Geohydrology and Water Quality of Stratified-Drift Aquifers in the Upper Connecticut and Androscoggin River Basins, Northern New Hampshire

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CONTENTS

PLATES

[Plates are in map jacket]

FIGURES

TABLES

CONVERSION FACTORS, VERTICAL DATUM, AND ABBREVIATED WATER-QUALITY UNITS

CONVERSION FACTORS

Multiply	By	To obtain
	Length	
inch (in.)	25.4	millimeter
foot (ft)	0.3048	meter
mile (mi)	1.609	kilometer
	Slope	
foot per mile (ft/mi)	0.1894	meter per kilometer
	Area	
square mile (mi)	2.590	square kilometer
	Volume	
gallon (gal)	3.785	liter
cubic foot (ft^3)	0.02832	cubic meter
	Velocity and Flow	
inch per year (in/yr)	25.4	millimeter per year
foot per second (ft/s)	0.3048	meter per second
cubic foot per second (ft^3/s)	0.02832	cubic meter per second
cubic foot per second per square mile [$(ft^3/s)/mi^2$]	0.01093	cubic meter per second per square kilometer
gallon per minute (gal/min)	0.06309	liter per second
million gallons per day (Mgal/d)	0.04381	cubic meter per second
million gallons per day per square mile ($Mgal/d/mi^2$)	1,460	cubic meter per second per square kilometer
	Hydraulic Conductivity	
foot per day (ft/d)	0.3048	meter per day
	Transmissivity	
foot squared per day (ft^2/d)	0.09290	meter squared per day

VERTICAL DATUM

Sea level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929.

ABBREVIATED WATER-QUALITY UNITS

In this report, chemical concentration in water is expressed in milligrams per liter (mg/L) or micrograms per liter (µg/L). Milligrams per liter is a unit expressing the concentration of chemical constituents in solution as weight (milligrams) of solute per unit volume (liter) of water; 1,000 µg/L (micrograms per liter) is equivalent to 1 mg/L (milligram per liter). Water temperature in degrees Celsius (°C) can be converted to degrees Fahrenheit (°F) by use of the following equation:

$$^{\circ}F = 1.8(^{\circ}C)+32$$

Specific conductance of water is expressed in microsiemens per centimeter at 25 degrees Celsius (µS/cm). This unit is equivalent to micromhos per centimeter at 25 degrees Celsius (µmho/cm), formerly used by the U.S. Geological Survey.

Geohydrology and Water Quality of Stratified-Drift Aquifers in the Upper Connecticut and Androscoggin River Basins, Northern New Hampshire

By Joseph R. Olimpio *and* John R. Mullaney

Abstract

The Upper Connecticut and Androscoggin River Basins drain 1,629 square miles, 138 square miles of which are underlain by stratified-drift aquifers. Saturated thickness of stratified drift in the study area is locally greater than 260 feet but generally is less than 100 feet. Transmissivity of stratified-drift aquifers locally exceeds 4,000 feet squared per day but is generally less than 1,000 feet squared per day. Two of the most productive aquifer areas are in Stark in the Upper Connecticut River Basin and in Shelburne in the Androscoggin River Basin. Transmissivities exceeded 4,000 square feet per day in a 1.60-square-mile area in Stark and in a 2.20-square-mile area in Shelburne. In 1993, ground-water withdrawals from stratified drift in the two basins totaled about 3.6 million gallons per day for public supply. Many of the stratified-drift aquifers within the study area are not fully developed.

The geohydrologic investigation of stratified-drift aquifers described in this report focused on basic aquifer properties including aquifer boundaries; recharge, discharge, and direction of ground-water flow; saturated thickness and storage; and transmissivity. Surficial geologic mapping was used in the determination of aquifer boundaries. Data from more than 1,172 wells and test borings were used to produce maps of water-table altitude, saturated thickness, and transmissivity of stratified drift. More than 8 miles of seismic-refraction profiling were used to construct the water-table and saturated-thickness maps.

One stratified-drift aquifer in both the Upper Connecticut and the Androscoggin River Basins was simulated by use of a two-dimensional, finite-difference ground-water-flow model to estimate ground-water availability. The results of these flow-model simulations indicate that the Connecticut River aquifer (in Colebrook) could yield 1.3 to 3.1 million gallons of water per day, and the Androscoggin River aquifer (in Shelburne) could yield 6.1 to 32.9 million gallons of water per day.

Results of chemical analysis of water samples from 23 wells and 3 springs indicate that, with some exceptions, water in the stratified-drift aquifers in the study area meets primary and secondary drinking-water regulations established by the U.S. Environmental Protection Agency. Sites of known ground-water contamination were not sampled. Elevated concentrations of iron and manganese were the most common water-quality problems.

INTRODUCTION

The population of the 38 northern New Hampshire towns in the Upper Connecticut and Androscoggin River Basins decreased by 9 percent between 1980 and 1990 (New Hampshire Office of State Planning, 1991) (fig. 1), but expected future growth will increase the demands for water and stress the capacity of existing municipal water systems, some of which depend on ground water for part or all of their water supplies. In 1993, the average withdrawal from stratified-drift aquifers for municipal supply was about 3.6 Mgal/d; this amount represents total withdrawal for that year divided by 365 days, as if the total withdrawal was spread out over a full year (Richard Schofield, New Hampshire Department of Environmental Services, Water Management Bureau, oral commun., 1995).

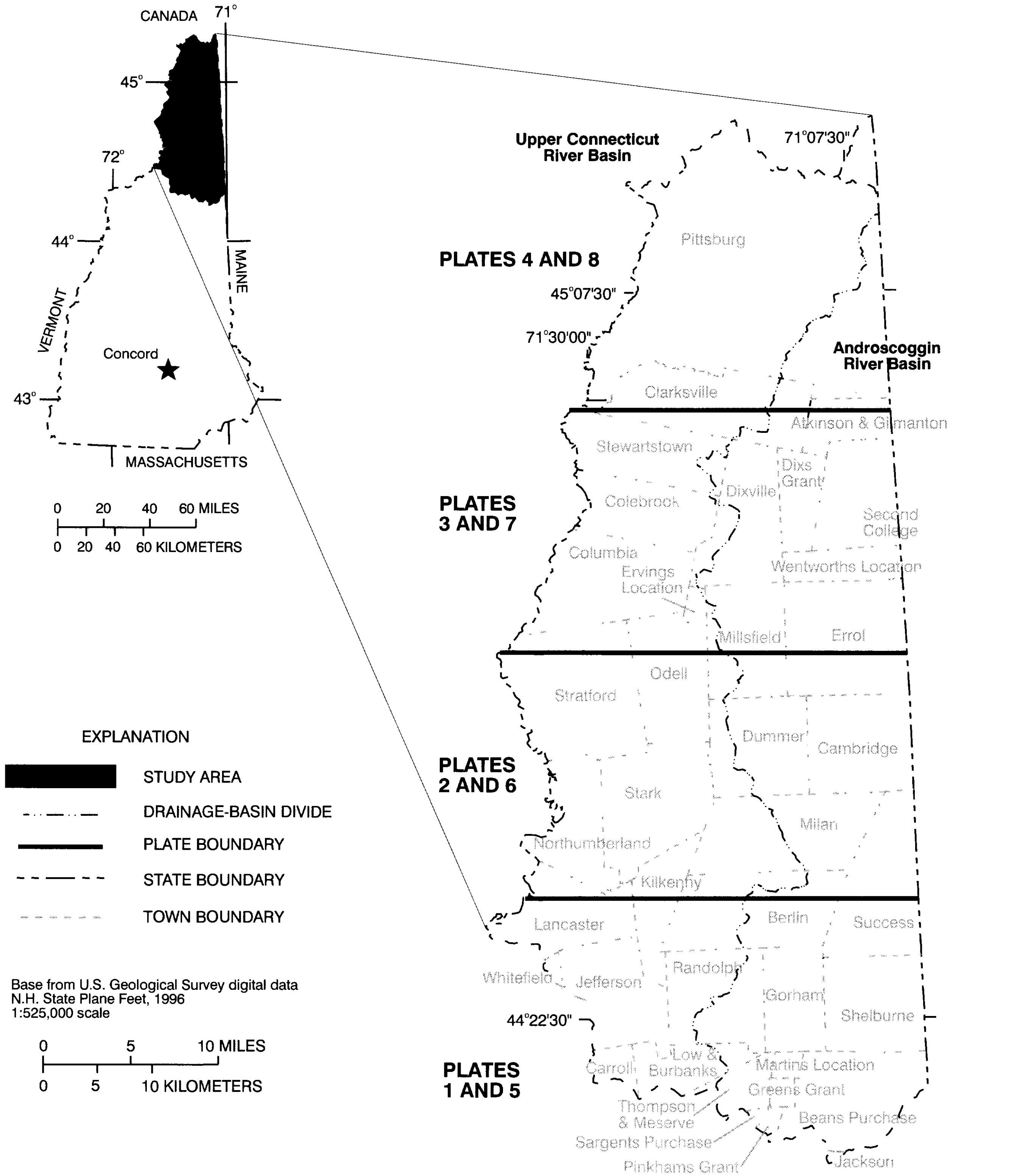


Figure 1. Location of study area, towns, and plate boundaries in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire.

Ground water is used by 4 of the 38 towns as their sole source of supply. In addition to concerns about adequate supplies of water raised by future population growth, U.S. Environmental Protection Agency (USEPA) primary and secondary drinking-water regulations regarding the treatment requirements of surface-water supplies have prompted municipalities to be concerned about the quality and availability of their ground-water resources.

Stratified-drift aquifers discontinuously underlie 138 mi^2 (8.4 percent) of the Upper Connecticut and Androscoggin River Basins, which drain an area of 1,629 mi^2. Many of the aquifers may be capable of supplying enough water to meet domestic, community, and municipal water needs.

The U.S. Geological Survey (USGS), in cooperation with the New Hampshire Department of Environmental Services, Water Resources Division (NHDES–WRD), has done a series of ground-water studies of stratified-drift aquifers in New Hampshire to provide detailed geohydrologic information necessary for optimal use of existing water supplies and for the development of new water supplies from these aquifers. The study described in this report encompasses the Upper Connecticut and Androscoggin River Basins (figure 1). Completed studies and reports in this series include those for the Nashua Regional Planning Commission area (Toppin, 1987); the Exeter, Lamprey, and Oyster River Basins (Moore, 1990); the Lower Merrimack and coastal river Basins (Stekl and Flanagan, 1992); the Bellamy, Cocheco, and Salmon Falls River Basins (Mack and Lawlor, 1992); the Middle Merrimack River Basin (Ayotte and Toppin, 1995); the Lower Connecticut River Basin (Moore and others, 1994); the Middle Connecticut River Basin (Flanagan, 1996); the Winnipesaukee River Basin (Ayotte, 1997); the Pemigewasset River Basin (Cotton and Olimpio, 1996); the Saco and Ossipee River Basin (Moore and Medalie, 1995) and the Contoocook River Basin (Harte and Johnson, 1995).

Purpose and Scope

The purpose of this report is to (1) describe the geohydrologic characteristics of the stratified-drift aquifers in the Upper Connecticut and Androscoggin River Basins in New Hampshire, including areal extent of stratified-drift aquifers, water-table altitudes, general directions of ground-water flow, saturated thickness, and transmissivity; (2) give estimates of water availability for selected aquifers; and (3) assess the general quality of ground water in stratified-drift aquifers in the study area.

The data and descriptions in this report are limited to the stratified-drift aquifers. The estimates of water availability from stratified-drift aquifers in Colebrook and Shelburne were derived by use of a numerical model.

Previous Investigations

Previous hydrologic investigations in the Upper Connecticut and Androscoggin River Basins produced two reconnaissance maps at a scale of 1:125,000 in which the availability of ground water was mapped (Cotton, 1975b,c). A hydrologic investigation of the entire Connecticut River Basin in New England was completed by Cederstrom and Hodges (1967). Numerous other studies were done by private consultants to address local concerns. Most of these studies indicated the need for additional information to improve the understanding of the ground-water-flow systems, define aquifer boundaries, and evaluate ground-water quality in the study area.

Methods of Study

The following methods were used to accomplish the objectives of this study:

1. Areal extent of the stratified-drift aquifers was mapped by use of soils maps from the U.S. Natural Resource Conservation Service (formerly the Soil Conservation Service. Maps on file in Lancaster, N.H.), and field mapping done specifically for this project.
2. Published and unpublished subsurface data on ground-water levels, saturated thickness, and stratigraphy of the aquifers were compiled from the USGS, NHDES–WRD, NHDES–Water Supply and Pollution Control, and the New Hampshire Department of Transportation. Additional data were obtained

from municipalities, local residents, well-drilling contractors, and geohydrologic consulting firms. The locations of wells, borings, springs, and seismic lines were plotted on base maps, and pertinent well and boring data were added to the Ground-Water Site Inventory (GWSI) data base maintained by the USGS. Each data point is cross-referenced to a site-identification number and to any other pertinent information about the site. (appendixes A and B)

3 Seismic-refraction surveying, a surface geophysical technique, was used to determine depths to the water table and depths to the bedrock surface at 49 sites. Locations of these profiles are shown on plates 1 through 4. The seismic data were interpreted by use of a time-delay, ray-tracing computer program developed by Scott and others (1972). Data from nearby wells and test holes were used to verify the interpretations. Actual depths to the bedrock surface are within 10 percent of the estimates from seismic-refraction profiling. Till is not identified in these interpretations because it is generally thin and cannot be distinguished from stratified drift by use of seismic-refraction methods. Where till is present but is not identified in the interpretation, the computed depth to bedrock is slightly less than the actual depth. (appendix C)

4. Test borings and wells were completed at 43 locations to improve definition of the thicknesses and geohydrologic characteristics of the stratified-drift aquifers. Locations of these test borings and wells are shown on plates 1 through 4. Split-spoon samples of the subsurface sediments collected at 5- to 10-foot intervals were used to estimate the horizontal hydraulic conductivity at those depths and to determine the stratigraphic sequence of materials comprising the aquifers. A 2-inch inside-diameter well with a polyvinyl chloride (PVC) casing and a slotted well screen was installed at 26 locations in the study area where test borings indicated that the aquifer would yield sufficient water for potential municipal supply. Water levels were measured periodically and water samples were collected for water-quality analyses from selected wells.

5. Data collected as described in items 2, 3, and 4 were used to prepare maps showing the water-table altitude and saturated thickness of the stratified-drift aquifers.

6. Hydraulic conductivities of aquifer materials were estimated based on the technique of relating medium grain size and degree of sorting to accepted mean hydraulic conductivity values (Ayotte & Toppin 1995). Transmissivities were estimated from logs of test borings and wells by assigning horizontal hydraulic conductivities to each interval sampled, multiplying the hydraulic conductivities by the saturated thickness of the interval, and summing these results. Additional transmissivity values were obtained from reports by geohydrologic consultants. This information was used to prepare maps showing the transmissivity distribution of the stratified-drift aquifers (pls. 5–8).

7. Flow-duration data from eight long-term streamflow-gaging stations within and near the Upper Connecticut and Androscoggin River Basins were analyzed and used to correlate miscellaneous low-flow streamflow measurements on ungaged streams (appendix D). Streamflows measured where the stream flowed into and out of major aquifers in the area during periods of low flow can be used to estimate potential aquifer yields.

8. An aquifer in the Upper Connecticut and Androscoggin River Basins was selected to demonstrate a technique for estimating water availability on the basis of a two-dimensional numerical model that simulates ground-water flow. The model was used to estimate the potential water availability and the sources of water to wells in the modeled areas.

9. Samples of ground water from 25 wells and 3 springs were collected and shipped to the USGS National Water Quality Laboratory in Arvada, Colo. for analysis. Selected physical properties (specific conductance, pH, temperature) were measured, and concentrations of inorganic constituents were determined. The data provided by these analyses were used to assess the general quality of water from the stratified-drift aquifers in the study area.

Numbering System for Wells, Borings, and Springs

Local numbers assigned to wells and borings entered into GWSI consist of a two-letter town designation (table 1), a supplemental letter designation ("A" for borings done for hydrologic investigations, "B" for borings done primarily for construction, "S" for springs, and "W" for all wells in which a casing was set), and a sequential number within each town. For example, the first well listed for the town of Berlin is BRW-1.

Table 1. Two-letter town codes used as prefixes in the numbering system for wells, borings, and springs in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire

Town	Two-letter code	Town	Two-letter code
Beans Purchase	BH	Milan	MN
Berlin	BR	Millsfield	MS
Carroll	CF	Northumberland	NU
Clarksville	CS	Pinkhams Grant	PE
Colebrook	CT	Pittsburg	PG
Columbia	CU	Randolph	RA
Dalton	DA	Sargents Purchase	SF
Dixville	DH	Shelburne	SJ
Dummer	DM	Stark	SN
Errol	ET	Stewartstown	SO
Gorham	GO	Stratford	SR
Greens Grant	GU	Success	ST
Jefferson	JE	Wentworths Location	WJ
Lancaster	LC	Whitefield	WL
Martins Location	MF		

Acknowledgments

The author thanks the many State and Federal agencies, municipalities, consulting firms, well-drilling companies, and private companies who provided data for this study. Thanks are also given to the many residents and land owners in the study area who allowed access to their land for purposes of data collection, and to Anita Cotton for her thorough editing and preparation of the plates.

GEOHYDROLOGIC SETTING

Three types of aquifers are present in the study area: (1) stratified drift, which can be a major source of ground water for municipalities; (2) till, which locally can supply minor amounts of water for domestic use; and (3) bedrock, which supplies water to some municipalities and small communities and to most households in the study area that are not connected to a municipal supply.

Stratified Drift

Coarse-grained stratified drift, the focus of this study, consists of layered, sorted, mostly coarse-grained sediments (sands and gravels) deposited by glacial meltwater at the time of deglaciation. Hydrologic characteristics of stratified drift that affect ground-water storage and flow are related to the glaciofluvial or glaciolacustrine environment in which the sediments were deposited. Stratified-drift deposits are composed of distinct layers of sediments with different grain-size distributions, sorted according to depositional environment. For example, fast-moving meltwater streams deposit coarse-grained sediments with large pore spaces between grains. If saturated, these sediments store and transmit water readily. Fine-grained sediments (very fine sands, silts, and clays), deposited in slow-moving lacustrine environments or ponded glacial meltwater, do not transmit water freely.

Deglaciation had a pronounced effect in determining the type of aquifer that was formed. Deglaciation of the southern part of the Upper Connecticut River Basin is believed to have occurred by a systematic process of stagnation-zone retreat

(Koteff and Pessl, 1981). During deglaciation, the active glacial ice receded to the north-northwest, leaving behind zones of stagnant ice in contact with the active ice margin. In the areas of previously existing glacial lakes in the upland valleys of the Connecticut River Basin, the coarsest stratified-drift deposits formed were ice-contact deltas, some of which may have been fed by sediment in meltwater flow from within or beneath the glacial ice. In some upland valleys, upgradient from glacial lakes, the deglaciation process resulted in the formation of eskers, kames, kame terraces, and outwash deposits, sometimes in contact with deltaic deposits.

A study done by Spear (1989) on pollen and plant-macrofossil records from four small present-day lakes in the subalpine and alpine zone of the White Mountains in New Hampshire indicates that the White Mountain area was deglaciated by 13,000 years before present (BP) but that residual ice may have existed in Franconia Notch until 11,000 BP. Gerath (1978) suggests that the stratified drift on the floor of the Androscoggin River Valley was deposited over a period of two centuries and that the Androscoggin valley was deglaciated between 12,600 and 12,100 years BP. Deglaciation of the Connecticut River Valley south of the study area was influenced by the presence of one large glacial lake, glacial Lake Hitchcock, which at its maximum extended from New Britain, Connecticut to Burke, Vt. (Koteff and Larsen, 1989). Significant thicknesses of fine-grained sediment formed in glacial Lake Hitchcock while meltwater from the glacier deposited fine-grained and fairly coarse-grained deltaic sediments in the same lacustrine environment (Moore and others, 1994; Flanagan, 1996). The elevations of former glacial-lake levels were projected from measured altitudes of the contact between topset and foreset beds within remnant deltas in the Connecticut River Valley. This contact represents the level of the glacial lake in that area at the time of deposition (Koteff and Larsen, 1989; Koteff and others, 1993).

The primary aquifers found where glacial lakes existed in the study area consist of ice-contact deltas and eskers. Eskers are long ridges of sand and gravel deposited either (1) in meltwater channels within the zone of ice stagnation during deglaciation or (2) at the ice margin where it retreats in contact with a standing water body. Retreat of the ice margin causes deposition at locations progressively further up the meltwater channel, thereby forming a ridge that follows the course of the previous channel. Where saturated thickness is significant, eskers and other coarse-grained ice-channel deposits form productive aquifers. Similarly, where other coarse-grained stratified-drift deposits are confined (buried) beneath or within fine-grained lake-bottom sediments, such as subaqueous fans or distal ends of deltas, productive aquifers may be present. The locations of confined aquifers may be undetected in areas where subsurface data are lacking.

Ice-Dammed Glacial-Lake Deposits

Deglaciation of the Upper Connecticut and Androscoggin River Basins was complex and included deposition of sediment into glacial lakes that were present at various altitudes and times relative to one another. A sectional diagram showing the deposition of sediment into a glacial lake is shown in figure 2.

In many places, the retreat of the ice exposed a new, lower outlet that redirected glacial meltwater, formed new lakes, or added to older glacial lakes. The surfaces defining the previous levels of the glacial lakes in the Upper Connecticut and Androscoggin River Basins were gradually uplifted following deglaciation in response to the removal of the glacial ice (isostatic rebound), the uplift being greatest to the north-northwest. Projections of these lake surfaces now dip to the south-southeast. No studies have been done in the Upper Connecticut and Androscoggin River Basins to determine the exact slope of the projected lake surfaces; however an estimate can be made by examining the deltas in valleys of the study area to the west and south, as well as to the southeast near the coast.

In the Connecticut River Valley, a stabilized level of glacial Lake Hitchcock is indicated by 23 ice-contact deltas and numerous other deltas that have not been modified by collapse and whose topset-foreset contacts fall along a single plane. This stable lake level indicates that the postglacial uplift of New England that resulted from the melting of the continental ice sheet was delayed by about 5,000 years (Koteff and Larsen, 1989). This plane, after the postglacial uplift, now dips about 4.8 ft/mi downward in the direction of S. 21 E. (Koteff and Larsen, 1989). Flanagan (1996) used this projected plane to show that the maximum

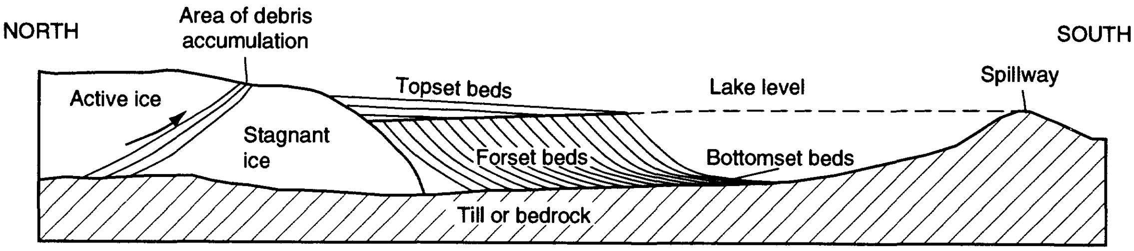


Figure 2. Sectional diagram of the formation of an ice-contact delta into a glacial lake.

extent of glacial Lake Hitchcock in the Connecticut River Valley extended only to Dalton, (just south of Lancaster). However, the presence of thick (about 260 ft) deposits of lacustrine sediments in the Lancaster–Groveton area indicate that glacial Lake Hitchcock may have extended as far north as Groveton or that another, younger glacial lake existed in the Connecticut River Valley.

Lougee (1939) was a leading proponent of active-ice retreat as the process for sediment deposition in the White Mountains of New Hampshire. He claimed that the north-northwesterly receding glacier margin dammed a series of glacial lakes in northward-draining valleys of the Connecticut River Basin.

Fluviodeltaic Deposits

Fluvial-deltaic aquifers in the Connecticut River Valley were deposited in the lake near the ice margin during stagnation-zone retreat of the glaciers (Koteff and Pessl, 1981). A block diagram of the formation of a fluvial-deltaic aquifer is shown in figure 3. The deposits are coarse grained near the ice-contact margin and become progressively finer grained where the sediment-laden meltwater lost energy downstream from the ice margin and as it emptied into glacial-lake water. The Connecticut River aquifer in Groveton is an example of this type of stratified-drift deposit. In the Androscoggin River Valley, morphologic and geologic evidence indicates that southeastwardly flowing ice thinned and separated over the Mahoosuc Range (Gerath, 1978). When ice was cut off from regional sources in the basin, ice flow waned, and valley ice began to stagnate. Topographic features on valley floors caused ice flow to cease and the masses of residual ice began their final stages of melting on the valley floors. All ice-contact and non-ice-contact stratified drift in the Milan, Berlin, Gorham, and Shelburne areas is believed to have been deposited during the late stages of regional deglaciation. Most deposits on the valley floors formed when the remaining ice was only 90 ft thick (Gerath, 1978).

Till

Till is an unsorted mixture of clay, silt, sand, gravel, and rock fragments deposited directly by glacial ice. In the study area, till covers most of the bedrock surface and is overlain locally by stratified drift and Holocene stream deposits. Till is not considered to be a major source of ground water because of its low hydraulic conductivity. Large-diameter wells completed in till can provide modest amounts of water, commonly less than 3 gal/min, for household needs, but water-level fluctuations within till can be large enough to make these wells unreliable during dry seasons.

Bedrock

Bedrock in the Upper Connecticut and Androscoggin River Basins consists of the following six main rock groups, as mapped by Lyons and others (1986, and as modified by J.B. Lyons, University of New Hampshire, written commun., 1994). The first group, located in the center of the two basins, consists primarily of intrusive two-mica granite of Devonian or Mississippian age. This first group is surrounded by undivided quartzite and schist of Silurian age, an example of which is the Perry Mountain Formation of Early(?) to Middle(?) Silurian age. The third group, located in the south-central part of the two-basin study

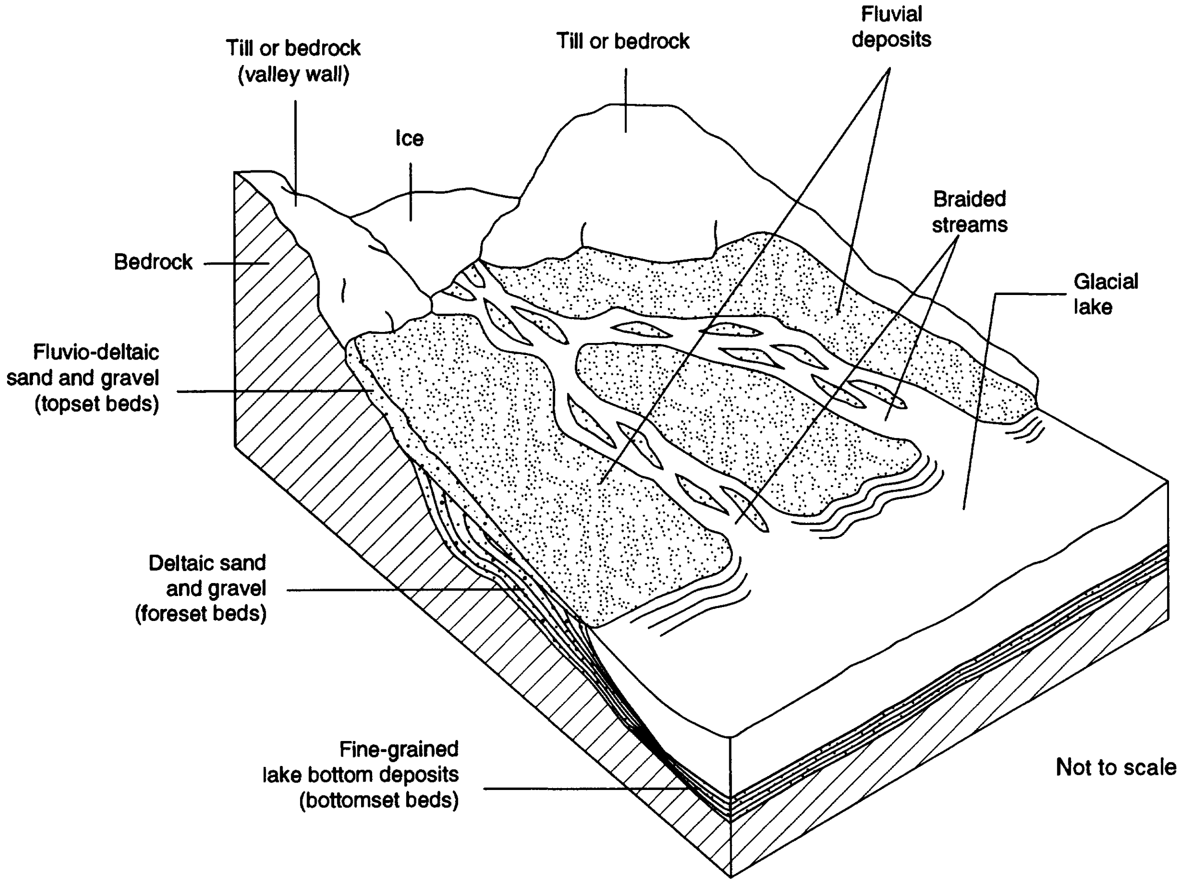


Figure 3. Block diagram of the formation of a fluvial deltaic aquifer (from Ayotte and Toppin, 1995).

area, consists of granites and syenites of Jurassic age of the White Mountain Plutonic–Volcanic Suite. The fourth group, located in the eastern part of the study area, includes the lower part of the Ammonoosuc Volcanics series of rocks of Middle Ordovician age and metapelite and quartzite of Late Cambrian(?) and Early Ordovician(?) (an example of this is the Dead River Formation). The fifth group, located in the western part of the two-basin study area, consists of metawacke, schist, and phyllite, of Early Devonian age, such as the Gile Mountain Formation of Early Devonian age. The last group, located in the north-central part of the two-basin study area, includes wacke and slate of Silurian(?) age.

GEOHYDROLOGY OF STRATIFIED-DRIFT AQUIFERS

The geohydrology of stratified-drift aquifers was described by determining (1) aquifer boundaries, (2) direction of ground-water flow from recharge to discharge areas, (3) aquifer thickness and storage, and (4) aquifer transmissivity. In addition, estimates were made of the amounts of water potentially available from selected aquifers. Data sources in this investigation included surficial geologic maps, lithologic logs of wells and test borings, and seismic-refraction data. Results of the geohydrologic investigation are presented on plates 1 through 8 and in the text that follows.

Delineation of Aquifer Boundaries

Stratified-drift aquifers in the study area are composed of fine- to coarse-grained sands and gravels deposited by glacial meltwaters; these deposits, in part, are now sufficiently saturated to yield usable quantities of water to wells and springs. Locations of the lateral boundaries of the aquifers are defined as the contacts between the stratified drift and till and (or) bedrock. The position of the contact was determined by use of surficial geologic maps, soil maps, test-boring logs, and field mapping done specifically for this study. The lower boundary of the aquifer is the contact of the stratified drift with the till and (or) bedrock surface and was determined by use of data from seismic refraction, test wells and borings, and domestic water wells. The upper boundary is the water table.

Areal Extent of Stratified-Drift Aquifers

The areal extent of the stratified-drift aquifers is shown on plates 1 through 8. Because of the regional scale of this investigation, aquifer boundaries are approximate. Coarse-grained stratified-drift aquifers may underlie fine-grained lacustrine deposits but may not have been identified because of the complexity of the stratigraphy and (or) the absence of data. Available data for coarse sediment underlying fine-grained sediment are discussed in the section "Descriptions of Selected Stratified-Drift Aquifers." Although the lacustrine clay, silts, and very fine sands are not capable of supplying adequate amounts of water for domestic and community use, the coarse-grained deposits that may lie below could be productive aquifers.

Aquifer boundaries are shown as solid or dashed lines. In the explanation on the plates, solid lines represent "approximately located" boundaries and dashed lines represent “inferred” boundaries.

Stratigraphy of Geohydrologic Units

Data for the stratigraphy of geohydrologic units were obtained from available records of subsurface exploration in the study area. Test drilling and surface geophysical exploration were done to delineate texturally different geohydrologic units within the stratified drift.

Ground-Water Site Inventory

Available subsurface data from wells and borings were inventoried, and locations of these wells and borings in and near the stratified-drift aquifers are plotted on plates 1 through 4. Geohydrologic data for approximately 1,172 sites were added to the GWSI data base and checked for accuracy. Data for approximately 885 of the 1,172 sites were transferred to GWSI from the NHDES–WRD well inventory data base. Approximately 39 of the 885 NHDES–WRD sites are within stratified-drift aquifer areas; the remainder are located in till and (or) bedrock areas. Appendix A contains selected data from the GWSI data base for wells, borings, and springs within the stratified-drift aquifer areas that were used to construct the accompanying map plates. These data include an identification number for the well, latitude and longitude, depth of the well, water level, and yield of the well. Appendix B contains stratigraphic logs of selected wells and borings in stratified drift. These data were used primarily for estimating the transmissivity of the aquifers where no aquifer-test data or grain-size data were available.

Seismic-Refraction Results

Seismic-refraction profiles, totaling more than 8 mi, were completed at 50 locations to determine depths to the water table and bedrock surface (plates 1–4). A 12-channel, signal-enhancing seismograph was used to record arrival times of compressional wave energy generated by a sound source. The data were collected and interpreted according to methods described by Haeni (1988). The interpretations, made with the aid of a computer program developed by Scott and others (1972), are shown in appendix C.

Seismic velocities calculated for the materials under investigation and used in the seismic interpretations range from 500 to 1,500 ft/s for unsaturated stratified drift, approximately 5,000 ft/s for saturated stratified drift, and between 10,000 and 20,000 ft/s for bedrock. Interpreted seismic profiles in this report show (1) the top of the profile, which represents land surface, in feet above sea level; (2) an estimate of altitude of the water table within unconsolidated deposits at the time the seismic data were collected; and (3) an estimate of altitude of the bedrock surface. The relative altitudes of each geophone and shot were determined by leveling if altitude differences greater than 5 ft between geophones were observed. The actual altitudes, relative to sea level, were estimated from USGS topographic maps (1:24000 scale) and are assumed to be accurate to half a contour interval or 10 ft. Till is not accounted for in these interpretations because it is usually thin (less than 10 ft) relative to the saturated thickness and, therefore, cannot be detected with seismic-refraction methods. Where till is present in significant thickness and is not accounted for in the interpretation of seismic data, the computed depth to the bedrock is slightly less than the actual depth. Additional error results if the relief of the bedrock surface differs considerably over distances less than the 50- or 100-foot geophone spacing used in seismic-refraction profiling.

Estimated depths to the water table and to the bedrock surface are generally compared with control data, such as nearby well or boring logs and water-table and bedrock-outcrop observations. The accuracy of the depths to water table and bedrock are within 10 percent of the true depth, as determined from test borings made along selected profiles.

Altitude of the Water Table

The approximate altitude of the water table in the stratified drift is shown on plates 1–4. These maps were constructed from (1) altitudes of streams, ponds, and lakes as shown on USGS topographic maps at scales of 1:24,000 and 1:25000; (2) water-level data from wells stored in GWSI and finished in stratified-drift deposits; and (3) analysis of seismic-refraction data. Water levels in fine-grained lacustrine deposits represent the ground-water altitude in those deposits only. Saturated coarse-grained stratified drift may be present below fine-grained material in some areas, and a second, deeper potentiometric surface (in confined aquifers) may be present.

Water-level measurements were made monthly at selected wells in the study area during 1991 and 1992 and the data were stored in GWSI. A hydrograph showing water levels for wells ETW-1(Androscoggin River Basin) and LCW-1 (Upper Connecticut River Basin) in the study area are shown in figure 4. Well ETW-1 represents water-level fluctuations in very fine sand and silt in a stratified-drift aquifer. Well LCW-1 represents water-level fluctuations in sand and gravel in a stratified-drift aquifer. The data from both wells supports the conclusion reached for other parts of New Hampshire that natural water-level fluctuations in stratified drift are usually less than 5 ft but can be as much as 10 ft (Cotton, 1987; Toppin, 1987; Moore, 1990; Mack and Lawlor, 1992; Moore and others, 1994; Harte and Johnson, 1995; Ayotte and Toppin, 1995; Cotton and Olimpio, 1996). Therefore, a 20-foot contour interval for water-table altitudes under natural conditions is reasonable for producing a generalized water-table map from water-level measurements made at different times.

Recharge, Discharge, and Direction of Ground-Water Flow

Ground-water recharge includes natural recharge from precipitation that falls directly on the aquifer and infiltrates the water table, lateral inflow from adjacent till and bedrock areas, and, in some places, leakage from streams that traverse the aquifer. Natural recharge is the difference between precipitation and the amount of water lost to evapotranspiration and to surface runoff.

Recharge to stratified-drift aquifers can be estimated from stream-discharge measurements made during periods in which there is no change in ground-water storage, as indicated by the position of the water table. Making such estimates requires the assumption that the ground-water discharge consists mostly of ground-water runoff. During periods of low flow and after an extended period without precipitation, this assumption is reasonable. This method probably gives conservative estimates of natural recharge to aquifers.

Approximately half of the annual precipitation on outcrops of stratified-drift aquifers in glaciated areas of eastern Massachusetts and southern Maine is estimated to recharge stratified-drift aquifers (Knott and Olimpio, 1986, Morrissey, 1983). Most of the recharge in the study area is in late fall and early spring, when precipitation is greatest and evapotranspiration is lowest.

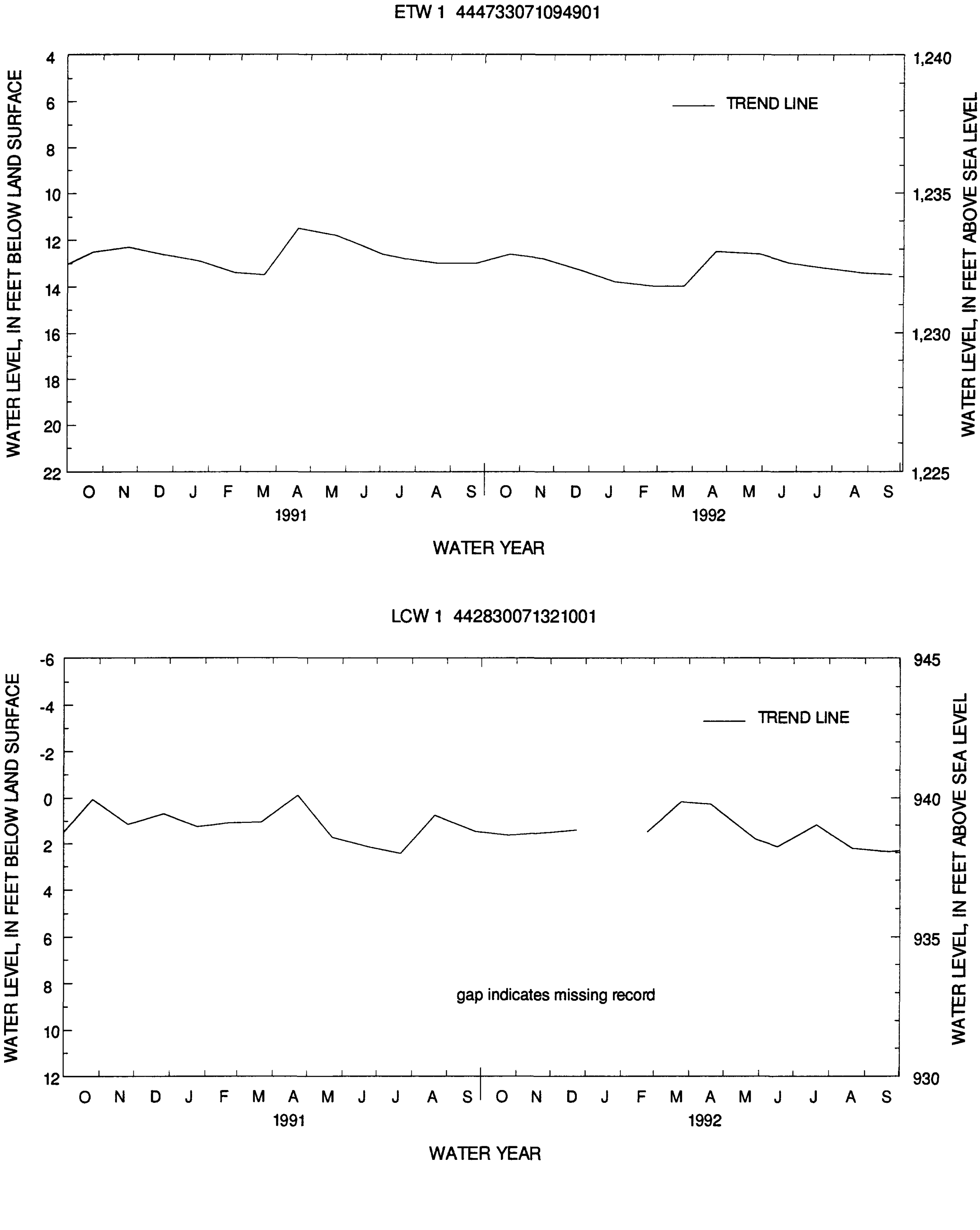


Figure 4. Long-term water levels at observation wells ETW-1 and LCW-1 in stratified drift, northern New Hampshire.

Recharge to the stratified-drift aquifers occurs in part from adjacent till and (or) bedrock uplands. Lateral inflow from upland areas not drained by perennial streams recharges the stratified-drift aquifer at the till and (or) bedrock contact. Recharge to stratified-drift aquifers from upland areas not drained by streams can be estimated by measuring ground-water discharge from till and (or) bedrock uplands that are drained by streams. Ayotte and Toppin (1995), examined long-term (1963–93) streamflow data from Stony Brook in south-central New Hampshire and found that the average discharge from till uplands with small drainage areas (3.60 mi^2 for Stony Brook) can be as high as 1.95 $(ft^3/s)/mi^2$. For a 23-square-mile till-covered drainage in Maine, the estimated average annual lateral inflow of ground water from upland areas to a stratified-drift aquifer was 0.5 $(ft^3/s)/mi^2$ (Morrissey, 1983). Upland areas not drained by streams are generally small but may contribute a significant amount of recharge to aquifers.

Recharge to stratified-drift aquifers from streams that lose water to the aquifer through permeable streambeds was documented by Randall (1978) and by Morrissey and others (1988). This type of recharge was not observed in any of the base-flow measurements made in this study, although it may occur on a small scale within the ±5-percent error associated with base-flow measurements or in other locations that were not measured. Such tributary-stream infiltration occurs where the tributary streams flow across aquifers that have a water table below the altitude of the stream-bottom at the stratified-drift and till and (or) bedrock contact (D.J. Morrissey, U.S. Geological Survey, written commun., 1989). For example, a small tributary stream 1.1 mi west of Gorham Upper Village drains southeasterly (pl. 1) and all water is lost to stratified-drift deposits before reaching the Androscoggin River.

Ground-water discharge includes natural leakage into streams, lakes, and wetlands; ground-water evapotranspiration; and withdrawal from wells. During periods of low streamflow, usually in late summer and early fall and after extended periods without rainfall, streamflow consists almost entirely of ground-water discharge. Streamflow measurements were made at 34 streams and rivers in the Upper Connecticut and Androscoggin River Basins during such a period on September 9 and 10, 1992 (appendix D).

Streamflow-gaging stations on the Diamond River near Wentworths Location (01052500), on the Androscoggin River at Errol (01053500) and near Gorham (01054000), on the Connecticut River below Indian Stream near Pittsburg (01129200), on the Mohawk River near Colebrook (01129440), on the Upper Ammonoosuc River near Groveton (01130000), on the Connecticut River near Dalton (01131500), and on the Ammonoosuc River at Bethlehem Junction (01137500, south of the study area) were used to monitor flow conditions in and near the study area (table 2 and fig. 5).

Table 2. Percent flow duration on September 9 and 10, 1992, for selected U.S. Geological Survey stream-gaging stations in and near the Upper Connecticut and Androscoggin River Basins, northern New Hampshire

[USGS, U.S. Geological Survey; No., number; mi^2, square miles; data from Toppin and others (1993)]

USGS gaging station No.	Name of site	Drainage area (mi^2)	Percent flow duration of mean daily discharge on September 9 and 10, 1992
01052500	Diamond River near Wentworth Location, N.H.	152	50
01053500	Androscoggin River at Errol, N.H.	1,046	96
01054000	Androscoggin River near Gorham, N.H.	1,361	95
01129200	Connecticut River below Indian Stream, near Pittsburg, N.H.	254	80
01129440	Mohawk River near Colebrook, N.H.	36.7	55
01130000	Upper Ammonoosuc River near Groveton, N.H.	232	50
01131500	Connecticut River near Dalton, N.H.	1,514	60
01137500	Ammonoosuc River at Bethlehem Junction, N.H.	87.6	60

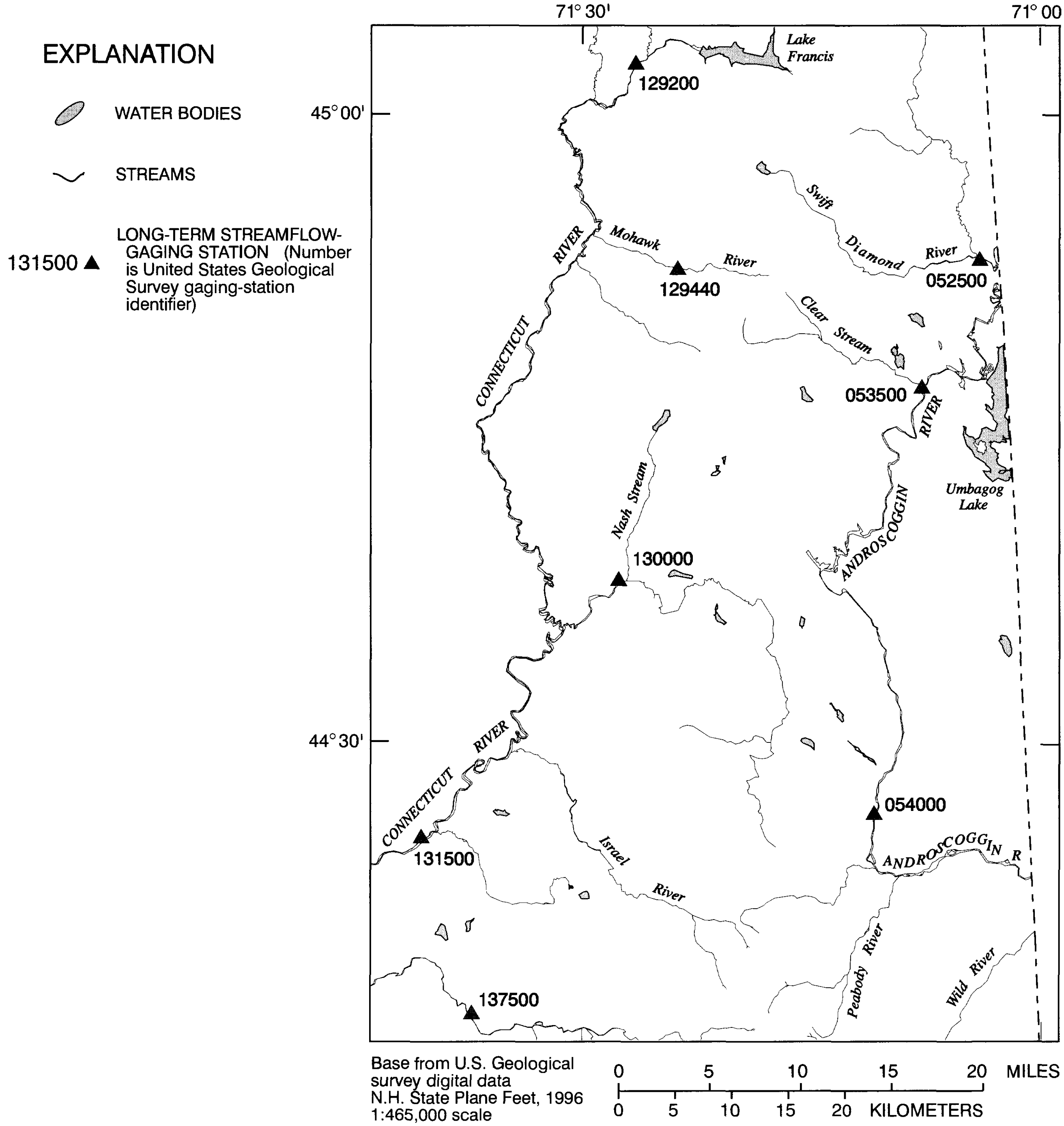


Figure 5. Locations of selected long-term streamflow-gaging stations in and near the Upper Connecticut and Androscoggin River Basins, northern New Hampshire.

Discharge data for a particular stream or site can be used to construct a flow-duration curve, which is a cumulative-frequency curve that shows the percentage of time during which specified discharges were equaled or exceeded in a given period. The percent flow duration of the average daily discharge on September 9 and 10, 1992, at eight streamflow-gaging stations in the Upper Connecticut and Androscoggin River Basin is given in table 2. The average flow duration for the discharge at 5 of the 8 sites was 55 percent (Toppin, 1993). Under these conditions, flow in the study area was moderate, and discharge was assumed to be a combination of natural recharge from ground-water runoff and precipitation. Discharge at the remaining 3 sites was at an average flow duration of 90 percent. Streamflow in the study area at these three sites was low. However, these sites are located on rivers that are regulated by dams and these low streamflow values may be a result of impoundment of water behind the dams.

Artificial sources of recharge to, or discharge from, an aquifer complicate the construction of water-table maps that are intended to represent natural conditions. Withdrawals of ground water affect the direction and slope of ground-water flow in an aquifer. Ground-water withdrawals affect four stratified-drift aquifers in the Upper Connecticut and Androscoggin River Basin (at Berlin, Colebrook, Gorham, and Northumberland). The amount of drawdown in a withdrawal well is determined in part by the distance of the well from the valley wall (stratified drift and till contact) and to potential recharge boundaries (streams, rivers, and surface-water bodies). Ground-water-flow lines and resulting drawdowns near an impermeable boundary are shown in figure 6. Drawdown is significantly greater on the impermeable boundary side than on the opposite side where the aquifer is assumed to be infinite in areal extent. A withdrawal well located near a potential recharge boundary, such as a pond or river (fig. 7), will create significantly less drawdown than a withdrawal well at greater distance from the recharge boundary.

Direction of ground-water flow in an unconfined aquifer is determined by the water-table gradient. Water-table gradients differed throughout the study area because of differences in topography and hydraulic conductivity of the stratified-drift deposits. Water-table gradients in fine-grained, stratified drift commonly exceeded 5 percent in areas of high topographic relief (Morrissey, 1983). Water-table gradients in coarse-grained stratified drift in areas of low topographic relief were less than 0.1 percent.

Aquifer Characteristics

The geohydrology of stratified-drift aquifers shown on plates 5 through 8 is based partly on aquifer characteristics that include saturated thickness, storage, and hydraulic conductivity. Estimates of saturated thickness and hydraulic conductivity were used to calculate transmissivity (pls. 5–8). These properties can be used to assess the water-supply potential of stratified-drift aquifers. Values of aquifer storage can be used to provide an estimate of aquifer yield.

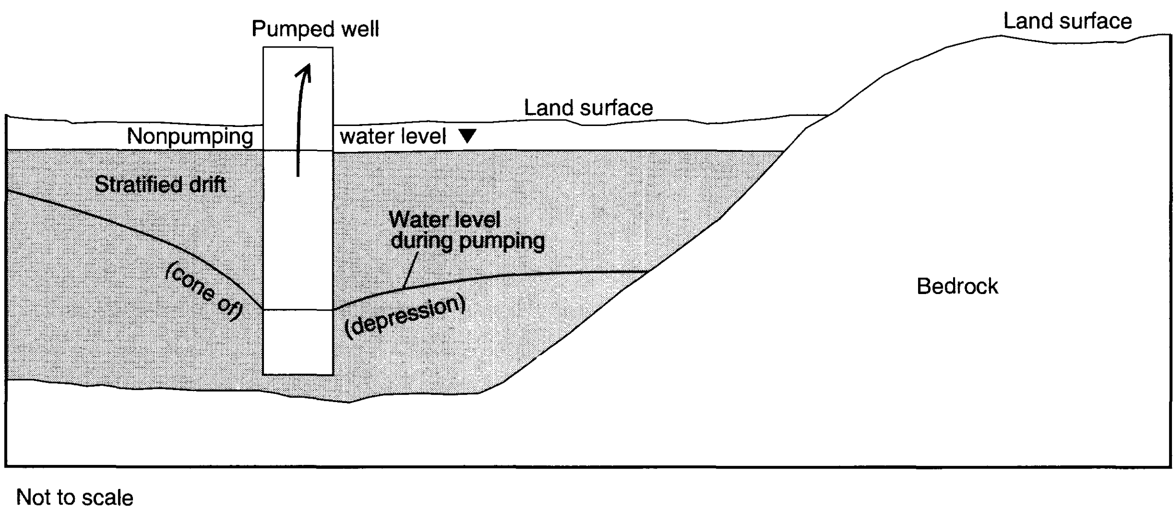


Figure 6. Ground-water flow and water-level drawdowns at a withdrawal well near an impermeable boundary.

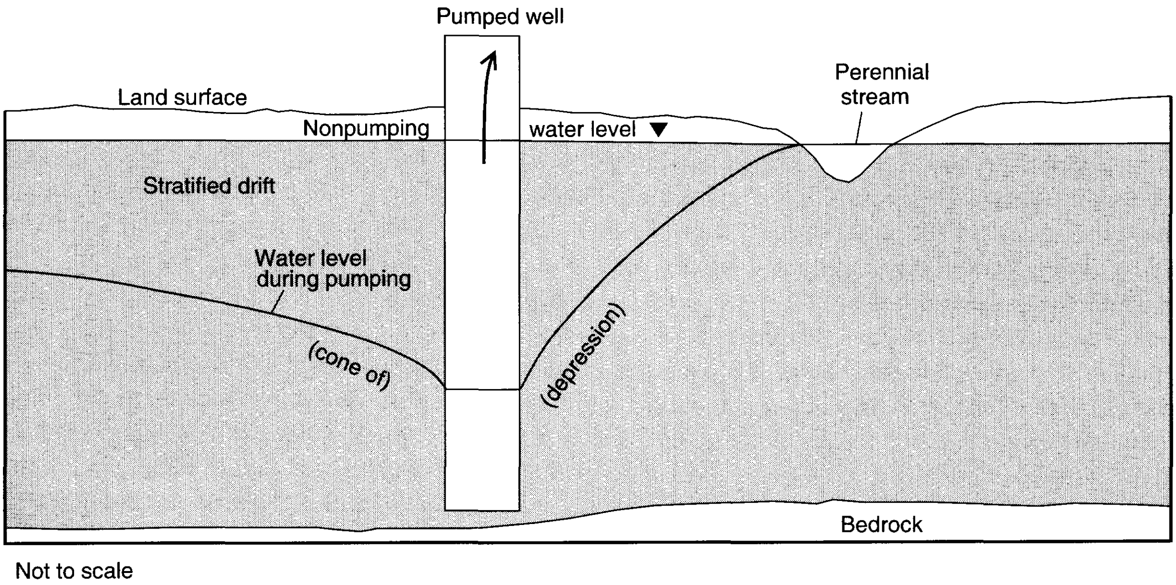


Figure 7. Ground-water flow and water-level drawdowns at a withdrawal well near a recharge boundary.

Saturated Thickness and Storage

Saturated thickness of an unconfined stratified-drift aquifer is the vertical distance between the water table and the base of the aquifer. In this study, the base of the stratified-drift aquifer is the contact between the stratified-drift aquifer and the top of the till or bedrock surface. Saturated-thickness contours shown on plates 5–8 were constructed by use of test-boring data, well data, and seismic-refraction data. The saturated thickness multiplied by the specific yield of an unconfined aquifer determines the amount of ground water that is available from storage.

The amount of water that can be stored in an aquifer is dependent on the storage coefficient of an aquifer, which is defined as the volume of water released from or taken into storage per unit surface area of aquifer per unit change in head (Lohman and others, 1972). In unconfined aquifers, the storage coefficient is approximately equal to the specific yield, which is the amount of water released by gravity drainage from a unit volume of aquifer per unit decrease in hydraulic head. A value of 0.2 is commonly assumed for specific yield for stratified-drift aquifers in New England (Moore, 1990) and for unconsolidated deposits in other areas (Freeze and Cherry, 1979). Specific yields (or storage coefficient) of 13 samples of stratified drift from southern New Hampshire ranged from 0.14 to 0.34 and averaged 0.26 (Weigle and Kranes, 1966).

Water released from storage in confined aquifers results from expansion of water and compression of the aquifer as hydraulic head declines. Storage coefficients for confined aquifers, which are significantly smaller than specific yields for unconfined aquifers, range from 0.00005 to 0.005 (Freeze and Cherry, 1979). Smaller storage coefficients indicate that the amount of water derived from expansion and aquifer compression is much less than that from dewatering by gravity drainage.

Maps of saturated thickness can be used to estimate the amount of ground water stored in an aquifer. The saturated volume of an unconfined aquifer is approximately equal to the sum of the products of the areas between successive pairs of saturated-thickness contours multiplied by the average saturated thickness for each area.

Transmissivity and Hydraulic Conductivity

Transmissivity is defined as the rate at which water at the prevailing kinematic viscosity can be transmitted through a unit width of an aquifer under a unit hydraulic gradient (Lohman and others, 1972). The transmissivity (T) of an aquifer is equal to the horizontal hydraulic conductivity (K, a directional measure of the permeability), in feet per day, multiplied by the saturated thickness (b), in feet, and is expressed in feet squared per day; thus,

$$T = K(b) \quad . \qquad (1)$$

Transmissivity at a specific site was derived from estimates of hydraulic conductivity of lithologic units in the aquifers. Hydraulic conductivity was estimated from grain-size distributions of samples of aquifer materials by use of the regression equation developed by Olney (1983). Hydraulic conductivity, however, which has a vertical and a horizontal vector component, is not accounted for by this equation. In this relation, an effective grain size (D_{10}, in phi units) was used to estimate hydraulic conductivity (K) with the following equation:

$$K = 2,100 \times 10^{-0.655 (D_{10})} \quad . \qquad (2)$$

The effective grain size (D_{10}) is a controlling factor for the hydraulic conductivity of stratified drift in New Hampshire and is defined as that grain size where 10 percent of the sample consists of finer grains and 90 percent of the sample consists of coarser grains. Olney (1983) developed this relation from results of permeameter tests of stratified-drift samples from Massachusetts. Moore (1990) found that this relation produced results that fall within the range of results from other relations that have been developed between grain-size distribution and hydraulic conductivity (Krumbein and Monk, 1942; Bedinger, 1961; and Masch and Denney, 1966). Comparisons with aquifer-test data, however, indicate that equation 2 may not give accurate results for very coarse grained sand and (or) gravel. Estimates of hydraulic conductivity for aquifers with coarse sands and gravels were, in part, based on comparisons to aquifer-test data for similar deposits. Hydraulic conductivity (and transmissivity) values were based on grain-size relations and may differ from results of aquifer-test analyses. Additionally, transmissivities calculated from aquifer-test data may be affected by the presence of hydrologic boundaries such as rivers or valley walls.

Grain-size distribution and the effective grain size were determined for 454 samples of stratified drift from southern New Hampshire by means of equation 2. The samples were collected in the Exeter and Lamprey River Basins (Moore, 1990); in the seacoast area and the Lower Merrimack River Basin (Flanagan and Stekl, 1990); in the Bellamy, Cocheco, Salmon Falls River Basins (Lawlor and Mack, 1992); in the Lower Connecticut River Basin (Moore and others, 1994); in the Contoocook River Basin (Harte and Johnson, 1995); and in the Middle Merrimack River Basin (Ayotte and Toppin, 1995)

Hydraulic conductivities for each of the 454 samples were plotted against median grain size in phi groups, and the resulting plot was divided into three categories of degree of sorting (fig. 8). These relative categories are used to describe the types of stratified-drift-aquifer deposits found in New Hampshire. The degree of sorting was based on the standard deviation of each individual sample.

If standard deviations were large, (greater than 1.75 phi) the samples were considered poorly sorted; if standard deviations were intermediate, (1.25 phi to 1.75 phi) the samples were considered moderately sorted; and if standard deviations were small, (less than 1.25 phi) the samples were considered well sorted. A regression equation was developed for each of the three categories to determine the relation between hydraulic conductivity and median grain size (fig. 8). The coefficient of determination (R^2) was 0.93 for the well sorted samples, 0.72 for the moderately sorted samples, and 0.54 for the poorly sorted samples. The calculated hydraulic conductivity, grouped by ranges of median grain size and by ranges of standard deviation (degree of sorting), is shown in table 3.

Hydraulic conductivities were calculated for each median phi group and were averaged to determine a mean hydraulic conductivity per group. For example, the mean hydraulic conductivity of sediment samples whose median grain size was described as medium sand and well sorted was 38 ft/d (the average of 25 and 51 ft/d) (table 3).

