DELAWARE

By I. W. Marine

Scope of Water-Level Program

In 1943 the towns of Lewes and Rehoboth entered into cooperation with the U. S. Geological Survey in order to study salt-water encroachment on wells in that area. Three observation wells were established, of which one, Ni 3, had observations continued on the statewide program in 1952. Cooperation with the town was concluded in 1950. In December 1949 the State of Delaware, through the Agricultural Extension Service of the University of Delaware and the Highway Department, cooperated with the U. S. Geological Survey for the purpose of making a reconnaissance study of ground water within the State. In the fall of 1950, under the cooperative agreement with the Agricultural Extension Service of the University of Delaware, 13 water-table wells were established for measurement. Beginning July 1, 1951, cooperation was transferred to the Delaware Geological Survey of the University of Delaware, and measurements continued the remainder of the year. Cooperation was also established with the Delaware Geological Survey representing the city of Newark for a detailed study of the Newark area. An additional observation well, Cb 123, was established in the course of this program.

Throughout the State there are 16 shallow wells which are measured with a steel tape at the end of every month. Thirteen of these wells were installed in September and October 1950. Measurements of the water level of well Cb 123 was begun on June 4, 1951. The Soil Conservation Service, U. S. Department of Agriculture, maintains recording gages on wells Rf 1 and Rf 2; however, the tape measurements published herein were made by the U. S. Geological Survey. Weekly recording gages were operated in the municipal well field of the towns of Lewes, New Castle, and Newark. A recording gage was installed at the Governor Bacon Health Center, Delaware City, and water-level records began on March 9, 1952. The total number of wells, for which water levels are published in 1952, is 20.

Two well field tests were run during 1952 on the aquifer at Newark. A report entitled "Ground-Water Problems in Highway Construction and Maintenance" by William C. Rasmussen and Leon B. Haigler was released to the open file in 1952. Although this report does not give any water-level measurements it does list quicksand areas in Delaware, which represent zones of seeps and springs. A problem in road subdrainage near Laurel, Sussex County, is described and illustrated in the report. Observation well Qc 4 was established at this site at the edge of the road to observe the rise and fall of water level beneath the road. Records in the table presented here show that in March 1952 the water level rose to within 0.19 foot of the land surface in this well, or within 3½ feet of the crown of the road. It is probable that part of the capillary zone extended to the road course at this time. It appears that the present tile drains, beneath the ditch on the south side of the road, may not be intercepting sufficient ground water to keep the road dry. A late frost, or ground freeze, while the water table is high could damage the road.

Precipitation

The year of 1952 was one of high precipitation in Delaware with a total of 51.02 inches which was 7.00 inches above average for eleven stations throughout the State. Only three months, February, September, and October, had rainfall below average. Of these, October was the driest with 2.31 inches below average and reflected the regional drought experienced throughout the central and eastern United States. November was the month of greatest departure with 2.54 inches above average. March, April, and May had a combined above-average departure of 5.19 inches.

Pumpage

The average daily pumpage at the Governor Bacon Health Center, a State home for the aged, orphans, and infirm, was 74,500 gallons per day in 1952. There are 360 patients at this institution. The major part of the daily average pumpage at Lewes, which was 362,600 gallons per day in 1952, was produced from the well field in which observation well Ni 3 is located. The daily average pumpage at Newark was 636,500 gallons per day in 1952. This was augmented by an average of 146,580 gallons per day from a private water company using a surface source.

The well field at New Castle produced an average of 533,000 gallons per day of which approximately 6.3 percent was for industrial usage.

