937	1977	Gasoline	U
			3	Perm. Out	4,000	S	1937	1977	Gasoline	U
			4	Perm. Out	2,000	S	1952	1977	Gasoline	U
2	Junction Routes 102 & 107	Cates Rubbish Removal Service	1	Active	4,000	S	1984	N.A.	Diesel	N.I.
3	Route 27	Charter Food Store	1	Active	10,000	FRP	1986	N.A.	Gasoline	U
			2	Active	10,000	FRP	1986	N.A.	Gasoline	U
			3	Active	10,000	FRP	1986	N.A.	Gasoline	U
			4	Active	6,000	FRP	1986	N.A.	Diesel	U
4	Route 27	Cumberland Farms, Inc.	1	Active	8,000	FRP	1986	N.A.	Gasoline	U
			2	Active	8,000	FRP	1986	N.A.	Gasoline	U
5	Route 27	Getty Properties	1	Active	4,000	S	1985	N.A.	Gasoline	N.I.
			2	Active	6,020	S	1974	N.A.	Gasoline	N.I.
			3	Active	3,000	S	1974	N.A.	Gasoline	N.I.
6	Route 27	Hampton Machine Co. ¹	1	Active	8,460	S	1974	N.A.	Heating Oil	Y
7	Floral Avenue	New England Telephone	1	Active	500	S	1986	N.A.	Diesel	U
8	Route 27	NHDOT	1	Active	2,000	S	1986	N.A.	Gasoline	N.I.
			2	Active	1,000	S	1972	N.A.	Kerosene	N.I.
9	Route 27	Raymond Baptist Church	1	Active	5,000	S	1975	N.A.	Fuel Oil	N.I.
10	School Street	Raymond School District	1	Active	15,000	S	1983	N.A.	Heating Oil	N.I.
			2	Active	15,000	S	1983	N.A.	Heating Oil	N.I.
			3	Active	15,000	S	1983	N.A.	Heating Oil	N.I.
			4	Active	15,000	S	1983	N.A.	Gasoline	N.I.
			5	Active	6,600	U	1981	N.A.	Heating Oil	N.I.
11	Harriman Hill Road	Raymond School District	1	Active	10,000	S	1987	N.A.	Fuel Oil	U
			2	Active	510	S	1987	N.A.	Diesel	U
12	Route 107	Ron's Home & Auto	1	Active	275	S	1980	N.A.	Used Oil	U
13	Epping Street	I. C. Reed	1	Active	7,610	S	1968	N.A.	Diesel	N.I.
			2	Active	1,000	S	1988	N.A.	Diesel	N.I.
			3	Active	1,000	S	1967	N.A.	Gasoline	N.I.
			4	Active	2,000	S	1971	N.A.	Gasoline	N.I.

Site No.	Location	Owner's Name	Tank No.	Status	Capacity (gallons)	Type of Constr.	Date In Service	Date out of Service	Product	Leak Detection System
14	Route 107	Texaco ²	1	Active	8,000	S	1976	N.A.	Gasoline	N.I.
			2	Active	8,000	S	1976	N.A.	Gasoline	N.I.
			3	Active	8,000	S	1976	N.A.	Gasoline	N.I.
			4	Active	1,000	S	1976	N.A.	Fuel Oil	N.I.
			5	Active	550	S	1976	N.A.	Used Oil	N.I.
15	Center Street	Uniform Printing & Supply	1	Active	15,000	S	1976	N.A.	Heating Oil	N.I.
16	Route 27	Witham Countryside Homes	1	Temp. Out	5,000	S	1977	N.I.	Gasoline	N
			2	Temp. Out	5,000	S	1977	N.I.	Diesel	N
			3	Temp. Out	5,000	S	1977	N.I.	Gasoline	N
			4	Temp. Out	5,000	S	1977	N.I.	Gasoline	N
			5	Temp. Out	1,000	S	1977	N.I.	Kerosine	N
17	Route 27	Raymond Foreign Auto								NO DATA AVAILABLE
18	Main Street	A.S. Welch & Sons								NO DATA AVAILABLE
19	Route 107	Christy's Markets								NO DATA AVAILABLE

N.A. = Not Applicable
N.I. = Not Indicated
S = Steel
FRP = Fiberglass Reinforced Plastic
Temp. Out = Temporarily Out of Service

Perm. Out = Permanently Out of Service
N = No
Y = Yes
U = Unknown

¹ Town officials believe that the listed tank was replaced by an above-ground tank in 1992. New tank data is not available locally.

² Town officials believe that the five listed tanks were replaced in 1991 or 1992. New tank data is not available locally.