Very fine sand, silt, and clay deposits in the study area were not analyzed for grain-size distribution because their hydraulic conductivities are typically low (less than 4 ft/d) and, therefore, are considered insignificant in terms of total transmissivity (Todd, 1980).

The values in table 3 were used to estimate hydraulic conductivities from lithologic descriptions given in logs from test borings and wells. For example, for a lithologic description of 10 ft of moderately sorted coarse sand overlying 20 ft of well sorted fine sand overlying bedrock, the hydraulic conductivities assigned would be 39 ft/d (the average of 30 and 48 ft/d) and 9 ft/d (the average of 12 and 6 ft/d), respectively. The estimate of transmissivity, based on the same description, would be (10 ft × 39 ft/d) + (20 ft × 9 ft/d), which equals 570 ft^2/d.

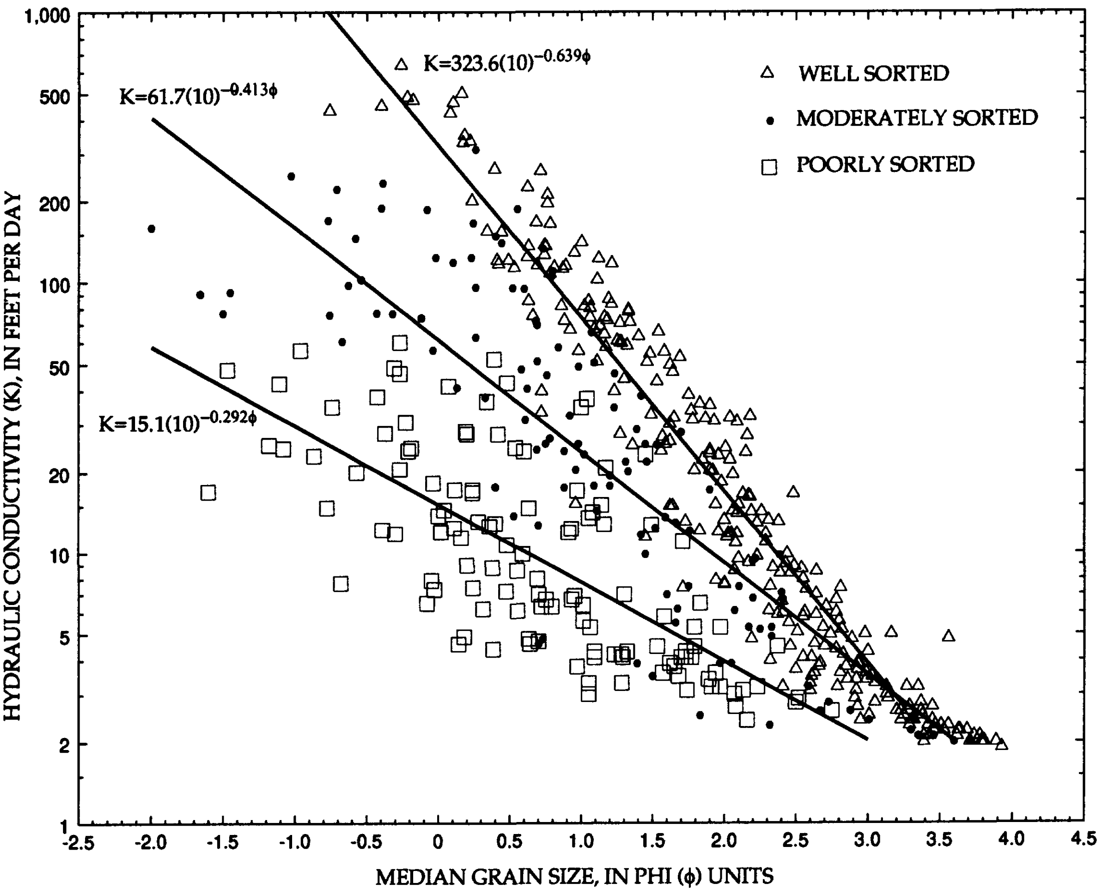


Figure 8. Relation between estimated hydraulic conductivity, median grain size, and degree of sorting of stratified drift in New Hampshire (from Ayotte and Toppin, 1995).

Table 3. Relation of mean hydraulic conductivity to median grain size and degree of sorting of stratified drift in southern New Hampshire

[Hydraulic conductivity calculated by use of methods described by Olney (1993); data from Ayotte and Toppin,1995. ft/d, foot per day; <, actual value is less than value shown; >, actual value is greater than value shown]

Median grain size (phi units)	Median grain description	Mean hydraulic conductivity (ft/d) relative to degree of sorting (standard deviation)		
		Well sorted (<1.25 phi)	Moderately sorted (1.25 phi to 1.75 phi)	Poorly sorted (>1.75 phi)
-1.75	Granules	--	320	49
-1.25	Granules	--	200	35
-.75	Very coarse sand	970	120	25
-.25	Very coarse sand	470	78	18
.25	Coarse sand	220	48	13
.75	Coarse sand	110	30	9
1.25	Medium sand	51	19	7
1.75	Medium sand	25	12	5
2.25	Fine sand	12	7	3
2.75	Fine sand	6	4	2
3.25	Very fine sand	3	3	--
3.75	Very fine sand	2	2	--

Description of Selected Stratified-Drift Aquifers

Stratified-drift aquifers found in valleys throughout the Upper Connecticut and Androscoggin River Basins underlie 137 mi^2, or 8.4 percent of the study area. The largest and most productive aquifers in the Upper Connecticut River Basin and the Androscoggin River Basin are described in this section. The study area and all stratified-drift aquifers in the two drainage basins are outlined in figure 9. (A small number of stratified-drift areas are identified on plates 1–8 but are not discussed in this report because data are not available.) Aquifers in both basins are described from north to south or west to east. Aquifer boundaries, data-collection locations, and altitudes of ground-water tables are shown on plates 1–4. Aquifer boundaries, saturated thickness, and transmissivity of stratified-drift aquifers are shown on plates 5–8. Brief discussions of information shown on the plates are included in the following pages.

Upper Connecticut River Basin Aquifers

Major stratified-drift aquifers extend along the main stem of the Connecticut River south from Second Connecticut Lake north of Pittsburg to Lancaster (fig. 9, pls. 4 and 8). Other towns that contain stratified-drift aquifers in the Connecticut River Valley are, from north to south, Clarksville, Stewartstown, Colebrook, Columbia, Stratford, and Northumberland. Aquifers underlying areas drained by Halls Stream; Indian Stream; and the Israel, Mohawk, and Ammonoosuc Rivers (pls. 4 and 8) are also described in this section.

Halls, Indian, and Perry Stream Aquifers

Deposits of medium to very coarse sand or sand and gravel are sporadic in the Halls Stream area. Larger, more contiguous deposits are in the Indian Stream Valley east of Halls Stream. A small but laterally contiguous deposit is present in the Perry Stream drainage area north of a more productive aquifer segment near Happy Corner, in Pittsburg (fig. 9). Subsurface information is not available for these aquifer areas; however, the deposits are inferred to be relatively thin and have a moderate potential to yield water (Cotton, 1975c).

Medium to very coarse sand or sand and gravel deposits are found in the valley-fill and segmented eskers that make up the Halls Stream aquifer in Pittsburg. Although available subsurface data is limited for this area, observations of relative coarseness of sand and gravel were made during field-mapping of the stratified-drift-aquifer boundary. Pittsburg well PGW-196 penetrated approximately 40 ft of coarse sand and gravel before reaching rock refusal at 42 ft (appendix B, pl. 4). Surface features shown on the Pittsburg, N.H.–Quebec–VT. USGS 7.5 by 7.5 minute quadrangle map (pl. 4) indicate a series of discontinuous esker segments that trend northeast and parallel the Halls Stream Valley near Pittsburg well PGW-196. Saturated thickness is less than 40 ft for this aquifer, and transmissivity is greater than 4,000 ft^2/d near the center of the aquifer and 2,000–4,000 ft^2/d along the eastern sections of the aquifer (pl. 8). Potential availability of ground water from this shallow aquifer is high, especially if production wells are close to the stream where recharge can be induced from the river.

Coarse sand and pebble gravel are identified through field mapping of the boundary of the stratified-drift aquifer at Indian Stream, northern section, near Moose Pond Brook (pl. 4). Accessibility to this remote area is difficult and lack of subsurface data precludes estimating saturated thickness and transmissivity. Blue silt and clay deposited on top of pebble gravel is found on the east-center edge of the Indian Stream aquifer near the confluence of the stream with the Connecticut River. Pittsburg seismic-refraction-survey lines b–b' and c–c' indicate saturated thickness in this aquifer is 40 ft or less (appendix C10 and pl. 8). Bedrock and till deposits are exposed just south of the confluence of Indian Stream with the Connecticut River and serve as the southern terminus for this aquifer. Pittsburg bridge borings PGB-1 and PGB-2 penetrated fine sand and reached refusal in till at 60 and 65 ft, respectively. Saturated thickness in this aquifer is less than 40 ft and transmissivity is less than 1,000 ft^2/d. The potential availability of ground water is low, with the exception of the aquifer area where fine-grained drift materials overlie coarse sand or gravel. Additional subsurface exploration to identify the extent of this deposit may alter estimates of saturated thickness and transmissivity.

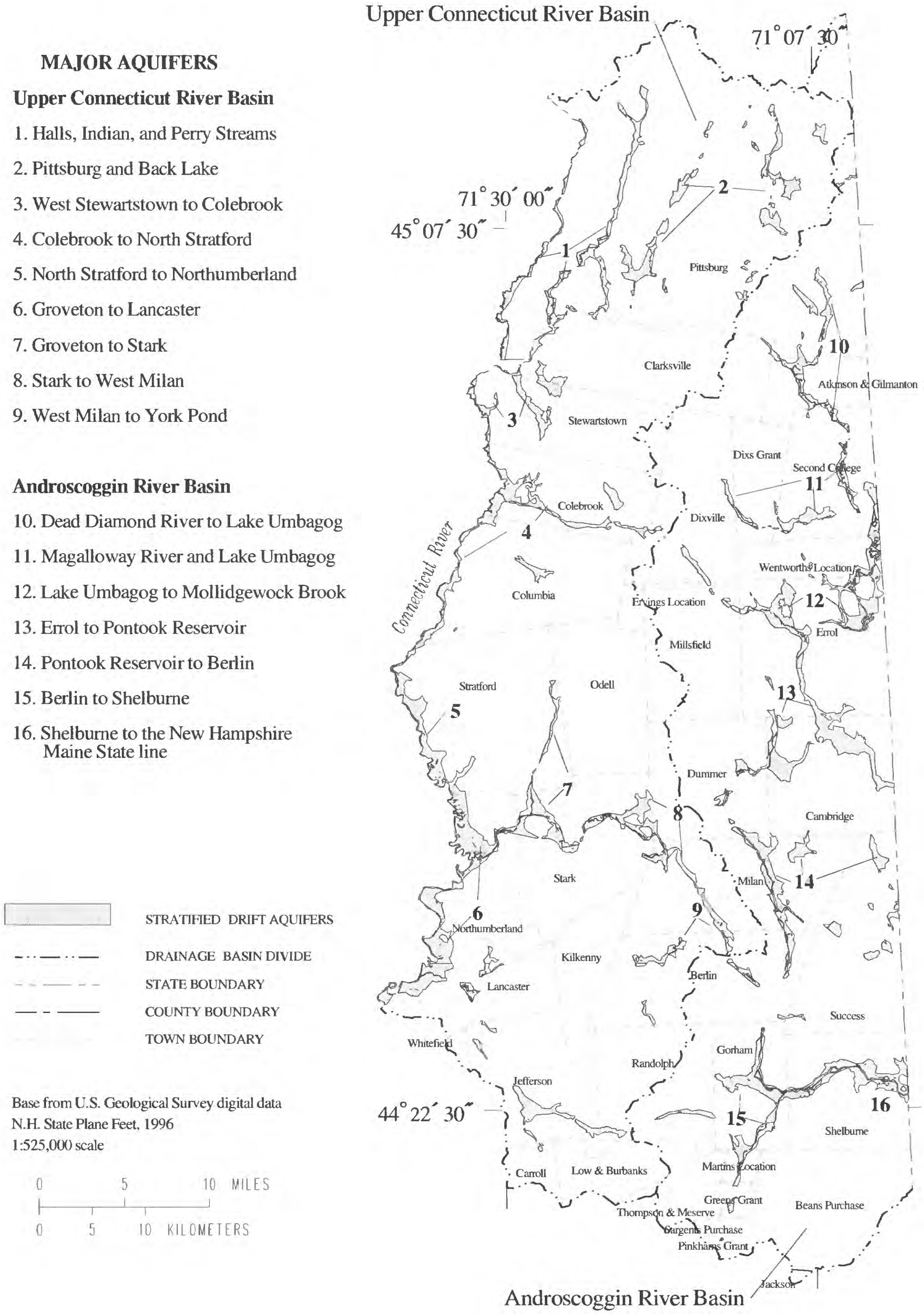


Figure 9. General locations of stratified-drift aquifers in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire.

Pittsburg and Back Lake Aquifers

Very coarse sand, gravel, and cobbles exist in excavations in the stratified-drift aquifer north and east of Back Lake in Pittsburg. Wells throughout this aquifer indicate depths to bedrock range from 20 to 120 ft (appendix B, pls. 4 and 8). Pittsburg well PGW-170, in the center of the aquifer west of Happy Corner, indicates a depth to rock of 80 ft (appendix B and pl. 8). Pittsburg seismic-refraction-survey line a–a' indicate saturated thickness is approximately 100 ft (appendix C9 and pl. 8). Saturated thickness in this aquifer ranges from less than 40 ft to greater than 80 ft. Transmissivity ranges from less than 1,000 ft^2/d in the northern reach of Perry Stream to greater than 4,000 ft^2/d in the center of the aquifer in the area just north of Back Lake. The potential availability of ground water is high in the deepest parts of the aquifer and where the aquifer is near Perry Stream and Scott Brook.

Connecticut River Aquifer from West Stewartstown to Colebrook, Bishop Brook, and the Mohawk River Aquifers

The stratigraphic logs for Stewartstown wells SOW-39, 40 and 41 (appendix B) show that a coarse cap of gravel over silt exists to depths of 26 ft at West Stewartstown on the Connecticut River (pl. 7). Stewartstown wells SOW-19 and SOW-28, northeast of the waste-water treatment plant in West Stewartstown, penetrated clay, sand and gravel; rock was reached at 16 ft at well SOW-28 (appendix B and pl. 3). Saturated thickness is less than 40 ft and transmissivity is less than 1,000 ft^2/d for this aquifer. Potential availability of ground water is low because of the relative shallowness and low transmissivity of stratified-drift materials in this area.

The Connecticut River north of West Stewartstown flows through a till and bedrock landscape as it makes it way south from the confluence of Halls Stream and Beechers Falls, Vt. There are no significant stratified-drift deposits in this area (pls. 3 and 7, 4 and 8).

Subsurface data for the Connecticut River Valley from West Stewartstown south to the town of Colebrook is not available. Coarse sand and cobble gravel are exposed, however, in excavations at the boundary between stratified drift and the till and bedrock upland, but little subsurface data exist for the central portion of the aquifer (pls. 3 and 7). As a result of the lack of information, saturated thickness and transmissivity are unknown in this part of the aquifer and the potential availability of ground water is difficult to assess.

Very coarse sand and pebble gravel were found in excavations south of Dearth Hill in the Bishop Brook stratified-drift aquifer (pls. 3 and 7). The Lovering Mountain, N.H.–VT. 7.5 by 7.5 minute quadrangle indicates a truncated southeasterly-trending esker deposit that parallels the valley and extends south from Dearth Hill to the southern end of the aquifer at Stewartstown Hollow. Well SOW-1 penetrates the esker segment and lithologic logs from this well show that the esker contains fine to coarse sand, coarse gravel, and boulders (appendix B, pls. 3 and 7). Seismic-refraction-survey line b–b', in Stewartstown, indicates a saturated thickness of 150 ft (appendix C15, pls. 3 and 7). Saturated thickness in the aquifer ranges from less than 40 ft toward the aquifer boundary to greater than 120 ft in the center. Transmissivity ranges from less than 1,000 ft^2/d toward the aquifer boundary to greater than 4,000 ft^2/d in the center. Potential availability of ground water is high in this part of the Bishop Brook aquifer, especially if wells are drilled near the Brook where induced recharge could occur.

Deposits of fine to coarse sand are found in the southern part of the Bishop Brook aquifer near Stewartstown Hollow. Stewartstown well SOA-1 and boring SOB-1 penetrated fine sand and silt; well SOW-33 penetrated till (appendix B and pl. 3). Seismic-refraction-survey line c–c' (appendix C15, pls. 3 and 7) indicates a shallow saturated thickness of approximately 20 ft. Saturated thickness is less than 40 ft and transmissivity is less than 1,000 ft^2/d. Potential for high ground-water availability is limited to areas near, and in probable hydraulic connection to, Bishop Brook.

Medium to very coarse sand or sand and gravel is present in shallow excavations along the Mohawk River from the confluence with Reed Brook to the town of Colebrook and the confluence with the Connecticut River (pls. 3 and 7). Colebrook wells CTW-6 and 7, located west of the golf course in downtown Colebrook, and well CTW-33, located in the center of the aquifer upstream from the fish hatchery, penetrate sand and gravel (appendix B and pl. 3). Saturated thickness is less than 40 ft from Reed Brook downstream to the golf course, where thicknesses increase to greater than 80 ft. Transmissivity is predominantly less than 1,000 ft^2/d in this same aquifer area, with the exception of a narrow band of aquifer just upstream from the fish hatchery where transmissivity is 1,000–2,000 ft^2/d (pl. 7). A till island separates the Mohawk River Valley from Beaver Brook, a small drainage area northeast of Colebrook. Colebrook borings CTA-1, 2, 3, and 4 have lithologic logs that show silty sands and till encountered at depths of 12 to 38 ft. Saturated thickness for this area is less than 40 ft and transmissivity is less than 1,000 ft^2/d. The potential for ground-water availability is considerable for the portion of the Mohawk River between Reed Brook and the golf course in Colebrook (pls. 3 and 7).

Connecticut River Aquifer from Colebrook to North Stratford

An outcrop of till and bedrock separates the stratified-drift aquifer in the town of Colebrook, just south of the confluence with Simms Stream, from the rest of the aquifer that extends from this point southward to the town of North Stratford in the Connecticut River Valley (fig. 9, pls. 2 and 3). Surface features on the Tinkerville, N.H.–Vt. 7.5 by 7.5 minute quadrangle show broken esker segments near Columbia Village and south of the confluence of Cone Brook (pl. 3 and 7). Columbia well CUW-1 penetrated an esker and lithologic logs indicate 65 ft of very fine to coarse sand and gravel (appendix B and pl. 3). Well CUW-3, located south of the Columbia covered bridge, penetrated 97 ft of fine to coarse sand over silt (appendix B and pl. 3). Seismic-refraction-survey line b–b', in Columbia just south of well CUW-3, indicates saturated thicknesses are greater than 80 ft (appendix C1, pl. 3). Bridge boring CUB-1 is between wells CUW-1 and CUW-3 at the covered bridge, reaches till at a depth of 34 ft, and serves as a separation point between the two aquifer segments in this area.

Lithologic logs from wells CUW-2 and CUW-33 show bedrock depths of 54 ft and 120 ft, respectively. These wells are located in the center and eastern edge of the stratified-drift aquifer near Cone Brook (appendix B and pl. 3). Seismic-refraction-survey line c–c', in Columbia, indicates saturated thicknesses of approximately 100 ft in this area (appendix C2, pl. 3).

Columbia wells CUW-12, 13, and 15, in the center of the aquifer near Tinkerville (pl. 3), indicate an average penetration of 75 ft in sand and gravel (appendix A). Seismic-refraction-survey line d–d', located south of these wells, indicates a saturated thickness of approximately 100 ft (appendix C2, pl. 3).

Subsurface information for the stratified-drift aquifer south of the Columbia-Stratford town line south to North Stratford is not available. A bedrock outcrop was observed in the river channel at two locations, and a large bedrock knob was identified in the village of North Stratford during the mapping of the stratified-drift-aquifer boundary. This part of the aquifer is assumed to be shallow to till and bedrock.

Transmissivity ranges from less than 1,000 ft^2/d near the valley walls to 2,000–4,000 ft^2/d toward the center of the valley in Colebrook. High transmissivity zones may be present here, but because of the heterogeneity of aquifer materials identified in lithologic logs (appendix B), transmissivities greater than 4,000 ft^2/d were difficult to estimate. The town of Colebrook withdraws water from two wells (CTW-1 and CTW-7, pl. 3, appendixes A and B) in this stratified-drift aquifer at a combined withdrawal rate of 0.32 Mgal/d. Potential availability of ground water is high, especially near the Connecticut River where recharge could be induced.

Connecticut River Aquifer from North Stratford to the Stratford–Northumberland Town Line

The Connecticut River aquifer, from North Stratford to the Stratford–Northumberland town line, has the thickest deposits of stratified-drift and lake-bottom sediments in the study area. A majority of those deposits, however, consist of very fine and fine sand, silt, and clay, with small local lenses of coarse sand or sand and gravel within the larger, more extensive fine-grained materials. Stratford well SRW-3, south of North Stratford near Kimball Brook, penetrated 40 ft of fine-grained material overlying 60 ft of predominantly medium to coarse and very coarse sand (appendix B, pls. 2 and 3). Seismic-refraction-survey line a–a', located near well SRW-3 (appendix C14, pl. 2), indicates saturated thicknesses exceeding 150 ft. Lithologic logs for wells at a once-proposed regional landfill site near Smarts Mill Brook indicate depths to till or bedrock exceeding 200 ft (appendix B and pl. 2). Stratford well SRW-38 penetrated very fine to coarse sand, silt, and gravel to a depth of approximately 280 ft. Other lithologic logs for wells drilled in this area indicate a heterogeneous mix of sand and silt with sand and gravel (appendix B, pls. 2 and 3). Seismic-refraction-survey line b–b', in Stratford, indicates saturated thicknesses greater than 200 ft. (appendix C16 and pl. 3).

Stratford well SRW-1 penetrates approximately 80 ft of medium to coarse sand and very fine sand. Stratford well SRW-2 penetrates approximately 90 ft of medium to coarse sand and fine to medium sand (appendix B and pl. 3). Seismic-refraction-survey line d–d' indicates saturated thicknesses greater than 120 ft (appendix C16, pl. 2). South of Haskins Pond, seismic-refraction-survey line e–e' indicates saturated thicknesses of greater than 300 ft (appendix C17 and pl. 2). Test boring SRA-1 in this area penetrated very fine and fine sand to a depth of approximately 60 ft. Limited subsurface data exist for this part of the aquifer.

Further south, toward the Stratford–Columbia town line, very fine sand and silt were observed in a shallow excavation area near the mouth of Bog Brook. Stratford well SRW-7 penetrated sand, gravel, and clay before reaching bedrock at 25 ft. (appendix B and pl. 3).

Saturated thicknesses are less than 40 ft toward the valley wall and greater than 240 ft in the central part of the aquifer. Transmissivity ranges from less than 1,000 ft^2/d toward the valley wall to greater than 4,000 ft^2/d near Kimball Brook south of North Stratford to Smarts Mill Brook. The potential availability of ground water is high but depends on the location of the well because of the heterogeneity of the aquifer material.

Connecticut River Aquifer from Groveton to Lancaster

Fine sand, silt, and clay lacustrine deposits dominate the stratigraphy of the stratified-drift aquifer from the Northumberland town line south through Lancaster (appendix B and pl. 2). Sand or sand and gravel is identified in lithologic logs for Northumberland test borings NUA-4, -5, and -6 located in a small alluvial fan or delta adjacent to the cemetery in Groveton (Similar small fans or deltas are at or near valley walls along the Connecticut River). Wells NUW-1 and -2, at the southwest end of this deposit, penetrated fine sand and silt to depths of approximately 100 ft (appendix B and pl. 2) and more typically represent the grain size of materials in the aquifer. Seismic-refraction-survey line c–c', adjacent to these wells in Northumberland, indicate saturated thickness exceeds 180 ft (appendix C8, pls. 2 and 6).

Lithologic logs for 11 wells west of downtown Groveton in the center of the aquifer have lithologic logs that show fine sand, silt, and clay to a depth of 162 ft (appendix B and pl. 2). Seismic-refraction-survey line e–e' indicates saturated thicknesses greater than 180 ft (appendix C1, pl. 6). South of Groveton, the presence of "till islands" in the stratified-drift aquifer at Northumberland probably indicates a decrease in the saturated thickness of the aquifer (pl. 6). Northumberland bridge boring NUB-5 penetrated approximately 60 ft of sand and silt before encountering till at 61 ft (appendix B). Northumberland well NUW-3, in the center of a mile-wide valley flat southwest of the village of Northumberland (known locally as "Cloverkist Farm"), penetrated 89 ft of very fine to fine sand and silt lacustrine deposits. Seismic-refraction-survey line g–g' indicates saturated thickness in this area exceeds 240 ft (appendix C9 and pls. 2 and 6). Very fine and fine sand were observed in shallow excavations at numerous sites during aquifer-boundary mapping north of Coos Junction in Lancaster.

Saturated thickness ranges from less than 40 ft toward the valley wall to greater than 240 ft near Groveton and the valley flat southwest of Northumberland (pls. 2 and 6). A lack of subsurface data in the Coos Junction area north of Lancaster precluded the identification of saturated thickness in this area. Transmissivity is less than 1,000 ft^2/d for most of this aquifer with the exception of two small areas west of Groveton. Because of the significant depths and homogeneity of aquifer materials, transmissivity in these small aquifer areas ranges from 1,000–2,000 ft^2/d, in one area, to 2,000–4,000 ft^2/d in the other area (pl. 6). Potential ground-water availability is limited, as the result of the predominance of fine-grained sands and silts and their resistance to transmitting water. The town of Northumberland withdraws water from two wells (NUW-40 and -41, pl. 5, appendix A) in the stratified-drift aquifer at a combined rate of 0.02 Mgal/d (pl. 2). Saturated thickness and transmissivity for the aquifer at Coos Junction in Lancaster south to South Lancaster (pl. 5) were not mapped because of insufficient subsurface data. Wells drilled by a private consultant (LCW-65, 66, 67, and 68) in downtown Lancaster, penetrated to a depth of 16 ft. Lithologic logs for these wells show a predominance of very fine sand and silt (appendix B). Saturated thickness and transmissivity were not mapped for this aquifer.

Nash Stream Aquifer and the Upper Ammonoosuc River Aquifer from Groveton to Stark

Fine to coarse sand, pebble-gravel and boulders were observed in shallow excavations and in the stream channel of Nash Stream from Nash Stream Bog south to the Stratford–Stark town line. Subsurface data is not available for this segment of the aquifer; thin deposits of coarse materials are separated by till and bedrock exposures in the stream channel (pls. 2 and 6). Saturated thickness and transmissivity were not mapped for this portion of the aquifer; however the potential ground-water availability may be high in some of the small discontinuous sections of the aquifer that are in close hydrologic connection with the stream where induced infiltration from the stream could recharge the aquifer.

Silt, fine to coarse sand, and gravel are identified in lithologic logs of test borings SNA-4, -5, -6, and -7 and SNB-2 (in the village of Stark) in the Upper Ammonoosuc River aquifer from Groveton to south of the confluence of the Ammonoosuc River and Nash Stream (appendix B and pl. 2). Sand, gravel, and clay were found in samples from well SNW-13. Medium to coarse sand and gravel are described in lithologic logs of wells SNW-3, -7, -13, and -23, which are near the confluence of the Ammonoosuc River with Nash Stream (appendix B). Koteff and Pessl (1985) identify two distinct tills separated by glaciolacustrine sediments in this area (known as the Nash Stream and Stratford Mountain Tills, respectively). These tills are in the stratified-drift aquifer but were not included in this study.

As evidenced by the lithologic logs, a heterogeneous mix of fine to coarse aquifer materials is found in the Ammonoosuc River aquifer from Groveton to Stark. Wells SNW-2, -4, and -12 and bridge boring SNB-1 penetrate deposits of silt, sand, and cobbles to a maximum depth of 100 ft in the eastern part of the Upper Ammonoosuc River aquifer near the village of Stark (appendix B). Saturated thickness ranges from less than 40 ft toward the valley walls to greater than 160 ft in the center (pl. 6). Seismic-refraction-survey line e–e' indicates a maximum saturated thickness of approximately 180 ft in the center of the aquifer upstream from the village of Stark (appendix C14, pl. 6). Transmissivity ranges from less than 1,000 ft^2/d toward the valley walls to greater than 4,000 ft^2/d at the valley center (pl 6). Potential for ground-water availability is high, especially if withdrawal wells are located near the Ammonoosuc River or the Nash Stream segment south of the Stratford–Stark town line where recharge can be induced from the river or stream to the aquifer.

Upper Ammonoosuc River Aquifer from Stark to West Milan

Till and bedrock outcrops are exposed in the Ammonoosuc River channel in the village of Stark and separate the Upper Ammonoosuc River stratified-drift aquifer into two segments (fig. 9, pl. 2). Stark wells SNW-1, -14, -16, and -18 (appendix B. pl. 2), are in the aquifer east of the village of Stark and penetrated as much as 154 ft of sand or sand and gravel. Fine to coarse sand was identified in shallow excavations in the Phillips Brook Valley during aquifer-boundary mapping. Seismic-refraction-survey line c–c', adjacent to Phillips Brook, indicates a maximum saturated thickness of approximately 64 ft (appendix C13, pl. 2). Near Crystal, local deposits of medium sand, up to 130 ft deep, extend southward through an old post-glacial drainageway, to the Ammonoosuc River above the village of West Milan. Subsurface data is not available to further define the aquifer in this area between the confluence of Phillips Brook and the Ammonoosuc River to the village. Saturated thickness ranges from less than 40 ft toward the valley walls to greater than 80 ft along the Ammonoosuc River north of Phillips Brook. Transmissivities range from less than 1,000 ft^2/d to greater than 4,000 ft^2/d (pl. 6).

Potential ground-water availability is high in the deeper parts of the aquifer next to the Ammonoosuc River.

South Pond Brook Aquifer, Upper Ammonoosuc River Aquifer from West Milan to York Pond, and North Branch Upper Ammonoosuc River Aquifer

Milan wells MNW-5 and -75 and Stark bridge boring SNB-1, in the South Pond Brook aquifer south of the village of West Milan, penetrated silt and very fine to medium sand to an approximate depth of 85 ft (appendix B, fig. 9, and pl. 6). Seismic-refraction-survey line b–b' indicates saturated thicknesses of approximately 70 ft (appendix C5, pl. 6). Saturated thickness for the aquifer ranges from less than 40 ft near the valley perimeter to greater than 40 ft toward the center. Transmissivity is less than 1,000 ft^2/d, as the result of the relative fine-grained materials in the area. The potential availability of ground water is moderate.

The stratified-drift aquifer underlying the Berlin Fish Hatchery at York Pond consists of sand or sand and gravel to an approximate depth of 85 ft. Berlin well BRW-60, on the west shore of the pond, penetrated 83 ft of fine to coarse sand or fine gravel (appendix B and pls. 1 and 2). Saturated thickness in this area is 40 ft near the aquifer perimeter and greater than 40 ft in the center of the valley (pls. 5 and 6). Transmissivity exceeds 4,000 ft^2/d in the center of the aquifer adjacent to York Pond. Coarse and very coarse sand was observed in shallow excavations in a few sites between York Pond and the White Mountain National Forest boundary. Little is known, however, about the extent of these deposits and, as a result, saturated thickness and transmissivity were not mapped for this aquifer area (pls. 1 and 2).

Subsurface data are not available for the majority of the North Branch Upper Ammonoosuc River aquifer from the confluence with the Upper Ammonoosuc River in West Milan southeast to Head Pond. Milan well MNW-2, in Copperville on the North Branch Upper Ammonoosuc River north of Head Pond, penetrated 29 ft of coarse sand and gravel and reached refusal on bedrock at 29 ft. Seismic-refraction-survey line f–f', next to well MNW-2, shows a saturated thickness in this area of approximately 60 ft (appendix C7 and pl. 6). Gerath and others (1985) identify a stratified-drift moraine, located in the lower Dead River Valley at Berlin, as an ice-collapsed head of an outwash sequence grading to bedrock. Only the well and seismic-refraction data are available for the aquifer at Copperville; therefore, saturated thickness and transmissivity were not identified. Potential ground-water availability is unknown for this aquifer.

Androscoggin River Basin Aquifers

Major stratified-drift aquifers along the Androscoggin River extend south from Umbagog Lake in Wentworths Location to the New Hampshire–Maine State line in Shelburne. Other towns that contain stratified-drift aquifers in the Androscoggin River Basin are, from north to south, Erroll, Cambridge, Milan, Success, Berlin, and Gorham (fig. 9). Aquifers underlying areas drained by the Dead Diamond River, Magalloway River, Clear Stream, Dead River, Moose Brook, and the Peabody River are also described in this section.

Dead Diamond River Aquifer from Atkinson and Gilmanton Academy Grant to Lake Umbagog

Very fine sand, coarse sand, and pebble gravel were observed in shallow excavations and on the land surface near the Dead Diamond River north of the confluence with the Magalloway River and Lake Umbagog. This drainage area is in the far northern reaches of the Androscoggin River Basin (pl. 4). Because of the remote location, population density is low and subsurface data are not available for the aquifer. Subsurface depths to till and bedrock are unknown for the entire aquifer from Hell Gate in the north to Dart Wentworth Spring at the southern terminus of the aquifer where the Dead Diamond River cuts through a deep gorge before joining the Magalloway River Valley north of Lake Umbagog (pl. 4). Saturated thickness and transmissivity were not mapped for this aquifer. Potential for ground-water availability may be significant because of the presence of substantial coarse-grained stratified-drift materials; however, the depth of these materials is largely unknown.

Magalloway River Aquifer and Lake Umbagog

Subsurface data are not available for the stratified-drift aquifers in the Magalloway River Valley and the northwest shore of Lake Umbagog. Field observations of stratified-drift materials were difficult to make during aquifer-boundary mapping because of the remoteness of the area; much of the aquifer is unpopulated, few surface roads exist, and the majority of the aquifer is concealed by wetland areas. Fine and very fine sand were observed in shallow excavations in and on the surface of the aquifer at three locations. The entire aquifer probably consists of fine grained glacial-lake-bottom sediments, and depths to till and bedrock are unknown. Saturated thickness and transmissivity were not mapped and the potential availability of ground water is unknown for this aquifer.

Androscoggin River Aquifer from Lake Umbagog to Mollidgewock Brook and Clear Stream Aquifer

The Androscoggin River flows south from Lake Umbagog through a till and bedrock valley north of Errol Hill to the town of Errol and the confluence of Clear Stream. Coarse sand or gravel deposited over fine sands and silts were observed in shallow excavations in the Clear Stream aquifer. Errol wells ETW-20 through 24 and bridge-boring ETB-1 show that the aquifer consists of a mix of gravel, sand, silt and clay (appendix B). South of the confluence of Clear Stream and the Androscoggin River, well ETW-10 penetrated approximately 50 ft of sand and gravel before reaching bedrock at approximately 58 ft (appendix A).

Saturated thickness ranges from less than 40 ft near the perimeter of the aquifer to greater than 80 ft west of Akers Pond (pl. 7). Transmissivity ranges from less than 1,000 ft^2/d in the majority of the aquifer to greater than 4,000 ft^2/d in a narrow band in the center of the aquifer just south of the village of Errol. Potential ground-water availability is moderate in those areas of greater saturated thickness or transmissivity that are near the stream or river where recharge can be induced into the aquifer.

Androscoggin River Aquifer from Errol to Pontook Reservoir and Mollidgewock Brook Aquifer

Pockets of coarse sand or gravel were observed in shallow excavations and on the surface from Errol to Pontook Reservoir (fig. 9, pl. 4). These deposits of coarse material, however, were found in a small number of places in an aquifer that consists of predominantly fine-grained lacustrine deposits (P.J. Stekl and S.W. Clark, U.S. Geological Survey, written commun., 1995). In the Mollidgewock Brook Valley, surface features shown on the Teakettle Ridge, N.H., USGS 7.5 by 7.5 minute quadrangle map (pls. 2 and 3) indicates the presence of an esker segment just upstream from the confluence with the Androscoggin River. Gravel excavations in the esker are also identified on the map, but little other subsurface data are available to characterize grain size of aquifer materials. Dummer well DMW-1, located on the north side of Route 16 at Goose Pond, penetrated approximately 56 ft of clay, silt, sand, and gravel (appendix B and pl. 2). Dummer test-boring DMA-1, on the north side of New Hampshire Route 16 at the Pontook Reservoir, penetrated approximately 20 ft of clay before reaching bedrock at 23 ft (appendix B and pl. 2). Seismic-refraction-survey line a–a', located along the north side of New Hampshire Route 16 just south of well DMA-1, shows a maximum saturated thickness of approximately 100 ft (appendix C2, pl. 6). Saturated thickness and transmissivity were not mapped for this aquifer, and potential ground-water production was not assessed because of the limited subsurface data available.

Androscoggin River Aquifer from Pontook Reservoir to Berlin and Chickwolneppy Stream Aquifer

Fine and medium sand were observed in shallow excavations and on the surface near the village of Dummer. Seismic-refraction-survey line b–b' (appendix C3, pl. 2), at the big southward bend in the river above the village of Dummer, shows saturated thicknesses of approximately 60 ft. South of the village, Dummer well DMW-23 penetrated 43 ft of sand, gravel, and clay and Milan well MNW-48 penetrated 82 ft of clay (appendix B).

Milan well MNW-2, is in the Chickwolneppy Stream aquifer east of the Androscoggin River Valley and penetrated 29 ft of fine to coarse sand before reaching refusal in bedrock (appendix B and pl. 2). Medium and coarse sand were identified during the mapping of the stratified-drift-aquifer boundary. Milan seismic-refraction-survey line c–c', in the center of the Chickwolneppy Stream aquifer, indicates a maximum saturated thickness of approximately 70 ft (appendix C6, pl. 2). At the confluence of Chickwolneppy Stream and the Androscoggin River, Milan test-boring MNB-4 and well MNW-3 penetrated approximately 70 ft of clay, silt, sand and gravel before reaching refusal at 71 ft (appendix B and pl. 2). Milan seismic-refraction-survey line d–d' is north of the confluence and indicates that saturated thickness is approximately 75 ft (appendix C6, pl. 2).

Milan wells MNW-8, 21, 66, and 71, located between Chickwolneppy Stream and Stearns Brook in the Androscoggin River Valley, penetrated 40 to 120 ft of clay before reaching bedrock. (appendix B and pl. 2). At the confluence of Stearns Brook and the Androscoggin River, lithologic logs from well MNW-4 indicate that the aquifer consists of a mix of very fine and medium sand with some gravel to an approximate depth of 85 ft before bedrock refusal at 90 ft (appendix B). Milan seismic-refraction-survey line f–f' at this location indicated saturated thicknesses of approximately 100 ft (appendix C7).

Surface features on the USGS 7.5 by 7.5 minute quadrangle map for Berlin, N.H. (pls. 1 and 2) indicate the presence of discontinuous esker segments from Horne Brook south to the confluence of Bean Brook in Berlin. Berlin wells BRW-68 through -71, near a racetrack on the east side of the Androscoggin River north of Horne Brook, penetrated predominantly fine and medium sand or sand and gravel to a maximum depth of 107 ft. Well BRW-64, at the confluence of Horne Brook with the Androscoggin River, penetrated sand and gravel to a depth of 53 ft. Berlin well BRW-65, is in direct line with a remnant esker segment south of Horne Brook and penetrated 73 ft of sand and gravel over silt and clay (appendix B and pls. 1 and 2). Lithologic logs from Berlin bridge-boring BRB-1 indicates that the stratified-drift aquifer thins to less than 20 ft in silty sand and gravel near St. Anne Cemetery (pl. 1). Berlin bridge-boring BRB-2 penetrated 22 ft of gravelly till; this boring marks the southern terminus of this part of the stratified-drift aquifer at the confluence with Bean Brook on the north side of the City of Berlin.

Saturated thickness ranges from less than 40 ft near the valley walls to greater than 80 ft in the valley center at the confluence of Chickwolneppy Stream and Stearns and Horne Brooks (pl. 2). Transmissivity ranges from less than 1,000 ft^2/d toward the valley walls to greater than 4,000 ft^2/d in the valley center near Horne Brook (pl. 2). The lack of subsurface data prevented the identification of transmissivity for an aquifer section north and south of Horne Brook. Potential for ground-water availability is greatest in those areas of highest transmissivity near the Androscoggin River where recharge can be induced from the river. The City of Berlin operates two withdrawal wells (BRW-1 and BWW-3, pls. 1 and 2, appendixes A and B) in an esker segment in the stratified-drift aquifer south of Horne Brook. These wells withdraw 2.87 Mgal/d from the stratified-drift aquifer and are used as a source of drinking water for the city.

Dead River Aquifer, Androscoggin River Aquifer from Berlin to Reflection Pond in Shelburne and Peabody River Aquifer

Fine, medium, and coarse sand or gravel were observed in shallow excavations and on the surface in the Dead River Valley. Berlin wells BRW-10 through -15 penetrated sand and gravel or sand, gravel, and clay to depths of approximately 30 ft (appendix A and B and pl. 1). Berlin bridge-boring BRB-3 and well BRW-50 have shallow depths of 11 and 16 ft to till and bedrock respectively (appendix B). Saturated thickness for the entire aquifer is less than 40 ft (pl. 5). Aquifer transmissivity was not mapped because of the lack of subsurface data. Potential ground-water availability is moderate in coarse-grained aquifer materials near the river.

Most of the City of Berlin overlies till and bedrock uplands. Bedrock is exposed in the river channel from a paper company south along New Hampshire Route 16 to Cascade Mill. South of the city at Cascade in Gorham, lithologic logs from Gorham well GOW-34 indicate that this portion of the stratified-drift aquifer contains 34 ft of sand and gravel. Bedrock crops out along the west side of the river for a distance of 2 mi south of the Cascade Mill (S.F. Clark, U.S. Geological Survey, written commun., 1992).

Fine, medium, and coarse sand were observed in shallow excavations in the Moose Brook Valley west of Gorham. Gorham bridge-boring GOB-3 penetrated 26 ft of gravel before reaching refusal on till (appendix B, pl. 1). Coarse sand and gravel are identified in lithologic logs for all the wells and borings in the delta at the confluence of Moose Brook and the Androscoggin River in Gorham (pl. 1). Gorham well GOW-37 penetrated approximately 80 ft of gravel before reaching bedrock refusal at 83 ft (appendix B). Lithologic logs for Gorham bridge-boring GOB-4, located in the Upper Village at the New Hampshire Route 16 bridge over Moose Brook, indicate that the aquifer contains approximately 70 ft of gravel and cobbles and with refusal at 71 ft. In the village of Gorham, wells GOW-49 through -54 penetrate 24 to 30 ft of sand and gravel; the bottom of the aquifer was not reached. Gorham seismic-refraction-survey line a–a', south of the confluence of the Peabody and Androscoggin Rivers at a golf course, indicated saturated thickness is less than 40 ft (appendix C3, pl. 1). Very coarse sand and pebble gravel were identified along the north and south edges of the stratified-drift boundary from the golf course east to Reflection Pond. Subsurface data are not available for the center of the aquifer in this area.

Saturated thickness is less than 40 ft in the Androscoggin River Valley from Cascade in Gorham to the Upper Village, in the Moose Brook Valley, and toward the perimeter of the stratified-drift aquifer from the Upper Village to the golf course east of the Peabody River. Saturated thickness exceeds 40 ft in the center of the Androscoggin River Valley near Upper Village and in the village of Gorham (pl. 5). Transmissivity is less than 1,000 ft^2/d in the Androscoggin River Valley north of Upper Village to Cascade, in the Moose Brook Valley, and toward the perimeter of the aquifer from Upper Village to the golf course east of the Peabody River. Transmissivity exceeds 4,000 ft^2/d in the center of the aquifer near Upper Village, and ranges from 2,000–4,000 ft^2/d in the center of the aquifer in Gorham. Saturated thickness and transmissivity were not mapped for the aquifer area east of the golf course to Reflection Pond. Potential for ground-water availability is greatest in those areas of the aquifer that are highest in saturated thickness and transmissivity and near the Androscoggin River. The Town of Gorham operates two withdrawal wells (GOW-1 and -2, pl. 1, appendixes A and B) in the delta south of Upper Village. These wells withdraw approximately 0.45 Mgal/d from the stratified-drift aquifer and are used as a drinking water source for the town.

Androscoggin River Aquifer from Reflection Pond to the New Hampshire–Maine State Line

Fine-to-coarse sand or sand and gravel were observed in shallow excavations and on the surface in the Androscoggin River Valley from Reflection Pond to the New Hampshire–Maine State line. Shelburne bridge-boring SJB-1, east of Reflection Pond, penetrated approximately 40 ft of gravel and boulders before reaching refusal at 44 ft. Shelburne well SJW-2, on the south side of North Road (appendix B and pl. 1), penetrated approximately 90 ft of silt, sand, and gravel before reaching refusal at 91 ft. Shelburne seismic-refraction-survey line a–a' (appendix C10), south of well SJW-2 toward the center of the aquifer, indicated a maximum saturated thickness of approximately 180 ft. Boring SJB-5, in the central part of the aquifer, penetrated approximately 160 ft of fine to coarse sand or gravel before reaching refusal in till at 165 ft. Shelburne seismic-refraction-survey lines d–d' and e–e' (appendix C11 and C12), west and east of boring SJB-5 in the central part of the aquifer, show maximum saturated thicknesses of approximately 180 and 160 ft, respectively (appendix B and pl. 1).

Saturated thickness ranges from less than 40 ft near the perimeter of the aquifer to greater than 160 ft in the center (pl. 5). Transmissivity ranges from less than 1,000 ft^2/d near the perimeter of the aquifer to greater than 4,000 ft^2/d for the majority of the central part of the aquifer. Potential for ground-water availability is high near the river where recharge can be induced from the Androscoggin River.

Estimation of Water Availability for Selected Aquifers

Two aquifers were selected to estimate potential water availability by use of a ground-water-flow model. The aquifers are in Colebrook and Shelburne, and are ice-contact stratified-drift aquifers that include esker and deltaic deposits. The Connecticut River aquifer, in Colebrook, is fairly thick (greater than 80 ft). The Androscoggin River aquifer, in Shelburne, is locally greater than 160 ft. Both aquifers are hydraulically connected to their namesake rivers, and this connection may provide recharge to the aquifers from the rivers through induced infiltration.

Model Construction

A numerical finite-difference model, (MODFLOW, McDonald and Harbaugh, 1988), was used to estimate the availability of water from the two aquifers. Lapham (1988) cites numerous examples of ground-water-availability studies in which analytical models were used to determine rates of combined withdrawal from wells distributed throughout an aquifer. The models used in this study were developed to estimate the availability of water from the aquifers and are founded on nearly as many simplifying assumptions as the analytical models cited by Lapham. The numerical model enables the user to discretize the aquifer system and thereby simulate (1) areal variations of the saturated thickness and hydraulic conductivity of an aquifer, (2) the location of streams overlying the aquifer and variations of the stream characteristics along selected reaches, and (3) drawdown on both sides of a stream boundary. The advantages of the numerical model over analytical methods are that a numerical model represents the geometry and hydraulic characteristics of the aquifer more closely than is possible with an analytical model.

The numerical model was used to simulate a period of 180 days with no areal recharge to account for extended periods without recharge. Sources of water to hypothetical wells are from storage and induced infiltration from surface-water bodies such as rivers. For each aquifer, the model was run twice—once in which surface-water bodies (streams and rivers) contributed to the total available water and once in which only water from storage within the aquifer contributed to the total available water. These two simulations provide a range of estimated available water from an aquifer over a period of 180 days without recharge and then with recharge from nearby surface-water sources. Commonly, public-supply wells in stratified drift are drilled near or adjacent to a surface-water body to take advantage of potential induced recharge when the wells are pumped.

The numerical models were designed to represent the hydraulic characteristics of ground-water flow in stratified-drift aquifers. Sources of water to wells was from storage and induced infiltration from surface-water bodies.The following simplifying assumptions about the ground-water-flow system were made in developing the models:

1. **Two-dimensional flow adequately represents the flow system.** Ground-water flow is predominantly horizontal. Vertical-flow gradients are downward in areas of ground-water recharge and upward in areas of ground-water discharge. Strong vertical-flow gradients are also present near discharging wells; however, the magnitude of the gradients diminishes rapidly with distance from the well (Harte and Mack, 1992). The error associated with two-dimensional simulation of water availability is considered negligible.
2. **Water-supply wells are fully penetrating and 100 percent efficient.** Wells used for supply are generally not fully penetrating and are commonly screened in the bottom 25 percent of the aquifer. In addition, these wells are not 100 percent efficient. Increased drawdown in the well results from energy loss between the aquifer and the well, which is a function of well design and construction. In these analyses, less drawdown is simulated than would occur in the real system; the effects of this assumption are considered negligible in estimating water availability particularly since the calculated drawdown for a hypothetical well is limited to 70 percent of the saturated thickness.
3. **No ground water flows between till and (or) bedrock and the stratified-drift aquifer.** The model areas are stratified-drift aquifers in till-covered bedrock valleys. In an aquifer where horizontal and vertical gradients exist between the stratified drift and the underlying till and (or) bedrock, water may flow between the aquifer and the surrounding geologic units

but this type of recharge or discharge was not simulated. Although there is lateral flow from uplands adjacent to the edge of the stratified drift, it is generally less than 0.1 $(ft^3/s)/mi^2$ (0.06 $(Mgal/d)/mi^2$) (Harte and Mack, 1992, Ayotte and Toppin, 1995) during the summer months. The contribution of this lateral flow is considered negligible and was not simulated.

Model Input Parameters

Model input parameters consisted of (1) an initial position of the water table, (2) saturated thickness, (3) hydraulic conductivity, (4) specific yield, and (5) streambed hydraulic conductivity.

Position of the Water Table

In the analytical and numerical models, the initial position of the water table was generated by a steady-state, unstressed aquifer simulation with an estimated long-term areal recharge, and provided the starting head values for subsequent flow simulations. Long-term average areal recharge was assumed to be 18 in/yr (Lyford and Cohen, 1987). The initial water-table distribution correlated well with the data shown on plates 1 and 3, and with the general understanding of ground-water-head distributions in the two model areas.

Saturated Thickness and Hydraulic Conductivity

The saturated-thickness and hydraulic-conductivity data for the aquifers were taken directly from plate 7 for the Connecticut River aquifer and from plate 5 for the Androscoggin River aquifer. The contoured data were overlain on the model grid, and the appropriate saturated thickness and hydraulic conductivity values were assigned to each cell. Hydraulic conductivity (K) is related to saturated thickness (b) and transmissivity (T) by use of the following equation:

$$T = K(b) \quad . \qquad (1)$$

Specific Yield

The specific yield of the aquifers was not measured for the model areas. The specific yield for sediments from many studies were summarized by Johnson (1967); average specific yield for fine sands was 0.21; for coarse sands, 0.27; and for gravels, 0.22. Ayotte and Toppin (1995) found that a shallow, coarse-grained aquifer in south-central New Hampshire had specific yields ranging from 0.21 to 0.29. A value of 0.2 was used for the aquifers as a conservative estimate of specific yield.

Streambed Hydraulic Conductivity

The average hydraulic conductivity of streambed materials was not measured for either aquifer in the model area. Rather, a value of 4 ft/d was used in all cases because it is similar to hydraulic conductivities reported for other areas in New England. Lapham (1988) used 5 ft/d in a similar water availability study in Massachusetts. Harte and Mack (1992) used 3 ft/d for most reaches, but used 1 ft/d where the channel contained fine-grained sands and organic material. Ayotte and Toppin (1995) used 3 ft/d on the basis of grain-size analysis of riverbed sediment cores. In this study area, streams flow over predominantly medium-to-coarse grained sands or sands and gravels.

Results of Ground-Water-Availability Estimates

Connecticut River Aquifer in Colebrook

For the Connecticut River aquifer in Colebrook, the model grid consisted of 40 rows and 40 columns; each cell was 200 by 200 ft. Ground-water withdrawals were simulated at three wells along the river. Simulated withdrawals were adjusted over the 180-day simulation so that the total drawdown at a hypothetical well was about 70 percent of the saturated thickness of the aquifer. The average drawdown for the cell is calculated by the model and was less than drawdown at the hypothetical well (Trescott, Pinder, and Larsen, 1976).

In the first simulation, a drawdown of about 70 percent of the saturated thickness at 180 days produced a withdrawal rate of 1.3 Mgal/d (about 0.4 Mgal/d per well) derived solely from storage. In the second simulation, the same amount of drawdown at 180 days produced a withdrawal rate of 3.1 Mgal/d (about 1 Mgal/d per well) derived primarily from induced infiltration from the Connecticut River. In the first simulation, as the amount of water available from storage is depleted, the withdrawal rate continues to decline over the entire simulation period (180 days) to keep drawdowns from exceeding 70 percent of the saturated thickness (fig. 10A). In the second simulation, as ground-water levels decline, the withdrawal rate is met by induced infiltration at about 40 days, and the withdrawal rate stabilizes at 3.1 Mgal/d (4.8 ft^3/s) (fig. 10*A*).

Induced infiltration calculated by simulation was compared to the amount of water flowing in the river at a period of low flow (approximately 95-percent flow duration) to determine whether the simulated withdrawals would deplete the available streamflow. The nearest measurement of the Connecticut River adjacent to the aquifer was south of the model area in North Stratford. Low streamflow measured on July 20, 1993, was 380 ft^3/s (245 Mgal/d, table 4) (USGS stream-gaging station 01129500). Total available water calculated by the model (3.1 Mgal/d) represents only 1 percent of the streamflow (table 4).

The model boundary, surface-water boundaries, locations of hypothetical wells, and drawdown as a result of simulated withdrawal with induced infiltration is shown in figure 11, and drawdown with no induced infiltration is shown in figure 12. The area of calculated drawdown is greater for the simulation with no induced infiltration and a pumping rate of 1.3 Mgal/d (fig. 12) than for the simulation with induced infiltration and a pumping rate of 3.1 Mgal/d (fig. 10*A*). This comparison indicates that pumpage can be increased by inducing infiltration from the Connecticut River and that water availability in this aquifer is limited by available drawdown. More water could be withdrawn from additional wells placed along the Connecticut River than from wells placed elsewhere in the aquifer. The specific withdrawal-well simulation discussed in this section is one of the many possible combinations of well locations and withdrawal rates; other combinations will produce different results.

Androscoggin River Aquifer in Shelburne

For the Androscoggin River aquifer in Shelburne, the model grid consisted of 45 rows and 45 columns; each cell was 200 by 200 ft. Ground-water withdrawals were simulated at three hypothetical wells in a zone of high transmissivity on the north bank of the river. Simulated withdrawals were adjusted over the 180-day simulation so that the total drawdown at a hypothetical well was not more than 70 percent of the saturated thickness of the aquifer.

Table 4. Water-availability estimates for two ground-water-flow simulations of the Connecticut River aquifer, Colebrook, New Hampshire

[Mgal/d, million gallons per day; --, no data]

Connecticut River aquifer water-availability estimate from:	Ground-water storage (Mgal/d)	Induced infiltration (Mgal/d)	Total available water, numerical model (Mgal/d)	Low-flow streamflow measurement on July 20, 1993 (Mgal/d)
Ground-water storage only	1.3	--	1.3	245
Ground-water storage plus induced infiltration	0.0	3.1	3.1	245

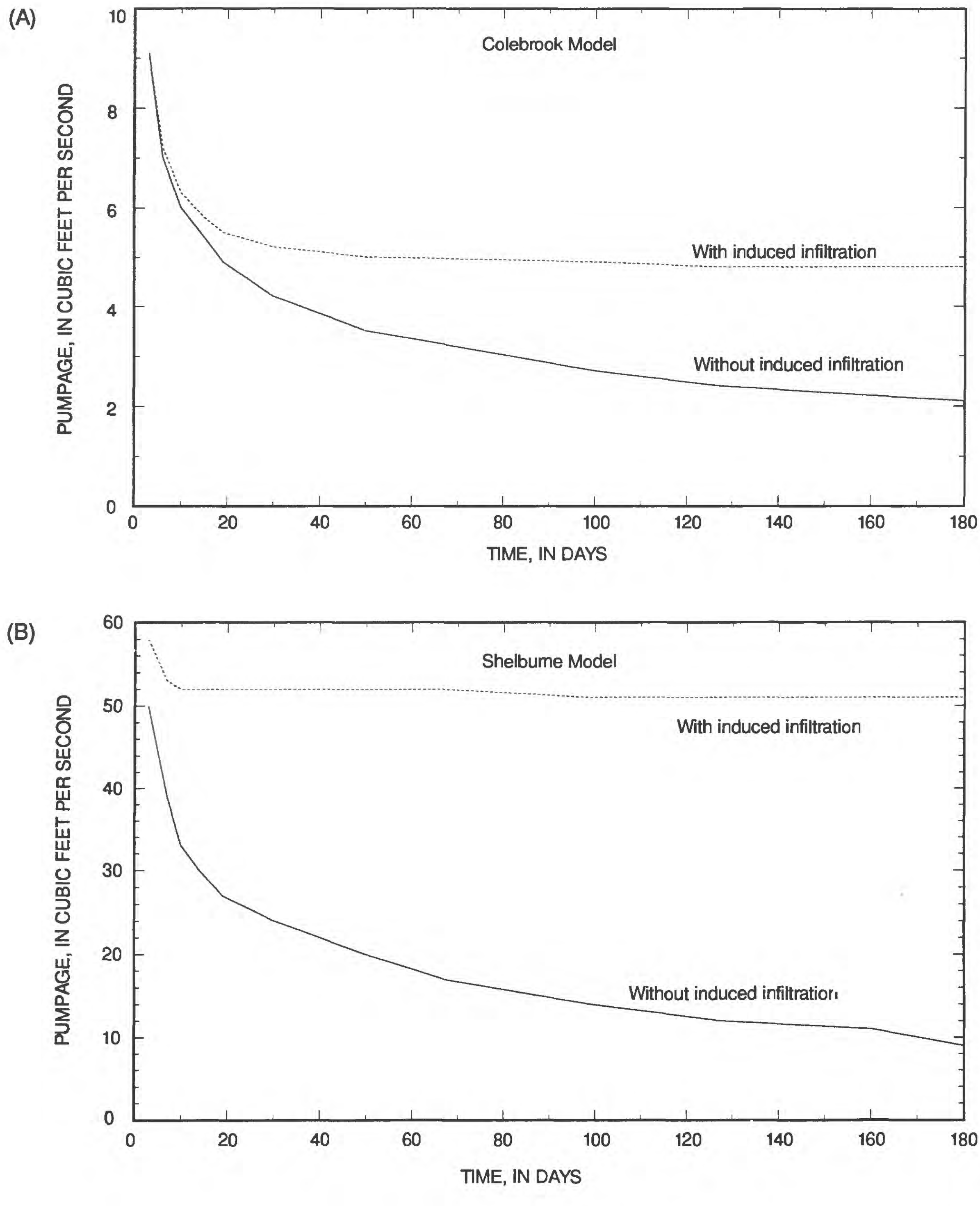


Figure 10. Pumpage with and without induced infiltration over a 180-day period (*A*) for the Connecticut River aquifer, and (*B*) for the Androscoggin River aquifer, northern New Hampshire.