Interpretation of Water-Level Fluctuations

During 1952 the average water level of 13 water-table wells throughout the State fluctuated sympathetically with the State average precipitation. There was a general rise of the average water level from the beginning of the year until April when the water level began to decline. A low point was reached in October after which the water level rose through the month of December. This repeats the general pattern followed in 1951; however, the average water level for the year 1951 was 7.60 feet below average land-surface datum whereas that for 1952 was 6.29 feet, a rise of 1.31 feet. The Bacon Health Center is supplied by three wells, of which two are about 150 feet from observation well Ec 11 and are of equal capacity. One of the closer wells was being pumped at about 100 gallons per minute for about 9 hours a day until April 27, 1952 when both of the closer wells, pumping an aggregate of 130 gallons per minute, started. The two wells continued to pump simultaneously for about 9 hours a day for the rest of the year. The water level in Ec 11 reflected this change in regimen of the well field. The high water level of May 27, 1952 is caused by a 48 hour recovery after 24 hours of continuous pumping. The third well, which has a capacity of 30 gallons per minute, is about 1,100 feet from the observation well and affects the water level in Ec 11 to only a small degree. The water level in observation well Ni 3, in Lewes, averaged about 17 feet below land surface for 1952. During the period of record, there is no apparent trend. The well faithfully records the fall of water level in response to pumping the nearby city wells, and the recovery after pumping ceases. The daily envelope curves of high and low water level follow, in a general way, the rainfall pattern for the year. During the period of water-level record there is no apparent upward or downward trend in observation well Ca 3. The normal pumping regimen of the Newark well field was disturbed during a period from March 6 to May 9 due to the operation of two well field tests within that period. Well Cb 123, about 2,100 feet from the city well field, departed from its natural fluctuations during the 8¾-day full capacity pump test, which ended May 8, 1952, by recording a steady decline during the latter part of that period, reaching a total drawdown of 0.7 foot. In the summer of 1952, a new well 132 feet deep was ready for production and was used intermittently for the remainder of the year. The general rise in water level in well Cd 2 reflects the diminished pumpage from the shallow aquifer when this deeper well is pumping. Since the shallow aquifer is recharged locally, the water level also reflects the precipitation in the area.

Acknowledgments

The recording gage at New Castle is voluntarily checked each week by Oliver Henderson, Chemist, under the direction of Joseph S. Benton, Water Superintendent. The recording gage chart at Lewes is changed weekly by the plant operator, Clyde F. House. The recording gage at the Governor Bacon Health Center, Delaware City, is maintained by Carl Jorgenson, plant operator.

Well-Numbering System

The State of Delaware is divided into 5-minute quadrangles of latitude and longitude as shown in figure 1. To designate the wells, the quadrangles are lettered north to south with uppercase letters and west to east with lowercase letters. A quadrangle is indicated by two letters with the capital letter being given first. Within the quadrangles the wells were numbered in the order they were scheduled.

Well Descriptions and Water-Level Measurements

(Water-level measurements are in feet below lsd, unless otherwise indicated.)

Kent County

Ic 4. State Highway Department. Lat. 39°14', long. 75°39'. Driven observation water-table well, diameter 1 inch, depth 12 feet. Land-surface datum is about 60 feet above msl. Highest water level 2.44 below lsd, May 1, 1952; lowest 5.54 below lsd, Oct. 1, 1951. Records available: 1950-52.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	3.17	May 1	2.44	July 28	4.23	Oct. 30	5.04
Feb. 29	3.76	30	3.63	Sept. 3	4.25	Nov. 26	4.35
Mar. 31	3.34	June 30	4.19	Oct. 1	1.80	Dec. 29	4.40

Id 4. State Highway Department. Lat. 39°13', long. 75°34'. Near Cheswold. Driven observation water-table well, diameter 1 inch, depth 14 feet. Land-surface datum is about 40 feet above msl. Highest water level 2.48 below lsd, May 1, 1952; lowest 8.61 below lsd, Oct. 10, 1950. Records available: 1950-52.

Id 4--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	2.65	May 1	2.48	July 28	5.73	Oct. 30	6.96
Feb. 27	3.64	30	3.56	Sept. 3	4.56	Nov. 26	5.58
Mar. 31	3.23	June 30	5.18	Oct. 1	5.93	Dec. 29	4.22

Jd 11. State Highway Department. Lat. 39°00', long. 75°33'. Near Camden. Driven observation water-table well, diameter 1 inch, depth 15 feet. Land-surface datum is about 50 feet above msl. Highest water level 3.08 below lsd, June 2, 1952; lowest 9.16 below lsd, Oct. 30, 1951. Records available: 1950-52.