APPENDIX VI
SOIL POTENTIAL RATINGS FOR SEPTIC SYSTEM DEVELOPMENT
RAYMOND, NEW HAMPSHIRE

**SOIL POTENTIAL RATINGS FOR SEPTIC SYSTEM DEVELOPMENT
RAYMOND, NEW HAMPSHIRE**

The soil potential ratings indicate the comparative quality of each soil for septic tank absorption fields. The ratings are based on a system that included consideration of (1) performance levels, (2) the difficulty or relative cost of corrective measures that will improve soil performance, and (3) adverse social, economic, or environmental effects of soil limitations, if any, that cannot be feasibly overcome. The ratings were established by a team of professionals representing the New Hampshire Water Supply and Pollution Control Division, land surveyors, developers, soil scientists, and regional planners.

The ratings do not constitute recommendations for soil use. They are to assist individuals, planning boards, and others in arriving at wise land use decisions.

The soil potential rating classes are defined as follows:

Very High Potential. Performance is at or above local standards; because soil conditions are exceptionally favorable, installation or management costs are low and there are few soil limitations.

High Potential. Performance is at or above local standards; costs of measures for overcoming soil limitations are judged locally to be favorable in relation to the expected performance.

Medium Potential. Performance is somewhat below local standards; or costs of measures for overcoming soil limitations are high.

Low Potential. Performance is significantly below local standards; or measures required to overcome soil limitations are very costly.

Very Low Potential. Performance is much below local standards; or there are severe soil limitations for which economically feasible measures are unavailable.

Soil potential ratings for septic tank absorption fields, for all Raymond soils, are presented in the following table.

<u>Map Symbol</u>	<u>Soil Name</u>	<u>Soil Potential Rating *</u>
4G	Pootatuck Variant fine sandy loam	VL
5	Rippowam fine sandy loam	VL
6	Saco silt loam	VL
6G	Saco Variant silt loam	VL
10B	Merrimac fine sandy loam, 3-8 % slope	VH
12A	Hinckley loamy sand, 0-3% slope	M
12B	Hinckley loamy sand, 3-8% slope	M
12C	Hinckley loamy sand, 8-15% slope	M
15	Scarboro fine sandy loam	VL
26A	Windsor loamy sand, 0-3% slope	H
26B	Windsor loamy sand, 3-8% slope	H
40B	Chatfield-Hollis fine sandy loam, 3-8% slope	M
40C	Chatfield-Hollis fine sandy loam, 8-15% slope	M
40D	Chatfield-Hollis fine sandy loam, 15-25% slope	L
41D	Chatfield-Hollis-Rock outcrop complex, 15-25% slope	VL
43B	Canton stony fine sandy loam, 3-8% slope	VH
43C	Canton stony fine sandy loam, 8-15% slope	VH
43D	Canton stony fine sandy loam, 15-25% slope	H
43RC	Canton very stony fine sandy loam, 8-15% slope	VL
44B	Montauk fine sandy loam, 3-8% slope	H
44C	Montauk fine sandy loam, 8-15% slope	M
45B	Montauk stony fine sandy loam, 3-8% slope	H
45C	Montauk stony fine sandy loam, 8-15% slope	M
45D	Montauk stony fine sandy loam, 15-25% slope	M
47A	Acton stony fine sandy loam, 0-3% slope	L
47B	Acton stony fine sandy loam, 3-8% slope	L
195	Borofibrists	VL
197	Borohemists, ponded (fresh water marsh)	VL
214A	Pipestone loamy sand, 0-3% slope	VL
295	Greenwood mucky peat	VL
298	Pits, borrow	NR
299	Udorthents	NR
313B	Deerfield loamy fine sand, 3-8% slope	L
395	Chocorua mucky peat	VL
399	Rock outcrop	VL
446A	Scituate fine sandy loam, 0-3% slope	L

Soil

<u>Map Symbol</u>	<u>Soil Name</u>	<u>Soil Potential Rating *</u>
446B	Scituate fine sandy loam, 3-8% slope	L
447A	Scituate stony fine sandy loam, 0-3% slope	L
447B	Scituate stony fine sandy loam, 3-8% slope	L
447C	Scituate stony fine sandy loam, 8-15% slope	L
495	Ossipee mucky peat	VL
547A	Leicester stony loam, 0-3% slope	VL
547B	Leicester stony loam, 3-8% slope	VL
549	Whitman stony loam	VL
612D	Hinckley gravelly loamy sand, 15-35% slope	VL
646A	Ridgebury loam, 0-3% slope	VL
646B	Ridgebury loam, 3-8% slope	VL
647A	Ridgebury stony loam, 0-3% slope	VL
647B	Ridgebury stony loam, 3-8% slope	VL
647C	Ridgebury stony loam, 8-15% slope	VL
799	Urban land-Canton complex	NR

* = for septic tank absorption fields
 H = high
 VH = very high
 M = medium
 L = low
 VL = very low
 NR = not rated; characteristics are too variable

Source: "Soil Potential Ratings for Septic Tank Absorption Fields, Southern Rockingham County, New Hampshire," April 1982; and "Soil Potential Ratings for Septic Tank Absorption Fields, Rockingham County, New Hampshire," (Supplement) September 1982, Rockingham County Conservation District.