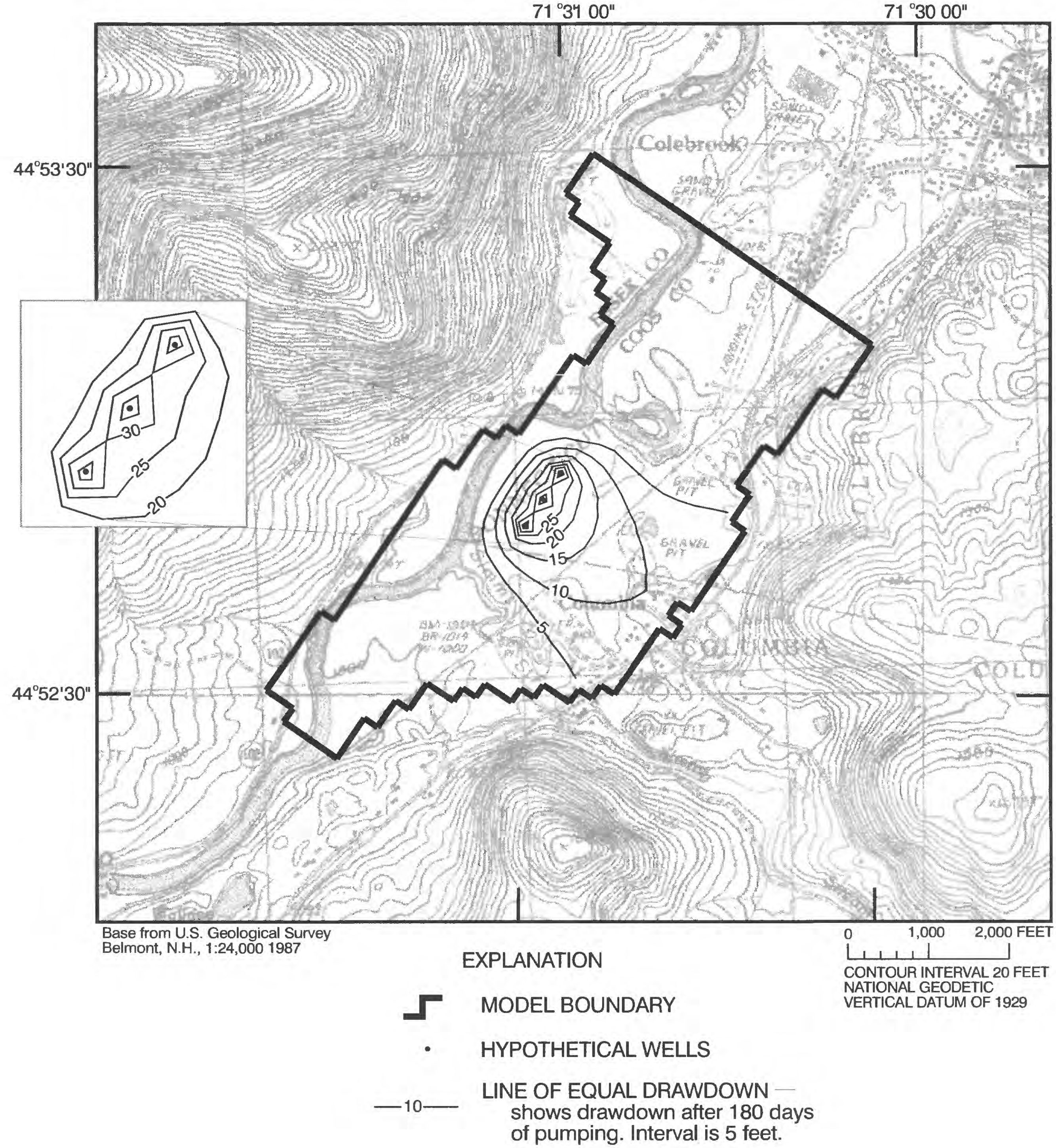


Figure 11. Model boundary, river cells, hypothetical wells, and lines of equal drawdown for the Connecticut River aquifer, northern New Hampshire, with simulation of induced infiltration.

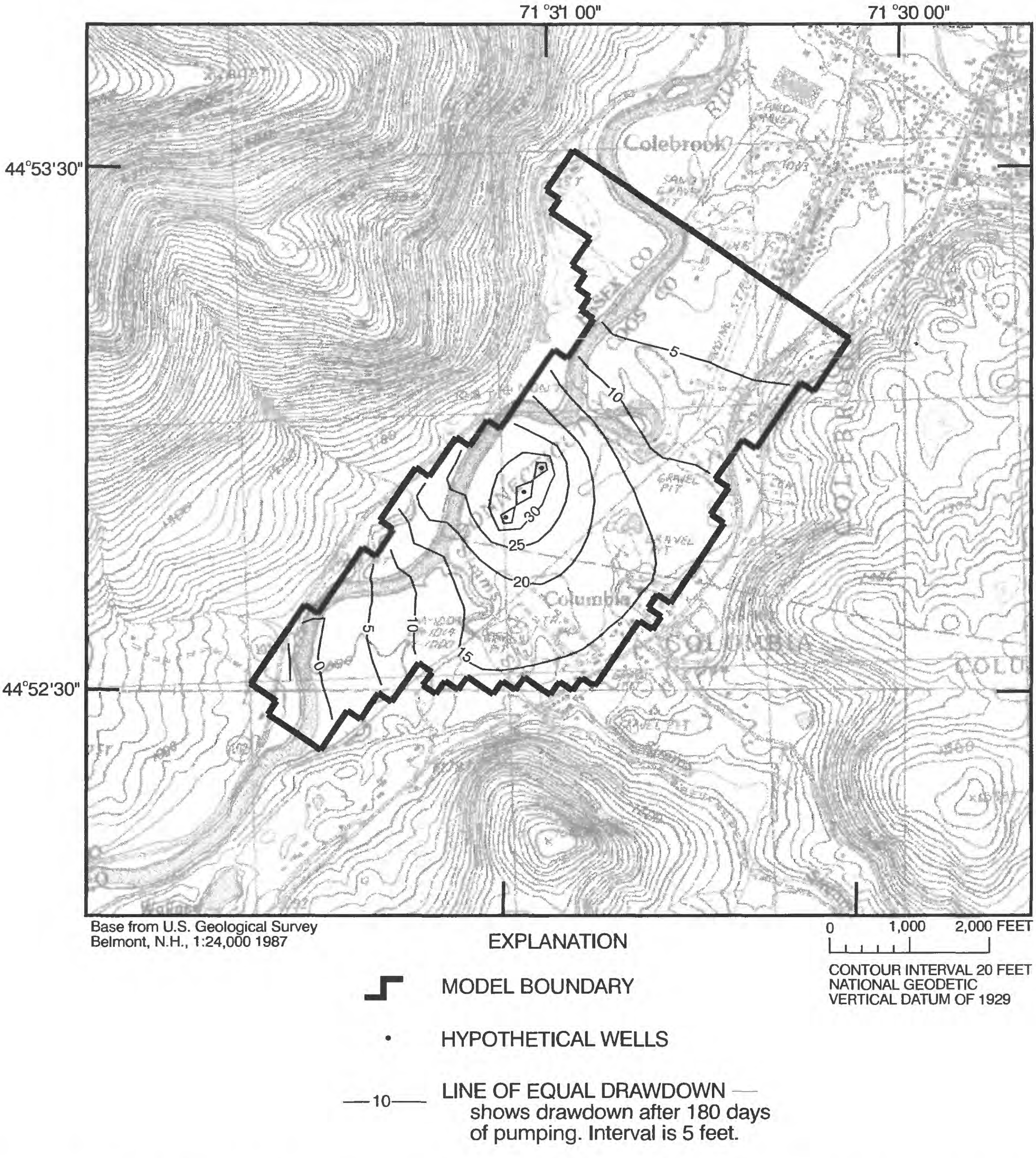


Figure 12. Model boundary, river cells, hypothetical wells, and lines of equal drawdown for the Connecticut River aquifer, northern New Hampshire, with simulation of no induced filtration.

In the first simulation, a drawdown of about 70 percent of the saturated thickness at 180 days produced a withdrawal rate of 6.3 Mgal/d (about 2.1 Mgal/d per well) derived solely from storage. In the second simulation, the same amount of drawdown at 180 days produced a withdrawal rate of 32.9 Mgal/d (about 11 Mgal/d per well) derived primarily from induced infiltration from the Androscoggin River. In the first simulation, as the amount of water available from storage is depleted, the withdrawal rate continues to decline over the entire simulation period (180 days) to keep drawdowns from exceeding 70 percent of the saturated thickness (fig. 10*B*). In the second simulation, as ground-water levels and the withdrawal rate declines, the withdrawal is met by induced infiltration at about 10 days (due to the location of the wells near the river and the high transmissivity of the aquifer) (pl. 5), and the withdrawal rate stabilizes at 32.9 Mgal/d (51 ft^3/s).

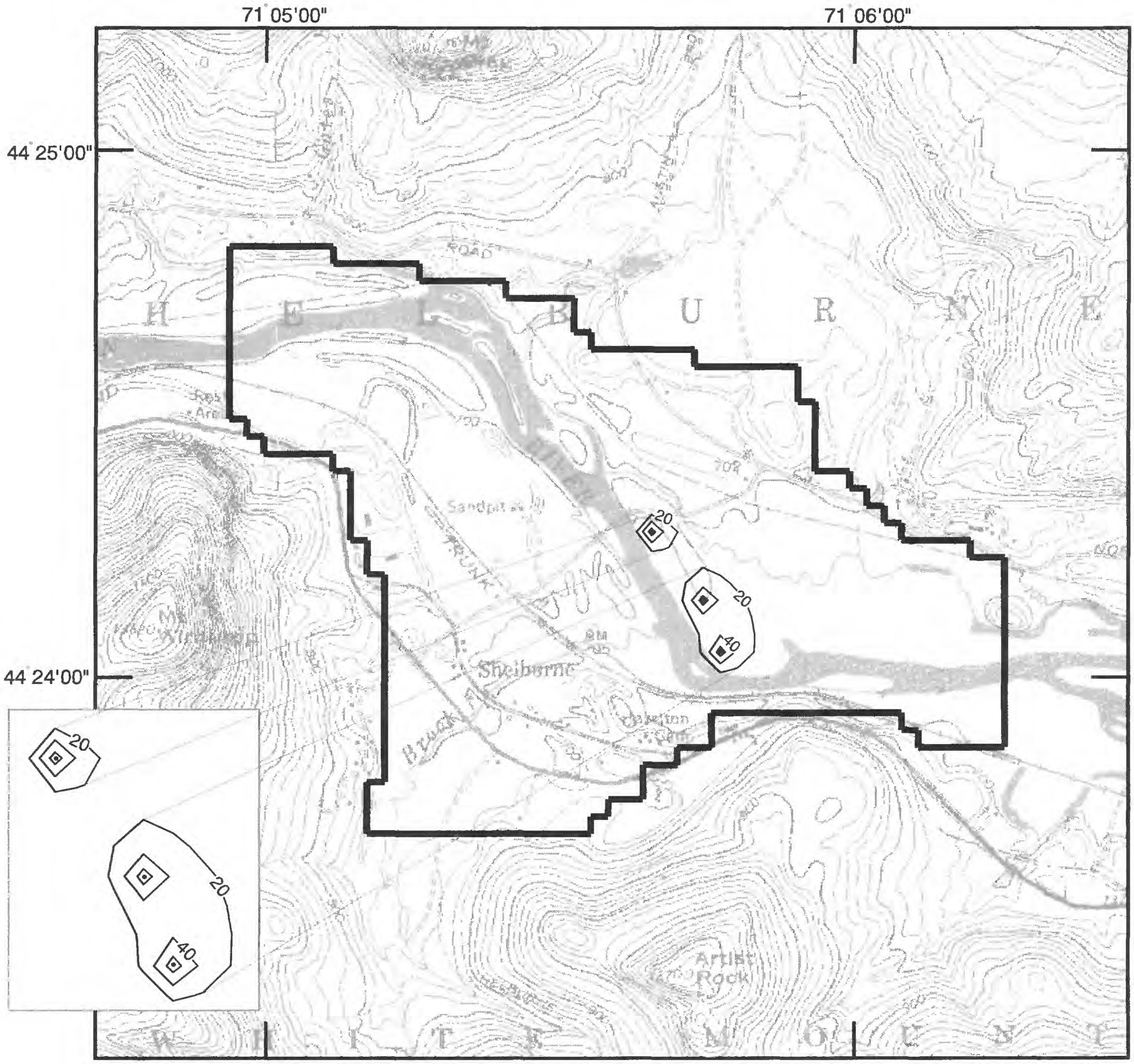
Induced infiltration calculated by simulation was compared to the amount of water flowing in the river at a period of low flow (approximately 95-percent flow duration) to determine whether the simulated withdrawals would deplete the available streamflow. The nearest measurement of the Androscoggin River was approximately 8.7 mi upstream from the aquifer near Gorham (pl. 1). Low streamflow measured in December 1991, was 1,257 ft^3/s (812.4 Mgal/d, table 5) (USGS stream gaging station 01054000). Total water availability calculated by the model (32.9 Mgal/d) represents 4 percent of the streamflow (table 5).

The model boundary, surface-water boundaries, locations of hypothetical wells, and drawdown due to simulated withdrawal with induced infiltration is shown in figure 13, and drawdown with no induced infiltration is shown in figure 14. The area of calculated drawdown for the simulation with no induced infiltration and a pumping rate of 6.3 Mgal/d (fig. 14) is greater than that for the simulation with induced infiltration and a pumping rate of 32.9 Mgal/d (fig. 13). This comparison indicates that pumpage can be increased by inducing infiltration from the Androscoggin River and that water availability in this aquifer is limited by available drawdown, which is set at 70 percent of the saturated thickness. The specific withdrawal-well simulation discussed in this section is one of many possible combinations of well locations and withdrawal rates, other combinations will produce different results.

Table 5. Water-availability estimates for two ground-water flow simulations of the Androscoggin River aquifer, Shelburne, New Hampshire

[Mgal/d, million gallons per day; --, data]

Androscoggin River aquifer water-availability estimate from:	Ground-water storage (Mgal/d)	Induced infiltration (Mgal/d)	Total available water, numerical model (Mgal/d)	Low-flow streamflow measurement in December 1991 (Mgal/d)
Ground-water storage only	6.3	--	6.3	812.4
Ground-water storage plus induced infiltration	0.0	32.9	32.9	812.4



Base from U.S. Geological Survey
Belmont, N.H., 1:24,000 1987

0 1,000 2,000 FEET

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC
VERTICAL DATUM OF 1929

EXPLANATION

MODEL BOUNDARY

• HYPOTHETICAL WELLS

—20— LINE OF EQUAL DRAWDOWN — shows drawdown after 180 days of pumping. Interval is 20 feet.

Figure 13. Model boundary, river cells, hypothetical wells, and lines of equal drawdown for the Androscoggin River aquifer, northern New Hampshire, with simulation of induced filtration.

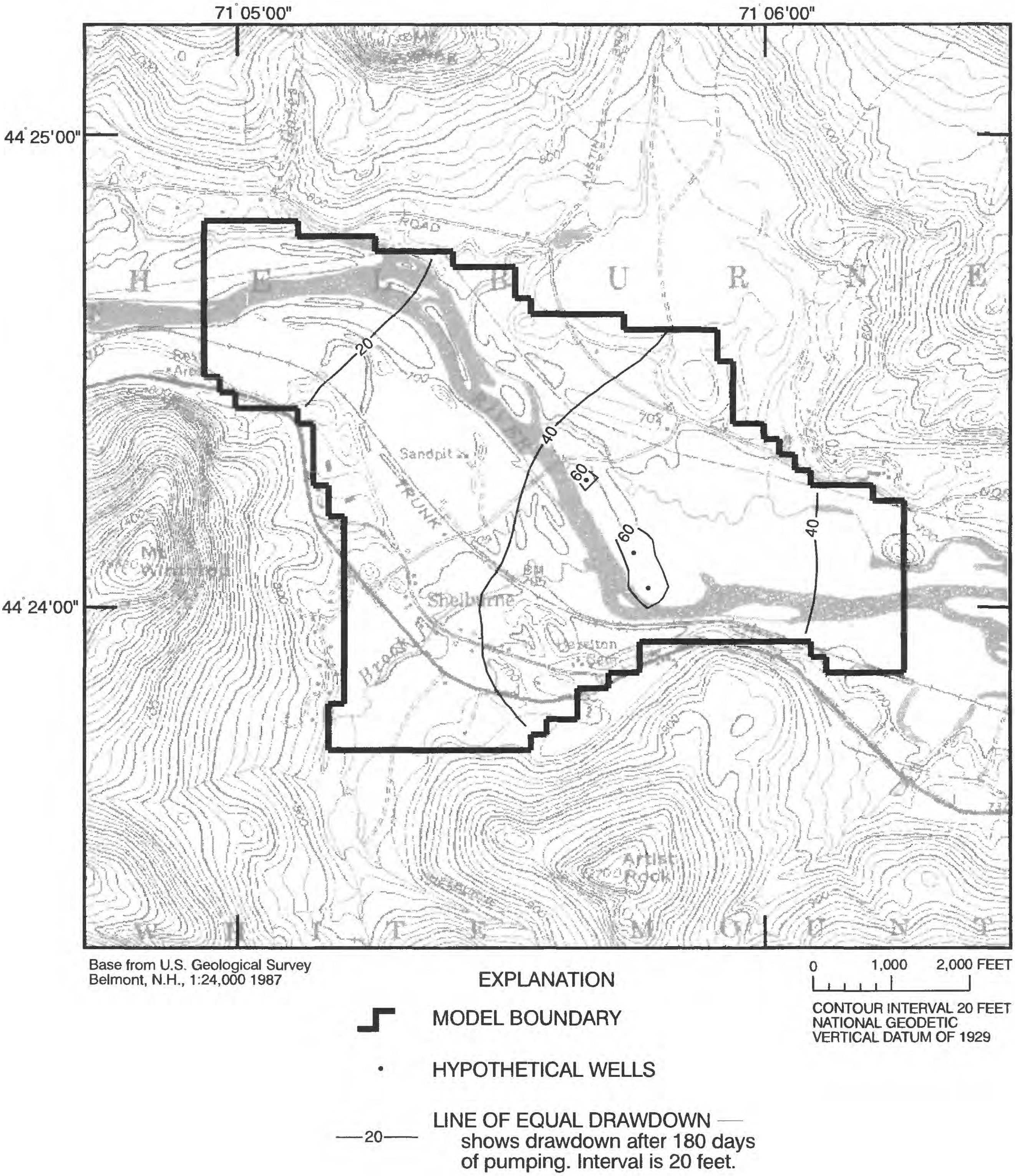


Figure 14. Model boundary, river cells, hypothetical wells, and lines of equal drawdown for the Androscoggin River aquifer, northern New Hampshire with simulation of no induced filtration.

GROUND-WATER QUALITY

Water samples collected from 23 wells and 3 springs were analyzed for common and trace constituents and inorganic compounds. The results were used to evaluate the background water quality of the stratified-drift aquifers in the Upper Connecticut and Androscoggin River Basins. Results of the analyses indicate that water from the stratified-drift aquifers is generally suitable for drinking and other domestic or municipal uses. No samples were collected from known areas of ground-water contamination.

All of the sampled wells were developed either with compressed air or with a centrifugal pump to remove water introduced during drilling, foreign material, and sediment, and to improve the hydraulic connection with the aquifer. Wells were allowed to stabilize for at least 1 month before sampling. Just before sampling, the wells were pumped until temperature and specific conductance stabilized and at least three times the volume of water in the well was evacuated. This procedure helped ensure that the sampled water represented water in the aquifer.

All water samples were analyzed by the USGS National Water Quality Laboratory (NWQL) in Arvada, Colo. Samples were collected and analyzed according to procedures described by Fishman and Friedman (1989).

In table 6, results of the chemical analyses are presented and compared with the USEPA (1992, 1991a,b) primary and secondary drinking-water regulations and the New Hampshire Department of Environmental Services, Water Supply Engineering Bureau drinking-water recommendations (New Hampshire Department of Environmental Services, Water Supply Engineering Bureau, written commun., 1992). Naturally occurring constituents that have no recommended limits, but whose concentrations are generally less than a few micrograms per liter, also are included in table 6. Many of the constituents listed in table 6 were not detectable in water samples from the stratified-drift aquifers in the study area. Individual constituents and properties are discussed in the following paragraphs.

Specific Conductance

Specific conductance—a measure of the ability of water to conduct electrical current—ranged from 42 μS/cm in water from well SNW-3 to 680 μS/cm in water from spring DMS-1. The median for all water samples in this study (150 μS/cm) was more than the median for the entire State (132 μS/cm) for public-supply wells completed in stratified-drift aquifers (Morrissey and Regan, 1987). The presence of charged ionic species in solution makes water conductive; therefore, specific conductance is an indicator of the amount of ions in solution.

Dissolved Solids

Dissolved-solids (solids residue) concentrations in water include all ionized and un-ionized dissolved solids in solution. The concentrations of all water samples from stratified-drift aquifers ranged from 34 mg/L (well GOW-1) to 341 mg/L (spring DMS-1) and were less than the maximum recommended limit for drinking water of 500 mg/L established by the New Hampshire Department of Environmental Services, Water Supply Engineering Bureau (1990). The low concentration of dissolved solids in these stratified-drift aquifers can be attributed to the low solubility of the aquifer matrix and the relatively short time that the water is in contact with the aquifer (Morrissey and Regan, 1987).

pH

The pH of water is a measure of the hydrogen ion activity. Water having a pH of 7.0 is neutral, less than 7.0 is acidic, and greater than 7.0 is alkaline. The pH of most ground water in the United States ranges from about 6.0 to 8.5 (Hem, 1985, p. 63–64). The pH of water sampled during this study ranged from 5.5 to 8.7; the median was 6.2. The range of pH in stratified-drift aquifers sampled in previous studies in this series (Moore, 1990; Flanagan and Stekl, 1990; Lawlor and Mack, 1992; Moore and others, 1994; Ayotte and Toppin, 1995) was from 5.3 to 8.5, and the median was 6.1. The most basic or alkaline ground-water samples came from well SRW-2 (8.7). The most acidic water was from wells SNW-2 (5.5). In all, 16 samples had a pH less than or equal to the SMCL of 6.5 established by the USEPA (U.S. Environmental Protection Agency, 1992).

Table 6. Results of chemical analyses of ground-water samples from the Upper Connecticut and Androscoggin River Basins, northern New Hampshire

[ft, feet; µS/cm, microsiemens per centimeter at 25° Celsius; °C, degrees Celsius; mg/L, milligrams per liter; µg/L, micrograms per liter; <, actual value is less than value shown; --, no data; SMCL--Secondary Maximum Contaminant Level: Contaminants that affect the esthetic quality of drinking water. At high concentrations or values, health implications, as well as esthetic degradation, may also exist. SMCL's are not Federally enforceable but are intended as guidelines for the States (U.S. Environmental Protection Agency, 1992). MCL--Maximum Contaminant Level: Enforceable, health-based regulation that is to be set as close as is feasible to the level at which no known or anticipated adverse effects on the health of a person occur. The definition of feasible means the use of the best technology, treatment techniques, and other means that the Administrator of the U.S. Environmental Protection Agency finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are generally available (taking cost into consideration) (U.S. Environmental Protection Agency, 1992).]

Local identifier	Date	Depth below land surface (water level) (ft)	Depth of well, total (ft)	Elevation of land surface (ft above sea level)	Specific conductance (µS/cm)	PH water whole field (standard units)	Temperature water (°C)	Oxygen, dissolved (mg/L)	Hardness, total (mg/L as $CaCO_3$)
BRW 1	10-06-92	--	42	1,100	160	6.2	--	--	39
CTW 2	10-07-92	--	49	1,030	316	7.4	8.6	0	149
CTW 3	10-07-92	--	--	1,030	290	7.1	11	--	124
NUW 1	11-06-91	22	85	8,90	231	6.8	7.7	--	93
CUW 2	10-08-92	--	40	1,010	141	6.1	8.7	6.2	47
DMS 1	10-16-92	--	--	1,180	680	6.0	9.0	--	33
GOW 1	10-09-92	--	50	830	62	5.9	8.0	7.5	19
LCW 63	10-17-92	--	9.0	970	43	5.8	9.7	5.1	15
MNS 1	10-15-92	--	--	900	74	5.8	6.8	--	18
MNW 2	10-15-92	--	20	1,080	123	5.6	12	1.5	28
MNW 3	10-15-92	--	38	1,110	139	6.1	7.7	2.1	57
MNW 4	10-09-92	--	41	1,110	59	5.7	7.3	9.2	21
MNW 92	11-05-91				71	6.8	10.5	--	25
CUW 1	10-08-92	--	63	1,020	551	5.9	9.1	7.2	113
NUW 2	11-06-91	9.0	98	870	162	7.2	7.7	--	62
NUW 3	11-07-91	4.0	--	850	420	8.0	7.8	--	162
SJW 1	11-05-91	5.0	19	710	66	6.0	11	--	21
SJW 2	11-05-91	4.0	41	700	56	6.5	6.9	--	17
SNW 1	11-05-91	19.88	40	980	255	5.2	8.0	5.9	81
SNW 2	11-05-91	2.0	21	930	210	5.5	11	--	35
SNW 3	11-06-91	10	91	950	42	6.6	8.2	--	22
SNW 4	10-16-92	--	85	940	89	6.3	7.6	0	32
SOW 1	10-07-92	--	29	1,110	276	7.0	9.5	0	131
SRW 1	11-06-91	13	29	860	215	7.3	9.0	--	104
SRW 2	11-07-91	49	87	910	96	8.7	7.0	--	42
SRW 3	11-07-91	49	92	950	86	6.3	6.9	--	34
U.S. Environmental Protection Agency drinking water regulations for listed property or chemical constituent									
SMCL	--	--	--	--	--	6.5–8.0	--	--	--
MCL	--	--	--	--	--	--	--	--	--

Table 6. Results of chemical analyses of ground-water samples from the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local identifier	Date	Calcium dissolved (mg/L as Ca)	Magnesium, dissolved (mg/L as Mg)	Potassium, dissolved (mg/L as K)	Sodium, dissolved (mg/L as Na)	Sodium percent	Alkalinity field (mg/L as $CaCO_3$)	Sulfate dissolved (mg/L as SO_4)	Chloride, dissolved (mg/L as Cl)
BRW 1	10-06-92	11	2.8	1.4	16	46	20	16	26
CTW 2	10-07-92	44	9.6	4.4	4.9	6.4	112	23	14
CTW 3	10-07-92	40	5.9	2.0	8.6	13	108	13	12
NUW 1	11-06-91	28	5.5	2.6	6.4	13	56	15	17
CUW 2	10-08-92	14	2.9	3.4	5.6	19	29	8.5	13
DMS 1	10-16-92	11	1.3	1.3	110	87	28	6.9	170
GOW 1	10-09-92	5.3	1.3	.9	2.6	22	14	7.6	1.6
LCW 63	10-17-92	4.4	.88	.6	1.9	21	10	4.3	2.0
MNS 1	10-15-92	5.5	.94	.7	1.8	17	11	9.6	.9
MNW 2	10-15-92	8.3	1.8	1.8	7.9	36	23	7.7	16
MNW 3	10-15-92	13	5.9	1.6	3.7	12	50	11	3.5
MNW 4	10-09-92	5.6	1.6	.9	2.3	19	15	7.1	2.3
MNW 92	11-05-91	7.7	1.5	1.3	2.0	14	26	6.8	.9
CUW 1	10-08-92	33	7.5	5.2	57	51	44	12	130
NUW 2	11-06-91	19	3.6	4.3	3.7	11	42	12	11
NUW 3	11-07-91	50	98	4.3	13	15	71	22	66
SJW 1	11-05-91	7.0	.85	1.9	2.0	16	11	16	1.7
SJW 2	11-05-91	4.7	1.3	1.7	2.5	22	14	7.2	13
SNW 1	11-05-91	29	5.3	1.7	4.7	12	9	53	18
SNW 2	11-05-91	11	1.7	1.9	23	57	11	7.3	47
SNW 3	11-06-91	5.8	1.8	1.1	2.5	18	14	10	.8
SNW 4	10-16-92	8.5	2.7	1.8	3.6	19	30	8.3	.8
SOW 1	10-07-92	40	7.6	2.9	3.0	4.6	128	13	2.5
SRW 1	11-06-91	34	4.7	1.2	3.8	7.3	110	.4	3.2
SRW 2	11-07-91	14	1.7	1.3	2.2	9.9	33	9.6	1.1
SRW 3	11-07-91	9.8	2.4	1.6	3.2	16	17	6.7	4.0
U.S. Environmental Protection Agency drinking water regulations for listed property or chemical constituent									
SMCL		--	--	--	--	25–250	--	--	250	250
MCL		--	--	--	--	--	--	--	--	250

Table 6. Results of chemical analyses of ground-water samples from the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local Ident-ifier	Date	Fluoride, dissolved (mg/L as F)	Silica, dissolved (mg/L as SiO_2)	Solids, residue at 180°C dissolved (mg/L)	Solids, sum of constit-uents, dissolved (mg/L)	Nitrogen, nitrite dissolved (mg/L as N)	Nitrogen, NO_2 & NO_3 dissolved (mg/L as N)	Nitrogen, ammonia dissolved (mg/L as N)	Nitrogen, ammonia & organic dissolved (mg/L as N)
BRW 1	10-06-92	0.10	14	104	99	<0.01	0.14	0.01	<0.20
CTW 2	10-07-92	<.10	7.1	183	174	<.01	<.05	.02	<.20
CTW 3	10-07-92	<.10	7.1	179	158	<.01	1.3	<.01	<.20
NUW 1	11-06-91	.20	13	125	135	<.01	3.2	<.01	<.20
CUW 2	10-08-92	<.10	13	86	83	<.01	1.3	.04	<.20
DMS 1	10-16-92	<.10	12	341	330	<.01	.26	.01	<.20
GOW 1	10-09-92	.30	12	34	40	<.01	.19	.01	2.1
LCW 63	10-17-92	.10	8.5	35	30	<.01	.06	.01	<.20
MNS 1	10-15-92	.10	11	41	38	<.01	.15	.02	<.20
MNW 2	10-15-92	.10	17	82	78	<.01	<.05	.03	<.20
MNW 3	10-15-92	.10	19	99	89	<.01	<.05	.05	<.20
MNW 4	10-09-92	<.10	13	43	42	<.01	.14	.02	<.20
MNW 92	11-05-91	.50	13	46	51	.01	.06	.03	.20
CUW 1	10-08-92	<.10	15	369	294	<.01	1.1	.02	<.20
NUW 2	11-06-91	.10	14	107	103	<.01	2.3	<.01	<.02
NUW 3	11-07-91	<.10	10	253	229	.04	2.7	<.01	<.02
SJW 1	11-05-91	.20	7.9	56	44	<.01	.29	.02	<.02
SJW 2	11-05-91	.20	13	51	51	<.01	.09	.03	<.20
SNW 1	11-05-91	<.10	15	165	139	<.01	5.0	.03	<.20
SNW 2	11-05-91	.20	10	141	113	<.01	1.1	.03	<.20
SNW 3	11-06-91	.30	17	60	51	<.01	.11	<.01	<.20
SNW 4	10-16-92	.60	20	63	65	<.01	.24	.01	<.20
SOW 1	10-07-92	<.10	6.8	151	154	<.01	<.05	.07	<.20
SRW 1	11-06-91	.40	14	129	128	<.01	<.05	.06	<.20
SRW 2	11-07-91	.10	12	71	62	<.01	.14	<.01	<.20
SRW 3	11-07-91	.10	14	69	68	<.01	3.6	<.01	<.20
U.S. Environmental Protection Agency drinking water regulations for listed property or chemical constituent									
SMCL	--	[3]2.0	--	[3]500	--	--	--	--	--
MCL	--	4.0	--	500	--	--	10	--	--

Table 6. Results of chemical analyses of ground-water samples from the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local ident-ifier	Date	Phos-phorous dissolved (mg/L as P)	Phos-phorous ortho, dissolved (mg/L as P)	Barium, dissolved (µg/L as Ba)	Beryllium, dissolved (µg/L as Be)	Cadmium, dissolved (µg/L as Cd)	Cobalt, dissolved (µg/L as Co)	Copper, dissolved (µg/L as Cu)	Iron, dissolved (µg/L as Fe)
BRW 1	10-06-92	<0.01	<0.01	15	<0.50	<1.0	<3.0	<10	7.0
CTW 2	10-07-92	<.01	<.01	8.0	<.50	<1.0	<3.0	<10	5.0
CTW 3	10-07-92	<.01	<.01	11	<.50	<1.0	<3.0	<10	<3.0
NUW 1	11-06-91	<.01	.01	8.0	<.50	<1.0	<3.0	<10	27
CUW 2	10-08-92	<.01	.01	7.0	<.50	<1.0	<3.0	<10	<3.0
DMS 1	10-16-92	<.01	.01	25	<.50	<1.0	<3.0	<10	12
GOW 1	10-09-92	.03	<.01	4.0	<.50	<1.0	<3.0	<10	6.0
LCW 63	10-17-92	<.01	<.01	11	<.50	<1.0	<3.0	<10	83
MNS 1	10-15-92	<.01	<.01	<2.0	<.50	<1.0	<3.0	<10	8.0
MNW 2	10-15-92	<.01	<.01	13	<.50	<1.0	4.0	<10	3,100
MNW 3	10-15-92	<.01	<.01	7.0	<.50	<1.0	<3.0	<10	310
MNW 4	10-09-92	<.01	<.01	2.0	<.50	<1.0	<3.0	<10	6.0
MNW 92	11-05-91	.01	.01	11	.50	1.0	3.0	10	210
CUW 1	10-08-92	.16	.01	33	<.50	<1.0	6.0	<10	2,700
NUW 2	11-06-91	<.01	.01	15	<.50	<1.0	<3.0	<10	13
NUW 3	11-07-91	<.01	.03	17	<.50	<1.0	<3.0	<10	12
SJW 1	11-05-91	<.01	.01	17	<.50	<1.0	<3.0	<10	7.0
SJW 2	11-05-91	<.01	<.01	5	<.50	<1.0	<3.0	<10	14
SNW 1	11-05-91	.01	<.01	25	<.50	<1.0	<3.0	<10	270.0
SNW 2	11-05-91	<.01	<.01	54	<.50	<1.0	<3.0	<10	32
SNW 3	11-06-91	.08	.02	15	<.50	<1.0	<3.0	<10	2,500
SNW 4	10-16-92	<.01	<.01	3.0	<.50	<1.0	<3.0	<10	10
SOW 1	10-07-92	<.01	<.01	4.0	<.50	<1.0	<3.0	<10	20
SRW 1	11-06-91	<.01	.02	9.0	<.50	<1.0	<3.0	<10	1,100
SRW 2	11-07-91	<.01	.03	<2.0	<.50	<1.0	<3.0	<10	22
SRW 3	11-07-91	<.01	.01	5.0	<.50	<1.0	<3.0	<10	12
U.S. Environmental Protection Agency drinking water regulations for listed property or chemical constituent									
SMCL	--	[3]250	--	--	--	--	--	1,000	300
MCL	--	250	--	2,000	4	5	--	--	--

Table 6. Results of chemical analyses of ground-water samples from the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local identifier	Date	Lead, dissolved (µg/L as Pb)	Lithium, dissolved (µg/L as Li)	Manganese, dissolved (µg/L as Mn)	Molybdenum, dissolved (µg/L as Mo)	Strontium, dissolved (µg/L as Sr)	Vanadium, dissolved (µg/L as V)	Zinc, dissolved (µg/L as Zn)
BRW 1	10-06-92	<10	<4.0	40	<10	68	<6.0	6.0
CTW 2	10-07-92	<10	7.0	64	<10	170	<6.0	<3.0
CTW 3	10-07-92	<10	<4.0	<1.0	<10	140	<6.0	13
NUW 1	11-06-91	<10	5.0	16	<10	130	<6.0	5.0
CUW 2	10-08-92	<10	<4.0	410	<10	84	<6.0	<3.0
DMS 1	10-16-92	<10	<4.0	5.0	<10	50	<6.0	<3.0
GOW 1	10-09-92	<10	<4.0	2.0	<10	45	<6.0	22
LCW 63	10-17-92	<10	<4.0	6.0	<10	30	<6.0	<3.0
MNS 1	10-15-92	<10	<4.0	2.0	<10	31	<6.0	4.0
MNW 2	10-15-92	<10	<4.0	150	<10	59	<6.0	<3.0
MNW 3	10-15-92	<10	<4.0	890	<10	58	<6.0	<3.0
MNW 4	10-09-92	<10	<4.0	67	<10	35	<6.0	<3.0
MNW 92	11-05-91	10	4.0	1,300	10	37	6.0	3.0
CUW 1	10-08-92	<10	<4.0	190	<10	230	<6.0	8.0
NUW 2	11-06-91	<10	5.0	8.0	<10	86	<6.0	<3.0
NUW 3	11-07-91	<10	15.0	160	<10	280	<6.0	4.0
SJW 1	11-05-91	<10	<4.0	2.0	<10	57	<6.0	4.0
SJW 2	11-05-91	<10	<4.0	17	<10	37	<6.0	<3.0
SNW 1	11-05-91	<10	4.0	83	<10	260	<6.0	8.0
SNW 2	11-05-91	<10	<4.0	85	<10	120	<6.0	<3.0
SNW 3	11-06-91	<10	<4.0	150	<10	40	7.0	11
SNW 4	10-16-92	<10	5.0	23	<10	52	<6.0	<3.0
SOW 1	10-07-92	<10	4.0	1,600	<10	170	<6.0	7.0
SRW 1	11-06-91	<10	<4.0	1,900	<10	130	<6.0	5.0
SRW 2	11-07-91	<10	5.0	2.0	<10	60	<6.0	<3.0
SRW 3	11-07-91	<10	<4.0	22	<10	64	<6.0	7.0
U.S. Environmental Protection Agency drinking water regulations for listed property or chemical constituent								
SMCL	--	--	--	50	--	--	--	5,000
MCL	--	50	--	--	--	--	--	5,000

Alkalinity

The alkalinity of a solution is defined as the capacity for solutes in water to react with and neutralize acid (Hem, 1985, p. 106). It is commonly thought of as an indicator of buffering capacity—the water's ability to resist changes in pH upon addition of an acid. Almost all of the alkalinity in most natural water can be attributed to carbonate and bicarbonate ions. Because stratified-drift aquifers in New Hampshire consist of sediment derived from bedrock having a low carbonate-mineral content, alkalinity of ground water in New Hampshire is generally low. Alkalinity in water samples from this study was determined by incremental titration of unfiltered samples with aliquots of 0.01639N sulfuric acid to an endpoint of pH 4.5. For all the water samples, alkalinity ranged from 10 mg/L as $CaCO_3$ (at well LCW-63) to 128 mg/L as $CaCO_3$ (at well SOW-1). The median alkalinity, 28 mg/L as $CaCO_3$, indicates that ground water from this area has low alkalinity and, therefore, has low buffering capacity.

Calcium, Magnesium, and Hardness

Calcium and magnesium are common elements of the alkaline-earth minerals. Calcium and magnesium are also the predominant cations in most natural ground water (Hem, 1985). Concentrations of calcium in the samples ranged from 4.4 to 50 mg/L, and the median for the 26 samples was 11 mg/L. Concentrations of magnesium in the samples ranged from 0.85 to 9.6 mg/L, and the median for the 26 samples was 2.2 mg/L.

Hardness of water, expressed in milligrams per liter as $CaCO_3$, is caused by divalent metallic cations dissolved in the water. In freshwater, these cations are primarily calcium and magnesium, but iron, manganese, and strontium may also contribute to hardness. Hardness ranged from 15 mg/L at well LCW-63 to 162 mg/L at well NUW-3. The median for the 26 samples was 37; thus, these waters are considered to be soft (table 7).

Sodium and Chloride

Sodium (Na) and chloride (Cl) can be introduced into ground water from nonindigenous sources (wet or dry deposition, such as sea salt and aerosols) and man-made sources. The major man-made source of sodium and chloride is road salt. On the basis of limited data, it is estimated that New Hampshire towns and cities used about 33,000 tons per year of NaCl for deicing roads (Hall, 1975). The highest concentration of chloride was 170 mg/L from spring DMS-1, more than one-half of the USEPA (1992) secondary maximum contaminant

Table 7. Classification of hardness of water

[$CaCO_3$, calcium carbonate; modified from Durfor and Becker, 1964, p. 27]

Descriptive rating	Range of hardness, as $CaCO_3$ (milligrams per liter)
Soft	0 - 60
Moderately hard	61 - 120
Hard	121 - 180
Very hard	181 or greater

level (SMCL[1]) for chloride, established as a taste threshold. Water samples from two wells and one spring had sodium concentrations that exceeded the 20-mg/L Health Advisory Level for sodium established by the USEPA (1992) as a recommended limit for people with heart, hypertension, or kidney problems (23 mg/L at well SNW-2, 57 mg/L at well CUW-1, and 110 mg/L at spring DMS-1). These elevated concentrations may be a result of the proximity of the wells and spring to roadways where road salt is applied for deicing.

Nitrogen

Nitrogen can be present in many forms in natural waters, depending on the source of the nitrogen and the degree of decomposition. Nitrogen is present in water as nitrite (NO_2^-) or nitrate (NO_3^-) anions, in cationic from as the ammonium (NH_4^+) cation, and at intermediate oxidation states as a part of organic solutes (Hem, 1985, p. 124).

Concentrations of dissolved nitrite plus nitrate (as N) in 27 samples ranged from less than 0.05 to 5.0 mg/L; the median was 0.15 mg/L. Water from well SNW-1 in Stark had the highest concentration of dissolved nitrite plus nitrate (as N) (5.0 mg/L). Inorganic nitrogen also can be present in water as nitrite or ammonium. Among the water samples collected during this study, nitrogen concentrations as ammonia ranged from less than 0.01 to 0.07 mg/L.

Sulfate

The sulfate ion (SO_4^{-2}) is one of the major anions in natural water. Oxidation of sulfide ores, gypsum, and anhydrite and atmospheric deposition are sources of sulfate, but sulfate-producing minerals generally are not present in stratified-drift aquifers in New Hampshire. Sulfate is reduced by anaerobic bacteria to hydrogen sulfide gas (H_2S), which can be detected by smell at concentrations of only a few tenths of a milligram per liter. The sulfate concentration among all the ground-water samples ranged from 0.4 to 47 mg/L, and the median was 9.6 mg/L. The SMCL for sulfate (SO_4^{-2}) in drinking water is 250 mg/L (U.S. Environmental Protection Agency, 1992.)

Iron and Manganese

Iron and manganese are common elements in minerals in stratified-drift deposits in this study area. Elevated concentrations of manganese, often accompanied by elevated concentrations of iron, were the most common water-quality problem found in well water during this study. Manganese, an abundant metallic element, is an undesirable impurity in water because of its tendency to deposit black oxide stains (Hem, 1985, p. 85). The well with the highest manganese concentration was SRW-1 (1,900 µg/L). In all, 11 samples had manganese concentrations that exceeded the SMCL of 50 µg/L (U.S. Environmental Protection Agency, 1992). Iron, if present in excessive amounts in residential water supplies, forms red oxyhydroxide precipitates that can stain clothes and plumbing fixtures. Well MNW-2 had the highest concentration of iron (3,100 µg/L). In all, 5 samples had concentrations of iron that exceeded the SMCL of 300 µg/L (U.S. Environmental Protection Agency, 1992).

Trace Elements

Most trace metals are present in the soil as cations that are strongly adsorbed by oxides and hydroxides (particularly aluminum, iron, and manganese) and complexed by organic ligands at near-neutral pH (Drever, 1982); the dissolved concentrations in natural waters are, therefore, usually low. All of the ground-water samples analyzed had trace metal concentrations that were below the detection limit for the following metals: beryllium, cadmium, cobalt, copper, lead, molybdenum, and vanadium. In addition, the concentrations of the

[1] SMCL, Secondary Maximum Contaminant Level: Contaminants that affect the aesthetic quality of drinking water. At high concentrations or values, health implications, as well as aesthetic degradation, may exist. SMCL's are not Federally enforceable but are intended as guidelines for the States.

following metals were within the range of values commonly found in natural water (Hem, 1985): dissolved barium, lithium, strontium, and zinc. None of the samples exceeded the SMCL for copper of 1,000 µg/L (U.S. Environmental Protection Agency, 1991b).

SUMMARY AND CONCLUSIONS

Stratified-drift aquifers in the Upper Connecticut and Androscoggin River Basins in northern New Hampshire underlie 137 mi^2 or 8.4 percent of the 1,629 mi^2 study area. The aquifers consist of stratified, sorted, principally coarse-grained sediments (sands and gravels) deposited by glacial meltwater at the time of deglaciation. Characteristics of the sediments that affect ground-water storage and flow are related to the original glaciofluvial or glaciolacustrine environment in which they were deposited.

The various types of stratified-drift deposits found in the study area formed during retreat of the glacial-ice front. Deltas and other lake deposits formed in glacial lakes that filled some of the major river valleys in the study area. Eskers, kames, kame terraces, outwash deposits, and alluvial fans formed during deglaciation in the upland valleys, away from the glacial lakes.

Saturated thickness of stratified drift in both the Upper Connecticut and Androscoggin River Basins exceeded 260 ft in parts of the main valley in Groveton and Shelburne, respectively, but is generally less than 100 ft in both basins. Layers of saturated silts and clays that lie above, below, or within the coarse-grained aquifer material are included in the saturated thickness. The most productive aquifer areas are in Stark in the Upper Connecticut River Basin, and in Shelburne in the Androscoggin River Basin. Transmissivities exceeded 4,000 ft^2/d in a 1.60 mi^2 area in Stark and 2.20 mi^2 area in Shelburne.

Hydraulic conductivity of the aquifer material was estimated from field descriptions of the grain-size distributions of aquifer-material samples collected during test drilling, from sieve-analysis data, and from lithologic logs of private test wells and borings.

In 1993, four towns used ground water from stratified-drift aquifers as their drinking water source. In the Upper Connecticut River Basin, the towns of Colebrook and Northumberland withdraw 0.32 and 0.02 Mgal/d and in the Androscoggin River Basin, the towns of Berlin and Gorham withdraw 2.87 and 0.45 Mgal/d. Total ground-water withdrawals from the stratified-drift aquifers in the study area are approximately 3.66 Mgal/d for municipal and community supply.

Stratified-drift aquifers in Colebrook and Shelburne were selected for an analysis of water availability. The Connecticut River aquifer in Colebrook is hydraulically connected to a large river, and water is available for induced infiltration; the Androscoggin River aquifer in Shelburne is also hydraulically connected to a large river, and water is available for induced infiltration. A two-dimensional numerical-flow model was used to simulate the aquifer systems. The results showed that the Connecticut River aquifer may be capable of supplying 1.3 to 3.1 Mgal/d and the Androscoggin River aquifer may be capable of supplying 6.1 to 32.9 Mgal/d, based on only one of many possible withdrawal simulations. In both aquifer simulations the analyses indicate that pumpage can be increased by inducing infiltration from the river and that water availability in these aquifers is limited by available drawdown.

Ground-water quality in water from 23 wells and 3 springs located in stratified drift was generally shown to be suitable for drinking and other domestic uses. Sites of known ground-water contamination were not sampled. Water samples from 2 wells and 1 spring had elevated concentrations of sodium ranging from 23 to 110 mg/L. These elevated concentrations may be a result of the proximity of the wells to roadways where road salt is applied for deicing. Water samples from 5 wells had elevated iron concentrations ranging from 1,100 to 3,100 µg/L. Water samples from 11 wells had manganese concentrations that equalled or exceeded the Secondary Maximum Contamination Level of 50 mg/L. The pH of water from wells in stratified drift was, in general, less than the Secondary Maximum Contamination Level of 6.5 established by the U.S. Environmental Protection Agency.

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GLOSSARY

Aquifer: A geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable materials to yield significant quantities of water to wells and springs. Where water only partly fills an aquifer, the upper surface of the saturated zone is free to rise and decline.

Aquifer boundary: A geologic or hydrologic feature that limits the extent of an aquifer.

Bedrock: Solid rock, locally called "ledge," that forms the earth's crust. It may be exposed at the surface but more commonly is buried beneath a few inches to more than 100 ft of unconsolidated deposits.

Cambrian: The oldest of the periods of the Paleozoic Era; also the system of strata deposited during that period.

Confined aquifer: An aquifer saturated with water and bounded above and below by material having a distinctly lower hydraulic conductivity than the aquifer itself.

Contact: A plane or irregular surface between two different types or ages of rocks or unconsolidated sediments.

Cubic foot per second (ft^3/s): A unit expressing rate of discharge. One cubic foot per second is equal to the discharge of a stream 1 foot wide and 1 foot deep flowing at an average velocity of 1 foot per second.

Deposit: Earth material that has accumulated by natural processes.

Devonian: In the ordinarily accepted classification, the fourth in order of age of the periods composing the Paleozoic Era, following the Silurian and preceding the Mississippian. Also the system of strata deposited at that time.

Dissolved solids: The residue from a clear sample of water after evaporation and drying for 1 hour at 180°C; consists primarily of dissolved mineral constituents, but may also contain organic matter and water of crystallization.

Drainage area: The area or tract of land, measured in a horizontal plane, that gathers water and contributes it ultimately to some point on a stream channel, lake, reservoir, or other water body.

Drawdown: The lowering of the water table or potentiometric surface caused by the withdrawal of water from an aquifer by pumping; equal to the difference between the static water level and the pumping water level.

Effective grain size: The grain size at which 10 percent of the sample consists of smaller grains and 90 percent consists of larger grains.

Esker: A long ridge of sand and gravel that was deposited by water flowing in tunnels within or beneath glacial ice.

Flow duration (of a stream): The percentage of time during which specified daily discharges are equaled or exceeded within a given time period.

Fluvial: Pertaining to the flow of liquid water in the natural environment.

Fluviolacustrine: Pertaining to sedimentation partly in lakes and partly in streams or to sediments deposited under alternating or overlapping lacustrine and fluvial conditions

Formation: The primary unit of formal mapping or description. Most formations possess certain distinctive or combination of distinctive lithic features.

Glacial lake: A lake containing water largely from the melting of glaciers. In this study area, it refers to areas where such lake water was dammed by local topographic or geomorphic features.

Glaciofluvial: Pertaining to the flow of meltwater streams from glacial ice and to the deposits associated with streams, including kames, kame terraces, and outwash.

Glaciolacustrine: Deposits in glacial lakes, especially deposits such as deltas and varved sediments, composed of material deposited by meltwater streams flowing into lakes adjacent to and (or) near the glacier.

Gneiss: A coarse-grained metamorphic rock with alternating bands of granular and micaceous minerals.

Granite: A coarse-grained, light colored, igneous rock.

Gravel: Unconsolidated rock debris composed principally of particles larger than 2 millimeters in diameter.

Ground water: Water in the saturated zone that is under pressure equal to or greater than atmospheric pressure.

Ground-water discharge: The discharge of water from the saturated zone by (1) natural processes such as ground-water seepage into stream channels and ground-water evapotranspiration and (2) discharge through wells and other man-made structures.

Ground-water recharge: Water that is added to the saturated zone of an aquifer.

Ground-Water Site Inventory (GWSI): A computerized file maintained by the U.S. Geological Survey that contains information about wells and springs collected throughout the United States.

Head, static: The height of the surface of a water column above a standard datum that can be supported by the static pressure of a given point.

Hydraulic conductivity (K): A measure of the ability of a porous medium to transmit a fluid that can be expressed in unit length per unit time. A material has a hydraulic conductivity of 1 foot per day if it will transmit in 1 day, 1 cubic foot of water at the prevailing kinematic viscosity through a 1 foot square cross section of aquifer, measured at right angles to the direction of flow, under a hydraulic gradient of 1 foot change in head over 1 foot length of flow path.

Hydraulic gradient: The change in static head per unit of distance in a given direction. If not specified, the direction is generally understood to be that of the maximum rate of decrease in head.

Hydrograph: A graph showing stage (height), flow velocity, or other property of water with respect to time.

Ice-contact deposits: Stratified drift deposited in contact with melting glacial ice. Landforms include eskers, kames, kame terraces, and grounding-line deltas.

Igneous: Descriptive term for rocks or minerals solidified from molten or partially molten material; that is, from a magma, such as basalt or granite.

Induced infiltration: The process by which water infiltrates an aquifer from an adjacent surface-water body in response to ground-water withdrawal from that aquifer.

Jurassic: The middle of three periods composing the Mesozoic Era. Also, the system of strata deposited during that period.

Kame: A ridge, mound, or hummock that may be irregular and is composed of stratified sand and gravel deposited by glacial meltwater; the precise mode of formation is uncertain.

Kame terrace: A ridge consisting of stratified sand and gravel deposited in a glaciofluvial environment between a melting glacier or stagnant ice lobe and a higher valley wall. The deposit has a terrace appearance after the ice has left the area.

Lacustrine: Pertaining to lake environments. In this report, it refers to areas associated with glacial lake environments.

Mean (arithmetic): The sum of the individual values of a set, divided by their total number; also referred to as the "average."

Median: The middle value of a set of measurements that are ordered from lowest to highest; 50 percent of the measurements are lower than the median and 50 percent are higher.

Metamorphic: Descriptive term for rocks such as gneiss and schist that have formed, in the solid state, from other rocks.

Metapelite: Dark-grey, fine-grained shale and slate rocks of sedimentary origin (mudstone parent).

Mica: A mineral group consisting of phyllosilicates with sheet-like structure.

Micrograms per liter (μg/L): A unit expressing the concentration of chemical constituents in solution as the mass (micrograms) of a constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (mg/L): A unit for expressing the concentration of chemical constituents in solution as the mass (milligrams) of a constituent per unit volume (liter) of water.

Morphosequence: A continuum of time-equivalent landforms composed of meltwater deposits from more collapsed forms as a result of melting of ice blocks at the head or upstream parts of outwash to progressively less collapsed forms downstream. A sequence can thus be viewed as a body of stratified drift laid down, layer upon layer, by meltwater at and beyond the margin of a glacier.

Ordovician: The second of seven Paleozoic Periods generally used in North America; also the strata of the system of rocks deposited during that period.

Outwash: 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, usually found in flat or gently sloping outwash plains.

Outwash deltas: Deltas formed beyond the margin of the glacier where glacial meltwater entered a water body.

pH: The negative logarithm of the hydrogen ion concentration. A pH of 7.0 indicates neutrality; values below 7.0 denote acidity, and those above 7.0 denote alkalinity.

Phi grade scale: A logarithmic transformation of the Wentworth grade scale based on the negative logarithm to the base 2 of the particle diameter, in millimeters.

Phyllite: An argillaceous rock intermediate in metamorphic grade between a slate and a schist.

Porosity: The property of a rock or unconsolidated deposit that is a measure of the size and number of internal voids or open spaces; it may be expressed quantitatively as the ratio of the volume of its open spaces to its total volume.

Precipitation: The discharge of water from the atmosphere, either as a liquid or a solid.

Quartzite: A metamorphic rock consisting mainly of quartz and formed by recrystallization of quartz.

Runoff: That part of the precipitation that appears in streams. It is the same as streamflow unaffected by artificial diversions, storage, or other human activities in or on the stream channels.

Saturated thickness (of stratified drift): Thickness of stratified drift extending down from the water table to the till or bedrock surface.

Schist: A metamorphic rock with subparallel orientation of the visible micaceous minerals, which dominate its composition.

Sediment: Fragmental material that originates from weathering of rocks. It can be transported by, suspended in, or deposited by water.

Silurian: The third of seven periods (after the Ordovician and before the Devonian) of the Paleozoic Era; also the system of rocks deposited during that period.

Specific yield: The ratio of the volume of water that a rock or soil will yield, by gravity drainage, after being saturated to the total volume of the rock or soil.

Standard deviation: A measure of the amount of variability within a sample; it is the square root of the average of the squares of the deviations about the arithmetic mean of a set of data.

Storage coefficient: The volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head. In an unconfined aquifer, the storage coefficient is virtually equal to the specific yield.

Stratified drift: Sorted and layered unconsolidated material deposited in meltwater streams flowing from glaciers or settled from suspension in quiet-water bodies fed by meltwater streams.

Surficial geology: The study of or distribution of unconsolidated deposits at or near the land surface.

Syenite: A plutonic igneous rock consisting principally of alkalic feldspar usually with one or more mafic minerals such as hornblende or biotite

Till: A predominantly nonsorted, nonstratified sediment deposited directly by a glacier and composed of boulders, gravel, sand, silt, and clay mixed in various proportions.

Transmissivity: The rate at which water is transmitted through a unit width of aquifer under a unit hydraulic gradient. Equal to the average hydraulic conductivity times the saturated thickness.

Unconfined aquifer (water-table aquifer): An aquifer only partly filled with water. In such aquifers, the water table or upper surface of the saturated zone is at atmospheric pressure and is free to rise and fall.

Unsaturated zone: The zone between the water table and the land surface in which the open spaces are not completely filled with water.

Water availability: An amount of water potentially available for water supply; in this report, it refers to water wells.

Water table: The upper surface of the saturated zone. Water at the water table is at atmospheric pressure.

— PAGE 53 FOLLOWS —

APPENDIX A

- PAGE 55 FOLLOWS -

Appendix A. Description of selected wells, borings, and springs in the upper Connecticut and Androscoggin River Basins, northern New Hampshire

Local well number: First two characters are U.S. Geological Survey town code. Third character indicates type of hole; A, auger hole or test hole bored for hydrologic information; B, highway bridge boring; S, spring; W, well. The numbers are sequential numbers for each town.

Latitude, Longitude: Accurate within 5 seconds. Expressed in the form of degree, minute, and second (° ' ")

Owner or user: AMC, Appalacian Mountain Club; Cong., Congregation; Inc., Incorporated; NHDOT., New Hampshire Department of Transportation; WRD, Water Resources Division; --, no data.

Elevation above sea level: Elevations are expressed in feet above sea level (National Geodetic Vertical Datum of 1929); those in whole feet are interpolated from U.S. Geological Survey topographic maps and are accurate to plus or minus half the contour interval of the map (10 to 20 feet or 3 meters); those in tenths of feet are instrumentally determined.

Diameter of well: Diameter of well is measured in inches.

Depth to bottom of casing: Depth to the bottom of casing, in feet below land surface datum (for wells finished in bedrock, the depth to the bottom of casing can be used to approximate the depth to the bedrock surface).

Casing material: Material codes are the following: G, galvanized iron; S, steel; P, PVC or plastic; I, wrought iron; U, coated steel.

Type of finish: Finish codes are the following: S, screen; X, open hole; H, horizontal gallery; P, perforated or slotted; T, sand point; G, gravel.

Type of site: Site codes are the following: X, test hole; W, well; S, spring;

Water level: In feet below land-surface datum; mm-dd-yy, month-day-year.

Primary use of water: Use of water codes are the following: U, unused; P, Public supply; H, domestic; C, commercial; T, institutional; Z, other.

Discharge: Discharge in gallons per minute (gal/min).