Jan. 30	4.81	Apr. 29	3.37	July 28	4.65	Dec. 1	5.60
Feb. 27	4.77	June 2	3.08	Aug. 28	4.18	29	5.06
Apr. 1	4.16	30	4.14	Oct. 30	5.59		

Ke 4. State Highway Department. Lat. 39°01', long. 75°27'. Near Frederica. Driven observation water-table well, diameter 1 inch, depth 17 feet. Land-surface datum is about 22 feet above msl. Highest water level 4.13 below lsd, June 2, 1952; lowest 12.89 below Dec. 1, 1950. Records available: 1950-52.

Jan. 30	7.05	Apr. 29	4.58	July 30	6.97	Oct. 30	8.87
Feb. 29	6.75	June 2	4.13	Aug. 28	6.70	Dec. 1	9.49
Apr. 4	5.20	30	7.09	Oct. 1	7.50	29	8.41

Ld 8. State Highway Department. Lat. 39°56', long. 75°34'. Driven observation water-table well, diameter 1 inch, depth 13 feet. Land-surface datum is about 52 feet above msl. Highest water level 1.28 below lsd, June 2, 1952; lowest 7.28 below lsd, Oct. 1, 1951. Records available: 1950-52.

Jan. 30	2.62	May 2	1.94	July 28	4.91	Oct. 30	6.13
Feb. 27	2.66	June 2	1.28	Aug. 28	4.07	Dec. 1	4.88
Apr. 1	2.27	30	4.22	Oct. 2	5.27	29	3.75

New Castle County

Bd 10. F. B. Crowninshield. Lat. 39°47', long. 75°34'. Dug unused water-table well in weathered gabbro, diameter 42 inches, depth 23 feet, curbed with stone. Land-surface datum is about 250 feet above msl. Highest water level 10.30 below lsd, May 2, 1952; lowest 15.44 below lsd, Oct. 29, 1951. Records available: 1950-52.

Jan. 28	11.77	May 2	10.30	July 28	11.20	Oct. 30	13.75
Feb. 28	12.64	30	10.75	Sept. 3	12.08	Nov. 26	13.30
Mar. 31	11.40	June 30	12.00	Oct. 1	13.25	Dec. 29	13.26

Ca 3. City of Newark. Lat. 39°40', long. 75°45'. Academy St. and Water Works Lane. Drilled unused artesian well in Patuxent [redacted] Cretaceous. Land-surface datum is about 100 feet above msl. Highest water level 20.60 below lsd, Apr. 28, 1952; lowest 33.56 below lsd, Jan. 20, 1951. Records available: 1950-52.

Daily lowest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29.83	29.07	27.44	25.86	27.90	27.77	28.78	28.61	.....	29.98	30.74	30.78
2	29.88	28.99	27.39	25.68	29.09	27.77	28.78	28.67	27.64	30.06	30.89	.....
3	29.93	28.91	27.34	25.64	29.86	27.95	28.81	28.41	.....	30.20	31.00	.....
4	29.95	28.87	27.18	25.61	30.48	27.84	28.74	28.02	.....	30.35	31.10	.....
5	29.64	29.00	27.21	25.52	30.83	27.75	28.62	28.30	28.15	30.26	31.03	.....
6	29.88	28.93	27.28	25.39	31.19	27.77	28.66	28.17	28.25	30.07	31.20	30.96
7	29.85	28.79	27.27	25.39	31.48	27.84	28.73	28.53	28.37	30.29	31.14	e31.06
8	29.89	28.64	27.26	25.37	31.59	27.77	28.77	28.41	28.55	30.43	31.14	e31.19
9	29.91	28.48	27.24	25.33	31.59	27.75	e28.77	28.04	28.75	30.48	30.99	.....
10	29.93	28.63	27.12	25.26	.....	27.83	.....	27.98	28.93	30.38	31.10	.....
11	29.83	28.61	26.98	25.15	.....	27.79	28.42	.....	29.34	30.22	31.20	.....
12	29.86	28.50	27.04	25.15	.....	27.81	28.57	.....	29.61	30.28	31.30	31.59
13	29.86	28.31	27.00	25.09	.....	27.91	28.47	.....	29.62	30.30	31.46	31.66
14	29.85	28.03	26.76	24.96	27.97	27.88	28.31	.....	29.35	30.51	31.38	31.53
15	29.86	28.21	26.73	24.92	28.20	27.91	28.36	.....	29.42	30.64	31.12	31.47
16	29.80	28.32	26.58	24.84	28.04	28.14	28.43	.....	29.52	30.71	31.10	31.49
17	29.80	28.09	26.47	24.92	28.06	28.21	28.34	.....	29.68	30.71	31.22	31.45
18	29.80	27.57	26.47	24.65	28.05	e28.55	28.47	.....	29.65	30.55	31.38	31.55
19	29.87	27.72	26.43	e24.61	28.08	.....	28.40	.....	29.66	30.71	31.34	31.46
20	29.64	27.80	26.29	e24.78	28.01	.....	28.41	.....	29.55	30.72	31.38	31.22