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

[No., number; in., inches; ft., feet;--. no data]

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY		
			Berlin		
BRA 1	443022	0710924	City of Berlin	07-26-88	1,100.0
BRA 2	443048	0710928	City of Berlin	07-25-88	1,100.0
BRA 3	443028	0710925	City of Berlin	07-26-88	1,100.0
BRB 1	442920	0710948	NHDOT	--	1,100.0
BRB 2	442909	0710947	NHDOT	--	1,100.0
BRB 3	442959	0711350	NHDOT	--	1,090.0
BRW 1	443021	0710925	City of Berlin	07-28-81	1,100.0
BRW 3	442956	0710937	City of Berlin	07-09-48	1,090.0
BRW 10	442950	0711313	City of Berlin	08-05-85	1,060.0
BRW 11	442950	0711313	City of Berlin	10-05-85	1060.0
BRW 12	442950	0711313	City of Berlin	08-07-85	1,060.0
BRW 13	442950	0711313	City of Berlin	08-07-85	1,060.0
BRW 14	442950	0711313	City of Berlin	08-07-85	1,060.0
BRW 15	442950	0711313	City of Berlin	08-07-85	1,060.0
BRW 17	442910	0710946	Tremblay, L.	12-05-85	1,100.0
BRW 28	443129	0710950	Farrar, D.	01-25-88	1,120.0
BRW 34	443024	0710925	City of Berlin	07-27-88	1,100.0
BRW 50	442925	0711216	Lessard, P.	02-06-92	1,080.0
BRW 52	443021	0712022	Berlin Fish Hatchery	10-15-64	1,500.0
BRW 53	443019	0712024	Berlin Fish Hatchery	10-15-64	1,500.0
BRW 54	443014	0712025	Berlin Fish Hatchery	10-15-64	1,500.0
BRW 56	443012	0712025	Berlin Fish Hatchery	10-26-64	1,500.0
BRW 57	443014	0712021	Berlin Fish Hatchery	10-28-64	1,500.0
BRW 58	443016	0712024	Berlin Fish Hatchery	11-03-64	1,500.0
BRW 59	443013	0712025	Berlin Fish Hatchery	--	1,500.0
BRW 60	443013	0712025	Berlin Fish Hatchery	01-29-65	1,500.0
BRW 61	443023	0710925	City of Berlin	06-16-81	1,100.0
BRW 62	443025	0710924	City of Berlin	06-17-81	1,100.0
BRW 63	443050	0710931	City of Berlin	07-20-88	1,100.0
BRW 64	443048	0710931	City of Berlin	07-20-88	1,100.0
BRW 65	443027	0710924	City of Berlin	07-27-88	1,100.0
BRW 66	443114	0710908	Milan Road Landfill	05-01-84	1,120.0
BRW 67	443119	0710913	Milan Road Landfill	05-01-84	1,120.0
BRW 68	443115	0710916	Milan Road Landfill	05-01-84	1,120.0
BRW 69	443114	0710916	Milan Road Landfill	05-01-84	1,120.0
BRW 70	443108	0710908	Milan Road Landfill	08-15-89	1,120.0
BRW 71	443108	0710917	Milan Road Landfill	09-13-89	1,120.0
BRW 72	443114	0711354	City of Berlin	06-30-88	1,080.0
			Clarksville		
CSW 3	445958	0712857	Thibeault, Y.	05-24-85	1,100.0
CSW 10	450032	0712709	Turgeon	10-27-86	1,530.0
CSW 13	450021	0712653	Knapp, C.	09-30-87	1,590.0
CSW 15	450022	0712717	Cross, W.	08-27-87	1,520.0
CSW 17	450026	0712716	Riendeau, R.	08-05-87	1,530.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level		Primary use of water	Discharge (gal/min)
						Depth (ft)	Date (mm-dd-yy)		
					COOS COUNTY				
					Berlin				
BRA 1	--	--	--	--	X	--	--	U	--
BRA 2	--	--	--	--	X	--	--	U	--
BRA 3	--	--	--	--	X	--	--	U	--
BRB 1	--	--	--	--	X	--	--	U	--
BRB 2	--	--	--	--	X	--	--	U	--
BRB 3	--	--	--	--	X	--	--	U	--
BRW 1	8	32.0	G	S	W	5.2	07-28-81	P	450.0
BRW 3	--	35.0	--	S	W	3.0	07-09-48	U	700.0
BRW 10	--	39.0	--	S	W	1.9	08-12-85	U	60.0
BRW 11	--	39.0	--	S	W	1.9	08-12-85	U	75.0
BRW 12	--	39.0	--	S	W	2.3	08-09-85	U	50.0
BRW 13	--	39.0	--	S	W	2.4	08-09-85	U	20.0
BRW 14	--	42.0	--	--	W	--	--	U	--
BRW 15	--	39.0	--	S	W	--	--	U	--
BRW 17	--	19.0	--	X	W	--	--	H	7.0
BRW 28	--	19.0	--	X	W	--	--	H	6.0
BRW 34	--	72.0	--	S	W	7.3	07-26-88	U	40.0
BRW 50	--	33.0	--	X	W	--	--	H	3.5
BRW 52	8	41.0	S	S	W	3.1	10-15-64	U	--
BRW 53	8	35.0	S	S	W	10.4	10-15-64	U	--
BRW 54	8	64.0	S	S	W	7.5	10-15-64	U	--
BRW 56	8	74.0	S	S	W	7.9	10-26-64	U	--
BRW 57	8	30.0	S	S	W	10.4	10-28-64	U	--
BRW 58	--	--	--	S	W	--	--	U	--
BRW 59	--	--	--	--	W	--	--	U	--
BRW 60	8	83.0	S	S	W	--	--	U	--
BRW 61	2	5.0	--	S	W	4.3	06-16-81	U	--
BRW 62	2	55.0	--	S	W	5.6	06-17-81	U	--
BRW 63	--	--	--	--	W	--	--	U	--
BRW 64	--	53.0	--	S	W	6.0	07-20-88	U	--
BRW 65	2	60.0	--	S	W	--	--	U	--
BRW 66	--	58.0	--	--	N	32.5	01-18-90	U	--
BRW 67	--	51.0	--	S	N	24.2	01-18-90	U	--
BRW 68	--	--	--	--	W	--	--	U	--
BRW 69	--	--	--	--	W	11.9	01-18-90	U	--
BRW 70	2	104.0	P	S	W	39.0	08-15-89	U	--
BRW 71	2	109.0	--	S	W	26.0	09-13-89	U	--
BRW 72	2.5	64.0	S	--	X	15.9	06-30-88	U	--
					Clarksville				
CSW 3	--	70.0	--	X	W	--	--	H	70.0
CSW 10	--	48.0	--	X	W	--	--	H	6.0
CSW 13	--	46.0	--	X	W	--	--	H	30.0
CSW 15	--	59.0	--	X	W	--	--	H	1.5
CSW 17	--	71.0	--	X	W	--	--	H	4.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY		
			Clarksville—*Continued*		
CSW 29	450011	0712712	Rancourt, A.	05-21-91	1,540.0
CSW 31	450001	0712716	Farnham, C.	09-25-91	1,500.0
CSW 35	450003	0712844	Reindeau, R.	10-03-92	1,100.0
CSW 36	450003	0712835	Therrian, B.	10-02-92	1,140.0
CSW 37	450020	0712721	Conroy, M.	09-25-92	1,500.0
CSW 38	450019	0712715	Rancourt, L.	08-01-92	1,520.0
CSW 39	450015	0712724	Klebe, D.	09-29-92	1,500.0
			Colebrook		
CTA 1	445428	0712857	Davis, R.	08-25-92	1,050.0
CTA 2	445424	0712856	Haynes, B.	08-25-92	1,060.0
CTA 3	445438	0712809	Ledgewater Campground	08-26-92	1,140.0
CTA 4	445435	0712809	McKinnon, K.	--	--
CTB 1	445357	0713029	NHDOT	02-01-48	1,000.0
CTB 2	445338	0712943	NHDOT	09-01-71	1,020.0
CTB 3	445334	0712938	--	--	1,030.0
CTB 4	445453	0712815	NHDOT	--	1,070.0
CTB 6	445215	0712303	NHDOT	--	1,260.0
CTB 7	445503	0712723	NHDOT	--	1,330.0
CTW 1	445344	0712953	Town of Colebrook	01-01-36	1,020.0
CTW 2	445250	0713049	Nugent, P.	06-09-92	1,030.0
CTW 3	445342	0712950	--	--	1,030.0
CTW 4	445305	0713026	Paulin	06-06-84	1,020.0
CTW 6	445344	0712951	Hebert, D Inc.	07-18-84	1,020.0
CTW 7	445343	0712951	Town of Colebrook	07-20-84	1,020.0
CTW 8	445305	0712632	Cong. of Jehovah Witness	10-11-84	1,140.0
CTW 10	445339	0712730	Boire, N.	07-03-85	1,300.0
CTW 11	445251	0713024	Brunault, J.	09-06-85	1,040.0
CTW 12	445258	0712151	LaRose, T.	09-07-85	1,460.0
CTW 13	445437	0712849	Nash, E.	09-02-85	1,170.0
CTW 15	445252	0712226	Mahoney	06-17-86	1,500.0
CTW 19	445257	0712151	Clark, R.	11-05-86	1,440.0
CTW 20	445440	0712845	Riley, D.	10-07-86	1,070.0
CTW 25	445607	0713050	Marceau, E.	10-29-87	1,100.0
CTW 26	445259	0713026	Tase, D.	11-02-87	1,070.0
CTW 27	445311	0712643	Bennett, C.	10-02-87	1,150.0
CTW 29	445436	0712724	Peterson, J.	04-08-88	1,360.0
CTW 30	445239	0712244	Raymond, B.	03-23-88	1,490.0
CTW 31	445225	0712408	Johnston, B.	04-02-88	1,220.0
CTW 32	445408	0712731	Parker, L.	06-21-88	1,400.0
CTW 33	445315	0712708	Crawford, M.	07-29-88	1,120.0
CTW 34	445249	0712228	Mayhew, D.	05-14-88	1,500.0
CTW 35	445310	0712118	James, S.	05-13-88	1,540.0
CTW 36	445235	0712200	Langley, W.	06-29-89	1,380.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level Depth (ft)	Water level Date (mm-dd-yy)	Primary use of water	Discharge (gal/min)
COOS COUNTY									
Clarksville—*Continued*									
CSW 29	--	20.0	--	X	W	20.0	05-26-91	H	30.0
CSW 31	--	114.0	--	X	W	--	--	H	10.0
CSW 35	--	31.0	--	X	W	6.0	10-03-92	C	40.0
CSW 36	--	20.0	--	X	W	--	--	H	30.0
CSW 37	--	74.0	--	X	W	--	--	H	8.0
CSW 38	--	101.0	--	X	W	15.0	08-02-92	C	12.0
CSW 39	--	129.0	--	--	W	40.0	10-02-92	H	10.0
Colebrook									
CTA 1	--	--	--	--	X	--	--	--	--
CTA 2	--	--	--	--	X	--	--	--	--
CTA 3	--	--	--	--	X	--	--	--	--
CTA 4	--	--	--	--	X	--	--	--	--
CTB 1	--	--	--	--	X	7.5	02-01-48	U	--
CTB 2	--	--	--	--	X	--	--	U	--
CTB 3	--	--	--	--	X	--	--	U	--
CTB 4	--	--	--	--	X	9.0	01-31-91	U	--
CTB 6	--	--	--	--	X	10.0	01-31-91	U	--
CTB 7	--	--	--	--	X	--	--	U	--
CTW 1	2	--	I	H	W	--	--	P	--
CTW 2	2	46.0	P	P	W	9.0	06-09-92	U	--
CTW 3	--	--	--	--	W	--	--	P	--
CTW 4	--	110.0	--	X	W	20.0	06-06-84	H	20.0
CTW 6	--	41.0	--	--	W	20.0	07-19-84	--	400.0
CTW 7	--	31.0	--	S	W	20.0	07-20-84	P	800.0
CTW 8	--	32.0	--	X	W	--	--	H	1.2
CTW 10	--	43.0	--	X	W	--	--	H	2.5
CTW 11	--	32.0	--	X	W	--	--	H	4.0
CTW 12	--	71.0	--	X	W	--	--	H	15.0
CTW 13	--	32.0	--	X	W	--	--	--	30.0
CTW 15	--	29.0	--	X	W	--	--	H	8.0
CTW 19	--	65.0	--	X	W	--	--	H	2.0
CTW 20	--	52.0	--	X	W	--	--	H	20.0
CTW 25	--	19.0	--	X	W	--	--	H	30.0
CTW 26	--	19.0	--	X	W	--	--	H	10.0
CTW 27	--	19.0	--	X	W	--	--	H	6.0
CTW 29	--	131.0	--	X	W	--	--	H	4.0
CTW 30	--	71.0	--	X	W	--	--	U	7.0
CTW 31	--	28.0	--	X	W	--	--	H	1.0
CTW 32	--	59.0	--	X	W	--	--	H	30.0
CTW 33	--	39.0	--	X	W	--	--	H	15.0
CTW 34	--	28.0	--	X	W	--	--	H	20.0
CTW 35	--	32.0	--	X	W	--	--	H	10.0
CTW 36	--	19.0	--	X	W	--	--	H	60.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Colebrook—*Continued*		
CTW 38	445303	0713023	Fothergill	06-14-89	1,080.0
CTW 39	445304	0712625	Smith, B.	08-26-89	1,150.0
CTW 40	445240	0712216	Washburn, C.	12-16-88	1,340.0
CTW 41	445227	0712217	Gravel, H.	01-11-89	1,330.0
CTW 42	445228	0712220	Huntington	01-10-89	1,330.0
CTW 45	445235	0712152	Mancini, E.	04-19-89	1,360.0
CTW 47	445218	0712432	Smith, M.	04-21-89	1,240.0
CTW 48	445210	0712443	Mann	09-19-89	1,330.0
CTW 50	445205	0712237	Braswell, B.	12-12-89	1440.0
CTW 52	445256	0713027	Hibbard, E.	04-30-90	1,040.0
CTW 57	445235	0712221	Sullivan, B.	10-18-90	1,310.0
CTW 58	445334	0712128	Watson, E.	08-10-90	1,550.0
CTW 59	445441	0712903	Haynes, R.	08-10-90	1,230.0
CTW 60	445327	0712128	Brooks, H.	10-23-90	1,500.0
CTW 61	445257	0712153	Mott, R.	07-17-91	1,460.0
CTW 62	445244	0712629	Chandler, G.	09-20-91	1,340.0
CTW 67	445434	0712940	Town of Colebrook	09-10-86	1,050.0
CTW 68	445213	0711938	Tillotson Rubber Company	06-08-87	1,670.0
CTW 69	445209	0711945	Tillotson Rubber Company	06-08-87	1,620.0
CTW 70	445211	0711946	Tillotson Rubber Company	06-08-87	1,620.0
CTW 71	445209	0711944	Tillotson Rubber Company	06-08-87	1,630.0
CTW 72	445211	0711947	Tillotson Rubber Company	06-08-87	1,610.0
CTW 73	445334	0712917	Lemieux's Ski-Doo Shop	06-09-92	1,030.0
CTW 74	445213	0711932	Tillotson Rubber Company	05-16-84	1,690.0
			Columbia		
CUA 1	445146	0713234	Grant, G.	06-09-92	1,010.0
CUA 2	444636	0713540	Poulin, A.	06-08-92	970.0
CUB 1	445111	0713308	NHDOT	07-01-75	1,010.0
CUB 2	444902	0713405	NHDOT	04-01-51	1,020.0
CUB 3	444644	0713502	NHDOT	05-01-51	1,035.0
CUB 4	445228	0713106	NHDOT	01-01-54	1,140.0
CUW 1	445148	0713250	White, C.	06-09-92	1,020.0
CUW 2	444921	0713402	Grandmaison, R.	06-05-92	1,010.0
CUW 3	445050	0713318	Routhier, B.	08-24-92	990.0
CUW 4	444935	0713319	Bouthillier	06-12-84	1,080.0
CUW 12	444711	0713430	O'Leary, M.	09-04-86	990.0
CUW 13	444723	0713418	Smith, H.	11-12-86	990.0
CUW 15	444704	0713500	Wiljanen, W.	04-28-87	960.0
CUW 16	444731	0713413	Swift, B.	04-22-87	980.0
CUW 21	444945	0713311	Dagesse, R.	06-01-88	1,030.0
CUW 31	444935	0713248	Locke, D.	07-13-89	1,200.0
CUW 33	444936	0713334	Drew, K.	09-18-89	1,020.0
CUW 34	444707	0713312	Rodimon, W.	10-27-89	1,520.0
CUW 36	445227	0713108	Colley, W.	10-19-89	1,030.0
CUW 37	444644	0713508	Peterson, C.	10-16-89	1,040.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level Depth (ft)	Water level Date (mm-dd-yy)	Primary use of water	Discharge (gal/min)
					COOS COUNTY				
					Colebrook—*Continued*				
CTW 38	--	19.0	--	X	W	180.0	06-14-89	H	3.0
CTW 39	--	19.0	--	X	W	---	--	H	6.0
CTW 40	--	24.0	--	X	W	--	--	H	20.0
CTW 41	--	39.0	--	X	W	--	--	H	2.0
CTW 42	--	56.0	--	X	W	--	--	H	3.0
CTW 45	--	19.0	--	X	W	--	--	H	30.0
CTW 47	--	39.0	--	X	W	--	--	H	10.0
CTW 48	--	49.0	--	X	W	--	--	H	40.0
CTW 50	--	39.0	--	X	W	--	--	H	20.0
CTW 52	--	79.0	--	X	W	--	--	H	7.0
CTW 57	--	19.0	--	X	W	--	--	H	3.0
CTW 58	--	54.0	--	X	W	--	--	H	50.0
CTW 59	--	38.0	--	X	W	--	--	H	6.0
CTW 60	--	65.0	--	X	W	3.0	10-23-90	H	50.0
CTW 61	--	31.0	--	X	W	--	--	H	1.0
CTW 62	--	59.0	--	X	W	--	--	H	20.0
CTW 67	2	98.0	S	S	W	19.4	09-10-86	U	--
CTW 68	1	11.0	P	S	W	.0	06-08-87	U	--
CTW 69	1	19.0	P	S	W	2.0	06-08-87	U	--
CTW 70	1	5.0	P	S	W	7.0	06-08-87	U	--
CTW 71	2	5.0	P	S	W	4.0	06-08-87	U	--
CTW 72	2	42.0	P	S	W	33.0	06-08-87	U	--
CTW 73	2	24.0	P	P	W	6.0	06-09-92	U	--
CTW 74	--	39.0	--	X	W	20.0	05-16-84	H	30.0
					Columbia				
CUA 1	--	--	--	--	X	--	--	--	--
CUA 2	--	--	--	--	X	--	--	--	--
CUB 1	--	--	--	--	X	--	--	U	--
CUB 2	--	--	--	--	X	--	--	U	--
CUB 3	--	--	--	--	X	--	--	U	--
CUB 4	--	--	--	--	X	--	--	U	--
CUW 1	2	63.0	P	P	W	17.0	06-09-92	U	--
CUW 2	2	37.0	P	P	W	27.0	06-05-92	U	--
CUW 3	2	57.0	P	S	W	7.0	08-24-92	U	--
CUW 4	--	147.0	--	X	W	--	--	H	25.0
CUW 12	--	71.0	--	--	W	--	--	H	60.0
CUW 13	--	53.0	--	--	W	--	--	H	60.0
CUW 15	--	54.0	--	--	W	--	--	H	30.0
CUW 16	--	111.0	--	X	W	--	--	H	6.0
CUW 21	--	59.0	--	X	W	--	--	H	75.0
CUW 31	--	43.0	--	X	W	--	--	H	2.0
CUW 33	--	129.0	--	X	W	--	--	H	15.0
CUW 34	--	39.0	--	X	W	--	--	H	12.0
CUW 36	--	119.0	--	X	W	--	--	H	150.0
CUW 37	--	125.0	--	X	W	--	--	H	30.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Columbia—*Continued*		
CUW 45	445238	0713051	Parkhurst, L.	11-08-90	1,030.0
CUW 46	444912	0713351	Grandmaison, R.	05-30-90	1,050.0
CUW 51	444711	0713302	Wiggin, C.	10-02-91	1,620.0
			Dixville		
DHB 1	444957	0711539	NHDOT	09-01-59	1,390.0
DHW 2	445222	0711824	Tillotson Rubber Company	05-14-84	1,940.0
DHW 6	445141	0711930	Wilderness Ski Area	01-20-89	1,800.0
DHW 7	445236	0711804	Balsams Resort	09-22-93	2,200.0
DHW 8	445205	0711939	Tillotson Rubber Company	06-08-87	1,640.0
DHW 9	445205	0711951	Tillotson Rubber Company	06-08-87	1,620.0
DHW 10	445203	0711948	Tillotson Rubber Company	06-08-87	1,580.0
			Dummer		
DMA 1	443834	0711411	NHDOT	05-06-92	1,170.0
DMS 1	443957	0711215	--	--	1,180.0
DMW 1	443959	0711229	NHDOT	05-06-92	1,170.0
DMW 2	443635	0711151	McCullough, P.	03-19-85	1,160.0
DMW 5	443705	0711336	Pontook Hydro Electric	08-15-85	1,140.0
DMW 9	443625	0711249	Croteau, H.	01-12-88	1,140.0
DMW 10	443629	0711222	King, W.	07-16-88	1,115.0
DMW 11	443648	0711907	Wyman, B.	08-22-88	1,120.0
DMW 16	443702	0711906	Monahan, W.	10-07-89	1,120.0
DMW 20	443638	0711311	Doucette, F.	10-19-90	1,140.0
DMW 22	443636	0711854	Camille, M.	08-09-91	1,000.0
DMW 23	443628	0711221	King, W.	07-12-91	1,120.0
DMW 25	443707	0711314	Stiles, D.	05-02-92	1,160.0
			Errol		
ETB 1	444712	0710907	NHDOT	--	1,217.0
ETB 2	444643	0710757	--	01-01-41	1,224.0
ETW 1	444733	0710949	--	10-25-66	1,245.0
ETW 2	444652	0710813	Town of Errol	01-01-55	1,230.0
ETW 3	444650	0710809	Town of Errol	03-01-62	1,230.0
ETW 4	444626	0710745	Town of Errol	01-01-67	1,320.0
ETW 5	444746	0710915	Dupont, R.	10-18-84	1,240.0
ETW 7	444759	0711013	Roy, F.	12-17-84	1,260.0
ETW 8	444801	0710953	Gendron, B.	06-03-86	1,240.0
ETW 9	444751	0711000	Mercier, R.	05-25-86	1,250.0
ETW 10	444626	0710814	Goulet, R.	07-08-86	1,220.0
ETW 11	444805	0711013	Bourassa, R.	11-04-86	1,260.0
ETW 12	444804	0711157	Nadig, R.	10-10-88	1,280.0
ETW 14	444743	0710953	Rousseau, P.	01-03-90	1,240.0
ETW 16	444723	0710921	Maraum, L.	10-03-90	1,240.0
ETW 18	444628	0710819	Arseneau, M.	10-24-91	1,220.0
ETW 19	444752	0711020	Kenney, G.	10-17-92	1,260.0
ETW 20	444717	0710927	Town of Errol	09-24-93	1,235.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level Depth (ft)	Water level Date (mm-dd-yy)	Primary use of water	Discharge (gal/min)
					COOS COUNTY				
					Columbia—*Continued*				
CUW 45	--	159.0	--	--	W	20.0	11-08-90	H	20.0
CUW 46	--	61.0	--	X	W	--	--	H	.2
CUW 51	--	104.0	--	X	W	80.0	10-02-91	H	3.0
					Dixville				
DHB 1	--	--	--	--	X	--	--	U	--
DHW 2	--	--	--	X	W	15.0	05-14-84	H	80.0
DHW 6	--	19.0	--	X	W	--	--	T	45.0
DHW 7	--	53.0	--	X	W	--	--	C	65.0
DHW 8	1	41.0	P	S	W	.0	06-08-87	U	--
DHW 9	2	35.0	P	S	W	36.0	06-08-87	U	--
DHW 10	1	33.0	P	S	W	.0	06-08-87	U	--
					Dummer				
DMA 1	--	--	--	--	X	5.0	05-06-92	--	--
DMS 1	--	--	--	--	S	--	--	P	--
DMW 1	2	17.0	P	S	W	5.0	05-06-92	U	--
DMW 2	--	19.0	--	X	W	--	--	H	20.0
DMW 5	--	59.0	--	X	W	--	--	H	15.0
DMW 9	--	43.0	--	X	W	--	--	H	10.0
DMW 10	--	15.0	--	--	W	--	--	H	--
DMW 11	--	94.0	--	X	W	--	--	H	1.2
DMW 16	--	59.0	--	X	W	--	--	H	30.0
DMW 20	--	175.0	--	X	W	--	--	H	6.0
DMW 22	--	23.0	--	--	W	13.7	08-10-91	H	--
DMW 23	--	69.0	--	X	W	--	--	H	20.0
DMW 25	--	59.0	--	X	W	30.0	05-02-92	H	75.0
					Errol				
ETB 1	--	--	--	--	X	--	--	U	--
ETB 2	--	--	--	--	X	--	--	U	--
ETW 1	1	28.0	U	T	W	12.4	11-29-66	U	--
ETW 2	6.0	54.0	S	--	W	8.0	08-01-55	U	--
ETW 3	6	55.0	S	--	W	--	--	H	--
ETW 4	6	44.0	S	--	W	--	--	H	--
ETW 5	--	48.0	--	X	W	--	--	H	.50
ETW 7	--	105.0	--	X	W	--	--	H	12.0
ETW 8	--	113.0	--	X	W	--	--	H	8.0
ETW 9	--	132.0	--	X	W	--	--	H	.5
ETW 10	--	67.0	--	X	W	--	--	H	5.0
ETW 11	--	106.0	--	X	W	--	--	H	1.7
ETW 12	--	79.0	--	X	W	--	--	H	.2
ETW 14	--	99.0	--	X	W	--	--	H	12.0
ETW 16	--	93.0	--	X	W	--	--	H	1.0
ETW 18	--	99.0	--	X	W	--	--	H	20.0
ETW 19	--	125.0	--	X	W	30.0	10-16-92	H	3.0
ETW 20	--	--	--	--	X	5.0	09-24-93	U	--

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Errol—*Continued*		
ETW 21	444717	0710929	Town of Errol	09-24-93	1,235.0
ETW 22	444717	0710930	Town of Errol	09-24-93	1,235.0
ETW 23	444718	0710932	Town of Errol	09-24-93	1,235.0
ETW 24	444720	0710927	Town of Errol	09-24-93	1,240.0
ETW 25	444719	0710927	--	--	1,240.0
ETW 26	444645	0710759	NHDOT	09-27-93	1,230.0
ETW 27	444645	0710759	NHDOT	09-27-93	1,230.0
ETW 28	444646	0710759	NHDOT	07-29-93	1,230.0
ETW 29	444650	0710808	--	--	1,230.0
ETW 30	444742	0711018	Scenic Airplane Rides Inc.	05-07-92	1,250.0
ETW 50	444723	0710929	--	--	1,250.0
			Gorham		
GOA 1	442350	0711141	Gorham Citgo	06-09-93	810.0
GOA 2	442350	0711141	Gorham Citgo	10-22-93	810.0
GOA 3	442350	0711141	Gorham Citgo	10-22-93	810.0
GOA 4	442350	0711141	Gorham Citgo	10-22-93	810.0
GOB 1	442310	0710959	NHDOT	--	760.0
GOB 2	442400	0711154	NHDOT	--	800.0
GOB 3	442401	0711343	NHDOT	--	930.0
GOB 4	442346	0711141	NHDOT	--	800.0
GOW 1	442342	0711209	Town of Gorham	01-02-73	830.0
GOW 2	442341	0711211	Town of Gorham	10-01-69	835.0
GOW 3	442655	0711116	James River Corporation	06-14-85	900.0
GOW 4	442141	0711057	Poirier, J.	06-16-86	980.0
GOW 5	442143	0711050	Degreenia, R.	06-16-86	960.0
GOW 6	442408	0711447	Albert, R.	06-10-86	1,140.0
GOW 7	442403	0711445	Jordon, B.	06-12-86	1,160.0
GOW 8	442149	0711043	LePera, A.	10-06-86	930.0
GOW 9	442146	0711105	Bernier, D.	12-16-86	960.0
GOW 10	442227	0711027	Boulchis, C.	02-05-87	860.0
GOW 11	442213	0711029	Romano, S.	03-26-87	880.0
GOW 12	442143	0711053	Holt, D.	05-01-87	960.0
GOW 13	442140	0711101	Johnson, W.	05-01-87	980.0
GOW 15	442148	0711102	Tilton, M.	07-31-87	960.0
GOW 17	442406	0711438	Batchelder, C.	09-14-87	1,100.0
GOW 19	442212	0711033	Vosh, E.	10-31-87	880.0
GOW 20	442404	0711445	Goyette, S.	02-19-88	1,150.0
GOW 21	442320	0711034	Brown, C.	03-31-88	800.0
GOW 25	442402	0711447	Joyal, A.	07-11-88	1,180.0
GOW 26	442159	0711033	Godbout, R.	07-01-88	910.0
GOW 27	442204	0711033	Etter, G.	04-22-88	900.0
GOW 29	442553	0711145	Gill, J.	07-26-89	900.0
GOW 31	442231	0711024	Peabody, A.	03-15-88	850.0
GOW 32	442410	0711409	Riendeau, D.	10-26-90	1,040.0
GOW 33	442405	0711450	St Hilaire, R.	10-30-90	1,160.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level Depth (ft)	Water level Date (mm-dd-yy)	Primary use of water	Discharge (gal/min)
					COOS COUNTY				
					Errol—*Continued*				
ETW 21	--	--	--	--	X	14.0	09-24-93	U	--
ETW 22	--	--	--	--	X	5.0	09-24-93	U	--
ETW 23	--	--	--	--	X	6.0	09-24-93	U	--
ETW 24	--	--	--	--	X	10.0	09-24-93	U	--
ETW 25	--	--	--	--	X	--	--	U	--
ETW 26	--	--	--	S	W	7.7	09-27-93	U	--
ETW 27	2	5.0	P	P	W	7.7	09-27-93	U	--
ETW 28	2	5.0	P	P	W	7.8	07-29-93	U	--
ETW 29	--	--	--	--	W	--	--	U	--
ETW 30	2	8.0	P	S	W	5.0	05-07-92	U	--
ETW 50	--	--	--	--	W	--	--	U	--
					Gorham				
GOA 1	--	--	--	--	X	--	--	U	--
GOA 2	--	--	--	--	X	18.0	10-22-93	U	--
GOA 3	--	--	--	--	X	18.0	10-22-93	U	--
GOA 4	--	--	--	--	X	20.0	10-22-93	U	--
GOB 1	--	--	--	--	X	--	--	U	--
GOB 2	--	--	--	--	X	--	--	U	--
GOB 3	--	--	--	--	X	--	--	U	--
GOB 4	--	--	--	--	X	--	--	U	--
GOW 1	10	39.0	S	S	W	11.0	01-02-73	P	420.0
GOW 2	8	70.0	S	--	W	--	--	P	--
GOW 3	--	26.0	--	X	W	--	--	--	--
GOW 4	--	35.0	--	X	W	--	--	H	2.0
GOW 5	--	39.0	--	X	W	--	--	H	10.0
GOW 6	--	19.0	--	X	W	--	--	H	7.0
GOW 7	--	29.0	--	X	W	--	--	H	.5
GOW 8	--	29.0	--	--	W	--	--	H	20.0
GOW 9	--	34.0	--	--	W	--	--	H	30.0
GOW 10	--	71.0	--	X	W	--	--	H	9.0
GOW 11	--	72.0	--	--	W	--	--	H	30.0
GOW 12	--	39.0	--	X	W	--	--	H	5.0
GOW 13	--	59.0	--	X	W	--	--	H	60.0
GOW 15	--	39.0	--	X	W	--	--	H	4.0
GOW 17	--	31.0	--	X	W	--	--	H	25.0
GOW 19	--	119.0	--	X	W	--	--	H	2.00
GOW 20	--	19.0	--	X	W	15.0	02-19-88	H	6.0
GOW 21	--	36.0	--	G	W	14.5	03-31-88	--	18.0
GOW 25	--	59.0	--	X	W	--	--	H	2.0
GOW 26	--	109.0	--	X	W	--	--	H	15.0
GOW 27	--	84.0	--	X	W	--	--	H	20.0
GOW 29	--	39.0	--	X	W	--	--	H	2.0
GOW 31	--	79.0	--	X	W	--	--	H	8.0
GOW 32	--	101.0	--	X	W	--	--	H	7.0
GOW 33	--	39.0	--	X	W	--	--	H	3.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Gorham—*Continued*		
GOW 34	442628	0711122	James River Corporation	05-31-90	860.0
GOW 36	442342	0711157	Libby	08-28-74	810.0
GOW 37	442342	0711201	Libby	09-11-74	820.0
GOW 38	442339	0711151	Libby	09-05-74	810.0
GOW 39	442343	0711206	Libby	09-16-74	830.0
GOW 40	442345	0711211	Libby	10-01-74	830.0
GOW 41	442357	0711211	Pike Industries	02-14-92	850.0
GOW 42	442357	0711210	Pike Industries	02-14-92	850.0
GOW 43	442350	0711141	Gorham Citgo	06-09-93	810.0
GOW 44	442350	0711141	Gorham Citgo	06-09-93	810.0
GOW 45	442350	0711141	Gorham Citgo	06-09-93	810.0
GOW 46	442350	0711141	Gorham Citgo	06-09-93	810.0
GOW 47	442350	0711141	Gorham Citgo	06-09-93	810.0
GOW 48	442350	0711141	Gorham Citgo	06-09-93	810.0
GOW 49	442320	0711034	Big Apple Gas	08-18-87	800.0
GOW 50	442320	0711034	Big Apple Gas	08-18-87	800.0
GOW 51	442320	0711034	Big Apple Gas	08-18-87	800.0
GOW 52	442320	0711034	Big Apple Gas	08-18-87	800.0
GOW 53	442320	0711034	--	08-18-87	800.0
GOW 54	442320	0711034	Big Apple Gas	08-18-87	800.0
GOW 55	442144	0711047	Fiske, S.	03-21-85	960.0
			Green's Grant		
GUB 1	441807	0711318	NHDOT	01-01-51	1,473.0
			Jefferson		
JEA 1	442553	0713143	--	06-03-92	1,030.0
JEB 1	442221	0712830	NHDOT	05-01-50	1,075.0
JEB 2	442225	0712620	NHDOT	01-01-54	1,132.0
JEB 4	442640	0713144	NHDOT	09-01-72	1,006.0
JEB 5	442312	0712848	NHDOT	08-01-72	1,059.0
JEW 8	442312	0712845	Davis, D.	08-28-92	1,080.0
JEW 11	442200	0712821	Kenison, P.	09-04-84	1,161.0
JEW 12	442158	0712823	Kenison, R.	09-05-84	1,161.0
JEW 13	442045	0713107	Lemieux Construction	11-08-85	1,595.0
JEW 14	442203	0712827	Smith, P.	09-11-84	1,142.0
JEW 16	442639	0713135	Heath, J.	04-18-85	1,053.0
JEW 21	442143	0712403	Owens, H.	10-04-86	1,329.0
JEW 23	442636	0713202	Grimard, R.	08-27-86	1,083.0
JEW 32	442149	0712816	Cain, C.	07-10-87	1,181.0
JEW 34	442148	0712815	Cain, C.	08-27-87	1,181.0
JEW 40	442649	0713126	Dubois, M.	07-12-88	1,034.0
JEW 44	442238	0712609	Chancey, R.	06-09-88	1,201.0
JEW 47	442223	0712657	Gianlorengo, K.	01-17-89	1,161.0
JEW 48	442520	0713122	Morrisette, M.	11-23-88	1,043.0
JEW 49	442650	0713110	Cameron, D.	09-21-89	1,034.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level		Primary use of water	Discharge (gal/min)
						Depth (ft)	Date (mm-dd-yy)		
				COOS COUNTY					
				Gorham—*Continued*					
GOW 34	--	--	--	G	W	--	--	U	--
GOW 36	8	63.0	S	S	W	5.0	08-28-74	U	--
GOW 37	1	65.0	P	S	W	5.0	09-11-74	U	--
GOW 38	1	45.0	P	S	W	8.0	09-05-74	U	--
GOW 39	1	52.0	P	S	W	10.1	09-16-74	U	--
GOW 40	1	56.0	P	S	W	9.1	10-01-74	U	--
GOW 41	2	15.0	P	S	W	11.0	02-14-92	U	--
GOW 42	2	10.0	P	S	W	10.0	02-14-92	U	--
GOW 43	2	15.0	P	S	W	18.9	06-09-93	U	--
GOW 44	2	15.0	P	S	W	18.8	06-09-93	U	--
GOW 45	2	15.0	P	S	W	20.0	06-09-93	U	--
GOW 46	2	15.0	P	S	W	18.0	06-09-93	U	--
GOW 47	2	15.0	P	S	W	18.0	06-09-93	U	--
GOW 48	2	15.0	P	S	W	18.0	06-09-93	U	--
GOW 49	2	10.0	P	S	W	15.8	08-18-87	U	--
GOW 50	2	11.0	P	S	W	15.5	08-18-87	U	--
GOW 51	2	10.0	P	S	W	15.0	08-18-87	U	--
GOW 52	2	8.0	P	S	W	15.0	08-18-87	U	--
GOW 53	2	8.0	P	S	W	15.0	08-18-87	U	--
GOW 54	2	1.0	P	S	W	14.5	08-18-87	U	--
GOW 55	--	19.0	--	X	W	5.0	03-21-85	H	50.0
				Greens Grant					
GUB 1	--	--	--	--	X	--	--	U	--
				Jefferson					
JEA 1	--	--	--	--	X	--	--	--	--
JEB 1	--	--	--	--	X	--	--	U	--
JEB 2	--	--	--	--	X	--	--	--	--
JEB 4	--	--	--	--	X	--	--	--	--
JEB 5	--	--	--	--	X	--	--	U	--
JEW 8	2	13.0	P	S	W	10.0	08-28-92	U	--
JEW 11	--	36.0	--	X	W	16.0	09-14-84	H	1.7
JEW 12	--	39.0	--	X	W	16.0	09-14-84	H	25.0
JEW 13	--	47.0	--	X	W	10.0	11-08-85	H	25.0
JEW 14	--	19.0	--	X	W	16.0	09-10-84	H	1.2
JEW 16	--	79.0	--	X	W	--	--	H	10.0
JEW 21	--	69.0	--	X	W	30.0	10-04-86	H	2.0
JEW 23	--	19.0	--	X	W	--	--	H	.5
JEW 32	--	19.0	--	X	W	--	--	H	8.0
JEW 34	--	39.0	--	X	W	--	--	H	.5
JEW 40	--	100.0	--	X	W	--	--	H	4.0
JEW 44	--	35.0	--	X	W	--	--	H	2.5
JEW 47	--	46.0	--	X	W	--	--	H	15.0
JEW 48	--	40.0	--	X	W	--	--	H	5.0
JEW 49	--	49.0	--	X	W	--	--	H	6.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Jefferson—*Continued*		
JEW 50	442335	0712915	Hall, S.	10-27-89	1,073.0
JEW 52	442225	0712730	Ashby	09-22-89	1,122.0
JEW 53	442633	0713207	McGee, T.	12-11-89	1,102.0
JEW 55	442159	0712744	Ingerson, C.	04-14-90	1,181.0
JEW 56	442644	0713128	Stanley, E.	03-28-90	1,053.0
JEW 60	442243	0712824	Pass, L.	07-24-90	1,109.0
JEW 62	442159	0712742	Ingerson, L.	10-13-90	1,181.0
JEW 63	442130	0712823	Caproni, R.	10-23-90	1,260.0
JEW 65	442219	0712726	Kennison, M.	04-23-91	1,142.0
JEW 73	442251	0712549	Milligan, C.	10-04-91	1,280.0
			Lancaster		
LCA 1	443117	0713454	--	10-30-92	860.0
LCB 3	442916	0713413	--	02-01-91	860.0
LCB 5	442950	0712938	--	02-01-91	1,050.0
LCB 7	442936	0713112	--	02-01-91	970.0
LCW 12	442831	0713648	Allin, F.	08-17-84	866.0
LCW 15	443110	0713406	Altherr, E.	06-10-85	920.0
LCW 18	442759	0713237	Choquette, R.	07-25-85	1,073.0
LCW 19	442759	0713236	Choquette, R.	07-25-85	1,073.0
LCW 34	443145	0713424	Hall, T.	04-30-87	870.0
LCW 35	443146	0713425	Hall, T.	07-16-87	870.0
LCW 41	442700	0713528	Tiery, J.	11-09-87	1,280.0
LCW 43	443128	0713427	Sarage, F.	11-25-87	860.0
LCW 49	442551	0713652	Whittum, G.	05-26-88	1,216.0
LCW 53	443126	0713427	Swenson, B.	12-05-88	860.0
LCW 59	443041	0713320	Josselyn, K.	08-31-89	980.0
LCW 63	442934	0713110	Forbes, A.	06-12-92	970.0
LCW 64	442835	0713216	Forbes, A.	06-11-92	925.0
LCW 65	442946	0713434	Lancaster Exxon	10-27-86	837.0
			Martins Location		
MFB 1	442210	0711244	NHDOT	--	1,160.0
MFW 35	441941	0711317	--	--	--
MFW 36	441928	0711309	Dolly Copp Campground	--	1,240.0
			Milan		
MNA 1	443544	0711059	Edmund, D.	05-06-92	1,120.0
MNA 2	443542	0711055	Edmund, D.	05-06-92	1,140.0
MNB 1	443541	0711807	NHDOT	--	975.0
MNB 3	443248	0710947	NHDOT	--	1,130.0
MNB 4	443522	0711112	NHDOT	--	1,110.0
MNB 5	443426	0711055	--	--	1,100.0
MNS 1	443540	0711744	--	--	900.0
MNS 2	443522	0711056	--	--	1,130.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level Depth (ft)	Water level Date (mm-dd-yy)	Primary use of water	Discharge (gal/min)
					COOS COUNTY				
					Jefferson—*Continued*				
JEW 50	--	20.0	--	X	W	--	--	H	22.0
JEW 52	--	49.0	--	X	W	--	--	H	2.0
JEW 53	--	39.0	--	X	W	--	--	H	3.0
JEW 55	--	39.0	--	X	W	--	--	H	2.0
JEW 56	--	61.0	--	X	W	--	--	H	6.0
JEW 60	--	72.0	--	X	W	--	--	H	9.0
JEW 62	--	60.0	--	X	W	--	--	H	1.5
JEW 63	--	67.0	--	X	W	--	--	H	1.5
JEW 65	--	45.0	--	X	W	--	--	H	2.5
JEW 73	--	51.0	--	X	W	--	--	H	3.0
					Lancaster				
LCA 1	--	--	--	--	X	--	--	-	--
LCB 3	--	--	--	--	X	--	--	-	--
LCB 5	--	--	--	--	X	--	--	-	--
LCB 7	--	--	--	--	X	--	--	-	--
LCW 12	--	33.0	--	X	W	--	--	H	10.0
LCW 15	--	19.0	--	X	W	9.0	06-15-85	H	.5
LCW 18	--	39.0	--	--	W	--	--	H	12.0
LCW 19	--	39.0	--	--	W	--	--	H	20.0
LCW 34	--	15.0	--	--	W	--	--	C	--
LCW 35	--	39.0	--	X	W	--	--	H	20.0
LCW 41	--	20.0	--	X	W	--	--	H	10.0
LCW 43	--	95.0	--	X	W	--	--	H	20.0
LCW 49	--	19.0	--	X	W	--	--	H	1.0
LCW 53	--	81.0	--	X	W	--	--	H	30.0
LCW 59	--	20.0	--	X	W	--	--	H	1.0
LCW 63	2	6.0	P	P	W	4.0	06-12-92	U	--
LCW 64	2	28.0	P	S	W	5.0	06-11-92	U	--
LCW 65	2	14.5	P	S	W	7.1	10-27-86	U	--
					Martins Location				
MFB 1	--	--	--	--	X	--	--	U	--
MFW 35	--	--	--	--	W	--	--	P	--
MFW 36	--	--	--	--	W	--	--	P	--
					Milan				
MNA 1	--	--	--	--	X	--	--	-	--
MNA 2	--	--	--	--	X	--	--	U	--
MNB 1	--	--	--	--	X	--	--	U	--
MNB 3	--	--	--	--	X	--	--	U	--
MNB 4	--	--	--	--	X	5.5	06-01-91	U	--
MNB 5	--	--	--	--	X	--	--	U	--
MNS 1	--	--	--	--	S	--	--	H	--
MNS 2	--	--	--	--	S	--	--	H	--

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Milan—*Continued*		
MNW 2	443203	0711430	James River Corporation	05-04-92	1,080.0
MNW 3	443519	0711106	Riley, D.	07-28-92	1,110.0
MNW 4	443225	0711012	James River Corporation	07-28-92	1,110.0
MNW 5	443532	0711755	Emery, W.	05-05-92	990.0
MNW 8	443348	0711031	LeBlanc, R.	08-06-84	1,120.0
MNW 9	443240	0710936	Croteau, D.	08-09-84	1,170.0
MNW 14	443502	0711758	Richards, M.	10-04-84	1,140.0
MNW 15	443506	0711829	Paradise, R.	10-25-84	1,000.0
MNW 16	443424	0711128	Laflamme, G.	05-08-85	1,190.0
MNW 17	443518	0711105	Riley, D.	07-05-85	1,120.0
MNW 21	443256	0711000	Doucette, R.	11-30-84	1,140.0
MNW 22	443230	0710926	Testa	12-01-84	1,210.0
MNW 23	443451	0711817	Moulton, R.	01-07-85	1,000.0
MNW 26	443602	0711222	Laflamme, R.	10-15-85	1,140.0
MNW 27	443414	0711100	Hawkins, S.	11-27-85	1,120.0
MNW 28	443336	0711047	Bouchard, O.	10-20-85	1,130.0
MNW 29	443424	0711123	Gagne, N.	10-31-85	1,170.0
MNW 30	443232	0710928	Balser, R.	07-03-86	1,200.0
MNW 32	443306	0711042	Dion, E.	08-06-86	1,120.0
MNW 33	443216	0711025	Boucher, M.	10-17-86	1,160.0
MNW 34	443543	0711705	Yacek, W.	10-06-86	1,100.0
MNW 35	443235	0710932	Besson, J.	09-11-86	1,190.0
MNW 39	443340	0711012	Pelletier, P.	04-24-87	1,140.0
MNW 40	443253	0711032	Halle, R.	04-21-87	1,140.0
MNW 41	443600	0711215	Gauthier, W.	06-19-87	1,120.0
MNW 43	443308	0711043	Martel, L.	08-21-87	1,110.0
MNW 48	443548	0711143	Young, R.	09-16-87	1,110.0
MNW 54	443323	0711053	Galuszka, J.	07-02-88	1,130.0
MNW 56	443246	0711032	Theriault, D.	05-02-88	1,130.0
MNW 59	443310	0711004	LaPearle, L.	07-19-88	1,140.0
MNW 63	443524	0711126	Daniels, C.	10-20-88	1,130.0
MNW 66	443355	0711054	Goupil, R.	12-23-88	1,120.0
MNW 67	443604	0711224	Sprott, K.	12-07-88	1,130.0
MNW 68	443244	0711031	Chaisson, L.	12-15-88	1,120.0
MNW 69	443423	0711120	Corkum, J.	03-09-89	1,160.0
MNW 71	443331	0711027	Girard, R.	04-26-89	1,120.0
MNW 74	443547	0711206	Young, D.	09-18-89	1,200.0
MNW 75	443522	0711836	Gagnon, S.	09-21-89	1,000.0
MNW 76	443302	0711000	Doucette, H.	10-17-89	1,140.0
MNW 79	443242	0710938	Manguy, J.	12-08-89	1,160.0
MNW 82	443558	0711817	Bailey, F.	07-06-90	1,000.0
MNW 84	443211	0710859	Ayotte, P.	11-20-90	1,290.0
MNW 88	443234	0710926	Hebert, L.	08-03-91	1,170.0
MNW 92	443524	0711847	Lang, P.E.	09-12-91	988.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level		Primary use of water	Discharge (gal/min)
						Depth (ft)	Date (mm-dd-yy)		
				COOS COUNTY					
				Milan—*Continued*					
MNW 2	2	17.0	P	P	W	2.0	05-04-92	U	--
MNW 3	2	35.0	P	P	W	28.0	09-28-92	U	--
MNW 4	2	38.0	P	P	W	10.0	07-28-92	U	--
MNW 5	--	--	--	S	W	14.0	05-05-92	-	--
MNW 8	--	139.0	--	X	W	--	--	H	2.5
MNW 9	--	104.0	--	X	W	--	--	H	80.0
MNW 14	--	19.0	--	X	W	--	--	H	8.0
MNW 15	--	19.0	--	X	W	--	--	H	30.0
MNW 16	--	19.0	--	X	W	--	--	H	3.0
MNW 17	--	--	--	X	W	--	--	H	15.0
MNW 21	--	51.0	--	X	W	--	--	H	10.0
MNW 22	--	119.0	--	X	W	--	--	H	12.0
MNW 23	--	67.0	--	X	W	--	--	H	20.0
MNW 26	--	59.0	--	X	W	--	--	H	5.0
MNW 27	--	79.0	--	X	W	--	--	H	3.0
MNW 28	--	57.0	--	X	W	--	--	H	15.0
MNW 29	--	--	--	X	W	3.0	11-15-85	H	8.0
MNW 30	--	135.0	--	X	W	--	--	H	20.0
MNW 32	--	44.0	--	X	W	--	--	H	30.0
MNW 33	--	31.0	--	X	W	--	--	H	.5
MNW 34	--	99.0	--	X	W	--	--	H	10.0
MNW 35	--	139.0	--	X	W	--	--	H	.5
MNW 39	--	52.0	--	X	W	--	--	H	6.0
MNW 40	--	110	--	X	W	--	--	H	20.0
MNW 41	--	59.0	--	X	W	--	--	H	10.0
MNW 43	--	53.0	--	X	W	--	--	H	9.0
MNW 48	--	99.0	--	X	W	--	--	H	6.0
MNW 54	--	15.0	--	--	W	5.5	07-06-88	H	--
MNW 56	--	99.0	--	X	W	--	--	H	1.0
MNW 59	--	59.0	--	X	W	--	--	H	60.0
MNW 63	--	94.0	--	X	W	20.0	10-20-88	H	100.0
MNW 66	--	116.0	--	X	W	--	--	H	4.0
MNW 67	--	64.0	--	X	W	--	--	H	5.0
MNW 68	--	74.0	--	X	W	--	--	H	1.2
MNW 69	--	49.0	--	X	W	--	--	H	2.5
MNW 71	--	159.0	--	X	W	--	--	H	18.0
MNW 74	--	15.0	--	--	W	3.0	09-23-89	H	--
MNW 75	--	18.0	--	--	W	--	--	H	--
MNW 76	--	15.0	--	--	W	6.0	10-31-89	H	--
MNW 79	--	109.0	--	X	W	--	--	H	15.0
MNW 82	--	36.0	--	X	W	--	--	H	3.0
MNW 84	--	19.0	--	--	W	8.0	11-25-90	H	--
MNW 88	--	19.0	--	--	W	6.0	08-10-91	H	--
MNW 92	2	21.0	P	S	W	1.0	10-03-91	U	--