formation, diameter 8 inches, depth 67 feet. Land-surface

Ca 3--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	29.70	27.80	26.21	24.75	28.12	28.35	28.32	.....	29.65	30.87	31.38	31.00
22	29.71	27.75	26.10	24.73	28.16	28.33	28.41	28.09	29.47	30.95	31.36	30.79
23	29.61	27.67	26.02	24.65	.....	28.39	28.46	28.23	29.53	30.95	31.24	30.89
24	29.66	27.44	25.91	24.67	.....	28.37	28.51	28.26	29.68	31.02	31.36	30.88
25	29.59	27.08	25.89	25.14	.....	28.34	28.61	28.02	29.79	31.02	31.50	30.84
26	29.52	27.31	26.32	.....	.....	29.01	28.43	28.09	29.75	31.10	31.60	30.52
27	29.41	27.47	27.40	.....	27.81	28.37	28.47	28.21	28.86	31.16	31.02	30.44

[redacted]

Cb 123. University of Delaware, Agricultural Experiment Station. Lat. 39°40', long. 75°44'. Near Newark. Driven observation water-table well, diameter 1¼ inches, depth 26 feet. Land-surface datum is about 90 feet above msl. Highest water level 6.50 below lsd, May 1, 1952; lowest 11.25 below lsd, Oct. 29, 1951. Records available: 1951-52.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	7.80	May 1	6.50	July 28	10.04	Oct. 30	10.60
Feb. 28	7.94	30	6.95	Sept. 3	9.08	Nov. 26	9.87
Mar. 31	7.13	June 30	8.41	Oct. 1	9.65	Dec. 29	9.55

[redacted]

2	8.15	7.46	6.35	6.38	6.73	5.94	5.79	5.39	4.84	6.06	6.89	6.75
3	8.15	7.45	6.31	6.50	6.56	5.23	5.85	5.03	5.21	6.23	6.89	7.09
4	8.19	6.97	6.46	6.54	6.39	5.30	5.94	4.81	5.43	5.94	4.95	7.26
5	8.21	7.07	6.68	6.52	6.46	5.54	5.63	4.94	5.69	5.94	5.79	7.36
6	8.19	7.08	6.79	6.49	6.35	5.73	5.54	4.89	5.73	....	6.09	7.13
7	7.89	6.99	6.83	6.19	6.33	5.65	5.39	4.94	5.84	....	6.57	7.15
8	8.19	7.03	6.81	6.14	6.41	5.69	5.69	4.62	5.89	....	6.71	6.93
9	8.09	6.81	6.84	6.19	6.37	5.25	5.74	4.95	5.94	....	6.79	7.16
10	8.19	6.59	6.58	6.21	6.24	5.42	5.67	4.75	6.09	....	6.80	7.31
11	8.18	6.09	6.74	6.31	6.14	5.54	5.65	4.57	6.23	5.84	7.01	7.34
12	8.27	6.39	6.79	6.34	6.05	5.65	5.72	4.71	6.31	5.71	7.09	7.34
13	8.30	6.50	6.81	6.31	6.29	5.71	5.68	4.75	6.46	6.21	7.30	6.14
14	8.09	6.87	6.85	5.86	6.32	5.81	5.31	4.76	6.54	6.52	7.37	6.04
15	8.24	6.89	6.84	6.05	6.24	5.81	5.75	4.88	6.44	6.69	7.38	6.19
16	8.48	6.93	6.83	6.15	6.50	5.65	5.75	4.95	4.64	6.84	7.43	6.63
17	8.56	6.96	6.60	6.19	6.51	5.61	5.65	5.24	3.64	6.97	7.04	6.69
18	8.72	6.56	6.69	6.16	6.51	5.33	5.54	5.24	3.45	6.95	7.24	6.94
19	8.69	6.62	6.70	6.31	6.59	5.17	5.75	4.86	2.66	6.40	7.29	7.22
20	8.51	6.87	6.74	6.19	6.45	5.19	5.92	4.79	3.55	6.46	4.90	7.35
21	8.40	6.96	6.76	6.45	6.36	5.42	6.04	4.74	4.34	6.53	3.82	7.36
22	8.54	6.94	6.78	6.40	6.61	5.51	6.09	4.64	4.74	6.57	4.70	6.91
23	8.56	6.77	6.76	6.73	6.79	5.25	5.94	5.01	5.11	6.59	4.31	7.24
24	8.49	6.79	6.17	6.95	6.72	5.34	6.04	5.31	5.34	4.03	5.01	7.41
25	8.52	6.24	6.34	7.05	6.59	5.03	6.14	5.09	5.44	4.86	5.34	7.07
26	8.20	6.41	6.40	6.99	6.49	4.88	6.19	4.89	5.59	5.23	5.56	6.61
27	7.93	6.52	6.65	6.77	6.40	4.93	6.21	4.84	5.69	5.41	5.64	6.54
28	7.74	6.58	6.77	6.59	6.62	5.24	5.87	4.83	5.79	5.70	6.43	6.44
29	7.73	6.67	6.61	6.55	6.19	5.41	5.57	4.76	5.51	6.04	6.26	6.57
30	7.58		6.59	6.76	6.17	5.47	5.44	5.06	5.73	6.33	6.10	6.79
31	7.70		6.51		6.04		5.36	5.18		6.59		7.12

Ec 7. State Highway Department. Lat. 39°31', long. 75°39'. Driven observation water-table well, diameter 1 inch, depth 11 feet. Land-surface datum is about 35 feet above msl. Highest water level 0.60 below lsd, May 1, 1952; lowest 2.79 below lsd, July 30, 1951. Records available: 1950-52.

Ec 7--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	1.28	May 1	0.60	July 28	1.10	Oct. 30	1.47
Feb. 29	1.27	30	.80	Sept. 3	.99	Nov. 26	1.33
Mar. 31	.97	June 30	.92	Oct. 1	1.28	Dec. 29	1.52

Ec 11. Governor Bacon Health Center. Lat. 39°34', long. 75°35'. In well field compound of Governor Bacon Health Center, 125 feet south of pump house. Drilled unused artesian well in sand of Cretaceous age, diameter 6 inches, depth 157 feet, cased to 157. Land-surface datum is about 15 feet above msl. Highest water level 25.2 below lsd, May 27, 1952; lowest 64.2 below lsd, July 2, 1952. Records available: 1952.