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Millsfield		
MSB 1	444855	0711452	NHDOT	--	1,352.0
MSW 1	444853	0711450	Cote, G.	04-18-89	1,350.0
MSW 2	444824	0711400	Sweatt, H.	10-12-84	1,320.0
			Northumberland		
NUA 1	443612	0713227	Elderwood, E.	08-27-92	870.0
NUA 2	443650	0712929	Petryk, G.	08-27-92	900.0
NUA 3	443534	0713244	Town of Groveton	06-25-87	860.0
NUA 4	443700	0713234	Town of Groveton	06-24-87	910.0
NUA 5	443701	0713232	Town of Groveton	06-24-87	910.0
NUA 6	443708	0713235	Town of Groveton	06-24-87	890.0
NUB 1	443658	0713216	NHDOT	06-01-58	914.0
NUB 2	443540	0713044	NHDOT	02-01-39	859.0
NUB 3	443623	0713025	NHDOT	04-01-37	889.0
NUB 4	443545	0713031	NHDOT	--	871.0
NUB 5	443350	0713332	NHDOT	--	858.0
NUW 1	443645	0713250	Gray, G.	09-09-91	890.0
NUW 2	443645	0713300	Gray, G.	10-22-91	870.0
NUW 3	443321	0713509	Fogg, A.	10-23-91	850.0
NUW 4	443637	0712852	Diamond International	05-19-86	920.0
NUW 5	443255	0713427	Allin, M.	02-27-87	880.0
NUW 10	443743	0713225	McMann, C.	12-06-88	910.0
NUW 15	443641	0712909	Burt, R.	03-16-90	910.0
NUW 16	443216	0713407	May, R.	10-18-89	880.0
NUW 17	443742	0713225	McMann, C.	09-13-90	910.0
NUW 18	443526	0713121	James River Corporation	06-06-90	860.0
NUW 19	443651	0713011	Petryck, G.	06-26-91	900.0
NUW 21	443802	0713235	Cloutier, M.	10-08-84	920.0
NUW 23	443612	0713211	Town of Groveton	06-15-87	870.0
NUW 24	443614	0713208	Town of Groveton	06-15-87	870.0
NUW 25	443611	0713208	Town of Groveton	06-15-87	860.0
NUW 26	443537	0713042	P & L Mini-Mart	08-16-90	880.0
NUW 27	443537	0713042	P & L Mini-Mart	08-16-90	880.0
NUW 28	443537	0713042	P & L Mini-Mart	08-16-90	880.0
NUW 29	443546	0713241	Town of Groveton	06-13-79	860.0
NUW 30	443542	0713241	--	06-30-87	860.0
NUW 31	443539	0713241	--	06-14-88	860.0
NUW 32	443537	0713241	Town of Groveton	06-18-87	860.0
NUW 33	443538	0713229	Town of Groveton	12-14-87	860.0
NUW 34	443539	0713229	Town of Groveton	06-14-88	860.0
NUW 35	443542	0713214	Town of Groveton	06-17-88	860.0
NUW 36	443537	0713213	Town of Groveton	06-20-88	860.0
NUW 37	443537	0713213	Town of Groveton	06-20-88	860.0
NUW 38	443652	0713248	Town of Northumberland	11-03-93	865.0
NUW 39	443657	0713248	Town of Northumberland	10-14-93	860.0
NUW 40	443649	0713251	Town of Groveton	10-14-93	880.0
NUW 41	443648	0713254	Town of Groveton	11-03-93	880.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level		Primary use of water	Discharge (gal/min)
						Depth (ft)	Date (mm-dd-yy)		
					COOS COUNTY				
					Millsfield				
MSB 1	--	--	--	--	X	--	--	U	--
MSW 1	--	59.0	--	--	W	--	--	H	15.0
MSW 2	--	39.0	--	X	W	--	--	H	100.0
					Northumberland				
NUA 1	--	--	--	--	X	5.0	08-27-92	--	--
NUA 2	--	--	--	--	X	6.0	08-27-92	--	--
NUA 3	--	--	--	--	X	--	--	U	--
NUA 4	--	--	--	--	X	--	--	U	--
NUA 5	--	--	--	--	X	--	--	U	--
NUA 6	--	--	--	--	X	--	--	U	--
NUB 1	--	--	--	--	X	--	--	U	--
NUB 2	--	--	--	--	X	--	--	U	--
NUB 3	--	--	--	--	X	--	--	U	--
NUB 4	--	--	--	--	X	6.0	01-31-91	U	--
NUB 5	--	--	--	--	X	13.0	01-31-91	U	--
NUW 1	2	82.0	P	P	W	26.0	09-09-91	U	--
NUW 2	2	92.0	P	S	W	9.6	11-06-91	U	--
NUW 3	--	--	--	S	W	4.0	10-23-91	U	--
NUW 4	--	179.0	--	X	W	60.0	05-20-86	--	8.5
NUW 5	--	159.0	--	X	W	--	--	H	50.0
NUW 10	--	35.0	--	X	W	--	--	H	4.0
NUW 15	--	135.0	--	X	W	6.0	03-16-90	H	40.0
NUW 16	--	67.0	--	X	W	--	--	H	30.0
NUW 17	--	45.0	--	X	W	--	--	H	30.0
NUW 18	--	--	--	S	W	--	--	U	--
NUW 19	--	59.0	--	X	W	--	--	H	1.5
NUW 21	--	84.0	--	X	W	--	--	H	25.0
NUW 23	2	11.0	P	S	W	10.5	06-15-87	U	--
NUW 24	2	9.0	P	S	W	6.0	06-15-87	U	--
NUW 25	2	20.0	P	S	W	16.5	06-15-87	U	--
NUW 26	2	5.0	P	S	W	6.1	08-17-90	U	--
NUW 27	2	5.0	P	S	W	12.4	08-16-90	U	--
NUW 28	2	6.0	P	S	W	10.2	08-16-90	U	--
NUW 29	2	107.0	S	S	W	8.0	06-13-79	U	--
NUW 30	2	123.0	S	S	W	8.0	06-30-87	U	--
NUW 31	2	121.0	S	S	W	11.2	06-14-88	U	--
NUW 32	2	108.0	S	S	W	7.0	06-22-87	U	--
NUW 33	--	--	--	S	W	8.9	12-14-87	U	--
NUW 34	2	121.0	S	S	W	8.4	06-14-88	U	--
NUW 35	2	86.0	S	S	W	7.0	06-17-88	U	--
NUW 36	2	98.0	S	S	W	6.1	06-20-88	U	--
NUW 37	2	112.0	S	S	W	12.0	06-20-88	U	--
NUW 38	18.0	71.0	S	S	X	28.9	11-03-93	--	--
NUW 39	18.0	53.0	S	S	W	26.2	10-14-93	U	--
NUW 40	8	53.0	S	S	W	26.2	10-14-93	P	280.0
NUW 41	18	70.0	S	S	W	28.9	11-03-93	P	602.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Pinkhams Grant		
PEB 4	441546	0711434	NHDOT	01-01-60	1,946.0
			Pittsburg		
PGB 1	450250	0712631	NHDOT	07-01-75	1,170.0
PGB 2	450249	0712634	NHDOT	07-01-75	1,170.0
PGB 4	451029	0711115	NHDOT	--	1,890.0
PGW 1	450533	0712052	Hersom	07-03-84	1,650.0
PGW 3	450622	0711903	Cote, E.	12-06-86	1,600.0
PGW 9	450442	0712113	Church, D.	06-17-85	1,590.0
PGW 12	450513	0711908	Bagley, K.	05-16-85	1,550.0
PGW 13	450518	0712119	Johnson, J.	05-14-85	1,620.0
PGW 14	450442	0712115	Novicki, C.	05-20-85	1,590.0
PGW 15	450515	0712118	Moissan, E.	05-22-85	1,600.0
PGW 18	450621	0711901	Weatherbee, W.	05-29-85	1,600.0
PGW 28	450229	0712636	Gray, A.	08-26-85	1,170.0
PGW 31	450402	0712038	Clermont, R.	05-07-86	1,620.0
PGW 32	450500	0711849	Roy, K.	05-08-86	1,540.0
PGW 34	450542	0712104	Hann, D.	05-12-86	1,710.0
PGW 36	450247	0712642	Lepton, M.	05-14-86	1,180.0
PGW 38	450537	0711907	Bonenfant	05-19-86	1,670.0
PGW 39	450430	0712056	Breeyear, G.	05-20-86	1,590.0
PGW 44	450452	0712048	Maccini, J.	08-03-86	1,580.0
PGW 51	450538	0711910	Daniels	11-03-86	1,550.0
PGW 54	450457	0712110	Johnson, T.	11-11-86	1,580.0
PGW 55	450601	0711904	Kinson, R.	04-29-87	1,560.0
PGW 57	450544	0711902	Edmond	05-07-87	1,580.0
PGW 58	450547	0711904	Dorman, T.	05-08-87	1,560.0
PGW 59	450533	0711908	Page, J.	05-08-87	1,560.0
PGW 62	450541	0712119	Wall, R.	05-15-87	1,750.0
PGW 64	450522	0712058	Shaw	05-19-87	1,670.0
PGW 65	450340	0712043	Guyer, A.	05-20-87	1,560.0
PGW 70	450622	0711904	Bongiovoni	06-09-87	1,600.0
PGW 71	450623	0711901	Ainsworth, W.	06-05-87	1,600.0
PGW 79	450327	0712030	Grant, S.	10-07-87	1,550.0
PGW 80	450910	0711043	Zamulko	10-14-87	1,900.0
PGW 83	450427	0712024	Gillery, T.	10-21-87	1,590.0
PGW 84	450453	0712045	Robbins, C.	10-26-87	1,580.0
PGW 87	450509	0711906	Rodrique, H.	01-11-88	1,530.0
PGW 88	450306	0712533	McQueeney, F.	06-20-88	1,230.0
PGW 92	450608	0711859	Pichering, G.	06-08-88	1,580.0
PGW 94	450601	0711900	Arnold, G.	06-10-88	1,580.0
PGW 95	450624	0711851	O'Connell, W.	06-11-88	1,700.0
PGW 100	450320	0712313	Tusinski, S.	06-18-88	1,420.0
PGW 101	450454	0712214	Osgood, W.	08-19-88	1,580.0
PGW 102	450301	0712526	Sebor, W.	08-02-88	1,190.0
PGW 103	450317	0712427	Puglisi, B.	08-03-88	1,220.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level		Primary use of water	Discharge (gal/min)
						Depth (ft)	Date (mm-dd-yy)		
				COOS COUNTY					
				Pinkhams Grant					
PEB 4	--	--	--	--	X	--	--	U	--
				Pittsburg					
PGB 1	--	--	--	--	X	--	--	U	--
PGB 2	--	--	--	--	X	7.0	07-01-75	U	--
PGB 4	--	--	--	--	X	--	--	U	--
PGW 1	--	11.0	--	G	W	8.0	07-06-84	H	3.0
PGW 3	--	44.0	--	--	W	--	--	H	20.0
PGW 9	--	60.0	--	X	W	--	--	H	5.0
PGW 12	--	35.0	--	X	W	--	--	H	12.0
PGW 13	--	19.0	--	X	W	--	--	H	45.0
PGW 14	--	87.0	--	X	W	--	--	H	45.0
PGW 15	--	35.0	--	X	W	--	--	H	15.0
PGW 18	--	99.0	--	X	W	--	--	H	30.0
PGW 28	--	19.0	--	X	W	--	--	H	4.0
PGW 31	--	68.0	--	X	W	--	--	H	30.0
PGW 32	--	26.0	--	X	W	--	--	H	8.0
PGW 34	--	39.0	--	X	W	--	--	H	6.0
PGW 36	--	39.0	--	X	W	--	--	H	30.0
PGW 38	--	45.0	--	X	W	--	--	H	60.0
PGW 39	--	45.0	--	X	W	--	--	H	2.5
PGW 44	--	149.0	--	X	W	--	--	H	3.0
PGW 51	--	52.0	--	X	W	--	--	H	30.0
PGW 54	--	139.0	--	X	W	--	--	H	4.0
PGW 55	--	65.0	--	--	W	--	--	H	60.0
PGW 57	--	53.0	--	X	W	--	--	H	100.0
PGW 58	--	39.0	--	X	W	--	--	H	20.0
PGW 59	--	39.0	--	X	W	--	--	H	12.0
PGW 62	--	19.0	--	X	W	--	--	H	30.0
PGW 64	--	32.0	--	X	W	--	--	H	1.2
PGW 65	--	46.0	--	X	W	--	--	H	12.0
PGW 70	--	74.0	--	X	W	30.0	06-09-87	H	15.0
PGW 71	--	93.0	--	X	W	--	--	H	15.0
PGW 79	--	119.0	--	X	W	--	--	H	15.0
PGW 80	--	19.0	--	X	W	--	--	H	9.0
PGW 83	--	169.0	--	X	W	--	--	H	5.0
PGW 84	--	139.0	--	--	W	--	--	H	20.0
PGW 87	--	19.0	--	X	W	--	--	H	10.0
PGW 88	--	31.0	--	X	W	--	--	H	1.5
PGW 92	--	39.0	--	X	W	--	--	H	30.0
PGW 94	--	58.0	--	X	W	--	--	H	50.0
PGW 95	--	110.0	--	X	W	--	--	H	40.0
PGW 100	--	26.0	--	X	W	--	--	H	12.0
PGW 101	--	30.0	--	X	W	--	--	H	5.0
PGW 102	--	55.0	--	X	W	--	--	H	1.2
PGW 103	--	42.0	--	X	W	--	--	H	5.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Pittsburg—*Continued*		
PGW 105	450307	0712304	Rancourt, J.	08-08-88	1,320.0
PGW 106	450313	0712308	Parker, R.	08-10-88	1,340.0
PGW 107	450326	0712307	Hamil, M.	09-27-88	1,380.0
PGW 109	450415	0712040	Hewes, N.	09-29-88	1,590.0
PGW 111	450505	0711934	Pariseau, D.	11-11-88	1,560.0
PGW 113	450342	0712041	Canada, R.	10-04-88	1,570.0
PGW 117	450432	0712157	Symonds, R.	10-28-88	1,630.0
PGW 119	450857	0711045	Patrick	10-20-88	1,950.0
PGW 123	450455	0711932	Bartlett, J.	08-22-89	1,660.0
PGW 126	450332	0712044	Bechett, J.	08-28-89	1,520.0
PGW 127	450357	0712039	Thistle, D.	08-31-89	1,620.0
PGW 128	450440	0712828	Garney, J.	06-12-89	1,360.0
PGW 129	450445	0712821	Rosano	06-13-89	1,360.0
PGW 130	450422	0712845	Lenane, P.	06-15-89	1,360.0
PGW 135	450538	0712100	Shattuck, R.	05-19-89	1,690.0
PGW 136	450510	0712235	Van Kleef, T. Sr.	05-11-89	1,500.0
PGW 137	450510	0711839	Challoux, L.	05-12-89	1,580.0
PGW 139	450452	0712215	Stankauskaus, W.	08-02-89	1,580.0
PGW 146	450316	0712337	Hartshorn, W.	11-06-89	1,370.0
PGW 148	450514	0712101	Straw, M.	10-20-89	1,620.0
PGW 149	450633	0711851	Simonette, J.	10-21-89	1,610.0
PGW 150	450630	0711853	Derocher, R.	10-23-89	1,610.0
PGW 151	450600	0711850	Carter, B.	00-00-89	1,670.0
PGW 154	450600	0712104	Hann,K.	05-10-90	1,790.0
PGW 157	450541	0711906	Blais, D.	05-11-90	1,560.0
PGW 159	450521	0712056	Latham, B.	07-19-90	1,660.0
PGW 162	450546	0712117	Leduc, R.	11-26-90	1,770.0
PGW 163	450502	0712216	Kidder, K.	11-01-90	1,580.0
PGW 169	450646	0711852	Shaffer, B.	09-26-90	1,580.0
PGW 170	450515	0711937	Perry Str. Land & Tim. Company	11-07-90	1,550.0
PGW 171	450501	0712224	Martin, M.	09-13-90	1,530.0
PGW 172	450555	0712119	Roy, K.	09-14-90	1,780.0
PGW 173	450513	0712248	Currier, B.	09-12-90	1,520.0
PGW 178	450501	0712047	Dickson, R.	06-20-91	1,590.0
PGW 179	450511	0712055	Day, G.	06-21-91	1,590.0
PGW 185	450508	0711838	Young, P.	08-23-91	1,560.0
PGW 187	450109	0712941	Madore, E.	10-03-91	1,140.0
PGW 188	450507	0712046	Pittsburg Ridge Runners	08-05-91	1,590.0
PGW 190	450512	0712050	Deschesene, G.	09-10-91	1,590.0
PGW 191	450731	0710952	Fauteux, N.	09-12-91	2,020.0
PGW 193	450320	0712305	Judd, J.	11-20-91	1,340.0
PGW 196	450410	0712933	Rancourt, R.	05-08-92	1,130.0
PGW 197	450323	0712307	LaLouse, B.	06-27-92	1,360.0
PGW 200	450246	0712953	Dagesse, B.	07-22-92	1,100.0
PGW 202	450434	0712101	Plume, R.	07-23-92	1,590.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level Depth (ft)	Water level Date (mm-dd-yy)	Primary use of water	Discharge (gal/min)
COOS COUNTY									
Pittsburgh—*Continued*									
PGW 105	--	109.0	--	X	W	--	--	H	12.0
PGW 106	--	59.0	--	X	W	--	--	H	5.0
PGW 107	--	72.0	--	X	W	--	--	H	100.0
PGW 109	--	86.0	--	X	W	8.0	09-29-88	H	10.0
PGW 111	--	59.0	--	X	W	30.0	11-11-88	H	100.0
PGW 113	--	70.0	--	X	W	10.0	10-04-88	H	6.0
PGW 117	--	191.0	--	X	W	--	--	H	--
PGW 119	--	11.0	--	X	W	--	--	H	3.0
PGW 123	--	20.0	--	X	W	20.0	08-24-89	H	30.0
PGW 126	--	21.0	--	X	W	--	--	H	60.0
PGW 127	--	61.0	--	X	W	--	--	H	15.0
PGW 128	--	45.0	--	X	W	--	--	H	50.0
PGW 129	--	39.0	--	X	W	--	--	H	15.0
PGW 130	--	179.0	--	X	W	--	--	H	60.0
PGW 135	--	79.0	--	X	W	30.0	05-19-89	H	12.0
PGW 136	--	79.0	--	X	W	15.0	05-11-89	H	4.0
PGW 137	--	27.0	--	X	W	--	--	H	3.0
PGW 139	--	59.0	--	X	W	--	--	H	15.0
PGW 146	--	55.0	--	X	W	--	--	H	4.0
PGW 148	--	31.0	--	X	W	--	--	H	10.0
PGW 149	--	90.0	--	X	W	10.0	10-21-89	H	25.0
PGW 150	--	109.0	--	X	W	--	--	H	50.0
PGW 151	--	62.0	--	X	W	--	--	H	50.0
PGW 154	--	39.0	--	X	W	--	--	H	6.0
PGW 157	--	35.0	--	X	W	--	--	H	60.0
PGW 159	--	39.0	--	X	W	--	--	H	1.5
PGW 162	--	20.0	--	X	W	30.0	11-27-90	H	4.0
PGW 163	--	20.0	--	X	W	--	--	H	30.0
PGW 169	--	39.0	--	X	W	--	--	H	60.0
PGW 170	--	98.0	--	X	W	--	--	H	15.0
PGW 171	--	41.0	--	X	W	--	--	H	30.0
PGW 172	--	20.0	--	X	W	--	--	H	4.0
PGW 173	--	41.0	--	X	W	--	--	H	15.0
PGW 178	--	79.0	--	X	W	--	--	H	12.0
PGW 179	--	39.0	--	X	W	--	--	H	30.0
PGW 185	--	41.0	--	--	W	--	--	--	10.0
PGW 187	--	45.0	--	X	W	--	--	H	6.0
PGW 188	--	71.0	--	X	W	--	--	H	6.0
PGW 190	--	52.0	--	X	W	--	--	H	35.0
PGW 191	--	87.0	--	X	W	--	--	H	10.0
PGW 193	--	66.0	--	X	W	--	--	H	3.0
PGW 196	--	51.0	--	X	W	20.0	05-09-92	H	4.5
PGW 197	--	41.0	--	X	W	6.0	06-29-92	--	4.0
PGW 200	--	133.0	--	X	W	--	--	H	6.0
PGW 202	--	39.0	--	X	W	--	--	H	4.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Pittsburg—*Continued*		
PGW 207	450503	0711924	Keiper, C.	10-19-92	1,540.0
PGW 210	450454	0711901	Gordon, J.	12-30-92	1,570.0
PGW 213	450413	0712628	Town of Pittsburg	08-24-88	1,210.0
PGW 214	450413	0712628	Town of Pittsburg	08-23-88	1,210.0
PGW 215	450413	0712628	Town of Pittsburg	08-17-88	1,210.0
PGW 216	450413	0712628	Town of Pittsburg	08-17-88	1,210.0
			Randolph		
RAB 3	442214	0711759	NHDOT	--	408.0
RAB 4	442139	0712017	NHDOT	--	450.0
RAB 5	442158	0711903	NHDOT	--	405.0
RAB 6	442224	0711624	--	--	377.0
RAW 1	442206	0711910	Stewart, M.	05-13-86	1,380.0
RAW 3	442235	0711645	Cross	05-02-86	1,320.0
RAW 4	442229	0711625	Joensson, N.	06-18-86	1,260.0
RAW 13	442235	0711651	Horton, A.	05-28-87	1,340.0
RAW 18	442129	0712225	Humphrey, J.	10-13-87	1,770.0
RAW 19	442132	0712213	Corrigan, T.	10-16-87	1,470.0
RAW 20	442129	0712202	Fontaine, D.	12-29-88	1,470.0
RAW 22	442131	0712108	Hammand, J.	09-26-88	1,520.0
RAW 24	442233	0711645	Meiklejohn, J.	11-02-88	1,290.0
RAW 25	442203	0711912	Kennison, A.	12-28-88	1,360.0
RAW 26	442204	0711912	Abbott, H.	12-29-88	1,370.0
RAW 28	442212	0711854	Dempster, B.	02-20-89	1,380.0
RAW 31	442135	0712212	Corrigan, K.	05-04-89	1,500.0
RAW 36	442155	0711944	Lorne, G.	07-17-90	1,400.0
RAW 81	442122	0712233	Town of Randolph	01-16-89	430.0
RAW 82	442122	0712233	Town of Randolph	01-18-89	430.0
RAW 83	442122	0712233	Town of Randolph	01-19-89	430.0
			Shelburne		
SJB 1	442404	0710636	NHDOT	--	760.0
SJB 2	442437	0710635	NHDOT	01-01-58	720.0
SJB 3	442354	0710429	NHDOT	--	700.0
SJB 4	442303	0710114	NHDOT	--	696.0
SJB 5	442414	0710409	NHDOT	01-01-82	698.0
SJB 6	442417	0710405	NHDOT	--	687.0
SJB 7	442418	0710403	NHDOT	--	700.0
SJB 8	442412	0710653	NHDOT	--	718.0
SJW 1	442418	0710421	Gorham Sand and Gravel	08-06-91	710.0
SJW 2	442450	0710523	Oxford Paper Company	08-07-91	700.0
SJW 3	442433	0710322	Oxford Paper Company	08-08-91	750.0
SJW 4	442439	0710653	Bolash	05-02-84	800.0
SJW 5	442409	0710222	Conrad	07-18-84	740.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level		Primary use of water	Discharge (gal/min)
						Depth (ft)	Date (mm-dd-yy)		
				COOS COUNTY					
				Pittsburgh—*Continued*					
PGW 207	--	45.0	--	X	W	--	--	H	30.0
PGW 210	--	43.0	--	X	W	--	--	H	6.0
PGW 213	--	--	--	--	W	0.0	08-24-88	U	--
PGW 214	--	--	--	--	W	.0	08-23-88	U	--
PGW 215	--	--	--	--	W	.0	08-17-88	U	--
PGW 216	--	--	--	--	W	.0	08-17-88	U	--
				Randolph					
RAB 3	--	--	--	--	X	--	--	U	--
RAB 4	--	--	--	--	X	--	--	U	--
RAB 5	--	--	--	--	X	--	--	U	--
RAB 6	--	--	--	--	X	--	--	U	--
RAW 1	--	20.0	--	X	W	20.0	05-13-86	H	12.0
RAW 3	--	64.0	--	X	W	--	--	H	20.0
RAW 4	--	23.0	--	X	W	--	--	H	4.0
RAW 13	--	111.0	--	X	W	--	--	P	10.0
RAW 18	--	79.0	--	X	W	--	--	H	60.0
RAW 19	--	83.0	--	X	W	5.0	10-19-87	H	1.5
RAW 20	--	62.0	--	X	W	--	--	H	4.0
RAW 22	--	26.0	--	X	W	--	--	H	2.0
RAW 24	--	47.0	--	X	W	--	--	H	2.0
RAW 25	--	19.0	--	X	W	--	--	H	1.5
RAW 26	--	34.0	--	X	W	--	--	H	1.0
RAW 28	--	22.0	--	X	W	--	--	H	50.0
RAW 31	--	79.0	--	X	W	--	--	H	20.0
RAW 36	--	59.0	--	X	W	--	--	H	1.0
RAW 81	2	63.0	P	P	W	14.0	01-16-89	U	--
RAW 82	2	15.0	P	P	W	5.8	01-18-89	U	--
RAW 83	2	20.0	P	P	W	.8	01-19-89	U	--
				Shelburne					
SJB 1	--	--	--	--	X	--	--	U	--
SJB 2	--	--	--	--	X	--	--	U	--
SJB 3	--	--	--	--	X	--	--	U	--
SJB 4	--	--	--	--	X	--	--	U	--
SJB 5	--	--	--	--	X	--	--	U	--
SJB 6	--	--	--	--	X	--	--	U	--
SJB 7	--	--	--	--	X	--	--	U	--
SJB 8	--	--	--	--	X	--	--	U	--
SJW 1	2	16.0	P	S	W	5.9	09-04-91	U	--
SJW 2	2	38.0	P	S	W	4.5	09-04-91	U	--
SJW 3	2	74.0	P	S	W	45.9	09-04-91	U	--
SJW 4	--	12.0	--	X	W	50.0	05-02-84	H	4.0
SJW 5	--	32.0	--	X	W	--	--	H	1.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Shelburne—*Continued*		
SJW 6	442359	0710644	Corrigan	07-13-84	790.0
SJW 7	442453	0710608	Clark, G.	10-08-85	790.0
SJW 8	442452	0710604	Huff, A.	10-04-85	760.0
SJW 9	442455	0710512	Sears, W.	12-17-85	780.0
SJW 10	442448	0710611	Hayes, R.	02-04-86	770.0
SJW 11	442358	0710652	Wilfong, S.	06-09-86	780.0
SJW 12	442413	0710243	Bouchard, D.	09-17-86	740.0
SJW 13	442412	0710231	Mershi, D.	09-22-86	740.0
SJW 14	442413	0710236	Girouard, N.	12-22-86	740.0
SJW 15	442412	0710443	Tassey, S.	12-11-86	760.0
SJW 16	442437	0710651	Bolash, J.	04-02-87	800.0
SJW 17	442442	0710655	Weichart, W.	04-03-87	800.0
SJW 18	442402	0710435	Clamp-Hayes, C.	07-16-87	720.0
SJW 19	442446	0710620	Gunther, T.	07-17-87	750.0
SJW 20	442415	0710501	Volak, M.	08-24-87	940.0
SJW 21	442350	0710350	Carlisle	12-09-87	750.0
SJW 22	442410	0710216	Daniels, K.	12-08-87	740.0
SJW 23	442437	0710359	Trembly, D.	03-31-88	760.0
SJW 24	442411	0710228	Rousseau, R.	04-28-88	730.0
SJW 25	442309	0710855	Lemieux, E.	07-25-88	750.0
SJW 26	442351	0710346	Meyers, B.	05-26-88	750.0
SJW 27	442353	0710418	Delisle, P.	09-19-88	720.0
SJW 28	442348	0710351	Laflamme, R.	03-14-89	750.0
SJW 29	442407	0710641	Stiles, R.	09-06-89	760.0
SJW 30	442347	0710349	Cahoun, R.	11-14-89	780.0
SJW 31	442332	0710227	Boise Cascade	10-08-89	730.0
SJW 32	442445	0710654	Peabody, G.	09-19-90	760.0
SJW 33	442348	0710446	Kickey, R.	09-05-90	740.0
SJW 34	442435	0710645	Gralenski	11-19-90	780.0
SJW 35	442446	0710410	Merrell, M Milbrook Trust	10-17-90	760.0
SJW 36	442337	0710246	Town of Shelburne	05-15-90	720.0
SJW 37	442409	0710442	Shey, J	07-24-91	760.0
SJW 38	442448	0710613	Hayes, R.	09-04-91	770.0
SJW 39	442337	0710256	Town of Shelburne	07-05-89	750.0
SJW 40	442338	0710244	Town of Shelburne	07-06-89	730.0
SJW 41	442339	0710247	Town of Shelburne	07-06-89	720.0
SJW 42	442339	0710245	Town of Shelburne	07-06-89	720.0
			Stark		
SNA 2	443809	0712807	Cloutier Condominiums	08-27-92	1,120.0
SNA 3	443656	0712847	James River Corporation	05-23-84	905.0
SNA 4	443654	0712842	James River Corporation	05-18-84	905.0
SNA 5	443652	0712842	James River Corporation	--	910.0
SNA 6	443652	0712842	James River Corporation	05-17-84	910.0
SNA 7	443655	0712832	James River Corporation	09-08-82	910.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level		Primary use of water	Discharge (gal/min)
						Depth (ft)	Date (mm-dd-yy)		
				COOS COUNTY					
				Shelburne—*Continued*					
SJW 6	--	9.0	--	X	W	--	--	H	3.0
SJW 7	--	44.0	--	X	W	--	--	H	1.0
SJW 8	--	39.0	--	--	W	--	--	H	20.0
SJW 9	--	32.0	--	X	W	--	--	H	2.0
SJW 10	--	39.0	--	--	W	--	--	H	20.0
SJW 11	--	59.0	--	X	W	--	--	H	8.0
SJW 12	--	28.0	--	X	W	--	--	H	.2
SJW 13	--	71.0	--	X	W	--	--	H	.2
SJW 14	--	62.0	--	X	W	--	--	H	.7
SJW 15	--	99.0	--	--	W	--	--	H	30.0
SJW 16	--	19.0	--	X	W	--	--	H	1.0
SJW 17	--	29.0	--	X	W	--	--	H	10.0
SJW 18	--	59.0	--	--	W	--	--	H	20.0
SJW 19	--	56.0	--	--	W	--	--	H	20.0
SJW 20	--	40.0	--	X	W	300.0	08-25-87	H	.2
SJW 21	--	90.0	--	X	W	--	--	H	7.5
SJW 22	--	129.0	--	X	W	100.0	12-12-87	H	.2
SJW 23	--	109.0	--	X	W	--	--	H	50.0
SJW 24	--	99.0	--	X	W	--	--	H	15.0
SJW 25	--	51.0	--	X	W	--	--	H	.5
SJW 26	--	60.0	--	X	W	25.0	05-26-88	H	30.0
SJW 27	--	201.0	--	X	W	25.0	09-26-88	H	1.2
SJW 28	--	79.0	--	X	W	--	--	H	1.5
SJW 29	--	79.0	--	X	W	--	--	H	1.0
SJW 30	--	39.0	--	X	W	--	--	H	25.0
SJW 31	--	131.0	--	X	W	--	--	H	3.0
SJW 32	--	25.0	--	X	W	--	--	H	12.0
SJW 33	--	69.0	--	X	W	--	--	H	.7
SJW 34	--	64.0	--	X	W	--	--	H	4.0
SJW 35	--	109.0	--	X	W	--	--	H	50.0
SJW 36	--	--	--	--	W	--	--	U	--
SJW 37	--	107.0	--	--	W	40.0	07-24-91	H	30.0
SJW 38	--	51.0	--	--	W	--	--	H	10.0
SJW 39	--	27.0	--	S	W	35.0	08-08-89	U	--
SJW 40	--	7.0	--	S	W	9.0	08-08-89	U	--
SJW 41	--	6.0	--	S	W	6.0	08-08-89	U	--
SJW 42	--	10.0	--	S	W	8.0	08-08-89	U	--
				Stark					
SNA 2	--	--	--	--	X	7.0	08-27-92	--	--
SNA 3	--	--	--	--	W	--	--	U	--
SNA 4	--	--	--	--	X	--	--	U	--
SNA 5	--	--	--	--	X	--	--	U	--
SNA 6	--	--	--	--	X	--	--	U	--
SNA 7	--	--	--	--	X	--	--	U	--

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Stark—*Continued*		
SNB 1	443549	0712443	NHDOT	11-01-62	960.0
SNB 2	443742	0712756	NHDOT	--	955.0
SNW 1	443704	0712348	Tankard, C.	09-16-91	980.0
SNW 2	443629	0712601	Bell, C.	09-17-91	930.0
SNW 3	443759	0712745	Cloutier, N.	09-18-91	950.0
SNW 4	443607	0712537	Frizzell, E.	06-04-92	940.0
SNW 5	443543	0712531	Hand, D.	01-03-86	1,000.0
SNW 6	443657	0712134	LaChance, J.	06-26-86	1,150.0
SNW 7	443743	0712757	Benway, F.	03-17-87	940.0
SNW 8	443855	0711940	Carpenter, C.	05-12-87	1,140.0
SNW 11	443838	0712811	Arnesault, D.	08-24-87	1,180.0
SNW 12	443546	0712505	Fogg, D.	11-27-88	980.0
SNW 13	443802	0712727	Hopps, B.	12-08-88	980.0
SNW 14	443725	0712123	Nolin, L.	06-08-89	1,010.0
SNW 15	443600	0712554	Sorensen, H.	12-19-89	1,000.0
SNW 16	443650	0712356	Amende, R.	10-19-90	980.0
SNW 17	443704	0711949	Vernotte, E.	05-29-91	1,020.0
SNW 18	443729	0712114	Madure, M.	03-29-91	1,070.0
SNW 19	443657	0712838	Brooks, J.	06-24-91	1,160.0
SNW 22	443826	0712805	James River Corporation	06-04-90	--
SNW 23	443744	0712811	Salem	06-08-84	950.0
SNW 24	443657	0712843	James River Corporation	09-17-82	910.0
SNW 25	443657	0712838	James River Corporation	09-15-82	910.0
SNW 26	443655	0712832	James River Corporation	09-13-82	910.0
SNW 27	443659	0712825	James River Corporation	09-22-82	910.0
			Stewartstown		
SOA 1	445743	0712712	Owens Farm	08-26-92	1,170.0
SOB 1	445731	0712653	NHDOT	08-01-68	1,170.0
SOB 2	445928	0713158	NHDOT	--	1,043.0
SOS 1	445738	0712706	--	--	1,170.0
SOW 1	445916	0712841	Alan Coach Farm	08-26-92	1,110.0
SOW 4	445713	0713042	Ricard, V.	12-03-84	1,150.0
SOW 6	445859	0712551	Rancloes, D.	06-19-86	1,690.0
SOW 11	445805	0712638	Giroux, N.	06-10-87	1,300.0
SOW 12	445839	0712812	Leighton, W.	06-11-87	1,130.0
SOW 14	445933	0713140	Laflamme, G.	08-20-87	1,200.0
SOW 15	445819	0712759	Drolette, K.	11-24-87	1,180.0
SOW 16	445921	0712701	Brock, A.	09-19-88	1,630.0
SOW 19	445919	0713211	Coos County Nursing Home	03-27-89	1,050.0
SOW 23	445919	0713213	Coos County Nursing Home	11-03-89	1,050.0
SOW 24	445711	0712643	Denton, C.	11-01-89	1,310.0
SOW 29	445918	0713214	Coos County Nursing Home	09-20-90	1,050.0
SOW 31	445919	0712658	Young, J.	02-05-91	1,640.0
SOW 32	445931	0712706	Tonkin, J.	10-01-90	1,560.0
SOW 33	445747	0712729	Lukenhuf Valley Inn	07-15-91	1,260.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level		Primary use of water	Discharge (gal/min)
						Depth (ft)	Date (mm-dd-yy)		
				COOS COUNTY					
				Stark—*Continued*					
SNB 1	--	--	--	--	X	--	--	U	--
SNB 2	--	--	--	--	X	--	--	U	--
SNW 1	2	37.0	P	P	W	20.3	10-03-91	U	--
SNW 2	2	18.0	P	S	W	5.4	10-03-91	U	--
SNW 3	2	85.0	P	S	W	11.6	10-03-91	U	--
SNW 4	2	85.0	P	P	W	10.0	06-04-92	U	--
SNW 5	--	125.0	--	X	W	--	--	H	15.0
SNW 6	--	151.0	--	--	W	--	--	H	30.0
SNW 7	--	129.0	--	X	W	--	--	H	3.0
SNW 8	--	13.0	--	--	W	8.0	05-12-87	H	1.0
SNW 11	--	26.0	--	X	W	--	--	H	2.0
SNW 12	--	92.0	--	--	W	--	--	H	80.0
SNW 13	--	141.0	--	X	W	--	--	H	15.0
SNW 14	--	143.0	--	X	W	--	--	H	4.0
SNW 15	--	127.0	--	X	W	--	--	H	2.0
SNW 16	--	59.0	--	X	W	--	--	H	5.0
SNW 17	--	61.0	--	X	W	--	--	H	.2
SNW 18	--	155.0	--	X	W	78.0	03-29-91	H	20.0
SNW 19	--	204.0	--	X	W	--	--	H	50.0
SNW 22	--	35.0	--	G	W	--	--	U	--
SNW 23	--	74.0	--	--	W	--	--	H	60.0
SNW 24	5	20.0	S	--	W	6.0	09-20-82	U	--
SNW 25	--	19.0	--	--	W	8.2	09-20-82	U	--
SNW 26	--	--	--	--	W	2.5	09-20-82	U	--
SNW 27	--	10.0	--	--	W	8.5	09-22-82	U	--
				Stewartstown					
SOA 1	--	--	--	--	X	--	--	--	--
SOB 1	--	--	--	--	X	--	--	U	--
SOB 2	--	--	--	--	X	--	--	U	--
SOS 1	--	--	--	--	S	--	--	H	--
SOW 1	2	26.0	P	P	W	17.0	08-26-92	U	--
SOW 4	--	26.0	--	X	W	--	--	H	10.0
SOW 6	--	19.0	--	X	W	--	--	H	12.0
SOW 11	--	53.0	--	X	W	--	--	H	4.0
SOW 12	--	35.0	--	X	W	--	--	H	80.0
SOW 14	--	29.0	--	X	W	--	--	--	4.0
SOW 15	--	49.0	--	X	W	--	--	H	.7
SOW 16	--	39.0	--	X	W	--	--	H	5.0
SOW 19	--	68.0	--	--	W	--	--	U	--
SOW 23	--	136.0	--	--	W	--	--	H	200.0
SOW 24	--	119.0	--	X	W	--	--	H	2.0
SOW 29	--	129.0	--	S	W	4.0	09-18-90	P	62.0
SOW 31	--	21.0	--	X	W	10.0	02-06-91	H	6.0
SOW 32	--	20.0	--	X	W	5.0	11-01-90	H	12.0
SOW 33	--	20.0	--	X	W	10.0	07-17-91	H	20.0

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Stewartstown—*Continued*		
SOW 36	445822	0712631	Dostie, D.	02-05-92	1,380.0
SOW 37	450024	0713006	Riverside Water Works	01-01-47	1,075.0
SOW 38	450000	0713235	W. Stewartstown Water Precinct (well shared with Canaan, Vt.)	01-01-77	1,020.0
SOW 39	445940	0713157	Spa Restaurant	03-04-91	1,035.0
SOW 40	445940	0713157	Spa Restaurant	03-04-91	1,035.0
SOW 41	445940	0713157	Spa Restaurant	03-04-91	1,035.0
			Stratford		
SRA 1	443952	0713503	State of NH Fish & Game	09-11-91	860.0
SRA 2	444301	0713625	Stratford WRD Inc	10-11-88	930.0
SRA 3	444259	0713619	Stratford WRD Inc.	10-12-88	940.0
SRA 4	444256	0713621	Stratford WRD Inc.	10-11-88	930.0
SRA 5	444300	0713620	Stratford WRD Inc.	10-14-88	940.0
SRB 1	444508	0713749	NHDOT	12-01-41	900.0
SRB 2	444509	0713752	NHDOT	08-01-64	900.0
SRB 3	444441	0713717	NHDOT	--	890.0
SRB 4	443931	0713313	NHDOT	--	900.0
SRW 1	444033	0713458	Arsenault, O.	09-11-91	860.0
SRW 2	444247	0713620	Lamm, H.	09-19-91	910.0
SRW 3	444437	0713656	McDonald, C.	10-21-91	950.0
SRW 4	444332	0713639	Chaput, P.	08-21-84	950.0
SRW 5	444306	0713555	Belanger, F.	07-02-85	990.0
SRW 6	444207	0713537	Noyes, C.	10-09-85	960.0
SRW 7	443914	0713340	McKearney, A.	10-11-85	940.0
SRW 8	443859	0713312	Blodgett, B.	07-07-87	930.0
SRW 10	443917	0713348	Stinson, J.	09-25-87	990.0
SRW 11	443858	0713328	Bernard, A.	09-06-88	860.0
SRW 12	444048	0713501	Bishop, N.	06-02-88	940.0
SRW 13	443948	0713406	Haskins, T.	06-13-88	960.0
SRW 14	443945	0713409	Loomis, S.	04-21-88	940.0
SRW 15	444219	0713541	Cote, H.	11-07-88	960.0
SRW 16	444339	0713650	Carter, E.	01-03-89	940.0
SRW 17	444103	0713521	Scott, R.	08-22-89	940.0
SRW 18	444224	0713541	Rowell, M.	04-18-90	980.0
SRW 19	444323	0713618	Holcombe, C.	11-21-90	960.0
SRW 20	444057	0713514	Soule, L.	08-14-91	950.0
SRW 21	444102	0713515	Scott, R.	08-08-91	950.0
SRW 22	444024	0713217	Bartlett, C.	11-14-91	980.0
SRW 23	444244	0713553	Smith, D.	07-31-91	920.0
SRW 24	444045	0713456	Arsenault, R., Jr.	04-02-92	940.0
SRW 28	444411	0713716	Ampad Inc.	09-26-89	890.0
SRW 29	444411	0713717	Ampad Inc.	09-26-89	890.0

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level Depth (ft)	Water level Date (mm-dd-yy)	Primary use of water	Discharge (gal/min)
					COOS COUNTY				
					Stewartstown—*Continued*				
SOW 36	--	19.0	--	X	W	--	--	H	8.0
SOW 37	--	35.0	--	--	W	--	--	P	--
SOW 38	--	109.0	--	--	W	--	--	P	--
SOW 39	--	--	--	--	W	4.0	03-04-91	U	--
SOW 40	--	--	--	--	W	4.0	03-04-91	U	--
SOW 41	--	--	--	--	W	--	--	U	--
					Stratford				
SRA 1	--	--	--	--	W	28.0	09-11-91	U	--
SRA 2	--	--	--	--	X	.0	10-11-88	U	--
SRA 3	--	--	--	S	X	.0	10-12-88	U	--
SRA 4	--	--	--	S	X	.0	10-11-88	U	--
SRA 5	--	--	--	S	X	.0	10-14-88	U	--
SRB 1	--	--	--	--	X	--	--	U	--
SRB 2	--	--	--	--	X	--	--	U	--
SRB 3	--	--	--	--	X	--	--	U	--
SRB 4	--	--	--	--	X	8.8	06-01-91	U	--
SRW 1	2	27.0	P	P	W	18.0	09-11-91	U	--
SRW 2	2	81.0	P	P	W	49.0	09-19-91	U	--
SRW 3	2	84.0	P	P	W	49.0	10-21-91	U	--
SRW 4	--	83.0	--	X	W	--	--	H	20.0
SRW 5	--	104.0	--	X	W	--	--	H	5.0
SRW 6	--	39.0	--	X	W	--	--	H	20.0
SRW 7	--	59.0	--	X	W	--	--	H	1.0
SRW 8	--	30.0	--	X	W	--	--	H	10.0
SRW 10	--	32.0	--	X	W	--	--	H	12.0
SRW 11	--	144.0	--	X	W	--	--	H	30.0
SRW 12	--	84.0	--	--	W	--	--	H	6.5
SRW 13	--	41.0	--	X	W	--	--	H	3.0
SRW 14	--	34.0	--	X	W	--	--	H	2.0
SRW 15	--	59.0	--	X	W	20.0	11-07-88	H	2.0
SRW 16	--	87.0	--	X	W	--	--	H	5.0
SRW 17	--	82.0	--	X	W	--	--	H	30.0
SRW 18	--	156.0	--	X	W	--	--	H	.1
SRW 19	--	139.0	--	X	W	--	--	H	1.5
SRW 20	--	74.0	--	X	W	--	--	Z	8.0
SRW 21	--	33.0	--	X	W	3.0	08-10-91	--	30.0
SRW 22	--	27.0	--	X	W	--	--	H	20.0
SRW 23	--	201.0	--	X	W	60.0	07-31-91	H	18.0
SRW 24	--	107.0	--	X	W	--	--	H	4.0
SRW 28	--	--	--	--	W	9.4	09-26-89	U	--
SRW 29	--	--	--	S	W	4.9	09-26-89	U	--

Appendix A. Description of wells, borings, and springs in the Upper Connecticut and Androscoggin River

Local well No.	Latitude (° ′ ″)	Longitude (° ′ ″)	Owner or user	Year completed	Elevation above sea level (ft)
			COOS COUNTY—*Continued*		
			Stratford—*Continued*		
SRW 30	444412	0713717	Ampad Inc.	09-26-89	890.0
SRW 31	444413	0713716	Ampad Inc.	09-27-89	890.0
SRW 32	444411	0713715	Ampad Inc.	09-27-89	890.0
SRW 33	444412	0713716	Ampad Inc.	09-27-89	890.0
SRW 34	444410	0713717	Ampad Inc.	09-27-89	890.0
SRW 35	444307	0713615	Stratford WRD Inc.	07-26-88	970.0
SRW 36	444257	0713615	Stratford WRD Inc.	08-31-88	930.0
SRW 37	444310	0713615	Stratford WRD Inc.	08-05-88	960.0
SRW 38	444302	0713610	Stratford WRD Inc.	09-02-88	945.0
SRW 39	444302	0713620	Stratford WRD Inc.	09-21-88	940.0
SRW 40	444304	0713611	Stratford WRD Inc.	08-23-88	960.0
SRW 41	444255	0713626	Stratford WRD Inc.	09-13-88	910.0
			Success		
STW 1	442715	0710855	Mt. Carberry Landfill	10-06-89	--

Local well No.	Diameter of well (in.)	Depth to bottom of casing (ft)	Casing material	Type of finish	Type of site	Water level		Primary use of water	Discharge (gal/min)
						Depth (ft)	Date (mm-dd-yy)		
COOS COUNTY									
Stratford—*Continued*									
SRW 30	--	--	--	S	W	9.3	09-26-89	U	--
SRW 31	--	--	--	S	W	10.0	09-27-89	U	--
SRW 32	--	--	--	--	W	7.9	09-27-89	U	--
SRW 33	--	--	--	--	W	9.1	09-27-89	U	--
SRW 34	--	--	--	S	W	11.6	09-27-89	U	--
SRW 35	1	95.0	P	S	W	89.1	08-01-88	U	--
SRW 36	1	48.0	P	S	W	52.3	11-17-88	U	--
SRW 37	1	69.0	P	S	W	73.6	11-17-88	U	--
SRW 38	1	78.0	P	S	W	64.5	11-22-88	U	--
SRW 39	1	90.0	P	S	W	94.2	11-22-88	U	--
SRW 40	1	86.0	P	S	W	87.5	11-17-88	U	--
SRW 41	1	45.0	P	S	W	51.4	11-17-88	U	--
Success									
STW 1	--	119.0	--	X	W	--	--	H	15.0

- PAGE 89 FOLLOWS -

APPENDIX B

— PAGE 91 FOLLOWS —

Appendix B. Stratigraphic logs of selected wells, borings, and springs in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire

Proportions of materials in the lithologic descriptions are indicated by the following terms: and, 50 percent; some, 25-50 percent; little, 10-25 percent; trace, less than 10 percent; ft, foot; --, no data. Some material-description intervals are not continuous; the sampling method used does not retrieve a continuous material sample at depth.

Local well number: First two characters are U.S. Geological Survey town code. Third character codes are the following: A, borings done for hydrologic purposes; B, highway bridge boring; S, Spring; W, well. The numbers are sequential numbers for each town.

Depth drilled: Depth drilled is in feet below land-surface datum.

Depth to top: Depth to top of each lithologic unit, in feet below land-surface datum.

Depth to bottom: Depth to bottom of the described material interval, in feet below land surface datum.

Aquifer Code: Codes for the following geologic ages and aquifer materials are listed below.

110SDMN	Quarternary sediment, undifferentiated	BEDROCK	bedrock
112LCSR	Pleistocene lacustrine deposits	110SOIL	Quarternary soil
112OTSH	Pleistocene outwash	112TILL	Pleistocene till
112ODELT	Pleistocene deltaic deposits	112SRFD	Pleistocene stratified drift

Lithology Code: The following lithologic codes are used to describe aquifer units.

BLDR	boulders	PEAT	peat
BLSD	boulders and sand	RBBL	rubble
CLAY	clay	ROCK	rock
CLSD	blue clay	SAND	sand
COBB	cobbles	SDCL	sand and clay
COSD	cobbles and sand	SDGL	sand and gravel
GRDS	gravel, sand, and silt	SDST	sand and silt
GRSC	gravel, silt, and clay	SGVC	sand, gravel, and clay
GRVL	gravel	SILT	silt
HRDP	hardpan	SOIL	soil
LOAM	loam	STCL	silt and clay
MUCK	muck	TILL	till
OTHR	other		

- PAGE 93 FOLLOWS -

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY			
			Berlin			
BRA 1	--	--	--	112TILL	TILL	Till with sand, gravel, and hardpan
BRA 2	30.0	0	22.0	112SRFD	SDGL	Fine to medium sand and gravel
		22.0	28.0	112SRFD	SDGL	Brown, silty sand and gravel
		28.0	30.0	112TILL	TILL	--
BRA 3	29.0	0	11.0	112SRFD	SDGL	Sand and gravel with some cobble
		11.0	23.0	112SRFD	SDGL	Fine sand; fine to medium gravel; some cobbles
		23.0	29.0	112SRFD	SDGL	Sand with some silt and cobbles
		29.0	--	112SRFD	SDGL	End of hole at 29.0 feet
BRB 1	20.0	0	7.0	112SRFD	SILT	--
		7.0	20.0	112SRFD	SDGL	Silty sand and gravel
		20.0	--	112SRFD	GRVL	Refusal in till at 20.0 feet
BRB 2	22.0	0	22.0	112TILL	TILL	Gravelly till
		22.0	--	112TILL	TILL	Refusal in till at 22.0 feet
BRB 3	11.0	0	11.0	112SRFD	SDGL	Sand, gravel, boulder till
		11.0	--	112TILL	TILL	Refusal in till at 11.0 feet
BRW 1	--	0	3.0	111SOIL	SOIL	Topsoil
		3.0	20.0	112LCSR	SDCL	Gray sand, fine to medium, some clay and cobbles (very hard drilling)
		20.0	41.0	112SRFD	SDGL	Brown, coarse sand; some large gravel and cobbles
		41.0	42.0	112SRFD	SAND	Fine to medium brown sand
		42.0	--	112SRFD	SAND	End of hole at 42.0 feet
BRW 3	50.0	0.0	50.0	112SRFD	SDGL	--
BRW 10	--	--	--	110SDMN	OTHR	--
		--	--	110SDMN	SDGL	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SGVC	--
BRW 11	--	--	--	110SDMN	OTHR	--
		--	--	110SDMN	SDGL	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SGVC	--
BRW 12	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
BRW 13	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
BRW 14	--	--	--	110SDMN	OTHR	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
BRW 15	--	--	--	110SDMN	OTHR	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
BRW 17	--	--	--	110SDMN	CLAY	--
		4.0	--	BEDROCK	ROCK	--
BRW 28	--	--	--	110SDMN	CLAY	--
		8.0	--	BEDROCK	ROCK	--
BRW 34	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	CLAY	--
BRW 50	--	--	--	110SDMN	SDGL	--
		16.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Berlin—*Continued*			
BRW 52	53.0	0	44.0	112SRFD	SDGL	Fine, medium, and coarse sand and gravel
		53.0	--	112SRFD	SDGL	Refusal at 53.0 feet
BRW 53	41.0	0	23.0	112SRFD	SDGL	Fine, medium,and coarse sand and gravel
		23.0	33.0	112SRFD	SAND	Fine to medium sand
		33.0	36.0	112SRFD	SDGL	Fine, medium,and coarse sand and gravel
		36.0	41.0	112SRFD	SDGL	Fine sand and gravel,tight
		41.0	--	112SRFD	SDGL	Refusal at 41.0 feet
BRW 54	72.0	0	66.0	112SRFD	SDGL	Fine, medium, and coarse sand and gravel
		66.0	72.0	112SRFD	SDGL	Fine sand
		72.0	--	112SRFD	SDGL	Refusal at 72.0 feet
BRW 56	74.0	0	12.0	112SRFD	SDGL	Fine, medium, and coarse sand and gravel
		12.0	18.0	112SRFD	SAND	Fine to medium sand
		18.0	74.0	112SRFD	SDGL	Fine, medium, and coarse sand and gravel
		74.0	--	112SRFD	SDGL	Refusal at 74.0 feet
BRW 57	31.0	0	31.0	112SRFD	SDGL	Fine, medium, and coarse sand and gravel, with boulders
		31.0	--	112SRFD	BLDR	Refusal at 31.0 feet in boulders
BRW 58	58.0	0	52.0	112SRFD	SDGL	Fine, medium, and coarse sand and gravel
		58.0	--	112SRFD	SDGL	Refusal at 58.0 feet
BRW 59	64.0	0	14.0	112SRFD	SDGL	Medium brown sand; some coarse gravel
		14.0	64.0	112SRFD	SDGL	Medium brown sand; some coarse gravel
		64.0	--	112SRFD	SDGL	End of hole at 64.0 feet
BRW 60	83.0	0	14.0	112SRFD	SDGL	Medium brown sand; fine gravel
		14.0	64.0	112SRFD	SDGL	Medium brown sand; some gravel
		64.0	78.0	112SRFD	BLSD	Fine brown sand and boulders
		83.0	--	BEDROCK	ROCK	Refusal on ledge at 83.0 feet
BRW 61	56.0	0	30.0	112SRFD	GRDS	Fine to coarse brown sand; fine to medium gravel; trace of clay
		30.0	35.0	112SRFD	SDGL	Fine to coarse brown sand; fine gravel
		35.0	49.0	112SRFD	SDGL	Fine to coarse brown sand; fine gravel
		49.0	56.0	112SRFD	SAND	Fine to coarse brown sand
		56.0	--	112SRFD	SAND	End of hole at 56.0 feet
BRW 62	55.0	30.0	35.0	112SRFD	SDGL	Fine to coarse brown sand; fine gravel
		35.0	55.0	112SRFD	SDGL	Fine to coarse brown sand; fine to medium gravel
		55.0	--	112SRFD	BLDR	Refusal on boulders at 55.0 feet
BRW 63	24.0	0	17.0	112SRFD	SDGL	Fine to medium cobbles
		17.0	22.0	112SRFD	SDGL	Fine sand; medium gravel
		22.0	24.0	112TILL	TILL	End of hole at 24.0 feet
BRW 64	53.0	0	8.0	112SRFD	SDGL	Sand and gravel, some cobbles
		8.0	33.0	112SRFD	SDGL	Fine to medium sand; sharp gravel; some cobbles
		33.0	53.0	112SRFD	SDGL	Brown sand and gravel, some silt
		53.0	--	112SRFD	SDGL	End of hole at 53.0 feet
BRW 65	73.0	0	12.0	112SRFD	SDGL	Fine to medium sand; sharp gravel
		12.0	43.0	112SRFD	SDGL	Fine to medium sand; sharp gravel
		43.0	63.0	112SRFD	STCL	Fine to medium brown sand; gray silt, trace of clay
		73.0	--	112SRFD	STCL	End of hole at 73.0 feet
BRW 66	60.0	3.0	58.0	112SRFD	--	--
BRW 67	51.0	-3.0	51.0	112SRFD	--	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
				COOS COUNTY—*Continued*		
				Berlin—*Continued*		
BRW 68	108.0	30.0	108.0	112SRFD	SAND	Very fine to medium sand; some silt
		108.0	--	BEDROCK	ROCK	Refusal on bedrock at 108.0 feet
BRW 69	30.0	--	--	112SRFD	--	--
BRW 70	107.0	0	30.0	112SRFD	SAND	Fine to medium sand
		30.0	34.0	112SRFD	SAND	Fine to medium sand with trace of gravel
		34.0	54.0	112SRFD	SDGL	Medium to coarse sand; Fine to medium gravel
		54.0	90.0	112SRFD	SAND	Fine to coarse sand; some gravel
		90.0	98.0	112SRFD	STCL	Hard, olive green silt and clay
		98.0	99.0	112SRFD	BLDR	--
		99.0	102.0	112SRFD	SDGL	--
		102.0	103.0	112SRFD	BLDR	--
		103.0	107.0	112SRFD	SDGL	--
		107.0	--	BEDROCK	ROCK	Bedrock at 107.0 feet
BRW 71	109.0	0	8.0	112SRFD	SAND	Very fine to medium sand
		8.0	41.0	112SRFD	SAND	Very fine to medium sand
		41.0	50.0	112SRFD	SILT	--
		50.0	80.0	112SRFD	SAND	Very fine sand
		80.0	84.0	112SRFD	SDGL	Fine sand with trace of gravel
		90.0	94.0	112SRFD	SDGL	Very fine sand with trace of gravel
		96.0	106.0	112SRFD	SDGL	Fine to coarse sand with some gravel
BRW 72	64.0	.0	64.0	112SRFD	SDGL	--
		--	--	--	SAND	Fine
		--	--	--	CLAY	With some silt
				Clarksville		
CSW 3	--	--	--	110SDMN	CLAY	--
		46.0	--	BEDROCK	ROCK	--
CSW 10	--	--	--	110SDMN	CLAY	--
		29.0	--	BEDROCK	ROCK	--
CSW 13	--	--	--	110SDMN	SGVC	--
		30.0	--	BEDROCK	ROCK	--
CSW 15	--	--	--	110SDMN	SGVC	--
		40.0	--	BEDROCK	ROCK	--
CSW 17	--	--	--	110SDMN	CLAY	--
		20.0	--	BEDROCK	ROCK	--
CSW 29	--	--	--	112TILL	TILL	--
		12.0	--	BEDROCK	ROCK	--
CSW 31	--	--	--	110SDMN	SDGL	--
		90.0	--	BEDROCK	ROCK	--
CSW 35	--	--	--	110SDMN	SDGL	--
		22.0	--	BEDROCK	ROCK	--
CSW 36	--	--	--	112TILL	TILL	--
		7.0	--	BEDROCK	ROCK	--
CSW 37	--	--	--	110SDMN	CLAY	--
		60.0	--	BEDROCK	ROCK	--
CSW 38	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	CLAY	--
		90.0	--	BEDROCK	ROCK	--
CSW 39	--	--	--	110SDMN	SDGL	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Colebrook			
CTA 1	12.0	0	12.0	112SRFD	GRSC	Poorly sorted silt, sand, gravel, pebbles
		12.0	--	112SRFD	BLDR	Refusal on boulder or bedrock at 12.0 feet
CTA 2	38.0	0	17.0	112TILL	TILL	Olive brown, silty, poorly sorted till, tough drilling
		17.0	19.0	112TILL	TILL	Gray, sandy, till
		37.0	38.0	112TILL	TILL	Gray, dry till
		38.0	--	BEDROCK	ROCK	Refusal on bedrock at 38.0 feet
CTA 3	34.0	0	7.0	112TILL	TILL	--
		7.0	9.0	112TILL	TILL	Dark Gray sandy till
		17.0	19.0	112TILL	TILL	Gray, silty till
		27.0	29.0	112TILL	TILL	Gray, silty, dense, dry till
		34.0	--	112TILL	TILL	Refusal in till
CTA 4	24.0	0	17.0	112SRFD	GRSC	Brown, dry, silty, poorly sorted gravel, silt and clay
		24.0	--	BEDROCK	ROCK	Refusal on bedrock at 24.0 feet
CTB 1	71.0	0	15.0	112SRFD	SILT	Soft, blue-gray silt; some sand
		15.0	27.0	112SRFD	SDST	Fine sand; dark gray silt
		27.0	34.0	112SRFD	SDST	Fine sand; little silt
		34.0	38.0	112SRFD	SAND	Medium, loose sand
		38.0	47.0	112SRFD	SAND	Fine gray sand
		47.0	67.0	112SRFD	SAND	Medium to coarse gray sand
		67.0	68.0	112SRFD	SAND	Coarse sand
		68.0	71.0	112SRFD	SDGL	Fine sand
		71.0	--	BEDROCK	ROCK	Refusal in bedrock at 71.0 feet
CTB 2	90.0	0	10.0	112SRFD	GRVL	Sandy gravel
		10.0	25.0	112SRFD	SAND	Silty sand
		25.0	90.0	112SRFD	GRVL	Sandy with boulders
		90.0	--	112SRFD	GRVL	End of boring at 90.0 feet
CTB 3	51.0	0	11.0	112SRFD	GRVL	--
		11.0	51.0	112TILL	TILL	Sandy till
		51.0	--	112TILL	TILL	End of boring in till at 51.0 feet
CTB 4	24.0	0	4.0	112SRFD	SDGL	--
		4.0	9.0	112SRFD	SAND	--
		9.0	18.0	112SRFD	GRVL	Sandy gravel
		18.0	24.0	112TILL	TILL	Sandy till
		24.0	--	112TILL	TILL	Refusal on boulder or bedrock at 24.0 feet
CTB 6	31.0	0	4.0	112SRFD	SAND	--
		4.0	16.0	112SRFD	SDST	Fine to coarse sand; trace of silt
		16.0	21.0	112SRFD	SAND	Silty, fine to coarse sand; till
		21.0	31.0	BEDROCK	ROCK	Chlorite schist with pyrite
		31.0	--	BEDROCK	ROCK	End of boring in bedrock at 31.0 feet
CTB 7	18.0	0	8.0	112SRFD	SDGL	--
		8.0	18.0	112TILL	TILL	Silty till
		18.0	--	112TILL	TILL	End of boring in till at 18.0 feet
CTW 1	45.0	--	--	--	--	--

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Colebrook—*Continued*			
CTW 2	--	0	5.0	112SRFD	SDGL	Very fine brown sand; coarse gravel
		5.0	7.0	112SRFD	SDGL	Fine to very coarse brown sand; coarse gravel and pebbles
		12.0	15.0	112SRFD	SAND	Very fine to very coarse brown sand; some coarse gravel and pebbles
		17.0	19.0	112SRFD	SAND	Medium gray brown sand; Trace of silt; some coarse gravel and pebbles
		27.0	29.0	112SRFD	SAND	Very fine to coarse gray-brown sand; Some gravel and pebbles
		37.0	39.0	112SRFD	SDGL	Fine to medium gray-brown sand; fine to coarse gravel
		47.0	49.0	112SRFD	SAND	Very fine to medium gray sand
		57.0	59.0	112SRFD	SAND	Fine gray sand
		67.0	69.0	112SRFD	SAND	Very fine gray sand
		77.0	79.0	112SRFD	SAND	Very fine to medium, gray sand; stratified fine and medium
		87.0	89.0	112SRFD	SAND	Fine, gray, well sorted sand
		97.0	99.0	112SRFD	SAND	Fine to medium gray sand
		99.0	--	112SRFD	SAND	End of hole at 99.0 feet
CTW 4	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	SDGL	--
CTW 6	--	--	--	110SDMN	SDGL	--
CTW 7	--	--	--	110SDMN	SDGL	--
CTW 8	--	--	--	110SDMN	CLAY	--
		15.0	--	BEDROCK	ROCK	--
CTW 10	--	--	--	110SDMN	SDGL	--
		28.0	--	BEDROCK	ROCK	--
CTW 11	--	--	--	110SDMN	SDGL	--
		27.0	--	BEDROCK	ROCK	--
CTW 12	--	--	--	110SDMN	CLAY	--
		65.0	--	BEDROCK	ROCK	--
CTW 13	--	--	--	110SDMN	CLAY	--
		32.0	--	BEDROCK	ROCK	--
CTW 15	--	--	--	110SDMN	CLAY	--
		19.0	--	BEDROCK	ROCK	--
CTW 19	--	--	--	110SDMN	SGVC	--
		56.0	--	BEDROCK	ROCK	--
CTW 20	--	--	--	110SDMN	SGVC	--
		42.0	--	BEDROCK	ROCK	--
CTW 25	--	--	--	110SDMN	SDGL	--
		10.0	--	BEDROCK	ROCK	--
CTW 26	--	--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
CTW 27	--	--	--	110SDMN	OTHR	--
		9.0	--	BEDROCK	ROCK	--
CTW 29	--	--	--	110SDMN	SDGL	--
		85.0	--	BEDROCK	ROCK	--
CTW 30	--	--	--	110SDMN	CLAY	--
		40.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

COOS COUNTY—*Continued*

Colebrook—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
CTW 31	--	--	--	110SDMN	SDGL	--
		5.0	--	BEDROCK	ROCK	--
CTW 32	--	--	--	110SDMN	SAND	--
		22.0	--	BEDROCK	ROCK	--
CTW 33	--	--	--	110SDMN	SGVC	--
		34.0	--	BEDROCK	ROCK	--
CTW 34	--	--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
CTW 35	--	--	--	110SDMN	CLAY	--
		12.0	--	BEDROCK	ROCK	--
CTW 36	--	--	--	110SDMN	SAND	--
		4.0	--	BEDROCK	ROCK	--
CTW 38	--	--	--	112TILL	TILL	--
		10.0	--	BEDROCK	ROCK	--
CTW 39	--	--	--	110SDMN	SDGL	--
		5.0	--	BEDROCK	ROCK	--
CTW 40	--	--	--	110SDMN	CLAY	--
		12.0	--	BEDROCK	ROCK	--
CTW 41	--	--	--	112TILL	TILL	--
		--	--	110SDMN	SAND	--
		30.0	--	BEDROCK	ROCK	--
CTW 42	--	--	--	112TILL	TILL	--
		--	--	110SDMN	SAND	--
		50.0	--	BEDROCK	ROCK	--
CTW 45	--	--	--	110SDMN	SDGL	--
		14.0	--	BEDROCK	ROCK	--
CTW 47	--	--	--	110SDMN	SDGL	--
		27.0	--	BEDROCK	ROCK	--
CTW 48	--	--	--	110SDMN	SDGL	--
		35.0	--	BEDROCK	ROCK	--
CTW 50	--	--	--	112TILL	TILL	--
		28.0	--	BEDROCK	ROCK	--
CTW 52	--	--	--	110SDMN	SDGL	--
		70.0	--	BEDROCK	ROCK	--
CTW 57	--	5.0	--	BEDROCK	ROCK	--
CTW 58	--	--	--	110SDMN	SDGL	--
		20.0	--	BEDROCK	ROCK	--
CTW 59	--	--	--	110SDMN	SDGL	--
		28.0	--	BEDROCK	ROCK	--
CTW 60	--	--	--	110SDMN	SGVC	--
		30.0	--	BEDROCK	ROCK	--
CTW 61	--	--	--	110SDMN	CLAY	--
		12.0	--	BEDROCK	ROCK	--
CTW 62	--	--	--	110SDMN	SGVC	--
		20.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Colebrook—*Continued*			
CTW 67	98.0	0	84.0	112SRFD	SDGL	Fine to coarse black sand; broken gravel
		84.0	91.0	112SRFD	SAND	Fine to medium black sand
		91.0	98.0	112SRFD	SDGL	Fine to coarse black sand; broken gravel
		98.0	--	112SRFD	SDGL	End of hole at 98.0 feet
CTW 68	11.0	0	11.0	112SRFD	SAND	Fine gravelly sand
		11.0	--	112SRFD	SAND	Refusal at 11.0 feet
CTW 69	20.0	0	6.0	112SRFD	GRDS	Brown silty gravel; some schist fragments
		6.0	11.0	112SRFD	SDST	Coarse silt; some fine sand; some stones
		11.0	16.0	112SRFD	SDST	Fine gray sand and silt
		20.0	--	112SRFD	SDST	Refusal at 20.0 feet
CTW 70	12.0	12.0	--	112SRFD	SAND	Refusal at 12.0 feet
CTW 71	10.0	0	10.0	112SRFD	SAND	Medium sand over till
		10.0	--	112TILL	TILL	Refusal in till at 10.0 feet
CTW 72	42.0	42.0	--	112SRFD	SAND	Refusal at 42.0 feet
CTW 73	74.0	0	17.0	112SRFD	SAND	Fine to coarse brown sand with some pebbles and cobbles
		17.0	19.0	112SRFD	SAND	Very fine to coarse gray-brown sand with some pebbles
		19.0	27.0	112SRFD	SDGL	Medium to coarse sand; fine gravel
		27.0	29.0	112SRFD	SDST	Some pebbles and coarse gravel
		37.0	39.0	112SRFD	SAND	Fine to medium sand; little gravel
		47.0	49.0	112SRFD	SAND	Very fine to coarse gray-brown sand; some pebbles and cobbles
		57.0	59.0	112SRFD	SAND	Medium gray-brown sand; some pebbles and cobbles
		67.0	69.0	112SRFD	SAND	Very fine to medium gray-brown sand; some pebbles and cobbles
		74.0	--	BEDROCK	ROCK	Refusal on bedrock at 74.0 feet
CTW 74	--	--	--	110SDMN	SAND	--
		27.0	--	BEDROCK	ROCK	--
			Columbia			
CUA 1	7.0	0	7.0	BEDROCK	ROCK	Refusal on bedrock at 7.0 feet
CUA 2	5.0	0	5.0	112SRFD	SDGL	Medium to coarse sand; some pebbles and gravel
		5.0	--	112SRFD	BLDR	Refusal in boulder layer after 4 attempts
CUB 1	38.0	0	3.0	112SRFD	SAND	Sand with stones
		3.0	34.0	112SRFD	SAND	Fine silty sand
		34.0	38.0	112TILL	TILL	Sandy
		38.0	--	112TILL	TILL	Refusal on boulder or bedrock at 38.0 feet
CUB 2	27.0	0	6.0	112SRFD	SDGL	Coarse sand
		6.0	27.0	112SRFD	SAND	Coarse sand
		27.0	--	112SRFD	SDGL	End of boring at 17.0 feet
CUB 3	20.0	0	6.0	112SRFD	SDGL	Sand and gravel with boulders
		6.0	20.0	112TILL	TILL	Hardpan, sandy, silty, boulders
		20.0	--	BEDROCK	ROCK	Refusal on rock at 20.0 feet
CUB 4	29.0	0	5.0	112SRFD	GRVL	With boulders
		5.0	29.0	112SRFD	SDGL	Medium sand
		29.0	--	112SRFD	SDGL	End of boring at 29.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Columbia—*Continued*			
CUW 1	65.0	0	3.0	112SRFD	SDGL	Medium to coarse brown sand
		3.0	17.0	112SRFD	SAND	Medium brown, well sorted sand
		17.0	19.0	112SRFD	SAND	Very fine to fine well sorted brown sand
		27.0	29.0	112SRFD	SAND	Very fine well sorted brown sand
		37.0	39.0	112SRFD	SAND	Very fine well sorted gray sand
		47.0	49.0	112SRFD	SAND	Very fine to fine well sorted gray sand
		57.0	59.0	112SRFD	SDGL	Fine to very coarse brown sand; fine to coarse gravel
		60.0	65.0	112SRFD	SDGL	Coarse sand; pebbles and cobbles
		65.0	--	112SRFD	SDGL	End of hole at 65.0 feet
CUW 2	54.0	0	2.0	112SRFD	SDGL	Silty brown loam; coarse gravel and cobbles
		27.0	29.0	112SRFD	SAND	Some silt, coarse gravel, cobbles and boulders
		37.0	39.0	112SRFD	SDGL	Very fine to fine sand; poorly sorted coarse gravel and cobbles
		47.0	49.0	112SRFD	SAND	Very fine to coarse gray sand; some coarse gravel and pebbles
		54.0	--	BEDROCK	ROCK	Refusal on bedrock at 54.0 feet
CUW 3	97.0	0	17.0	112SRFD	SDST	Olive brown sand and silt
		17.0	19.0	112SRFD	SAND	Very fine to coarse, brown, mostly medium sand
		27.0	29.0	112SRFD	SAND	Very fine gray sand
		37.0	39.0	112SRFD	SAND	Fine to medium gray sand
		47.0	49.0	112SRFD	SAND	Very fine to medium gray sand
		57.0	59.0	112SRFD	SDGL	Coarse to very coarse gray sand; some coarse gravel and pebbles
		67.0	69.0	112SRFD	SILT	Well sorted gray silt
		77.0	79.0	112SRFD	SILT	Well sorted gray silt
		97.0	--	112SRFD	SILT	Hard silt; end of hole at 97.0 feet
CUW 4	--	134.0	--	BEDROCK	ROCK	--
CUW 12	--	--	--	110SDMN	SDGL	--
CUW 13	--	--	--	110SDMN	SDGL	--
CUW 15	--	--	--	110SDMN	SDGL	--
CUW 16	--	--	--	110SDMN	SAND	--
		98.0	--	BEDROCK	ROCK	--
CUW 21	--	--	--	110SDMN	SDGL	--
		42.0	--	BEDROCK	ROCK	--
CUW 31	--	--	--	110SDMN	OTHR	--
		18.0	--	BEDROCK	ROCK	--
CUW 33	--	--	--	110SDMN	SDGL	--
		--	--	112TILL	TILL	Gravel and hardpan
		120.0	--	BEDROCK	ROCK	--
CUW 34	--	--	--	112TILL	TILL	--
		--	--	110SDMN	CLAY	--
		30.0	--	BEDROCK	ROCK	--
CUW 36	--	--	--	110SDMN	SDGL	--
		82.0	--	BEDROCK	ROCK	--
CUW 37	--	--	--	110SDMN	SDGL	--
		123.0	--	BEDROCK	ROCK	--
CUW 45	--	--	--	110SDMN	SDGL	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Columbia—*Continued*			
CUW 46	--	--	--	110SDMN	SDGL	--
		--	--	112TILL	TILL	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		50.0	--	BEDROCK	ROCK	--
CUW 51	--	--	--	110SDMN	CLAY	--
		80.0	--	BEDROCK	ROCK	--
			Dixville			
DHB 1	44.0	0	44.0	112SRFD	GRVL	Silty gravel
		44.0	--	112SRFD	GRVL	End of boring at 44.0 feet
DHW 2	--	--	--	--	--	--
DHW 6	--	--	--	110SDMN	SDGL	--
		0	--	BEDROCK	ROCK	--
DHW 8	52.0	0	6.0	112SRFD	SDGL	Medium sandy brown gravel
		6.0	11.0	112SRFD	SAND	Fine pebbly sand; some fine silty sand
		11.0	16.0	112SRFD	SDST	Fine sand
		16.0	21.0	112SRFD	SDGL	Fine sand; medium gravel
		21.0	26.0	112SRFD	SDST	Interbedded silt; fine sand
		26.0	31.0	112SRFD	SAND	Fine to medium sand, some rock fragments
		31.0	35.0	112SRFD	SDGL	Silty sand; schist gravel
		40.0	--	112TILL	TILL	Broken rock, angular fragments
		46.0	--	112TILL	TILL	Till with some gray silt
		46.0	52.0	112SRFD	SDGL	Fine to coarse silty sand; fine dry gravel
DHW 9	41.0	0	12.0	112SRFD	SAND	some stones
		12.0	21.0	112SRFD	SAND	some stones
		21.0	36.0	112SRFD	SAND	some stones
		36.0	--	112SRFD	GRVL	Till-like gravel
		40.0	--	112TILL	TILL	--
		41.0	--	112TILL	TILL	Refusal in till at 41.0 feet
DHW 10	41.0	41.0	--	112SRFD	SAND	--
		52.0	--	BEDROCK	ROCK	Refusal in Rock at 52.0 feet
			Dummer			
DMA 1	23.0	0	17.0	112SRFD	CLAY	Brown clay
		23.0	--	BEDROCK	ROCK	Refusal on boulder or bedrock at 23.0 feet
DMS 1	--	--	--	--	--	--
DMW 1	56.0	0	17.0	112SRFD	CLAY	Olive brown clay
		17.0	19.0	112SRFD	SAND	Very fine gray sand
		27.0	29.0	112SRFD	CLAY	Some very fine gray sand
		37.0	39.0	112SRFD	SDGL	Very fine to very coarse sand; some pebbles and gravel
		47.0	49.0	112SRFD	SDST	Very fine, gray, dense sand and silt
		56.0	--	112SRFD	SAND	Auger refusal in dense, very fine sand at 56.0 feet
DMW 2	--	--	--	110SDMN	SDGL	--
		6.0	--	BEDROCK	ROCK	--
DMW 4	--	--	--	110SDMN	CLAY	--
		40.0	--	BEDROCK	ROCK	--
DMW 5	--	--	--	110SDMN	CLAY	--
		55.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Dummer—*Continued*			
DMW 9	--	--	--	110SDMN	SGVC	--
		38.0	--	BEDROCK	ROCK	--
DMW 10	--	--	--	110SDMN	SDCL	--
DMW 11	--	--	--	110SDMN	SAND	--
		80.0	--	BEDROCK	ROCK	--
DMW 16	--	--	--	110SDMN	SDGL	--
		40.0	--	BEDROCK	ROCK	--
DMW 20	--	--	--	110SDMN	CLAY	--
		124.0	--	BEDROCK	ROCK	--
DMW 22	--	--	--	110SDMN	SDGL	--
DMW 23	--	--	--	110SDMN	SGVC	--
		43.0	--	BEDROCK	ROCK	--
DMW 25	--	--	--	110SDMN	CLAY	--
		45.0	--	BEDROCK	ROCK	--
			Errol			
ETB 1	46.0	0	5.0	112SRFD	SAND	--
		5.0	40.0	112SRFD	STCL	Silt, fine sand, and clay
		40.0	46.0	112SRFD	SAND	Fine to medium sand and stones
		46.0	--	112SRFD	SAND	End of boring at 46.0 feet
ETB 2	17.0	0	6.0	112SRFD	SDGL	Coarse sand
		6.0	14.0	112SRFD	SDCL	Sand and clay with boulders
		14.0	17.0	112SRFD	SDGL	Hard sand
		17.0	--	112TILL	TILL	Refusal in till at 17.0 feet
ETW 1	89.0	0	9.0	112OTSH	SILT	Dark brown sandy silt
		9.0	24.0	112OTSH	SDGL	Silty sand and gravel
		24.0	46.0	112OTSH	SDST	Very fine sand and silt
		46.0	85.0	112OTSH	CLAY	Blue-gray, silty clay
		85.0	89.0	112OTSH	SDGL	--
		89.0	--	BEDROCK	ROCK	Bedrock at 89.0 feet
ETW 2	195.0	-3.0	54.0	BEDROCK	ROCK	Bedrock at 47.0 feet
ETW 3	172.0	0	50.0	112SRFD	SAND	--
		50.0	172.0	BEDROCK	ROCK	Bedrock at 50.0 feet
ETW 4	40	0	40.0	112TILL	TILL	--
		40.0	40.0	BEDROCK	ROCK	Bedrock at 40.0 feet
ETW 5	--	--	--	110SDMN	SDGL	--
		40.0	--	BEDROCK	ROCK	--
ETW 7	--	--	--	110SDMN	SAND	--
		92.0	--	BEDROCK	ROCK	--
ETW 8	--	--	--	110SDMN	CLAY	--
		85.0	--	BEDROCK	ROCK	--
ETW 9	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	SAND	--
		127.0	--	BEDROCK	ROCK	--
ETW 10	--	--	--	110SDMN	SDGL	--
		58.0	--	BEDROCK	ROCK	--
ETW 11	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		100.0	--	BEDROCK	ROCK	--

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Errol—*Continued*			
ETW 12	--	--	--	110SDMN	SGVC	--
		70.0	--	BEDROCK	ROCK	--
ETW 14	--	--	--	110SDMN	SDCL	--
		85.0	--	BEDROCK	ROCK	--
ETW 16	--	--	--	110SDMN	SDCL	--
		81.0	--	BEDROCK	ROCK	--
ETW 18	--	--	--	110SDMN	SDCL	--
		84.0	--	BEDROCK	ROCK	--
ETW 19	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	CLAY	--
		110.0	--	BEDROCK	ROCK	--
ETW 20	17.0	0	.0	112SRFD	LOAM	--
		.0	2.0	112SRFD	SAND	Fine yellow-brown sand
		2.0	5.0	112SRFD	SAND	Fine olive sand
		5.0	12.0	112SRFD	SAND	Silty blue sand
		12.0	14.0	112SRFD	SAND	Silty brown sand
		14.0	17.0	112SRFD	SAND	Silty blue sand
		17.0	--	112SRFD	SAND	End of hole at 17.0 feet
ETW 21	22.0	0	1.0	112SRFD	LOAM	--
		1.0	3.0	112SRFD	STCL	Olive with sand
		3.0	6.0	112SRFD	GRDS	Olive gravel sand and silt
		6.0	14.0	112SRFD	SDCL	Olive and silty
		14.0	22.0	112SRFD	SILT	Brown silt
		22.0	--	112SRFD	SILT	End of hole at 22.0 feet
ETW 22	15.0	0	1.0	112SRFD	LOAM	--
		1.0	3.0	112SRFD	SAND	Fine silty brown sand
		3.0	5.0	112SRFD	GRVL	Coarse brown gravel
		5.0	15.0	112SRFD	SAND	Fine olive silty sand
		15.0	--	112SRFD	SAND	End of hole at 15.0 feet
ETW 23	19.0	0	1.0	112SRFD	LOAM	--
		1.0	2.0	112SRFD	RBBL	Wood debris
		2.0	3.0	112SRFD	SAND	Medium, light brown sand
		3.0	6.0	112SRFD	GRVL	Medium to coarse gravel
		6.0	19.0	112SRFD	SAND	Fine silty olive sand
		19.0	--	112SRFD	SAND	End of hole at 19.0 feet
ETW 24	19.0	0	1.0	112SRFD	LOAM	--
		1.0	19.0	112SRFD	SILT	Olive green
		19.0	--	112SRFD	SILT	End of hole at 19.0 feet
ETW 26	17.0	0	2.0	112SRFD	SAND	Fine to medium brown gravelly sand
		2.0	4.0	112SRFD	SAND	Fine to medium dark brown sand
		4.0	6.0	112SRFD	SILT	Dense, gray, clayey silt
		6.0	8.0	112SRFD	SILT	Dense, gray, clayey silt
		8.0	10.0	112SRFD	SILT	Fine loose sandy dark gray silt
		11.0	17.0	112SRFD	SAND	Fine to coarse dense sand, little gravel
		17.0	--	112SRFD	SAND	End of hole at 17.0 feet
ETW 27	17.0	0	2.0	112SRFD	SAND	Fine to coarse dense brown sand
		2.0	8.0	112SRFD	SILT	Fine dense gray and olive, sandy, silt
		10.0	17.0	112SRFD	SAND	Fine to coarse, medium dense brown sand
		17.0	--	112SRFD	SAND	End of hole at 17.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Errol—*Continued*			
ETW 28	17.0	0	2.0	112SRFD	SAND	Fine to medium, medium-dense, olive-brown sand
		2.0	4.0	112SRFD	SILT	Medium-dense, gray and brown, sandy silt
		4.0	6.0	112SRFD	SILT	Fine to medium olive brown, medium-dense silt
		6.0	8.0	112SRFD	SAND	Fine to medium, medium-dense, brown and gray sand
		8.0	10.0	112SRFD	SAND	Fine to medium, medium-dense, gray sand
		15.0	17.0	112TILL	TILL	Fine to coarse, very dense, gravelly brown till
		17.0	--	112TILL	TILL	End of hole at 17.0 feet
ETW 29	--	--	--	--	--	--
ETW 30	75.0	0	10.0	112SRFD	SDST	Very fine sand, some pebbles and cobbles
		10.0	17.0	112SRFD	SDGL	Coarse gravel; some cobbles
		17.0	19.0	112SRFD	SDGL	Very fine to fine sand; coarse gravel, some pebbles and cobbles
		27.0	29.0	112SRFD	SDST	Very fine gray sand
		47.0	49.0	112SRFD	SDST	Very fine gray sand
		67.0	69.0	112SRFD	SDST	Very fine gray sand with pebbles
		71.0	75.0	112TILL	TILL	--
		75.0	--	112TILL	TILL	Refusal in till or bedrock at 75.0 feet
ETW 50	--	--	--	--	--	--
			Gorham			
GOA 1	10.0	0	10.0	112SRFD	SAND	Well graded sand, trace of silt
		10.0	--	112SRFD	SAND	End of hole at 10.0 feet
GOA 2	20.0	0	2.0	112SRFD	SDGL	Medium to coarse sand; fine to coarse gravel
		2.0	10.0	112SRFD	GRVL	Fine to coarse gravel, trace of silt
		10.0	20.0	112SRFD	SAND	Fine to coarse sand, trace of gravel
		20.0	--	112SRFD	SAND	End of hole at 20.0 feet
GOA 3	22.0	0	22.0	112SRFD	SAND	Fine to coarse sand, trace of silt
		22.0	--	112SRFD	SAND	End of hole at 22.0 feet
GOA 4	22.0	0	22.0	112SRFD	SAND	Fine to coarse sand, trace of gravel
		22.0	--	112SRFD	SAND	End of hole at 22.0 feet
GOB 1	54.0	0	2.0	112SRFD	BLDR	--
		2.0	54.0	112TILL	TILL	Gravelly and sandy till
		54.0	--	112TILL	TILL	End of boring in till at 54.0 feet
GOB 2	49.0	0	15.0	112SRFD	GRVL	--
		15.0	26.0	112SRFD	GRVL	Sandy gravel
		26.0	49.0	112SRFD	GRVL	--
		49.0	--	112SRFD	GRVL	Refusal at 49.0 feet
GOB 3	26.0	0	21.0	112SRFD	GRVL	Gravel with boulders
		21.0	26.0	112TILL	TILL	Gravelly till
		26.0	--	112TILL	TILL	End of boring in till at 26.0 feet
GOB 4	71.0	0	13.0	112SRFD	COBB	Cobble with boulders
		13.0	71.0	112TILL	TILL	Sandy and gravelly till
		71.0	--	112TILL	TILL	Refusal in till at 71.0 feet
GOW 1	--	0	49.0	112DELT	SAND	Sand (deltaic deposits)
		49.0	--	112DELT	SAND	End of hole at 49.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Gorham—*Continued*			
GOW 2	85.0	0	70.0	112SRFD	SDGL	--
		70.0	85.0	112SRFD	SAND	Predominantly fine sand
		85.0	--	BEDROCK	ROCK	Bedrock at 85.0 feet
GOW 3	--	33.0	--	BEDROCK	ROCK	--
GOW 4	--	--	--	110SDMN	SAND	--
		36.0	--	BEDROCK	ROCK	--
GOW 5	--	--	--	110SDMN	SDGL	--
		35.0	--	BEDROCK	ROCK	--
GOW 6	--	--	--	110SDMN	SDGL	--
		4.0	--	BEDROCK	ROCK	--
GOW 7	--	--	--	110SDMN	SDGL	--
		14.0	--	BEDROCK	ROCK	--
GOW 8	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	OTHR	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
GOW 9	--	--	--	110SDMN	SDGL	--
GOW 10	--	--	--	110SDMN	CLAY	--
		60.0	--	BEDROCK	ROCK	--
GOW 11	--	--	--	110SDMN	SGVC	--
		--	--	110SDMN	SDGL	--
GOW 12	--	--	--	110SDMN	SGVC	--
	--	19.0	--	BEDROCK	ROCK	--
GOW 13	--	--	--	110SDMN	SDGL	--
		50.0	--	BEDROCK	ROCK	--
GOW 15	--	--	--	110SDMN	SDGL	--
		17.0	--	BEDROCK	ROCK	--
GOW 17	--	--	--	110SDMN	SGVC	--
		15.0	--	BEDROCK	ROCK	--
GOW 19	--	--	--	110SDMN	SGVC	--
		100.0	--	BEDROCK	ROCK	--
GOW 20	--	--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
GOW 21	--	--	--	110SDMN	SDGL	--
GOW 25	--	--	--	110SDMN	CLAY	--
		40.0	--	BEDROCK	ROCK	--
GOW 26	--	--	--	110SDMN	SDGL	--
		95.0	--	BEDROCK	ROCK	--
GOW 27	--	--	--	110SDMN	SGVC	--
		70.0	--	BEDROCK	ROCK	--
GOW 29	--	--	--	110SDMN	SDGL	--
		6.0	--	BEDROCK	ROCK	--
GOW 31	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		65.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Gorham—*Continued*			
GOW 32	--	--	--	110SDMN	OTHR	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		90.0	--	BEDROCK	ROCK	--
GOW 33	--	--	--	110SDMN	CLAY	--
		18.0	--	BEDROCK	ROCK	--
GOW 34	35.2	--	--	110SDMN	SDGL	--
GOW 36	81.0	0	10.0	112SRFD	BLDR	--
		10.0	15.0	112SRFD	BLSD	Some coarse gravel
		15.0	20.0	112SRFD	BLSD	Some coarse gravel
		20.0	24.0	112SRFD	GRVL	Gravel with boulders
		24.0	30.0	112SRFD	SAND	Sand with boulders
		30.0	36.0	112SRFD	SAND	Medium sand with boulders
		36.0	--	112SRFD	SAND	Sand with a trace of clay
		36.0	48.0	112SRFD	SAND	Coarse sand with boulders
		48.0	55.0	112SRFD	GRVL	Gravel with boulders
		61.0	70.0	112SRFD	GRVL	Coarse gravel with boulders
		70.0	75.0	112SRFD	GRVL	Coarse gravel with boulders
		75.0	81.0	112SRFD	GRVL	Gravel with boulders, hard-packed, trace of clay
		81.0	--	BEDROCK	ROCK	Refusal on bedrock at 81.0 feet
GOW 37	83.0	0	10.0	112SRFD	GRVL	Coarse gravel with boulders
		10.0	18.0	112SRFD	GRCL	Coarse gravel with clay and boulders
		18.0	65.0	112SRFD	GRVL	Coarse gravel with boulders
		65.0	70.0	112SRFD	GRVL	Medium gravel with boulders
		70.0	75.0	112SRFD	GRVL	Medium to coarse gravel with boulders
		75.0	83.0	112SRFD	SDGL	Fine gravel with boulders
		83.0	--	BEDROCK	ROCK	Refusal on bedrock at 83.0 feet
GOW 38	62.0	0	6.0	112SRFD	BLDR	--
		6.0	10.0	112SRFD	BLSC	Boulders, rocks, and clay
		10.0	20.0	112SRFD	BLSD	Some coarse gravel
		20.0	32.0	112SRFD	GRVL	Hard-packed gravel; trace of clay
		32.0	45.0	112SRFD	GRVL	Medium gravel with boulders
		45.0	55.0	112SRFD	GRVL	Coarse gravel with boulders
		55.0	62.0	112SRFD	GRVL	Medium gravel with boulders and trace of clay
		62.0	--	BEDROCK	ROCK	Refusal on bedrock at 62.0 feet
GOW 39	72.0	0	10.0	112SRFD	GRVL	Coarse gravel with boulders
		10.0	20.0	112SRFD	SDGL	Medium sand and gravel
		20.0	38.0	112SRFD	GRVL	Fine gravel with boulders
		38.0	50.0	112SRFD	SAND	Medium sand with boulders
		50.0	60.0	112SRFD	GRVL	Coarse gravel with boulders
		60.0	70.0	112SRFD	GRVL	Coarse gravel with boulders
		72.0	--	BEDROCK	ROCK	Refusal on bedrock at 72.0 feet
GOW 40	67.0	0	10.0	112SRFD	GRVL	Coarse gravel with boulders
		10.0	12.0	112SRFD	GRCL	Gravel and clay with boulders
		12.0	20.0	112SRFD	SAND	Medium sand with boulders
		20.0	30.0	112SRFD	GRVL	Fine gravel with boulders
		30.0	38.0	112SRFD	GRVL	Gravel with sand
		38.0	50.0	112SRFD	GRVL	Coarse gravel with boulders
		50.0	55.0	112SRFD	GRVL	Medium gravel with sand
		55.0	64.0	112SRFD	GRVL	Coarse gravel with boulders
		64.0	67.0	112SRFD	GRVL	Hard-packed gravel
		67.0	--	BEDROCK	ROCK	Refusal on bedrock at 67.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Gorham—*Continued*			
GOW 41	20.0	0	5.0	112SRFD	SDGL	Very fine to fine, silty gravelly sand
		5.0	7.0	112SRFD	SAND	Fine sand
		7.0	10.0	112SRFD	GRVL	Gravelly at 8.0 feet
		10.0	12.0	112SRFD	SAND	Very fine to very coarse gravelly sand
		12.0	15.0	112SRFD	GRVL	Gravel
		15.0	17.0	112SRFD	SAND	Silty sand
		17.0	20.0	112SRFD	SAND	Some cobbles
		20.0	--	112SRFD	SAND	End of hole at 20.C feet
GOW 42	17.0	0	5.0	112SRFD	SAND	Medium gravelly sand
		5.0	10.0	112SRFD	SAND	Poorly sorted sand
		10.0	12.0	112SRFD	GRVL	Medium to very coarse sandy gravel
		12.0	15.0	112SRFD	SDGL	--
		15.0	17.0	112SRFD	SAND	Gravelly sand
		17.0	--	112SRFD	SAND	End of hole at 17.0 feet
GOW 43	25.0	0	16.0	112SRFD	SAND	Medium to coarse sand; some gravel
		16.0	18.0	112SRFD	SAND	Medium sand; trace of gravel and silt
		18.0	25.0	112SRFD	SAND	Medium to coarse sand and trace of silt
		25.0	--	112SRFD	SAND	End of hole at 25.0 feet
GOW 44	25.0	0	11.0	112SRFD	SAND	Fine to coarse sand; little gravel; trace of silt
		11.0	15.0	112SRFD	SAND	Fine to medium sand; trace of silt
		15.0	25.0	112SRFD	SAND	Medium to coarse sand; trace of silt
		25.0	--	112SRFD	SAND	End of hole at 25.0 feet
GOW 45	25.0	0	14.0	112SRFD	SAND	Fine to coarse sand and gravel
		14.0	25.0	112SRFD	SAND	Fine to medium sand, trace of silt
		25.0	--	112SRFD	SAND	End of hole at 25.0 feet
GOW 46	25.0	0	12.0	112SRFD	SAND	Medium to coarse sand, trace of silt
		12.0	25.0	112SRFD	SAND	Fine to medium sand, trace of silt
		25.0	--	112SRFD	SAND	End of hole at 25.0 feet
GOW 47	25.0	0	25.0	112SRFD	SAND	Fine to coarse sand, trace of silt
		25.0	--	112SRFD	SAND	End of hole at 25.0 feet
GOW 48	25.0	0	25.0	112SRFD	SAND	Fine to coarse sand, trace of silt
		25.0	--	112SRFD	SAND	End of hole at 25.0 feet
GOW 49	30.0	0	17.0	112SRFD	SDGL	Fine to coarse sand; fine to coarse gravel
		17.0	30.0	112SRFD	SAND	Fine to coarse sand, little gravel
		30.0	--	112SRFD	SAND	End of hole at 30.0 feet
GOW 50	24.0	0	15.0	112SRFD	SDGL	Fine to coarse sand and gravel
		15.0	24.0	112SRFD	SAND	Fine to coarse sand, little gravel
		24.0	--	112SRFD	SAND	End of hole at 24.0 feet
GOW 51	24.0	0	13.0	112SRFD	SDGL	Fine to coarse sand and gravel, some cobbles
		13.0	24.0	112SRFD	SAND	Fine to coarse sand, trace of gravel
		24.0	--	112SRFD	SAND	End of hole at 24.0 feet
GOW 52	30.0	0	13.0	112SRFD	SDGL	Fine to coarse sand and gravel
		13.0	30.0	112SRFD	SAND	Fine to coarse sand, little gravel
		30.0	--	112SRFD	SAND	End of hole at 30.0 feet
GOW 53	30.0	0	13.0	112SRFD	SDGL	Fine to coarse sand and gravel
		13.0	30.0	112SRFD	SAND	Fine to coarse sand; some fine to medium gravel
		30.0	--	112SRFD	SAND	End of hole at 30.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lithology code	Description of material
			COOS COUNTY—*Continued*			
			Gorham—*Continued*			
GOW 54	30.0	0	14.0	112SRFD	SDGL	Fine to coarse sand and gravel; some cobble and boulders
		14.0	30.0	112SRFD	SAND	Fine to coarse sand; trace of medium gravel
		30.0	--	112SRFD	SAND	End of hole at 30.0 feet
GOW 55	--	--	--	110SDMN	SDGL	--
		6.0	--	BEDROCK	ROCK	--
			Green's Grant			
GUB 1	6.0	0	3.0	112SRFD	BLDR	--
		3.0	4.0	112SRFD	SDST	Some stones
		4.0	6.0	112SRFD	BLDR	--
		6.0	--	BEDROCK	ROCK	Refusal in bedrock at 6.0 feet
			Jefferson			
JEA 1	55.0	0	4.0	110SOIL	LOAM	Dark brown loam
		4.0	7.0	112SRFD	SDGL	Medium to very coarse sand; coarse gravel
		7.0	9.0	112SRFD	SAND	Very fine well sorted sand
		17.0	19.0	112SRFD	STCL	Gray silt and clay
		27.0	29.0	112SRFD	STCL	Gray silt and clay; trace of very fine sand
		37.0	39.0	112SRFD	SDST	Very fine sand, gray silt
		47.0	49.0	112SRFD	SDST	Very coarse sand; gray Silt
		55.0	--	112TILL	TILL	Refusal in till
JEB 1	20	0	1.0	112SRFD	LOAM	--
		1.0	3.0	112SRFD	SAND	Fine gray sand
		3.0	20.0	112SRFD	SDGL	--
		20.0	--	112SRFD	SDGL	Bottom of hole at 20 feet
JEB 2	18.0	0	13.0	112SRFD	GRVL	Gravel with boulders
		13.0	18.0	112SRFD	HRDP	Hardpan and till, silty and bouldery
		18.0	--	112SRFD	BLDR	Refusal at 18.0 feet
JEB 4	19.0	0	3.0	112SRFD	GRVL	--
		3.0	19.0	112SRFD	TILL	Silty till, boulders
		19.0	--	112SRFD	BLDR	Refusal on boulder or bedrock
JEB 4	19.0	0	3.0	112SRFD	GRVL	--
		3.0	19.0	112SRFD	TILL	Silty till, boulders
		19.0	--	112SRFD	BLDR	Refusal on boulder or bedrock
JEB 5	25.0	0	25.0	112SRFD	BLDR	Boulders with gravel
		25.0	--	112SRFD	ROCK	Refusal on bedrock or boulder at 25.0 feet
JEW 8	30.0	0	4.0	112SRFD	SAND	Fine well sorted tan sand
		12.0	17.0	112SRFD	SDGL	Coarse to very coarse gray sand; Fine to coarse gravel, pebbles and cobbles
		17.0	19.0	112SRFD	SILT	Well sorted gray silt
		27.0	29.0	112SRFD	TILL	Sandy gray till
		30.0	--	112TILL	TILL	Auger refusal in till at 30.0 feet
JEW 11	--	--	--	110SDMN	SDGL	--
		20.0	--	BEDROCK	ROCK	--
JEW 12	--	--	--	110SDMN	SDGL	--
		20.0	--	BEDROCK	ROCK	--
JEW 13	--	--	--	110SDMN	SDGL	--
		30.0	--	BEDROCK	ROCK	--
JEW 14	--	--	--	110SDMN	SAND	--
		8.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Jefferson—*Continued*			
JEW 16	--	--	--	110SDMN	CLAY	--
		60.0	--	BEDROCK	ROCK	--
JEW 21	--	--	--	110SDMN	SDGL	--
		62.0	--	BEDROCK	ROCK	--
JEW 23	--	--	--	110SDMN	CLAY	--
		9.0	--	BEDROCK	ROCK	--
JEW 32	--	--	--	110SDMN	SDGL	--
		11.0	--	BEDROCK	ROCK	--
JEW 34	--	--	--	110SDMN	SDGL	--
		15.0	--	BEDROCK	ROCK	--
JEW 40	--	--	--	110SDMN	CLAY	--
		44.0	--	BEDROCK	ROCK	--
JEW 44	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	OTHR	--
		15.0	--	BEDROCK	ROCK	--
JEW 47	--	--	--	110SDMN	SDGL	--
		--	--	112TILL	TILL	--
		37.0	--	BEDROCK	ROCK	--
JEW 48	--	--	--	110SDMN	SDGL	--
		21.0	--	BEDROCK	ROCK	--
JEW 49	--	--	--	110SDMN	SDGL	--
		--	--	112TILL	TILL	--
		38.0	--	BEDROCK	ROCK	--
JEW 50	--	--	--	110SDMN	SDGL	--
		8.0	--	BEDROCK	ROCK	--
JEW 51	--	--	--	110SDMN	SDGL	--
		--	--	112TILL	TILL	--
		30.0	--	BEDROCK	ROCK	--
JEW 52	--	--	--	110SDMN	SDGL	--
		--	--	112TILL	TILL	Till with gravel and hardpan
		40.0	--	BEDROCK	ROCK	--
JEW 55	--	--	--	110SDMN	SGVC	--
		28.0	--	BEDROCK	ROCK	--
JEW 56	--	--	--	110SDMN	SDGL	--
		50.0	--	BEDROCK	ROCK	--
JEW 60	--	--	--	112TILL	TILL	--
		53.0	--	BEDROCK	ROCK	--
JEW 62	--	--	--	110SDMN	SDGL	--
		49.0	--	BEDROCK	ROCK	--
JEW 63	--	--	--	110SDMN	OTHR	--
		--	--	110SDMN	SDGL	--
		56.0	--	BEDROCK	ROCK	--
JEW 65	--	--	--	112TILL	TILL	Till with sand, gravel, and hardpan
		38.0	--	BEDROCK	ROCK	--
JEW 73	--	--	--	110SDMN	SDGL	--
		35.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Lancaster			
LCA 1	49.0	0	7.0	112SRFD	SAND	Medium to coarse sand, moderate sorting
		7.0	15.0	112SRFD	SDST	Coarse to very coarse sand, with some clay and silt
		15.0	49.0	112SRFD	SDST	Very fine sand
		49.0	--	112SRFD	SDST	End of hole at 49.0 feet
LCB 3	45.0	0	12.0	111FILL	SAND	Fill
		12.0	14.0	112SRFD	SAND	Fine to medium sand with trace of silt
		14.0	17.0	112SRFD	GRVL	Sandy gravel with minor silt
		17.0	25.0	112SRFD	BLDR	Boulders
		25.0	45.0	112TILL	TILL	Till with silty gray sand
		45.0	--	112TILL	TILL	End of hole at 45.0 feet
LCB 5	15.0	0	2.0	112TILL	TILL	Sandy till
		2.0	8.0	112TILL	TILL	Silty till
		8.0	11.0	112TILL	TILL	Silty, clayey till
		11.0	15.0	112TILL	TILL	Silty till
		15.0	--	112TILL	TILL	Refusal on ledge or boulders
LCB 7	29.0	0	2.0	112SRFD	SAND	Fine to coarse sand
		2.0	5.0	112SRFD	SAND	Fine to coarse sand with some gravel
		5.0	8.0	112SRFD	SILT	Sandy silt
		8.0	23.0	112SRFD	TILL	Clayey till
		23.0	29.0	112SRFD	ROCK	Cored bedrock
		29.0	--	112SRFD	ROCK	Refusal on bedrock at 29.0 feet
LCW 12	--	--	--	110SDMN	SAND	--
		12.0	--	BEDROCK	ROCK	--
LCW 15	--	--	--	110SDMN	SAND	--
		9.0	--	BEDROCK	ROCK	--
LCW 18	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
LCW 19	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		40.0	--	BEDROCK	ROCK	--
LCW 34	--	--	--	110SDMN	SAND	--
LCW 35	--	--	--	112TILL	TILL	Till with gravel and hardpan
		20.0	--	BEDROCK	ROCK	--
LCW 41	--	--	--	110SDMN	SDGL	--
		6.0	--	BEDROCK	ROCK	--
LCW 43	--	--	--	110SDMN	SDCL	--
		90.0	--	BEDROCK	ROCK	--
LCW 49	--	--	--	110SDMN	SGVC	--
		17.0	--	BEDROCK	ROCK	--
LCW 53	--	0.0	10.0	110SDMN	SAND	Sand
		10.0	60.0	110SDMN	CLAY	Clay
		60.0	--	BEDROCK	ROCK	Bedrock
LCW 59	--	--	--	112TILL	TILL	--
		1.0	--	BEDROCK	ROCK	--
LCW 63	--	0	4.0	112SRFD	SAND	Very fine to coarse brown sand; some gravel and pebbles
		4.0	17.0	112SRFD	CLAY	Silty brown clay
		25.0	--	BEDROCK	ROCK	Refusal on bedrock at 25.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Lancaster—*Continued*			
LCW 64	68.0	0	17.0	112SRFD	SAND	Fine to medium sand with some pebbles and gravel
		17.0	19.0	112SRFD	SAND	Medium to coarse sand with some pebbles and gravel
		27.0	29.0	112SRFD	SDGL	Coarse to very coarse sand; fine to coarse gravel
		37.0	39.0	112SRFD	SAND	Fine gray sand
		47.0	49.0	112SRFD	SDST	Very fine sand with gray silt
		57.0	59.0	112SRFD	SDST	Very fine sand with gray silt
		64.0	68.0	112TILL	TILL	--
		68.0	--	BEDROCK	ROCK	Refusal on bedrock at 68.0 feet
LCW 65	16.0	0	9.0	112SRFD	SDGL	Fine to coarse sand with little gravel
		9.0	13.0	112SRFD	SDGL	Fine to medium sand with trace of fine gravel
		13.0	16.0	112SRFD	STCL	Gray, wet silt; little clay
		16.0	--	112SRFD	STCL	End of hole at 16.0 feet
			Martins Location			
MFB 1	17.0	0	4.0	112SRFD	GRVL	Gravel with boulders
		4.0	14.0	112SRFD	SDST	Fine sand with some clay
		14.0	17.0	112SRFD	SDGL	Coarse sand and fine gravel
		17.0	--	BEDROCK	ROCK	End of boring in bedrock at 17.0 feet
MFW 35	--	--	--	--	--	--
MFW 36	--	--	--	--	--	--
			Milan			
MNA 1	17.0	0	17.0	112SRFD	BLDR	Pebbles, cobbles, and boulders
		17.0	--	112SRFD	BLDR	Refusal on boulder at 17.0 feet
MNA 2	29.0	0	15.0	112SRFD	STCL	Gray silt and clay with some pebbles and cobbles
		17.0	19.0	112SRFD	CLAY	Olive brown clay with some coarse sand in layers
		27.0	29.0	112SRFD	BLDR	Auger refusal on boulder at 29.0 feet
MNB 1	55.0	0	6.0	112SRFD	SAND	Fine sand
		6.0	14.0	112SRFD	GRVL	--
		14.0	18.0	112SRFD	SAND	Fine gray sand
		18.0	38.0	112SRFD	SAND	Silty sand
		38.0	55.0	112SRFD	GRVL	--
		55.0	--	112SRFD	GRVL	Refusal at 55.0 feet
MNB 3	9.0	0	2.0	112SRFD	LOAM	--
		2.0	6.0	112TILL	TILL	Sandy till
		6.0	9.0	112TILL	TILL	Silty till
		9.0	--	BEDROCK	ROCK	Bedrock at 9.0 feet
MNB 4	69.0	0	13.0	112SRFD	SDST	Fine sand with little silt
		13.0	19.0	112SRFD	SAND	Medium gray sand
		19.0	27.0	112SRFD	SDST	Fine sand and silt
		27.0	47.0	112SRFD	SDST	Sand and silt with clay
		47.0	69.0	112SRFD	SDGL	Medium sand and gravel
		69.0	--	112SRFD	SDGL	Refusal at 69.0 feet
MNB 5	51.0	0	5.0	112SRFD	MUCK	--
		5.0	46.0	112SRFD	SDST	Fine sand and silt
		46.0	51.0	112TILL	TILL	Sandy till
		51.0	--	112TILL	TILL	Refusal in till at 51.0 feet
MNS 1	--	--	--	--	--	--
MNS 2	--	--	--	--	--	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
				COOS COUNTY—*Continued*		
				Milan—*Continued*		
MNW 2	29.0	0	17.0	112SRFD	COSD	Fine to coarse gravel with some pebbles and cobbles
		17.0	19.0	112SRFD	GRVL	Coarse gravel and very coarse sand with pebbles and cobbles
		27.0	29.0	112SRFD	SAND	Coarse sand with some silt and gravel and pebbles and cobble
		29.0	--	BEDROCK	ROCK	Auger refusal on boulder or bedrock at 29.0 feet
MNW 3	71.0	0	12.0	112SRFD	SDST	Very fine sand with some brown silt
		12.0	17.0	112SRFD	STCL	Gray silt and clay with fine sand
		37.0	39.0	112SRFD	SDGL	Very coarse sand; coarse gravel
		47.0	49.0	112SRFD	SDST	Very coarse sand with gray silt and come coarse gravel and cobbles
		57.0	59.0	112SRFD	SDST	Very coarse sand with gray silt and some coarse gravel and cobbles
		67.0	69.0	112SRFD	SDST	Very coarse sand with gray silt and some coarse gravel and cobbles
		71.0	--	112TILL	TILL	Refusal in till at 71.0 feet
MNW 4	90.0	0	3.0	110SOIL	LOAM	--
		3.0	8.0	112SRFD	SAND	Fine to medium brown sand
		8.0	19.0	112SRFD	SAND	Sand with trace of pebbles
		21.0	25.0	112SRFD	GRVL	Coarse gravel with some very coarse sand and pebbles
		37.0	39.0	112SRFD	SDGL	Medium to very coarse sand; coarse gravel
		47.0	57.0	112SRFD	SAND	Fine to medium sand
		57.0	59.0	112SRFD	SAND	Fine to medium sand with some very coarse sand and some gravel
		67.0	69.0	112SRFD	SAND	Fine to medium sand with some gravel, pebbles, and cobble
		77.0	87.0	112SRFD	SAND	Very fine to medium sand
		87.0	90.0	112SRFD	SAND	Medium to coarse sand with some silt, gravel, and pebbles
		90.0	--	BEDROCK	ROCK	Refusal on bedrock at 90.0 feet
MNW 5	85.0	0	2.0	110SOIL	LOAM	Dark brown loam
		2.0	14.0	112SRFD	SDGL	Medium to coarse sand; coarse gravel
		17.0	19.0	112SRFD	SAND	Fine to very coarse, predominantly fine to medium, sand
		27.0	29.0	112SRFD	SAND	Very fine to fine sand
		37.0	39.0	112SRFD	STCL	Gray silt and clay
		57.0	59.0	112SRFD	CLAY	Gray clay
		77.0	79.0	112SRFD	STCL	--
		80.0	85.0	112TILL	TILL	--
		85.0	--	BEDROCK	ROCK	Refusal on bedrock at 85.0 feet
MNW 8	--	--	--	110SDMN	CLAY	--
		80.0	--	BEDROCK	ROCK	--
MNW 9	--	--	--	110SDMN	CLAY	--
		70.0	--	BEDROCK	ROCK	--
MNW 14	--	--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
MNW 15	--	--	--	110SDMN	CLAY	--
		19.0	--	BEDROCK	ROCK	--
MNW 16	--	--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
MNW 17	--	--	--	110SDMN	SAND	--
		96.0	--	BEDROCK	ROCK	--
MNW 21	--	--	--	110SDMN	CLAY	--
		40.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Milan—*Continued*			
MNW 22	--	--	--	110SDMN	CLAY	--
		90.0	--	BEDROCK	ROCK	--
MNW 23	--	--	--	110SDMN	CLAY	--
		50.0	--	BEDROCK	ROCK	--
MNW 26	--	--	--	110SDMN	CLAY	--
		35.0	--	BEDROCK	ROCK	--
MNW 27	--	--	--	110SDMN	SDCL	--
		72.0	--	BEDROCK	ROCK	--
MNW 28	--	--	--	110SDMN	CLAY	--
		50.0	--	BEDROCK	ROCK	--
MNW 29	--	--	--	-------	--	--
MNW 30	--	--	--	110SDMN	CLAY	--
		126.0	--	BEDROCK	ROCK	--
MNW 32	--	--	--	110SDMN	CLAY	--
		40.0	--	BEDROCK	ROCK	--
MNW 33	--	--	--	110SDMN	SDGL	--
		21.0	--	BEDROCK	ROCK	--
MNW 34	--	--	--	110SDMN	CLAY	--
		85.0	--	BEDROCK	ROCK	--
MNW 35	--	--	--	110SDMN	SGVC	--
		128.0	--	BEDROCK	ROCK	--
MNW 39	--	--	--	110SDMN	SGVC	--
		50.0	--	BEDROCK	ROCK	--
MNW 40	--	--	--	110SDMN	CLAY	--
		98.0	--	BEDROCK	ROCK	--
MNW 41	--	--	--	110SDMN	SGVC	--
		52.0	--	BEDROCK	ROCK	--
MNW 43	--	--	--	110SDMN	SDCL	--
		27.0	--	BEDROCK	ROCK	--
MNW 48	--	--	--	110SDMN	CLAY	--
		82.0	--	BEDROCK	ROCK	--
MNW 54	--	--	--	110SDMN	CLAY	--
MNW 56	--	--	--	110SDMN	SGVC	--
		70.0	--	BEDROCK	ROCK	--
MNW 59	--	--	--	110SDMN	SDGL	--
		50.0	--	BEDROCK	ROCK	--
MNW 63	--	--	--	110SDMN	SDCL	--
		80.0	--	BEDROCK	ROCK	--
MNW 66	--	--	--	110SDMN	SGVC	--
		80.0	--	BEDROCK	ROCK	--
MNW 67	--	--	--	110SDMN	SGVC	--
		41.0	--	BEDROCK	ROCK	--
MNW 68	--	--	--	110SDMN	CLAY	--
		40.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Milan—*Continued*			
MNW 69	--	--	--	110SDMN	CLAY	--
		33.0	--	BEDROCK	ROCK	--
MNW 71	--	--	--	110SDMN	CLAY	--
		120.0	--	BEDROCK	ROCK	--
MNW 74	--	--	--	110SDMN	SDGL	--
		14.0	--	BEDROCK	ROCK	--
MNW 75	--	--	--	110SDMN	SAND	--
MNW 76	--	--	--	110SDMN	SAND	--
MNW 79	--	--	--	112TILL	TILL	--
		95.0	--	BEDROCK	ROCK	--
MNW 82	--	--	--	110SDMN	OTHR	--
		--	--	110SDMN	SDGL	--
		--	--	110SDMN	CLAY	--
		--	--	110SDMN	SDGL	--
		20.0	--	BEDROCK	ROCK	--
MNW 84	--	--	--	110SDMN	CLAY	--
		--	--	112TILL	TILL	--
MNW 88	--	--	--	110SDMN	CLAY	--
MNW 92	62.0	0	25.0	112SRFD	SDGL	Very coarse sand with fine gravel
		25.0	35.0	112SRFD	SAND	Very fine to fine sand, moderately sorted
		35.0	58.0	112SRFD	SILT	Gray silt with little clay
		58.0	62.0	112TILL	TILL	Gray compact till, end of hole at 62.0 feet
			Millsfield			
MSB 1	22.0	0	2.0	112SRFD	SDGL	Loose sand and gravel
		2.0	22.0	112SRFD	GRVL	Medium to coarse silty gravel
		22.0	--	112SRFD	GRVL	End of boring at 22.0 feet
MSW 1	--	--	--	110SDMN	SDCL	--
MSW 2	--	--	--	110SDMN	SAND	--
		34.0	--	BEDROCK	ROCK	--
			Northumberland			
NUA 1	97.0	0	7.0	112SRFD	SDGL	Coarse to very coarse sand with pebbles and gravel
		7.0	9.0	112SRFD	SAND	Fine brown sand
		17.0	19.0	112SRFD	SAND	Very fine brown sand
		27.0	29.0	112SRFD	SILT	Gray silt
		47.0	49.0	112SRFD	SAND	Very fine gray sand
		77.0	79.0	112SRFD	SILT	Well sorted gray silt
		95.0	97.0	112TILL	TILL	Sandy gray till
		97.0	--	112TILL	TILL	End of hole at 97.0 feet
NUA 2	59.0	0	17.0	112SRFD	SAND	Medium to coarse sand with coarse gravel and boulders
		17.0	19.0	112SRFD	SAND	Very fine gray sand
		27.0	29.0	112SRFD	STCL	Gray silt and clay
		37.0	39.0	112SRFD	CLAY	Gray clay
		47.0	49.0	112SRFD	CLAY	--
		57.0	59.0	112TILL	TILL	Sandy gray till
		59.0	--	112TILL	TILL	Refusal in till at 59.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
						COOS COUNTY—*Continued*
						Northumberland—*Continued*
NUA 3	107.0	0	58.0	112SRFD	SDGL	Medium gray sand with small gravel
		58.0	89.0	112SRFD	SAND	Fine silty gray sand
		89.0	104.0	112SRFD	SDCL	Dark gray clay with fine sand
		104.0	107.0	112SRFD	SAND	Fine silty gray sand
		107.0	--	112SRFD	SDCL	Refusal in dark gray clay with some sand and gravel, at 107.0 feet
NUA 4	17.0	0	4.0	112SRFD	SAND	Coarse brown sand
		4.0	17.0	112SRFD	SDGL	Clay-bound sand and gravel
		17.0	--	112SRFD	ROCK	Dark gray rock; refusal at 17.0 feet
NUA 5	7.0	0	4.0	112SRFD	SAND	Coarse brown sand
		4.0	7.0	112SRFD	SDGL	Clay-bound sand and gravel; some cobbles
		7.0	--	112SRFD	ROCK	Dark gray rock, end of hole at 7.0 feet
NUA 6	18.0	0	4.0	112SRFD	SAND	Brown sand
		4.0	8.0	112SRFD	SDGL	Clay-bound sand, gravel, cobbles
		18.0	--	112SRFD	ROCK	Dark gray rock refusal
NUB 1	59.0	0	33.0	112SRFD	SAND	Fine sharp sand
		33.0	42.0	112SRFD	SAND	Silty, gravelly with boulders
		42.0	59.0	BEDROCK	ROCK	Bedrock at 42.0 feet
		59.0	--	BEDROCK	ROCK	End of boring at 59.0 feet
NUB 2	42.0	0	8.0	112SRFD	SDGL	Coarse sand and gravel
		8.0	27.0	112SRFD	CLSD	Soft blue clay
		27.0	39.0	112SRFD	SDGL	Fine loose sand with little gravel and boulders
		39.0	42.0	112SRFD	SDGL	Sand and gravel with boulders
		42.0	--	112SRFD	BLDR	Refusal on boulder at 42.0 feet
NUB 3	30.0	0	12.0	112SRFD	SDGL	Coarse sand and gravel
		12.0	16.0	112SRFD	SDCL	Soft blue clay
		16.0	30.0	112SRFD	SDGL	Coarse sand and gravel
		30.0	--	112SRFD	SDGL	End of boring at 30.0 feet
NUB 4	29.0	0	5.0	112SRFD	SAND	Medium to coarse sand
		5.0	13.0	112SRFD	GRVL	Sandy gravel
		13.0	25.0	112SRFD	GRVL	Sandy, silty gravel
		25.0	29.0	112TILL	TILL	Silty till
		29.0	--	112TILL	TILL	Refusal on boulder or bedrock at 29.0 feet
NUB 5	61.0	0	8.0	112SRFD	RBBL	Fill and broken concrete
		8.0	16.0	112SRFD	SAND	Medium to fine sand
		16.0	61.0	112TILL	TILL	Silty till
		61.0	--	112TILL	TILL	Refusal in till at 61.0 feet
NUW 1	100.0	0	2.0	110SOIL	LOAM	--
		2.0	12.0	112SRFD	SDGL	Medium to very coarse sand with some pebbles and gravel
		12.0	30.0	112SRFD	SAND	Medium to very coarse well sorted brown sand
		30.0	48.0	112SRFD	SAND	Medium to coarse sand
		48.0	58.0	112SRFD	SDST	Fine to medium sand with some silt
		58.0	68.0	112SRFD	SAND	Fine to medium well sorted sand
		68.0	79.0	112SRFD	SDST	Very fine to fine sand with some silt
		79.0	89.0	112SRFD	SDGL	Very coarse sand with fine gravel
		89.0	100.0	112SRFD	SAND	Medium to coarse sand, moderate sorting
		100.0	--	112SRFD	SAND	End of hole at 100.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Northumberland—*Continued*			
NUW 2	99.0	0	12.0	112SRFD	SAND	Very fine, well sorted, sand
		12.0	29.0	112SRFD	SAND	Medium to coarse well sorted brown sand
		29.0	46.0	112SRFD	SAND	Fine to medium, well sorted sand
		46.0	47.0	112SRFD	GRVL	--
		47.0	75.0	112SRFD	SDST	Very fine sand with some silt
		75.0	95.0	112SRFD	SAND	Fine to medium sand with some gravel
		95.0	99.0	112SRFD	SAND	Fine to medium sand
		99.0	--	112SRFD	SAND	End of hole at 99.0 feet
NUW 3	89.0	0	2.0	112SRFD	SAND	Fine sand
		2.0	12.0	112SRFD	SAND	Very fine sand
		12.0	16.0	112SRFD	SAND	Fine to medium sand
		16.0	43.0	112SRFD	SAND	Fine to medium sand with trace of silt
		43.0	55.0	112SRFD	SAND	Very fine to fine sand
		55.0	65.0	112SRFD	SAND	Fine to medium sand
		65.0	89.0	112SRFD	CLAY	Gray clay with some silt and sand
		89.0	--	112SRFD	CLAY	End of hole at 89.0 feet
NUW 4	--	--	--	110SDMN	SDGL	--
		165.0	--	BEDROCK	ROCK	--
NUW 5	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		147.0	--	BEDROCK	ROCK	--
NUW 10	--	--	--	110SDMN	SGVC	--
		20.0	--	BEDROCK	ROCK	--
NUW 15	--	--	--	110SDMN	CLAY	--
		103.0	--	BEDROCK	ROCK	--
NUW 16	--	--	--	112TILL	TILL	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	OTHR	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		58.0	--	BEDROCK	ROCK	--
NUW 17	--	--	--	110SDMN	CLAY	--
		30.0	--	BEDROCK	ROCK	--
NUW 18	--	--	--	112TILL	TILL	Till with sand, gravel, and hardpan
NUW 19	--	--	--	110SDMN	SDGL	--
		45.0	--	BEDROCK	ROCK	--
NUW 21	--	--	--	110SDMN	SDGL	--
		79.0	--	BEDROCK	ROCK	--
NUW 23	21.0	0	11.0	112SRFD	SAND	Medium to coarse sand, pebbly sand
		11.0	16.0	112SRFD	SAND	Fine to medium sand
		16.0	21.0	112SRFD	SILT	Gray silt with trace of fine sand
		21.0	--	112SRFD	SILT	End of hole at 21.0 feet
NUW 24	22.0	0	12.0	112SRFD	SAND	Brown wet sand
		12.0	16.0	112SRFD	SDST	Medium pebbly sand with fine gray silt
		16.0	22.0	112SRFD	STCL	Gray silt over fine clay
		22.0	--	112SRFD	SDST	End of hole at 22.0 feet
NUW 25	32.0	0	27.0	112SRFD	PEAT	Light brown low density peat
		27.0	32.0	112SRFD	PEAT	Light brown low density peat
		32.0	--	112SRFD	PEAT	End of hole at 32.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Northumberland—*Continued*			
NUW 26	16.0	0	9.0	112SRFD	SAND	Fine to coarse sand with trace of gravel
		9.0	16.0	112SRFD	SAND	Fine to medium sand with trace of silt and gravel
		16.0	--	112SRFD	SAND	End of hole at 16.0 feet
NUW 27	17.0	0	1.0	112SRFD	SAND	Medium sand with little pebble
		1.0	5.0	112SRFD	SAND	Fine to medium sand with trace of gravel
		10.0	17.0	112SRFD	SAND	Very fine to fine sand with trace of very fine gravel
		17.0	--	112SRFD	SAND	End of hole at 17.0 feet
NUW 28	17.0	0	4.0	112SRFD	COSD	Medium to coarse sand with some cobbles
		4.0	10.0	112SRFD	SDGL	Fine to medium sand with little gravel
		10.0	14.0	112SRFD	SDGL	Fine to medium sand with some fine gravel
		14.0	17.0	112SRFD	CLAY	Gray clay with some sand
		17.0	--	112SRFD	CLAY	End of hole at 17.0 feet
NUW 29	115.0	0	28.0	112SRFD	SDGL	Fine to coarse brown sand and gravel
		28.0	82.0	112SRFD	STCL	Fine black silt and clay
		82.0	115.0	112SRFD	SDGL	Medium gray sand with some gravel
		115.0	--	112SRFD	SDGL	End of hole at 115.0 feet
NUW 30	138.0	0	56.0	112SRFD	SDGL	Medium to coarse sand and small gravel
		56.0	104.0	112SRFD	SAND	Fine silty gray sand
		104.0	114.0	112SRFD	SDCL	Fine gray silty sand with some clay
		114.0	136.0	112SRFD	SDGL	Dark gray clay matrix with sand and gravel
		136.0	138.0	112SRFD	SDGL	Medium to coarse gray sand with some gravel and silt, end of hole at 138.0 feet
NUW 31	124.0	0	20.0	112SRFD	SAND	Medium to coarse sand
		20.0	55.0	112SRFD	SAND	Fine gray silty sand
		55.0	84.0	112SRFD	SDCL	Fine gray silty sand
		84.0	112.0	112SRFD	CLAY	Gray clay
		112.0	122.0	112SRFD	SDST	Fine gray sand and silt
		122.0	124.0	112TILL	TILL	--
		124.0	--	112TILL	TILL	Refusal at 124.0 feet
NUW 32	108.0	0	14.0	112SRFD	SAND	Medium brown sand
		14.0	21.0	112SRFD	SAND	Medium gray sand
		21.0	64.0	112SRFD	SDST	Fine gray silty sand
		64.0	103.0	112SRFD	SDCL	Fine gray silty sand with clay
		103.0	108.0	112SRFD	SDGL	Medium to coarse gray sand with gravel
		108.0	--	112SRFD	SDGL	Refusal at 108.0 feet
NUW 33	162.0	0	145.0	112SRFD	SDST	Fine silty gray sand
		145.0	162.0	112SRFD	STCL	Refusal at 162.0 feet
NUW 34	140.0	0	32.0	112SRFD	SAND	Medium brownish-gray sand
		32.0	60.0	112SRFD	STCL	Gray silt and clay
		60.0	85.0	112SRFD	CLAY	Gray clay
		85.0	100.0	112SRFD	SAND	Fine to medium gray sand
		100.0	128.0	112SRFD	SDST	Fine to medium gray sand with some silt
		128.0	140.0	112SRFD	SDST	Fine silty gray sand
		140.0	--	112SRFD	SDST	End of hole at 140.0 feet
NUW 35	86.0	0	25.0	112SRFD	SAND	Medium to coarse brown sand
		25.0	28.0	112SRFD	SAND	Coarse black sand
		28.0	42.0	112SRFD	STCL	Gray silt and clay
		42.0	46.0	112SRFD	SAND	Medium to coarse brown sand
		46.0	85.0	112SRFD	STCL	Gray silt and clay
		85.0	86.0	112TILL	TILL	Gray till
		86.0	--	112TILL	TILL	Refusal at 86.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Northumberland—*Continued*			
NUW 36	112.0	0	15.0	112SRFD	SDST	Fine brown sand with some peat
		15.0	28.0	112SRFD	SDGL	Coarse brown sand and gravel
		28.0	74.0	112SRFD	STCL	Gray silt and clay
		74.0	95.0	112SRFD	SDCL	Medium sand with gray clay
		95.0	112.0	112SRFD	SDGL	Medium sand and coarse gravel
		112.0	--	112SRFD	SDGL	Refusal at 112.0 feet
NUW 37	112.0	0	15.0	112SRFD	SAND	Fine brown sand with some peat
		15.0	28.0	112SRFD	SDGL	Coarse brown sand and gravel
		28.0	74.0	112SRFD	STCL	Gray silt and clay
		74.0	95.0	112SRFD	SDCL	Trace of medium sand with gray clay
		95.0	112.0	112SRFD	SDGL	Medium sand and coarse gravel
		112.0	--	112SRFD	SDGL	Refusal at 112.0 feet
NUW 38	81.0	.0	71.0	112SRFD	SAND	Fine to medium
		--	--	112SRFD	SDGL	With some boulders
		--	--	112SRFD	SAND	Fine to coarse
		--	--	112SRFD	SDGL	
NUW 39	66.0	.0	53.0	112SRFD	SDGL	
		--	--	112SRFD	SAND	Fine to medium
		--	--	112SRFD	SGVC	With some cobbles
		--	--	112SRFD	SDGL	With some cobbles
		--	--	112SRFD	SGVC	With some cobbles
		--	--	112SRFD	SGVC	With some cobbles
NUW 40	66.0	0	18.0	112SRFD	SDGL	Medium to coarse sand, gravel, cobbles, boulders
		18.0	59.0	112SRFD	SDGL	Fine to medium sand
		59.0	60.0	112SRFD	SDGL	Medium to coarse sand, gravel, cobbles, silt
		60.0	65.0	112SRFD	SDCL	Coarse gravel,cobbles, boulders
		65.0	66.0	112SRFD	SDGL	Course gravel,cobbles, boulders, silt
NUW 41	81.0	0	19.0	112SRFD	SDGL	Fine to medium sand
		19.0	32.0	112SRFD	SDGL	Coarse sand, gravel, cobbles, boulders
		32.0	70.0	112SRFD	SDGL	Fine to course sand
		70.0	72.0	112SRFD	SDCL	Medium to coarse sand, gravel, cobbles
		72.0	73.0	112SRFD	SDGL	Medium to coarse sand, gravel, cobbles, silt
		73.0	76.0	112SRFD	SDCL	Medium to coarse sand, gravel, cobbles
		76.0	78.0	112SRFD	SDCL	Medium to coarse gravel,cobbles
		78.0	81.0	112SRFD	SDCL	Gravel,cobbles, boulders
			Pinkham's Grant			
PEB 4	24.0	0	2.0	112SRFD	SAND	Loamy sand
		2.0	8.0	112SRFD	GRVL	Silty gravel
		8.0	24.0	112SRFD	SAND	Sand with small sharp stones
		24.0	--	112SRFD	SAND	Refusal at 24.0 feet
			Pittsburg			
PGB 1	60.0	0	47.0	112SRFD	SAND	Fine sand
		47.0	60.0	112TILL	TILL	Sandy till
		60.0	--	112SRFD	ROCK	Refusal in bedrock at 60.0 feet
PGB 2	65.0	0	5.0	112SRFD	SAND	--
		5.0	15.0	112SRFD	COSD	Silty cobbles and sand
		15.0	22.0	112SRFD	STCL	--
		22.0	37.0	112SRFD	COSD	--
		37.0	46.0	112SRFD	SAND	Fine sand
		46.0	65.0	112TILL	TILL	Sandy till
		65.0	--	112TILL	TILL	End of hole at 65.0 feet.