Daily lowest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	....	....	37.1	46.8	51.1	60.5	61.1	57.4	51.3	51.8	49.2
2	....	....	....	37.5	46.8	49.3	64.2	58.8	58.2	51.4	54.5	52.0
3	....	....	....	37.2	44.4	52.5	58.7	55.7	58.8	49.7	53.6	49.7
4	....	....	....	38.0	46.8	52.5	60.4	58.3	58.5	51.0	52.7	51.4
5	....	....	....	35.3	39.7	51.6	57.2	55.0	59.5	52.1	55.6	50.7
6	....	....	....	37.3	44.1	e53.0	58.2	58.9	51.9	50.3	52.4	52.4
7	....	....	....	40.0	e44.4	50.1	60.7	58.6	58.2	51.8	54.2	50.7
8	....	....	....	41.0	e44.4	51.8	60.6	....	61.5	51.3	48.8	54.0
9	....	....	39.6	43.0	47.5	55.0	59.2	57.8	60.6	53.5	52.0	55.5
10	....	....	39.6	39.0	47.1	58.8	57.1	53.0	58.0	52.4	48.0	57.1
11	....	....	40.4	46.9	44.0	....	60.2	59.0	54.3	52.8	51.3	60.5
12	....	....	....	36.2	47.3	54.0	60.5	58.7	57.5	52.1	52.7	55.0
13	....	....	38.2	34.6	48.7	54.3	....	52.6	55.7	53.0	48.2	51.7
14	....	....	38.0	33.9	46.9	55.3	e55.5	60.3	54.3	53.4	53.6	53.2
15	....	....	36.4	35.0	47.9	54.1	54.8	60.1	56.1	52.1	52.1	53.0
16	....	....	35.4	35.4	50.4	57.0	56.8	55.8	54.3	52.8	50.2	50.9
17	....	....	36.1	35.5	45.5	47.9	62.0	55.2	55.3	53.7	52.4	51.1
18	....	....	36.3	36.3	44.8	56.9	62.0	54.2	57.2	52.8	53.7	53.2
19	....	....	35.6	35.3	47.8	57.8	61.2	58.5	....	51.1	52.5	54.8
20	....	....	36.9	35.1	42.3	47.8	59.6	60.4	53.8	52.8	45.5	51.8
21	....	....	35.7	35.6	51.3	56.3	59.8	....	55.4	54.3	52.1	51.5
22	....	....	35.6	36.5	49.1	50.7	60.2	....	56.4	53.0	50.7	51.4
23	....	....	35.8	36.9	50.2	47.7	60.0	....	56.2	53.0	51.8	51.9
24	....	....	36.0	35.2	44.5	56.2	59.6	46.1	51.5	54.7	52.4	49.5
25	....	....	36.9	36.4	54.2	58.0	60.7	57.0	56.4	53.4	52.0	49.1
26	....	....	36.4	35.1	58.6	60.3	61.1	59.2	55.5	51.2	52.4	50.6
27	....	....	37.1	47.1	25.2	59.1	58.1	58.3	e49.0	51.8	50.7	47.9
28	....	....	36.4	47.6	46.0	56.5	59.7	....	....	54.5	50.2	37.2
29	....	....	37.1	48.0	44.1	57.9	60.6	60.2	....	52.0	51.5	45.0
30	....		36.5	47.0	44.4	59.8	61.8	54.2	53.6	53.8	47.3	49.6
31	....		36.2		47.5		60.2	57.3		55.0		49.8

e Estimated.

Gc 5. State Highway Department. Lat. 39°21', long. 75°38'. Near Blackbird. Driven observation water-table well, diameter 1 inch, depth 10 feet. Land-surface datum is about 40 feet above msl. Highest water level 0.12 below lsd, May 1, 1952; lowest 3.20 below lsd, Oct. 30, 1952. Records available: 1950-52.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	0.22	May 1	0.12	July 28	2.36	Oct. 30	3.20
Feb. 29	1.43	30	1.38	Sept. 3	1.46	Nov. 26	1.64
Mar. 31	.68	June 30	2.36	Oct. 1	2.77	Dec. 29	1.66

Sussex County

Mf 3. State Highway Department. Lat. 38°53', long. 75°23'. Driven observation water-table well, diameter 1 inch, depth 27 feet. Land-surface datum is about 40 feet above msl. Highest water level 13.45 below lsd, June 2, 1952; lowest 20.87 below lsd, Dec. 1, 1950. Records available: 1950-52.