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Pittsburg—*Continued*			
PGB 4	7.0	0	7.0	112TILL	TILL	Sandy, silty, and gravelly till with boulders
		7.0	--	112TILL	TILL	Refusal on bedrock or boulder at 7.0 feet
PGW 1	--	--	--	110SDMN	SDGL	--
		--	--	112TILL	TILL	--
		--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
PGW 3	--	--	--	110SDMN	SDGL	--
PGW 9	--	--	--	110SDMN	SGVC	--
		56.0	--	BEDROCK	ROCK	--
PGW 12	--	--	--	110SDMN	SDGL	--
		8.0	--	BEDROCK	ROCK	--
PGW 13	--	--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
PGW 14	--	--	--	110SDMN	CLAY	--
		80.0	--	BEDROCK	ROCK	--
PGW 15	--	--	--	110SDMN	CLAY	--
		17.0	--	BEDROCK	ROCK	--
PGW 18	--	--	--	110SDMN	SDGL	--
		75.0	--	BEDROCK	ROCK	--
PGW 28	--	--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
PGW 31	--	--	--	110SDMN	CLAY	--
		58.0	--	BEDROCK	ROCK	--
PGW 32	--	--	--	110SDMN	CLAY	--
		5.0	--	BEDROCK	ROCK	--
PGW 34	--	--	--	110SDMN	SDGL	--
		28.0	--	BEDROCK	ROCK	--
PGW 36	--	--	--	110SDMN	SDGL	--
		26.0	--	BEDROCK	ROCK	--
PGW 38	--	--	--	110SDMN	CLAY	--
		23.0	--	BEDROCK	ROCK	--
PGW 39	--	--	--	110SDMN	CLAY	--
		32.0	--	BEDROCK	ROCK	--
PGW 44	--	--	--	110SDMN	CLAY	--
		120.0	--	BEDROCK	ROCK	--
PGW 51	--	--	--	110SDMN	SDGL	--
		32.0	--	BEDROCK	ROCK	--
PGW 54	--	--	--	110SDMN	SDGL	--
		105.0	--	BEDROCK	ROCK	--
PGW 55	--	--	--	110SDMN	SDGL	--
		--	--	112TILL	TILL	Till with sand and hardpan
		--	--	110SDMN	SDGL	--
PGW 57	--	--	--	110SDMN	CLAY	--
		14.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Pittsburg—*Continued*			
PGW 58	--	--	--	110SDMN	SGVC	--
		24.0	--	BEDROCK	ROCK	--
PGW 59	--	--	--	110SDMN	CLAY	--
		6.0	--	BEDROCK	ROCK	--
PGW 62	--	--	--	110SDMN	SGVC	--
		10.0	--	BEDROCK	ROCK	--
PGW 64	--	--	--	110SDMN	SGVC	--
		10.0	--	BEDROCK	ROCK	--
PGW 65	--	--	--	110SDMN	SGVC	--
		12.0	--	BEDROCK	ROCK	--
PGW 70	--	--	--	110SDMN	SDGL	--
		65.0	--	BEDROCK	ROCK	--
PGW 71	--	--	--	110SDMN	SDGL	--
		86.0	--	BEDROCK	ROCK	--
PGW 79	--	--	--	110SDMN	SGVC	--
		12.0	--	BEDROCK	ROCK	--
PGW 80	--	2.0	--	BEDROCK	ROCK	--
PGW 83	--	--	--	110SDMN	SGVC	--
		140.0	--	BEDROCK	ROCK	--
PGW 84	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	CLAY	--
		--	--	110SDMN	SDGL	--
PGW 87	--	--	--	110SDMN	CLAY	--
		6.0	--	BEDROCK	ROCK	--
PGW 88	--	--	--	110SDMN	SDGL	--
		4.0	--	BEDROCK	ROCK	--
PGW 92	--	--	--	110SDMN	CLAY	--
		6.0	--	BEDROCK	ROCK	--
PGW 94	--	--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
PGW 95	--	--	--	110SDMN	SDGL	--
		30.0	--	BEDROCK	ROCK	--
PGW 100	--	--	--	110SDMN	SDGL	--
		8.0	--	BEDROCK	ROCK	--
PGW 101	--	--	--	110SDMN	SGVC	--
		9.0	--	BEDROCK	ROCK	--
PGW 102	--	--	--	110SDMN	SGVC	--
		55.0	--	BEDROCK	ROCK	--
PGW 103	--	--	--	110SDMN	SDGL	--
		18.0	--	BEDROCK	ROCK	--
PGW 105	--	--	--	110SDMN	SGVC	--
		90.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
COOS COUNTY—*Continued*						
Pittsburg—*Continued*						
PGW 106	--	--	--	110SDMN	SDGL	--
		40.0	--	BEDROCK	ROCK	--
PGW 107	--	--	--	110SDMN	CLAY	--
		15.0	--	BEDROCK	ROCK	--
PGW 109	--	--	--	110SDMN	CLAY	--
		65.0	--	BEDROCK	ROCK	--
PGW 111	--	--	--	110SDMN	CLAY	--
		15.0	--	BEDROCK	ROCK	--
PGW 113	--	--	--	110SDMN	SGVC	--
		14.0	--	BEDROCK	ROCK	--
PGW 117	--	--	--	110SDMN	CLAY	--
		180.0	--	BEDROCK	ROCK	--
PGW 119	--	2.0	--	BEDROCK	ROCK	--
PGW 123	--	--	--	112TILL	TILL	--
		5.0	--	BEDROCK	ROCK	--
PGW 126	--	--	--	112TILL	TILL	--
		12.0	--	BEDROCK	ROCK	--
PGW 127	--	--	--	112TILL	TILL	--
		40.0	--	BEDROCK	ROCK	--
PGW 128	--	--	--	110SDMN	SGVC	--
		14.0	--	BEDROCK	ROCK	--
PGW 129	--	--	--	110SDMN	SGVC	--
		14.0	--	BEDROCK	ROCK	--
PGW 130	--	--	--	110SDMN	SGVC	--
		170.0	--	BEDROCK	ROCK	--
PGW 135	--	--	--	110SDMN	SDGL	--
		40.0	--	BEDROCK	ROCK	--
PGW 136	--	--	--	110SDMN	SGVC	--
		52.0	--	BEDROCK	ROCK	--
PGW 137	--	--	--	110SDMN	CLAY	--
		18.0	--	BEDROCK	ROCK	--
PGW 139	--	--	--	110SDMN	CLAY	--
		30.0	--	BEDROCK	ROCK	--
PGW 146	--	--	--	110SDMN	SGVC	--
		18.0	--	BEDROCK	ROCK	--
PGW 148	--	--	--	110SDMN	SDGL	--
		18.0	--	BEDROCK	ROCK	--
PGW 149	--	--	--	110SDMN	SDGL	--
		70.0	--	BEDROCK	ROCK	--
PGW 150	--	--	--	110SDMN	SGVC	--
		95.0	--	BEDROCK	ROCK	--
PGW 151	--	-.99	62.0	BEDROCK	SGVC	--
		--	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith- ology code	Description of material
			COOS COUNTY—*Continued*			
			Pittsburg—*Continued*			
PGW 154	--	--	--	110SDMN	SDGL	--
		12.0	--	BEDROCK	ROCK	--
PGW 157	--	--	--	110SDMN	SGVC	--
		6.0	--	BEDROCK	ROCK	--
PGW 159	--	--	--	110SDMN	SDGL	--
		18.0	--	BEDROCK	ROCK	--
PGW 162	--	--	--	112TILL	TILL	--
		7.0	--	BEDROCK	ROCK	--
PGW 163	--	--	--	112TILL	TILL	--
		10.0	--	BEDROCK	ROCK	--
PGW 169	--	--	--	110SDMN	SGVC	--
		20.0	--	BEDROCK	ROCK	--
PGW 170	--	--	--	110SDMN	SAND	--
		80.0	--	BEDROCK	ROCK	--
PGW 171	--	--	--	112TILL	TILL	--
		25.0	--	BEDROCK	ROCK	--
PGW 172	--	--	--	112TILL	TILL	--
		7.0	--	BEDROCK	ROCK	--
PGW 173	--	--	--	112TILL	TILL	--
		30.0	--	BEDROCK	ROCK	--
PGW 178	--	--	--	110SDMN	SDGL	--
		60.0	--	BEDROCK	ROCK	--
PGW 179	--	--	--	110SDMN	SDGL	--
		20.0	--	BEDROCK	ROCK	--
PGW 185	--	--	--	112TILL	TILL	--
		14.0	--	BEDROCK	ROCK	--
PGW 187	--	--	--	110SDMN	CLAY	--
		32.0	--	BEDROCK	ROCK	--
PGW 188	--	--	--	110SDMN	SDGL	--
PGW 190	--	--	--	110SDMN	SDGL	--
		40.0	--	BEDROCK	ROCK	--
PGW 191	--	--	--	110SDMN	SGVC	--
		75.0	--	BEDROCK	ROCK	--
PGW 193	--	--	--	110SDMN	SDGL	--
		50.0	--	BEDROCK	ROCK	--
PGW 196	--	--	--	110SDMN	SDGL	--
		42.0	--	BEDROCK	ROCK	--
PGW 197	--	--	--	112TILL	TILL	--
		25.0	--	BEDROCK	ROCK	--
PGW 200	--	--	--	110SDMN	SGVC	--
		126.0	--	BEDROCK	ROCK	--
PGW 202	--	--	--	110SDMN	SGVC	--
		18.0	--	BEDROCK	ROCK	--

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
				COOS COUNTY—*Continued*		
				Pittsburg—*Continued*		
PGW 207	--	--	--	110SDMN	SDGL	--
		40.0	--	BEDROCK	ROCK	--
PGW 210	--	--	--	110SDMN	CLAY	--
		24.0	--	BEDROCK	ROCK	--
PGW 213	34.0	0	9.0	112SRFD	BLSD	Fine to coarse brown silty sand with fine to coarse gravel, also some cobbles and boulders
		9.0	31.0	112TILL	TILL	Hard gray till with some sand, boulders, and cobbles
		31.0	--	BEDROCK	ROCK	Bedrock at 31.0 feet
PGW 214	31.0	0	3.0	112SRFD	SDST	Fine to medium brown sand and silt
		3.0	22.0	112TILL	TILL	Fine to medium silty brown sand; fine to coarse gray gravel, cobbles, and boulders
		22.0	31.0	112TILL	TILL	Fine to medium silty gray sand with gray gravel
		31.0	--	112TILL	TILL	End of hole at 31.0 feet
PGW 215	20.0	0	13.0	112SRFD	BLSD	Fine to coarse silty brown sand; fine to coarse gravel, cobble, and boulders
		13.0	20.0	112TILL	TILL	Fine to coarse silty brown sand; fine to coarse gravel, cobble, and boulders
		20.0	--	BEDROCK	ROCK	Bedrock at 20.0 feet
PGW 216	31.0	0	3.0	112SRFD	SAND	Fine to medium brown sand
		3.0	12.0	112SRFD	BLSD	Fine to coarse silty brown sand; fine to coarse gravel, cobble, and boulders
		12.0	17.0	112TILL	TILL	Fine to coarse silty brown sand; fine to coarse gravel, cobble, and boulders
		17.0	31.0	112TILL	TILL	Fine to coarse silty brown sand with fine gravel and few cobbles
		31.0	--	BEDROCK	ROCK	Bedrock at 31.0 feet
				Randolph		
RAB 3	6.0	0	6.0	112TILL	TILL	Gravelly with boulders
		6.0	--	112TILL	TILL	Refusal in till at 6.0 feet
RAB 4	7.0	0	2.0	112TILL	TILL	Till with boulders and muck
		2.0	7.0	112TILL	TILL	Sandy with boulders
		7.0	--	BEDROCK	ROCK	Cored bedrock at 7.0 feet
RAB 5	13.0	0	4.0	112SRFD	SILT	--
		4.0	10.0	112SRFD	BLDR	With gravelly Sand
		10.0	13.0	112TILL	TILL	Sandy till
		13.0	--	112TILL	TILL	Refusal in till at 13.0 feet
RAB 6	21.0	0	4.0	112SRFD	SAND	Fine sand
		4.0	21.0	112TILL	TILL	Sandy till with boulders
		21.0	--	112TILL	TILL	Refusal in till at 21.0 feet
RAW 1	--	--	--	110SDMN	SDGL	--
		1.0	--	BEDROCK	ROCK	--
RAW 3	--	--	--	110SDMN	SDGL	--
		50.0	--	BEDROCK	ROCK	--
RAW 4	--	--	--	110SDMN	SDGL	--
		17.0	--	BEDROCK	ROCK	--
RAW 13	--	--	--	112TILL	TILL	--
		10.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Randolph—*Continued*			
RAW 18	--	--	--	110SDMN	SDGL	--
		70.0	--	BEDROCK	ROCK	--
RAW 19	--	--	--	110SDMN	SDGL	--
		78.0	--	BEDROCK	ROCK	--
RAW 20	--	--	--	110SDMN	SGVC	--
		45.0	--	BEDROCK	ROCK	--
RAW 22	--	--	--	110SDMN	SDGL	--
		18.0	--	BEDROCK	ROCK	--
RAW 24	--	--	--	110SDMN	SDGL	--
		32.0	--	BEDROCK	ROCK	--
RAW 25	--	--	--	110SDMN	SGVC	--
		12.0	--	BEDROCK	ROCK	--
RAW 26	--	--	--	110SDMN	SGVC	--
		8.0	--	BEDROCK	ROCK	--
RAW 28	--	--	--	110SDMN	SDGL	--
		4.0	--	BEDROCK	ROCK	--
RAW 31	--	--	--	110SDMN	SGVC	--
		66.0	--	BEDROCK	ROCK	--
RAW 36	--	--	--	110SDMN	SDGL	--
		8.0	--	BEDROCK	ROCK	--
RAW 81	68.0	0	3.0	112SRFD	SAND	Fine to medium gravelly brown sand
		3.0	18.0	112SRFD	SDST	Fine olive-brown sand and silt
		18.0	36.0	112SRFD	SAND	Fine olive-brown sand, trace of silt
		36.0	45.0	112SRFD	SDST	Fine gravelly gray sand and silt
		47.0	68.0	112TILL	TILL	Till with some sand and silt
		68.0	--	112TILL	TILL	End of hole at 68.0 feet
RAW 82	51.0	0	18.0	112SRFD	SDST	Fine olive-gray sand and silt
		18.0	51.0	112TILL	TILL	Till with some sand and silt
		51.0	--	112TILL	TILL	End of hole at 51.0 feet
RAW 83	39.0	0	15.0	112SRFD	SAND	Fine to coarse gravelly brown sand
		15.0	20.0	112SRFD	SAND	Fine to medium gravelly sand
		20.0	24.0	112SRFD	SAND	Very fine gray-brown sand with trace of silt
		24.0	25.0	112SRFD	SDST	Fine gravelly gray sand and silt
		25.0	34.0	112TILL	TILL	--
		34.0	--	BEDROCK	ROCK	Bedrock at 34.0 feet
RAW 28	--	--	--	110SDMN	SDGL	--
		4.0	--	BEDROCK	ROCK	--
RAW 31	--	--	--	110SDMN	SGVC	--
		66.0	--	BEDROCK	ROCK	--
RAW 36	--	--	--	110SDMN	SDGL	--
		8.0	--	BEDROCK	ROCK	--
RAW 81	68.0	0	3.0	112SRFD	SAND	Fine to medium gravelly brown sand
		3.0	18.0	112SRFD	SDST	Fine olive-brown sand and silt
		18.0	36.0	112SRFD	SAND	Fine olive-brown sand, trace of silt
		36.0	45.0	112SRFD	SDST	Fine gravelly gray sand and silt
		47.0	68.0	112TILL	TILL	Till with some sand and silt
		68.0	--	112TILL	TILL	End of hole at 68.0 feet
RAW 82	51.0	0	18.0	112SRFD	SDST	Fine olive-gray sand and silt
		18.0	51.0	112TILL	TILL	Till with some sand and silt
		51.0	--	112TILL	TILL	End of hole at 51.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Randolph—*Continued*			
RAW 83	39.0	0	15.0	112SRFD	SAND	Fine to coarse gravelly brown sand
		15.0	20.0	112SRFD	SAND	Fine to medium gravelly sand
		20.0	24.0	112SRFD	SAND	Very fine gray-brown sand with trace of silt
		24.0	25.0	112SRFD	SDST	Fine gravelly gray sand and silt
		25.0	34.0	112TILL	TILL	--
		34.0	--	BEDROCK	ROCK	Bedrock at 34.0 feet
			Shelburne			
SJB 1	44.0	0	12.0	112SRFD	GRVL	Gravel and boulders
		12.0	37.0	112SRFD	BLDR	--
		37.0	44.0	112SRFD	BLDR	--
		44.0	--	112SRFD	BLDR	Refusal at 44.0 feet
SJB 2	26.0	0	26.0	112SRFD	SDGL	Silty sand and gravel with boulders
		26.0	--	112SRFD	SDGL	End of boring at 26.0 feet
SJB 3	70.0	0	6.0	112SRFD	SAND	Fine to medium sand
		6.0	70.0	112SRFD	SDGL	--
		70.0	--	112SRFD	SDGL	End of boring at 70.0 feet
SJB 4	50.0	0	9.0	112SRFD	SDGL	Fine to coarse sand and gravel
		9.0	21.0	112SRFD	SAND	Silty sand
		21.0	29.0	112SRFD	SILT	Sandy silt
		29.0	40.0	112SRFD	SAND	Fine to medium sand
		40.0	50.0	112SRFD	SAND	Fine gray silty sand
		50.0	--	112SRFD	SAND	End of boring at 50.0 feet
SJB 5	165.0	0	7.0	112SRFD	SAND	Silty loose sand
		7.0	10.0	112SRFD	GRVL	Silty gravel
		10.0	12.0	112SRFD	GRVL	Sandy gravel
		12.0	14.0	112SRFD	GRVL	Silty gravel
		14.0	37.0	112SRFD	SDST	Fine to medium sand and silt
		37.0	42.0	112SRFD	SILT	Sandy silt
		42.0	47.0	112SRFD	GRVL	Fine to medium silty gravel
		47.0	52.0	112SRFD	SAND	Fine to coarse sand with some silt
		52.0	57.0	112SRFD	SAND	Medium silty sand
		57.0	80.0	112SRFD	SAND	Fine to medium sand with trace of silt
		80.0	82.0	112SRFD	SILT	Fine sandy silt
		82.0	122.0	112SRFD	SAND	Fine to coarse sand
		122.0	127.0	112SRFD	SAND	Fine to medium sand and some silt
		127.0	142.0	112SRFD	SAND	Fine to coarse sand with some stones
		142.0	145.0	112SRFD	SAND	Fine to medium sand
		145.0	155.0	112SRFD	SAND	Fine to medium sand
		155.0	165.0	112TILL	TILL	Dense sandy till
		165.0	--	112TILL	TILL	Refusal in till at 165.0 feet
SJB 6	118.0	0	7.0	112SRFD	SAND	Fine to medium sand with trace of gravel
		7.0	14.0	112SRFD	GRVL	Fine to medium silty gravel
		14.0	19.0	112SRFD	SAND	Fine silty sand
		17.0	21.0	112SRFD	GRVL	Fine to medium gravel
		21.0	29.0	112SRFD	SAND	Fine silty sand
		29.0	42.0	112SRFD	SDGL	Coarse sand with trace of gravel
		42.0	54.0	112SRFD	SAND	Fine to medium sand
		54.0	84.0	112SRFD	SAND	Fine silty sand
		84.0	99.0	112SRFD	SILT	Hard sandy silt
		99.0	103.0	112SRFD	SILT	Hard silt with some clay
		103.0	118.0	112TILL	TILL	Very dense silty till
		118.0	--	112TILL	TILL	End of boring at 118.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Shelburne—*Continued*			
SJB 7	143.0	0	18.0	112SRFD	GRVL	Gravel with some silt
		18.0	22.0	112SRFD	SDGL	Fine to medium sand with trace of gravel
		22.0	26.0	112SRFD	SAND	Fine to medium dense sand
		26.0	51.0	112SRFD	SAND	Fine to medium dense sand with trace of silt
		51.0	76.0	112SRFD	SDST	Fine to medium dense sand with trace of silt
		76.0	86.0	112SRFD	SAND	Fine silty dense sand
		86.0	102.0	112SRFD	SDST	Fine sand with some silt
		102.0	111.0	112SRFD	SILT	Sandy dense silt
		111.0	116.0	112SRFD	SAND	Fine silty sand
		116.0	126.0	112SRFD	SDST	--
		126.0	131.0	112SRFD	SDGL	Dense sand and gravel with trace of silt
		131.0	138.0	112SRFD	SAND	Fine to medium sand with trace of silt
		138.0	143.0	112SRFD	SDST	Fine to medium dense sand with trace of silt
		143.0	--	112SRFD	SDST	Refusal at 143.0 feet
SJB 8	34.0	0	34.0	112TILL	TILL	Sandy till and boulders
		34.0	--	112TILL	TILL	End of boring at 34.0 feet
SJW 1	100.0	0	2.0	110SFRD	SAND	Medium to coarse sand with little fine sand
		2.0	7.0	112SRFD	SDGL	Coarse to very coarse sand with some gravel and pebble
		7.0	39.0	112SRFD	SDGL	Coarse to very coarse sand with some gravel
		39.0	88.0	112SRFD	SAND	Medium to coarse sand with little fine gravel
		88.0	100.0	112SRFD	SAND	Very coarse sand with some silt and rock fragments
		100.0	--	112SRFD	SAND	Medium to coarse sand, little fine gravel; end of hole at 100.0 feet.
SJW 2	91.0	0	2.0	110SOIL	LOAM	--
		2.0	7.0	112SRFD	SDGL	Pebble-gravel with medium sand
		7.0	39.0	112SRFD	SAND	Medium to very coarse sand with little silt and some gravel
		39.0	48.0	112SRFD	SAND	Very coarse sand with trace of silt
		85.0	89.0	112SRFD	SDGL	Pebble-gravel with very coarse sand
		89.0	91.0	112SRFD	SDST	Very fine sand with some silt
		91.0	--	112SRFD	SDST	Refusal at 91.0 feet
SJW 3	76.0	0	2.0	112SRFD	SDGL	Fine to medium sand with pebble gravel
		2.0	23.0	112SRFD	SDGL	Medium sand with pebble gravel
		23.0	39.0	112SRFD	SAND	Medium to coarse well sorted sand
		39.0	49.0	112SRFD	SAND	Medium sand with some coarse gravel
		54.0	58.0	112SRFD	SAND	Fine to medium well sorted sand
		58.0	76.0	112SRFD	SAND	Very fine to medium well sorted sand
		76.0	--	112SRFD	SAND	End of hole at 76.0 feet
SJW 4	--	--	--	110SDMN	SDGL	--
		7.0	--	BEDROCK	ROCK	--
SJW 5	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	SAND	--
		72.0	--	BEDROCK	ROCK	--
SJW 6	--	--	--	110SDMN	SDGL	--
		45.0	--	BEDROCK	ROCK	--
SJW 7	--	--	--	110SDMN	SDGL	--
		43.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Shelburne—*Continued*			
SJW 8	--	--	--	110SDMN	SDGL	--
SJW 9	--	--	--	110SDMN	SGVC	--
		20.0	--	BEDROCK	ROCK	--
SJW 10	--	--	--	110SDMN	SDGL	--
SJW 11	--	--	--	110SDMN	SDGL	--
		44.0	--	BEDROCK	ROCK	--
SJW 12	--	--	--	110SDMN	SGVC	--
		18.0	--	BEDROCK	ROCK	--
SJW 13	--	--	--	110SDMN	SDGL	--
		66.0	--	BEDROCK	ROCK	--
SJW 14	--	--	--	110SDMN	SDGL	--
		50.0	--	BEDROCK	ROCK	--
SJW 15	--	--	--	110SDMN	SDGL	--
SJW 16	--	--	--	112TILL	TILL	--
		10.0	--	BEDROCK	ROCK	--
SJW 17	--	--	--	112TILL	TILL	--
		25.0	--	BEDROCK	ROCK	--
SJW 18	--	--	--	110SDMN	SDGL	--
SJW 19	--	--	--	110SDMN	SDGL	--
SJW 20	--	--	--	112TILL	TILL	--
		10.0	--	BEDROCK	ROCK	--
SJW 21	--	--	--	110SDMN	SDCL	--
		75.0	--	BEDROCK	ROCK	--
SJW 22	--	--	--	110SDMN	SGVC	--
		117.0	--	BEDROCK	ROCK	--
SJW 23	--	--	--	110SDMN	SDGL	--
		110.0	--	BEDROCK	ROCK	--
SJW 24	--	--	--	110SDMN	SDGL	--
		90.0	--	BEDROCK	ROCK	--
SJW 25	--	--	--	110SDMN	CLAY	--
		40.0	--	BEDROCK	ROCK	--
SJW 26	--	--	--	110SDMN	CLAY	--
		40.0	--	BEDROCK	ROCK	--
SJW 27	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	CLAY	--
		--	--	110SDMN	SAND	--
		185.0	--	BEDROCK	ROCK	--
SJW 28	--	--	--	110SDMN	SDGL	--
		50.0	--	BEDROCK	ROCK	--
SJW 29	--	--	--	110SDMN	SDGL	--
		17.0	--	BEDROCK	ROCK	--
SJW 30	--	--	--	110SDMN	SDGL	--
		18.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Shelburne—*Continued*			
SJW 31	--	--	--	110SDMN	SAND	--
		122.0	--	BEDROCK	ROCK	--
SJW 32	--	--	--	110SDMN	SDGL	--
		4.0	--	BEDROCK	ROCK	--
SJW 33	--	--	--	110SDMN	CLAY	--
		40.0	--	BEDROCK	ROCK	--
SJW 34	--	--	--	110SDMN	SDGL	--
		53.0	--	BEDROCK	ROCK	--
SJW 35	--	--	--	110SDMN	SGVC	--
		80.0	--	BEDROCK	ROCK	--
SJW 36	--	--	--	110SDMN	SDGL	--
SJW 37	--	--	--	110SDMN	SDGL	--
SJW 38	--	--	--	110SDMN	SDGL	--
SJW 39	37.0	0	37.0	112SRFD	SAND	Brown gravelly sand
		37.0	--	112SRFD	SAND	End of hole at 37.0 feet
SJW 40	17.0	0	2.0	112SRFD	SILT	Brown sandy silt
		2.0	9.0	112SRFD	SAND	Silty gravelly brown sand
		9.0	17.0	112SRFD	SAND	Brown gravelly sand
		17.0	--	112SRFD	SAND	End of hole at 17.0 feet
SJW 41	17.0	0	1.0	112SRFD	SILT	Sandy brown silt
		1.0	6.0	112SRFD	SAND	Silty gravelly brown sand
		6.0	11.0	112SRFD	SAND	Silty gravelly brown sand
		11.0	17.0	112SRFD	SAND	Gravelly brown sand
		17.0	--	112SRFD	SAND	End of hole at 17.0 feet
SJW 42	17.0	0	1.0	112SRFD	SILT	Sandy brown silt
		1.0	17.0	112SRFD	SAND	Gravelly, silty, brown sand
		17.0	--	112SRFD	SAND	End of hole at 17.0 feet
				Stark		
SNA 2	32.0	0	17.0	112SRFD	SDGL	Medium to coarse sand with coarse gravel and some pebbles and cobble
		17.0	27.0	112SRFD	SAND	Fine brown sand
		27.0	29.0	112SRFD	SDST	Very fine sand with brown silt
		32.0	--	BEDROCK	ROCK	Refusal in bedrock at 32.0 feet
SNA 3	27.0	0	4.0	112SRFD	SAND	Fine silty brown sand
		4.0	11.0	112SRFD	SDGL	Fine to medium silty sand with brown gravel
		11.0	24.0	112SRFD	STCL	Fine sandy silt with silty clay
		24.0	27.0	112SRFD	COBB	--
		27.0	--	BEDROCK	ROCK	Gray Quartzite rock
SNA 4	22.0	0	4.0	112SRFD	SAND	Gravelly brown sand with silt
		4.0	9.0	112SRFD	SAND	Gravelly brown sand with silt
		9.0	22.0	112SRFD	SDGL	Fine to medium, till-like sand and gravel
		22.0	--	112SRFD	SDGL	End of hole at 22.0 feet
SNA 5	124.0	0	33.0	112SRFD	SDGL	Fine to coarse brown sand
		33.0	77.0	112SRFD	STCL	Fine sandy silt with laminated silty clay
		77.0	107.0	112SRFD	SILT	Gray silt with fine silty sand and some clay
		107.0	113.0	112SRFD	SDST	Fine silty sand with olive-gray silt
		113.0	121.0	112SRFD	SAND	Gray gravelly and silty sand
		121.0	124.0	112SRFD	GRVL	Some boulders
		124.0	--	112SRFD	GRVL	End of hole at 124.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lithology code	Description of material
			COOS COUNTY—*Continued*			
			Stark—*Continued*			
SNA 6	20.0	0	20.0	112SRFD	SDGL	Fine to coarse brown sand and gravel
		20.0	--	112SRFD	SDGL	End of hole at 20.0 feet
SNA 7	50.0	0	3.0	112SRFD	SAND	Silty brown sand
		3.0	10.0	112SRFD	GRVL	Silty, sandy brown gravel
		10.0	25.0	112SRFD	SILT	Sandy gray silt
		25.0	39.0	112SRFD	SILT	Gray silt
		39.0	50.0	112SRFD	SDST	Gravelly gray sand and silt
		50.0	--	112SRFD	SDST	End of hole at 50.0 feet
SNB 1	50.0	0	4.0	112SRFD	GRVL	Loamy gravel
		4.0	20.0	112SRFD	GRVL	Sandy gravel with boulders
		20.0	30.0	112SRFD	SDST	Fine sand with trace of silt
		30.0	50.0	112SRFD	GRVL	Sandy gravel
		50.0	--	112SRFD	GRVL	End of boring in gravel at 50.0 feet
SNB 2	120.0	0	29.0	112SRFD	SAND	Sand with some stones
		29.0	39.0	112SRFD	SAND	Medium sand
		41.0	99.0	112SRFD	SAND	Silty sand
		99.0	120.0	112SRFD	SAND	Gray sand
		120.0	--	112SRFD	SAND	End of boring at 120.0 feet
SNW 1	80.0	0	2.0	112SRFD	SAND	Medium well sorted sand
		2.0	7.0	112SRFD	SAND	Medium to coarse, moderately sorted sand
		7.0	15.0	112SRFD	SDGL	Very coarse sand with pebbles and gravel
		15.0	25.0	112SRFD	SAND	Coarse to very coarse, moderately sorted sand
		25.0	29.0	112SRFD	SAND	Fine to medium, well sorted sand
		29.0	49.0	112SRFD	SDST	Fine to very coarse sand with well sorted silt
		49.0	55.0	112SRFD	SDST	Fine sand and silt
		55.0	80.0	112SRFD	CLSD	Gray clay and silt
		80.0	--	112SRFD	CLSD	End of hole at 80.0 feet
SNW 2	70.0	0	2.0	112SRFD	SDGL	--
		2.0	7.0	112SRFD	SDST	Very fine sand
		7.0	17.0	112SRFD	SDGL	Very fine sand with gravel
		17.0	25.0	112SRFD	SAND	Fine to medium, well sorted sand
		25.0	70.0	112SRFD	CLAY	Gray clay with some silt and little sand
		70.0	--	112SRFD	CLAY	End of hole at 70.0 feet
SNW 3	91.0	0	7.0	112SRFD	SDGL	Medium to coarse sand with pebble gravel
		7.0	15.0	112SRFD	SAND	Medium to very coarse sand
		15.0	25.0	112SRFD	SAND	Coarse to very coarse sand
		25.0	35.0	112SRFD	SAND	Fine to medium sand
		35.0	55.0	112SRFD	SAND	Medium sand with some fine sand
		55.0	59.0	112SRFD	SAND	Medium to coarse, moderately sorted sand
		59.0	65.0	112SRFD	SDGL	Very coarse sand with pebbly gravel and some fine to medium sand
		65.0	87.0	112SRFD	SAND	Fine to medium sand, poorly sorted; medium to very coarse sand, moderately sorted
		87.0	91.0	112TILL	TILL	Gray, compact till
		91.0	--	112TILL	TILL	Refusal in till at 91.0 feet
SNW 4	100.0	0	12.0	112SRFD	SAND	Medium to coarse, moderately sorted sand
		12.0	14.0	112SRFD	SDGL	Fine to very coarse sand, with pebbles and gravel
		17.0	19.0	112SRFD	SAND	Very fine sand with some silt
		27.0	29.0	112SRFD	SAND	Very fine sand
		37.0	39.0	112SRFD	SDST	Very fine sand with some silt
		47.0	49.0	112SRFD	SAND	Very fine sand
		57.0	59.0	112SRFD	SAND	Very fine sand with some silt
		67.0	69.0	112SRFD	SAND	Fine sand with some silt
		77.0	79.0	112SRFD	SAND	Medium to coarse sand
		82.0	85.0	112SRFD	SAND	Coarse sand with some pebbles and cobbles
		86.0	99.0	112TILL	TILL	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Stark—*Continued*			
SNW 5	--	--	--	110SDMN	CLAY	--
		70.0	--	BEDROCK	ROCK	--
SNW 6	--	--	--	110SDMN	SDGL	--
SNW 7	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	SAND	--
		115.0	--	BEDROCK	ROCK	--
SNW 8	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	SAND	--
SNW 11	--	--	--	110SDMN	CLAY	--
		11.0	--	BEDROCK	ROCK	--
SNW 12	--	--	--	110SDMN	SDGL	--
SNW 13	--	--	--	110SDMN	SGVC	--
		135.0	--	BEDROCK	ROCK	--
SNW 14	--	--	--	110SDMN	SDGL	--
		120.0	--	BEDROCK	ROCK	--
SNW 15	--	--	--	110SDMN	SGVC	--
		119.0	--	BEDROCK	ROCK	--
SNW 16	--	--	--	110SDMN	SDGL	--
		48.0	--	BEDROCK	ROCK	--
SNW 17	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	CLAY	--
		52.0	--	BEDROCK	ROCK	--
SNW 18	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		--	--	112TILL	TILL	--
		--	--	110SDMN	SAND	--
		154.0	--	BEDROCK	ROCK	--
SNW 19	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	CLAY	--
		--	--	112TILL	TILL	--
		192.0	--	BEDROCK	ROCK	--
SNW 22	--	--	--	110SDMN	SGVC	--
SNW 23	--	--	--	110SDMN	SDGL	--
SNW 24	28.0	0	2.0	112SRFD	COSD	Brown silty sand
		2.0	3.0	112SRFD	COBB	--
		3.0	6.0	112SRFD	SAND	--
		6.0	9.0	112SRFD	SILT	Sandy brown silt
		9.0	13.0	112SRFD	SAND	Gravelly silty brown sand with cobbles
		13.0	18.0	112SRFD	SILT	Gravelly sand brown silt
		18.0	23.0	112SRFD	SILT	Sandy gray silt
		23.0	28.0	112SRFD	STCL	Sandy silt with gray clay
		28.0	--	112SRFD	STCL	End of hole at 28.0 feet
SNW 25	31.0	0	3.0	112SRFD	SILT	Gravelly, sandy brown clay
		3.0	8.0	112SRFD	COSD	Fine to coarse brown sand with cobbles
		8.0	15.0	112SRFD	COSD	Coarse silty brown sand
		15.0	22.0	112SRFD	SAND	Gray sand
		22.0	25.0	112SRFD	SAND	Silty gray sand
		25.0	31.0	112SRFD	SILT	Sandy gray silt
		31.0	--	112SRFD	SILT	End of hole at 31.0 feet

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Stark—*Continued*			
SNW 26	12.0	--	--	--	--	--
SNW 27	12.0	0	12.0	112SRFD	COSD	Gravelly, silty brown sand with cobbles and boulders
		12.0	--	112SRFD	COSD	End of hole at 12.0 feet
			Stewartstown			
SOA 1	29.0	0	17.0	112SRFD	SAND	Very fine sand with some gravel and pebbles
		17.0	19.0	112SRFD	SDST	Silty sand with gray silt; difficult drilling
		27.0	29.0	112TILL	TILL	Sandy till
		29.0	--	112TILL	TILL	Refusal in till at 29.0 feet
SOB 1	15.0	0	3.0	112SRFD	SAND	Sand with muck
		3.0	15.0	112SRFD	SAND	Silty sand with stones
		15.0	--	112SRFD	SAND	End of boring at 15.0 feet
SOB 2	18.0	0	7.0	112SRFD	SDST	--
		7.0	18.0	112TILL	TILL	Silty till with boulders
		18.0	--	112TILL	TILL	End of boring at 18.0 feet
SOS 1	--	--	--	--	--	--
SOW 1	--	0	17.0	112SRFD	GRDS	Silt, cobbles, and boulders
		17.0	19.0	112SRFD	GRDS	Silt and coarse gravel, with pebble and cobbles
		27.0	29.0	112SRFD	SAND	Fine to coarse brown, moderately sorted sand
		37.0	39.0	112TILL	TILL	Sandy brown till
		42.0	--	112TILL	TILL	Refusal in till at 42.0 feet
SOW 4	--	--	--	110SDMN	CLAY	--
		10.0	--	BEDROCK	ROCK	--
SOW 6	--	8.0	--	BEDROCK	ROCK	--
SOW 11	--	--	--	110SDMN	SGVC	--
		40.0	--	BEDROCK	ROCK	--
SOW 12	--	--	--	110SDMN	CLAY	--
		26.0	--	BEDROCK	ROCK	--
SOW 14	--	--	--	110SDMN	SDGL	--
		23.0	--	BEDROCK	ROCK	--
SOW 15	--	--	--	112TILL	TILL	--
		33.0	--	BEDROCK	ROCK	--
SOW 16	--	--	--	110SDMN	SDGL	--
		21.0	--	BEDROCK	ROCK	--
SOW 19	--	--	--	110SDMN	CLAY	--
		--	--	110SDMN	SDGL	--
SOW 23	--	--	--	110SDMN	SGVC	--
SOW 24	--	--	--	110SDMN	SGVC	--
		100.0	--	BEDROCK	ROCK	--
SOW 29	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	CLAY	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Stewartstown—*Continued*			
SOW 31	--	--	--	112TILL	TILL	--
		8.0	--	BEDROCK	ROCK	--
SOW 32	--	--	--	110SDMN	SDGL	--
		10.0	--	BEDROCK	ROCK	--
SOW 33	--	--	--	112TILL	TILL	--
		8.0	--	BEDROCK	ROCK	--
SOW 36	--	--	--	112TILL	TILL	--
		7.0	--	BEDROCK	ROCK	--
SOW 37	--	--	--	112SRFD	--	--
SOW 38	--	--	--	112SRFD	--	--
SOW 39	20.0	0	4.0	112SRFD	GRVL	Black to gray gravel
		4.0	20.0	112SRFD	SILT	Gray-brown silt
		20.0	--	112SRFD	SILT	End of hole at 20.0 feet
SOW 40	26.0	0	4.0	112SRFD	GRVL	--
		4.0	26.0	112SRFD	SILT	Gray-brown silt
		26.0	--	112SRFD	SILT	End of hole at 26.0 feet
SOW 41	26.0	0	16.0	112SRFD	BLDR	--
		16.0	26.0	112SRFD	SILT	Gray-brown silt with rock fragments
		26.0	--	112SRFD	SILT	End of hole at 26.0 feet
			Stratford			
SRA 1	60.0	0	2.0	112SRFD	SAND	Fine to medium dry sand
		2.0	28.0	112SRFD	SAND	Very fine to fine, well sorted, dry sand
		28.0	38.0	112SRFD	SDST	Very fine sand
		38.0	60.0	112SRFD	SILT	Silt with little very fine sand
		60.0	--	112SRFD	SAND	Very fine sand; end of hole at 60.0 feet
SRA 2	52.0	0	52.0	112SRFD	SDST	Fine to medium sand with silt
		52.0	--	112SRFD	SDST	End of hole at 52.0 feet
SRA 3	52.0	0	20.0	112SRFD	SAND	Fine to coarse sand with trace of silt
		20.0	24.0	112SRFD	SAND	Fine sand with some silt
		24.0	30.0	112SRFD	SILT	Sandy silt
		30.0	40.0	112SRFD	SILT	Silt with trace of fine sand
		40.0	52.0	112SRFD	SAND	Fine sand with little silt
		52.0	--	112SRFD	SAND	End of hole at 52.0 feet
SRA 4	51.0	0	5.0	112SRFD	SAND	Silty fine sand
		5.0	13.0	112SRFD	SAND	Gravelly fine to coarse sand
		13.0	15.0	112SRFD	SILT	Sandy silt
		15.0	35.0	112SRFD	SAND	Fine to coarse sand with trace of gravel
		35.0	47.0	112SRFD	SILT	Silt with trace of fine sand
		47.0	51.0	112SRFD	SAND	Silty fine sand
		51.0	--	112SRFD	SAND	End of hole at 51.0 feet
SRA 5	52.0	0	14.0	112SRFD	SAND	Silty fine sand
		14.0	19.0	112SRFD	SILT	Silt
		25.0	37.0	112SRFD	SILT	Silt with trace of fine sand
		37.0	52.0	112SRFD	SAND	Silty fine sand
		52.0	--	112SRFD	SAND	End of hole at 52.0 feet
SRB 1	33.0	0	4.0	112SRFD	SDGL	--
		4.0	10.0	112SRFD	SDGL	--
		10.0	24.0	112SRFD	SDGL	Coarse sand with little gravel
		24.0	29.0	112SRFD	SDGL	Coarse sand with little gravel
		29.0	33.0	112SRFD	SDGL	Sand and gravel with little clay
		33.0	--	112SRFD	SDGL	Refusal at 33.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Stratford—*Continued*			
SRB 2	51.0	0	7.0	112SRFD	SDGL	Coarse hard sand with some boulders
		7.0	11.0	112SRFD	SAND	Sharp loose sand
		11.0	21.0	112SRFD	SDGL	Sharp sand with little gravel
		21.0	45.0	112SRFD	SAND	Sharp gray sand
		45.0	51.0	112SRFD	SDGL	Fine hard sand with some gravel
		51.0	--	112SRFD	SDGL	Refusal at 51.0 feet
SRB 3	70.0	0	6.0	112SRFD	GRVL	Gravel with some muck
		6.0	14.0	112SRFD	STCL	--
		14.0	32.0	112SRFD	SDST	Fine sand and silt
		32.0	61.0	112SRFD	SAND	Fine sand
		61.0	70.0	112SRFD	SDST	Hard silt
		70.0	--	112SRFD	SDST	End of boring at 70.0 feet
SRB 4	29.0	0	2.0	112SRFD	SAND	Fine to medium sand
		2.0	5.0	112SRFD	SDST	Sandy silt
		5.0	7.0	112SRFD	MUCK	--
		7.0	10.0	112SRFD	SAND	Fine to medium silty sand
		10.0	29.0	112TILL	TILL	Silty with boulders
		29.0	--	112TILL	TILL	End of boring in till at 29.0 feet
SRW 1	80.0	0	2.0	110SOIL	LOAM	Silty fine loam
		7.0	12.0	112SRFD	SAND	Medium well sorted sand
		12.0	17.0	112SRFD	SAND	Medium to coarse sand
		17.0	29.0	112SRFD	SDGL	Very coarse sand with pebbly gravel
		29.0	80.0	112SRFD	SDST	Very fine sand
		80.0	--	112SRFD	SDST	Very fine sand
SRW 2	90.0	0	25.0	112SRFD	CLAY	Brown clay and silt
		25.0	50.0	112SRFD	SAND	Medium to coarse sand
		50.0	68.0	112SRFD	SAND	Fine to medium sand
		68.0	90.0	112SRFD	SAND	Fine to medium sand
		90.0	--	112SRFD	SAND	End of hole at 90.0 feet
SRW 3	100.0	0	7.0	112SRFD	SDGL	Medium to coarse silty sand
		7.0	12.0	112SRFD	SAND	Fine to medium sand
		12.0	25.0	112SRFD	SDST	--
		25.0	37.0	112SRFD	SILT	Silt with little fine sand, and little clay
		37.0	39.0	112SRFD	SAND	Fine sand
		39.0	40.0	112SRFD	SAND	Fine to coarse, well sorted sand
		40.0	50.0	112SRFD	SDGL	Coarse to very coarse sand with some pebble and gravel
		50.0	65.0	112SRFD	SAND	Medium to very coarse sand
		65.0	92.0	112SRFD	SDGL	Coarse to very coarse sand with little pebble and gravel
		92.0	100.0	112SRFD	SDST	Fine sand with little silt
		100.0	--	112SRFD	SDST	End of hole at 100.0 feet
SRW 4	--	--	--	110SDMN	CLAY	--
		70.0	--	BEDROCK	ROCK	--
SRW 5	--	--	--	110SDMN	OTHR	--
		--	--	110SDMN	SDGL	--
		101.0	--	BEDROCK	ROCK	--
SRW 6	--	--	--	110SDMN	SDGL	--
		15.0	--	BEDROCK	ROCK	--
SRW 7	--	--	--	110SDMN	SGVC	--
		25.0	--	BEDROCK	ROCK	--
SRW 8	--	--	--	110SDMN	SDGL	--
		4.0	--	BEDROCK	ROCK	--

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Stratford—*Continued*			
SRW 10	--	--	--	110SDMN	SDGL	--
		28.0	--	BEDROCK	ROCK	--
SRW 11	--	--	--	110SDMN	SDGL	--
		115.0	--	BEDROCK	ROCK	--
SRW 12	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
SRW 13	--	--	--	110SDMN	OTHR	--
		28.0	--	BEDROCK	ROCK	--
SRW 14	--	--	--	110SDMN	SDGL	--
		25.0	--	BEDROCK	ROCK	--
SRW 15	--	--	--	110SDMN	SDGL	--
		20.0	--	BEDROCK	ROCK	--
SRW 16	--	--	--	110SDMN	SAND	--
		71.0	--	BEDROCK	ROCK	--
SRW 17	--	--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		70.0	--	BEDROCK	ROCK	--
SRW 18	--	145.0	--	BEDROCK	ROCK	--
SRW 19	--	--	--	110SDMN	SGVC	--
		130.0	--	BEDROCK	ROCK	--
SRW 20	--	--	--	110SDMN	SAND	--
		55.0	--	BEDROCK	ROCK	--
SRW 21	--	--	--	110SDMN	SAND	--
		22.0	--	BEDROCK	ROCK	--
SRW 22	--	--	--	110SDMN	SDGL	--
		19.0	--	BEDROCK	ROCK	--
SRW 23	--	--	--	110SDMN	SDGL	--
		--	--	110SDMN	SAND	--
		--	--	110SDMN	SDGL	--
		192.0	--	BEDROCK	ROCK	--
SRW 24	--	--	--	110SDMN	SAND	--
		96.0	--	BEDROCK	ROCK	--
SRW 28	12.0	0	3.0	112SRFD	SDGL	--
		3.0	12.0	112SRFD	SAND	--
		12.0	--	112SRFD	SAND	End of hole at 12.0 feet
SRW 29	10.0	0	3.0	112SRFD	SDGL	--
		3.0	9.0	112SRFD	SAND	--
		9.0	10.0	112SRFD	SDGL	--
		10.0	--	112SRFD	SDGL	End of hole at 10.0 feet
SRW 30	11.0	0	3.0	112SRFD	SDGL	--
		3.0	11.0	112SRFD	SAND	--
		11.0	--	112SRFD	SAND	End of hole at 11.0 feet
SRW 31	15.0	0	5.0	112SRFD	SDGL	--
		5.0	9.0	112SRFD	SAND	--
		9.0	15.0	112SRFD	SDGL	--
		15.0	--	112SRFD	SDGL	End of hole at 15.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
			COOS COUNTY—*Continued*			
			Stratford—*Continued*			
SRW 32	14.0	0	4.0	112SRFD	SDGL	--
		4.0	9.0	112SRFD	SAND	--
		9.0	14.0	112SRFD	SDGL	--
		14.0	--	112SRFD	SDGL	End of hole at 14.0 feet
SRW 33	14.0	0	4.0	112SRFD	SDGL	--
		4.0	9.0	112SRFD	SAND	--
		9.0	14.0	112SRFD	SDGL	--
		14.0	--	112SRFD	SDGL	End of hole at 14.0 feet
SRW 34	14.0	0	4.0	112SRFD	SDGL	--
		4.0	9.0	112SRFD	SAND	--
		9.0	14.0	112SRFD	SDGL	--
		14.0	--	112SRFD	SDGL	End of hole at 14.0 feet
SRW 35	216.0	0	10.0	112SRFD	SAND	Fine to medium gravelly sand
		10.0	17.0	112SRFD	SILT	Sandy silt
		17.0	36.0	112SRFD	SAND	Fine silty sand
		36.0	38.0	112SRFD	SILT	Sandy silt
		38.0	64.0	112SRFD	SAND	Silty sand
		64.0	72.0	112SRFD	SILT	Sandy silt
		72.0	84.0	112SRFD	SILT	Sandy silt
		84.0	85.0	112SRFD	SAND	Fine silty sand
		85.0	93.0	112SRFD	SILT	Sandy silt
		93.0	156.0	112SRFD	SAND	Silty sand
		156.0	164.0	112SRFD	SDGL	Fine to coarse sand with some coarse gravel
		164.0	173.0	112SRFD	SAND	Fine silty sand
		173.0	178.0	112SRFD	SDGL	Fine coarse sand with very coarse gravel
		178.0	193.0	112SRFD	GRVL	--
		193.0	197.0	112SRFD	SDGL	Fine to coarse sand and grave
		197.0	216.0	BEDROCK	ROCK	Bedrock at 216.0 feet
SRW 36	299.0	0	8.0	112SRFD	SAND	Medium to coarse sand with trace of gravel
		8.0	22.0	112SRFD	SILT	Sandy silt
		22.0	25.0	112SRFD	SAND	Silty sand
		25.0	33.0	112SRFD	SDGL	Fine to medium sand with fine gravel
		33.0	47.0	112SRFD	SAND	Silty fine sand
		47.0	54.0	112SRFD	SILT	Sandy silt
		54.0	96.0	112SRFD	SAND	Silty fine sand
		96.0	97.0	112SRFD	BLDR	--
		97.0	122.0	112SRFD	SAND	Silty fine sand
		122.0	129.0	112SRFD	SDGL	Fine to medium sand and gravel
		129.0	132.0	112SRFD	SAND	Silty fine sand
		132.0	138.0	112SRFD	SDGL	Fine to medium sand and gravel
		138.0	148.0	112SRFD	SAND	Fine to medium silty sand and gravel
		148.0	150.0	112SRFD	GRVL	--
		150.0	197.0	112SRFD	SAND	Silty sand
		197.0	202.0	112SRFD	BLDR	--
		202.0	208.0	112SRFD	SAND	Fine to medium silty sand
		208.0	212.0	112SRFD	BLDR	--
		212.0	243.0	112SRFD	SAND	Fine to medium silty sand
		243.0	246.0	112SRFD	SAND	Fine to coarse sand
		246.0	263.0	112SRFD	SDGL	Fine to coarse sand
		263.0	277.0	112SRFD	GRVL	Medium to coarse gravel
		277.0	299.0	BEDROCK	ROCK	Bedrock at 299.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
						COOS COUNTY—*Continued*
						Stratford—*Continued*
SRW 37	223.0	0	8.0	112SRFD	SAND	Medium to coarse silty sand with trace of gravel
		8.0	12.0	112SRFD	SILT	Sandy silt
		12.0	137.0	112SRFD	SAND	Fine to medium silty sand
		137.0	142.0	112SRFD	SILT	Sandy silt
		142.0	153.0	112SRFD	SAND	Medium to coarse silty sand
		153.0	159.0	112SRFD	SAND	Medium to coarse sand with trace of silt
		159.0	194.0	112SRFD	BLDR	Weathered rock and boulders
		196.0	205.0	112SRFD	SAND	Fine to medium sand with trace of silt
		205.0	215.0	112SRFD	BLDR	--
		215.0	223.0	BEDROCK	ROCK	Bedrock at 223.0 feet
SRW 38	307.0	0	7.0	112SRFD	SAND	--
		7.0	11.0	112SRFD	SILT	Sandy silt
		11.0	22.0	112SRFD	SAND	Medium to coarse sand with trace of silt
		22.0	31.0	112SRFD	SAND	Silty fine sand
		31.0	36.0	112SRFD	SDGL	Fine to coarse sand and gravel
		36.0	67.0	112SRFD	SAND	Fine silty sand
		67.0	72.0	112SRFD	SDGL	Fine to medium sand with fine gravel
		72.0	82.0	112SRFD	SAND	Fine silty sand
		82.0	96.0	112SRFD	SAND	Medium to coarse sand with trace of silt
		96.0	107.0	112SRFD	SDGL	Medium to coarse sand with fine gravel
		107.0	116.0	112SRFD	SAND	Fine silty sand
		116.0	121.0	112SRFD	SDGL	Medium to coarse sand with fine gravel
		121.0	132.0	112SRFD	BLDR	--
		132.0	196.0	112SRFD	SAND	Fine silty sand
		196.0	202.0	112SRFD	SDGL	--
		202.0	208.0	12SRFD	SDGL	--
		208.0	210.0	112SRFD	SAND	Fine to medium sand with trace of gravel
		210.0	222.0	112SRFD	BLDR	--
		222.0	226.0	112SRFD	GRVL	Medium to coarse gravel
		226.0	232.0	112SRFD	BLDR	--
		232.0	236.0	112SRFD	SDGL	Medium to coarse sand with medium to coarse gravel
		236.0	242.0	112SRFD	BLDR	--
		242.0	247.0	112SRFD	BLDR	--
		247.0	257.0	112SRFD	SAND	Fine silty sand
		257.0	263.0	112SRFD	SDGL	Fine to coarse sand with trace of gravel
		263.0	269.0	112SRFD	SAND	Fine to medium silty sand
		269.0	277.0	112SRFD	BLDR	--
		277.0	281.0	112SRFD	SAND	Fine to medium sand with trace of silt
		281.0	307.0	BEDROCK	ROCK	Bedrock at 307.0 feet
SRW 39	293.0	0	12.0	112SRFD	SDGL	Medium to coarse sand with fine to medium gravel
		12.0	106.0	112SRFD	SAND	Fine to medium silty sand, little silt
		106.0	112.0	112SRFD	SILT	Sandy silt
		112.0	257.0	112SRFD	SAND	Fine silty sand
		257.0	267.0	112SRFD	SDGL	Fine to coarse sand and gravel
		267.0	271.0	112SRFD	BLDR	--
		271.0	293.0	BEDROCK	ROCK	Bedrock at 293.0 feet

Appendix B. Stratigraphic logs of selected wells and borings in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire—*Continued*

Local site No.	Depth drilled (feet)	Depth to top (feet)	Depth to bottom (feet)	Aquifer code	Lith-ology code	Description of material
COOS COUNTY—*Continued*						
Stratford—*Continued*						
SRW 40	266.0	0	38.0	112SRFD	SAND	Fine silty sand
		38.0	47.0	112SRFD	SILT	Sandy silt
		47.0	58.0	112SRFD	SAND	Fine silty sand
		58.0	74.0	112SRFD	SILT	Sandy silt
		74.0	97.0	112SRFD	SAND	Silty sand
		97.0	101.0	112SRFD	SAND	Fine to medium sand with trace of silt
		101.0	158.0	112SRFD	SAND	Fine to medium silty sand with little silt
		158.0	171.0	112SRFD	SAND	Medium to coarse sand with trace of silt
		171.0	174.0	112SRFD	SDGL	Fine to coarse sand with fine to medium gravel
		174.0	192.0	112SRFD	SAND	Fine to medium silty sand
		192.0	197.0	112SRFD	BLDR	--
		197.0	202.0	112SRFD	SAND	Fine to medium silty sand with trace of silt
		202.0	207.0	112SRFD	BLDR	--
		207.0	212.0	112SRFD	SAND	Fine to medium silty sand
		212.0	219.0	112SRFD	BLDR	--
		219.0	220.0	112SRFD	SAND	Medium to coarse sand with silt
		220.0	226.0	112SRFD	SDGL	Fine to coarse sand with fine gravel
		226.0	232.0	112SRFD	BLDR	--
		232.0	260.0	112SRFD	SDGL	Fine to coarse sand with fine to medium gravel
		260.0	266.0	BEDROCK	ROCK	Refusal in bedrock at 266.0 feet
SRW 41	298.0	0	7.0	112SRFD	SAND	Fine sand with some silt
		7.0	11.0	112SRFD	SDGL	Fine to coarse sand with fine to medium gravel
		11.0	38.0	112SRFD	SILT	Silt with trace of fine sand
		38.0	41.0	112SRFD	BLDR	--
		41.0	83.0	112SRFD	SDGL	Fine to coarse sand with fine to coarse gravel
		83.0	102.0	112SRFD	SDGL	Medium to coarse sand and gravel
		102.0	107.0	112SRFD	GRVL	Medium to coarse sandy gravel
		107.0	112.0	112SRFD	BLDR	--
		112.0	143.0	112SRFD	GRVL	Medium to coarse sandy gravel
		143.0	148.0	112SRFD	SAND	Fine to coarse silty sand
		148.0	--	112SRFD	BLDR	--
		186.0	190.0	112SRFD	BLDR	--
		150.0	208.0	112SRFD	COBB	--
		208.0	292.0	112SRFD	BLDR	--
		292.0	298.0	BEDROCK	ROCK	Bedrock at 298.0 feet
STW 1	--	--	--	110SDMN	SGVC	--
		98.0	--	BEDROCK	ROCK	--

— PAGE 139 FOLLOWS —

APPENDIX C

- PAGE 141 FOLLOWS -

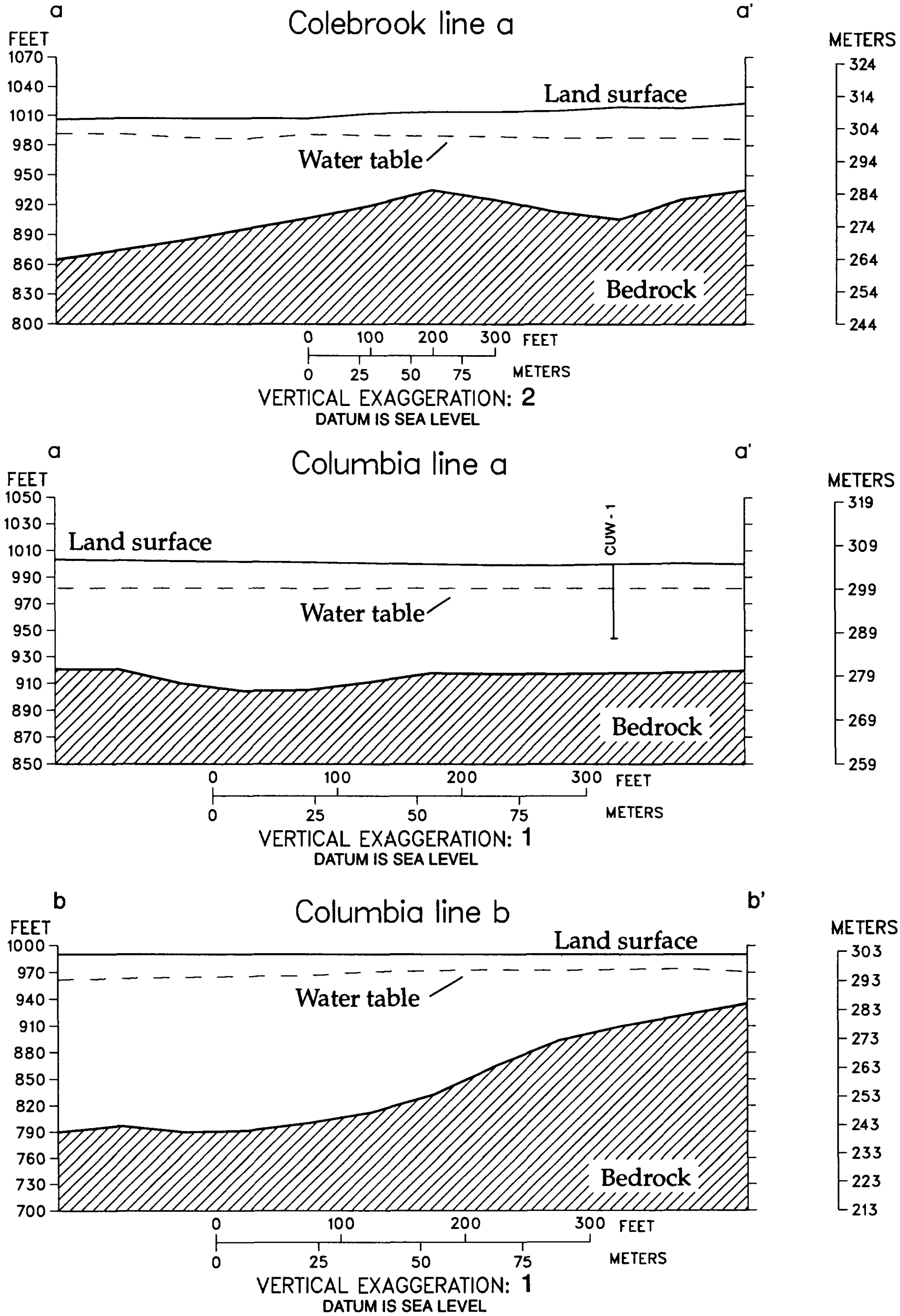

Figure C1. Geohydrologic sections interpreted from seismic-refraction data for Colebrook line a-a', and Columbia lines a-a' and b-b' (locations shown on plate 3).

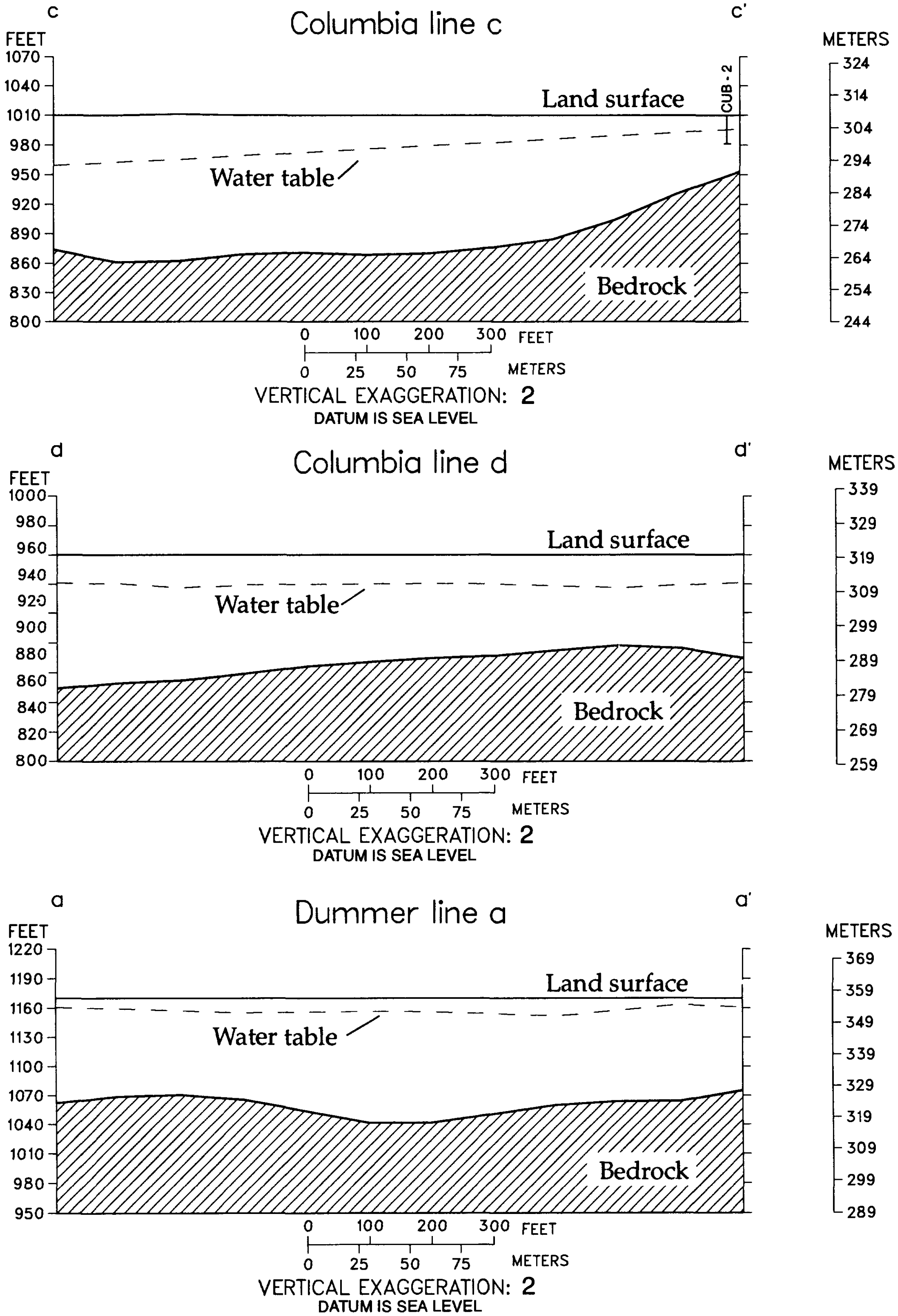

Figure C2. Geohydrologic sections interpreted from seismic-refraction data for Columbia lines c-c' and d-d' (locations shown on plate 3), and Dummer line a-a' (location shown on plate 2).

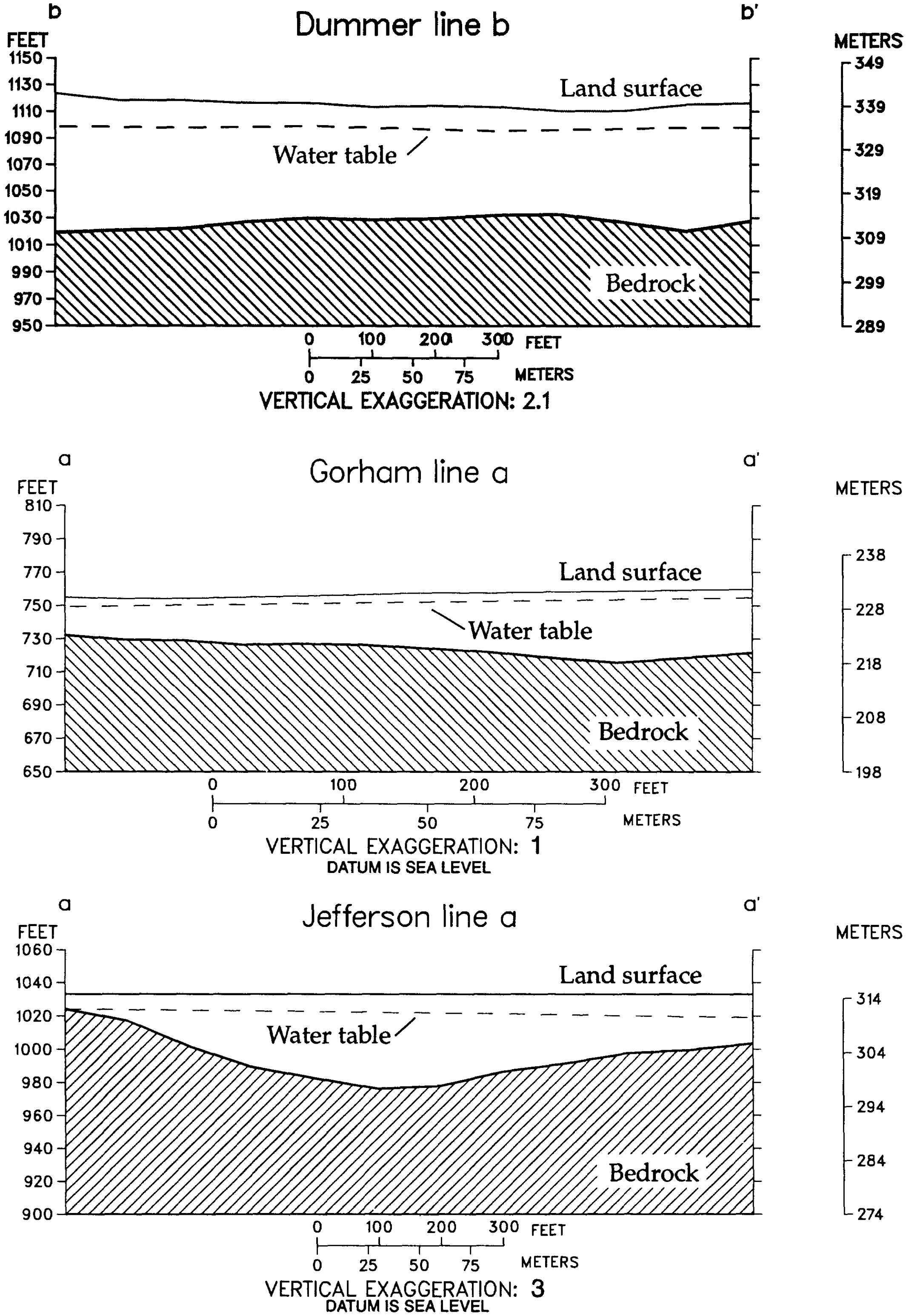

Figure C3. Geohydrologic sections interpreted from seismic-refraction data for Dummer line b-b' (location shown on plate 2), Gorham line a-a' (location shown on plate 1), and Jefferson line a-a' (location shown on plate 1).

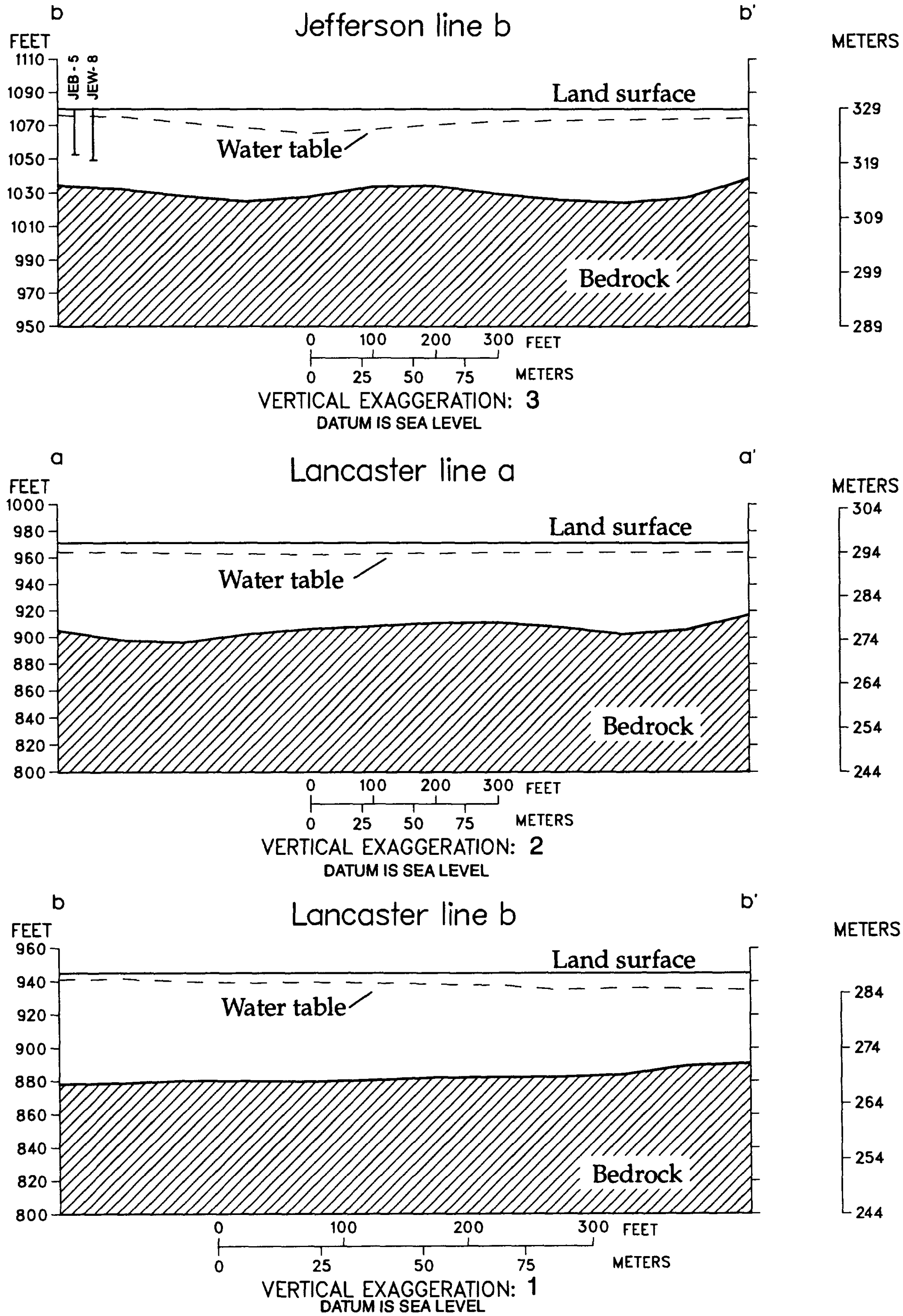

Figure C4. Geohydrologic sections interpreted from seismic-refraction data for Jefferson line b-b' (location shown on plate 1), Lancaster lines a-a' and b-b' (locations shown on plates 1 and 2).

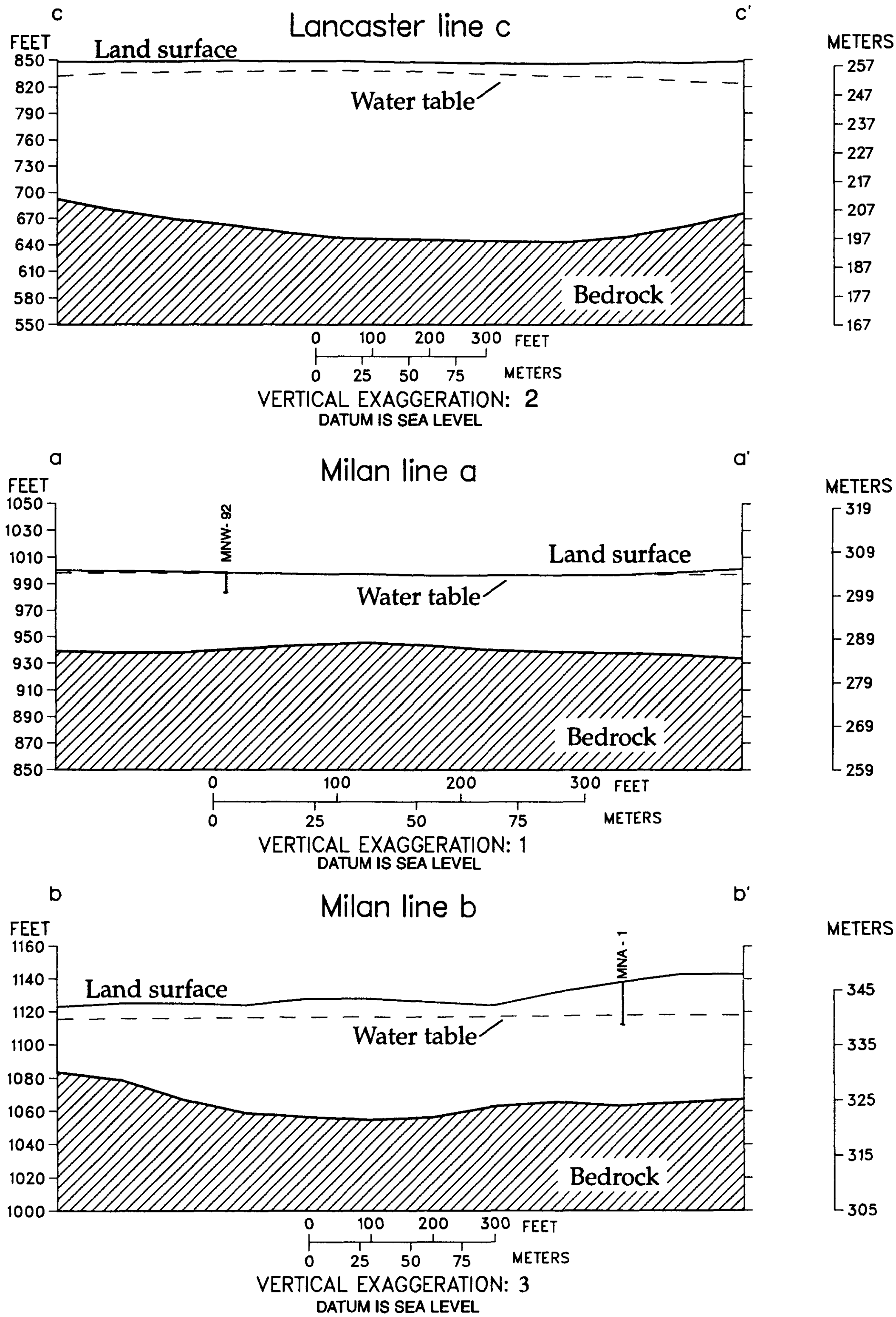

Figure C5. Geohydrologic sections interpreted from seismic-refraction data for Lancaster line c-c' (location shown on plate 1). Milan lines a-a' and b-b' (locations shown on plate 2).

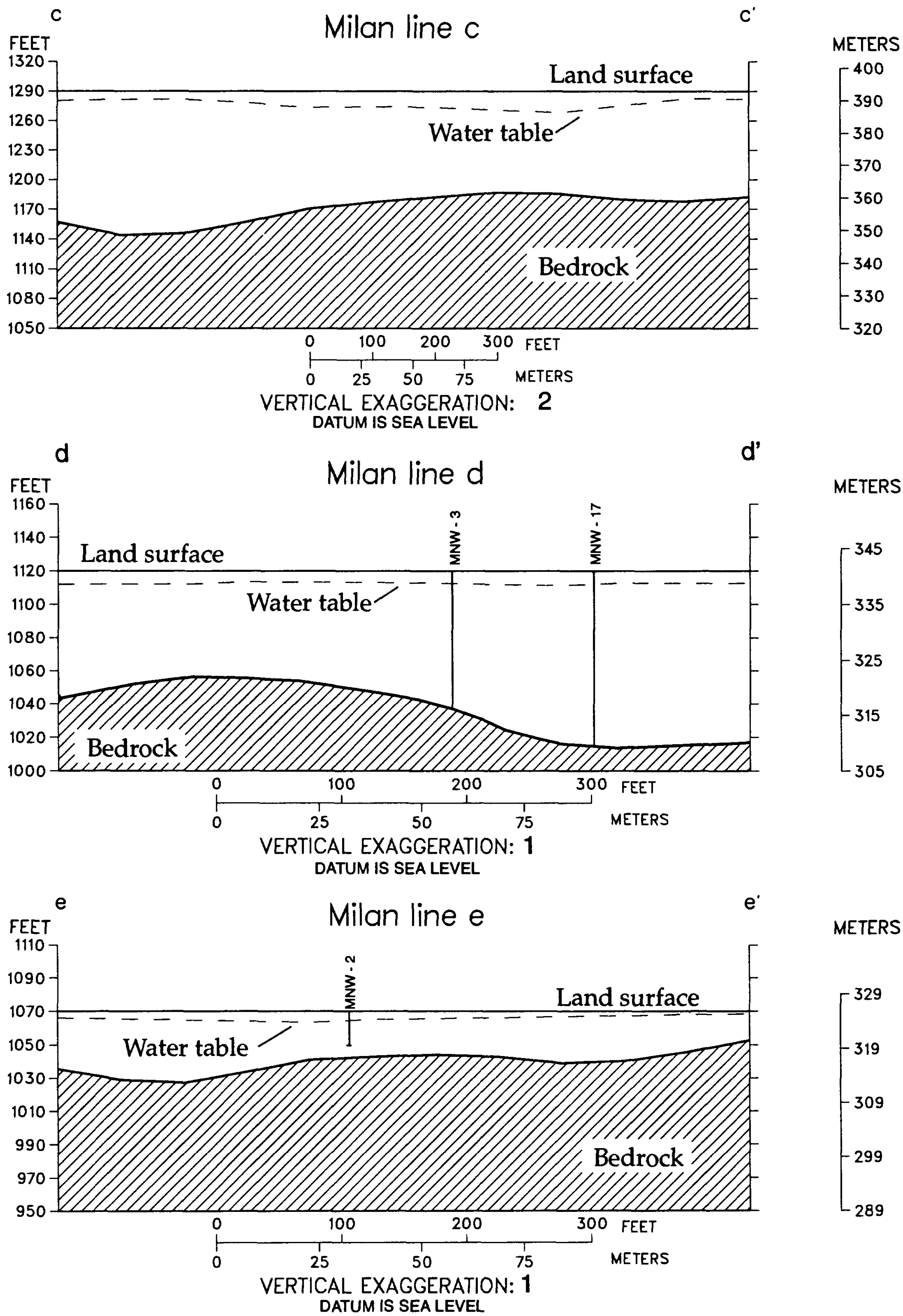

Figure C6. Geohydrologic sections interpreted from seismic-refraction data for Milan lines c-c', d-d' and e-e' (locations shown on plate 2).

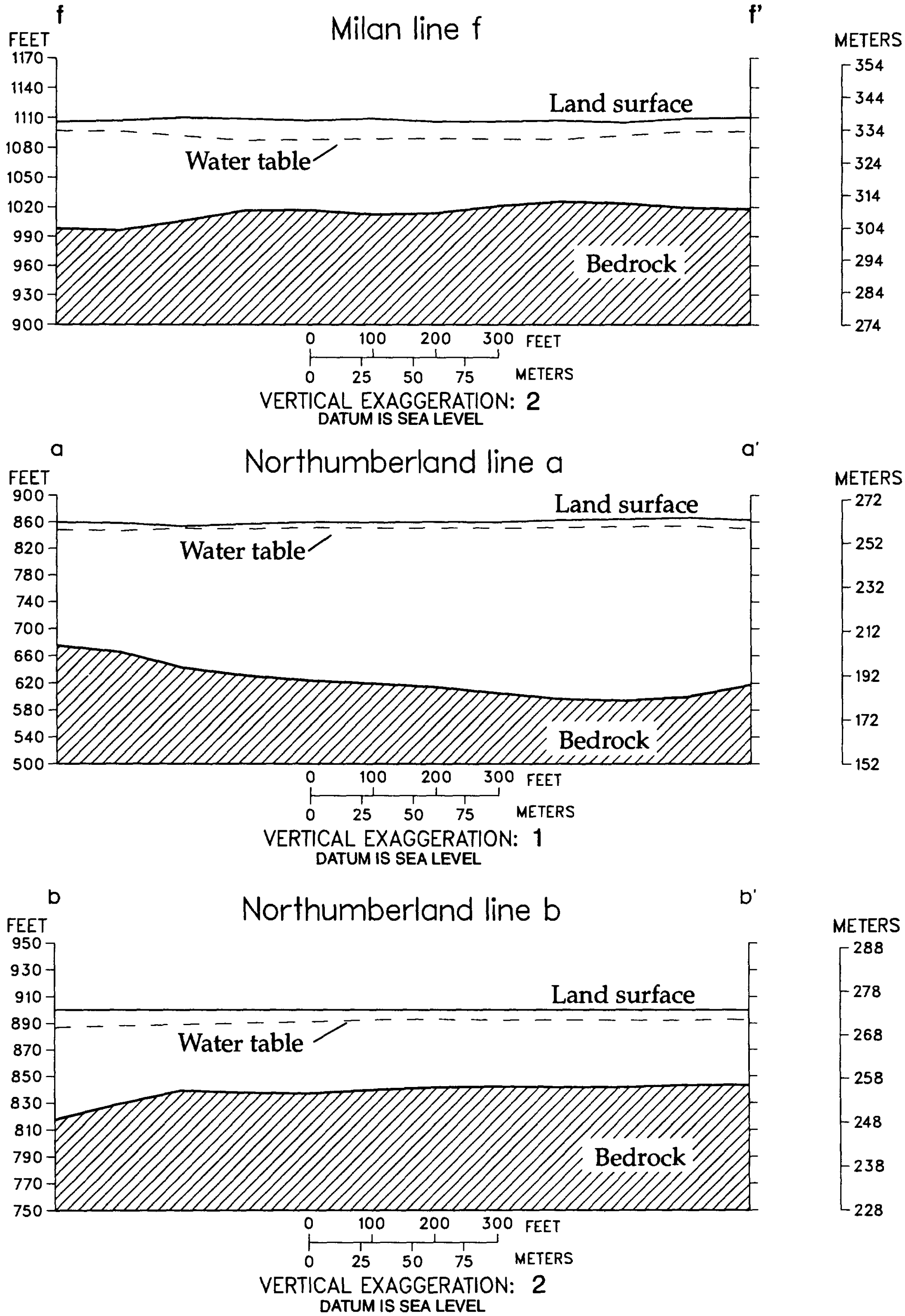

Figure C7. Geohydrologic sections interpreted from seismic-refraction data for Milan line f-f' (location shown on plate 2), and Northumberland lines a-a' and b-b' (locations shown on plate 2).

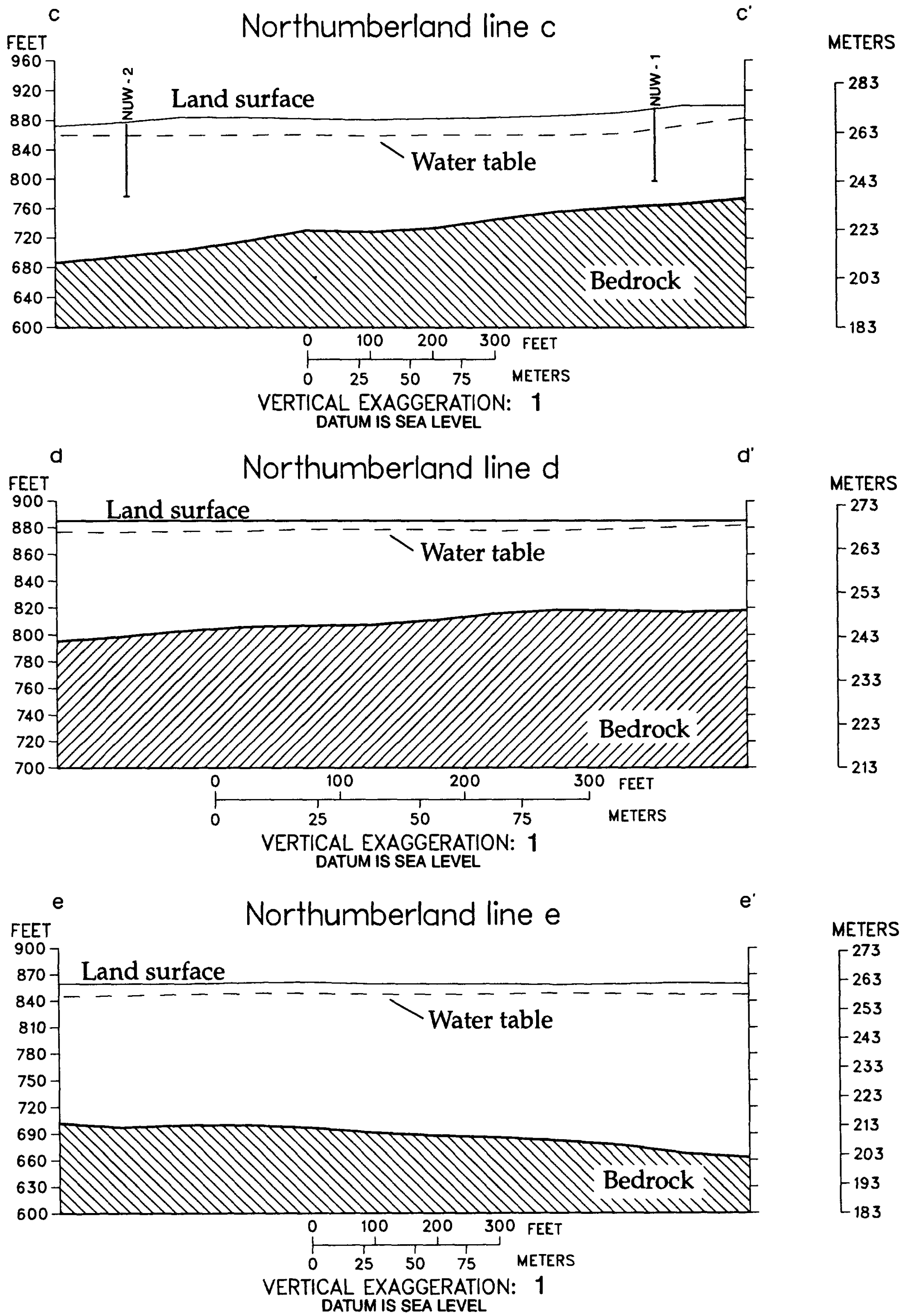

Figure C8. Geohydrologic sections interpreted from seismic-refraction data for Northumberland lines c-c', d-d' and e-e' (locations shown on plate 2).

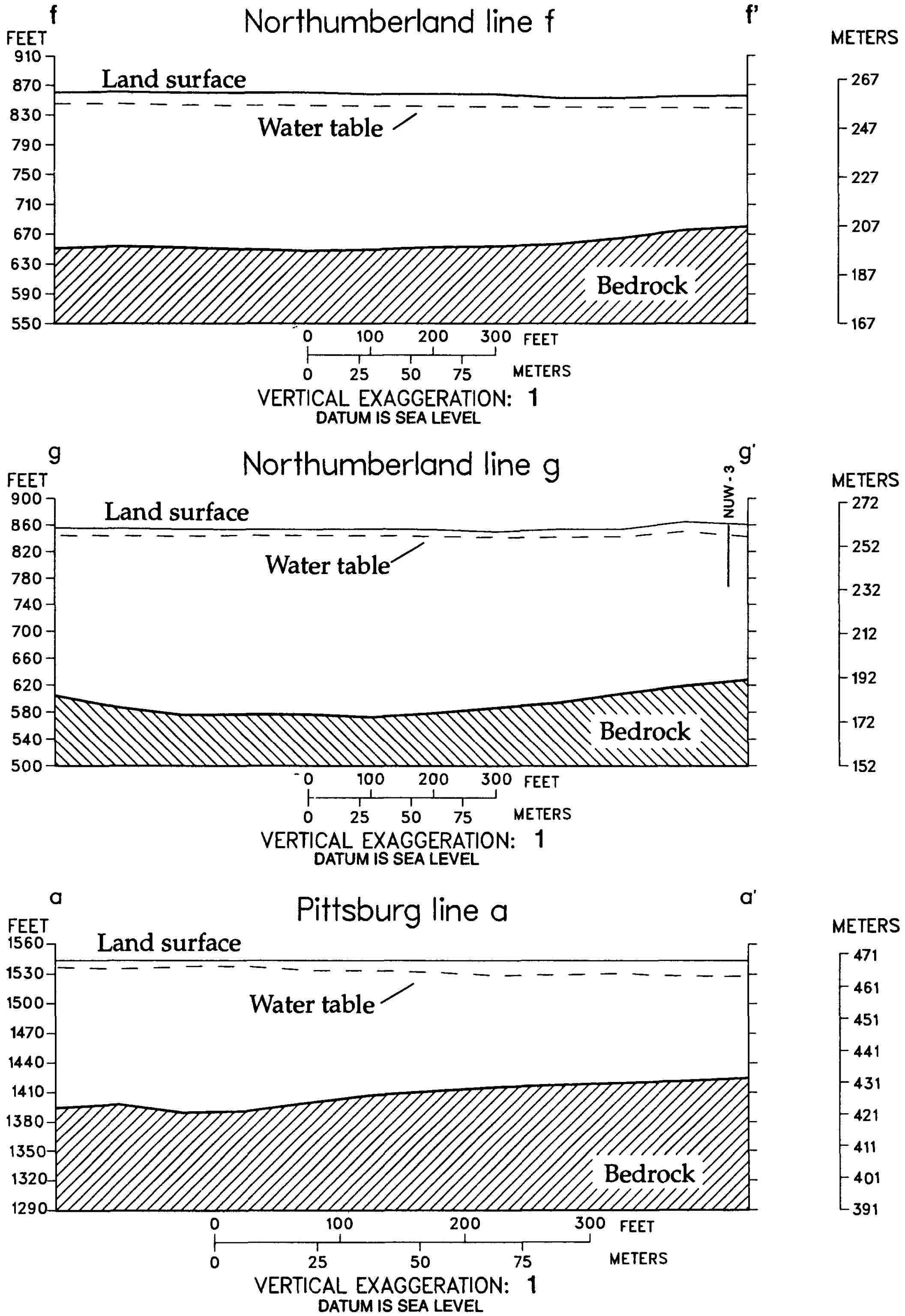

Figure C9. Geohydrologic sections interpreted from seismic-refraction data for Northumberland lines f-f' and g-g' (locations shown on plate 2), and Pittsburg line a-a' (location shown on plate 4).

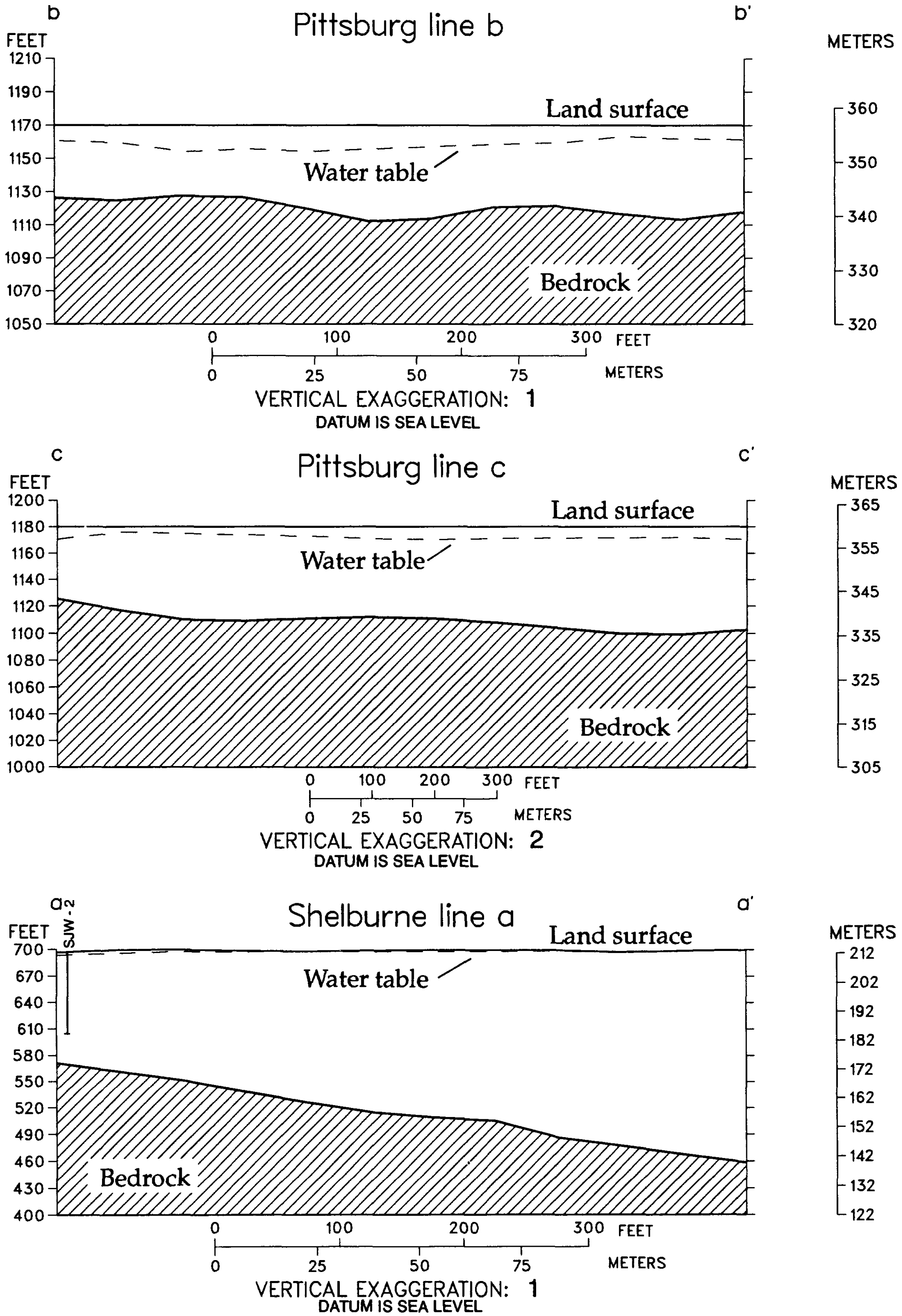

Figure C10. Geohydrologic sections interpreted from seismic-refraction data for Pittsburg lines b-b' and c-c' (locations shown on plate 4), and Shelburne line a-a' (location shown on plate 1).

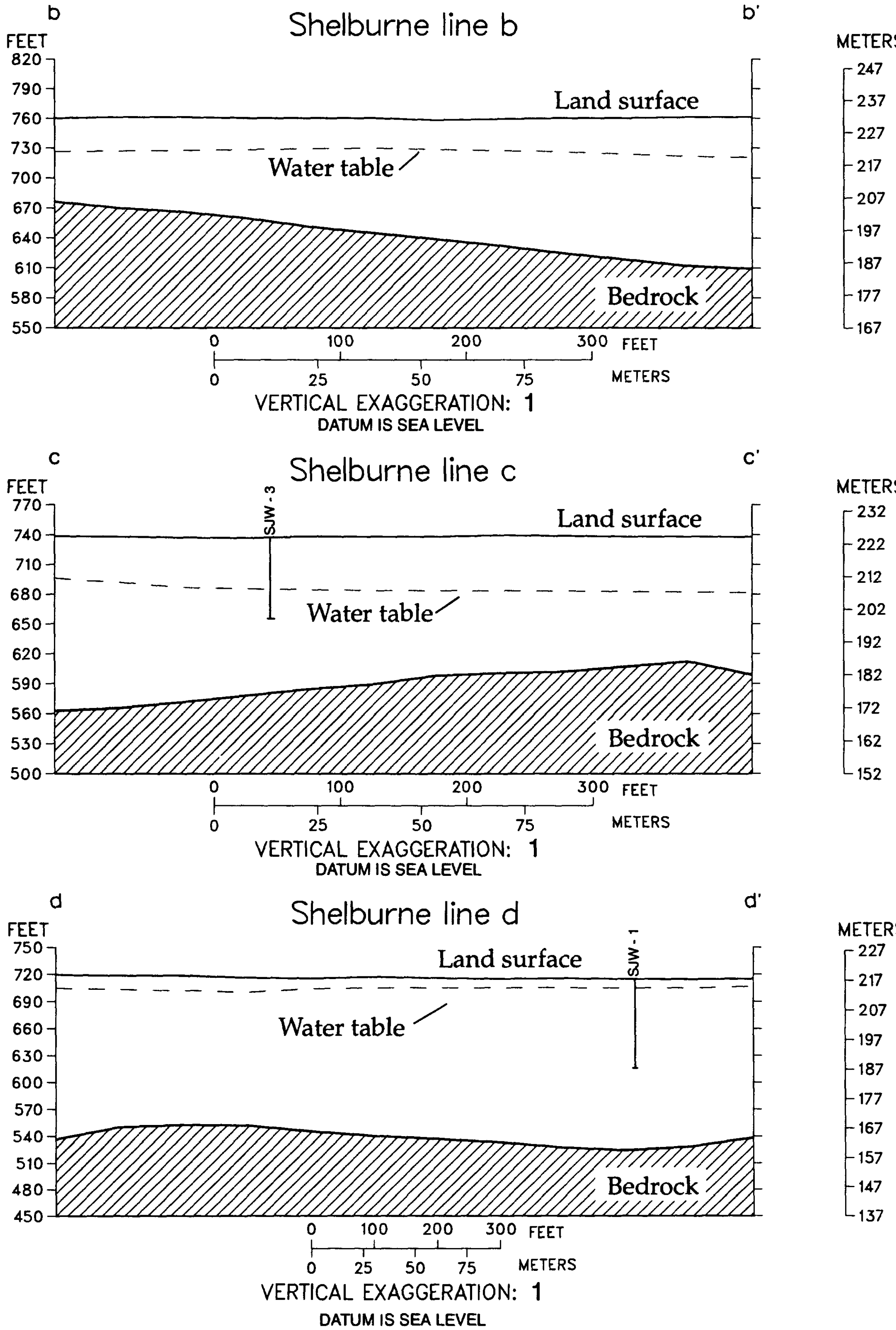

Figure C11. Geohydrologic sections interpreted from seismic-refraction data for Shelburne lines b-b', c-c' and d-d' (locations shown on plate 1).

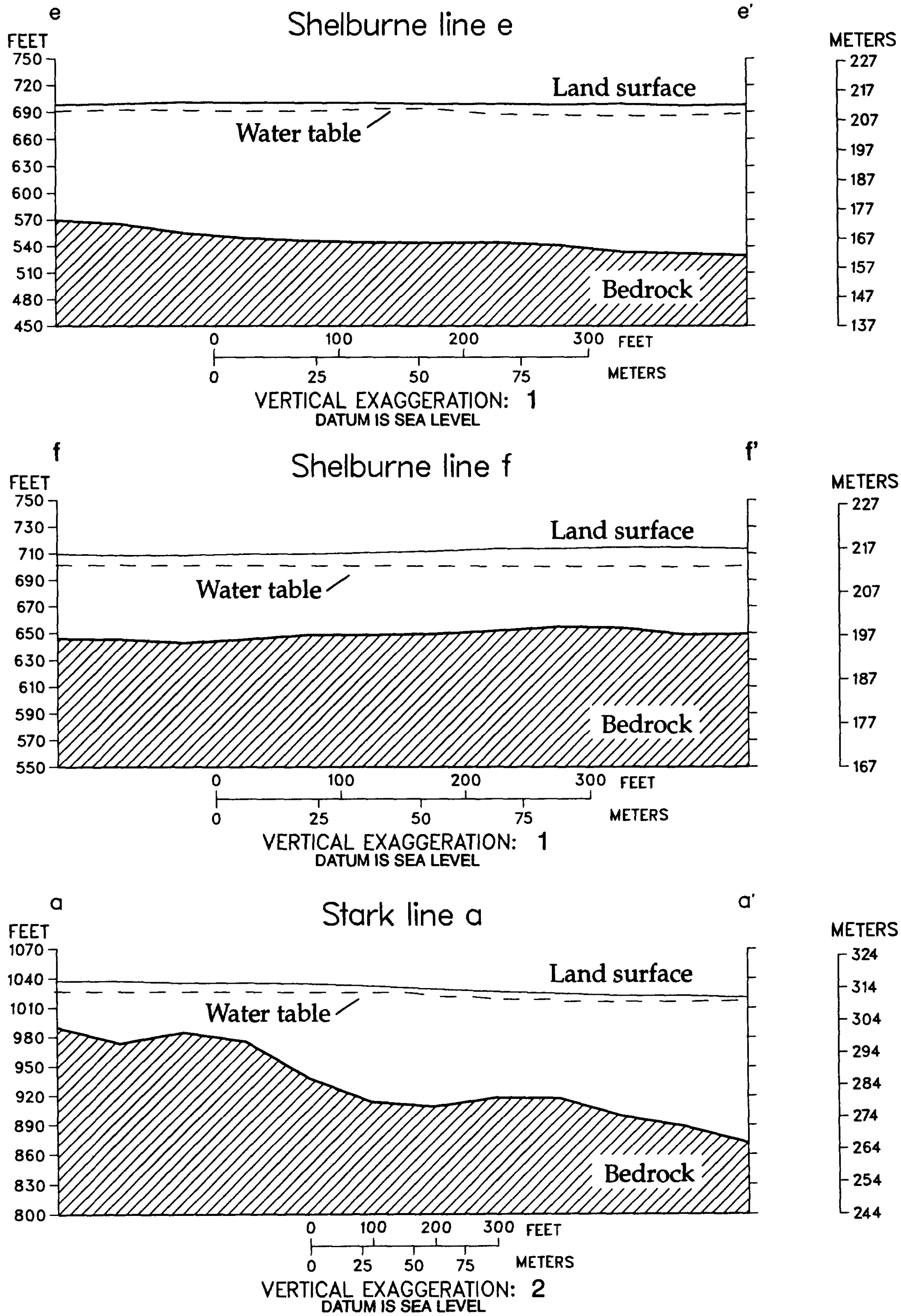

Figure C12. Geohydrologic sections interpreted from seismic-refraction data for Shelburne lines e-e' and f-f' (locations shown on plate 1), and Stark line a-a' (location shown on plate 2).

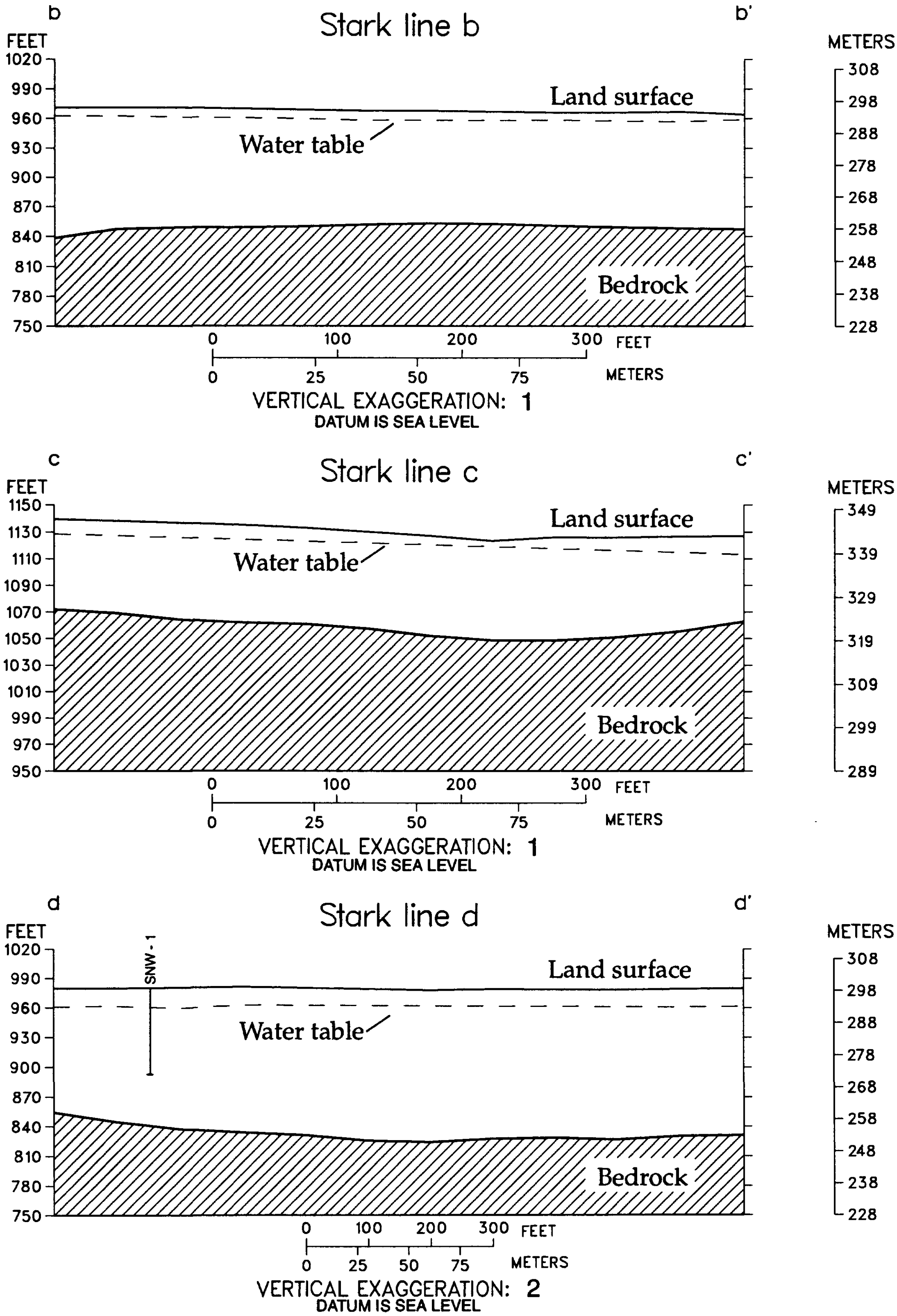

Figure C13. Geohydrologic sections interpreted from seismic-refraction data for Stark lines b-b', c-c' and d-d' (locations shown on plate 2).

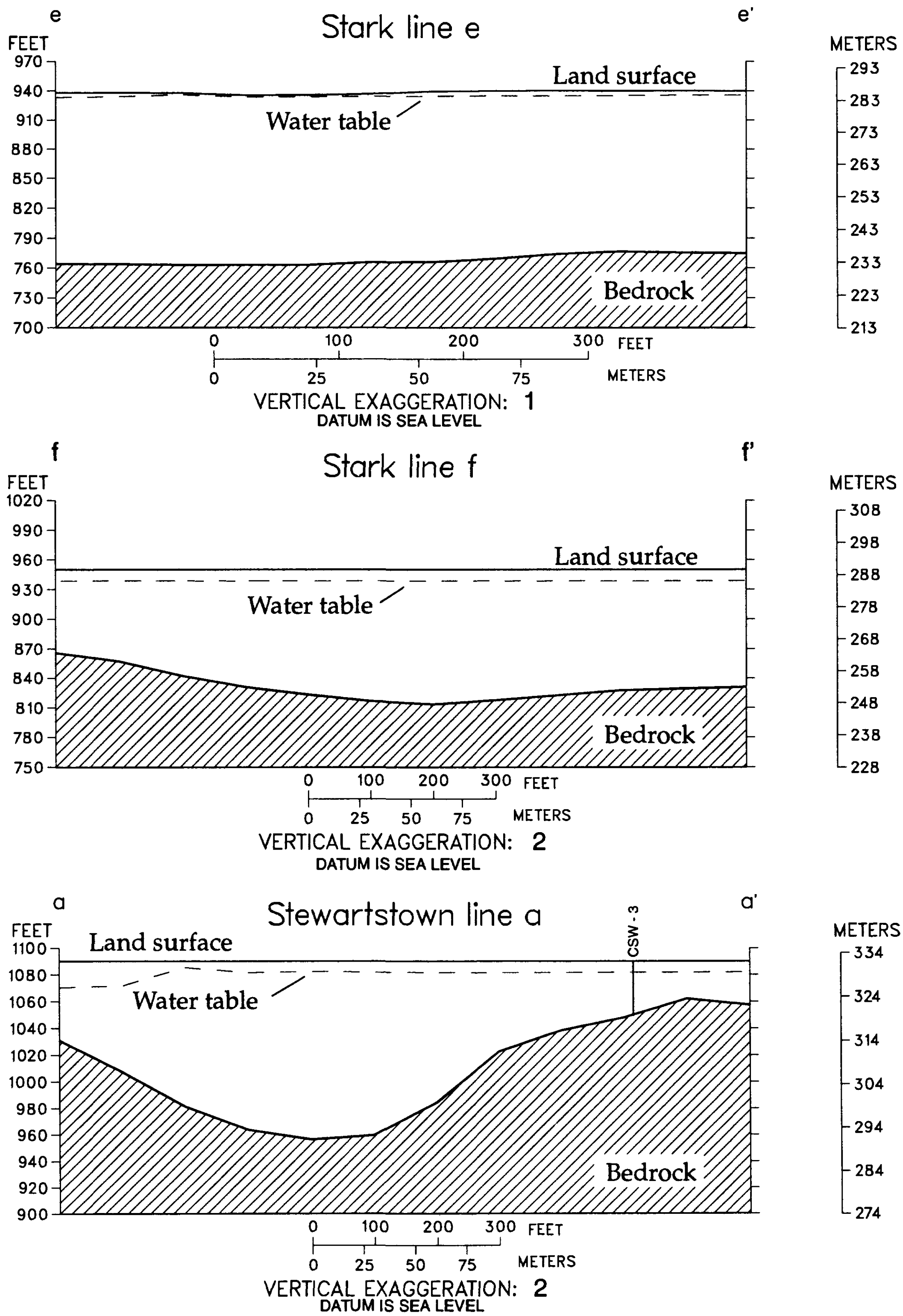

Figure C14. Geohydrologic sections interpreted from seismic-refraction data for Stark lines e-e' and f-f' (locations shown on plate 2), and Stewartstown line a-a' (location shown on plate 3).

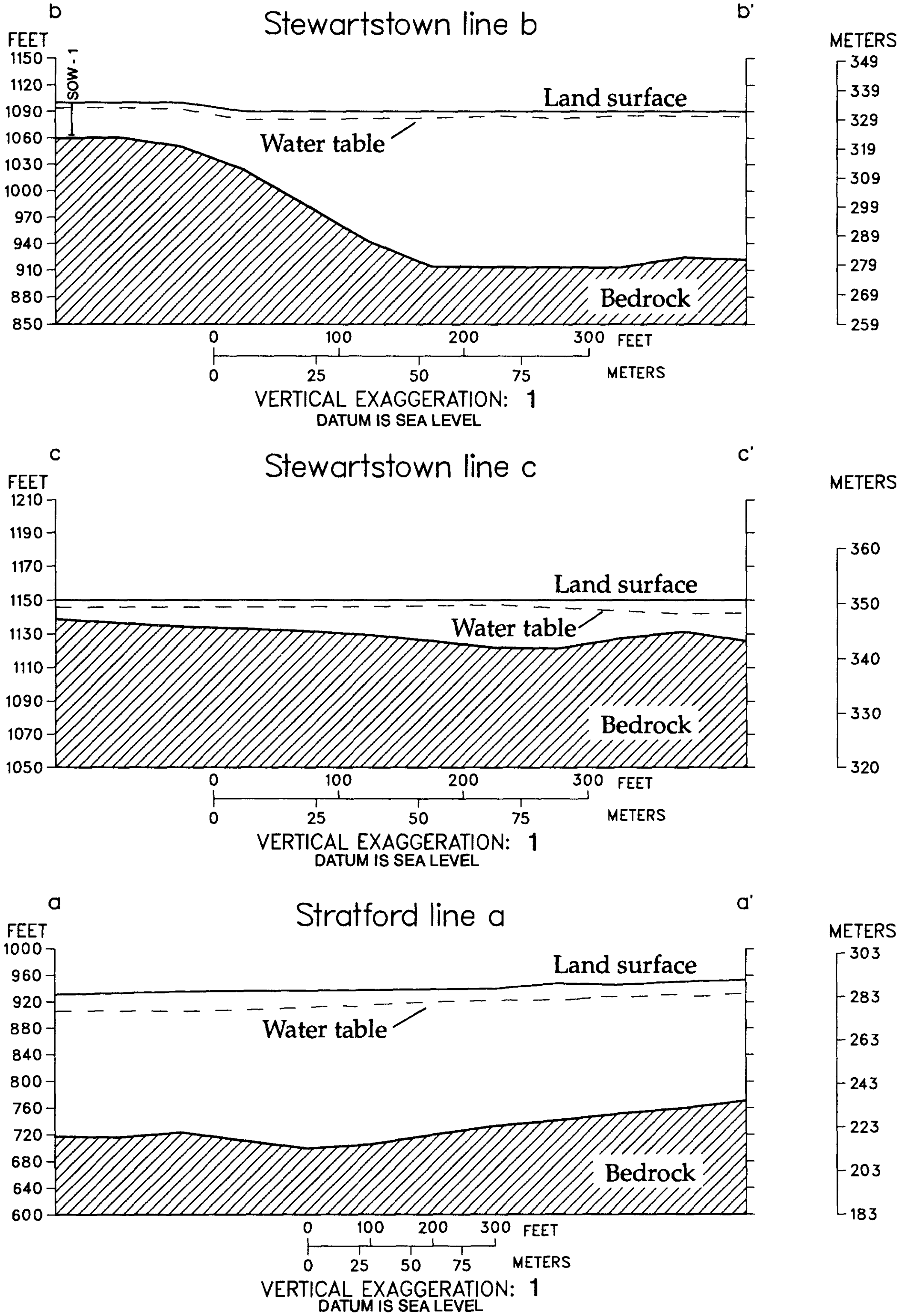

Figure C15. Geohydrologic sections interpreted from seismic-refraction data for Stewartstown lines b-b' and c-c' (locations shown on plate 3), and Stratford line a-a' (location shown on plate 2).

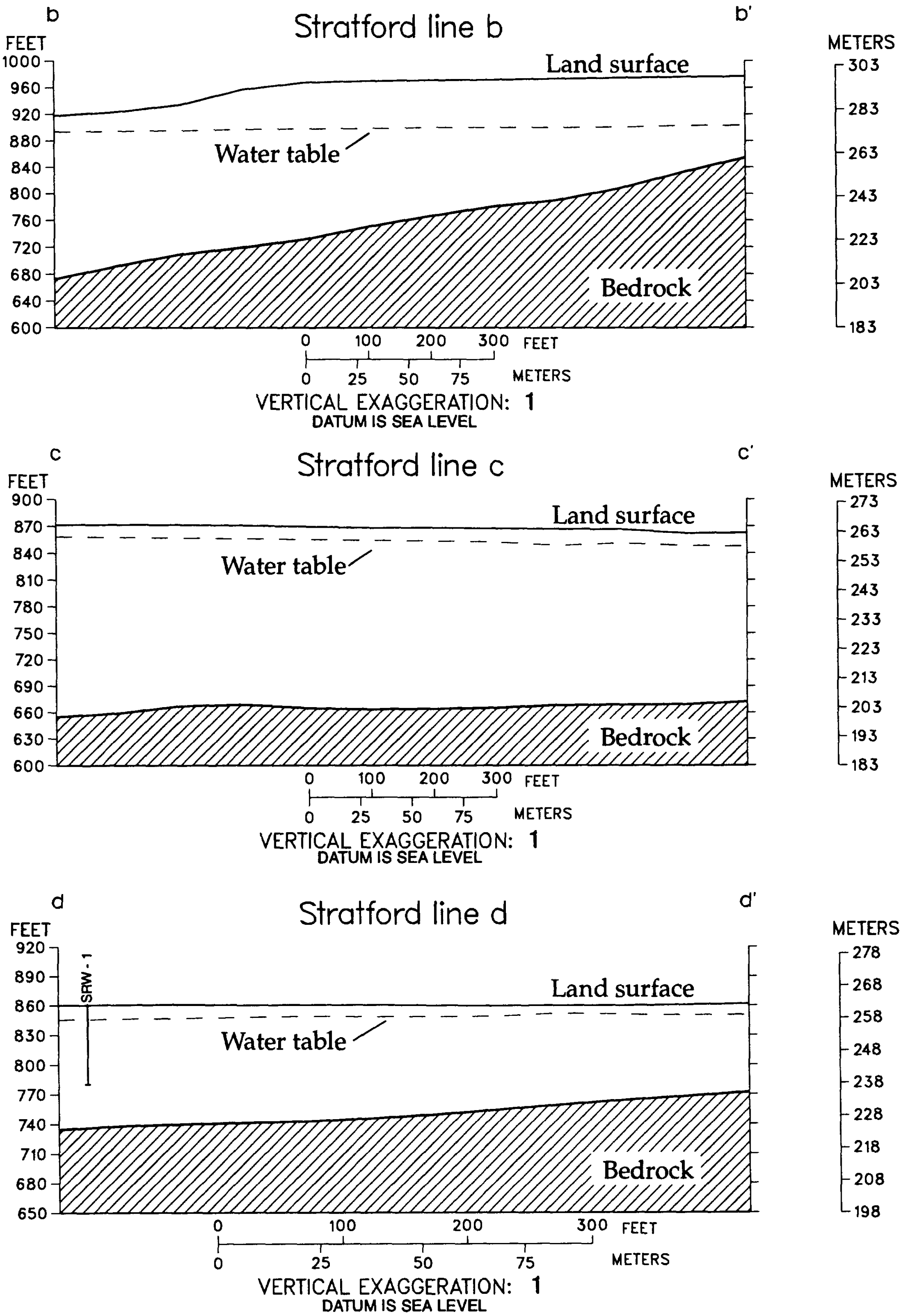

Figure C16. Geohydrologic sections interpreted from seismic-refraction data for Stratford lines b-b', c-c' and d-d' (locations shown on plates 2 and 3).

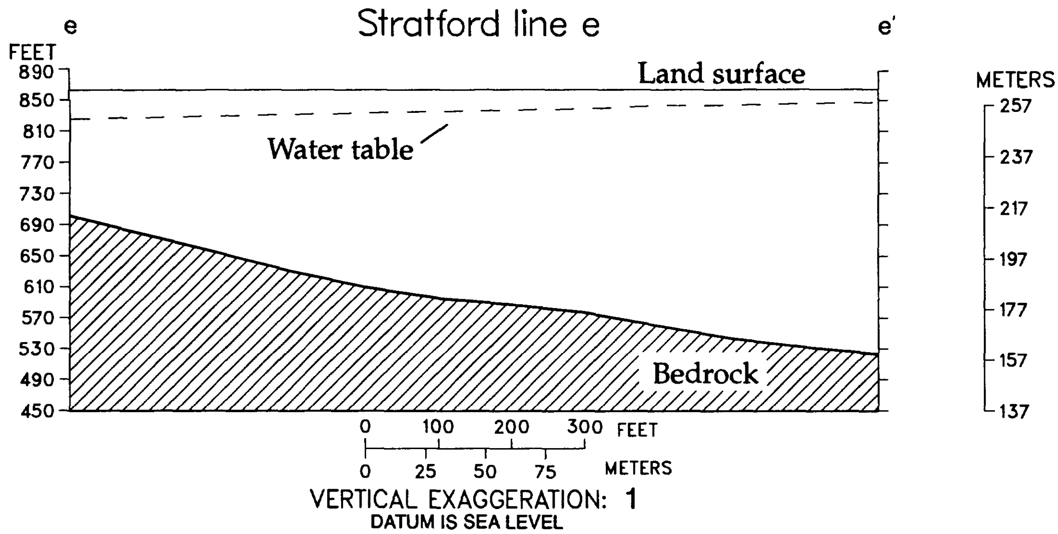

Figure C17. Geohydrologic sections interpreted from seismic-refraction data for Stratford line e-e' (location shown on plate 2).

— PAGE 159 FOLLOWS —

APPENDIX D

— PAGE 161 FOLLOWS —

Appendix D. Low-streamflow measurement sites in the Upper Connecticut and Androscoggin River Basins, northern New Hampshire

[°, degree, ′, minutes; ″, seconds; mm-dd-yy, month-day-year; ft³/s, cubic feet per second]

Name (plate reference number)	Tributary to	Latitude ° ′ ″	Longitude ° ′ ″	Date (mm-dd-yy)	Discharge (ft³/s)
Perry Stream (1)	Connecticut River	45 05 06	071 19 13	09-10-92	21
Indian Stream (2)	Connecticut River	45 03 55	071 26 18	09-10-92	42
Bishop Brook (3)	Connecticut River	44 57 45	071 27 08	09-10-92	1.6
Bishop Brook (4)	Connecticut River	44 59 55	071 29 07	09-10-92	5.0
Beaver Brook (5)	Mohawk River	44 54 35	071 28 34	09-10-92	2.5
Beaver Brook (6)	Mohawk River	44 53 49	071 29 42	09-10-92	2.5
Mohawk River (7)	Connecticut River	44 53 33	071 29 37	09-10-92	20
Cone Brook (8)	Connecticut River	44 49 02	071 34 05	09-10-92	3.5
Cone Brook (9)	Connecticut River	44 48 43	071 34 23	09-10-92	3.0
Lyman Brook (10)	Connecticut River	44 46 58	071 35 15	09-10-92	7.2
Kimball Brook (11)	Connecticut River	44 44 30	071 37 20	09-10-92	.2
Bog Brook (12)	Connecticut River	44 39 04	071 33 29	09-10-92	8.7
Phillips Brook (13)	Upper Ammonoosic River	44 38 13	071 19 41	09-10-92	22
Phillips Brook (14)	Upper Ammonoosic River	44 37 48	071 19 44	09-10-92	Ponded
Upper Ammonoosuc River (15)	Connecticut River	44 37 17	071 21 39	09-10-92	52
Upper Ammonoosuc River (16)	Connecticut River	44 35 56	071 25 19	09-10-92	62
Nash Stream (17)	Upper Ammonoosic River	44 38 52	071 27 56	09-10-92	19
Nash Stream (18)	Upper Ammonoosic River	44 38 34	071 27 51	09-10-92	18
Nash Stream (19)	Upper Ammonoosic River	44 37 41	071 27 55	09-10-92	20
Upper Ammonoosuc River (20)	Connecticut River	44 37 30	071 28 12	09-10-92	93
Upper Ammonoosuc River (21)	Connecticut River	44 37 03	071 28 52	09-10-92	94
Israel River (22)	Connecticut River	44 23 13	071 28 49	09-09-92	19
Priscilla Brook (23)	Connecticut River	44 23 33	071 28 40	09-09-92	2.2
Israel River (24)	Connecticut River	44 24 43	071 29 54	09-09-92	24
Israel River (25)	Connecticut River	44 26 41	071 31 43	09-09-92	23
Otter Brook (26)	Israel River	44 28 38	071 31 58	09-09-92	11
Israel River (27)	Connecticut River	44 28 49	071 33 01	09-09-92	45
Clear Stream (28)	Androscoggin River	44 47 58	071 12 57	09-09-92	9.2
Corser Brook (29)	Clear Stream	44 48 04	071 11 37	09-09-92	1.2
Clear Stream (30)	Androscoggin River	44 47 56	071 10 43	09-09-92	20
Peabody River (31)	AndroscogginRiver	44 21 27	071 11 19	09-09-92	45
Peabody River (32)	Androscoggin River	44 23 10	071 09 59	09-09-92	49
Leadmine Brook (33)	Androscoggin River	44 24 52	071 07 02	09-09-92	.3
Leadmine Brook (34)	Androscoggin River	44 24 37	071 06 36	09-09-92	.03