Jan. 30	17.27	Apr. 29	14.02	July 30	14.00	Oct. 30	16.72
Feb. 29	15.61	June 2	13.45	Aug. 28	14.52	Dec. 1	17.92
Apr. 4	14.28	30	13.72	Oct. 1	15.75	29	18.06

Nc 6. P. H. Cannon. Lat. 38°46', long. 75°35'. Near Greenwood. Driven observation water-table well, diameter 1 inch, depth 15 feet. Land-surface datum is about 43 feet above msl. Highest water level 6.67 below lsd, Jan. 30, 1952; lowest 9.71 below lsd, Oct. 2, 1951. Records available: 1950-52.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	6.67	May 2	7.73	July 28	9.51	Oct. 30	9.66
Feb. 27	8.11	June 2	8.36	Aug. 28	8.58	Dec. 1	8.92
Apr. 1	7.48	30	9.16	Oct. 2	9.45	29	8.36

Nc 1. State Highway Department. Lat. 38°47', long. 75°26'. Driven observation water-table well, diameter 1 inch, depth 14 feet. Land-surface datum is about 50 feet above msl. Highest water level 1.13 below lsd, Apr. 29, 1952; lowest 6.23 below lsd, Oct. 31, 1950. Records available: 1950-52.

Jan. 30	1.32	Apr. 29	1.13	July 30	4.84	Oct. 30	5.49
Feb. 29	1.78	June 2	1.37	Aug. 28	2.92	Dec. 1	2.79
Apr. 4	1.87	30	4.04	Oct. 1	4.91	29	2.06

Ni 3. City of Lewes. Lat. 38°45', long. 75°09'. Drilled observation artesian well, diameter 6 inches, depth 84 feet. Land-surface datum is about 20 feet above msl. Highest water level 14.27 below lsd, May 3, 1952; lowest 21.74 below lsd, Sept. 25, 1947. Records available: 1947-48, 1950-52.

Daily lowest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	18.57	17.70	17.55	16.57	15.87	16.33	16.66	17.67	16.87	.....	15.80	17.50
2	18.55	17.58	17.47	16.58	15.72	16.27	16.85	17.27	16.72	17.90	17.32	17.23
3	18.65	17.49	17.37	16.56	14.27	16.39	16.87	17.07	17.29	17.46	17.70	16.94
4	18.67	17.27	17.37	16.57	15.82	16.44	17.11	.....	17.57	17.69	17.62	17.38
5	18.45	17.43	17.30	16.62	15.82	16.49	16.94	.....	17.75	17.98	17.67	17.29
6	18.39	17.38	17.19	16.57	15.76	16.49	16.87	.....	17.32	17.90	17.60	17.18
7	18.45	17.47	17.27	16.56	14.30	16.67	16.72	.....	17.28	17.83	17.61	17.25
8	18.39	17.57	17.38	16.57	15.98	16.14	16.77	.....	17.30	17.49	17.50	.....
9	18.36	17.57	17.17	16.61	14.39	16.67	16.68	.....	17.30	17.57	17.45	.....
10	18.31	17.50	17.27	16.53	16.20	16.33	14.89	.....	17.66	.....	17.49	.....
11	18.31	17.40	17.06	16.63	16.09	16.35	15.27	.....	17.73	.....	17.11	.....
12	18.28	17.47	16.97	16.56	16.45	16.54	15.52	.....	17.63	.....	17.57	17.11
13	18.17	17.37	16.97	16.40	16.38	16.39	15.05	.....	17.28	.....	17.56	16.70
14	18.17	17.29	17.03	16.33	16.44	16.69	15.47	.....	16.97	.....	17.63	17.29
15	18.13	.....	17.04	16.65	16.61	16.47	15.29	.....	17.56	.....	17.68	17.50
16	18.13	.....	17.09	16.57	16.17	16.37	15.35	.....	17.47	17.79	17.50	17.36
17	18.17	.....	17.07	16.70	16.37	16.16	15.40	.....	17.86	17.78	17.38	17.21
18	18.12	.....	17.07	16.22	16.37	16.26	15.39	.....	17.20	17.90	17.63	17.30
19	18.12	.....	17.01	16.84	16.52	16.40	15.83	.....	.....	17.28	17.67	17.30
20	18.07	.....	17.12	16.86	16.50	16.37	14.84	.....	.....	17.77	17.46	15.50
21	18.18	17.81	17.11	16.97	16.70	16.42	17.17	17.15	.....	17.70	17.22	17.15
22	18.04	17.94	17.17	16.86	16.75	16.25	17.29	17.15	.....	17.02	17.45	16.93
23	18.35	17.51	17.20	16.65	16.79	16.28	17.44	17.29	.....	17.42	17.25	17.32
24	18.04	17.69	17.20	16.68	16.71	16.53	17.43	16.99	.....	17.10	17.48	17.19
25	17.95	17.66	16.87	16.48	16.52	16.72	17.36	17.23	.....	17.50	.....	17.05
26	17.77	17.41	16.73	16.57	16.63	16.70	17.35	17.14	.....	17.42	.....	17.37
27	17.83	17.36	16.67	16.56	16.67	16.54	17.19	17.21	.....	17.41	.....	17.42
28	17.87	17.67	16.56	16.48	16.68	16.97	17.27	17.44	.....	17.00	.....	.....
29	17.86	17.67	16.61	16.61	16.79	16.59	17.45	17.19	.....	17.47	17.79	.....
30	17.84		16.67	16.61	16.64	16.61	17.58	16.97	.....	17.61	17.10	.....
31	17.77		16.61		16.48		17.62	17.03		17.50		.....

Pg 4. State Highway Department. Lat. 38°36', long. 75°19'. Near Millsboro. Driven observation water-table well, diameter 1 inch, depth 22 feet. Land-surface datum is about 30 feet above msl. Highest water level 13.88 below lsd, Apr. 4, 1952; lowest 16.65 below lsd, Nov. 30, 1950. Records available: 1950-52.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	15.04	Apr. 25	14.07	July 30	14.71	Oct. 30	15.38
Feb. 29	14.20	June 2	14.25	Aug. 28	14.79	Dec. 1	15.46
Apr. 4	13.88	30	14.43	Oct. 1	15.52	29	15.28

Qc 4. State Highway Department. Lat. 38°33', long. 75°36'. Driven observation water-table well, diameter 1 inch, depth 8 feet. Land-surface datum is about 15 feet above msl. Highest water level 0.19 below lsd, Apr. 1, 1952; lowest 3.04 below lsd, Oct. 2, 1951. Records available: 1950-52.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	1.15	Apr. 25	0.65	July 28	1.76	Oct. 30	2.34
Feb. 27	.73	June 2	.76	Aug. 28	1.41	Dec. 1	2.27
Apr. 1	.19	30	1.21	Oct. 2	1.85	29	2.03

Rf 1. Harvey Collins. Lat. 38°28', long. 75°20'. Gumboro-Selbyville Rd. Driven observation water-table well, diameter 12 inches, depth 6 feet. Land-surface datum is 39.0 feet above msl. Highest water level 38.9 above msl, Aug. 4, 1948; lowest dry summers, 194[illegible]

Jan. 30	36.02	Apr. 25	35.52	July 30	(f)	Oct. 30	(f)
Feb. 29	34.71	June 2	35.61	Aug. 28	(f)	Dec. 1	35.58
Apr. 4	34.90	30	33.36	Oct. 1	(f)	29	34.31

f Dry.

Rf 2. Harvey Collins. Lat. 38°28', long. 75°20'. Near Gumboro-Selbyville Rd. Driven observation water-table well, diameter 12 inches, depth 9 feet. Land-surface datum is 36.7 feet above msl. Highest water level 36.7 below lsd, Mar. 8, 1948; lowest 30.76 below lsd, Oct. 31, 1952. Records available: 1947-52.

Jan. 30	34.50	Apr. 25	32.86	July 30	31.61	Oct. 30	30.76
Feb. 29	32.75	June 2	34.70	Aug. 28	32.26	Dec. 1	33.62
Apr. 4	33.82	30	32.51	Oct. 1	31.35	29	34.05